

# APPLICATION

## Waiver of Procedures and Timelines Consolidated Certificate of Corridor Compatibility and Route Permit

### LIGNITE PIPELINE

Submitted to the  
North Dakota Public Service Commission

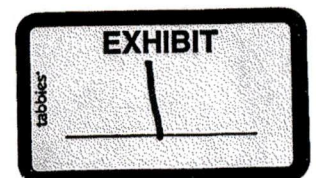
Basin Transload  
3529 Gabel Road  
Billings, MT 59102

Prepared by:  
**Electrical Consultants, Inc.**  
3521 Gabel Rd  
Billings, MT 59102  
Phone: (406)259-9933  
Fax: (406) 259-3441

24 **PU-12-775** Filed: 12/28/2012 Pages: 300  
Exhibit 1

November 2012  
V5

Basin Transload, LLC



# TABLE OF CONTENTS

---

<b>Section A Description .....</b>	<b>1-1</b>
1.1 Type .....	1-1
1.1.1 Purpose.....	1-1
1.1.2 Technology .....	1-1
1.2 Product.....	1-4
1.3 Size and Design.....	1-4
1.4 Time Schedule .....	1-6
1.4.1 Certificate of Corridor Compatibility Application .....	1-6
1.4.2 Route Permit Application .....	1-6
1.4.3 Certificate of Corridor Compatibility and Route Permit .....	1-6
1.4.4 Right-of-way Acquisition Complete.....	1-7
1.4.5 Construction State Date .....	1-7
1.4.6 Construction Completion .....	1-7
1.4.7 Test Operations .....	1-7
1.4.8 In-Service Date .....	1-7
<b>Section B Studies .....</b>	<b>2-1</b>
2.1 Demographics .....	2-3
2.1.1 Description of Resources .....	2-3
2.1.2 Impacts.....	2-3
2.1.3 Mitigation.....	2-4
2.2 Land Use .....	2-4
2.2.1 Description of Resources .....	2-4
2.2.2 Impacts.....	2-4
2.2.3 Mitigation.....	2-5
2.3 Public Services.....	2-5
2.3.1 Description of Resources .....	2-5
2.3.2 Impacts.....	2-5
2.3.3 Mitigation.....	2-6
2.4 Human Health and Safety .....	2-6
2.4.1 Description of Resources .....	2-6
2.4.2 Impacts.....	2-6
2.4.3 Mitigation.....	2-6
2.5 Noise .....	2-7
2.5.1 Description of Resources .....	2-7
2.5.2 Impacts.....	2-7
2.5.3 Mitigation.....	2-8
2.6 Aesthetics.....	2-8
2.6.1 Description of Resources .....	2-8
2.6.2 Impacts.....	2-8
2.6.3 Mitigation.....	2-9
2.7 Cultural .....	2-9
2.7.1 Description of Resources .....	2-9
2.7.2 Impacts.....	2-10

# TABLE OF CONTENTS

---

	2.7.3 Mitigation.....	2-10
2.8	Recreation .....	2-10
	2.8.1 Description of Resources .....	2-10
	2.8.2 Impacts.....	2-10
	2.8.3 Mitigation.....	2-10
2.9	Economics.....	2-12
	2.9.1 Description of Resources .....	2-12
	2.9.2 Impacts.....	2-12
	2.9.3 Mitigation.....	2-15
2.10	Soils.....	2-15
	2.10.1 Description of Resources .....	2-15
	2.10.2 Impacts.....	2-17
	2.10.3 Mitigation.....	2-17
2.11	Geology and Groundwater Resources .....	2-17
	2.11.1 Description of Resources .....	2-17
	2.11.2 Impacts.....	2-18
	2.11.3 Mitigation.....	2-19
2.12	Water Resources .....	2-19
	2.12.1 Description of Resources .....	2-19
	2.12.2 Impacts.....	2-19
	2.12.3 Mitigation.....	2-21
2.13	Vegetation .....	2-21
	2.13.1 Description of Resources .....	2-21
	2.13.2 Impacts.....	2-23
	2.13.3 Mitigation.....	2-23
2.14	Wildlife .....	2-23
	2.14.1 Description of Resources .....	2-23
	2.14.2 Impacts.....	2-24
	2.14.3 Mitigation.....	2-25
2.15	Threatened, Endangered and Candidate Species .....	2-25
	2.15.1 Description of Resources .....	2-25
	2.15.2 Impacts.....	2-26
	2.15.3 Mitigation.....	2-27
<b>Section C Analysis of Need .....</b>		<b>3-1</b>
3.1	Analysis of Need.....	3-1
3.2	Feasible Alternatives.....	3-1
3.3	Deviations from Ten-Year Plan .....	3-1
<b>Section D Location .....</b>		<b>4-1</b>
4.1	Project Area .....	4-1
	4.1.1 Basin Transload Environmental Policy Statement .....	4-1
	4.1.2 Corridor and Route Siting Criteria.....	4-2
	4.1.3 Criteria of Corridor Evaluation and Route Selection.....	4-2
	4.1.4 Exclusion, Avoidance and Selection NDCC §49-22-09.....	4-7

# TABLE OF CONTENTS

---

4.1.5	Evaluation Criteria NDAC§ 69-06-08-02.....	4-9
4.1.6	Mitigation Measures .....	4-12
4.1.7	Participating Parties .....	4-13

## Appendix

Appendix A – Easements and Permits

Appendix B – Agency Responses

Appendix C – Environmental Studies

## List of Tables

Table 2-1	Agency Responses.....	2-1
Table 2-2	Demographics.....	2-3
Table 2-3	Prime Farmland .....	2-12
Table 2-4	Soils by Type.....	2-15
Table 4-1	Corridor Legal Descriptions.....	4-2
Table 4-2	Selection Criteria .....	4-10
Table 4-3	Policy Criteria.....	4-11
Table 4-4	Mitigation Table .....	4-12

## List of Figures

Figure 1-1	Project Corridor.....	1-2
Figure 1-2	Project Route.....	1-5
Figure 2-1	PLOTS Jurisdiction.....	2-11
Figure 2-2	Prime Farmland.....	2-14
Figure 2-3	Soil Map.....	2-16
Figure 2-4	Wetlands Map .....	2-20
Figure 2-5	GAP Land Cover & Potential Lek Area Map.....	2-22
Figure 4-1	Project Area.....	4-3
Figure 4-2	Project Corridor & Route .....	4-4
Figure 4-3	Exclusion Areas within Burke County NDAC§ 69-06-08-02 .....	4-5
Figure 4-4	Avoidance Areas within Burke County NDAC§ 69-06-08-02 .....	4-6

This is a joint application for a Certificate of Corridor Compatibility and a Route Permit as well as a Request for a Waiver of Procedures and Time Schedules.

This joint application has been prepared in compliance with the Application Guidelines for a Certificate of Corridor Compatibility, Route Permit and Waiver of Procedures and Time Schedules issued by the North Dakota Public Service Commission (NDPSC) in accordance with Chapter 49-22 of the North Dakota Century Code (NDCC) Energy Conversation and Transmission Facility Siting Act and Article 69-05 of the North Dakota Administrative Code (NDAC). (November, 1979)

## **1.1 TYPE**

This section describes the type of transmission facility addressed in this application. The description includes the purpose of the facility and the technology to be employed.

Basin Transload seeks approval to construct an approximately 7-mile-long, 10-inch-diameter steel crude oil pipeline (Project) within Northwest Burke County, North Dakota (Project area). This Project would provide infrastructure needed to transport crude oil produced from several oil fields in the area. After the construction is completed the Project will be owned and operated by Tesoro High Plains Pipeline LLC. The pipeline would connect Tesoro Lignite Station in Section 34-T163N-R92W with the storage facility under development by Basin Transload in Section 3-T162N-R93W of Burke County. A 1-mile-wide Corridor (Corridor) was identified between these two terminus locations within the Project area. All funds used to construct, own, operate and maintain this facility are private. No federal funds, stipends, loans or grant money will be used for any aspect of the project. See Figure 1-1.

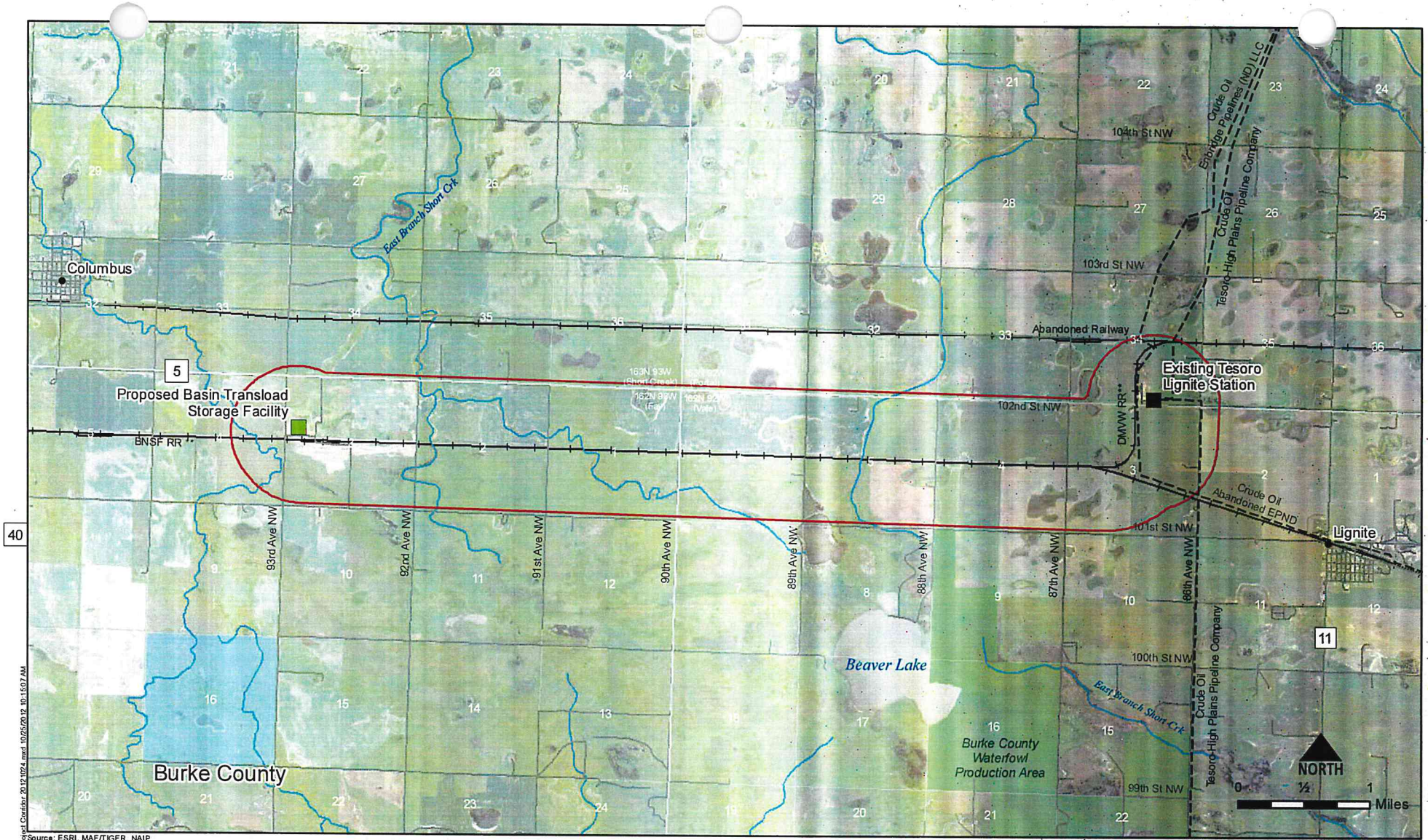
### **1.1.1 Purpose**

Existing pipelines for transmitting crude oil are near capacity. The Project will provide critical pipeline infrastructure connecting oil storage facilities and will create an additional means of transporting crude oil to refineries. The pipeline will provide a more environmentally sensitive method of transporting crude oil than trucking to a new facility which will open new markets, and benefit the producers in the Bakken Oil Fields, landowners, citizens of the State of North Dakota, local municipalities, and mineral interest owners.

The estimated in-service date for the Project is January, 2013.

### **1.1.2 Technology**

The pipeline would be a 10-inch diameter, steel crude oil pipeline buried approximately 4 feet in depth. The Project facilities will be designed, constructed, tested, operated, and maintained in accordance with applicable requirements of the U.S. Department of Transportation (USDOT) Pipeline Hazardous Materials Safety Administration, Office of Pipeline Safety, Part 195 of Title 49 of the Code of Federal Regulations, U.S. Department of Labor regulations, Occupational Safety and Health Administration requirements, and other applicable federal and state regulations. Among other design standards, 49 C.F.R. §195 specifies pipeline material selection; minimum design requirements; protection from internal, external, and atmospheric corrosion; and qualification procedures for welding and operations personnel.



File: R:\Projects\USA\S02\_Zan & Lignite\GIS\Map\01\_Lignite\_Estimate\_L1\_Pipeline\_Corridor\_20121024.mxd, 10/26/2012, 10:15:07 AM  
 Source: ESRI, MAF/TIGER, NAIP

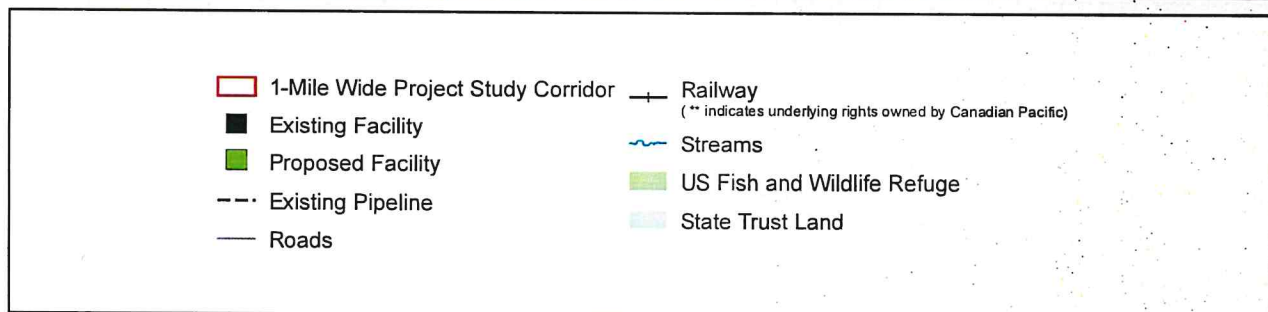


Figure 1-1

**THPP Lignite Lateral Pipeline Project Corridor**

**1.1.2.1 Open Trench Technology**

Typical pipeline open trench technology will be used for the installation of a majority of the proposed pipeline. Basin Transload will excavate trenches to a depth sufficient to provide the minimum cover required by USDOT specifications. For the proposed 10-inch pipeline, a trench approximately 5 feet deep will be excavated to provide for the required 4 feet of minimum cover required. The trench will be approximately 2 feet wide in most locations. Additional trench width may be required in some locations to maintain stability of trench walls for the safety of pipeline workers and equipment. In agricultural areas, Basin Transload may increase the depth of cover so as not to interfere with land use activities. Spoil will typically be stored next to the trench on the opposite side of the working area and over existing easements where possible. Based on past experience in the area, Basin Transload does not anticipate that blasting will be required during construction of the Project.

If trench dewatering is necessary, trench water will be discharged in accordance with Basin Transload's Storm Water Pollution Prevention Plan (SWPPP), in a manner that does not cause erosion and does not result in heavily silt-laden water. The water will typically be discharged into an energy dissipation/sediment filtration device, such as a geotextile filter bag or straw bale structure, to minimize the potential for erosion and sedimentation. The dewatering structures will be sized to handle the volume of water in the trench. Stream divert bags may also be used as part of the open cut method of streams.

**1.1.2.2 Horizontal Directional Drilling Technology**

At all railroad and county road crossings and where necessary in wetland areas determined to be jurisdictional under Section 404 of the Clean Water Act the pipeline will be installed using Horizontal Directional Drilling (HDD) to avoid any surface disturbance. HDD would require specialized equipment and personnel for a three-step process: 1) drilling a pilot hole on an arc-shaped path that typically extends between 30 and 50 feet beneath the railbed, roadway or waterbody; 2) enlarging the pilot hole with a series of reamers to accommodate the pipeline; and 3) pulling a prefabricated section of pipe through the hole. Geotechnical studies will be conducted for all HDD crossings.

Drilling the pilot hole establishes the ultimate position of the installed pipeline. The head of the pilot drill string contains a pivoting head that can be controlled by an operator at the surface as the drill progresses. Typically, the pilot hole is directed downward at an angle until the proper depth is achieved, then turned and directed horizontally for the required distance, and finally angled upward back to the surface. Throughout the process of drilling and enlarging the hole, a mud slurry consisting of bentonite and water will be pressurized and pumped through the drill stem to lubricate the drill bit, maintain the hole, and remove drill cuttings. Bentonite is the commercial name for a mixture of non-toxic clays and rock particles consisting of about 85 percent montmorillonite clay, 10 percent quartz and feldspars, and 5 percent accessory materials, such as calcite and gypsum. This slurry, referred to as drilling mud or drilling fluid, has the potential of being inadvertently released to the surface if fractures or fissures are encountered in the substrate during drilling.

The potential for an inadvertent release of drilling mud (also referred to as a frac-out) is generally greatest during drilling of the pilot hole when the pressurized drilling mud is seeking

the path of least resistance. The path of least resistance is typically back along the path of the drilled pilot hole. However, if the drill path becomes temporarily blocked or encounters other areas such as large fractures or fissures then an inadvertent release could occur. Basin Transload will monitor the Route and the circulation of drilling mud throughout drilling for indications of an inadvertent release, and will immediately implement corrective actions if a release is observed or suspected.

Once the pilot hole exits in an acceptable location, the reaming operation is initiated. During the reaming phase, a reaming head will be attached to the drill pipe and pulled back through the pilot hole to enlarge it. Several reaming passes will be made with incrementally larger reaming heads to enlarge the hole to about 1.5 times the diameter of the pipeline. As the drill path becomes larger, the potential for an inadvertent release generally decreases as the path of least resistance becomes increasingly well-established along the drill hole. Pressurized drilling fluid will continue to be jetted through the reaming head to float out drill cuttings and debris, to cool the drilling head, and to provide a cake wall to stabilize the hole. Once the drill hole is enlarged to the proper diameter, the pipe will be pulled back through the reamed hole.

Each HDD crossing will require temporary workspaces for drilling equipment, pipe assembly, supplies and materials, temporary mud pits and tanks, support vehicles, and access to the drilling sites and areas to turn equipment around. All water required for mixing the drilling mud or hydrostatic pressure testing of the pipeline will be obtained from private sources under contract either via an existing private well or municipal water supply.

Erosion control measures will be installed in accordance with the Basin Transload SWPPP to prevent sediment-laden water from leaving the temporary work areas. After HDD is completed, drilling mud will be disposed of at an approved facility.

## **1.2 PRODUCT**

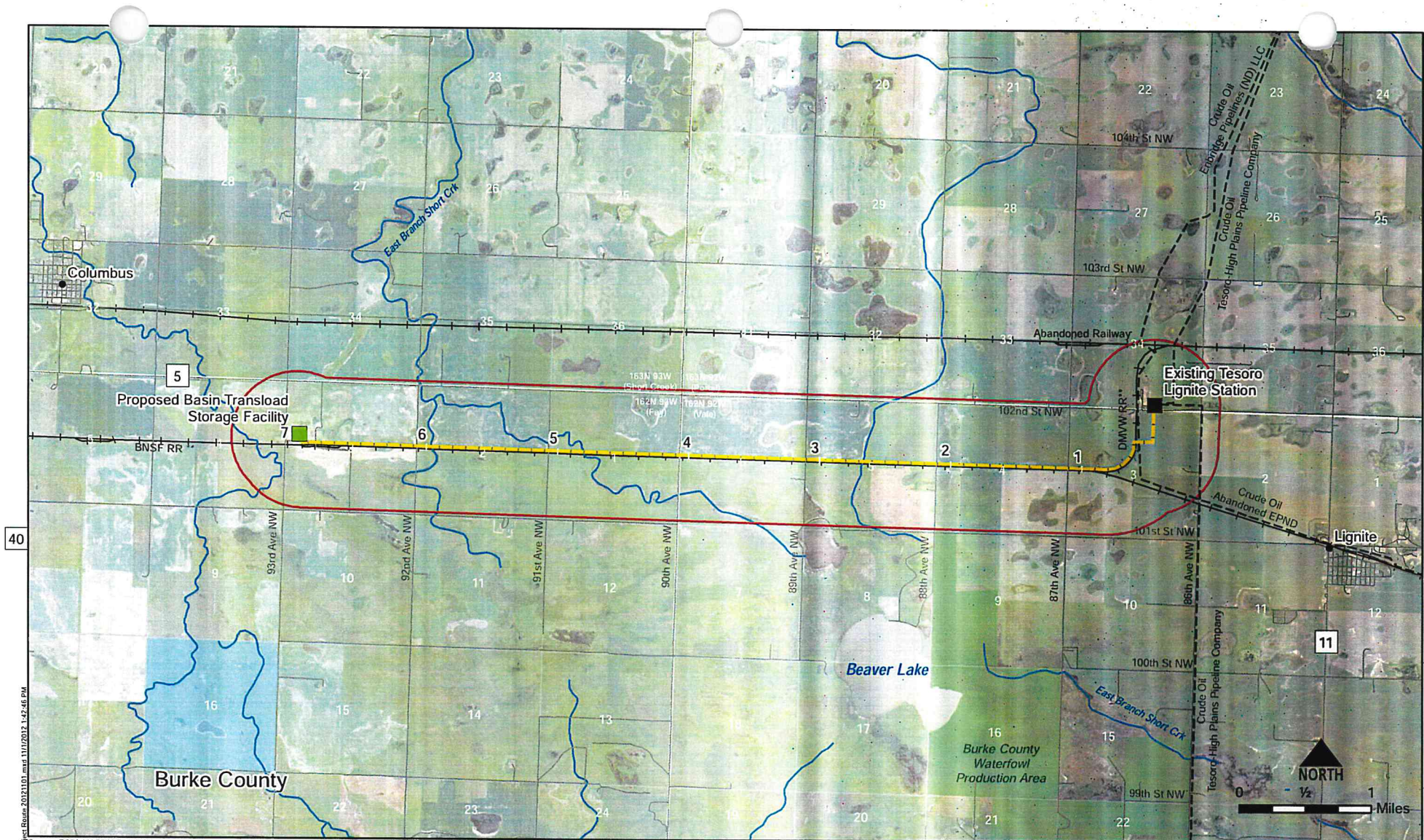
This section describes the type, source and final destination of the product to be transmitted by the proposed facility.

Crude oil extracted from the Williston Basin will be transported from the Tesoro Lignite Station, which taps Tesoro's existing pipeline in Section 34-T163N-R92W, through the proposed 7-mile pipeline to the oil storage facility under development by Basin Transload in Section 3-T162N-R93W. The crude oil will ultimately be transported to out of state destinations such as St. James, Louisiana; Anacortes, Washington; Albany, New York; or Stroud, Oklahoma.

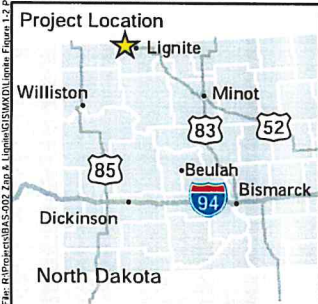
## **1.3 SIZE AND DESIGN**

This section provides a description of the size and design of the right of way including discussion on the right of way, distance between surface structures, pipe size, length, design, flow and the general location of terminating facilities. See Figure 1-2.

The 7 mile-long, 10-inch diameter steel pipeline will be located within a permanent right of way (ROW) that is 70 feet wide. The location of the pipeline is approximately 100 feet north of the existing railroad centerline, within the permanent ROW for approximately 6 miles. Once the



Source: ESRI, MAF/TIGER, NAIP



- 1-Mile Wide Project Study Corridor
- Existing Facility
- Proposed Facility
- Proposed 10" Pipeline Route (with mile posts)
- Existing Pipeline
- Roads
- | Railway (\*\* indicates underlying rights owned by Canadian Pacific)
- Streams
- US Fish and Wildlife Refuge
- State Trust Land

Figure 1-2

**THPP Lignite Lateral Pipeline Project Route**

pipeline diverges from the railroad, the location of the pipeline within the permanent ROW may vary, depending on terrain, the presence of other existing facilities, and landowner concerns. Basin Transload has acquired all permanent easements along Route and has made application for the crossing permit from the Canadian Pacific Railway. See Appendix A.

The pipeline is designed for a maximum operating pressure of 1,480 psi and a maximum temperature of 120 degrees Fahrenheit. The pipeline will typically operate at 60 degrees Fahrenheit and 1,100 psi. The nominal daily capacity of the pipeline will be 80,000 barrels per day, with an annual capacity of 29,200,000 barrels. There would be no surface structures along the 7-mile pipeline between termination points. There are no compressor or pumping stations within the 7-mile length of the proposed pipeline. Surface structures will exist on the east terminus at the Tesoro Lignite Station in Section 34-T163N-R92W and the western terminus at the oil storage facility being developed separately by Basin Transload in Section 3-T162N-R93W.

#### **1.4 TIME SCHEDULE**

This section provides the anticipated time schedule for the accomplishment of key events.

##### **1.4.1 Certificate of Corridor Compatibility Application**

The application for the Certificate of Corridor Compatibility is included herein.

##### **1.4.2 Route Permit Application**

The application for a Route Permit is included herein.

##### **1.4.3 Certificate of Corridor Compatibility and Route Permit**

By this application, Basin Transload is requesting a Waiver of Procedures and Time Schedules including the following schedule elements:

1. The requirement to hold separate hearings in accordance with NDCC §49-22-08, §49-22-08.1, and §49-22-13. Basin Transload requests that the NDPSD hold a single consolidated hearing on this Application for a Certificate of Corridor Compatibility and Route Permit.
2. The requirement for a three-month processing period specified in NDCC §49-22-08(5) for a Certificate of Corridor Compatibility.
3. The requirement for the six-month processing period specified in NDCC §49-22-08.1(5) for a Route Permit.
4. The requirement to file separate applications for a Certificate of Corridor Compatibility and Route Permit in accordance with NDCC §49-22-08 and §49-22-08.1.

Should the NDPSD see fit to grant a waiver of these procedures and time schedules, Basin Transload respectfully requests that a Route Permit be granted within 30 days for an anticipated receipt of December 10, 2012.

## **SECTION A**

## **Description**

---

### **1.4.4 Right-of-way Acquisition Complete**

All of the right-of-way for the Project Route has been acquired.

### **1.4.5 Construction State Date**

With an anticipated Route Permit expected December 10, 2012 construction is anticipated to begin December 10, 2012.

### **1.4.6 Construction Completion**

Construction of the proposed 7-mile pipeline project is anticipated to extend 6 to 9 weeks. With an anticipated construction start date of December 10, 2012, construction is anticipated to be completed by January 31, 2013.

### **1.4.7 Test Operations**

Test operations for the proposed pipeline would take place immediately prior to in-service. Testing is anticipated in January, 2013.

### **1.4.8 In-Service Date**

The proposed pipeline is anticipated to begin service in on or before January 31, 2013.

# SECTION B

# Studies

On October 5, 2012 notice of the proposed pipeline project was sent to affected agencies and officers as required by NDAC §69-06-01-05. In addition, federal agencies including the US Fish and Wildlife Service and the US Army Corps of Engineers were notified. Comments were requested of these agencies with respect to the anticipated effects and proposed mitigation measures. The following is a table summary of the agencies solicited and their associated response. Detailed response letters may be found in Appendix B.

This section provides a summary of the evaluative studies or assessments of the environmental impact of the proposed facility. Detailed studies may be found in Appendix C.

**Table 2-1 Agency Responses**

Agency Contact	Attention	Response Received
Parcel Land Owners		Private easement agreements have been obtained from individual landowners for the pipeline installation.
ND Aeronautics Commission		No Response
ND Dept. of Agriculture	Dane Braun	No Response
ND Dept. of Career and Technical Education	Wayne Kutzer	No Response
ND Dept. of Commerce Division of Community Services	Paul Govig	No Response
ND Dept. of Commerce Economic Development & Finance Division	Paul Lucy, Director	No Response
ND Department of Health	L. David Glatt, PE	Provided general construction mitigation including dust mitigation, aggregate testing, storm water management, spill control, and noise mitigation.
ND Dept. of Human Services	Maggie Anderson, Interim Executive Director	Responded – No Comment
ND Dept. of Labor	Ms. Haugen	Responded – No Comment
ND Dept. of Trust Lands	Mike Haupt, Land Management Professional	The ND Department of Trust Lands does not manage any surface within the project and has no further comment.
NDDOT	Robert Fode, PE Director – Office of Project Development	No Response
Energy Infrastructure and Impact Office		Responded – No Comment
ND Indian Affairs Commission	Scott Davis Director	No Response

# SECTION B

# Studies

Agency Contact	Attention	Response Received
ND Game and Fish Department (NDGFD)	Steve Dyke, Conservation Section Supervisor (Response by Greg Link, Chief Conservation & Communication Division)	Requested that work within native prairie areas be avoided to the extent possible and disturbed areas be reclaimed to pre-project conditions. Also, that wetlands be protected and placement of above-ground appurtenances within wetlands should be avoided.
ND Geological Survey Division		Responded that no historical slope movement is noted. The region has a variable glacial covering at the surface and impediments to trenching activities such as erratics may be encountered. High groundwater also has a potential to influence trench stability in the area.
Job Service North Dakota	Randy Kaiser, Administrative Staff Officer III	Responded – No Comment
ND Attorney General	Wayne Stenehjerm	Responded – No Comment
Office of Governor State of North Dakota		Responded – No Comment
ND Parks and Recreation Department	Kathy Duttenehfer	Responded that a review of the conservation database has indicated that no plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. The department requested that the project be accomplished with minimal impacts and that disturbed areas be re-vegetated as appropriate with species native to the project area.
State Historical Society of North Dakota	Merlan Paaverud, Jr.	Concurrence with the finding of No Historic Properties Affected.
ND State Soil Conservation Committee	Scott Hochhalter, State Soil Specialist	Responded – Contact the Public Service Commission
ND State Water Commission	Linda Weispfenning	Identified that there are no floodplains within the project area, all associated permits are the responsibility of the developer, all waste material must be disposed of properly and no sole source aquifers have been designated in ND. Beyond these, the Commission identified no other concerns associated with the Project.
NRCS Area Office	Jon Stika	No Response
Dakota, Missouri, Valley & Western Railroad (underlying ROW owned by Canadian Pacific)	Charles Weise Manager, Real Estate	Coordination Efforts Underway
US Corps of Engineers	Joseph Tanko Acting State Program Manager North Dakota Regulatory Office	A review of the Project has indicated that a Department of the Army permit may be required. It has been requested that an application be completed for review.
USFWS North Dakota Field Office	Jeffrey Towner, Field Supervisor April Simnor, Biological Technician Shea Magstadt, Wildlife Refuge Specialist	Coordination will be required to cross the three existing USFWS wetland easements. A determination of no significant impact was issued.

Agency Contact	Attention	Response Received
Montana-Dakota Utilities Co. Burke Divide Electric Cooperative	Keith Thelen, Line Superintendent Craig Lohstreter, Electric Superintendent	No permit required to cross. MDU policy requires the pipeline be located 20 feet from any structure or anchors.
Western Area Power Administration	Gerry Paulson	Coordination Underway
Burke County Planning Administrator	Gary Emter Marla MacBeth	No permit required – requested copy of PSC application for file

Source: ECI, 2012

## 2.1 DEMOGRAPHICS

### 2.1.1 Description of Resources

The Project area is located in Burke County, North Dakota. As of the 2010 Census, Burke County had a median household income (MHI) of \$50,800 which is approximately 9% more than the North Dakota MHI of \$46,781. The poverty level in Burke County is 5.8% compared to the overall rate of 12.3% state-wide. The racial characteristics of the county are generally homogeneous. Table 2-2 provides the diversity characteristics as reflected in the 2010 Census.

**Table 2-2 Demographics**

Race	Burke County	North Dakota
White Persons <sup>a</sup>	97.1%	90.4%
Black Persons <sup>a</sup>	0.3%	1.3%
American Indian / Alaska Native Persons <sup>a</sup>	1.1%	5.5%
Asian Persons <sup>a</sup>	0.8%	1.1%
Hispanic or Latino Persons <sup>b</sup>	2.2%	2.2%
Persons reporting two or more races	0.6%	1.7%

Source: 2010 US Census

a – Includes persons reporting only one race

b – Hispanics may be of any race, so also are included in applicable race categories

There are no known plans for residential developments or other construction within the proposed Corridor or Route. Although it is not unreasonable to expect that some new developments could occur, discussions with landowners during ROW negotiations for the proposed project have indicated no such plans. In addition, the pipeline is routed immediately adjacent to an active railroad which would be an unlikely place for development.

### 2.1.2 Impacts

There is no indication that any minority or low-income population is concentrated in any one area of the Corridor, or that the pipeline ROW will be placed in an area occupied primarily by any minority group. The limited permanent agricultural land conversion associated with the pipeline structure placement will constitute a small socioeconomic impact to those landowners along the Route.

The creation of construction jobs within the Project area and use of current businesses such as restaurants and hotels could temporarily benefit local communities. If local contractors are used,

construction of the pipeline system will provide a temporary increase in the total personal income of the area. However, the number of permanent jobs created is anticipated to be low, which means the economic expansion experienced during pipeline construction may be short-term. Personal income will also be generated by the circulation and recirculation of dollars paid by Basin Transload, as business expenditures and state and local taxes. Labor relations within the Project area will not be affected.

By virtue of the local ownership structure of Basin Transload, it is anticipated that the development of this Project will contribute to economic growth near the Project area and vicinity. The resulting pipeline network will provide a means for transportation of oil resources to markets being actively developed in North Dakota.

Up to 106 acres of agricultural land may be temporarily impacted during pipeline construction, not including potential impacts as a result of other additional temporary work spaces needed for construction activities. This area will be restored following construction and permanent agricultural impacts are not expected from the construction of the Project. Landowner compensation for any crop damages has been negotiated as part of the easement agreements.

### **2.1.3 Mitigation**

Socioeconomic impacts associated with the Project will be primarily positive, due to an influx of wages and expenditures made at local businesses during the Project construction and an increase in the county's tax base from operation of the pipeline. Basin Transload will use local labor and contractors when practicable. Impacts to landowners will be minimized when practicable by negotiating easements that are at or above market rates, and by maintaining landowner communications throughout the Project.

## **2.2 LAND USE**

### **2.2.1 Description of Resources**

The Project area is located in central North Dakota within Burke County. No municipalities lie within the 1-mile-wide Corridor. The land within the Corridor and Route is primarily agricultural including open grasslands with the exception of areas utilized for existing facilities such as roadways, railways or utilities as well as existing creeks, drainages and waterways. There are no areas of critical habitat or special designated land use within the Corridor or Route.

### **2.2.2 Impacts**

The majority of the land impacted by the construction of the pipeline Route is used for agriculture. During construction of the Project, additional areas may be temporarily disturbed within the pipeline Route for use as staging areas. Possible land use impacts resulting from pipeline construction include temporary interruption of agricultural use within the construction ROW; disturbance to landscape features such as watercourses; physical landscape changes due to spoil heaps; and other signs of on-going construction. The majority of the area surrounding the construction ROW will remain in agricultural use and can still be used by landowners during pipeline construction.

### **2.2.3 Mitigation**

Basin Transload will work closely with the landowners to coordinate the concurrent use of the area during construction activities. To minimize land use disruptions, Basin Transload will work closely with the landowners regarding the pipeline alignment within the ROW and the location of any temporary access areas required for periodic inspections or maintenance. Any disturbed areas will be returned as near as possible to original contours and condition. Non-agricultural areas will be reseeded with area appropriate native vegetation. All other areas will be returned to agricultural use following installation of the Project.

## **2.3 PUBLIC SERVICES**

### **2.3.1 Description of Resources**

The Project area is located in rural central North Dakota. Within this area there are established transportation and utility networks that provide access and necessary services. No municipalities are located within the one-mile-wide Project Corridor. The project is located approximately 1.5 miles northwest of Lignite, ND. Lignite has local retail services. Columbus, located approximately 2 miles northwest of the Corridor, has retail and emergency services. Minot is located approximately 90 miles southeast of the Corridor is the largest city located near the Project.

Two overhead high voltage transmission lines are identified within the Corridor; the Route will traverse one of these. Small distribution lines provide electricity throughout the area but do not traverse the Corridor.

Low traffic volume roads exist within the Project area. The Corridor crosses six township roads (87<sup>th</sup> Avenue NW through 92<sup>nd</sup> Avenue) and Highway 5 (102<sup>nd</sup> Street NW) in Section 3-T162N-R92W. Primary local surface transportation within the Corridor is usually by interconnecting gravel or unimproved roads.

The Corridor and Route will parallel and then cross one railroad, located in Section 3-T162N-R92W. Dakota Missouri Valley & Western (DMVW) Railroad operates this line under agreement with Canadian Pacific Railway.

The Project area has limited public infrastructure services, which is typical of most townships in rural North Dakota. Homes within the Project area typically utilize septic systems and water wells for their household needs. There are no identified communication facilities within the Project Corridor.

### **2.3.2 Impacts**

Six township roads in Fay Township and Vale Township (87<sup>th</sup> Avenue through 92<sup>nd</sup> Avenue) and Highway 5 (i.e., 102<sup>nd</sup> Street NW) will be crossed via open cut trench. The pipeline will be placed at least 5 feet deep under the roadways. The roadway will be resurfaced with gravel. It is expected that each road crossing will be completed within one day. All traffic will be temporarily detoured adjacent to the roadway, limiting any disturbance to the traffic flow. The pipeline construction is expected to have limited and temporary impact on normal traffic

operations. Basin has received approval from both Fay and Vale townships for the six township road crossings. See Appendix A.

The DMVW railroad crossing in Section 3 T162N-R92W will be traversed via HDD to avoid any surface impact to the railroad operations. A crossing permit application has been filed for this crossing (through Canadian Pacific) and is expected to be approved in mid-November. See Appendix A.

No impact to area wells or disruption of any septic systems will occur as a part of the Project.

The Project will not cause any impacts to radio or television reception, or other communication or electronic control facilities.

### **2.3.3 Mitigation**

Impacts to area infrastructure are expected to be minor and temporary. All activities will be coordinated with adjacent landowners and existing facility owners where crossings are required at the county road, railroad and power line. Any restrictions associated with these facility crossings will be followed. No additional mitigation measures are anticipated.

## **2.4 HUMAN HEALTH AND SAFETY**

### **2.4.1 Description of Resources**

Most pipelines are underground systems used for transporting liquid and gas products. The United States is crisscrossed with thousands of miles of underground pipelines delivering products such as oil, gasoline, home heating oil, natural gas, and industrial gases. By the definitions outlined in 49 C.F.R. §195.2, hazardous liquids include petroleum, petroleum products, and anhydrous ammonia. Section 195 details the design requirements, construction, pressure testing, operation and maintenance, and qualification of pipeline personnel pertaining to pipelines transporting hazardous liquids.

### **2.4.2 Impacts**

The transportation of crude oil by pipeline involves some risk to the public in the event of an accident and the subsequent release of product into the environment. The greatest hazard is a fire or explosion following a major pipeline rupture.

### **2.4.3 Mitigation**

The USDOT pipeline standards are published at 49 C.F.R. §190–199. For example, 49 C.F.R. §195 specifically addresses the transport of hazardous liquids by pipeline. Facilities associated with the Project will be designed, constructed, operated, and maintained in accordance with USDOT standards, including the provisions for written emergency plans and emergency shutdowns.

Proper safeguards will be implemented during construction and operation of the pipeline and aboveground facilities. The Project will be designed to meet federal, local, state, and Basin

Transload safety standards. Construction crews will comply with these same standards when installing the pipeline and associated facilities.

## **2.5 NOISE**

### **2.5.1 Description of Resources**

Noise is comprised of a variety of sounds with different intensities spanning the entire frequency spectrum. A human perceives sound when sound pressure waves encounter auditory components in the ear. These components convert pressure waves into perceivable sound. Noise is measured in units of decibels (dB) on a logarithmic scale. Because human hearing is not equally sensitive to all frequencies of sound, certain frequencies are given more "weight." The A-weighted decibel (dBA) scale corresponds to the sensitivity range for human hearing. Noise levels capable of being heard by humans are measured in dBA. A noise level change of 3-dBA is imperceptible to human hearing. A 5-dBA change in noise level, however, is clearly noticeable. A 10-dBA change in noise levels is perceived as a doubling of loudness, while a 20-dBA change is considered a dramatic change in loudness.

Generally, background noise levels in rural areas vary between 40 and 50 dBA, while in suburban areas these levels increase to 50 to 60 dBA. In urban areas, noise levels vary between 60 and 70 dBA (FRA 2005). Most of the Corridor has background levels consistent with rural areas. The windy conditions in this region tend to increase ambient noise levels, as compared to other rural areas. Additionally, higher levels exist near roads and other areas of human activity. Railroads can be a significant source of noise near portions of the northern end of the Route. Rail cars traveling at 50 mph, 100 feet away have noise levels of approximately 75 dBA. Train horns sounded at crossings vary between 95 and 115 dBA (FRA 2005).

### **2.5.2 Impacts**

The ambient sound level of a region is defined by the total noise generated within the specific environment, and it is usually comprised of sounds emanating from natural and artificial sources. At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of a day and throughout the week. This variation is caused in part by changing weather conditions and the effect of seasonal vegetative cover.

Pipeline construction is similar to an assembly line, with crews conducting separate but sequential activities, each generally proceeding at rates ranging from several hundred feet to one mile per day. Construction of the pipeline will include the following noise-generated activities: ROW preparation, soil stripping, trenching, pipe stringing, welding, laying pipe, and backfilling. There does not appear to be potential for rock outcroppings near the surface, so blasting is not likely to be required. Construction activities may occur on an intermittent basis. Construction equipment would be operated on an as-needed basis during the construction period and is not expected to be a significant noise factor.

Because the pipeline crosses through primarily rural and agricultural areas, there will usually be only a few people near the pipeline Corridor at any given time along the roadways or in the fields. A warehouse operation is located near the north side of the Corridor and a storage

building is located near the south side of the Corridor. There are no residences located within the Corridor. Noise will be generated during construction of the pipeline.

Typically, the attenuation rate for linear noise sources is approximately -4 dB per distance doubled. In other words, the farther from the generation point a person is, the less noise they will hear. The Route was sited to be at least 500 feet from the warehouse operation as this has an occupied office area. This siting will minimize the noise that individuals will hear along the Route. At 500 feet and farther from the pipeline Route, any pipeline construction noise will be below the background noise levels and is not expected to be perceptible.

### **2.5.3 Mitigation**

During construction, noise levels will be minimized by ensuring that construction equipment is equipped with mufflers in good working order. Construction activities will generally be limited to the hours of 7 a.m. to 7 p.m. Additional mitigation measures are not anticipated to be employed, due to the nominal noise impact anticipated from the Project.

## **2.6 AESTHETICS**

### **2.6.1 Description of Resources**

The degree of visual impact resulting from a proposed Project is typically determined by considering the general character of the existing landscape and the visual features of the proposed facilities. Visual resources within the Project area are a function of geology, climate, and historical processes, and they include topographic relief, vegetation, water, wildlife, land use, and human uses and development. The topography within the area is characterized by nearly level to gently rolling hills and small shallow prairie potholes. Vegetation in the Project area consists primarily of grassland and cropland.

### **2.6.2 Impacts**

Construction and operation of the proposed pipeline may affect visual resources by altering the terrain and vegetation patterns during construction or maintenance. During construction, the cleared and graded ROW and temporary extra workspaces, as well as the construction equipment, may be visible to surrounding community residences from local roads within the Corridor. Because of the topography of the Project area, dust generated from these activities, as well as the presence of equipment and construction vehicles may be observed from some distance in the surrounding areas.

Although routing of the proposed pipeline will be located outside of any municipalities, it may be visible to some residents traveling near the area. Visual impacts will be most evident to passing motorists and recreationists where the Route parallels or crosses roads, especially while traveling along Highway 5, which is located approximately ½ mile north of, and parallel to, the Project. Any effects to visual resources are expected to be minor and temporary.

### **2.6.3 Mitigation**

Impacts to aesthetics will be minimized by positioning the Route through rural agricultural areas where establishment of vegetation following construction is generally achieved in less than three years. Long-term visual changes will be minor and limited to permanent pipeline markers that may be visible at locations where the pipeline crosses county roads, Highway 5 or the DMVW Railroad.

## **2.7 CULTURAL**

In October of 2012, Basin Transload contracted Ethnoscience, Inc. to conduct a Class I file search and a Class III pedestrian survey of the Project. See Appendix C.

### **2.7.1 Description of Resources**

A Class I files search was conducted at the North Dakota State Historical Society of each Section crossed by the Project Corridor. The results of the file search identified that eight previous cultural resource investigations have been conducted within these Sections. Most of the previous investigations were associated with the oil pipeline projects. The files search contained one site lead (32BKx776) and one site (32BK68) within the Project Corridor and one immediately north of the Project Corridor (32BKx981).

A Class III pedestrian survey was conducted on the Project Route and examined an area approximately 7 miles in length by 100 feet in width. Ground surface visibility was generally excellent (75–85 percent) within recently harvested fields, which made up most of the inventory area; however, visibility was poor (0–5 percent) in marsh areas. One site lead (32BKx776) was updated for this project. Additionally, the site (32BK68) located within the Corridor and another site lead (32BKx981) located immediately north of the Project Corridor were also reviewed.

The Stampede post office (32BKx776) site lead boundary extends into the Corridor in Section 3-T162N-R93W. The community of Stampede had a population of 15 circa 1920 (Wick 1988:183). Although the community was located along the Great Northern (GN) railroad branch line to Crosby, it failed to thrive because of competition from the town of Columbus, located two miles northwest along the Minneapolis, St. Paul and Sault Ste. Marie (Soo Line) railroad branch line to Whitetail, Montana. By the mid-1930s, Stampede had diminished to the point where it was not even mentioned in the Works Progress Administration (WPA) guide to North Dakota (SHSND 1990). The Stampede post office operated from 1908 to 1919 (Wick 1988:183). No evidence of the post office site was identified within the inventory area. Additionally, there was no evidence of a standing historic post office building observed when looking north from the project area at Stampede. The area is also been impacted by a modern oil storage tank facility and gravel access roads. Although not all of the site lead area was inventoried, it is believed no significant evidence of the site remains.

The former GN railroad branch line to Crosby (32BK68), now operated by the DMVW Railroad, is within the Project Corridor generally along the south side of the Project Route. A modern railroad spur constructed by the DMVW branches north from site 32BK68 and passes through the Project Corridor in Section 3-T162N-R92W. Old Grandpa Art's Home (32BKx981) is a homestead claim shack site lead located north of the Project Corridor in Section 34-T163N-

R92W. Neither of these properties were updated for this report, and the modern railroad spur was not recorded.

### **2.7.2 Impacts**

A recommendation of *No Historic Properties Affected* was made for the Project based on the field review.

### **2.7.3 Mitigation**

The State Historical Society of North Dakota has issued their concurrence with the finding of *No Historic Properties Affected*. No further mitigation is anticipated for cultural resources.

## **2.8 RECREATION**

### **2.8.1 Description of Resources**

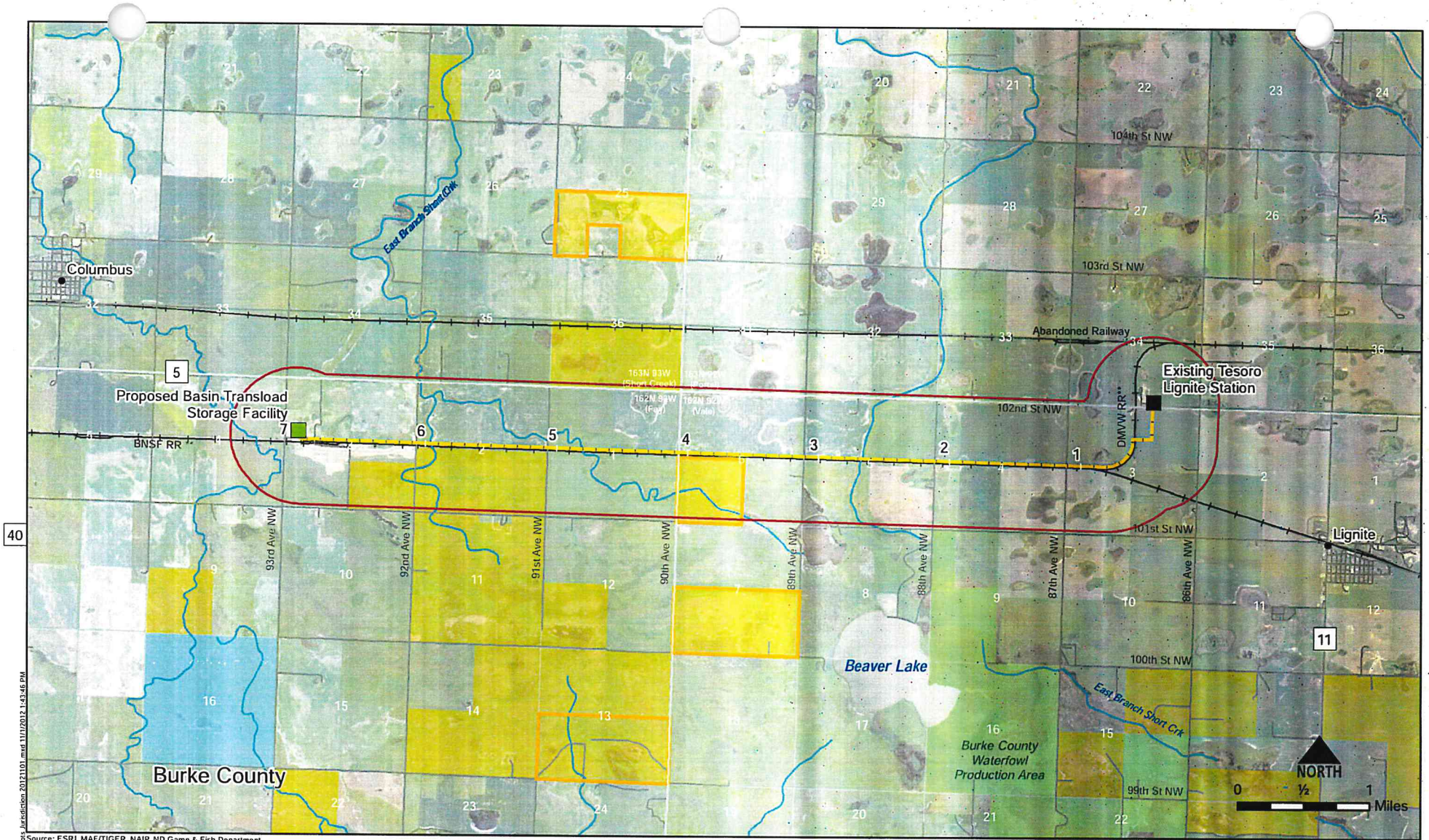
The Project area is primarily agricultural in nature and does not include any national, state or local parks. There are no rivers within the Corridor. There are no designated state game refuges, nature preserves, wildlife management or protection areas within the Corridor. Three sections across the Corridor contain areas that are identified as Private Lands Open to Sportsmen (PLOTS) within the Corridor. These include the S/12 of Section 2-T162N-R93W; the SE 1/4 of Section 3-T162N-R93W; and the SW 1/4 of Section 6-T162N-92W. All of these PLOTS are located south of the railroad, while the Project Route is located north of the railroad. There are no PLOTS within the Corridor north of the railroad and the Route will not cross any designated PLOTS. Recreational uses of the Project area would generally include cross country travel along Highway 5 or hunting within designated areas. See Figure 2-1.

### **2.8.2 Impacts**

In general, recreational impacts for the Project area would be limited to temporary visual impacts realized by individuals traveling through the area or enjoying recreation on adjacent private property. Any impacts are anticipated to be minimal and temporary in duration. As there are no PLOTS located north of the railroad, impacts to sportsmen are anticipated to be temporary and negligible as a result of the Route being on the north side of the tracks. No significant impacts are expected to any surrounding public use or recreation.

### **2.8.3 Mitigation**

Since it is anticipated that construction and operation of the Project will not adversely affect recreational resources, mitigation is not anticipated to be necessary within the Corridor or along the Route.



File: B:\Projects\BKS\_002\_7.mxd, L:\Users\GIS\MapXPL\BKS\_002\_7.mxd, 11/12/2012 1:45:46 PM  
 Source: ESRI, MAF/TIGER, NAIP, ND Game & Fish Department  
 Plot Jurisdiction 2011101.mxd, 11/12/2012 1:45:46 PM

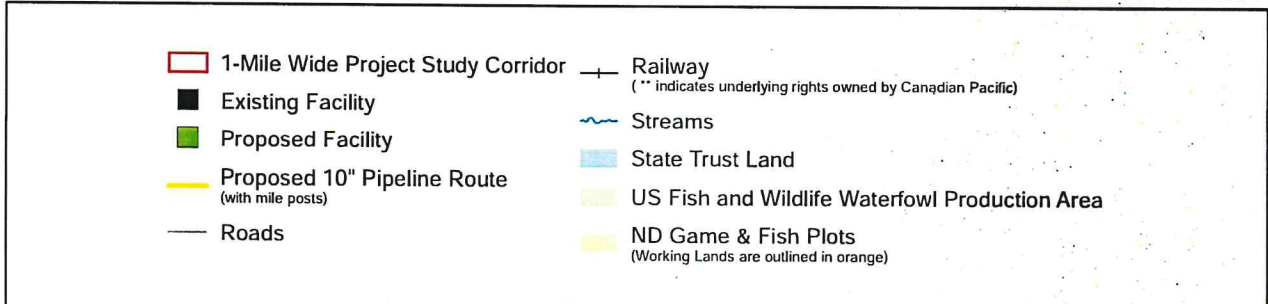


Figure 2-1

### THPP Lignite Lateral Pipeline Plots Jurisdiction

**2.9 ECONOMICS****2.9.1 Description of Resources**

The majority of the Corridor is cultivated farmland, upland prairie and grasslands. Prime Farmland is an important factor of crop production for Burke County. Prime Farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops.

The National Resource Conservation Service (NRCS) includes two classifications for Prime Farmland. The first classification includes all areas of the soil series, and the second includes only the drained areas of the soil series.

The NRCS also identifies farmland of statewide and local importance, which is defined as land that is important for the production of food, feed, fiber, forage, and oilseed crops. Farmlands of statewide or local importance also includes those lands that are considered nearly prime soils and produce high yields of crops in an economic manner when treated and managed according to acceptable farming methods. Some of these soils may produce as high a yield as Prime Farmland soils, if conditions are favorable. There is no Unique Prime Farmland within the Project Corridor and very limited areas of Prime Farmland of Statewide Importance or Prime Farmland if drained.

Figure 2-2 shows the Prime Farmland soil distribution along the Route and Table 2-3 reflects the acres of Prime Farmland within the Corridor.

**Table 2-3 Prime Farmland**

Category	Acres	Length (mi)
Prime and Unique Farmland	0.0	0.0
Prime Farmland (if drained)	15.2	1.0
Farmland of statewide importance	10.6	0.7
Remaining Areas - Not Prime Farmland	80.3	5.3
Total Area of Temporary Disturbance*	106.1	7.0

\*125-ft temporary disturbance width assumed

**2.9.2 Impacts**

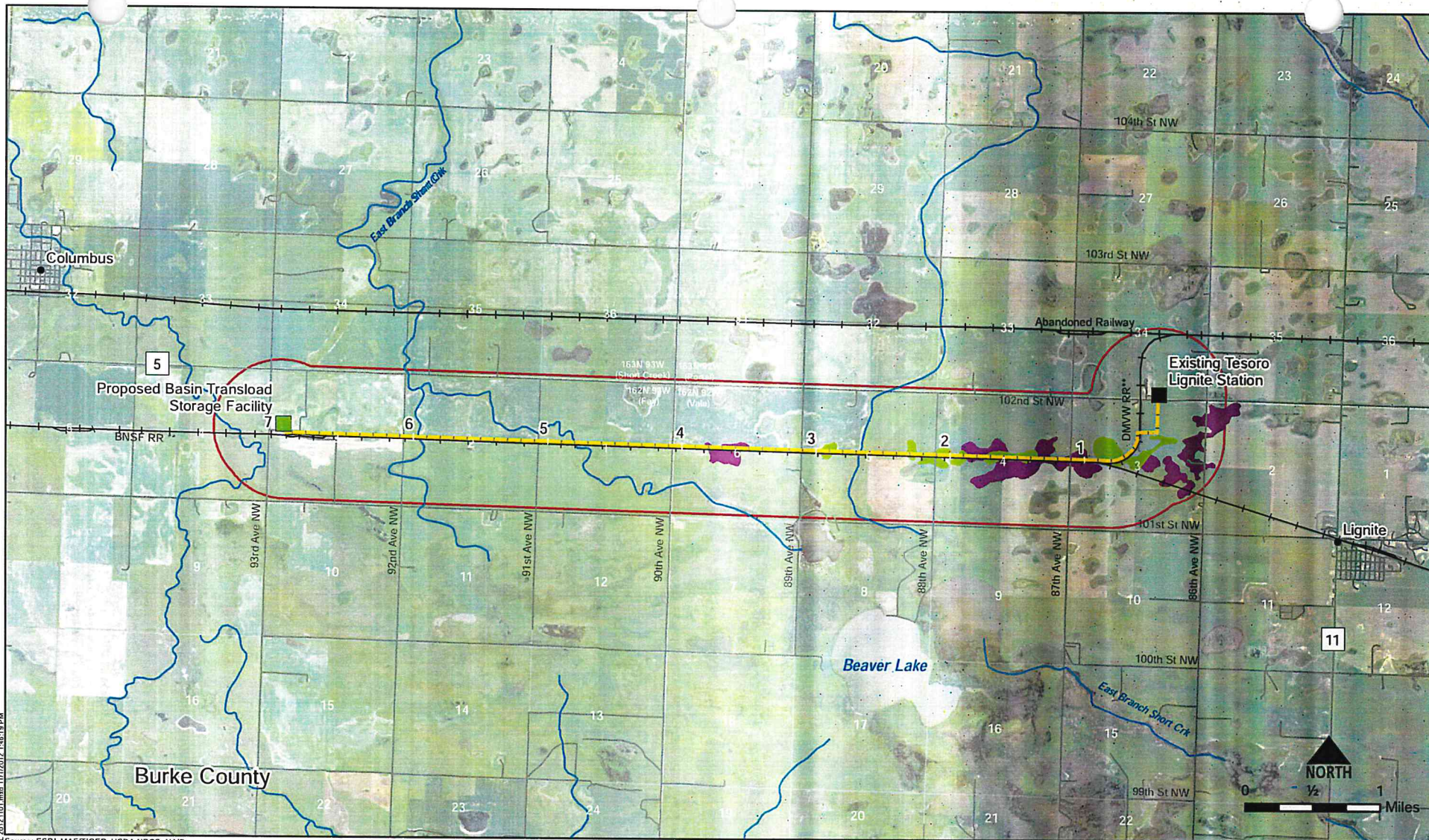
Permanent above-ground impacts are not anticipated. The Route will parallel the existing active railroad. All areas within the Corridor will be available for usual farming or grazing activities after construction is completed. Short-term impacts on agricultural areas would include soil disturbance, possible compaction of farm soils, the loss of standing crops within the construction work area, and disruption of farming operations in the vicinity of construction for the growing season, during the year of construction. The use of heavy equipment on agricultural soils may cause soil compaction. This is a concern where construction equipment use is intense, even during a relatively short duration, such as the construction period needed for pipeline installation.

## **SECTION B**

## **Studies**

---

Construction of the Project could affect grazing lands by removing vegetation, reducing the carrying capacity of an area, damaging or removing fences or other natural barriers used for livestock control, or cutting water lines used to supply watering sources.



Source: ESRI, MAFTIGER, USDA NRCS, NAIP



- 1-Mile Wide Project Study Corridor
- Existing Facility
- Proposed Facility
- Proposed 10" Pipeline Route (with mile posts)
- Roads
- Railway (\*\* indicates underlying rights owned by Canadian Pacific)
- Streams
- ✂ Farmland of statewide importance
- ✂ Prime farmland if drained

Figure 2-2

**THPP Lignite  
Lateral Pipeline  
Prime Farmland**



File: R:\Projects\04AS-0027\Map 1 Lignite\GIS\Map01\Lignite\_Figure 2-2.aprx, 2/2/2012 11:02:12 AM, 14.619 MB

Although NDAC § 69-06-08-2(2)(h) exempts underground transmission facilities, such as buried pipelines, from analysis for impacts to irrigated land, according to the North Dakota State Water Commission, there are no irrigation facilities within the area.

**2.9.3 Mitigation**

Basin Transload will coordinate with landowners during construction to minimize any impacts to the surrounding agricultural operations. Where necessary, compacted soils will be disked following construction, and landowners will be compensated for crop losses. Basin Transload will compensate for damages and any resulting lost production. Basin Transload will also repair, replace, or compensate landowners for any damages that occur as a result of construction. Adverse impacts to irrigation permit areas within the Corridor are not anticipated.

**2.10 SOILS**

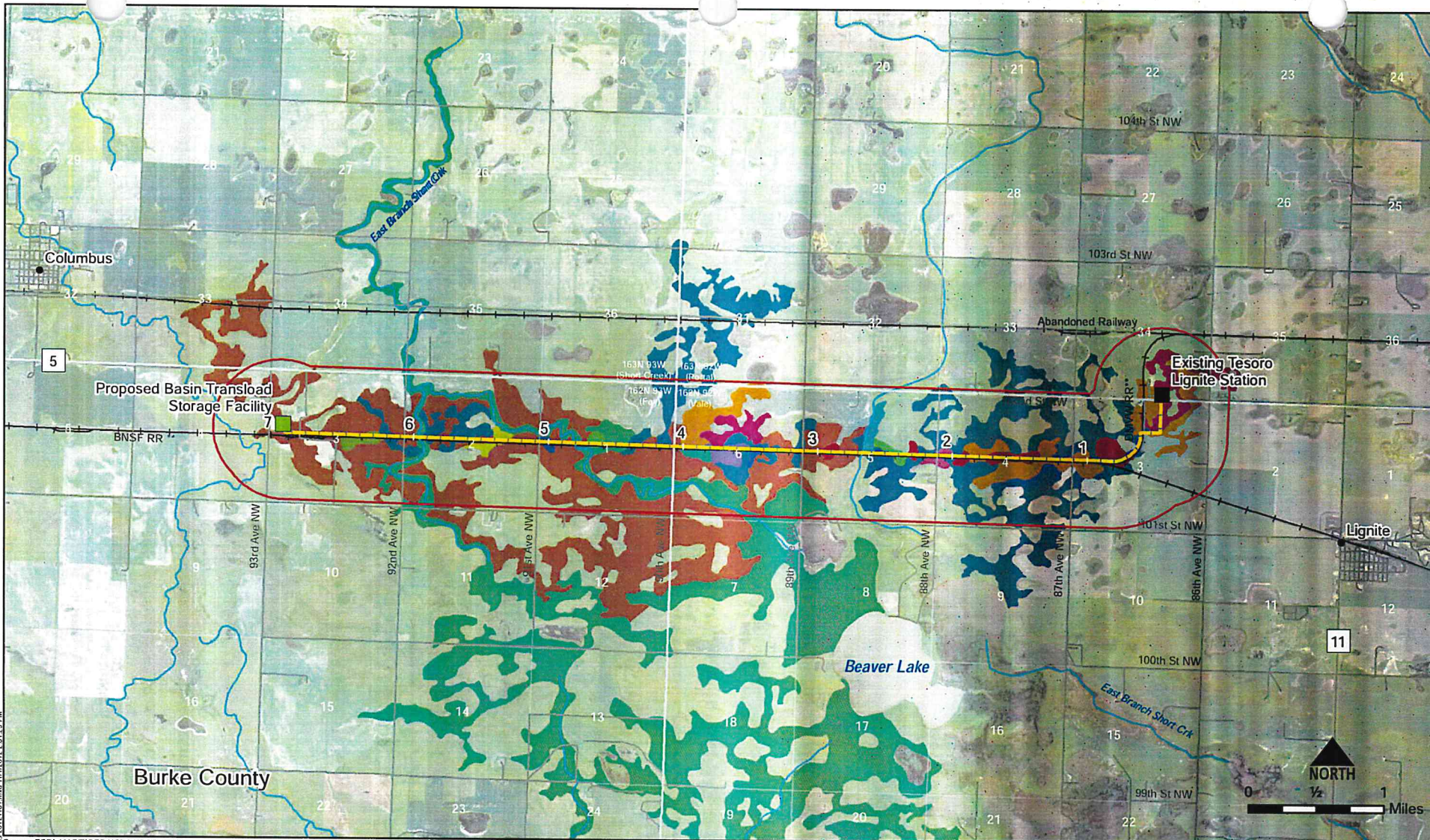
**2.10.1 Description of Resources**

Information from three U.S. Department of Agriculture NRCS sources was used to identify the general soil map units present in the Corridor and Route. These resources include the Soil Survey for Burke County, the State Soil Geographic Database (ND-STATSCO), and the Soil Survey Geographic Database (SSURGO). See Figure 2-3 for a map of the soils along the project and Table 2-4 for a summary of acres based on soil type.

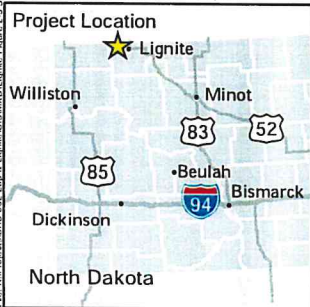
**Table 2-4 Soils by Type**

Soil Type	Acres	Length (mi)
Hamerly-Tonka complex Totals	1.5	0.1
Harriet, Regan, and Stirum soils Totals	7.6	0.5
Heil silt loam Totals	1.5	0.1
Miranda-Noonan loams Totals	28.8	1.9
Niobell-Noonan-Tonka complex Totals	4.6	0.3
Noonan-Niobell loams Totals	22.7	1.5
Portal-Lihen fine sandy loams Totals	3.0	0.2
Southam silt loam Totals	3.0	0.2
Tonka silt loam Totals	13.7	0.9
Vallers loam, saline, Totals	1.5	0.1
Williams-Niobell Loams Totals	10.6	0.7
Williams-Zahl complex Totals	3.0	0.2
Williams-Zahl Loams Totals	4.6	0.3
<b>Total Area of Temporary Disturbance*</b>	<b>106.1</b>	<b>7.0</b>

\*125-ft temporary disturbance width assumed (totals are rounded)



Source: ESRI, MAF/TIGER, USDA NRCS, NAIP



- |  |                                  |                        |
|--|----------------------------------|------------------------|
| 1-Mile Wide Project Study Corridor                                 | Hamerly-Tonka complex            | Southam silt loam      |
| Existing Facility  | Harriet, Regan, and Stirum soils | Tonka silt loam        |
| Proposed Facility  | Heil silt loam                   | Vallers loam, saline   |
| Proposed 10" Pipeline Route (with mile posts)                      | Miranda-Noonan loams             | Williams-Niobell loams |
| Roads  | Niobell-Noonan-Tonka complex     | Williams-Zahl complex  |
| Railway (** indicates underlying rights owned by Canadian Pacific) | Noonan-Niobell loams             | Williams-Zahl loams    |
| Streams  | Portal-Lihen fine sandy loams    |                        |

Figure 2-3

### THPP Lignite Lateral Pipeline Soils



### **2.10.2 Impacts**

Temporary impact to soils in the area will be limited to the ROW. Additional temporary work spaces may be needed for construction activities in order to minimize overall impacts to cultivated lands. Temporary impacts to soils such as grading and equipment traffic are anticipated during construction in the areas immediately surrounding the Route. Soils crossed by the Route would be susceptible to contamination from spills or leaks of fuels, lubricants, and coolants from construction equipment. Loss of topsoil through dust in association with construction activities could affect the soil resources of the area.

### **2.10.3 Mitigation**

All necessary measures will be taken to minimize fugitive dust emissions created during construction activities. Basin Transload's contractor will control dust during construction by applying water to the ROW as necessary. All equipment will be maintained and kept in good working order to prevent soil contamination from spills or leaks of fuels, lubricants and coolants. A standard Spill Prevention Control and Countermeasure (SPCC) Plan will be in place to mitigate any inadvertent discharge.

## **2.11 GEOLOGY AND GROUNDWATER RESOURCES**

### **2.11.1 Description of Resources**

#### *2.11.1.1 Geology*

The surficial geology of North Dakota is largely a result of glacial activity. Although surface material is influenced by modern rivers and lakes, great ice sheets scraped and ground deep furrows into the landscape during the Pleistocene Era. As the glaciers advanced, materials extracted from the underlying bedrock were transported and eventually deposited. As temperatures increased, the ice melted. The melting ice sheets left mixed sediments of all sizes and produced a relatively flat topography with small transient depressions, called potholes. Glacial tills, consisting of unconsolidated sand, gravel, silt, and clay, are remnants of the Pleistocene Epoch.

The Project area lies within the Central Lowland Physiographic Province in northwestern North Dakota. The Central Lowland Physiographic Province can be further divided into six sections that display similar landform characteristics. They are: the Eastern Lake section, the Western Lake section, the Wisconsin Driftless section, the Till Plains, the Dissected Till Plains and the Osage Plains. The Project area is located in the Western Lake Section and consists of young glaciated plain; moraines, lakes, and lacustrine plains.

The Project area is primarily comprised of glacial sediment from the Coleharbor Formation, with a small area of thin deposits of clay and sand that overlie the glacial sediment.

The following are descriptions of the geology in the Project area and its occurrence from youngest to oldest (top to bottom):

- Oahe Formation (Quaternary)

Dark, obscurely bedded clay and silt (overbank sediment); generally overlying cross-bedded sand (channel sediment); as thick as ten meters (30 feet); on flood plains of modern streams.

- Coleharbor Formation (Quaternary)  
Collapsed Glacial Sediment-Gently undulating- 1 to 2 degree maximum slope angles. Supraglacial sediment with hummocky topography; local relief and maximum slope angles are approximately equal to the thickness of supraglacial sediment.

#### **2.11.1.2 Groundwater**

Groundwater is a valuable natural resource in North Dakota. Groundwater in North Dakota is obtainable from two major sources of rock: unconsolidated deposits and bedrock.

Unconsolidated deposits are characterized by loose beds of gravel, sand, silt, and clay of glacial origin. Bedrock, consisting primarily of sandstone and shale, underlies the unconsolidated deposits throughout most of North Dakota. Subsurface voids that contain water are called aquifers. These areas are saturated geologic formations that yield a usable quantity of water to a well or spring. Aquifers created by unconsolidated glacial outwash deposits are referred to as glacial drift aquifers. They are often more productive than the underlying bedrock aquifers in North Dakota. The principal method of aquifer recharge is a combination of precipitation or melting snow and seepage from area stream and lake water into the subsurface.

Northwestern North Dakota has shown potential for the mining of potash deposits, but no known development exists within the Corridor. Oil and Gas wells near the Corridor are reported as either "Dry Hole" or "Plugged & Abandoned". There are no known economic occurrences of other salts, coal, cement rock, clay, uranium, volcanic ash or sand and gravel within the Corridor.

### **2.11.2 Impacts**

#### **2.11.2.1 Geology**

Temporary extra work spaces will be located in suitable areas near large drainages, above and below slopes where construction is expected to be difficult, at pipe laydown areas, and at sites that will be used for equipment parking and storage. Construction and operation of the pipeline will not materially alter the geologic conditions of the Project area. Effects from construction could include disturbances to the natural topography along the ROW, due to trenching and grading activities. Over most of the Project area, alteration of topographic contours would consist of minimal grading of the construction ROW to provide a safe level work surface. If steeply sloping ground conditions are found along the Route, additional grading to achieve a safe work surface may be required. Following construction, Basin Transload will restore areas to their preconstruction contours, to the extent possible.

Potash is the only potential mineral resources within the Corridor. The construction and operation of the Project will have no effect on existing mineral resource extraction and minimal impact to future mineral resource extraction. No geological hazards are expected to be created, and the contractor will employ prudent engineering design and construction practices.

#### **2.11.2.2 Groundwater**

There are no wells identified within the project Corridor. Impacts to any area aquifers are not anticipated. Correspondence received from the North Dakota State Water Commission indicates that there are no other concerns in the immediate area associated the groundwater resources. See Appendix B.

#### **2.11.3 Mitigation**

Following construction, Basin Transload will restore areas to their preconstruction contours, to the extent possible. A standard SPCC Plan will be in place to mitigate any inadvertent discharge that may affect soil resources.

### **2.12 WATER RESOURCES**

In October of 2012, Basin Transload contracted Wenck Associates, Inc., to conduct a Wetland Delineation within the Project Corridor. See Appendix C.

#### **2.12.1 Description of Resources**

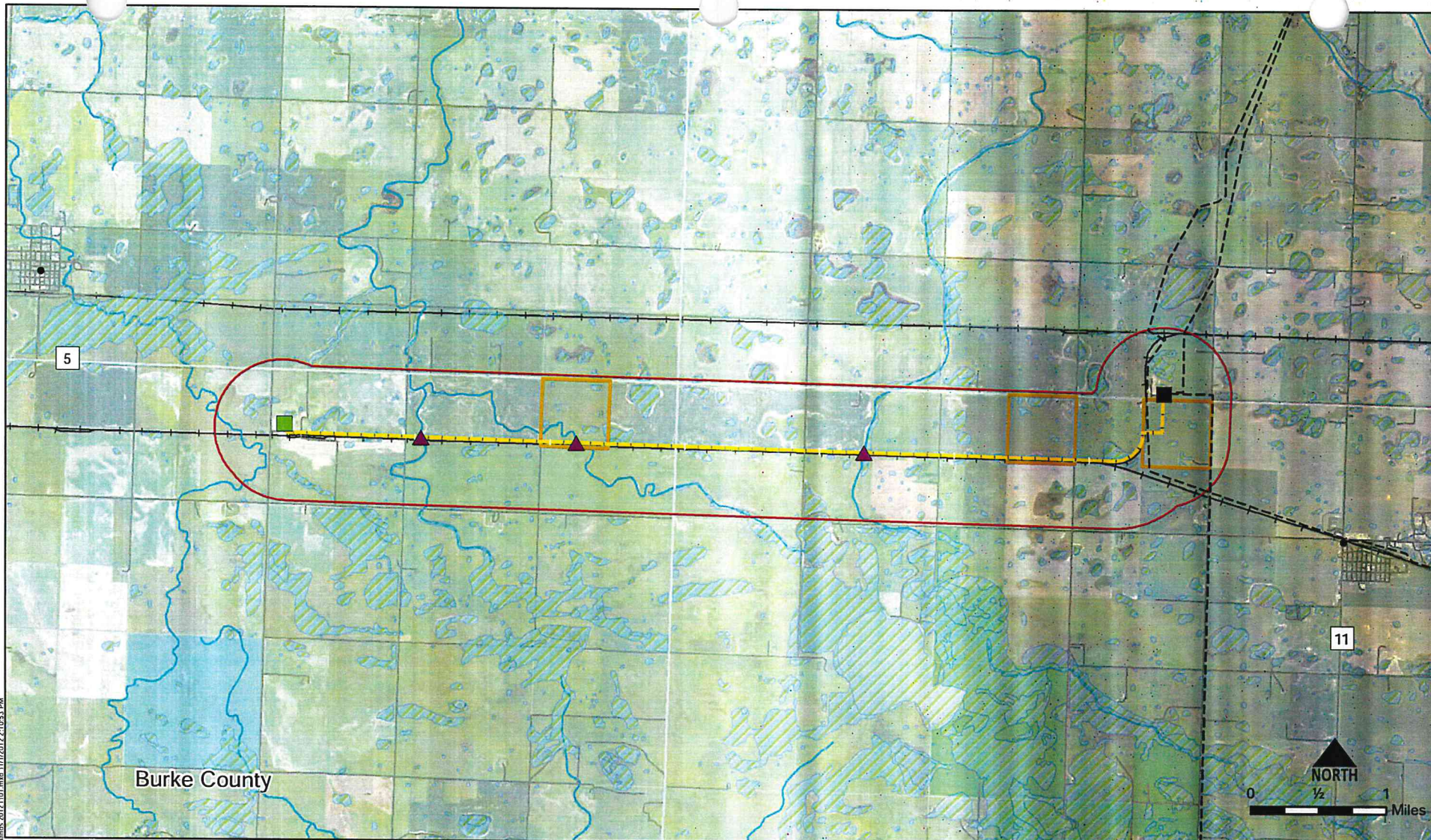
The Wetland Delineation identified 3 streams and 27 wetland basins along the Project Route in an area approximately 7 miles in length by 150 feet wide. Several of the basins were isolated with no obvious connection to a stream or drainage system. Many of the isolated basins were created due to the excavation of material for the railroad embankment. All delineated wetland basins, excluding the streams, appear to be isolated, and therefore are likely not regulated as “waters of the U.S.” under Section 404 of the Clean Water Act; these wetland basins are therefore not under the jurisdiction of the U.S. Army Corps of Engineers.

The U.S. Fish and Wildlife Service (USFWS) also holds three wetland easements within the Project Corridor. These easements are located in the NW1/4 of Section 1-T162N-NR93W; the NE1/4 of Section 4-T162N-R92W; and the NE1/4 of Section 3-T162N-R92W. A wetland easement is a legal agreement signed with the United States of America, through the USFWS, that pays landowners to permanently protect wetlands. Wetlands covered by an easement cannot be drained, filled, leveled, or burned. The USFWS maintains a map of all wetland easements and copies of the easement and maps are sent to the landowner. When these wetlands dry up naturally, they can be farmed, grazed, or hayed. Wetlands covered by an easement are paid for in a single lump sum for the appraised value. No signs are placed on the property and the easement will not affect hunting or mineral rights. See Figure 2-4.

The Burke County Waterfowl Production Area is located immediately south of the Project Corridor and Beaver Lake is located approximately ½ mile south of the Corridor.

#### **2.12.2 Impacts**

Impacts to all area wetlands will be avoided to the greatest extent feasible. The Route design has not yet been finalized and will be adjusted within the Corridor to avoid all wetlands to the greatest extent feasible. Those unavoidable wetlands which are deemed jurisdictional under the U.S. Army Corps of Engineers will be crossed using HDD technology to avoid any surface impacts.



File: R:\Projects\UBAS-003\_7-01\_Lignite\GIS\MapDocs\Figure 2-4 Wetlands.mxd, 2012/11/01 2:10:53 PM  
 Source: ESRI, NV BLM, DOE, MAFTIGER, VEA, NAIP



- |   |                                     |
|---|-------------------------------------|
| 1-Mile Wide Project Study Corridor                                    | Streams                             |
| Existing Facility   | Area of Potential ACOE Jurisdiction |
| Proposed Facility   | USFWS Wetland Easement              |
| Proposed 10" Pipeline Route (with mile posts)                         | NWI Wetlands                        |
| Existing Pipelines  | Waterfowl Production Area           |
| Roads   | State Trust Land                    |
| Railway<br>(** indicates underlying rights owned by Canadian Pacific) |                                     |

Figure 2-4  
**THPP Lignite Lateral Pipeline Wetlands**

Wetlands under easement with the USFWS will be avoided with the Route whenever possible. Where such wetlands cannot be avoided, HDD will be employed to cross beneath these designated areas. Through the use of avoidance and HDD, impacts to area wetlands under easement with the USFWS are anticipated to be minimal and short-term.

Wetlands that are unavoidable, not under a USFWS easement, or deemed to be non-jurisdictional may be crossed using open trench construction technology if field conditions permit.

The Burke County Waterfowl Production and Beaver Lake areas are located outside of the Corridor and south of the railroad. The Route will be located north of the railroad and will not directly impact the designated production area. Indirect impacts to the area will be minor and short-term in duration during construction activities.

### **2.12.3 Mitigation**

Traditional Best Management Practices (BMPs) in accordance with Basin's SWPPP will be employed to reduce any impacts to adjacent wetlands as a result of the Project. In addition, vegetation will be replaced on any disturbed area as soon as reasonable after construction work has been completed. Open trench work will be conducted during the winter months or during the dry seasons of the year to lessen any resulting impacts to any Wetlands.

Basin Transload will work closely with the USFWS to adjust the Route based on field reconnaissance through the wetland easements located in the NW1/4 of Section 1-T162N-NR93W; the NE1/4 of Section 4-T162N-R92W; and the NE1/4 of Section 3-T162N-R92W.

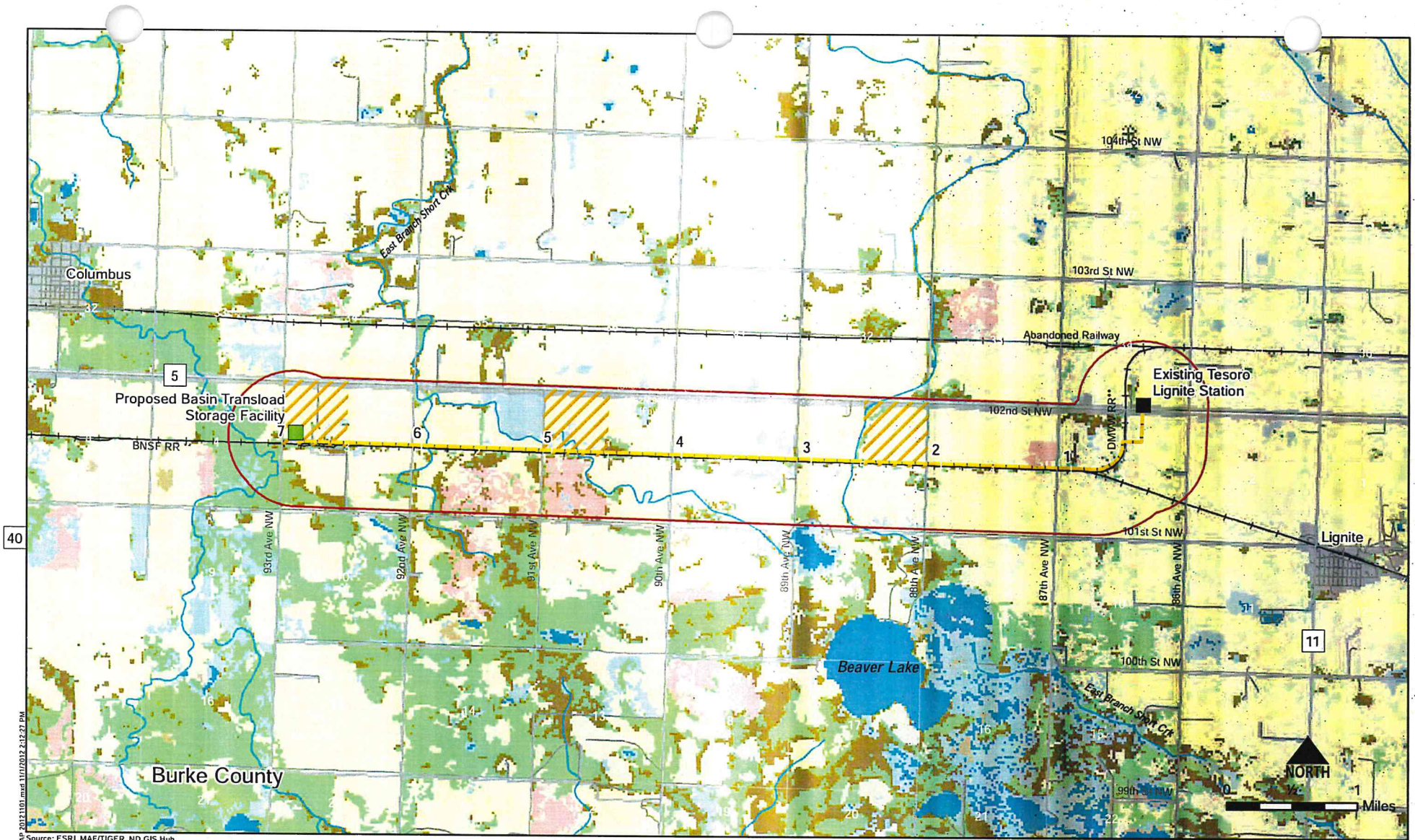
## **2.13 VEGETATION**

### **2.13.1 Description of Resources**

Specific land cover types found within the pipeline Corridor and Route were determined using the North Dakota Gap Analysis (GAP) Land Cover mapping (USGS, 2004). The Corridor generally crosses three vegetative land cover types including Cultivated Cropland, Lowland Grasslands, and Prairie and Pasture/Hay Lands. There are minimal disturbed or modified areas and interspersed open water areas that exist within the Corridor as well. See Figure 2-5.

Noxious weeds are defined as plant species that are difficult to control, spread easily, and are injurious to public health, crops, livestock, land, or other property. Eleven species are listed by the North Dakota Department of Agriculture as noxious weeds within the state. These include absinth wormwood, Canada thistle, diffuse knapweed, leafy spurge, musk thistle, purple loosestrife, Russian knapweed, spotted knapweed, yellow toadflax, Dalmatian toadflax, and saltcedar. In Burke County, the common tansy has also been added to the list of noxious weeds.

There are very few trees or shrubs in the Project area due to the adjacent railroad berm and surrounding agricultural development.



Source: ESRI, MAF/TIGER, ND GIS Hub

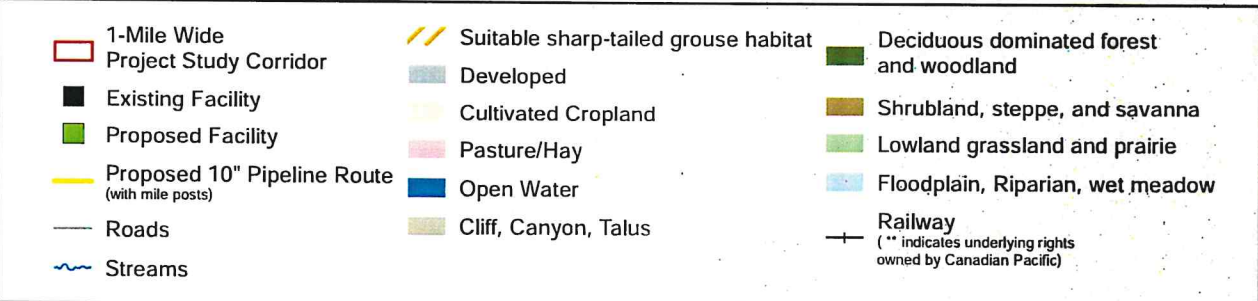


Figure 2-5  
**THPP Lignite Lateral Pipeline GAP Land Cover**



### **2.13.2 Impacts**

Permanent adverse impacts to vegetation are not expected to occur within the Corridor. Temporary impacts may occur in the temporary construction ROW and where access is needed for pipeline construction activities.

Existing agricultural and grazing practices as well as the installation of the railway line along the Route have substantially altered the original vegetative landscape. Minimal impacts are expected to occur to native plant communities as a result of the Project. Permanent vegetative impacts from pipeline construction are not anticipated.

Any trees within the right of way will be removed to accommodate trenching activities.

### **2.13.3 Mitigation**

Basin Transload will work closely with landowners to minimize adverse impacts to vegetation associated with construction of the pipeline. Practices may include containing excavated material, protecting exposed soil, stabilizing restored material, and re-vegetating disturbed areas with native species.

Temporarily disturbed areas that are normally cultivated or used for pasture will be available for continued cultivation and use after pipeline construction is complete. Areas not currently in agricultural use will be reseeded per USFWS and NRCS recommendations to blend in with existing vegetation and discourage establishment of invasive plant species.

Construction equipment will be thoroughly washed prior to its use for construction of the Project to mitigate the spread of noxious weeds.

Any trees greater than 3 inches in caliper will be inventoried prior to construction. These trees will be replaced, in cooperation with the landowner, at a 2-to-1 ratio.

## **2.14 WILDLIFE**

In October of 2012, Basin Transload contracted Wenck Associates, Inc. to conduct a wildlife assessment of the Project area. See Appendix C.

### **2.14.1 Description of Resources**

Wildlife habitat types in the Corridor generally coincide with the major vegetation types described in this section. Wildlife in the Project area consists of birds, mammals, fish, reptiles, amphibians and insects, both resident and migratory, which utilize habitat in the Project area for forage, migratory stopover, breeding, and/or shelter. The rolling hills of the area with few trees results in an inhospitable environment for nesting birds. Species present in the Project area are more general associated with agricultural fields, pasture grasslands, and wetland areas including the Bald Eagle, Golden Eagle and sharp-tailed grouse.

Bald eagles (*Haliaeetus leucocephalus*) were delisted from the US Fish and Wildlife Threatened and Endangered list in 2007, but are still a species of concern. They are currently protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act of 1918, 16 U.S.C. §§ 703-712 (MBTA). Although the Corridor does not contain suitable nesting/perching

habitat, concentrated feeding areas, or other necessary habitat for the bald eagle, the Corridor is located just north of the Burke County Waterfowl Production Area.

Golden eagles (*Aquila chrysaetos*) are also a species of concern in the region. Golden Eagles are protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The golden eagle prefers habitat characterized by open prairie, plains, and forested areas. Usually, golden eagles can be found in proximity to badland cliffs that provide nesting habitat. No golden eagle nests were found within ½ mile of the Project area, and the Project area does not contain suitable nesting habitat for golden eagles. Eagle prey species may be present within and around the project area.

A sharp-tailed grouse habitat feasibility assessment was conducted in October of 2012 to determine if suitable lekking and/or nest habitat was found on the project area and ½ mile radius of the pipeline by walking the entire proposed pipeline Route and surrounding areas. See Appendix C.

Male sharp-tailed grouse congregate at historical/communal leks in the spring to compete for breeding opportunities. Both sexes return to their natal breeding grounds yearly for their entire life. Leks are typically found in areas with low vegetative growth on a hill, knoll or other point of high visibility. Fidelity to these locations is extremely high for sharp-tailed grouse. Sharp-tailed grouse require nesting habitat within close proximity the lek that is comprised of dense or residual vegetative cover to conceal and protect their nest from predators (Vodehnal and Haufler 2007).

During the October surveys several sharp-tailed grouse were flushed all along the proposed pipeline Route. Suitable sharp-tailed grouse habitat was present throughout the analysis area, including the NW¼ of Section 1-T162N-R93W; the NE¼ of Section 5-T162N-R92W; and the NW¼ of Section 3-T162N-R93W. These areas contained potential nesting and/or lekking habitat. Ideal nesting/lekking habitat for this species was found primarily south of the existing railroad tracks where dense vegetation adjacent to moderately grazed areas predominated. See Figure 2-5.

### **2.14.2 Impacts**

Construction activities will include the use of up to a 125-foot-wide ROW for clearing, leveling, trenching, stock-piling backfill, pipe assembly, and equipment movement. Impacts to wildlife resulting from clearing and construction will involve habitat removal and modification. This will result in the temporary removal of existing vegetation from the proposed ROW and a direct/indirect effect on small prairie wildlife that reside in or wander through the construction area.

Vegetative clearing along the construction ROW for the pipeline could potentially impact nesting migratory birds protected under the MBTA. The MBTA protects most bird species, including, but not limited to, cranes, ducks, geese, shorebirds, hawks, and songbirds. Although migratory bird pathways, stopover habitats, wintering areas, and breeding areas may occur within the Corridor any resulting impact from the temporary construction activities are anticipated to be minimal and short term. No adverse effects are anticipated to occur as a result of the Project on golden or bald eagles.

In general, impact on terrestrial wildlife would be short-term and minimal, because sensitive habitats do not exist in the area and would not be affected. Based on the field survey there is suitable short-tailed grouse habitat present along the Route. In accordance with the schedule, Construction is anticipated to take place during the winter months outside of the sensitive lekking season. Following construction, the area affected by construction would be reverted to the pre-construction habitat type following construction. This would result in minimal short-term impacts to area wildlife.

### **2.14.3 Mitigation**

In the event that migratory birds are encountered on-site during project construction the USFWS will be contacted for further direction. Every effort will be made to avoid impacts to protected birds, active nests, eggs, and/or young.

There is no state stipulation for limiting construction activity in relation to distances from potential leks. If economically feasible, construction activities may be limited during the ground nesting bird breeding season (March 1 to June 15), if a sharp-tailed grouse lek is found to exist within the pipeline Corridor.

## **2.15 THREATENED, ENDANGERED AND CANDIDATE SPECIES**

In October of 2012, Basin Transload contracted Wenck Associates, Inc. to conduct a review of viable habitat for threatened, endangered and candidate species in the Project area. See Appendix C.

### **2.15.1 Description of Resources**

The USFWS, NDGF, and North Dakota Parks and Recreation Department (NDPR) were asked to review the Project area, Corridor, and Route for threatened and endangered species and unique habitats.

The Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1544 (ESA), ensures that any actions authorized, funded, or carried out by federal agencies do not jeopardize the existence of any listed endangered, threatened, or candidate species. The USFWS stratifies potential candidates based upon the species' biological vulnerability. Species listed as endangered or threatened are provided full protection, which includes prohibition of destruction of critical habitat. Candidate species are those under consideration for inclusion onto the threatened or endangered species list. While these are sensitive species, they are not afforded formal protection under the ESA.

The USFWS identified three federally listed species for Burke County: whooping crane, gray wolf, and piping plover. In addition, two species are candidates for listing under the Endangered Species Act (ESA): the Sprague's pipit and Dakota skipper (USFWS 2012). No federally listed species or species of concern were observed during a field reconnaissance of the project area conducted on September 19, 2012.

Whooping cranes (*Grus americana*), are listed as endangered and have historically nested in North Dakota, but the whooping crane is currently only a migrant through North Dakota in the spring and fall. During migration, large shallow marshes with minimal to nonexistent emergent zones are preferred for roost sites and upland cropland and pastures adjacent to and usually

within one kilometer (0.62 mile) are used for foraging (Howe 1989). Suitable roosting habitat (partially emergent seasonally flooded (PEMC) wetlands) for whooping cranes is not present on-Site. The Project is within the Central Flyway where 75% of confirmed whooping crane sightings have occurred and suitable cropland food sources can be found nearby. The cropland/wetland matrix habitat within the Corridor makes migratory stopovers by whooping cranes possible. According to the USFWS, a whooping crane was observed on September 22, 2012, approximately 11 miles northwest of the western end of the proposed pipeline. (Mike Rabenberg, personal communication, October 17, 2012.)

Gray wolf (*Canis lupus*) is listed as endangered. The most suitable habitat for the gray wolf in North Dakota is in the dense and contiguous forested areas in the north central and northeast parts of the state. There have been documented occurrences of gray wolves in south-central North Dakota (1985, 1990, and 1991) and confirmed reports of gray wolves in the Turtle Mountains of North Dakota (Grondahl, NDGFD, personal communication, 2006). The Project area does not contain dense, contiguous forested areas required by the gray wolf and there have been no historical wolf sightings within or near the project area (USFWS 2006).

Piping plover (*Charadrius melodus*) is listed as threatened. Critical habitat for the piping plover includes sparsely vegetated shoreline beaches, peninsulas, islands composed of sand, gravel, or shale, and their interface with the water bodies (USFWS 2012). The Project area is approximately eighteen (18) miles northwest of designated critical habitat for the piping plover (USFWS 2012). Suitable habitat for piping plovers is not present within or adjacent to the Project area and surrounding area are primarily grassland habitats or agricultural land.

Sprague's Pipit (*Anthus spragueii*) is not currently a listed threatened or endangered species but is a candidate species for listing. Sprague's pipits have been historically observed in this region of North Dakota. Suitable Sprague's pipit habitat includes ungrazed or lightly grazed mixed-grass prairie that is open and extensive with minimal woody cover nearby. The Project area had areas of mixed-grass prairie with no woody cover in the NW¼ of Section 1-T162N-R93W; the NE¼ of Section 5-T162N-R92W; and the NW¼ of Section 3-T162N-R93W, but a large portion of the grassland was sparse and open. However, these prairie remnants were small, low quality, and surrounded by agricultural land, which is not suitable potential habitat for this species.

Dakota skipper (*Hesperia dacotae*) is not currently a listed threatened or endangered species but is a candidate species for listing. North Dakota has a decreasing population of Dakota skippers. In the western part of the state, its habitat includes ungrazed native prairie with little bluestem (*Schizachyrium scoparium*), needle and thread (*Stipa comata*), purple coneflower (*Echinacea* sp.) and high forb and grass diversity (USFWS 2006). The Dakota skipper has been documented within Burke County (USFWS 2006). Though the Site had parcels of remaining mixed grass prairie, these areas were small, low in quality and diversity and did not provide suitable potential habitat for the Dakota skipper.

### **2.15.2 Impacts**

Due to the location of the Corridor and the associated habitat, there are no impacts anticipated for the Gray wolf, Piping plover, or Dakota skipper.

Although feasible habitat exists in the Project area, the sparsely covered grassland does not provide habitat conducive to the presence of Sprague's Pipit. With the current condition of the area, adverse impacts to this candidate species as a result of the Project are unlikely. Impacts to the area habitat will be minimal and temporary.

Although the Corridor is within the migratory flyway for the Whooping crane, suitable roosting habitat for whooping cranes is not present in the Project area. Whooping crane migration typically occurs in the spring between March and May and again in the fall between mid-September and Mid-November. The Project is not likely to adversely affect the whooping crane.

### **2.15.3 Mitigation**

Construction activities are scheduled to take place between December and March to avoid any potential impacts to migrating Whooping cranes. Per the USFWS recommendations, if a Whooping crane is sighted within 1 mile of the site or associated facilities while under construction, then all work would cease and the USFWS would be contacted immediately. In coordination with USFWS, work may resume after the bird(s) leave the area. Disturbance of native vegetation will be minimized as much as possible during construction. Disturbed areas within the project area will be reclaimed with native plant species or returned to cultivated cropland.

This section provides an analysis of the need for the proposed facility based on present and projected demand for the product, a description of any feasible alternatives and a statement justifying any deviations from the most recent Ten-Year Plan, if applicable.

### **3.1 ANALYSIS OF NEED**

Existing pipelines for transmitting crude oil are near capacity. The Project will provide critical pipeline infrastructure connecting oil storage facilities and will create an additional means of transporting crude oil to refineries. The pipeline will provide a more environmentally sensitive method of transporting crude oil than trucking, which will open new markets and benefit the producers in the Bakken Oil Fields, landowners, citizens of the State of North Dakota, local municipalities, and mineral interest owners.

### **3.2 FEASIBLE ALTERNATIVES**

Alternatives for transporting crude oil already exist. Transportation via current pipeline capacity is constrained, and transportation by truck is extensively utilized. The Route proposed for this pipeline is within easements acquired by Basin Transload for the purpose of this pipeline Project. These Route alternatives would require the purchase of alternate easements, potentially increasing the pipeline length and resulting impacts. The Route selected has minimal effects on resources and residents.

### **3.3 DEVIATIONS FROM TEN-YEAR PLAN**

No deviations from Basin Transloads's Ten-Year Plan are being requested as a part of this application.

## **4.1 PROJECT AREA**

This section provides a review of the Project area including the proposed Corridor, maps of the criteria leading to the Corridor selection within the Project area, discussion on the relative value of the criteria used in the selection, and a review of the Exclusion, Avoidance and Selection Criteria. In addition, the design and construction limitations as well as the economic considerations are presented below. A discussion of the general mitigation measures employed by the project is included. The section is concluded with a summary of those involved in the preparation of the materials presented in this document. See Figure 4-1 for a map of the Project area.

### **4.1.1 Basin Transload Environmental Policy Statement**

Basin is committed to protecting the environment, and maintaining compliance with applicable environmental laws, regulations permits, and licenses. Basin affirms these commitments in a set of written principles. Basin and its affiliates will:

- Understand the environmental impacts of our Operations and develop strategies and methods to identify and minimize these impacts;
- Make environmental considerations a priority both in operating and modifying our existing Terminals as well as in planning and integrating new Terminals and Operations;
- Maintain appropriate records and guidance documents necessary to demonstrate regulatory compliance and to provide proper direction to Employees and Personnel;
- Communicate the necessary environmental requirements and expectations of our Personnel through open dialog, regular meetings, memoranda, and training;
- Evaluate the environmental impacts and regulatory compliance elements of our Operations at regular intervals to ensure continued environmental performance and to identify and correct deficiencies as soon as possible; and
- Improve our operational systems on a continuous basis in order to maintain ongoing compliance and to minimize environmental impacts.

It is the responsibility of all personnel to recognize the environmental impacts of their work and to take steps and make recommendations to minimize those impacts and maintain compliance with environmental laws, regulations and permits through adherence to guidance provided in relevant documentation, training and supervisory instruction.

**4.1.2 Corridor and Route Siting Criteria**

The Project area is generally located northwest of Lignite in Burke County, North Dakota. A Corridor 1 mile wide was selected within this Project area to provide the opportunity to Route a crude oil pipeline that will connect an existing pipeline located in Section 34-T163N-R92W with a storage facility in Section 3-T162N-R93W, Burke County. The Project area, Corridor and Route are shown in Figure 4-2.

The 1-mile width of this Corridor complies with NDAC § 69-06-04-02(b) which states “The width of a Corridor must be at least ten percent of its length, but not less than one mile (1.61 kilometers) or greater than six miles (9.66 kilometers) unless approved by the [NDPSC].”

Exclusion and avoidance criteria outlined in NDAC § 69-06-08-02 were considered as part of the selection of the Corridor and Route. Exclusion areas include designated or registered national areas, designated or registered state areas, county parks and recreational areas, critical habitat for threatened and endangered, unique or rare species. No exclusion areas exist within the Corridor.

Avoidance areas include designated or registered national areas, designated or registered state areas, historical resources, geologically unstable areas, areas within 500 feet of an occupied structure, municipal water sources, irrigation or recreational areas. No avoidance areas exist within the Corridor.

Figure 4-3 presents Exclusion areas that are located within Burke County.

Figure 4-4 presents Avoidance areas that are located within Burke County.

Section B, above, describes the resources, associated impacts and mitigation associated with the Project. The final Route within the Corridor was selected to reduce impacts to area resources in cooperation with area landowners.

The Corridor legal location descriptions are provided in Table 4-1.

**Table 4-1 Corridor Legal Descriptions**

County	Township Name	Section	Township	Range
Burke	Fay	1, 2, 3	162N	93W
Burke	Vale	2, 3, 4, 5, 6	162N	92W
Burke	Portal	34, 35	163N	92W

**4.1.3 Criteria of Corridor Evaluation and Route Selection**

There are no Exclusion areas within the Project Corridor.

All designated Avoidance areas are located outside of the Project Corridor. The nearest Avoidance area is immediately south of the Corridor, the Burke County Waterfowl Production Area.

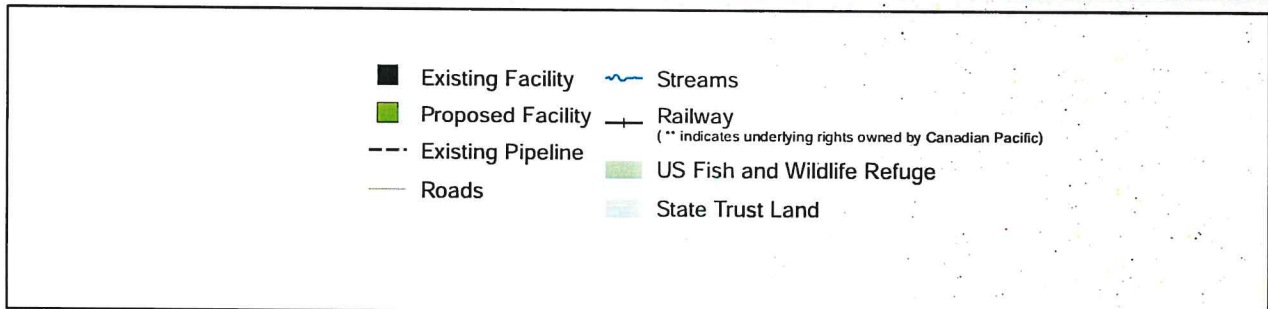
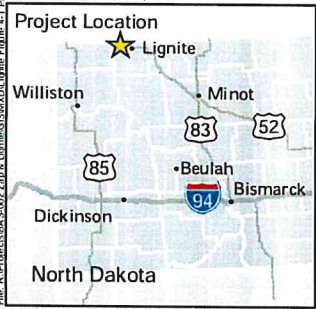
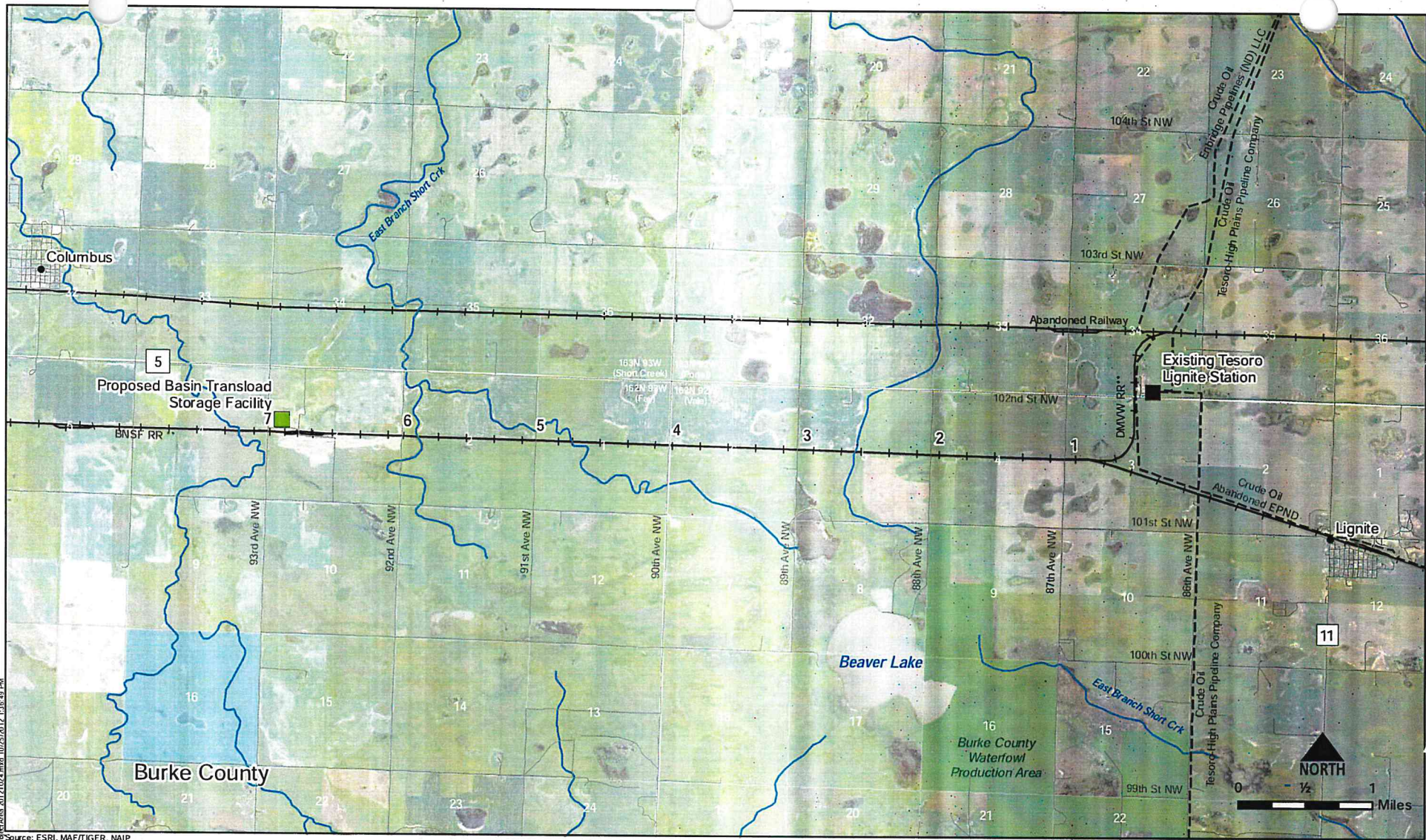
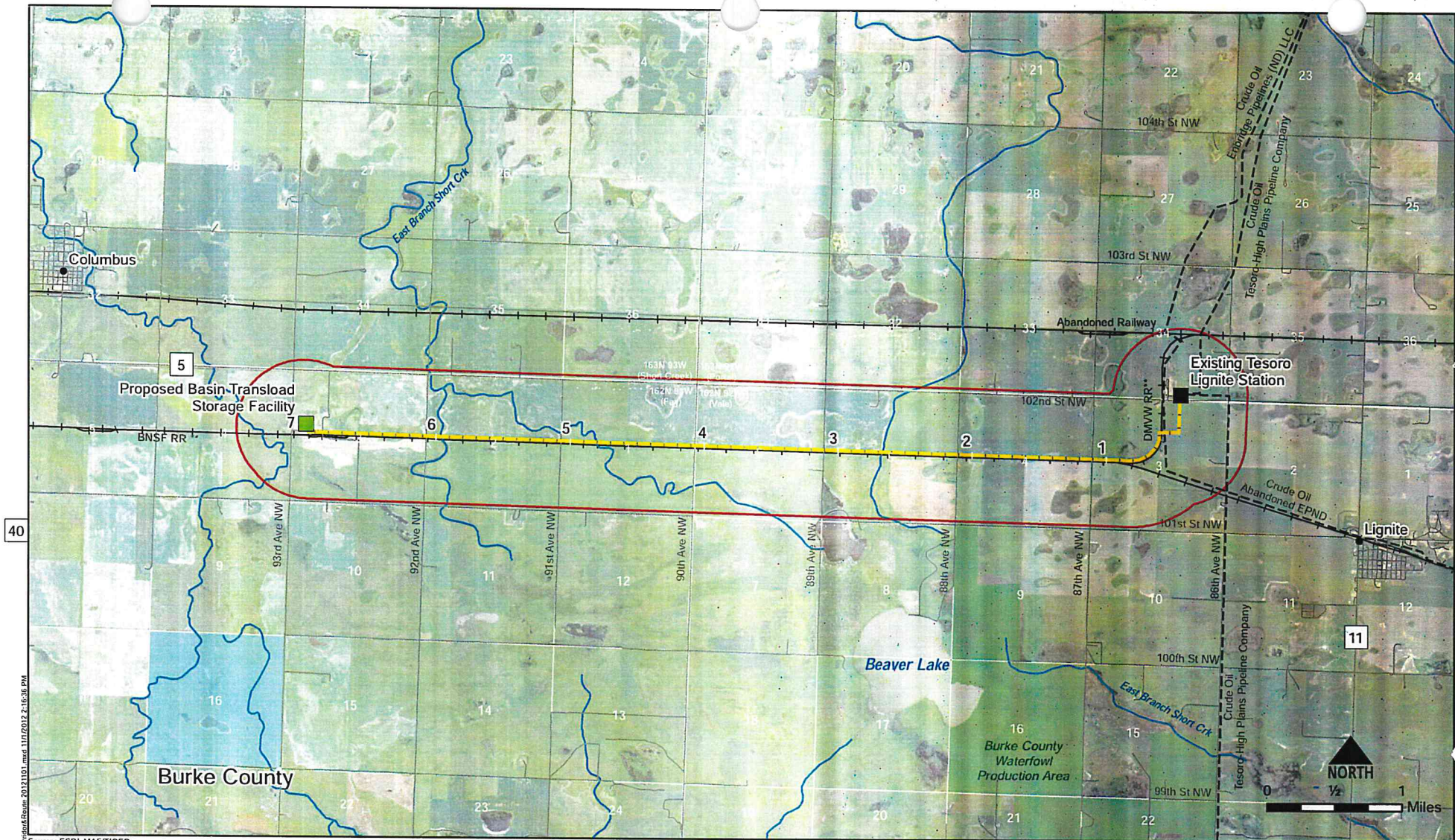


Figure 4-1  
**THPP Lignite Lateral Pipeline Project Area**



File: R:\Projects\BAS\_007\_Exp\_4\_Lignite\GIS\MapXDoc\Lignite\_Figure\_4-2\_CorridorRoute.mxd  
 Date: 11/17/2012 2:16:36 PM  
 Source: ESRI MAF/TIGER

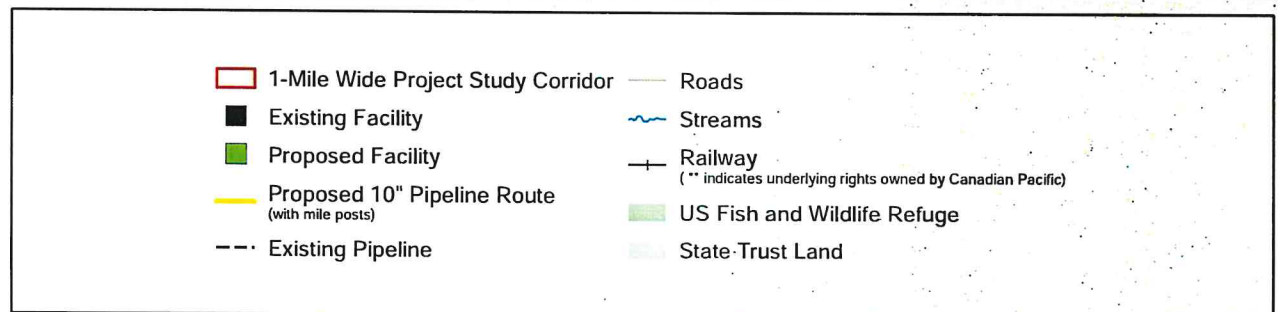
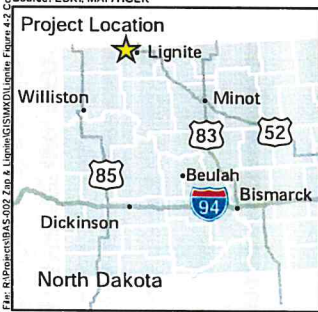


Figure 4-2  
**THPP Lignite Lateral Pipeline Project Corridor and Route**

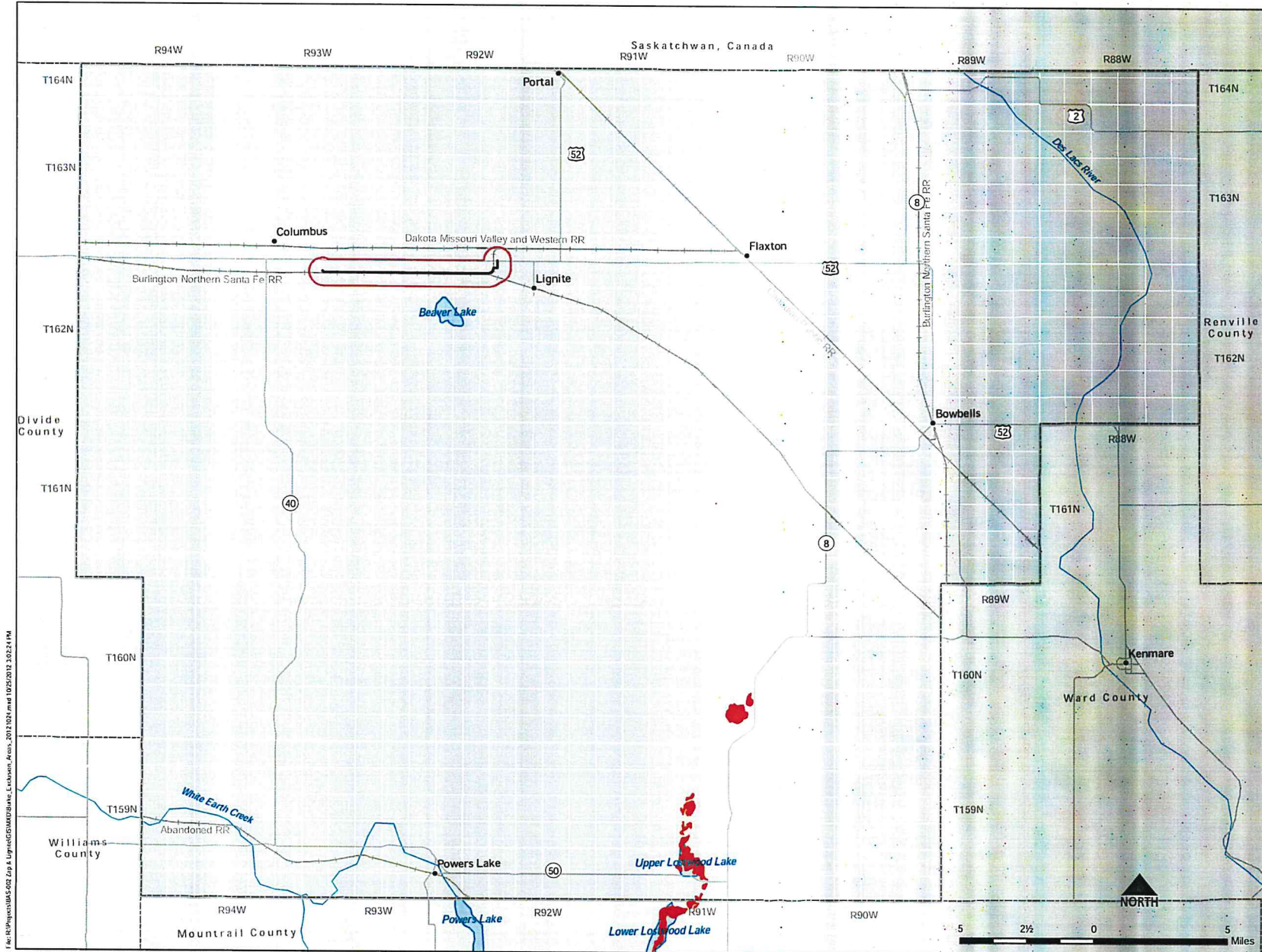


Figure 4-3  
**THPP Lignite  
 Lateral Corridor  
 Exclusion Areas  
 within Burke County**

ELECTRICAL CONSULTANTS, INC.

- 1-Mile Wide Project Study Corridor
- Proposed Pipeline Route
- Burke County
- Major Highways
- Railway
- Major Rivers
- Waterbodies
- Piping Plover Habitat



File: H:\Projects\10455002\_Esp\_4\_UprtdGISMAP\Burke\_Lignite\_Areas\_20121019.mxd 10/19/2012 3:24 PM  
 Source: USFWS NWL USDA APFO, NRCS SSURGO, ND GIS Hubs, ESRI

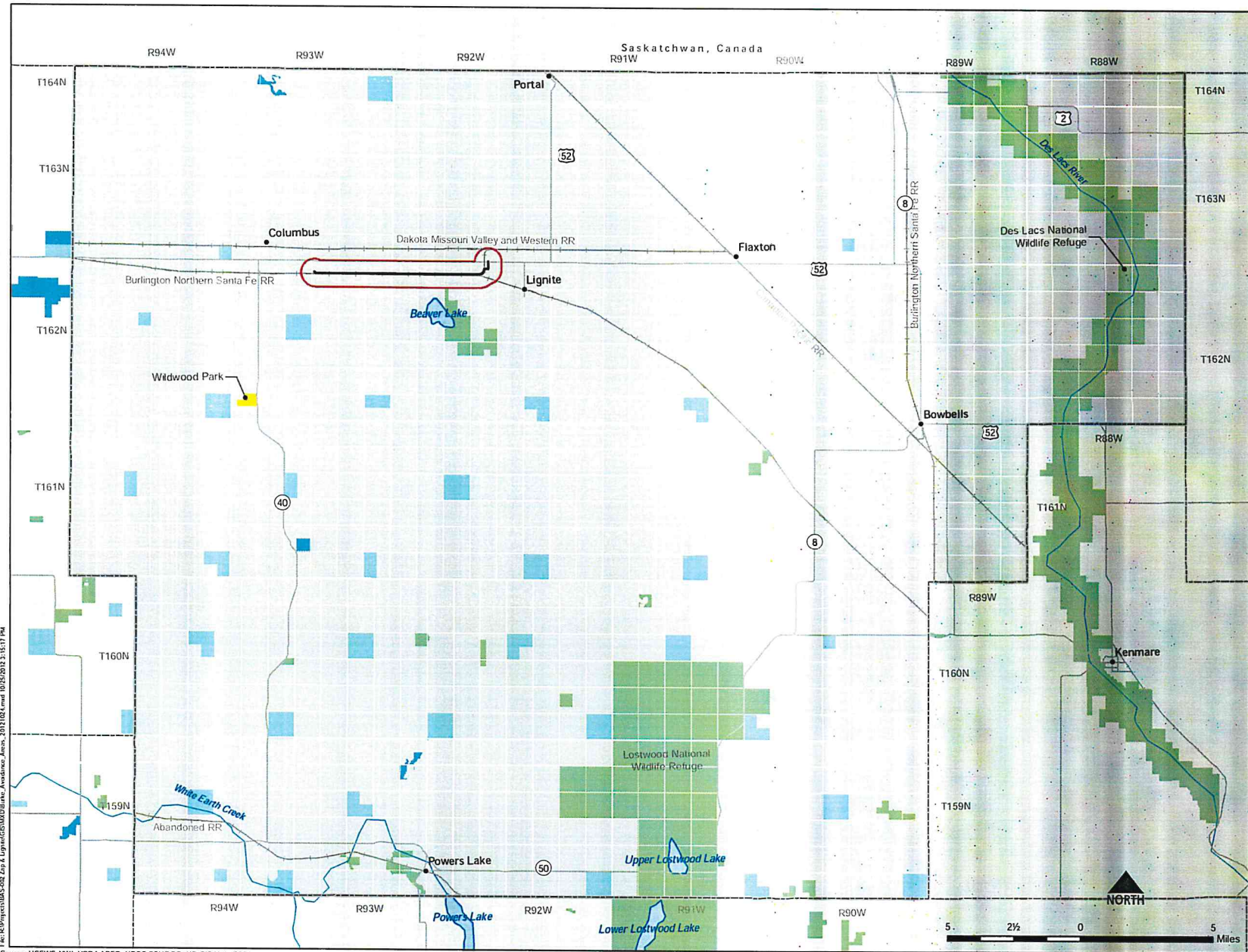


Figure 4-4  
**THPP Lignite  
 Lateral Corridor  
 Avoidance Areas,  
 within Burke County**  
 ECI  
 ELECTRICAL CONSULTANTS, INC.

- 1- Mile Wide Project Study Corridor
- Proposed Pipeline Route
- Burke County
- Major Highways
- Railway
- Major Rivers
- Waterbodies
- Regional Park
- State Trust Land
- State Wildlife Management Area
- US Fish and Wildlife Refuge



File: \\mynetwork\GIS\2002\_Esp\_4\_Lignite\GIS\Map\Bulrline\_Avoidance\_Areas\_20121021.mxd 10/20/2012 2:15:17 PM  
 Source: USFWS MWL, USDA APFO, NRCS SSURGO, ND GIS Hub, ESRI

#### **4.1.4 Exclusion, Avoidance and Selection NDCC § 49-22-09**

In selecting the proposed Corridor and Route, Basin considered the factors outlined in NDCC § 49-22-09 considering the relative value of each criteria. These factors are evaluated in the following sections.

##### **4.1.4.1 *Effects on public health and welfare, natural resources and the environment (NDCC § 49-22-09(1))***

Section B, above, describes the resources within the Project area including potential impacts and planned mitigation. Overall, there are not anticipated to be any significant adverse effects on public health and welfare. The pipeline will be constructed to meet all safety codes and regulatory requirements. The area is expected to realize a slight increase in economic benefit resulting from temporary use of local labor and patronage of businesses in nearby towns during the brief period of construction in addition to the tax revenue realized by the county.

Natural resources are expected to incur minor and temporary effects as a result of construction associated disturbances within the right of way. There are no designated Exclusion or Avoidance areas within the project Corridor.

##### **4.1.4.2 *Systems designed to minimize adverse environmental effects (NDCC § 49-22-09(2))***

Section B, above, describes the resources within the Project area including potential impacts and planned mitigation. All disturbed areas will be restored to their original condition as cultivated agricultural use or open grassland following the installation of the pipeline. Construction BMPs will be followed in accordance with issued permits, guidelines and landowner agreements.

##### **4.1.4.3 *The potential for beneficial uses of waste energy (NDCC § 49-22-09(3))***

The proposed Project is a transmission pipeline for crude oil. There will be no waste energy associated with the Project.

##### **4.1.4.4 *Adverse direct and indirect environmental effects which cannot be avoided (NDCC § 49-22-09(4))***

Section B, above, describes the resources within the Project area including potential impacts and planned mitigation. Significant adverse direct or indirect environmental effects are not anticipated as a result of the proposed pipeline Project. The pipeline will be constructed in accordance with all regulatory safety standards to preclude any direct effects to health and safety. The pipeline will be buried resulting in temporary impacts to aesthetics and noise that may occur during construction. A cultural survey of the project Corridor has identified that there are no historic properties affected by the Project. There are no major waterways, rivers or other recreational facilities within the Corridor. There are no special status species or habitats located within the Corridor.

##### **4.1.4.5 *Alternatives to the proposed Corridor/Route developed during the hearing process (NDCC § 49-22-09(5))***

Corridor and Route alternatives are identified to determine if adverse impacts to environmentally sensitive resources, such as large population centers, scenic areas, wildlife and natural habitat management areas, and wetlands could be avoided or reduced. Alternative routes were

reviewed, but generally affected more agricultural lands and a greater number of sensitive resources than the proposed Route. The proposed Route and Corridor reflect the adjustments that were made to avoid or minimize impacts to these areas.

The ROW for the Project Route has been purchased from the landowners within the Corridor. Any alternative Corridors or Routes developed during the hearing process will require the purchase of additional ROW from landowners.

*4.1.4.6 Irreversible and irretrievable commitment of natural resources (NDCC § 49-22-09(6))*

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the use of these resources have on future generations. Irreversible effects primarily result from use or destruction of a specific resource that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action.

Construction of the Project will provide an economical and reliable means of transporting oil resources to available markets. Resources such as steel, aggregate material, and hydrocarbon fuels will be used during construction.

*4.1.4.7 Direct and indirect economic impacts of the facility (NDCC § 49-22-09(7))*

Section 2.9, above, describes the economic resources including any associated impacts and resulting mitigation in detail. Direct economic impacts include impacts associated with agricultural land being temporarily impacted during pipeline construction. Landowners were compensated for the easements that were required for the pipeline Route including any additional negotiated compensation for items such as crop damage. Once construction is complete, agricultural land within the ROW will still be available for farming.

The remaining direct and indirect economic impacts are primarily positive, though temporary. To the extent that local contractors are used for portions of the construction, total wages and salaries paid to contractors and workers will contribute to the total personal income of the region. Additional personal income will be generated for residents in the county and the state by circulation and recirculation of dollars paid out by Basin Transload, as business expenditures and state and local taxes. Expenditures made for equipment, energy, fuel, operating supplies, and other products and services will benefit businesses in the area.

Long-term beneficial impacts to the county's tax base as a result of the construction and operation of the pipeline will improve the local economy. The development of petroleum energy in this region will be important in diversifying and strengthening the economic base of central North Dakota. Additional revenues are expected from property and income taxes.

*4.1.4.8 Conflicts with existing plans of the state, local government or other entities in the area (NDCC § 49-22-09(8))*

A solicitation was sent to all agencies as required in NDAC §69-06-01-05 as well as additional federal agencies. See Appendix B. As a part of this solicitation, agencies were asked to comment on the proposed Project. Based on the responses received from participating agencies, no conflicts with existing state, local or private entity projects are anticipated at this time.

**4.1.4.9 Effects on scenic areas, historic sites, paleontological or archaeological sites (NDCC § 49-22-09(9))**

There are no designated scenic areas in our near the proposed Corridor. A Class I file search as well as a Class III pedestrian survey has been conducted for sites of cultural significance within the Project Corridor. The survey identified no areas of contributing significance and recommended a determination of *No Historic Properties Affected* by the Project.

**4.1.4.10 Effects on areas of unique biological wealth or habitats of rare and endangered species (NDCC § 49-22-09(10))**

Sections 2.13.2 and 2.15, above, describe the biology and habitats within the Project Corridor in detail. In September of 2012, Basin Transload contracted Wenck Associates, Inc. to conduct a review of viable habitat for threatened, endangered and candidate species and the associated habitat in the Project area. See Appendix C.

In general, there are no areas of unique biological wealth within the Corridor. Due to the location of the Corridor and the associated habitat, there are no impacts anticipated for the Gray Wolf, Piping plover, Sprague's Pipit, Dakota skipper, Bald Eagle or Golden Eagle.

The proposed Corridor is within the migratory flyway for the whooping crane and suitable roosting habitat exists within the Corridor. The cropland/wetland matrix of this habitat makes migratory stopovers by whooping cranes possible and according to the USFWS, a whooping crane was observed approximately 11 miles northwest of the Project area. Although the Corridor is within the flyway, impacts are expected to be minor and temporary in duration, lasting only through construction. Migration season for the Whooping crane occurs late March through May and again mid-September through mid-November. Construction is scheduled to take place in late fall through early spring to avoid the migratory season. With these mitigation measures, the Project is not likely to adversely affect the whooping crane.

**4.1.4.11 Problems raised by federal agencies, other state or local (NDCC § 49-22-09(11))**

A solicitation was sent to all agencies as required in NDAC § 69-06-01-05 as well as additional federal agencies. See Appendix B. As a part of this solicitation, agencies were asked to comment on the proposed Project. Based on the responses received from participating agencies, no significant problems, issues or concerns were raised.

**4.1.5 Evaluation Criteria NDAC § 69-06-08-02**

Basin Transload evaluated the Project area to determine the optimal location for the Corridor and Route. Within the Project area, a 1-mile-wide Corridor was selected that complies with NDAC § 69-06-04-02. Within the Corridor, an approximately 7-mile-long Route was selected according to an inventory and suitability analysis based on the criteria listed in NDAC § 69-06-08-02. This includes an assessment of Exclusion and Avoidance area criteria; selection criteria that relate to minimizing potential land use and environmental impacts; policy criteria that relate to maximizing public benefits; and design and construction limitations. Basin Transload also included economic considerations as part of the Corridor and Route selection process.

**4.1.5.1 Exclusion Criteria**

The proposed Corridor meets the criteria set forth in NDAC § 69-06-08-02 which states:

“Exclusion and avoidance areas may be located within a Corridor, but at no given point shall such an area or areas encompass more than fifty percent of the Corridor width unless there is no reasonable alternative.”

There are no Exclusion areas within the Corridor and consequently, none are crossed by the Route.

**4.1.5.2 Avoidance Criteria**

NDAC § 69-06-08-02(2) provides: “The following geographical areas shall not be considered in the routing of a transmission facility unless the applicant shows that under the circumstances there is no reasonable alternative. In determining whether an avoidance area should be designated for a facility, the commission may consider, among other things, the proposed management of adverse impacts; the orderly siting of facilities; system reliability and integrity; the efficient use of resources; and alternative routes.”

There are no Avoidance areas within the Corridor and consequently, none are crossed by the Route.

**4.1.5.3 Selection Criteria**

According to NDAC § 69-06-08-02(3): “A Corridor or Route shall be designated only when it is demonstrated to the [NDPSC] by the applicant that any significant adverse effects resulting from the location, construction and maintenance of the facility, as they relate to the following, will be at an acceptable minimum or that those effects will be managed or maintained at an acceptable minimum.” A detailed analysis of all resources can be found in Section B of this application. The following Table 4-2 is a summary of the Selection Criteria along with the referenced detailed section.

**Table 4-2 Selection Criteria**

<b>Selection Criteria NDAC § 69-06-08-02(3)</b>	<b>Reference</b>	<b>Corridor Impacts</b>	<b>Route Impacts</b>
Agricultural Production	Section 2.2	No permanent impacts are anticipated.	No permanent impacts are anticipated. Temporary, minor impacts as a result of construction will occur.
Family farms and ranches	Section 2.2	No permanent impacts are anticipated.	No permanent impacts are anticipated. Temporary, minor impacts as a result of construction will occur.
Land which the owner can demonstrate has soil, topography, drainage, and an available water supply that cause the land to be economically suitable for irrigation	Section 2.2	No permanent impacts are anticipated.	No permanent impacts are anticipated. Temporary, minor impacts as a result of construction will occur.
Surface drainage patterns and ground water flow patterns.	Section 2.2	No permanent impacts are anticipated.	No permanent impacts are anticipated. Temporary, minor impacts as a result of construction will occur.

# SECTION D

## Location

Selection Criteria NDAC § 69-06-08-02(3)	Reference	Corridor Impacts	Route Impacts
Noise-sensitive land uses	Section 2.5	No permanent impacts are anticipated. Temporary, minor impacts as a result of construction will occur.	No permanent impacts are anticipated. Temporary, minor impacts as a result of construction will occur.
The visual effect on the adjacent area	Section 2.6	No permanent impacts are anticipated. Temporary, minor impacts as a result of construction will occur.	No permanent impacts are anticipated. Temporary, minor impacts as a result of construction will occur.
Extractive and storage resources	Section 2.11	No permanent impacts are anticipated.	No permanent impacts are anticipated. Temporary, minor impacts as a result of construction will occur.
Wetlands, woodlands and wooded areas	Section 2.12	No permanent impacts are anticipated.	No permanent impacts are anticipated. Temporary, minor impacts as a result of construction will occur.
Radio and television reception, and other communication or electronic control facilities	Section 2.3	No permanent impacts are anticipated.	No permanent impacts are anticipated. Temporary, minor impacts as a result of construction will occur.
Human health and safety	Section 2.4	No permanent impacts are anticipated.	No permanent impacts are anticipated. Temporary, minor impacts as a result of construction will occur.
Animal health and safety	Section 2.4	No permanent impacts are anticipated.	No permanent impacts are anticipated. Temporary, minor impacts as a result of construction will occur.
Plant life	Section 2.13	No permanent impacts are anticipated. No special status plant life has been identified within the Corridor.	No permanent impacts are anticipated. Temporary, minor impacts as a result of construction will occur.

Source: ECI 2012

### 4.1.5.4 Policy Criteria

According to NDAC § 69-06-08-02(4): “The [NDPSC] may give preference to an applicant that will maximize benefits that result from the adoption of the following policies and practices, and in a proper case may require the adoption of such policies and practices.”

**Table 4-3 Policy Criteria**

Policy Criteria	Basin Transload Policy
Location and Design	The Project Corridor and Route have been located and designed to minimize impacts to area resources and landowners.
Training and utilization of available labor in this state for the general and specialized skills required	Basin Transload will utilize available local labor to the extent practical.
Economies of construction and operation	Basin Transload will utilize available local contractors to the extent practical.
Use of citizen coordinating committees	Basin Transload has negotiated with area landowners to site the Project Corridor and Route. All land easements have been obtained from local

Policy Criteria	Basin Transload Policy
	landowners for the purpose of the pipeline Project.
A commitment of a portion of the transmitted product for use in this state	The only refinery in the state, the Tesco Mandan Refinery, is currently running at capacity and has no need for additional crude oil as is being transported by this Project.
Labor relations	No labor relations will be affected by this Project.
The coordination of facilities	This facility has been coordinated with adjacent pipeline facility owners and landowners within the Corridor.
Monitoring of impacts	Basin Transload will utilize BMPs as appropriate and monitor all impacts in accordance with good construction practice, area regulations and all applicable permitting restrictions.
Utilization of existing and proposed rights of way and Corridors	All of the ROW for the Project has been obtained and is presently an existing right of way easement for the pipeline Route.
Other existing or proposed transmission facilities	The Project will tap an existing crude oil pipeline in Section 34-T163N-R92W

Source: ECI 2012

**4.1.5.5 Economic Considerations**

Basin Transload also utilizes economic considerations in the siting of a Corridor and Route. In general, the minimal distance between termination points and a reduction in the number of angles along a pipeline are important considerations in reducing the overall cost of a project. In addition, other economic considerations include those associated with the cost of purchasing ROW easements as well as landowner compensation associated with loss of use or resulting impacts. All of these economic considerations were carefully balanced with the other Exclusion, Avoidance, Selection, and Policy criteria as outlined in the Energy Conversion and Transmission Facility Siting regulations.

**4.1.6 Mitigation Measures**

Mitigation measures are identified in detail in Section B, above, and are summarized in the table below.

**Table 4-4 Mitigation Table**

Resource	Anticipated Impact	Mitigation
Demographics	No adverse impact, potential temporary benefits to area economy	Payment to area landowners for easements
Land Use	Temporary adverse impacts as a result of construction activities	Coordination with landowners Restoration to preconstruction condition
Public Services	Temporary and minor adverse impacts as a result of construction activities	Coordination with landowners
Human Health and Safety	Inherent risk associated with pipeline construction and use	Design and construction in accordance with 49 CFR §195
Noise	Temporary and minor adverse impacts as a result of construction activities	Restriction of construction to daytime hours Maintenance of equipment in good working order
Aesthetics	Temporary and minor adverse impacts as a result of construction activities	None are proposed
Cultural	No historic properties affected	None
Recreation	No adverse impacts	None
Economics	Temporary and minor adverse impacts as a result of construction activities  Temporary positive impacts will occur	Coordination with landowners Disked soils to repair compaction soils Compensation for any crop damages

# SECTION D

## Location

Resource	Anticipated Impact	Mitigation
	as a result of local employment, tax revenue and patronage for regional retail business	
Soils	Temporary and minor adverse impacts as a result of construction activities	Dust control Equipment will be well-maintained to preclude any spills or leaks
Geology and Groundwater	No impacts on geology or groundwater resources are anticipated.	Restoration to preconstruction condition
Water Resource	Temporary and minor adverse impacts as a result of construction activities	Implementation of Storm Water BMPs As directed by the USFWS, Basin Transload will adjust the Route in cooperation with agency field personnel
Vegetation	Temporary and minor adverse impacts as a result of construction activities	Coordination with landowners Restoration to preconstruction condition Any trees scheduled for removal will be inventoried and replaced at a 2:1 ratio in cooperation with the landowner
Wildlife	Temporary and minor adverse impacts as a result of construction activities	None
Threatened, Endangered and Candidate Species	Temporary and minor adverse impacts as a result of construction activities	If a Whooping crane is sited within 1 mile of the site, construction will be curtailed until the passing of the bird

Source: ECI 2012

### 4.1.7 Participating Parties

Name	Qualifications
Ray Sheldon Project Manager for Basin Transload	Mr. Sheldon has over 20 years of experience in the industrial construction industry providing expertise in project management, scheduling and construction methodology.
Crystal Kuntz, P.E. Permitting & Compliance	BS in Civil Engineering – Montana State University, Bozeman MBA – University of Montana MS in Public relations – Montana State University, Billings MS in Information Technology – Montana State University, Billings With 15 years of experience in engineering, design, project management, permitting & compliance.
John Schulz Certified Wildlife Biologist	BS in Earth Science and Biology – Dickinson State University MS in Zoology – North Dakota State University Nearly 35 years of experience in wildlife biology including field research including 14 years with the ND Game and Fish Department as an upland game biologist.
Daniel Ackerman Natural Resource Specialist	MS in Biology – University of North Dakota BS in Fisheries and Wildlife Biology – University of North Dakota Over 10 years of experience as an environmental scientist providing biological surveys, research and field reporting.
Justin Askim Natural Resource Specialist	BS in Natural Resource Management – North Dakota State University Over seven years of experience as a wildlife field biologist.
Patrick J. Kuntz	BA in Anthropology – University of Montana MS in Anthropology – University of Montana More than 13 years of experience in cultural resource history and archaeology.
Blain Fandrich	BA in Anthropology and History – University of North Dakota MA in History, MLIS Library and Information Science – University of North Dakota With over 24 years of experience, Mr. Fandrich has worked on historic and prehistoric site documentation since 1985 primarily in the another plains and northwest plateau.

# SECTION D

## Location

Name	Qualifications
Lynelle A. Peterson	BA in Psychology MA in Anthropology Ms. Peterson has over 25 years of experience as a supervisor for cultural resource investigations. Her expertise is Northern Plains prehistory, historic archaeology (1820-1880) and stone ring archaeology.

Source: ECI 2012

**APPENDIX A**

**Easements & Permits**



October 15, 2012

Dan Hysjulien  
Vale Township  
8554 101<sup>st</sup> Street NW  
Lignite, ND 58752

Dear Mr. Hysjulien:

Thank you for discussing our planned pipeline with my colleague, Arnie Strand the other day. As I believe Arnie explained we are planning a 10" crude oil pipeline that would cross four Vale township roadways – 87<sup>th</sup> Ave NW, 88<sup>th</sup> Ave NW, 89<sup>th</sup> Ave NW and 90<sup>th</sup> Ave NW approximately 100' north of the DMVW railway mainline. We plan to open cut these crossings placing the pipeline a minimum of five feet below the roadway surface. We will use a slurry fill and replace the gravel surface over the pipeline crossings to provide a stable roadway.

I understand that you are in agreement with this installation. Please acknowledge below and return one copy for our records.

Thank you for your assistance with this matter.

Sincerely,

Ray W. Sheldon, PE  
Development Director

Acknowledged: \_\_\_\_\_

Date: \_\_\_\_\_

Cc: A. Strand



October 15, 2012

Darrell Dihle  
Fay Township  
9651 94<sup>th</sup> Ave NW  
Columbus, ND 58727-9507

Dear Mr. Dihle:

Thank you for discussing our planned pipeline with my colleague, Arnie Strand the other day. As I believe Arnie explained we are planning a 10" crude oil pipeline that would cross three Fay township roadways – 90<sup>th</sup> Ave NW, 91<sup>st</sup> Ave NW and 92<sup>nd</sup> Ave NW approximately 100' north of the DMVW railway mainline. We plan to open cut these crossings placing the pipeline a minimum of five feet below the roadway surface. We will use a slurry fill and replace the gravel surface over the pipeline crossings to provide a stable roadway.

I understand that you are in agreement with this installation methodology. Please acknowledge below and return one copy for our records.

Thank you for your assistance with this matter.

Sincerely,

A handwritten signature in blue ink that reads "Ray W. Sheldon".

Ray W. Sheldon, PE  
Development Director

Acknowledged: \_\_\_\_\_

Date: \_\_\_\_\_

Cc: A. Strand

<b>DETAILS FOR PIPE LINE CROSSINGS</b>	Date: October 12, 2012
--	------------------------

<b>1. LOCATION</b>							
Stampede	Burke	ND	SW of	NE	3	162N	92W
City	County	State	Qtr	Qtr	Sec	Twp	Rge

<b>2. PIPE DATA</b>	Carrier Pipe	Casing Pipe		Carrier Pipe	Casing Pipe
a. Outside diameter	10"	NA	f. Actual working pressure	1440 psig	NA
b. Inside diameter	10.020"	NA	g. Type of joint	welded	NA
c. Pipe material	Steel	NA	h. Coating	FBE & ARO	NA
d. Specifications and grade	API5L X-52	NA	i. Method of installation	Directional bore	NA
e. Wall thickness	0.365"	NA	j. Cathodic protection provided?	Yes	NA


<b>3.</b>	a. Depth of Pipe under track (top of tie to bottom of casing)	>11 feet
	b. Angle of Crossing	90°

<b>4.</b>	If pipe is to be placed longitudinally with track, give	
	a. location of pipe in relation to centerline of nearest track:	
	b. depth of coverage (ground to top of pipe):	

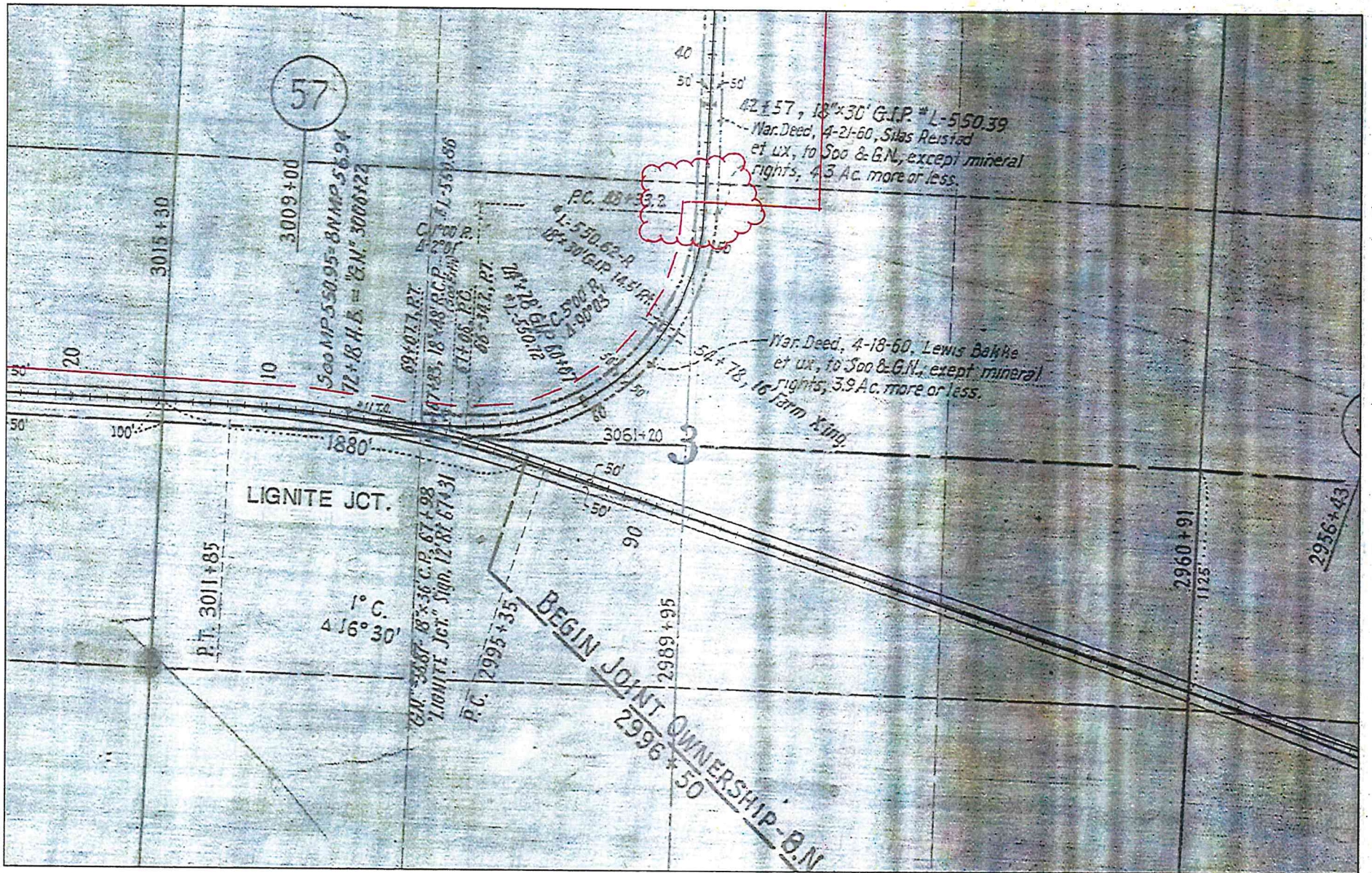
<b>5.</b>	If pipe is to be placed under the track, give	
	a. location of pipe to the centerline of nearest roadway:	~1,625' south of ND Hwy 5
<b>OR</b>	b. location of pipe to a fixed railroad fixture (i.e. culvert)	

<b>6.</b>	If pipe is to be installed by jacking or boring, give location of jacking and receiving pits and	
	a. depth:	Directional bore then laid in trench
	b. distance of pit facing wall to nearest track centerline:	30'

<b>7. Comments/Notes:</b>

<b>8. Contact/Applicant</b>	
Date:	October 12, 2012
Signature	
Name	Ray W. Sheldon
Address	3529 Gabel Road
	P.O. Box 80284
	Billings, MT 59108
Telephone	406/652-8328
Fax	406/652-8320
Cell	406/855-5008
E-mail	rsheldon@basintransload.com

Completed form should be returned to:	Canadian Pacific Railway Engineering Department 501 Marquette Ave S. Minneapolis, MN 55402
Questions may be directed to:	David LeClaire (612) 904-6008 dave_leclaire@cpr.ca



**APPENDIX B**

**Agency Responses**

<b>(701) 377-6242 burkejda@nd.gov</b>	<b>Marla MacBeth, Burke County Planning &amp; Zoning Council, PO Box 310 Bowbells, ND 58721-0310</b>
<b>DATE</b>	<b>CORRESPONDENCE</b>
25-Sep-12	Emailed burkejda@nd.gov
26-Sep-12	Received response: Your email was forwarded to this department. Could you please provide us with a little more information regarding the pipeline? Is it just to service the property at Stampede? Or is it going to connect with another pipeline --- off the site? Any additional information you could provide would be appreciated. We just want to send you in the right direction! Marla MacBeth Burke County Planning & Zoning Council PO Box 310, Bowbells ND 58721-0310 Telephone: (701) 377-6242
27-Sep-12	Responded: We will plan on sending you a project description and some maps over the next few days. At this point in time, my understanding of the project is that it will be connecting to an existing pipeline nearby.
28-Sep-12	Received reply: Thanks very much for getting back to me. We'll wait to hear more.
3-Oct-12	Sent Original Package by USPS, Certified Mail
n/a	Package received per signed certified receipt (Jayne Tetrault)
10-Oct-12	Sent revised packaged by USPS, certified mail
15-Oct-12	Revised package received per signed certified receipt (Jeanine Jensen)
15-Oct-12	Received email from Marla MacBeth: "Thank you very much for your letters dated 10/03 and 10/10/12 and the associated maps. The North Dakota Public Service Commission has jurisdiction over projects such as this. However, we will keep a copy of your correspondence and make it available to any interested local parties. I am very grateful for your including us in your plans. If we can be of any assistance, please don't hesitate to contact me."

## Rebecca W. Spring

---

**From:** Burke Co. ND Planning & Zoning <mmacbeth@nd.gov>  
**Sent:** Monday, October 15, 2012 1:13 PM  
**To:** Rebecca W. Spring  
**Subject:** Re: Solicitation of Information re: pipeline near Lignite, Burke Co, ND

Good afternoon, Rebecca! Thank you very much for your letters dated 10/03 and 10/10/12 and the associated maps.

The North Dakota Public Service Commission has jurisdiction over projects such as this. However, we will keep a copy of your correspondence and make it available to any interested local parties.

I am very grateful for your including us in your plans. If we can be of any assistance, please don't hesitate to contact me.

Thank you very much!

Yours sincerely,

Marla MacBeth  
Burke County Planning & Zoning Council  
PO Box 310  
Bowbells ND 58721-0310  
Telephone: (701) 377-6242

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

**From:** [Rebecca W. Spring](mailto:Rebecca.W.Spring@eciblgs.com)  
**To:** [Burke Co. ND Planning & Zoning](mailto:mmacbeth@nd.gov)  
**Sent:** Thursday, September 27, 2012 5:48 PM  
**Subject:** RE: Solicitation of Information re: pipeline near Ligate, Burke Co, ND

Hi Marla,

We will plan on sending you a project description and some maps over the next few days. At this point in time, my understanding of the project is that it will be connecting to an existing pipeline nearby.

Thanks for your quick response.

*Rebecca W. Spring*  
**Electrical Consultants, Inc.**  
*"Engineering with Distinction"*

3521 Gabel Road  
Billings, MT 59102  
Office: (406) 259-9933  
FAX: (406) 259-3441  
[Rebecca.Spring@eciblgs.com](mailto:Rebecca.Spring@eciblgs.com)  
[www.electricalconsultantsinc.com](http://www.electricalconsultantsinc.com)

**From:** Burke Co. ND Planning & Zoning [<mailto:mmacbeth@nd.gov>]  
**Sent:** Wednesday, September 26, 2012 9:00 AM  
**To:** Rebecca W. Spring  
**Subject:** Solicitation of Information re: pipeline near Ligate, Burke Co, ND

Good morning! Your email was forwarded to this department.

Could you please provide us with a little more information regarding the pipeline? Is it just to service the property at Stampede? Or is it going to connect with another pipeline --- off the site?

Any additional information you could provide would be appreciated. We just want to send you in the right direction!

Thank you very much!

Regards,

Marla MacBeth  
Burke County Planning & Zoning Council  
PO Box 310  
Bowbells ND 58721-0310  
Telephone: (701) 377-6242

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

**From:** [Burke County JDA](#)

**To:** [mmacbeth@nd.gov](mailto:mmacbeth@nd.gov)

**Sent:** Wednesday, September 26, 2012 8:10 AM

**Subject:** FW: Solicitation of Information re: pipeline near Ligate, Burke Co, ND

**From:** Rebecca W. Spring [<mailto:Rebecca.Spring@eciblgs.com>]

**Sent:** Tuesday, September 25, 2012 3:44 PM

**To:** [burkejda@nd.gov](mailto:burkejda@nd.gov)

**Subject:** Solicitation of Information re: pipeline near Ligate, Burke Co, ND

To whom it may concern,

Basin Transload has proposed to construct a pipeline near the town of Ligate, Burke County, North Dakota. Based on the initial information provided, it appears that the pipeline will be placed within a half-mile (0.5-mile) of County Hwy 5/102<sup>nd</sup> Street NW. We are preparing a Solicitation of Information that should contain necessary details of the project and location. Would you please let me know who we should send this document to at your earliest convenience? We anticipate that the Solicitation of Information will be ready for mailing Friday, September 28, 2012.

Thanks and kind regards,

*Rebecca W. Spring*  
**Electrical Consultants, Inc.**  
*"Engineering with Distinction"*

3521 Gabel Road  
Billings, MT 59102  
Office: (406) 259-9933  
FAX: (406) 259-3441  
[Rebecca.Spring@eciblgs.com](mailto:Rebecca.Spring@eciblgs.com)  
[www.electricalconsultantsinc.com](http://www.electricalconsultantsinc.com)

	<b>Greg Busch, Burke Soil Conservation District, 10685 101st Ave NW, Columbus, ND 58727</b>
<b>DATE</b>	<b>CORRESPONDENCE</b>
3-Oct-12	Sent Original Package by USPS, Certified Mail
6-Oct-12	Package received per signed certified receipt (Greg Busch)

	<b>Paul Swenson, Burke Soil Conservation District, PO Box 336, Bowbells, ND 58721</b>
<b>DATE</b>	<b>CORRESPONDENCE</b>
3-Oct-12	Sent Original Package by USPS, Certified Mail
n/a	Package received per signed certified receipt (n/a)
16-Oct-12	<p>Received response from Paul Swenson: "The Burke Soil Conservation District would like to let you know of our concerns with the area for the THPP Lignite Lateral Pipeline. We have a 319 Watershed project in the area of the pipeline. The project primarily addresses nonpoint source pollution in the Short Creek Dam watershed, but mostly because that is all that has been identified in the area at the project's start. The pipeline will cross several tributaries to Short Creek Dam, and runs through a large portion of the area we have identified as High Priority in the watershed. I have attached our Total Maximum Daily Load for nutrients and sediment for you to look at or reference as needed. Our concerns would be with any spillage or leakage from the pipeline and sediment and nutrients from construction. Short Creek Dam is an impaired waterway that is suffering from too many nutrients getting into the water, so we want as little extra nutrients or sediment from getting into the water as possible."</p>
17-Oct-12	Replied to Paul Swenson.

## Rebecca W. Spring

---

**From:** Rebecca W. Spring  
**Sent:** Wednesday, October 17, 2012 8:34 AM  
**To:** 'Swenson, Paul J. - Bowbells, ND'  
**Cc:** Crystal S. Kuntz  
**Subject:** RE: Pipeline Concerns for Burke SCD

Hi Paul,

Please find our responses below. If you need additional information let me know.

Kind regards,  
Rebecca

*Rebecca W. Spring*  
Electrical Consultants, Inc.  
"Engineering with Distinction"

3521 Gabel Road  
Billings, MT 59102  
Office: (406) 259-9933  
FAX: (406) 259-3441  
[Rebecca.Spring@eciblgs.com](mailto:Rebecca.Spring@eciblgs.com)  
[www.electricalconsultantsinc.com](http://www.electricalconsultantsinc.com)

**From:** Swenson, Paul J. - Bowbells, ND [<mailto:paul.swenson@nd.nacdnet.net>]  
**Sent:** Tuesday, October 16, 2012 9:34 AM  
**To:** Rebecca W. Spring  
**Subject:** Pipeline Concerns for Burke SCD

Hi Rebecca,

The Burke Soil Conservation District would like to let you know of our concerns with the area for the THPP Lignite Lateral Pipeline. We have a 319 Watershed project in the area of the pipeline. The project primarily addresses nonpoint source pollution in the Short Creek Dam watershed, but mostly because that is all that has been identified in the area at the project's start. The pipeline will cross several tributaries to Short Creek Dam, and runs through a large portion of the area we have identified as High Priority in the watershed. I have attached our Total Maximum Daily Load for nutrients and sediment for you to look at or reference as needed. Our concerns would be with any spillage or leakage from the pipeline and sediment and nutrients from construction. Short Creek Dam is an impaired waterway that is suffering from too many nutrients getting into the water, so we want as little extra nutrients or sediment from getting into the water as possible.

We would also like some additional information regarding the pipeline, such as:

How are the wetlands and streams being crossed? (Boring/digging/crossing)

**We will Horizontal Directional Drill any jurisdictional waterways or avoid them. Others that are non-jurisdictional and dry would likely be open-trenched.**

Is there only one 8" pipe being placed or will there be multiple pipes next to each other?

**There will be only one 8" pipe**

What is the distance between the top of the pipe to the surface of the ground?

The total depth of the pipeline is approximately 4 feet, providing 3 feet of minimum cover

What will be flowing through the pipes?

Crude oil

When will construction of the pipeline occur?

Construction is anticipated to start winter 2012/2013. Total construction duration will be 6-9 weeks.

What is being done to prevent spills and leaks? What will be done to address runoff and sediment concerns during construction?

The USDOT pipeline standards are published in 49 C.F.R. §190-199. Facilities associated with the Project will be designed, constructed, operated, and maintained in accordance with USDOT standards, including the provisions for written emergency plans and emergency shutdowns.

Proper safeguards will be implemented during construction and operation of the pipeline and aboveground facilities.

The Project will be designed to meet federal, local, state and Basin Transload safety standards. Construction crews will comply with these same standards when installing the pipeline and associated facilities.

What plans are in place in the event of a spill or leak?

A Spill Prevention, Control and Countermeasure Plan will be developed prior to construction.

If you have any other questions for me please contact me at (701) 377-2831 ext.3 or at [paul.swenson@nd.nacdnet.net](mailto:paul.swenson@nd.nacdnet.net)

Thanks,

~Paul

**Paul Swenson**

District Manager/Technician

Watershed Coordinator

Burke Soil Conservation District

PO Box 336

Bowbells, ND 58721

(701) 377-2831 ext. 3

[paul.swenson@nd.nacdnet.net](mailto:paul.swenson@nd.nacdnet.net)

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

<b>(701)965-6488</b> <b>CrosbyWetlands</b> <b>@fws.gov</b>	<b>Shea Magstadt, Crosby Wetland Management District, 10100 Hwy 42 NW,</b> <b>Crosby, ND 58730</b>
<b>DATE</b>	<b>CORRESPONDENCE</b>
9/25/2012	Emailed CrosbyWetlands@fws.gov
3-Oct-12	Sent Original Package by USPS, Certified Mail
16-Oct-12	Received email from Shea: "Can I get some information on this project? Project map, shape files, legal description. I just want to make sure this pipeline route does not impact and U.S. Fish and Wildlife Service interest lands (grassland or wetland easements or fee title land)."
16-Oct-12	Replied to Shea, provided him with requested documents.
17-Oct-12	Received email from Shea: "I reviewed the shape file of the proposed pipeline route. In the NE/4 of section 4, 162-92 and the NE/4 of section 3, 162-92 the pipeline crosses wetland easements. How it is currently proposed the pipeline will potentially impact 4 wetland basins. Is your company going to bore under these wetlands or are they going to go around them. If needed I could be available to help ensure that these wetland basins are not impacted."
17-Oct-12	Package received per signed certified receipt (Monte A. Ellingson)

Pending

<b>(701) 328-9650 ndaero@nd.gov</b>	<b>North Dakota Aeronautics Commission, PO Box 5020, Bismarck, ND 58502-5020</b>
<b>DATE</b>	<b>CORRESPONDENCE</b>
27-Sep-12	Emailed ndaero@nd.gov
3-Oct-12	Sent Original Package by USPS, Certified Mail
5-Oct-12	Package received per signed certified receipt (Al Solberg)
15-Oct-12	Called the ND Aeronautics Commission. Spoke with Sheila. She transferred me to Kyle's voicemail. I left a message

Pending

(701) 328-2231 ndda.nd.gov	ND Dept. of Agriculture, 600 E. Boulevard Ave Dept 602 Bismarck, ND 58505-0020
<b>DATE</b>	<b>CORRESPONDENCE</b>
27-Sep-12	Emailed ndda@nd.gov
3-Oct-12	Sent Original Package by USPS, Certified Mail
n/a	Package received per signed certified receipt (Marni Morrison)
15-Oct-12	Called the ND Dept. of Agriculture. Spoke with Bonnie who transferred me to Jodi (her contact is 701-328-4754) who transferred me to Dane Braun's voicemail. I left a message.
16-Oct-12	Dane Braun called. He said they shouldn't need any more information.

(701) 328-3180  
cte@nd.gov

**North Dakota Department of Career and Technical Education, 600 East  
Boulevard Avenue, Dept. 270, Bismarck, ND 58505-0610**

<b>DATE</b>	<b>CORRESPONDENCE</b>
27-Sep-12	Emailed cte@nd.gov
3-Oct-12	Sent Original Package by USPS, Certified Mail
5-Oct-12	Package received per signed certified receipt (Suzi Weegit)
15-Oct-12	Called the Department of Career and Technical Education, the secretary transferred me to Clark Molter. I emailed him the original letter and map package to cmolter@nd.gov.
16-Oct-12	Received an email from Wayne Kutzer: "We have no comments or questions about the Basin transload project."

(701)328-4499	ND Dept. of Commerce Division of Community Services 1600 East Century Ave. Suite PO Box 2057 Bismarck, ND 58502-2057
<b>DATE</b>	<b>CORRESPONDENCE</b>
3-Oct-12	Sent Original Package by USPS, Certified Mail
5-Oct-12	Package received per signed certified receipt (Al Solberg)
15-Oct-12	Called the Department of Commerce, secretary transferred to Paul Govig - Director. I left a message.
16-Oct-12	Paul Govig returned my call, he said they reviewed the letter and have no comments.

(701) 328-5300  
plucy@nd.gov

**Paul Lucy, Director, Economic Development & Finance Division, North Dakota Department of Commerce, 1600 East Century Avenue, Suite 2, PO Box 2057, Bismarck, ND 58502-2057**

<b>DATE</b>	<b>CORRESPONDENCE</b>
27-Sep-12	Emailed plucy@nd.gov
1-Oct-12	Received response: Forward to me at the address below. Paul Lucy, Director Economic Development & Finance Division North Dakota Department of Commerce 1600 East Century Ave., Suite 2 PO Box 2057 Bismarck, ND 58502-2057 1-701-328-5300 (Office) 1-701-328-5320 (Fax) plucy@nd.gov www.ndbusiness.com
3-Oct-12	Sent Original Package by USPS, Certified Mail
5-Oct-12	Package received per signed certified receipt (Al Solberg)

Pending

(701) 328-2372 health@nd.gov	North Dakota Department of Health, 600 East Boulevard Avenue, Bismarck, ND 58505-0200
<b>DATE</b>	<b>CORRESPONDENCE</b>
25-Sep-12	Emailed health@nd.gov
3-Oct-12	Sent Original Package by USPS, Certified Mail
5-Oct-12	Package received per signed certified receipt (Kay Schwartz)
1-Nov-12	Still have not received a response from the Dept of Health in regard to the Lignite Pipeline. Called the Environmental Health Section (that was the section that replied for Zap) 328-5150; spoke with secretary. She stated that I should call tomorrow morning and talk with Cindy.
2-Nov-12	Received letter dated 10/19/12.



**NORTH DAKOTA**  
DEPARTMENT of HEALTH

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



October 19, 2012

Ms. Rebecca Spring  
Electrical Consultants, Inc.  
3521 Gabel Road  
Billings, MT 59102

Re: Basin Transload, LLC  
THPP Lignite Lateral Pipeline  
Burke County, North Dakota

Dear Ms. Spring:

This department has reviewed the information concerning the above-referenced project submitted under date of October 3, 2012, with respect to possible environmental impacts.

This department believes that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. With respect to construction, we have the following comments:

1. All necessary measures must be taken to minimize fugitive dust emissions created during construction activities. Any complaints that may arise are to be dealt with in an efficient and effective manner.
2. Aggregate to be used for road construction should not contain any erionite. Aggregate sources should be tested for erionite following guidelines found at [www.ndhealth.gov/EHS/Erionite](http://www.ndhealth.gov/EHS/Erionite). For questions regarding erionite testing, please call Mark Dihle at 701-328-5188.
3. Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body. This includes minimal disturbance of stream beds and banks to prevent excess siltation, and the replacement and revegetation of any disturbed area as soon as possible after work has been completed. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance, and/or the handling of fuels on the site. Guidelines for minimizing degradation to waterways during construction are attached.
4. Oil and gas related construction activities disturbing five or more acres are required to have a permit to discharge storm water runoff until the site is stabilized by the reestablishment of vegetation or other permanent cover. Further information on the storm water permit may be obtained from the Department's website or by calling the Division of Water Quality (701-328-5210). Check with the local officials to be sure any local storm water management considerations are addressed.

Environmental Health  
Section Chief's Office  
701.328.5150

Division of  
Air Quality  
701.328.5188

Division of  
Municipal Facilities  
701.328.5211

Division of  
Waste Management  
701.328.5166

Division of  
Water Quality  
701.328.5210

Ms. Rebecca Spring

2.

October 19, 2012

This project is located within a watershed with a total maximum daily load allocation (Short Creek Dam). Extra care should be taken to ensure construction activity does not affect the water body.

5. Noise from construction activities may have adverse effects on persons who live near the construction area. Noise levels can be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order. Noise effects can also be minimized by ensuring that construction activities are not conducted during early morning or late evening hours.

The department owns no land in or adjacent to the proposed improvements, nor does it have any projects scheduled in the area. In addition, we believe the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

These comments are based on the information provided about the project in the above-referenced submittal. The U.S. Army Corps of Engineers may require a water quality certification from this department for the project if the project is subject to their Section 404 permitting process. Any additional information which may be required by the U.S. Army Corps of Engineers under the process will be considered by this department in our determination regarding the issuance of such a certification.

If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,



L. David Glatt, P.E., Chief  
Environmental Health Section

LDG:cc

Attach.

c: Mark Dihle, Division of Air Quality



## **Construction and Environmental Disturbance Requirements**

These represent the minimum requirements of the North Dakota Department of Health. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect the waters of the State of North Dakota. All projects will be designed and implemented to restrict the losses or disturbances of soil, vegetative cover, and pollutants (chemical or biological) from a site.

### **Soils**

Prevent the erosion of exposed soil surfaces and trapping sediments being transported. Examples include, but are not restricted to, sediment dams or berms, diversion dikes, hay bales as erosion checks, riprap, mesh or burlap blankets to hold soil during construction, and immediately establishing vegetative cover on disturbed areas after construction is completed. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, or land resources will be protected against compaction, vegetation loss, and unnecessary damage.

### **Surface Waters**

All construction which directly or indirectly impacts aquatic systems will be managed to minimize impacts. All attempts will be made to prevent the contamination of water at construction sites from fuel spillage, lubricants, and chemicals, by following safe storage and handling procedures. Stream bank and stream bed disturbances will be controlled to minimize and/or prevent silt movement, nutrient upsurges, plant dislocation, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near these systems is forbidden without approval from this Department.

### **Fill Material**

Any fill material placed below the high water mark must be free of top soils, decomposable materials, and persistent synthetic organic compounds (in toxic concentrations). This includes, but is not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill materials. All temporary fills must be removed. Debris and solid wastes will be removed from the site and the impacted areas restored as nearly as possible to the original condition.

(701) 328-2310  
dhseo@nd.gov

**Maggie Anderson, Interim Executive Director, North Dakota Department of Human Services, 600 East Boulevard Avenue, Dept. 325, Bismarck, ND 58505-0250**

DATE	CORRESPONDENCE
27-Sep-12	Emailed dhseo@nd.gov
28-Sep-12	Received response: Please address this to Maggie Anderson, Interim Executive Director
3-Oct-12	Plan to send Original Package by USPS, Certified Mail
n/a	Package received per signed certified receipt (M. Tracy)
15-Oct-12	Called Ms. Anderson back. Maggie is serving as interim director. She said that she forwarded the information on to a few others in her department. In the past, they reviewed letters such as this, but made no comment unless there was something of concern. She will follow up with the others. If we do not hear back from her by tomorrow, October 16th, we can assume there is no comment.

(701) 328-2500	NDDOT Mailing Address, 608 East Boulevard Avenue, Bismarck, ND 58505-0700
<b>DATE</b>	<b>CORRESPONDENCE</b>
25-Sep-12	Emailed mercerhd@westriv.com
3-Oct-12	Sent Original Package by USPS, Certified Mail
5-Oct-12	Package received per signed certified receipt (Brenda Novacek)
10-Oct-12	Sent revised package by USPS, certified mail
12-Oct-12	Revised Package received per signed certified receipt (Brenda Novacek)

Pending

<b>(701) 328-1909 mhaupt@nd.gov</b>	<b>Mike Haupt, ND Department of Trust Lands, 1707 N. 9th Street, PO Box 5523, Bismarck, ND 58506</b>
<b>DATE</b>	<b>CORRESPONDENCE</b>
27-Sep-12	Emailed drew.combs@nd.gov
27-Sep-12	Received response: If it enters trust lands it would be handled by our surface division. Mike Haupt can help you out.
3-Oct-12	Sent Original Package by USPS, Certified Mail
n/a	Package received per signed certified receipt (A?)
10-Oct-12	Received email from Michael Haupt: "Good Morning! The ND Department of Trust Lands does not manage any surface within the proposed project. Thanks."

(701) 328-2800 energyimpact@nd.gov	<b>Energy Infrastructure and Impact Office, 1707 North 9th Street, PO Box 5523, Bismarck, ND 58506-5523</b>
<b>DATE</b>	<b>CORRESPONDENCE</b>
27-Sep-12	Emailed energyimpact@nd.gov
3-Oct-12	Sent Original Package by USPS, Certified Mail
n/a	Package received per signed certified receipt (A?)
16-Oct-12	Called the Energy Infrastructure and Impact Office (its part of the ND Dept of Trust Office apparently); was transferred to Jerry Fisher's voicemail. I left a message.
17-Oct-12	Spoke with Jerry Fisher on the phone. He acknowledge receipt of the letters and has no objection to the projects at all.

<a href="mailto:ndgf@nd.gov">ndgf@nd.gov</a>	<b>Steve Dyke, Conservation Section Supervisor, ND Game &amp; Fish Dept., 100 North Bismarck Expressway, Bismarck, ND 58501</b>
<b>DATE</b>	<b>CORRESPONDENCE</b>
25-Sep-12	Emailed ndgf@nd.gov
26-Sep-12	Received response: Please send your solicitation of views for the pipeline near Zap to me. For future reference, I am the principle contact for the Department on all development related projects. Steve Dyke, Conservation Section Supervisor, ND Game & Fish Dept., 100 North Bismarck Expressway, Bismarck, ND 58501
3-Oct-12	Sent Original Package by USPS, Certified Mail
n/a	Package received per signed certified receipt (A?)
11-Oct-10	Received response: Our primary concern is the disturbance of native prairie associated with the construction of the pipelines and access roads. We ask that these areas be avoided to the extent possible and reclaimed to pre-project conditions. Also, steps should be taken to protect existing wetlands and not alter existing drainage patterns. No above ground appurtenances in wetland areas.



"VARIETY IN HUNTING AND FISHING"

## NORTH DAKOTA GAME AND FISH DEPARTMENT

100 NORTH BISMARCK EXPRESSWAY BISMARCK, NORTH DAKOTA 58501-6095 - PHONE 701-328-6300 - FAX 701-328-6352

October 11, 2012

Rebecca Spring  
ECI Environmental Services  
Electrical Consultants, Inc.  
3521 Gabel Road  
Billings, MT 59102

Dear Ms. Spring:

RE: THPP Zap Lateral Pipeline  
THPP Lignite Lateral Pipeline  
Basin Transload, LLC

Basin Transload has proposed to construct two sections of eight-inch diameter steel pipeline, about four and seven miles respectively, in Mercer and Burke Counties, North Dakota. Our primary concern is the disturbance of native prairie associated with construction of the pipelines and access roads. We ask that work within these areas be avoided to the extent possible, and disturbed areas be reclaimed to pre-project conditions.

The National Wetland Inventory indicates various wetlands within the proposed project corridors. Steps should be taken to protect any wetlands that cannot be avoided, no alterations should be made to existing drainage patterns, and above-ground appurtenances should not be placed in wetland areas.

Sincerely,

Greg Link  
Chief  
Conservation & Communication Division

js

(701) 328-8000	North Dakota Geological Survey Division, 600 East Boulevard Avenue, Bismarck, ND 58505-0840
<b>DATE</b>	<b>CORRESPONDENCE</b>
27-Sep-12	Emailed jjkringstad@ndpipelines.com
28-Sep-12	Received response: For pipelines constructed completely in ND (intrastate), the ND Public Service Commission is the regulatory body that you will want to contact. Depending on the size and purpose of the line, they may or may not have siting authority. Give Pat Fahn at their office a call; he will help you understand their role in the process. Pat's phone number is 701.328.4077 and I have cc'd him on this email.
1-Oct-12	Emailed jjkringstad@ndpipelines.com: Hi Justin, We are in the process of composing an application to the ND PSC. As part of this process we have been asked to receive comments from a list of organizations, including the North Dakota Geological Survey Division. You were contacted as a representative for the Geological Survey Division. Would you like us to send the letter to you or someone else? Thanks.
10/1/2012 @ 2:37 pm	Received phone call from Justin. He explained that he was not the person to contact, but the letter should go to the main ND Geological Survey Division Office
3-Oct-12	Plan to send Original Package by USPS, Certified Mail
n/a	Package received per signed certified receipt (R. Prange)
16-Oct-12	Called the ND Geological Survey Division, initially transferred to Lisa with their Oil & Gas Division. Lisa transferred me to Donna who was unavailable. I left a message for Donna.
17-Oct-12	Donna called me back. She had not received the letters. She transferred me to Ed Murphy's voicemail and said he should be back after lunch. I left a message for Mr. Murphy.
17-Oct-12	Ed Murphy returned my call. He had not received the letters, however, he asked to receive a digital copy of the packages. I forwarded him a copy of the geological survey division letters to his email: emurphy@nd.gov.
18-Oct-12	Received a letter by email from Ned Kruger. "... saw no indication for slope movement along the proposed corridor..."



# North Dakota Geological Survey

Edward C. Murphy - State Geologist

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

[www.state.nd.us/ndgs](http://www.state.nd.us/ndgs)

October 18, 2012

Ms. Rebecca Spring  
Electrical Consultants, Inc.  
3521 Gabel Road  
Billings, Montana 59102

RE: Basin Transload, LLC. THPP Lignite Lateral Pipeline

Dear Ms. Spring,

I have reviewed the information regarding the proposed Lignite Pipeline. We have not mapped the area for landslides, but I did a quick review of aerial photographs of the area and saw no indication of slope movement along the proposed corridor. It should be noted that this region has a variable glacial covering at the surface and impediments to trenching activities, such as erratics, may be encountered. Conditions of high groundwater elevations, if present, may also influence trench stability.

Please contact me if you have any questions.

Sincerely,

Ned W. Kruger  
Subsurface Geologist

(701) 328-2428 ndiac@nd.gov	North Dakota Indian Affairs Commission, State Capitol Building, 600 East Boulevard Avenue, 1st Floor, Judicial Wing - Room #117, Bismarck, ND 58505
<b>DATE</b>	<b>CORRESPONDENCE</b>
27-Sep-12	Emailed ndiac@nd.gov
3-Oct-12	Sent Original Package by USPS, Certified Mail
16-Oct-12	Called the ND Indian Affairs Commission, spoke with Helen. She said that the letters would have been given to the executive director, Scott Davis. She said that she would be sure to pass the message on to him when he arrived today but did not expect him until later in the afternoon.

(701) 328-3014  
rkaiser@nd.gov

**Randy Kaiser, Administrative Staff Officer III, Job Service North Dakota  
PO Box 5507 Bismarck, ND 58506-5507**

<b>DATE</b>	<b>CORRESPONDENCE</b>
27-Sep-12	Sent message through the online form
28-Sep-12	Received response: Rebecca, Could you please call me at 701-328-3014 in regard to an e-mail we received about a proposed pipeline in Mercer County.
28-Sep-12	Crystal called. Expressed no interest. Asked him to forward an email expressing in writing. Did not receive said email.
3-Oct-12	Sent Original Package by USPS, Certified Mail
n/a	Package received per signed certified receipt (R?)
16-Oct-12	Called and spoke with Randy. Randy said that he did receive the letters. He said he had no questions or comments and does not feel that these projects will really affect [Job Service North Dakota] much. He appreciated the follow up phone call.

ndag@nd.gov

North Dakota Attorney General, State Capitol, 600 East Boulevard Ave.  
Dept. 125, Bismarck, ND 58505

DATE	CORRESPONDENCE
27-Sep-12	Emailed ndag@nd.gov
28-Sep-12	Received response: You can e-mail ot ndag@nd.gov but we neither acknowledge receipt of, or respond to, such mailings.
3-Oct-12	Plan to send Original Package by USPS, Certified Mail
5-Oct-12	Package received per signed certified receipt (Peggy Brunelle)
16-Oct-12	They do not acknowledge receipt of or respond to such mailings.

(701) 328-2200

Office of Governor State of North Dakota 600 East Boulevard Avenue  
Bismarck, ND 58505-0100

DATE	CORRESPONDENCE
3-Oct-12	Sent Original Package by USPS, Certified Mail
n/a	Package received per signed certified receipt (Donna Ellison)

(701) 328-5357 parkrec@nd.gov	Ms. Kathy Duttonhefner, North Dakota Parks and Recreation Headquarters, 1600 E. Century Avenue, Suite 3, Bismarck, ND 58503
<b>DATE</b>	<b>CORRESPONDENCE</b>
27-Sep-12	Emailed parkrec@nd.gov
28-Sep-12	Received response: You can send it to: Kathy Duttonhefner 1600 E Century Ave, Suite 3 Bismarck, ND 58503 Thank you,
3-Oct-12	Sent Original Package by USPS, Certified Mail
5-Oct-12	Package received per signed certified receipt (Stacy High)
16-Oct-12	Called the North Dakota Parks & Rec Office, spoke with Kathy. She said they have no comments, and will also send us an email.
17-Oct-12	Received fax from Kathy: "...has reviewed the above referenced proposal... Based on this review, there are no documented occurrences in our database within or adjacent to the project area..."



Jack Dalrymple, Governor  
Mark A. Zimmerman, Director

1600 East Century Avenue, Suite 3  
Bismarck, ND 58503-0649  
Phone 701-328-5357  
Fax 701-328-5363  
E-mail [parkrec@nd.gov](mailto:parkrec@nd.gov)  
[www.parkrec.nd.gov](http://www.parkrec.nd.gov)

October 16, 2012

ECI  
Rebecca Spring  
3521 Gabel Road  
Billings, MT 59102

Re: Basin Transload, LLC, THPP Lignite Lateral Pipeline

Dear Rebecca

The North Dakota Parks and Recreation Department (the Department) has reviewed the above referenced proposal for the construction of the THPP Lignite Lateral Pipeline project in Burke County.

Our agency scope of authority and expertise covers recreation and biological resources (in particular rare plants and ecological communities). The project as defined does not affect state park lands that we manage or Land and Water Conservation Fund recreation projects that we coordinate.

The North Dakota Natural Heritage biological conservation database has been reviewed to determine if any plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, there are no documented occurrences in our database within or adjacent to project area. Because this information is not based on a comprehensive inventory, there may be species of concern or otherwise significant ecological communities in the area that are not represented in the database. The lack of data for any project area cannot be construed to mean that no significant features are present. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

The Department recommends that the project be accomplished with minimal impacts and that all efforts be made to ensure that critical habitats not be disturbed in the project area to help secure rare species conservation in North Dakota. Regarding any reclamation efforts, we recommend that any impacted areas be revegetated with species native to the project area.

We appreciate your commitment to rare plant, animal and ecological community conservation, management and inter-agency cooperation to date. For additional information please contact me at (701-328-5370 or [kgduttenhefner@nd.gov](mailto:kgduttenhefner@nd.gov)). Thank you for the opportunity to comment on this proposed project.

Sincerely,

*Kathy Duttonhefner*

Kathy Duttonhefner, Coordinator  
Natural Resources Division

R.USNDNHI\*2012\_236 KD5/17/2012DL10.19.2012

.....  
*Play in our backyard!*

(701) 377-2983	NRCS Area Office Bowbells Service Center 5 Roosevelt Ave SE Bowbells, ND 58721
DATE	CORRESPONDENCE
25-Sep-12	Emailed mark.crosby@nd.usda.gov
26-Sep-12	Received response: You could send the information on the pipeline near Lignite to the following individuals and agencies: Monte Ellingson, US Fish and Wildlife Service, 206 Main St, Crosby, ND 58730 Greg Busch, Burke Soil Conservation District, 10685 101st Ave NW, Columbus, ND 58727 Paul Swenson, Burke Soil Conservation District, PO Box 336, Bowbells, ND 58721 US Army Corps of Engineers, 1513 S 12th St, Bismarck, ND 58501
3-Oct-12	Sent Original Package by USPS, Certified Mail
n/a	Package received per signed certified receipt (William Clanton)

(701) 328-2660  
labor@nd.gov

North Dakota Department of Labor, 600 East Boulevard Avenue, Dept.  
406, Bismarck, ND 58505-0340

DATE	CORRESPONDENCE
27-Sep-12	Emailed labor@nd.gov
3-Oct-12	Sent Original Package by USPS, Certified Mail
5-Oct-12	Package received per signed certified receipt (S. Haugen)
15-Oct-12	Called North Dakota Department of Labor, Spoke with "S. Haugen" she acknowledged that they received both letters. She stated that they filed them for information purposes only, but the Dept. of Labor had no further comments.

(701) 328-2666 histsoc@nd.gov	Ms. Susan Quinnell, Review and Compliance Coordinator, State Historical Society of North Dakota, 612 East Boulevard Ave, Bismarck, ND 58505
<b>DATE</b>	<b>CORRESPONDENCE</b>
3-Oct-12	Spoke with Ethnoscience (personal communication). Cultural Survey has not yet taken place.
3-Oct-12	Sent Original Package by USPS, Certified Mail
n/a	Package received per signed certified receipt (Duane Edwards)
11-Sep-12	Email from Paul Picha: "What Is the APE for the Bison Transload (proposed ROW width) and is it in or adjacent to the Railroad R-O-W for most of the ca. 7 mi route as mapped. Please let us know."
11-Sep-12	Email to Paul Picha: "The ROW for the proposed THPP Lignite Lateral Pipeline will run adjacent to the Railroad ROW, until the end (between 6.4 and 6.6 miles) where it will cross the Railroad in section 3 of T162N R92W. The ROW has been purchased and is anticipated to be approximately 70 feet wide. The pipeline will run roughly in the center (pending topography or landowner requests) of the ROW, so should be about 35 feet from the Railroad ROW for the majority of the ca. 7 mile route. Let me know if you have further questions."
11-Sep-12	Email from Paul Picha: "Thank you for the information regarding the proposed project."
30-Oct-12	Received letter from Susan Quinnell stating "...we concur with 'no historic properties affected' and 'no significant sites affected' determinations..."



**STATE  
HISTORICAL  
SOCIETY  
OF NORTH DAKOTA**

Jack Dalrymple  
Governor of North Dakota

North Dakota  
State Historical Board

Gerekl Gertholz  
Valley City - President

Calvin Grinnell  
New Town - Vice President

A. Eric Todd III  
Jamestown - Secretary

Albert I. Berger  
Grand Forks

Diane K. Larson  
Bismarck

Chester E. Nelson, Jr.  
Bismarck

Margaret Paetz  
Bismarck

Sara Orte Coleman  
Director  
Tourism Division

Kelly Schmidt  
State Treasurer

Alvin A. Jaeger  
Secretary of State

Mark Zimmerman  
Director  
Parks and Recreation  
Department

Francis Ziegler  
Director  
Department of Transportation

Merlan E. Paaverud, Jr.  
Director

Accredited by the  
American Association  
of Museums since 1986

October 30, 2012

Ms. Rebecca Spring  
ECI Environmental Services  
Electrical Consultants, Inc.  
3521 Gabel Road  
Billings MT 59102

**NDSHPO REF.: 13-0013 PSC Docket Number 12-675?**

Proposed THPP Lignite Lateral Pipeline which will run adjacent to the BNSF Railroad ROW in portions of [T162N R93W sections 1-3 and T162N R92W Sections 3-6] Burke County, North Dakota

Dear Ms. Spring,

We reviewed your project document for NDSHPO REF.: 13-0013 PSC Docket Number 12-675? Proposed THPP Lignite Lateral Pipeline which will run adjacent to the BNSF Railroad ROW in portions of [T162N R93W sections 1-3 and T162N R92W Sections 3-6] Burke County, North Dakota.

We concur with "*No Historic Properties Affected*" and "*No Significant Sites Affected*" determinations provided that the project is of the nature stated, and that it takes place in plotted location in the correspondence.

Thank you for the opportunity to review this project. If you have questions please contact either Paul Picha at [ppicha@nd.gov](mailto:ppicha@nd.gov) or (701) 328-3574 or Susan Quinnell at [squinnell@nd.gov](mailto:squinnell@nd.gov) or (701) 328-3576.

Sincerely,

Merlan E. Paaverud, Jr.  
State Historic Preservation Officer (North Dakota)  
and  
Director, State Historical Society of North Dakota

c: Patrick Fahn, ND PSC

(701) 328-9718	ND State Soil Conservation Committee, Scott Hochhalter, State Soil Specialist, NDSU Extension Service, 2718 Gateway Ave., Suite 104, Bismarck, ND 58503
<b>DATE</b>	<b>CORRESPONDENCE</b>
27-Sep-12	Emailed scott.hocchalter@ndsu.edu
28-Sep-12	Received response: "Contact the ND Public Service Commission Address: 600 E. Boulevard, Dept. 408 Bismarck, ND 58505-0480 Phone:701.328.2400 Toll-Free:877.245.6685 Fax:701.328.2410 Email:ndpsc@nd.gov"

(701) 328-2750 swc@nd.gov	Ms. Linda Weispfenning, North Dakota State Water Commission, 900 East Boulevard Avenue, Dept. 770, Bismarck, ND 58505-0850
DATE	CORRESPONDENCE
27-Sep-12	Emailed swc@nd.gov
28-Sep-12	Received response: The person to whom you should send the inquiry letter is Linda Weispfenning at the address below. John Paczkowski Chief, Regulatory Section ND State Water Commission 900 E Boulevard Ave. Bismarck, ND 58505-0850
3-Oct-12	Sent Original Package by USPS, Certified Mail
n/a	Package received per signed certified receipt (Karen Heinut)



# North Dakota State Water Commission

900 EAST BOULEVARD AVENUE, DEPT 770 • BISMARCK, NORTH DAKOTA 58505-0850  
701-328-2750 • TDD 701-328-2750 • FAX 701-328-3696 • INTERNET: <http://swc.nd.gov>

October 18, 2012

Rebecca Spring  
Electrical Consultants, Inc.  
3521 Gabel Road  
Billings, MT 59102

Dear Ms. Spring:

This is in response to your request for review of environmental impacts associated with Basin Transload, L.L.C. to construct the THPP Lignite Lateral Pipeline Project (7 miles of 8 inch diameter steel pipeline) located in Burke County, ND.

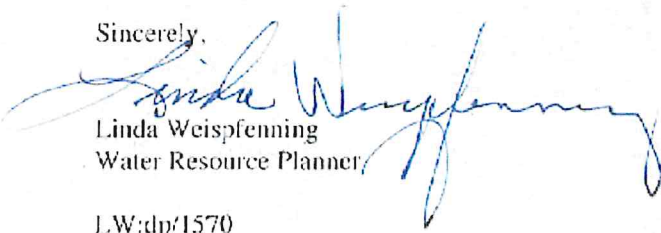
The proposed project has been reviewed by State Water Commission staff and the following comments are provided:

- There are no floodplains identified and/or mapped where this proposed project is to take place. The project takes place in an unmapped county. No floodplain permits are necessary from Burke County relative to the National Flood Insurance Program.
- It is the responsibility of the project sponsor to ensure that local, state and federal agencies are contacted for any required approvals, permits, and easements.
- All waste material associated with the project must be disposed of properly and not placed in identified floodway areas.
- No sole-source aquifers have been designated in ND.

There are no other concerns associated with this project that affect State Water Commission or State Engineer regulatory responsibilities.

Thank you for the opportunity to provide review comments. If you have any questions, please call me at 701-328-4967.

Sincerely,

  
Linda Weispfenning  
Water Resource Planner

LW:dp/1570

(701) 255-0015	US Army Corps of Engineers, 1513 S 12th St, Bismarck, ND 58501
DATE	CORRESPONDENCE
25-Sep-12	Emailed dll-cenwo-pao@usace.army.mil
28-Sep-12	Received response from Mark Crosby containing address
3-Oct-12	Sent Original Package by USPS, Certified Mail
5-Oct-12	Package received per signed certified receipt (Marla Greer)
12-Oct-12	Received letter dated 10/5/12 from Joseph Tanko, letter includes the following: "... it appears a department of the Army permit may be required for all or part of your proposed project(s), please complete and submit the Corps permit application..."



REPLY TO  
ATTENTION OF

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

October 5, 2012

North Dakota Regulatory Office

Ms. Rebecca Spring  
Electrical Consultants, Inc.  
3521 Gabel Road  
Billings, Montana 59102

Dear Ms. Spring:

This is in response to your letter dated October 3, 2012, on behalf of Basin Transload, LLC, requesting US Army Corps of Engineers (Corps) comments regarding the proposed construction of the THPP Lignite Lateral Pipeline Project, which will consist of about seven miles of eight-inch-diameter steel pipeline located in Section 3, Township 162 North, Range 92 West in Burke County, North Dakota.

Based on the information contained within your letter, it appears a Department of the Army permit may be required for all or part of your proposed project(s). In order for us to fully evaluate your project(s), please complete and submit the Corps permit application (copy enclosed). Be sure to accurately describe all proposed work and construction methodology. Once the application is complete, please mail it to the letterhead address.

Please be advised, Corps regulatory offices administer Section 10 of the Rivers and Harbors Act (Section 10) and Section 404 of the Clean Water Act (Section 404). Section 10 regulates work impacting navigable waters. Section 10 waters in North Dakota are the Missouri River (including Lake Sakakawea and Lake Oahe), Yellowstone River, James River south of the railroad track in Jamestown, North Dakota, Bois de Sioux River, Red River of the North, and the Upper Des Lacs Lake. Work over, in, or under navigable waters is considered to have an impact. Section 404 of the Clean Water Act regulates the discharge of dredged or fill material (temporarily or permanently) in waters of the United States. Waters of the United States may include, but are not limited to, rivers, streams, ditches, coulees, lakes, ponds, and their adjacent wetlands. Fill material includes, but is not limited to, rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mines or other excavation activities and materials used to create any structure or infrastructure in waters of the United States.

Do not hesitate to contact this office by letter or telephone (701) 255-0015 if we can be of further assistance.

Sincerely,

Joseph M. Tanko  
Acting State Program Manager  
North Dakota Regulatory Office

Enclosure

<b>(701)250-4481 northdakotafield office@fws.gov</b>	<b>Ms. Kari Thorsteinson USFWS North Dakota Field Office, 3425 Miriam Avenue, Bismarck, ND 58501-7926</b>
<b>DATE</b>	<b>CORRESPONDENCE</b>
27-Sep-12	Emailed northdakotafieldoffice@fws.gov
3-Oct-12	Sent Original Package by USPS, Certified Mail
5-Oct-12	Package received per signed certified receipt (Kari Thorsteinson)
	Received original letter with stamp

	<b>Monte Ellingson, US Fish and Wildlife Service, 206 Main Street, Crosby, ND 58730</b>
<b>DATE</b>	<b>CORRESPONDENCE</b>
9/25/2012	Emailed mark.crosby@nd.usda.gov.
9/26/2012	Received response from Mark Crosby: Contact Monte Ellingson, US Fish and Wildlife Service, 206 Main Street, Crosby, ND 58730
3-Oct-12	Sent Original Package by USPS, Certified Mail
17-Oct-12	Package received per signed certified receipt (Monte A. Ellingson)



**ELECTRICAL CONSULTANTS, INC.**

CORPORATE OFFICE: 3521 GABEL ROAD, BILLINGS, MONTANA 59102 • PHONE: 406-259-9933 • FAX: 406-259-3441

October 3, 2012

Ms. Kari Thorsteinson  
US Fish and Wildlife Service  
3425 Miriam Avenue  
Bismarck, ND 58501-7926

RE: Basin Transload, LLC. THPP Lignite Lateral Pipeline

Dear Ms. Thorsteinson,

Electrical Consultants, Inc. (ECI) is a consulting firm currently providing permitting assistance to Basin Transload, LLC. Basin Transload has proposed to construct the THPP Lignite Lateral Pipeline Project, which will consist of about seven miles of eight-inch-diameter steel pipeline located in Burke County, North Dakota. Currently, we are assisting Basin Transload in the preparation of their 2012 Application to the North Dakota Public Service Commission (NDPSC) for a Waiver of Procedures and Timelines, Consolidated Certificate of Corridor Compatibility, and Route Permit. The Corridor Certificate and Route Permit are documents governed by the North Dakota Energy Conversion and Transmission Facility Siting Act. The Siting Act lists factors to guide the NDPSC in evaluating the corridor and route. This is used to select the safest project route with minimal environmental effects.

As part of the process we need your agency's comments and/or recommendations with regard to resources of concern and related mitigation measures concerning the identified work. Currently there are six (6) animal and one (1) plant species that are listed on the Federal Threatened and Endangered Species List for the State of North Dakota. Of those seven (7) species, only three (3) of the animal species are listed on North Dakota's Threatened and Endangered Species List for Burke County. The animal species that have known to exist in Burke County, North Dakota are the Whooping Crane (*Grus Americana*), the Piping Plover (*Charadrius melodus*), and the Gray Wolf (*Canis lupus*).

We would appreciate your comments concerning the proposed construction no later than Friday, October 19<sup>th</sup>, 2012. If you have any questions or need additional information, please contact me at (406) 259-9933 or by e-mail at [rebecca.spring@ecibllgs.com](mailto:rebecca.spring@ecibllgs.com).

U.S. FISH AND WILDLIFE SERVICE  
ECOLOGICAL SERVICES  
ND FIELD OFFICE

Project as described will have no significant impact on fish and wildlife resources. No endangered or threatened species are known to occupy the project area and/or are not likely to be adversely affected. IF PROJECT DESIGN CHANGES ARE MADE, PLEASE SUBMIT PLANS FOR REVIEW.

Sincerely,

Rebecca Spring  
ECI Environmental Services

Enc.

10/03/12 *Jeffrey K. Towner*

Date Jeffrey K. Towner  
Field Supervisor

R:\Projects\BAS-002 Zap & Lignite Correspondence\Field Supervisor Correspondence\SI WS 20121003.doc

BILLINGS OFFICE  
3521 GABEL ROAD  
BILLINGS, MT 59102  
PHONE: 406-259-9933  
FAX: 406-259-3441

SALT LAKE CITY OFFICE  
1015 SOUTH CENTER WEST  
WOODS CROSS UT 84087  
PHONE: 801-221-0654  
FAX: 801-221-0177

TULSON OFFICE  
1715 N. GUYER RD. #202  
TULSON, AZ 85701  
PHONE: 520-210-0654  
FAX: 520-210-1510

MADISON OFFICE  
515 WALK STREET  
MADISON, WI 53718  
PHONE: 608-249-9933  
FAX: 608-249-1579

<p>(817) 230-2634  Camille.barbosa  @am.jll.com</p>	<p>BNSF Railroad, Geographical Area 9, Permit Management Contact:  Camille Barbosa (region 6)</p>
<p><b>DATE</b></p>	<p><b>CORRESPONDENCE</b></p>
<p>25-Sep-12</p>	<p>Emailed Camille.barbosa@am.com</p>
<p>27-Sep-12</p>	<p>Received response: Please go to BNSF website and find the pipeline application. I usually just sent it but I am at home with a bad back. The application. I've copied the dept admin so that perhaps she may be of assistance with the correct address to mail it to as we moved earlier this year. I believe BNSF has not yet changed the address on the website.</p>
<p>27-Sep-12</p>	<p>Replied to Camille Barbosa;</p>
<p>28-Sep-12</p>	<p>Received response: Hopefully Camille will be back in the office mid-week.</p>

**APPENDIX C**

**Environmental Studies**

# **Basin Transload: A Class III Cultural Resource Inventory of a Proposed Oil Pipeline in Burke County, North Dakota**

Prepared by:

Blain Fandrich  
Ethnoscience, Inc.  
4140 King Avenue East  
Billings, Montana 59101

Prepared for:

Basin Transload  
3529 Gabel Road  
PO Box 80284  
Billings, Montana 59108

October 26, 2012

---

## Table of Contents

1.0 Introduction.....	1
2.0 Setting .....	1
3.0 File Search .....	8
4.0 Field Methods .....	8
5.0 Results and Recommendations .....	13
6.0 Bibliography .....	14

## Figures

Figure 1. Topographic map of project area.....	2
Figure 1. Topographic map of project area (continued). .....	3
Figure 1. Topographic map of project area (completed). .....	4
Figure 2. Aerial photograph showing the project area physical setting.....	5
Figure 2. Aerial photograph showing the project area physical setting (continued). .....	6
Figure 2. Aerial photograph showing the project area physical setting (completed). .....	7
Figure 3. Map of sites and site leads in or adjacent to the project area. ....	10
Figure 3. Map of sites and site leads in or adjacent to the project area (continued).....	11
Figure 3. Map of sites and site leads in or adjacent to the project area (completed).....	12

## Tables

Table 1. List of projects that occur in or near the project area. ....	9
Table 2. Sites located in or adjacent to the project area. ....	9

Appendix A. File Search

Appendix B. Site Form

---

---

## 1.0 INTRODUCTION

Basin Transload is proposing to construct a 10" diameter crude oil pipeline within Burke County, North Dakota. The project area is west of Lignite, North Dakota, within Section 34 of T163N R92W, Sections 3, 4, 5 and 6 of T162N R92W, and Sections 1, 2 and 3 of T162N R93W (Figure 1). Construction activities associated with the pipeline will typically impact an area less than 100 ft wide along its entire 6.957-mile length, and will extend a minimum of 4.0 feet in depth. These activities have the potential to disturb cultural deposits located within the construction corridor. The lead agency with oversight on this project is the North Dakota Public Service Commission (PSC). As part of the permitting process, the PSC is required to take into consideration what impact, if any, this undertaking will have on significant cultural resources. Basin Transload contracted Ethnoscience to conduct the necessary cultural resource investigations.

## 2.0 SETTING

The cultural setting of the project area is within the Souris River Study Unit. The cultural setting has been adequately described in the *North Dakota Comprehensive Plan for Historic Preservation: Archaeological Component* (State Historical Society North Dakota [SHSND] 2008) and is not reiterated in this report.

The project area occurs in knob-and-kettle glaciated terrain punctuated by marshy depressions. The primary drainage in the project area is the East Branch Short Creek, at the west end of the project area. Approximately 85 percent of the project area is previously disturbed. Aerial photographs show the project right-of-way occurs in cultivated fields, section road borrow ditches and marshes (Figure 2). Ground surface visibility averaged 75-85 percent in recently harvested fields and averaged 0-5 percent in marshes and road borrow ditches.

Figure 1. Topographic map of project area.

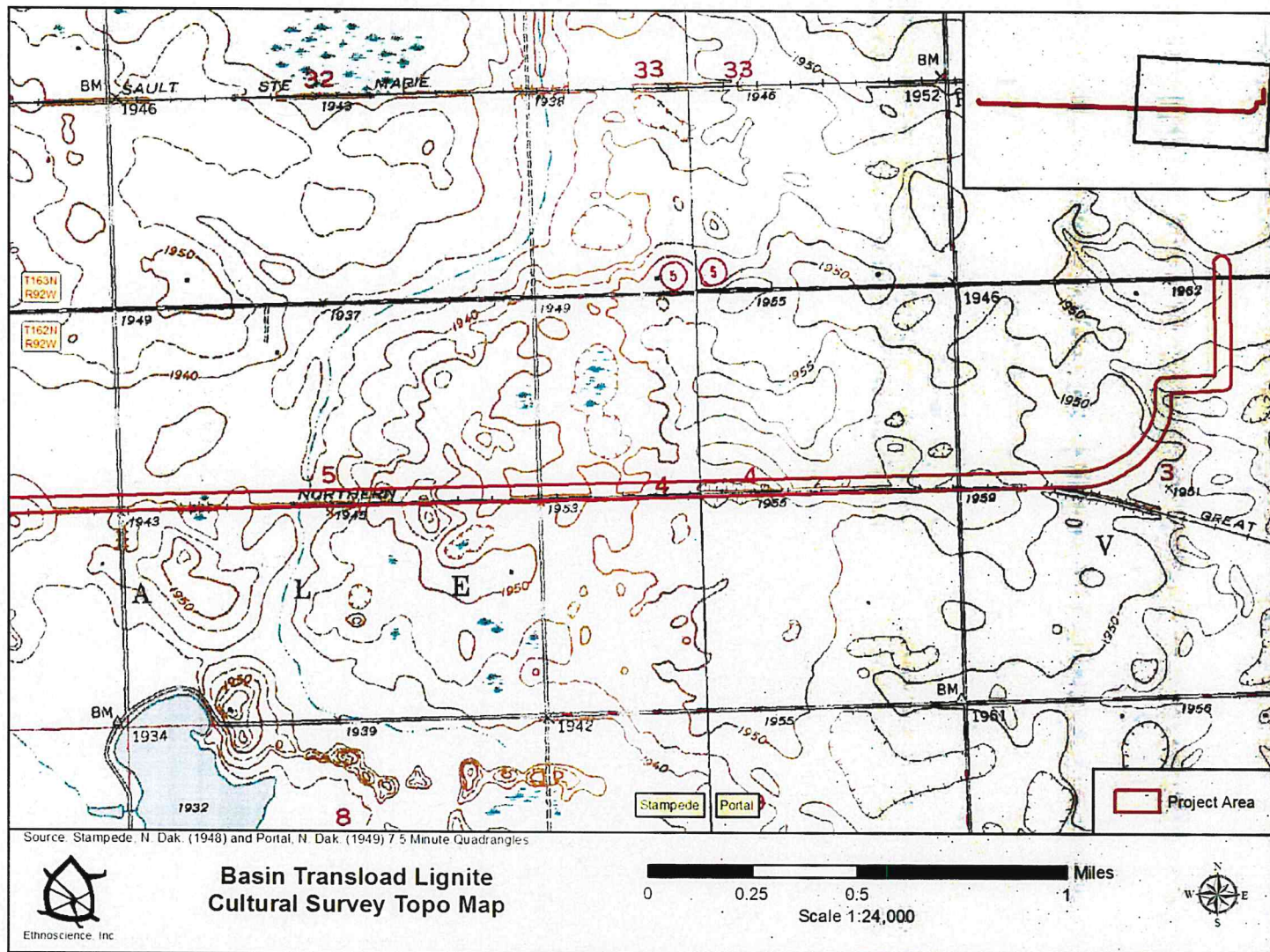


Figure 1. Topographic map of project area (continued).

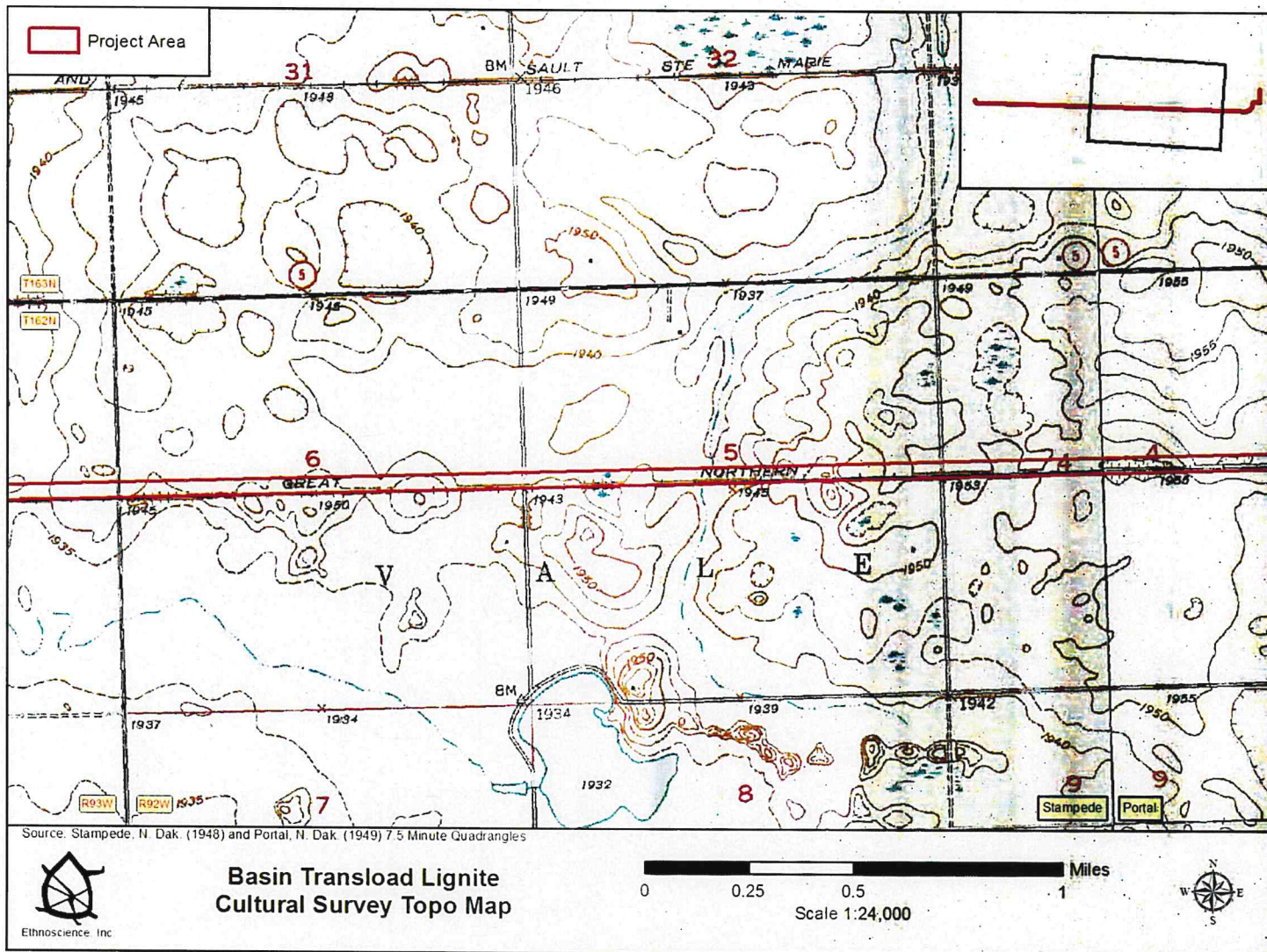
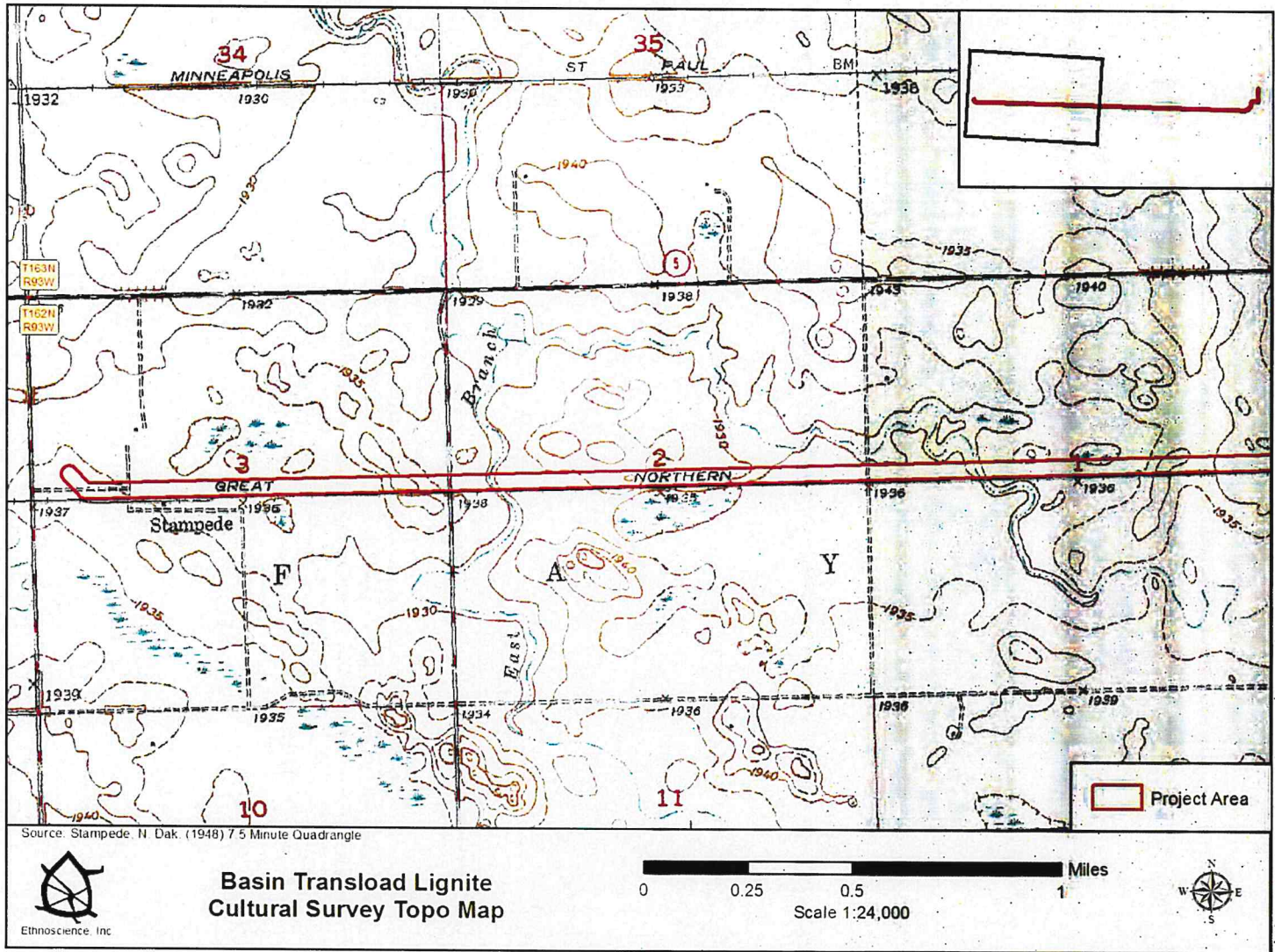
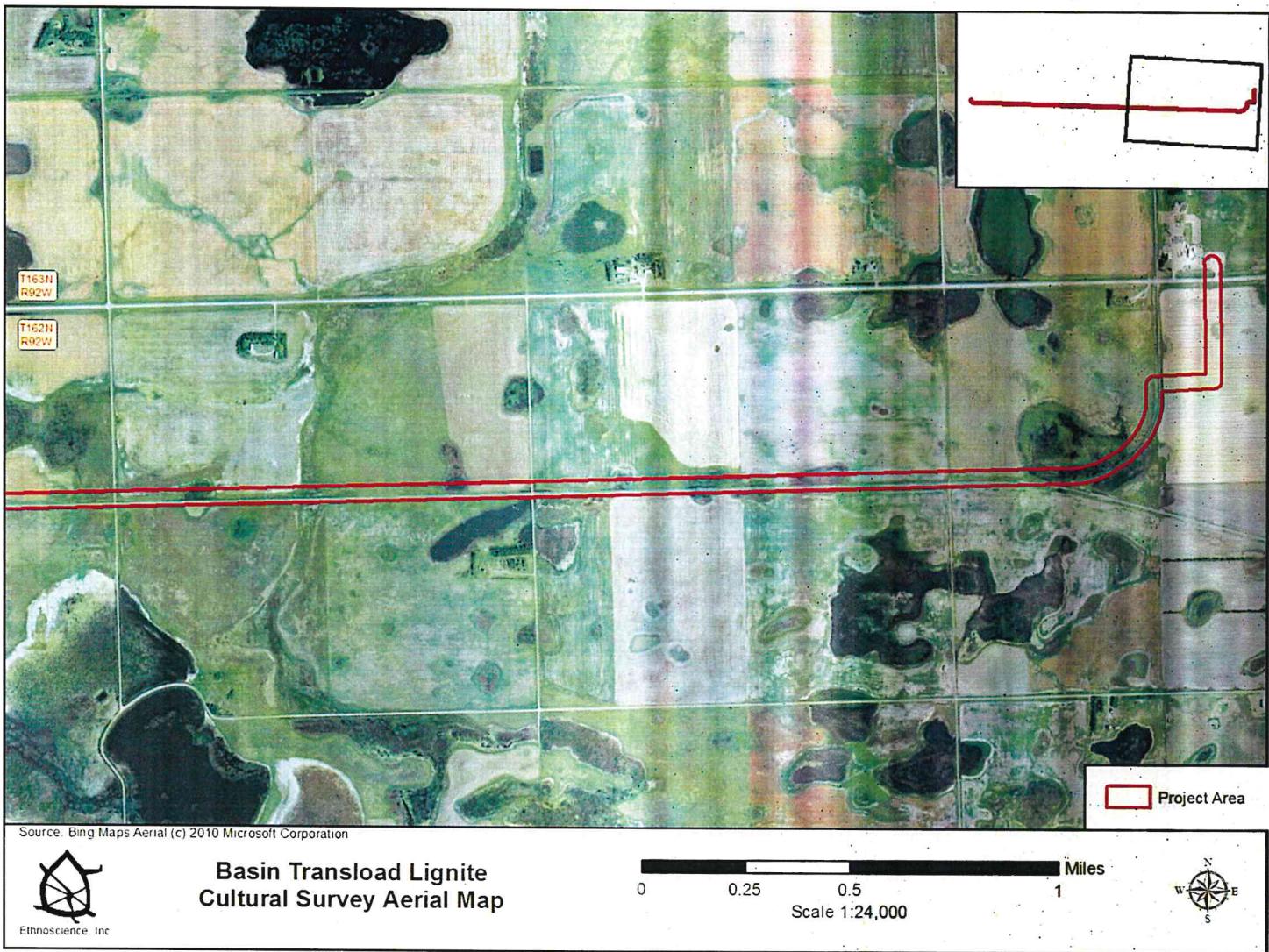


Figure 1. Topographic map of project area (completed).





*Figure 2. Aerial photograph showing the project area physical setting.*

Figure 2. Aerial photograph showing the project area physical setting (continued).

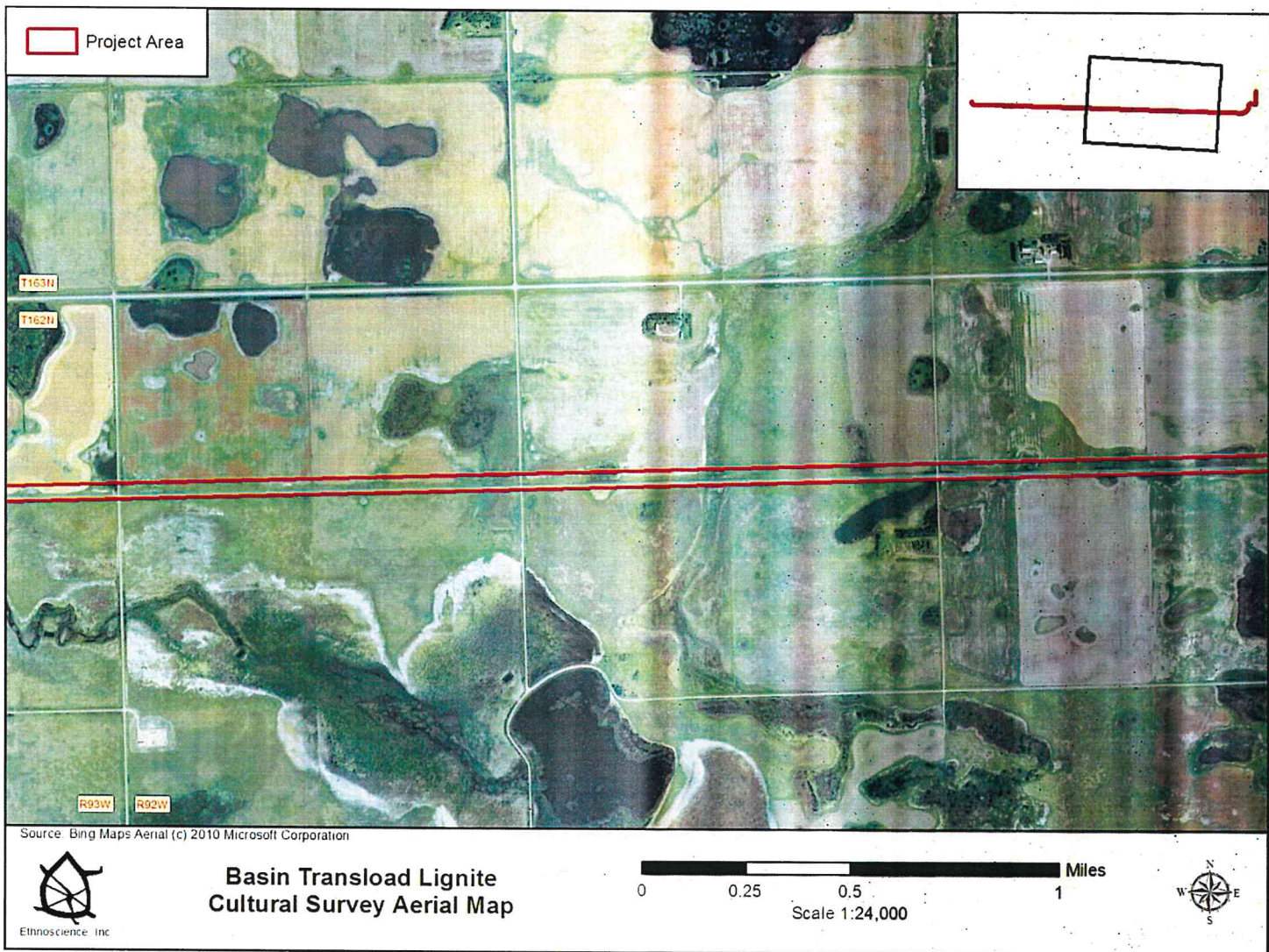
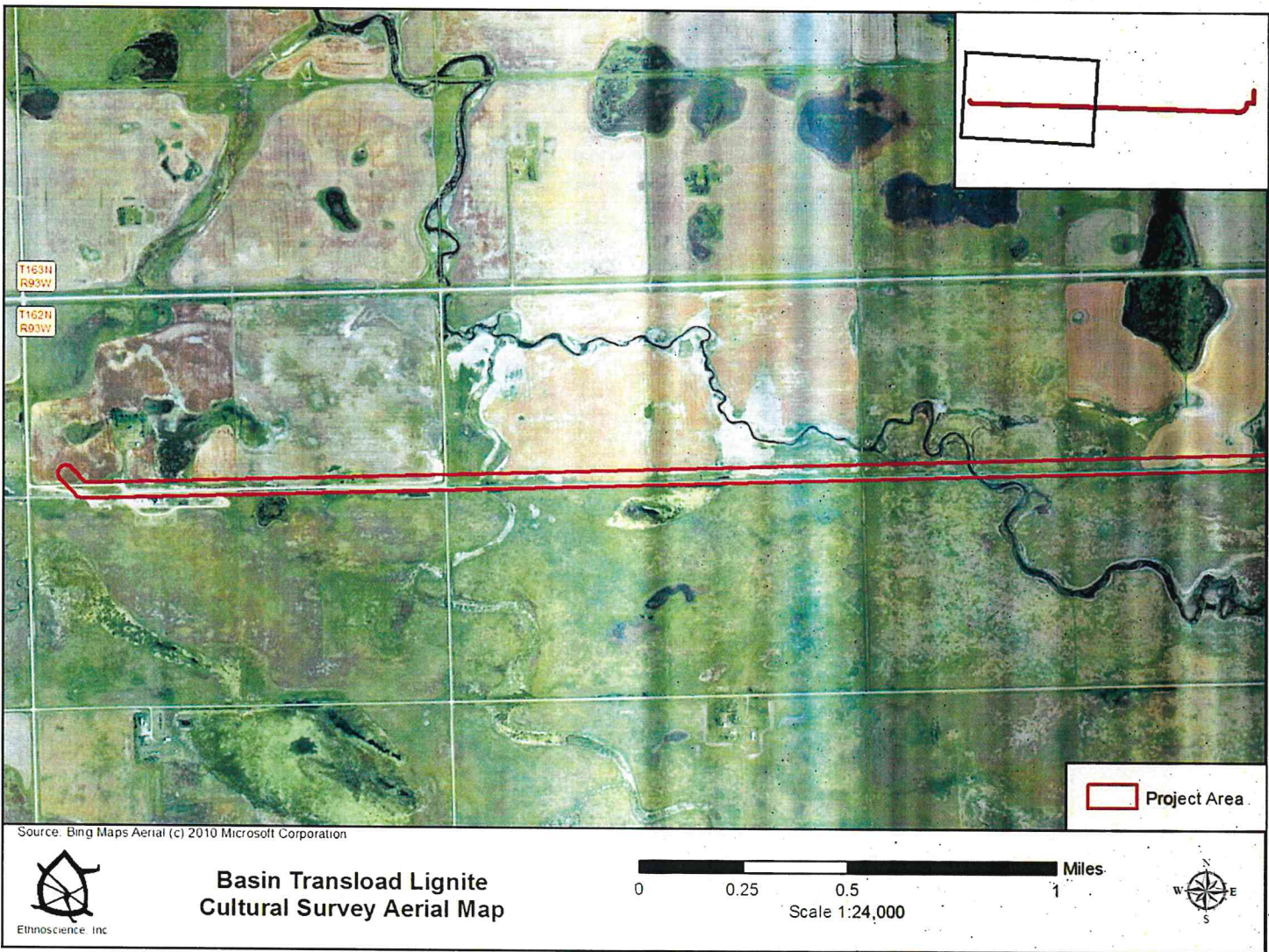


Figure 2. Aerial photograph showing the project area physical setting (completed).



---

Game animals that would have been found in the area prior to cultivation and fencing include bison, elk, mule deer, whitetail deer and pronghorn antelope. Moose and caribou may also have been present at certain times. Waterfowl include ducks and geese. Plant resources available to prehistoric groups include berries from chokecherry, juneberry and buffaloberry shrubs. The preferred lithic materials appear to be Knife River flint and Swan River chert. To a lesser extent, petrified wood, chert, moss agate, and jasper were used. Granite cobbles were also used for manufacturing heavy stone tools (SHSND 2008:11.11-11.12).

### **3.0 FILE SEARCH**

Ethnoscience contracted Amy Sakariassen to perform a files search at the North Dakota State Historical Society (Appendix A). The results of the files search identified eight previous cultural resource investigations conducted in sections crossed by the present project area (Table 1). Most of the previous investigations are associated with the oil pipeline projects. Only one previous investigation passed within the current project area (Reinhart 2011). The files search also identified one site lead (32BKx776) in the project area. One site (32BK68) and one site lead (32BKx981) are located adjacent to, but outside of, the project area (Table 2).

### **4.0 FIELD METHODS**

Blain Fandrich of Ethnoscience conducted the inventory on October 16-19, 2012. The inventory consisted of a two pedestrian transect spaced at 100 ft (~30 m) intervals within the defined project right-of-way, which is 200 ft (~60 m) wide. No subsurface testing was conducted during the project.

**Table 1. List of projects that occur in or near the project area.**

<b>Author</b>	<b>Project Title</b>	<b>Crosses Project Area</b>	<b>MS No.</b>
Borchert, J. 2002	Highway 5, E Jct. 40 East to W Jct. 52, Highway 89, Lignite Spur, Class II Inventory Report, Burke County, ND. North Dakota Department of Transportation, Bismarck.		8094
Foster, J., G. Wermers, and J. Borchert 1992	Burke County Road Improvement Class III Cultural Resource Inventory Final Report (Project #DPI-0182(001)0701) UW#1518. UNDAR-West for North Dakota Department of Transportation, Bismarck.		5728
Klinner, D. and J.L. Harty 2010	Bakken Expansion Pipeline: A Class III Cultural Resource Inventory, Burke County, ND. Kadrmas, Lee & Jackson for Enbridge Pipeline (North Dakota), LLC, Houston, Texas.		11663
Olson, B. 1995	Portal Pipeline Cultural Resources Inventory Burke County, North Dakota.		6470
Randall, I. 2011	Kenaston and Lignite Pumping Stations: A Class III Cultural Resource Inventory, Ward and Burke Counties, ND.		11977
Reinhart, D. 2011	Enbridge's Bakken Pipeline US Reroute and Lignite Pipe Yard: A Class III Cultural Resource Inventory in Burke County, North Dakota. Kadrmas, Lee & Jackson for Enbridge Pipeline (North Dakota), LLC, Houston, Texas.	X	12171
Shropshire, M., D. Klinner and J. Harty 2010	Bakken Pipeline Project US: A Class III Cultural Resource Inventory, Burke County, ND. Kadrmas, Lee & Jackson for Enbridge Pipeline (North Dakota), LLC, Houston, Texas.		11992
Stein, E. 1993	Lignite to Ramberg Canadian Crude Project Cultural Resource Reconnaissance, Burke and Mountrail Counties, North Dakota.		5995

**Table 2. Sites located in or adjacent to the project area.**

<b>Site No.</b>	<b>Township (N)</b>	<b>Range (W)</b>	<b>Section</b>	<b>Site Type</b>	<b>Comments</b>
32BK68	162	92	3, 4, 5, 6	Railroad	Former GN branch line
32BK68	162	93	1, 2, 3	Railroad	Former GN branch line
32BKx776	162	93	3	Post Office	Stampede Post Office
32BKx981	163	92	34	Farmstead	Old Grandpa Art's Home

Figure 3. Map of sites and site leads in or adjacent to the project area.

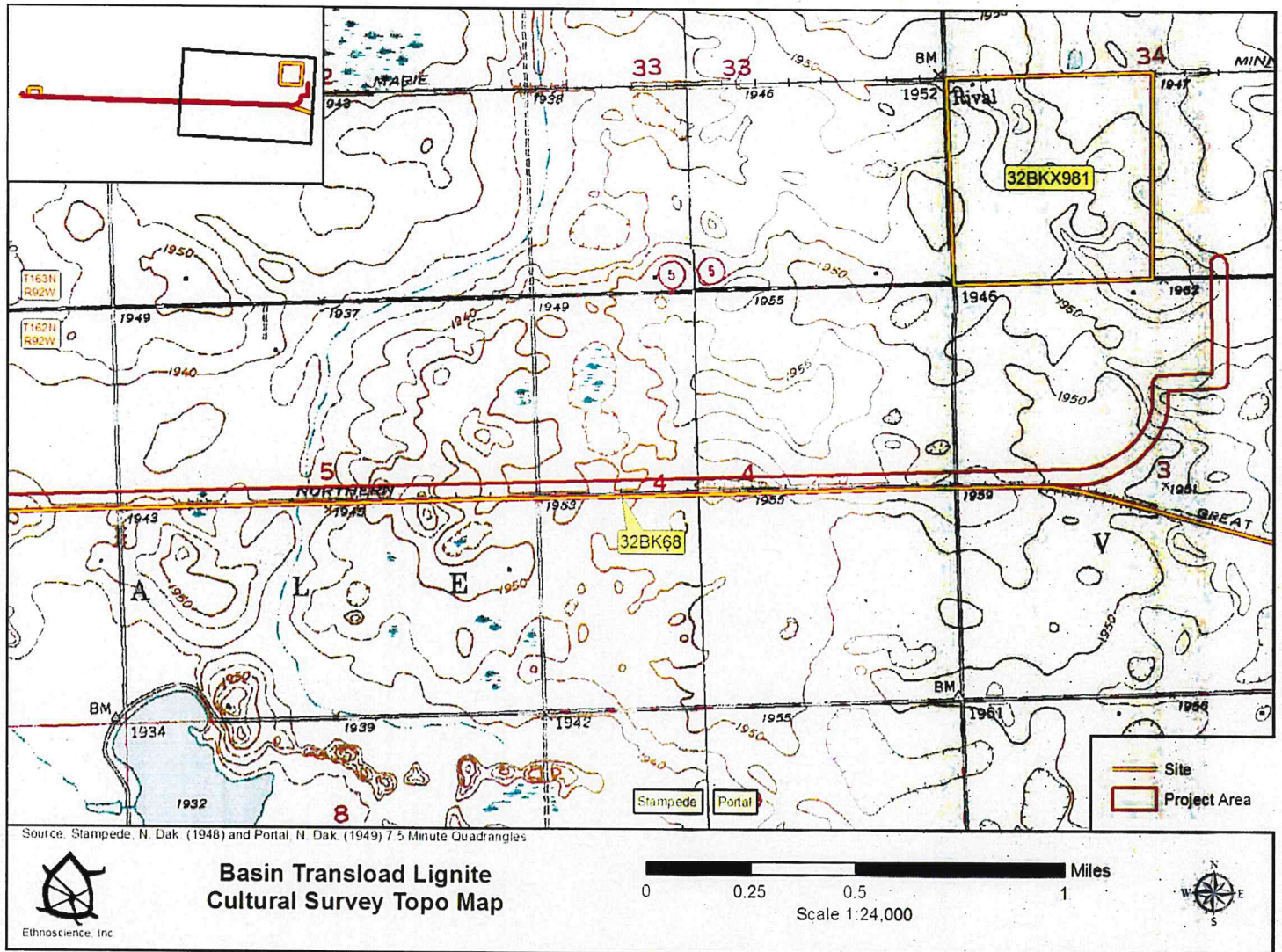


Figure 3. Map of sites and site leads in or adjacent to the project area (continued).

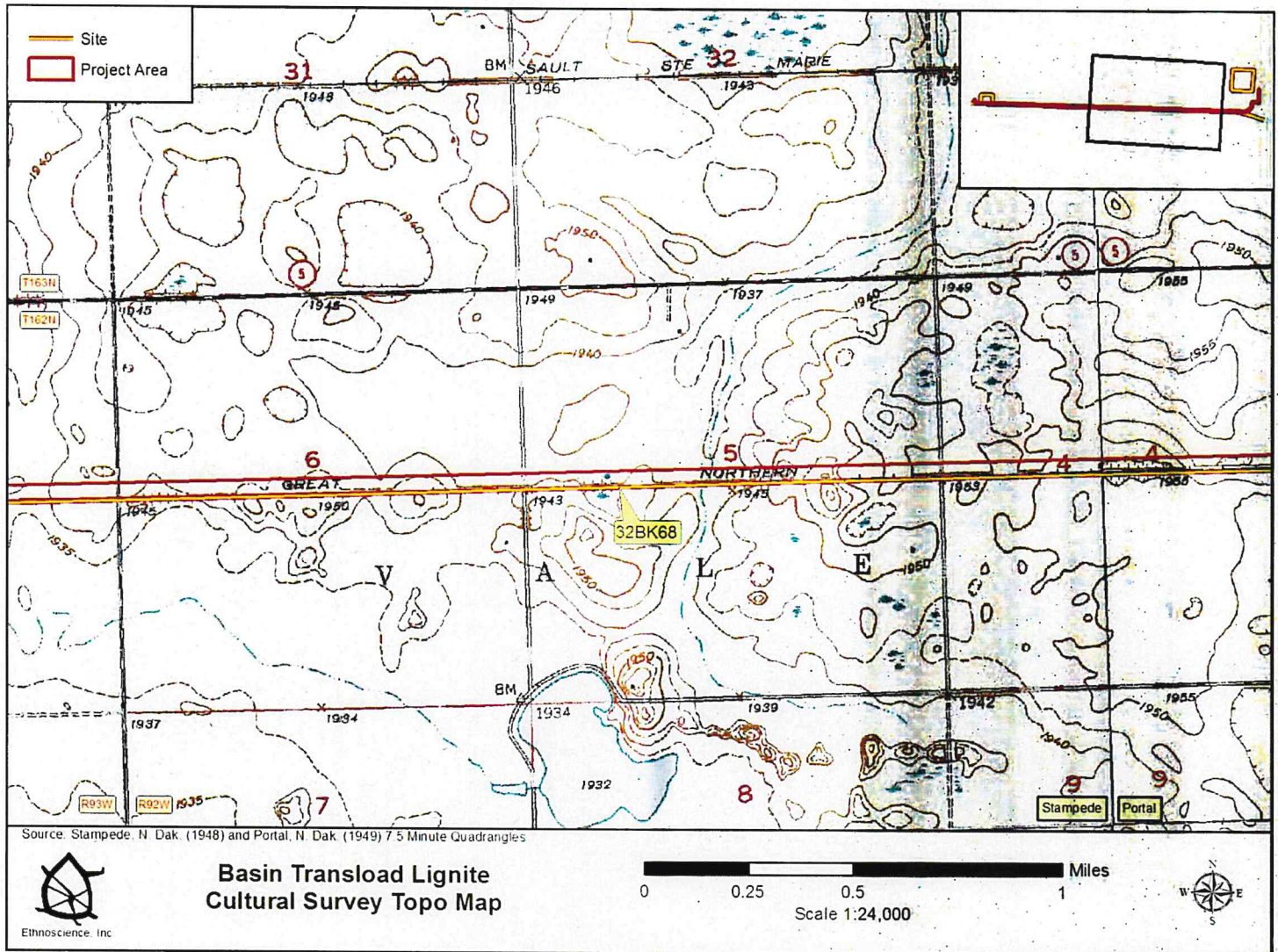
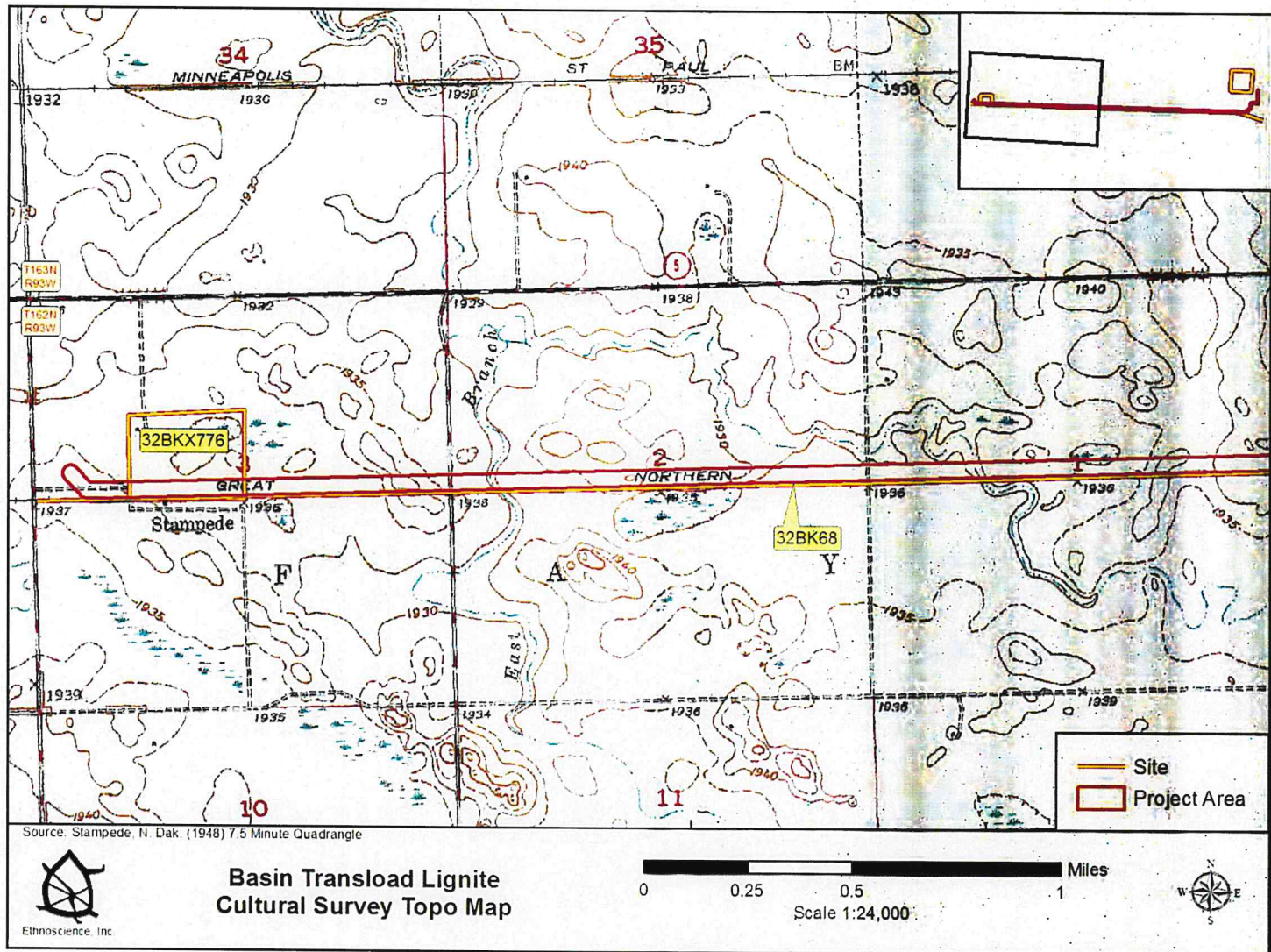


Figure 3. Map of sites and site leads in or adjacent to the project area (completed).



---

## 5.0 RESULTS AND RECOMENDATIONS

The inventory examined 6.957 miles (169 acres). Ground surface visibility was generally excellent (75-85 percent) within recently harvested fields, which made up most of the inventory area; but visibility was poor (0-5 percent) in marsh areas. One site lead (32BKx776) was updated for this project (Appendix B). Additionally, one site (32BK68) and one site lead (32BKx981) located near, but outside of the project area are also noted (Figure 3).

The Stampede post office (32BKx776) site lead boundary extends into the project area in Section 3 of T162N R93W (Figure 3). The community of Stampede had a population of 15 circa 1920 (Wick 1988:183). Although the community was located along the Great Northern (GN) railroad branch line to Crosby, it failed to thrive because of competition from the town of Columbus, located two miles northwest along the Minneapolis, St. Paul and Sault Ste. Marie (Soo Line) railroad branch line to Whitetail, Montana. By the mid 1930s, Stampede had diminished to the point where it was not even mentioned in the Works Progress Administration (WPA) guide to North Dakota (SHSND 1990). The Stampede post office operated from 1908 to 1919 (Wick 1988:183). No evidence of the post office site was identified within the inventory area. Additionally, there was no evidence of a standing historic post office building observed when looking north from the project area at Stampede. The area is also been impacted by a modern oil storage tank facility and gravel access roads. Although not all of the site lead area was inventoried, it is believed no significant evidence of the site remains.

The former GN railroad branch line to Crosby (32BK68), now operated by the Dakota, Missouri Valley and Western railroad (DMVW), is adjacent to, but outside of, the project area along the south side for most of the inventory corridor (Figure 3). A modern railroad spur constructed by the DMVW branches north from site 32BK68 and passes through the project area in Section 3 of T162N R92W. Old Grandpa Art's Home (32BKx981) is a homestead claim shack site lead also near, but outside of, the project area in Section 34 of T163N R92W (Figure 3). Neither of these properties were updated for this report, and the modern railroad spur was not recorded.

---

---

Ethnoscience recommends a finding of *No Historic Properties Affected* for the proposed project as inventoried within the defined right-of-way.

## 6.0 BIBLIOGRAPHY

State Historical Society North Dakota (SHSND)

1990 *The WPA Guide to 1930s North Dakota*. State Historical Society of North Dakota, Bismarck.

2008 *North Dakota Comprehensive Plan for Historic Preservation: Archaeological Component*. State Historical Society of North Dakota, Bismarck.

Wick, Douglas A.

1988 *North Dakota Place Names*. Hedemarken Collectibles, Bismarck, North Dakota.



Wenck Associates, Inc.  
301 1<sup>st</sup> St. NE, Suite 202  
Mandan, ND 58554

(701) 751-3370  
Fax (701) 751-3372  
E-mail: dackerman@wenck.com  
E-mail: jschulz@wenck.com

October 31, 2012

Crystal Kuntz, P.E.  
Electrical Consultants, Inc.  
3521 Gabel Road  
Billings, Montana 59102

Re: Lignite Pipeline - Wetland Delineation Summary Report

Dear Ms. Kuntz:

Wenck Associates, Inc. (Wenck) conducted a site visit to delineate wetlands within a corridor surrounding the proposed pipeline, near the cities of Lignite and Columbus, Burke County, North Dakota (Project Area). *Please refer to Appendix A-I, Overview Map.* The Project Area was located in Sections 3, 4, 5 and 6 of Township 162 North, Range 92 West and Sections 1, 2 and 3 of Township 162 North, Range 93 West. The site visit was conducted October 15 and 16, 2012. A corridor extending 75 feet from the center of the proposed pipeline line on each side (up to 150 foot total corridor width) was investigated to determine the presence of wetlands.

#### **Methodology**

Prior to the site visit, Wenck staff reviewed apparent wetland signatures on aerial photographs, National Wetland Inventory (NWI) data, and hydric soil survey information to determine areas of potential wetland.

The wetlands on the Project Area were delineated using the routine on-site methodology set forth in the 1987 US Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (U.S. Army Corps of Engineers 2010). The wetland areas were systematically evaluated by using numerous observation points to define their boundaries. The frequency of observation points was increased in transitional areas between uplands and lower areas to accurately identify wetland boundaries based on soils, vegetation, hydrology, and landscape.

The wetland areas were documented with upland (U) and wetland (W) soil borings, with single observation points for each of the two habitats (*Appendix A-II, Wetland Maps*). The U.S. Army Corps of Engineers Wetland Determination Data Form of the Great Plains Manual was completed for each observation point (*Appendix D, Wetland Determination Data Forms*).

Plant species were identified and classified using hydrophytic vegetation criteria outlined in the Manual (Environmental Laboratory 1987) and the Regional Supplement (U.S. Army Corps of Engineers 2010). A wetland indicator status was provided according to the National Wetland Plant List (Lichvar and Kartesz 2009). An additional plant resource included Stevens (1963). According to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (U.S. Army Corps of Engineers 2010), the hydrophytic plant criteria are met

when greater than or equal to 50% of the dominant species within the vegetative strata were assigned an obligate (OBL), facultative wet (FACW), or facultative (FAC) wetland status.

Hydric soil indicators were determined using the Field Indicators of Hydric Soils in the United States; Guide for Identifying and Delineating Hydric Soils, Version 7.0 (USDA-NRCS 2010). Additional resources included Schoeneberger et. al. (2002) and Soil Survey Staff (1982 and 2010).

Hydrology was determined on-site by observation of hydrologic indicators (U.S. Army Corps of Engineers 2010). Aerial photography was used to assist hydrologic assessment.

Wetland boundaries were surveyed using a GPS (Trimble GeoXT) with sub-meter accuracy.

Photographs were taken of the field investigated areas and are found in *Appendix C*.

Wetland Maps were developed using Bing Maps (accessed October 30, 2012), in combination with the National Wetlands Inventory (NWI) layer (USFWS 2012), and wetlands identified on-site. **Please refer to Appendix A-II, Wetland Maps.** Wetland Geographic Information System (GIS) shapefiles were sent prior to submittal of this wetland letter report. A wetland table with wetland information is provided. **Please refer to Wetland Table.** Additional wetland delineation information with use intended for a wetland jurisdictional request is provided (*Appendix B, Wetland/Project Area Information*).

## Results

Wenck staff identified 3 streams and 27 wetland basins in the Project Area. Several of the basins were isolated with no obvious connection to a stream or drainage system. Many of the isolated basins were created due to the excavation of material for the railroad embankment. The U.S. Fish and Wildlife Service have wetland easements in the NE1/4 of Section 4 and the NE1/4 of Section 3, Township 162 North, Range 92 West and the NW1/4 of Section 1, Township 162 North, Range 93 West.

Wetland 20 appeared to be isolated showing no surface connection to Stream 19 to the east and it did not continue to the north to flow into the stream north of the survey corridor. **Please refer to Appendix A-II-5.** All of the other wetland basins appeared to be isolated, indicating no surface connection to stream systems. The NWI wetland within the survey corridor in the NE1/4 of Section 3, Township 162 North, Range 92 West was found to not exist after field review.

The wetland areas were primarily vegetated by broad-leaf cat-tail (*Typha latifolia*), narrow-leaf cat-tail (*Typha angustifolia*), large barnyard grass (*Echinochloa crus-galli*), freshwater cord grass (*Spartina pectinata*), fox-tail barley (*Hordeum jubatum*), curly dock (*Rumex crispus*), water smartweed (*Persicaria amphibia*), reed canary grass (*Phalaris arundinacea*), fowl blue grass (*Poa palustris*) and common spike-rush (*Eleocharis palustris*). Common non-hydrophytic vegetation observed was smooth brome (*Bromus inermis*), Kentucky blue-grass (*Poa pratensis*), Canada thistle (*Cirsium arvense*), biennial wormwood (*Artemisia biennis*), wheat species (*Triticum* sp.) and Mexican-fireweed (*Bassia scoparia*).

Soil investigations in the wetland areas revealed many redoximorphic features, indicating presence of hydric soils. Hydrology indicators present in many of the wetland areas included inundation visible on aerial imagery, salt crust, aquatic invertebrates, oxidized rhizospheres along living roots, surface

soil cracks, saturation visible on aerial imagery, geomorphic position, water marks and sediment deposits.

**Discussion**

All delineated waterbodies, except for Streams 9, 19 and 24, appear to be isolated basins, and therefore are likely not regulated by Section 404 of the Clean Water Act under the USACE. Streams 9, 19 and 24 are assumed to have hydrologic connection to the Souris River, and therefore regulated by Section 404 of the Clean Water Act under the USACE.

Nationwide Permit 12 of the USACE covers "utility lines" under which pipelines are included. Nationwide Permit 12 covers "waters of the U.S." wetland loss of less than 0.5 acres on a single project. If the total wetland loss of "waters of the U.S." for a single project is greater than or equal to 0.5 acres, an individual Section 404 Permit would be required by the USACE.

The U.S. Fish and Wildlife Service should be notified before any construction begins to confirm easement locations and avoidance of these wetlands is strongly recommended.

It is recommended that all wetlands be avoided if possible. It appears there may be sufficient area to avoid some of the wetlands and allow for open trench pipe installation. Some wetland areas extend throughout the survey corridor and it is recommended the pipeline be bored underneath the wetlands to avoid impacts.

**Conclusion**

In conclusion, Wenck identified 30 waterbodies (3 streams, 27 wetland basins) within the Project Area. Many of these wetlands are isolated basins and are therefore not anticipated to be regulated under Section 404 of the Clean Water Act. It is anticipated the USACE will take the jurisdiction of Streams 9, 19 and 24. The U.S. Fish and Wildlife Service should be contacted regarding protection policies of its easement wetlands. It is recommended that all wetlands be avoided if possible.

It is recommended that a wetland jurisdictional determination be requested from the USACE to verify if "waters of the U.S." exist within the Project Area before any work commences near wetlands.

If you have any questions on the results of this investigation, please contact Dan Ackerman at (701)751-6126 or [dackerman@wenck.com](mailto:dackerman@wenck.com).

Sincerely,



Daniel S. Ackerman  
Wenck Associates, Inc.

### Wetland Table Summary

The wetland delineation for the Lignite Pipeline was conducted on October 15 and 16, 2012 by Dan Ackerman, Botanist/Natural Resource Specialist, Wenck Associates, Inc., and Darrell VanderBusch, ND Registered Professional Soil Classifier. The wetland delineations were conducted in accordance with the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (2010). Observations at each sample location were recorded on standard Corps of Engineers data sheets (*Appendix D*). Wetland boundaries and paired sample locations were surveyed with a Trimble GeoXT sub-meter accuracy GPS. The project is located within the UPPER SOURIS (09010001) Hydrologic Unit Code (HUC).

Wetland Number	Test Hole (in wetland)	Location	LONG/LAT (Dec. Deg.)	Cowardin Classification	Wetland Type	Wetland Size (acres)	Wetland Feature	Physical Characteristics of Potential Tributary*
1	1-W	Sec. 3, T162N, R92W	-102.605017 W 48.887895 N	PEMF	Basin	10.12	Natural	N/A
2	2-W	Sec. 4, T162N, R92W	-102.614124 W 48.887439 N	PEMCx	Basin	0.04	Artificial	N/A
3	3-W	Sec. 4, T162N, R92W	-102.618790 W 48.887629 N	PEMC	Basin	2.16	Natural	N/A
4	4-W	Sec. 4, T162N, R92W	-102.623823 W 48.887578 N	PEMC	Basin	2.84	Natural	N/A
5	5-W	Sec. 4, T162N, R92W	-102.629131 W 48.887620 N	PEMC	Basin	1.12	Natural	N/A
6	6-W	Sec. 4, T162N, R92W	-102.631933 W 48.887429 N	PEMAx	Basin	0.07	Artificial	N/A
7	7-W	Sec. 4, T162N, R92W	-102.633655 W 48.887453 N	PEMAx/ PEMCx	Basin	0.13	Artificial	N/A
7B	N/A	Sec. 5, T162N, R92W	-102.634248 W 48.887463 N	PEMA/PEMC	Basin	0.09	Natural	N/A
8	8-W	Sec. 5, T162N, R92W	-102.634156 W 48.887463 N	PEMA	Basin	0.60	Natural	N/A
Stream 9	9-W	Sec. 5, T162N, R92W	-102.645573 W 48.887605 N	PEMA/ R4SB5/7	Stream	1.03 ac. 165 LF	Natural	9,10,11,14,21,22 25
10	10-W	Sec. 5, T162N, R92W	-102.651543 W 48.887618 N	PEMC	Basin	1.55	Natural	N/A
11	11-W	Sec. 5, T162N, R92W	-102.655752 W 48.887702 N	PEMAx	Basin	0.03	Artificial	N/A
12	12-W	Sec. 6, T162N, R92W	-102.655956 W 48.887743 N	PEMAx	Basin	0.02	Artificial	N/A
13	13-W	Sec. 6, T162N, R92W	-102.657738 W 48.887479 N	PEMcd	Basin	0.31	Natural	N/A
14	14-W	Sec. 6, T162N, R92W	-102.664183 W 48.887484 N	PEMAx	Basin	0.20	Artificial	N/A
15	15-W	Sec. 6, T162N, R92W	-102.675310 W 48.887503 N	PEMA/PEMC	Basin	0.30	Natural	N/A
16	16-W	Sec. 6, T162N, R92W	-102.655956 W 48.887743 N	PEMAx	Basin	0.02	Artificial	N/A
17	17-W	Sec. 1, T162N, R93W	-102.677286 W 48.887770 N	PEMC	Basin	0.28	Natural	N/A
18	18-W	Sec. 1, T162N, R93W	-102.687001 W 48.887643 N	PEMF/PEMC	Basin	2.31	Natural	N/A
Stream 19	19-W	Sec. 1, T162N, R93W	-102.693201 W 48.887536 N	R4SB5/7	Stream	1.15 ac. 208 LF	Natural	6,8,10,11,12,13, 14,19,21,22,25
20	20-W	Sec. 2, T162N, R93W	-102.699075 W 48.887477 N	PEMCx	Basin	0.14	Artificial	N/A
21	21-W	Sec. 2, T162N, R93W	-102.707099 W 48.887505 N	PEMC/PEMF	Basin	1.14	Natural	N/A

22	22-W	Sec. 2, T162N, R93W	-102.715054 W 48.887515 N	PEMAx	Basin	0.24	Artificial	N/A
23	23-W	Sec. 2, T162N, R93W	-102.716830 W 48.887698 N	PEMA	Basin	0.10	Natural	N/A
Stream 24	24-W	Sec. 2, T162N, R93W	-102.718900 W 48.887606 N	R4SB5/7	Stream	0.60 ac 211 LF	Natural	6,8,10,11,12,13, 14,15,17,20,21, 22,25
25	25-W	Sec. 3, T162N, R93W	-102.726182 W 48.887800 N	PEMC	Basin	1.93	Natural	N/A
26	26-W	Sec. 3, T162N, R93W	-102.730042 W 48.887632 N	PEMC	Basin	0.37	Natural	N/A
27	27-W	Sec. 3, T162N, R93W	-102.734903 W 48.887657 N	PEMA/PEMC	Basin	0.18	Natural	N/A
28	28-W	Sec. 3, T162N, R93W	-102.735144 W 48.887835 N	PEMA/PEMC	Basin	0.37	Natural	N/A
29	29-W	Sec. 3, T162N, R93W	-102.739875 W 48.887602 N	PEMAx	Basin	0.48	Artificial	N/A
<b>TOTAL</b>						<b>29.92 ac</b> <b>584 LF</b>		

\*Physical characteristics of Potential Tributary:

Substrate Composition:

- 1) Silts
- 2) Sands
- 3) Concrete
- 4) Cobbles
- 5) Gravel
- 6) Muck
- 7) Bedrock
- 8) Vegetation (Type/% Cover)
- 9) Other: Explain:

Other Tributary Features:

- 10) Bed and Banks
- 11) Ordinary High Water Mark
- 12) Clear, natural line impressed on the bank
- 13) The presence of litter and debris
- 14) Changes in the character of soil
- 15) Destruction of terrestrial vegetation
- 16) Shelving
- 17) The presence of wrack line
- 18) Vegetation matted down, bent, or absent
- 19) Sediment sorting

- 20) Leaf litter disturbed or washed away
- 21) Scour
- 22) Sediment deposition
- 23) Multiple observed or predicted flow events
- 24) Water staining
- 25) Abrupt change in plant community

## References

- Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Online. <http://www.npwrc.usgs.gov/resource/wetlands/classwet/index.htm> (Version 04DEC1998).
- Environmental Laboratory. 1987. *Corp of Engineers Wetlands Delineation Manual*. Wetlands Research Program. Technical Report Y-87-1. Department of the Army, Waterways Experiment Station, US Army Corp of Engineers, Vicksburg, Mississippi, USA.
- High Plains Regional Climate Center. 2012. Historical Climate Data Summaries. Columbus, North Dakota. <http://www.hprcc.unl.edu/>
- Lichvar, R.W. and J.T. Kartesz. 2009. *North American Digital Flora: National Wetland Plant List, version 2.4.0* ([https://wetland\\_plants.usace.army.mil](https://wetland_plants.usace.army.mil)). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (Accessed October 2012).
- Schoeneberger, P. J., Wysocki, D. A., Benham, E. C. and Broderson, W.E. 2002. Field Book for describing and sampling soils. Ver. 2.0 USDA-NRCS.
- Soil Survey Staff. 1982. Soil Survey Manual. 430-V, Issue 2. Washington D.C., U. S. Govt. Printing Office.
- Soil Survey Staff. 2010. Keys to Soil Taxonomy, 11th Edition USDA-NRCS.
- Stevens, O.A. 1963. *Handbook of North Dakota Plants*. North Dakota Institute for Regional Studies, Fargo, North Dakota, USA.
- U.S. Army Corps of Engineers. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region*. U.S. Army Corps of Engineers, U.S. Army Engineer Research and Development Center Vicksburg, Mississippi, USA.
- USDA-NRCS. 2010. *Field Indicators of Hydric Soils in the United States—Guide for Identifying and Delineating Hydric Soils, Version. 7.0* in G.W. Hurt, L.M. Vasilas, and C.V. Noble, editors. USDA-NRCS in cooperation with the National Technical Committee for Hydric Soils.
- USDA-NRCS. 2012. Soil Survey of Burke County, North Dakota. <http://websoilsurvey.nrcs.usda.gov/app>.
- USFWS. 2012. United States Fish and Wildlife Service. National Wetlands Inventory. <http://wetlandsfws.er.usgs.gov/NWI/>

**Appendix A-I**  
**Overview Map**



Electrical Consultants, Inc.

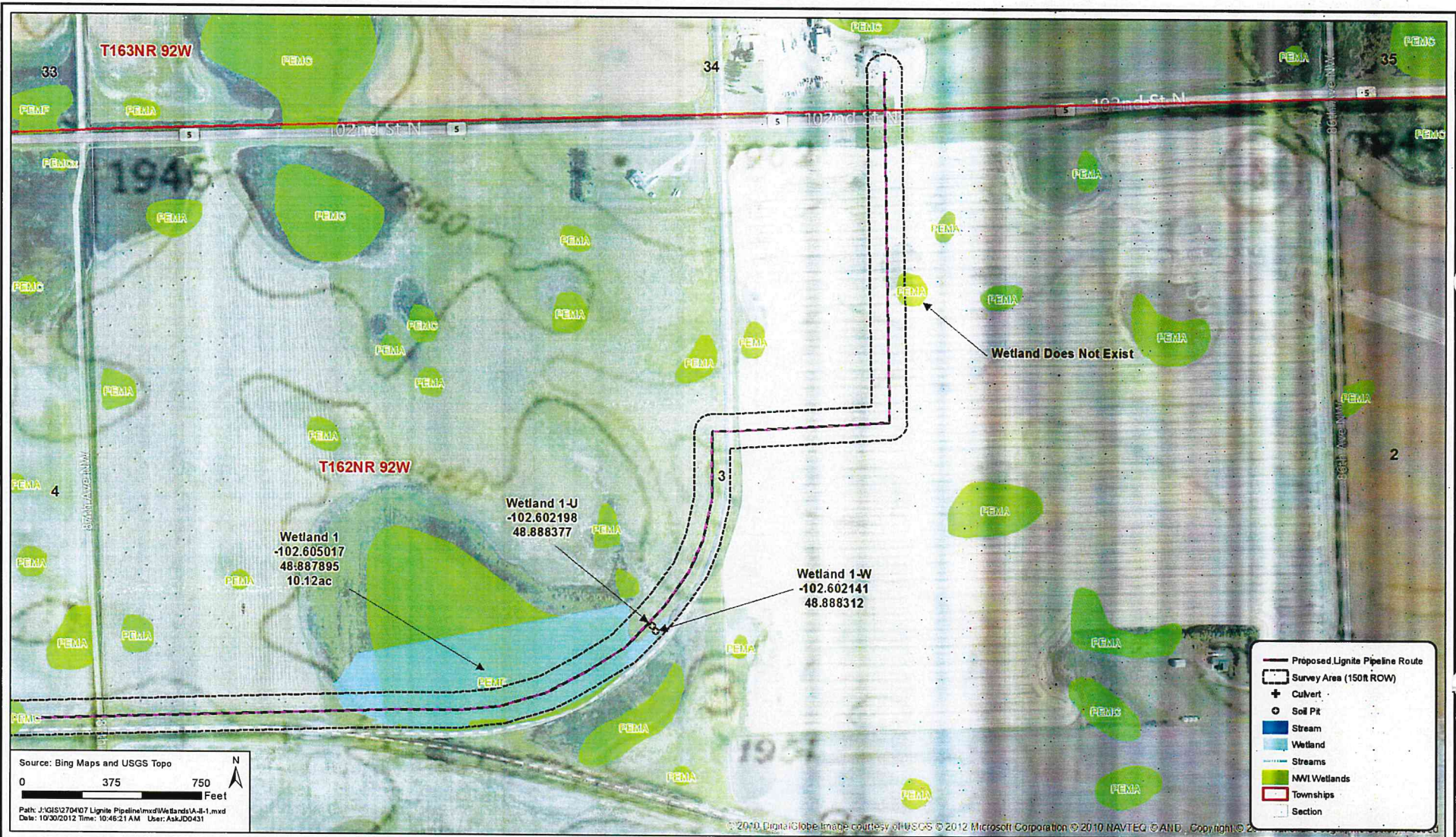
Lignite Pipeline-Overview Map  
Burke County, ND

  
Engineers - Scientists  
Business Professionals  
www.wenck.com


**Wenck**  
301 1st Street NE Suite 202  
Mandan, ND 58554-3370  
701-751-3370

OCT 2012  
APPENDIX A-I

**Appendix A-II  
Wetland Maps**

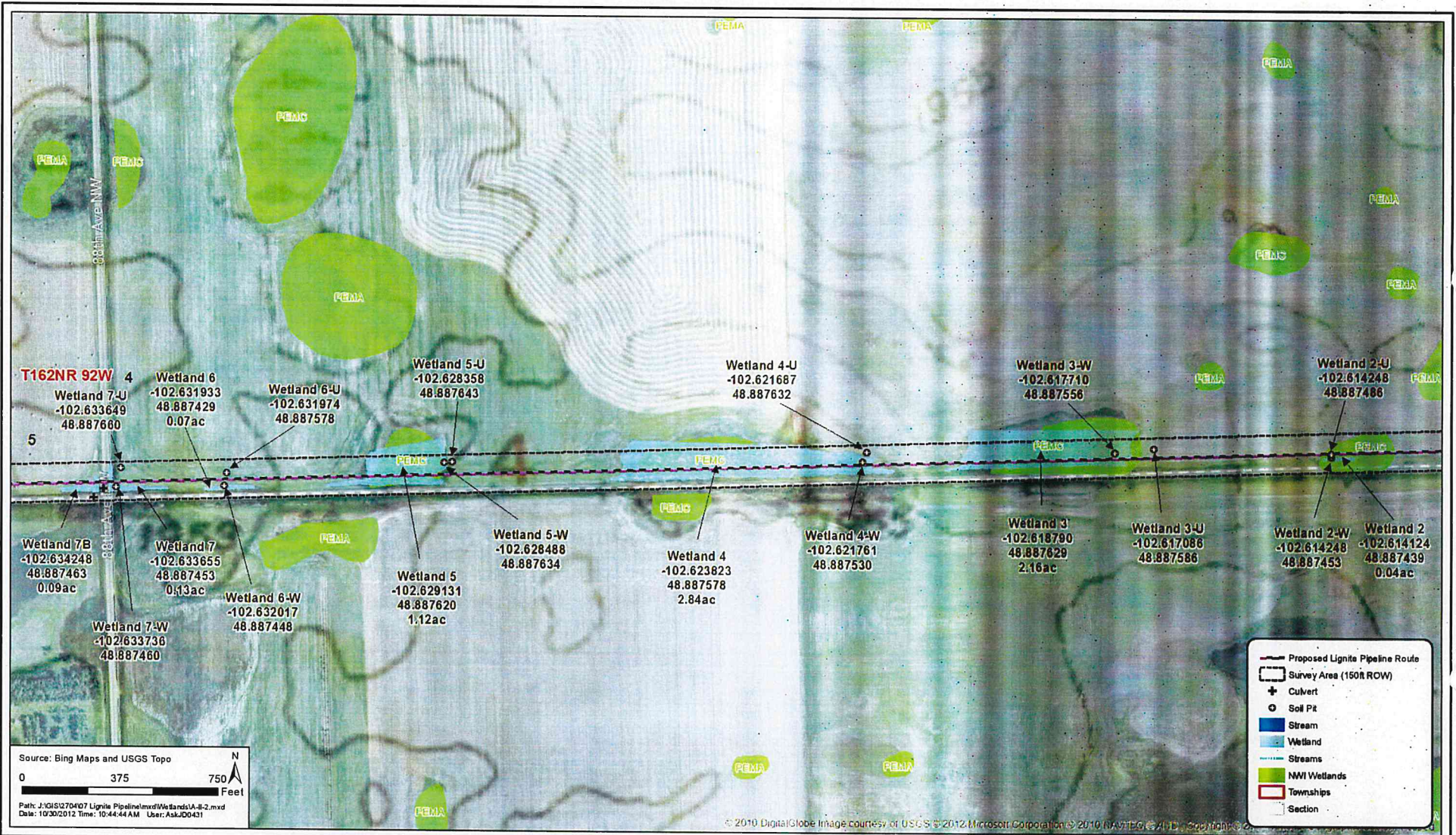


Electrical Consultants, Inc.  
 Lignite Pipeline-Wetland 1  
 Section 3, T162N, R92W, Burke County, ND

  
 Engineers - Scientists  
 Business Professionals  
 www.wenck.com

**Wenck**  
 301 1st Street NE Suite 202  
 Mandan, ND 58554-3370  
 701-751-3370

OCT 2012  
 APPENDIX A-II-1



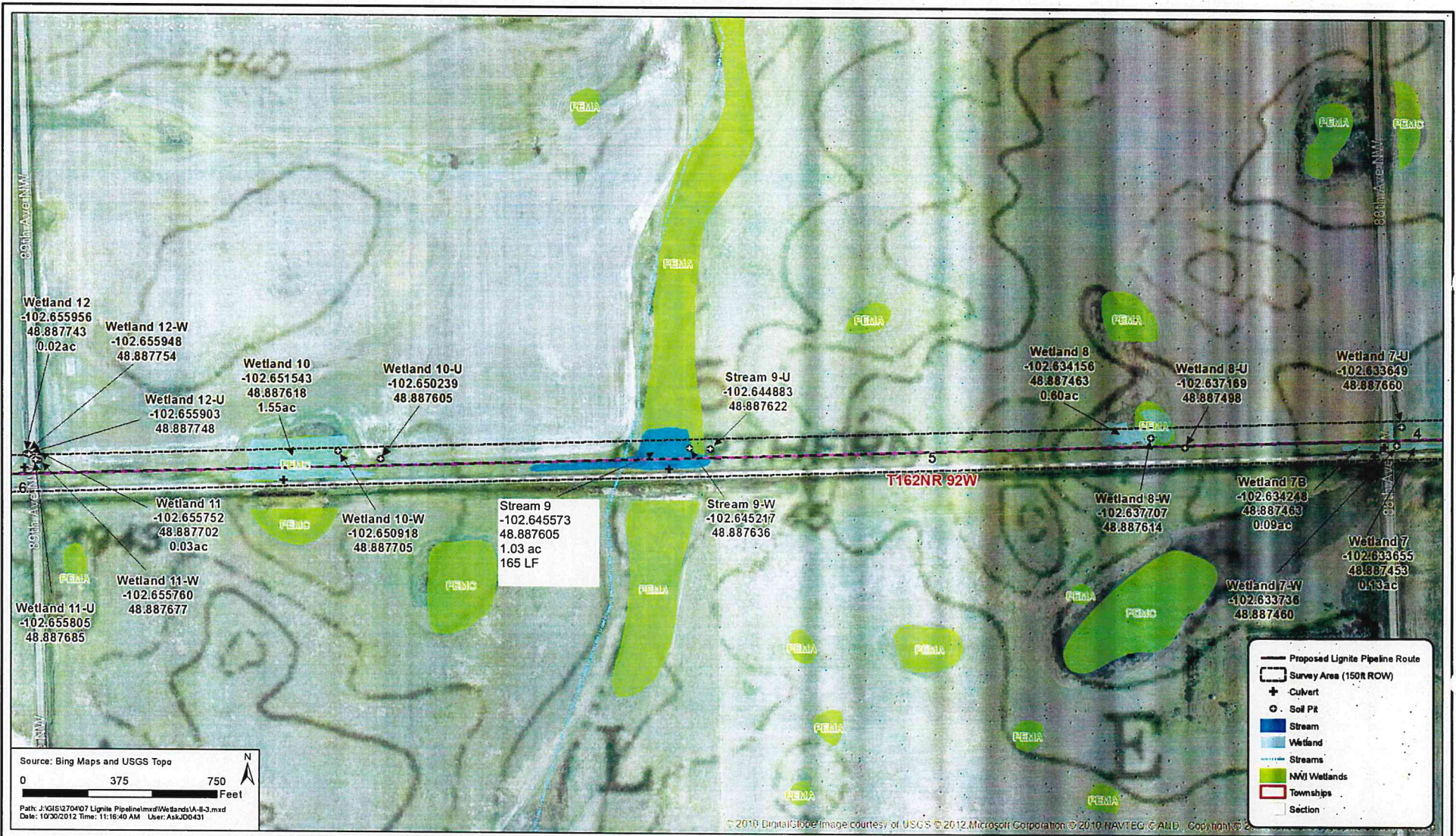
Electrical Consultants, Inc.

Lignite Pipeline-Wetlands 2, 3, 4, 5, 6, 7 and 7B  
Sections 4 and 5, T162N, R92W, Burke County, ND

**Wenck**  
Engineers - Scientists  
Business Professionals  
www.wenck.com

**Wenck**  
301 1st Street NE Suite 202  
Mandan, ND 58554-3370  
701-751-3370

OCT 2012  
APPENDIX A-II-2



Electrical Consultants, Inc.

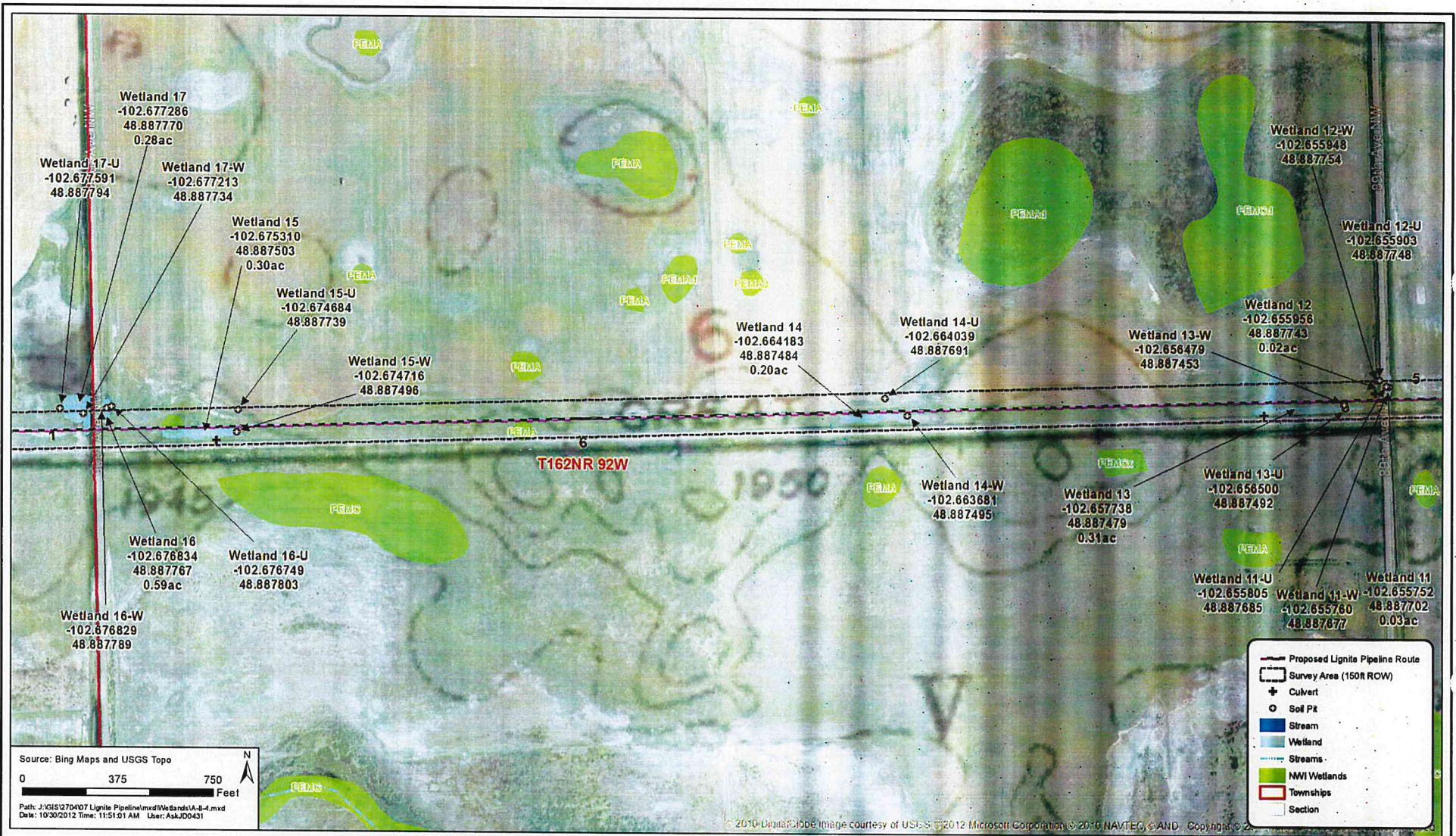
Lignite Pipeline-Wetlands 7, 7B, 8, 10, 11, 12 and Stream 9  
 Sections 4, 5 and 6, T162N, R92W, Burke County, ND

**Wenck**  
 Engineers - Scientists  
 Business Professionals  
 www.wenck.com

**Wenck**  
 301 1st Street NE Suite 202  
 Mandan, ND 58554-3370  
 701-751-3370

OCT 2012

APPENDIX A-II-3



Electrical Consultants, Inc.

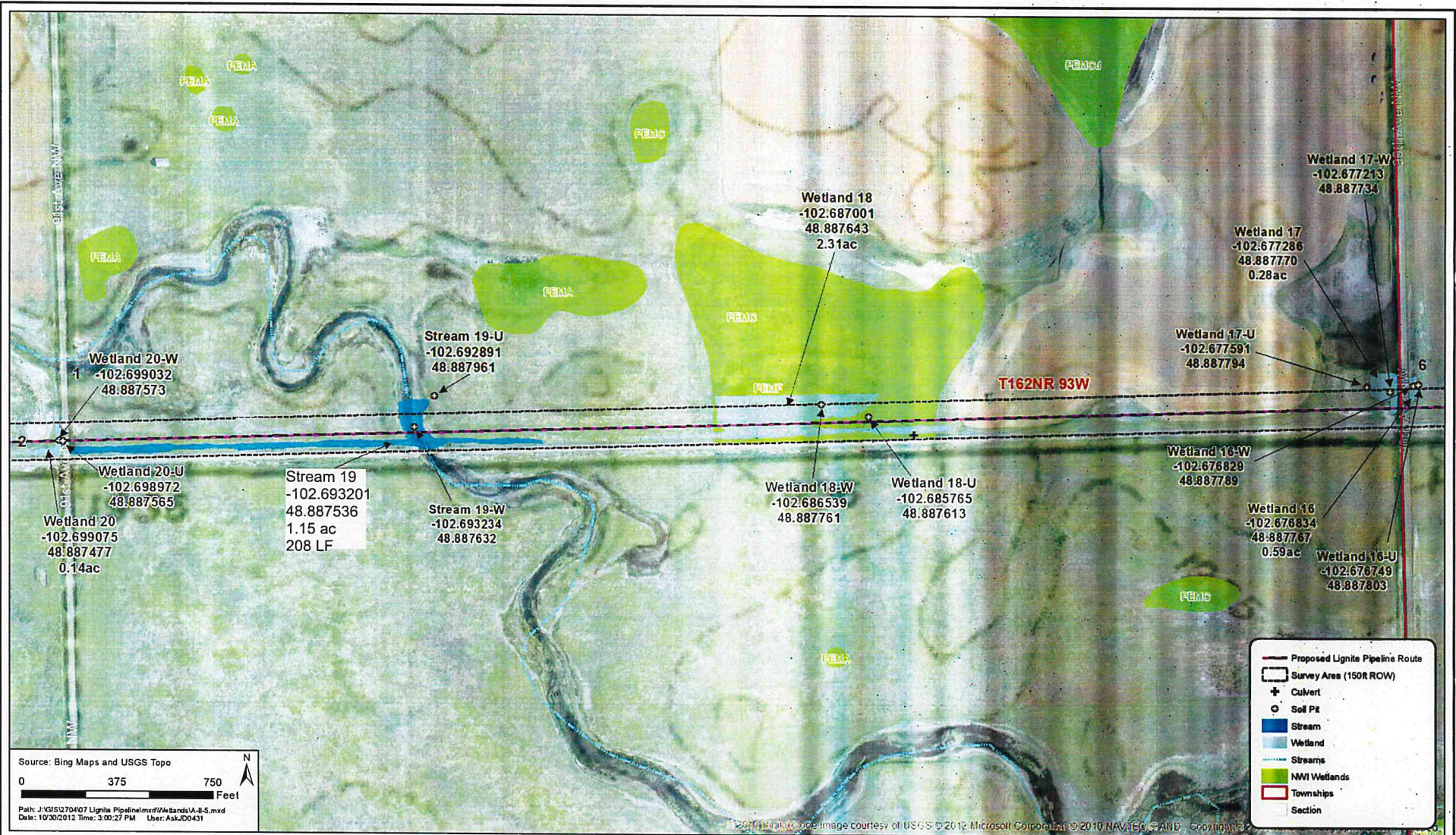
Lignite Pipeline-Wetlands 11, 12, 13, 14, 15, 16 and 17  
Sections 5 and 6, T162N, R92W, and Section 1, T162N, R93W Burke County, ND

**Wenck**  
Engineers - Scientists  
Business Professionals  
www.wenck.com

**Wenck**  
301 1st Street NE Suite 202  
Mandan, ND 58554-3370  
701-751-3370


OCT 2012

APPENDIX A-II-4



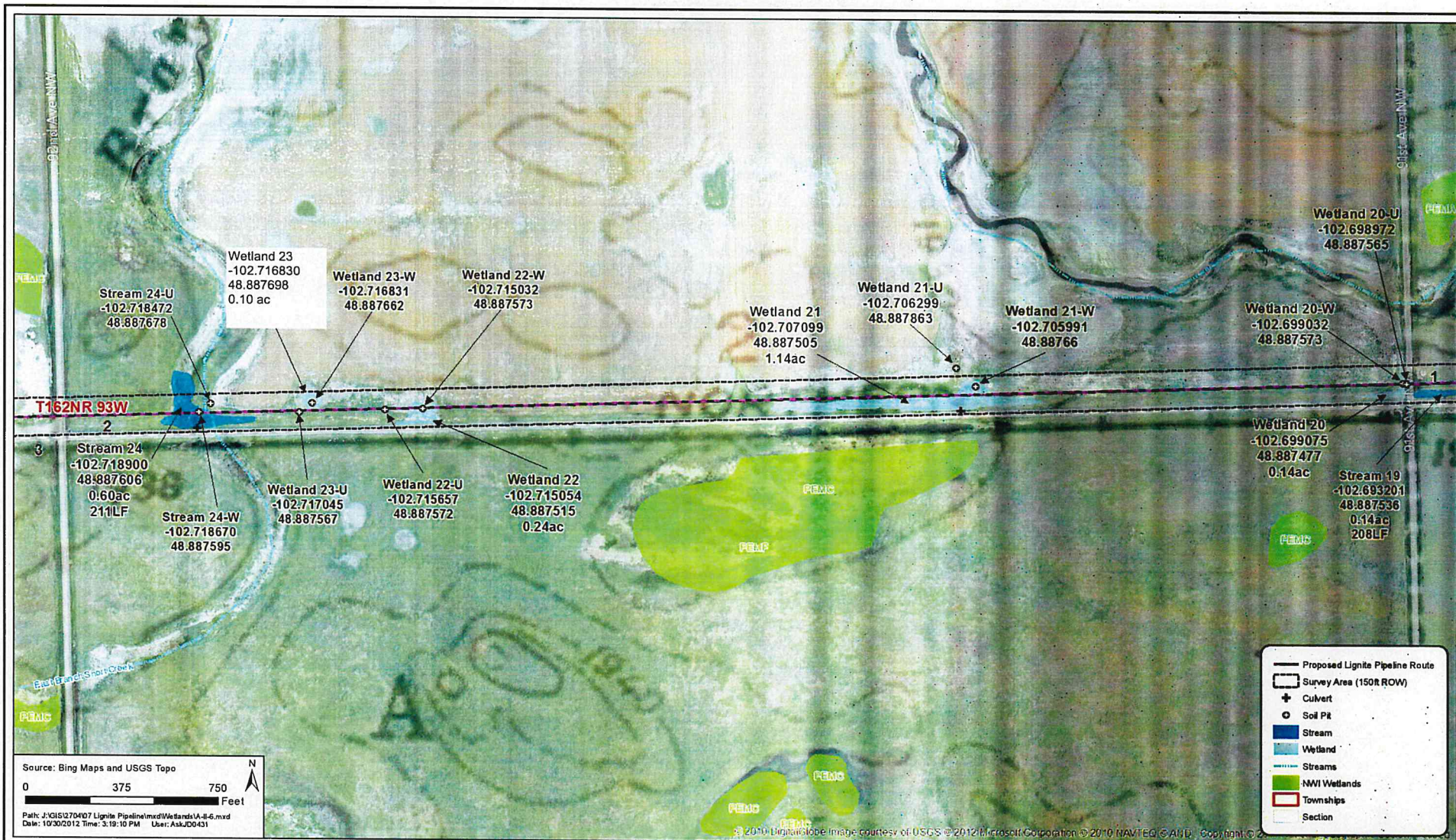
Electrical Consultants, Inc.

Lignite Pipeline-Wetlands 16, 17, 18, 20 and Stream 19  
 Section 6, T162N, R92W, and Sections 1 and 2, T162N, R93W Burke County, ND

  
 Engineers - Scientists  
 Business Professionals  
 www.wenck.com

**Wenck**  
 301 1st Street NE Suite 202  
 Mandan, ND 58554-3370  
 701-751-3370

OCT 2012  
 APPENDIX A-II-5



Electrical Consultants, Inc.

Lignite Pipeline-Wetlands 20, 21, 22 and Streams 19 and 24  
Sections 1, 2 and 3, T162N, R93W Burke County, ND

**Wenck**  
Engineers - Scientists  
Business Professionals  
www.wenck.com

**Wenck**  
301 1st Street NE Suite 202  
Mandan, ND 58554-3370  
701-751-3370

OCT 2012

APPENDIX A-II-6



Electrical Consultants, Inc.

Lignite Pipeline-Wetlands 25, 26, 27, 28 and 29  
Section 3, T162N, R93W Burke County, ND

**Wenck**  
Engineers - Scientists  
Business Professionals  
www.wenck.com

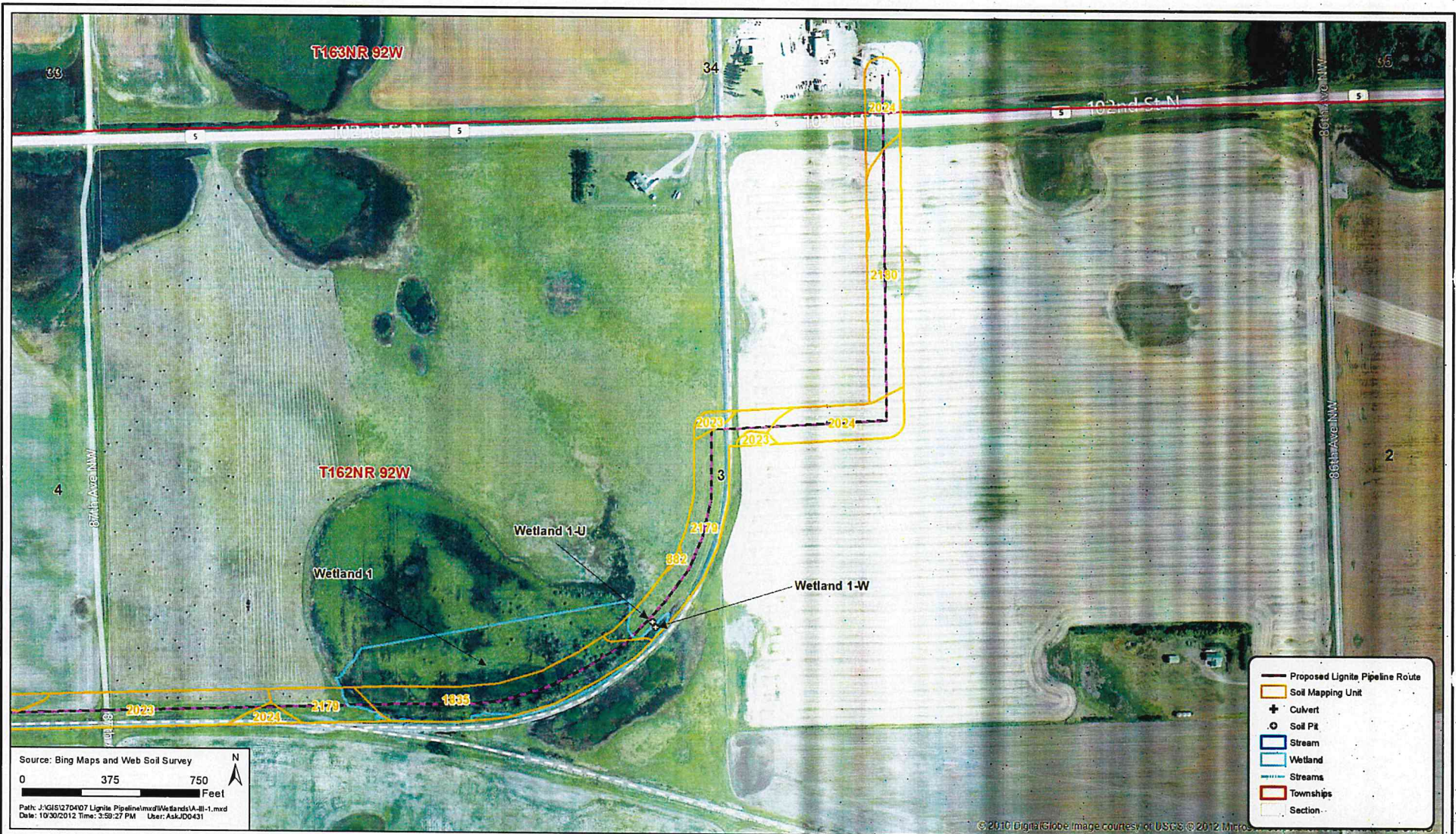
**Wenck**  
301 1st Street NE Suite 202  
Mandan, ND 58554-3370  
701-751-3370

OCT 2012  
APPENDIX A-II-7


**Appendix A-III**  
**Soil Maps**

## Soil Map Legend

Mapping Unit	Soil Series Name
882	Hamerly-Tonka complex, 0 to 3 percent slopes
975	Heil silt loam, 0 to 1 percent slopes
1709	Southam silt loam, 0 to 1 percent slopes
1835	Tonka silt loam, 0 to 1 percent slopes
1871	Vallers loam, saline, 0 to 1 percent slopes
2023	Williams-Niobell loams, 0 to 3 percent slopes
2024	Williams-Niobell loams, 3 to 6 percent slopes
2031	Williams-Zahl loams, 3 to 6 percent slopes
2169	Harriet, Regan, and Stirum soils, 0 to 2 percent slopes
2179	Noonan-Niobell loams, 0 to 6 percent slopes
2180	Niobell-Noonan-Tonka complex, 0 to 3 percent slopes
2181	Miranda-Noonan loams, 0 to 3 percent slopes
2182	Portal-Lihen fine sandy loams, 0 to 2 percent slopes
2184	Williams-Zahl complex, 3 to 6 percent slopes

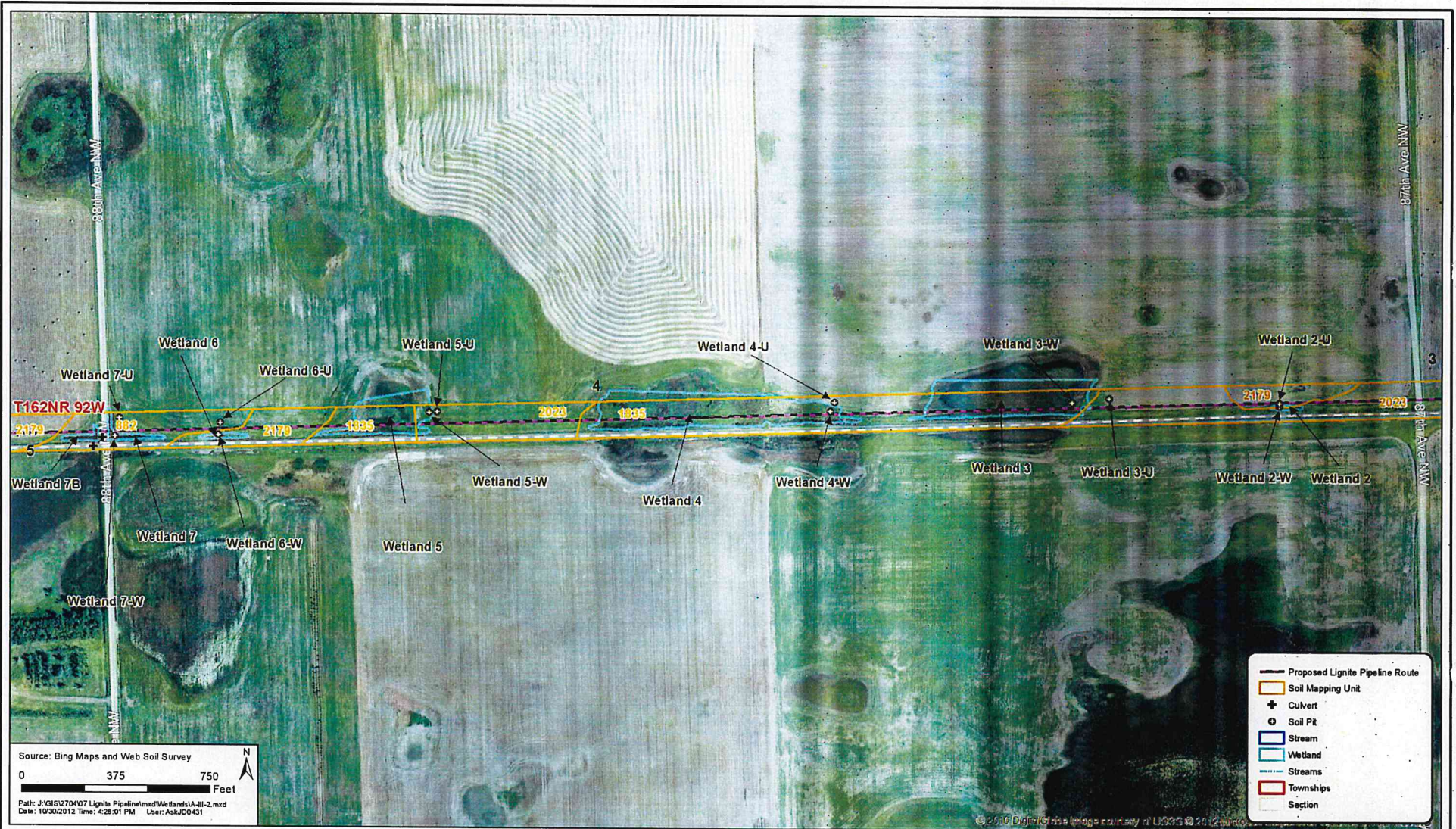


Electrical Consultants, Inc.  
 Lignite Pipeline-Soils  
 Section 3, T162N, R92W, Burke County, ND

  
 Engineers - Scientists  
 Business Professionals  
 www.wenck.com

**Wenck**  
 301 1st Street NE Suite 202  
 Mandan, ND 58554-3370  
 701-751-3370

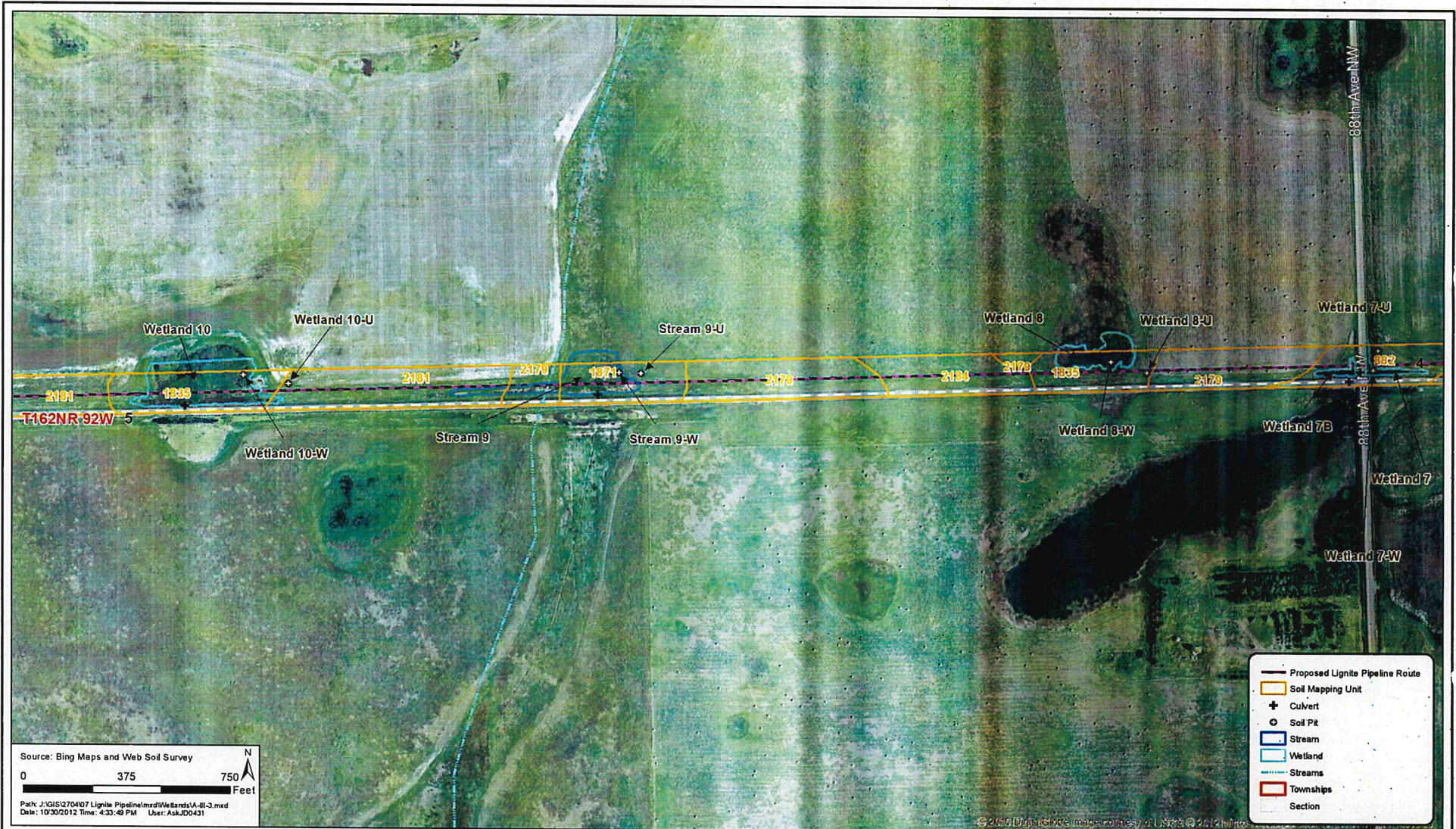
OCT 2012  
 APPENDIX A-III-1



Electrical Consultants, Inc.  
 Lignite Pipeline-Soils  
 Section 4, T162N, R92W Burke County, ND

**Wenck**  
 Engineers - Scientists  
 Business Professionals  
 www.wenck.com  
 301 1st Street NE Suite 202  
 Mandan, ND 58554-3370  
 701-751-3370

OCT 2012  
 APPENDIX A-III-2



Source: Bing Maps and Web Soil Survey

0 375 750 Feet

Path: J:\GIS\370407 Lignite Pipeline\mxd\Wetlands\A-III-3.mxd  
 Date: 10/30/2012 Time: 4:33:49 PM User: Ask.JD0431

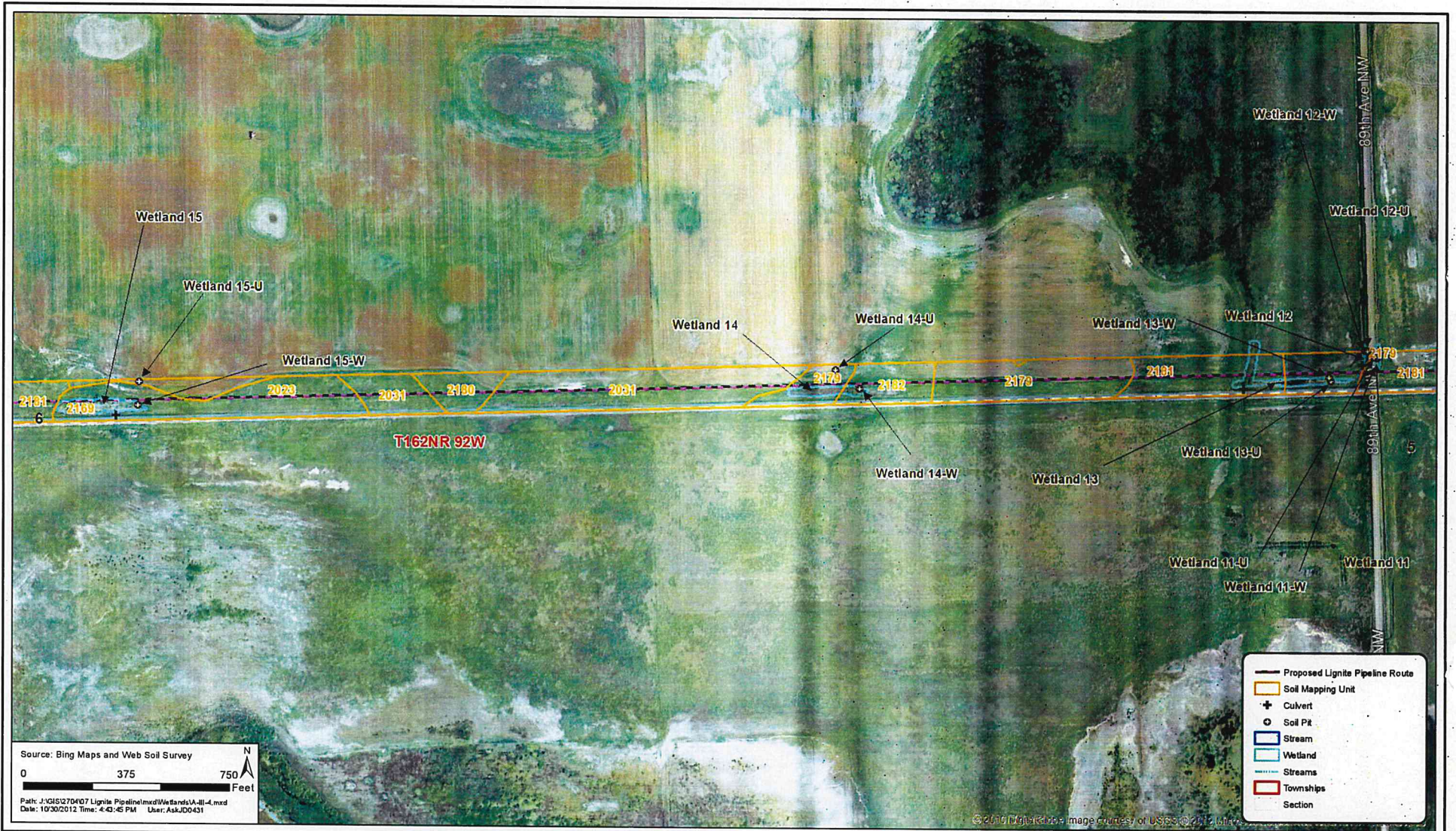
© 2012 DigitalGlobe, imagery courtesy of USGS © 2012 WIPRO

Electrical Consultants, Inc.  
 Lignite Pipeline-Soils  
 Section 5, T162N, R92W Burke County, ND

**Wenck**  
 Engineers - Scientists  
 Business Professionals  
 www.wenck.com

301 1st Street NE Suite 202  
 Mandan, ND 58554-3370  
 701-751-3370

OCT 2012  
 APPENDIX A-III-3



Source: Bing Maps and Web Soil Survey

0 375 750 Feet

Path: J:\GIS\270407 Lignite Pipeline\mxd\Wetlands-A-III-4.mxd  
 Date: 10/30/2012 Time: 4:43:45 PM User: AskJ200431

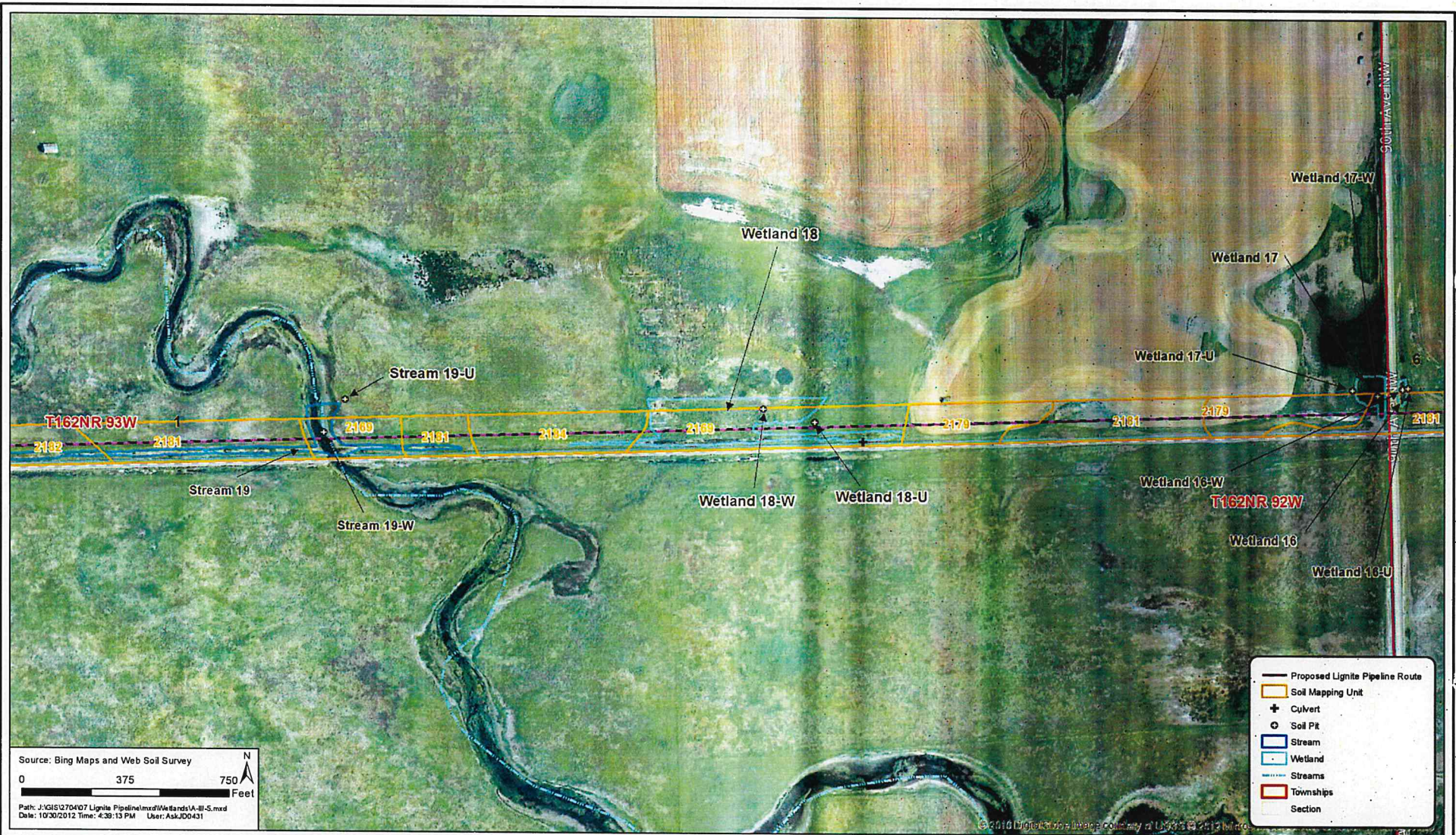
- Proposed Lignite Pipeline Route
- Soil Mapping Unit
- ⊕ Culvert
- ⊙ Soil Pit
- ▭ Stream
- ▭ Wetland
- ▭ Streams
- ▭ Townships
- ▭ Section

Electrical Consultants, Inc.  
 Lignite Pipeline-Soils  
 Section 6, T162N, R92W Burke County, ND

**Wenck**  
 Engineers - Scientists  
 Business Professionals  
 www.wenck.com

301 1st Street NE Suite 202  
 Mandan, ND 58554-3370  
 701-751-3370

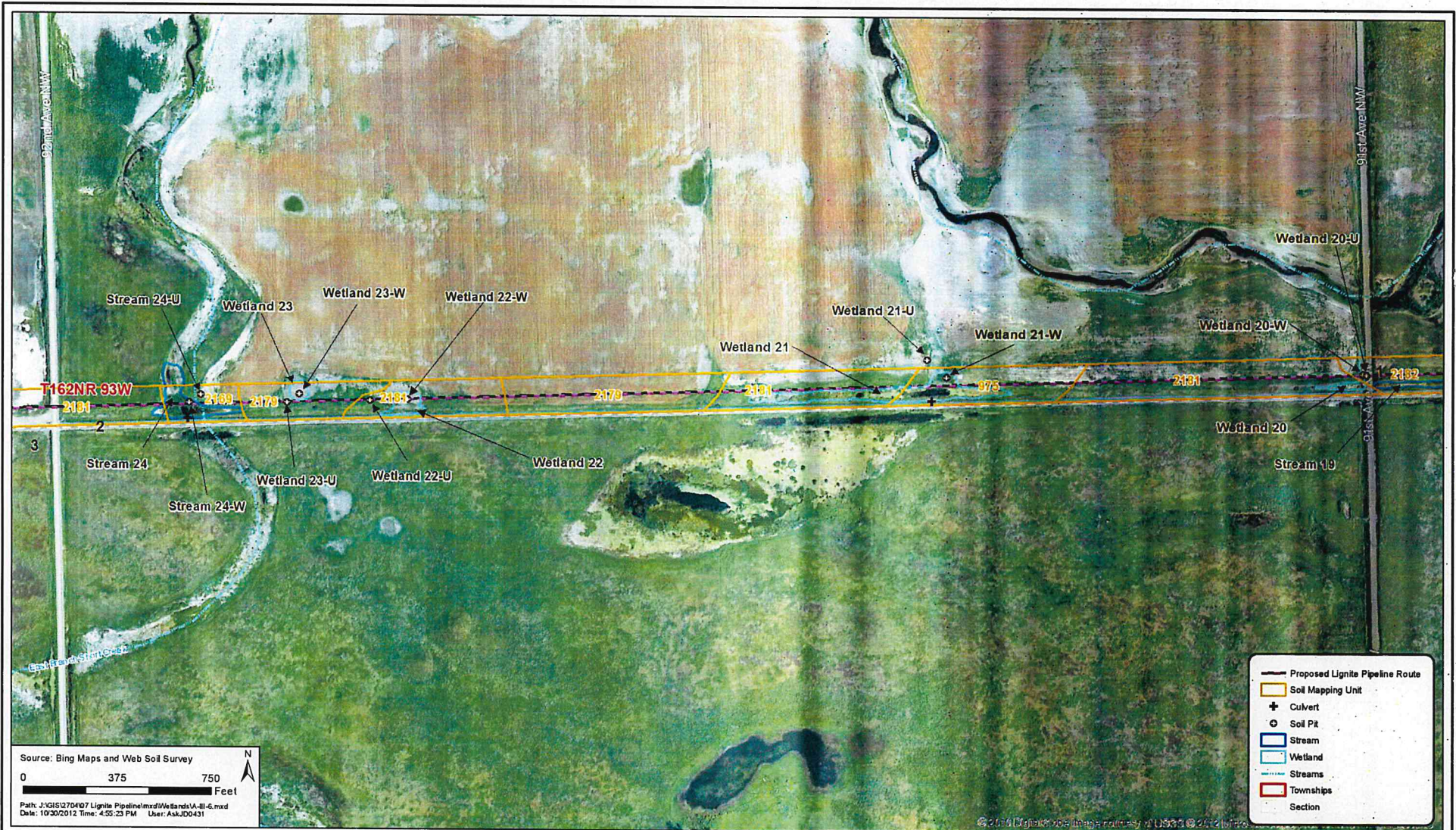
OCT 2012  
 APPENDIX A-III-4




Electrical Consultants, Inc.  
Lignite Pipeline-Soils  
Section 1, T162N, R93W Burke County, ND

**Wenck**  
Engineers - Scientists  
Business Professionals  
www.wenck.com  
301 1st Street NE Suite 202  
Mandan, ND 58554-3370  
701-751-3370

OCT 2012  
APPENDIX A-III-5

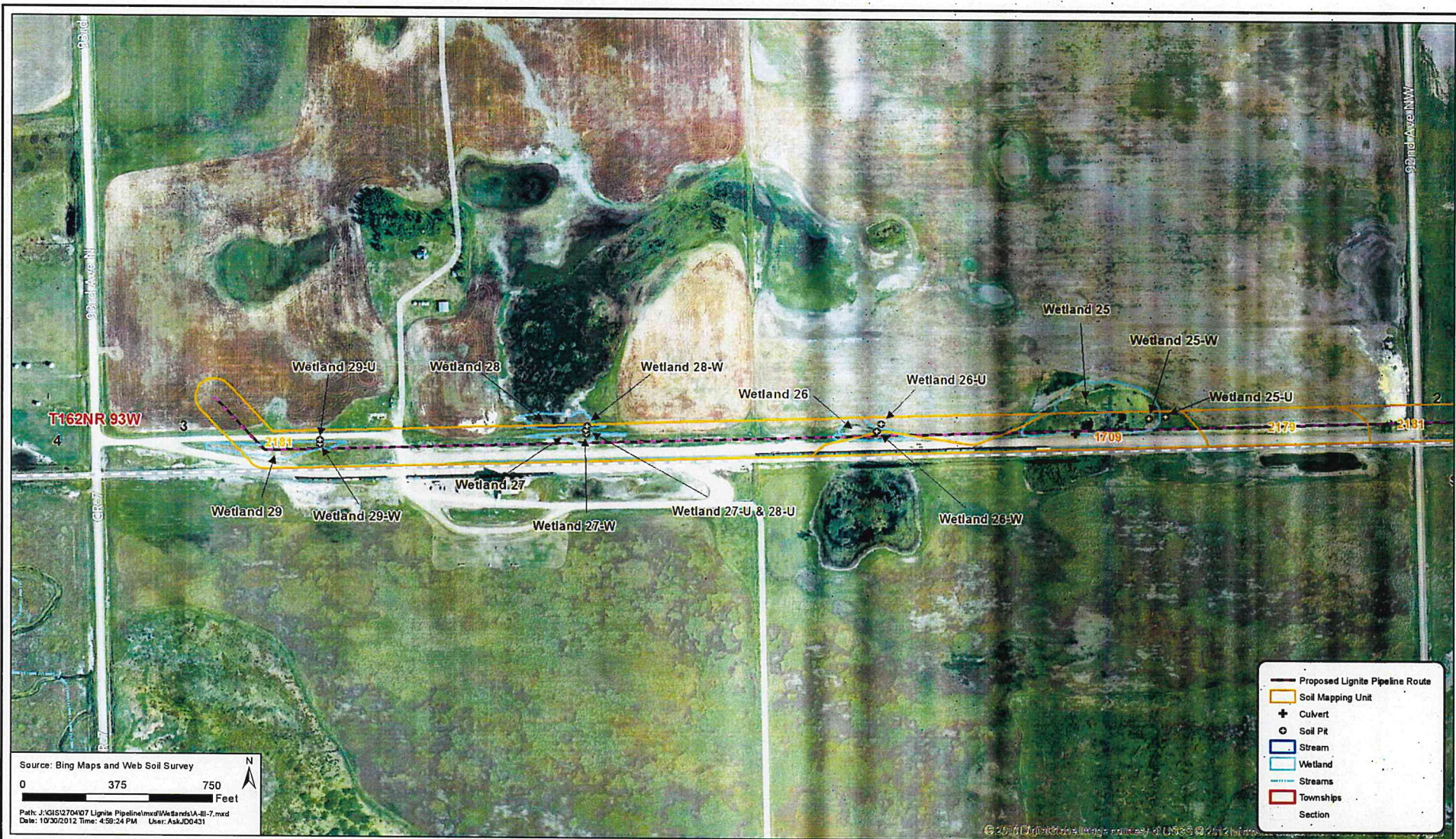


Electrical Consultants, Inc.  
Lignite Pipeline-Soils  
Section 2, T162N, R93W Burke County, ND

  
Engineers - Scientists  
Business Professionals  
www.wenck.com

**Wenck**  
301 1st Street NE Suite 202  
Mandan, ND 58554-3370  
701-751-3370

OCT 2012  
APPENDIX A-III-6



Electrical Consultants, Inc.

Lignite Pipeline-Soils  
Section 3, T162N, R93W Burke County, ND

  
 Engineers - Scientists  
 Business-Professionals  
[www.wenck.com](http://www.wenck.com)

**Wenck**  
 301 1st Street NE Suite 202  
 Mandan, ND 58554-3370  
 701-751-3370

OCT 2012

APPENDIX A-III-7

**Appendix B**  
**Wetland/Project Area Information**

## WETLAND/PROJECT AREA INFORMATION

### A. Project Location and Background Information:

Project Name: [Lignite Pipeline](#)

Nearest City: [Lignite](#)

County: [Burke](#)

State: [North Dakota](#)

Short Project Description: [Construction of a pipeline.](#)

Name of nearest waterbody: [Beaver Lake](#)

Name of nearest Traditional Navigable Water (TNW): [Souris River](#)

Name of watershed or Hydrologic Unit Code (HUC): [Upper Souris \(09010001\)](#)

Number of wetlands being considered in this cumulative analysis: [30](#)

Approximately [29.92](#) acres and [584 LF](#) in total are being considered in this cumulative analysis.

A table is attached that lists information for each individual wetland (number, location, Lat. / Long. in degree decimal format, Cowardin wetland classification, and acreage).

Maps of the project area showing the numbered wetlands are also included. Data sheets are included when a Field Delineation is completed.

### B. Review Performed for Site Evaluation (Check all that apply):

Office (Desk) Determination. Date:

Field Determination. Date: [October 15 and 16, 2012](#)

### C. General Information:

#### 1. General Area Conditions:

a. HUC watershed size (specify acres or square miles): [2340 sq. mi.](#)

b. Average annual precip. (inches): [14.18 in.](#)

Source: [High Plains Regional Climate Center. 2012. Climate Data for Columbus, ND \(5/27/1950 – 1/31/1974\).](#)

c. Average annual snowfall (inches): [26.5 in.](#)

Source: [High Plains Regional Climate Center. 2012. Climate Data for Columbus, ND \(5/27/1950 – 1/31/1974\).](#)

#### 2. Biological Characteristics (*Field Determination only*, List applicable wetland numbers):

a. The wetland supports (use space below each to elaborate for applicable wetlands):

Riparian buffer. Characteristics (type, average width)

Habitat for:

Federally Listed species. Explain findings:

- Fish/spawn areas. Explain findings:
- Other environmentally-sensitive species. Explain findings:
- Aquatic/wildlife diversity. Explain findings:

**D. Data Sources (check all that apply):**

- Maps, plans, plots, or plat submitted by or on behalf of the applicant/consultant.
- Data Sheets prepared/submitted by or on behalf of the applicant/consultant.
- U.S. Geological Survey Hydrologic Atlas:
  - USGS NHD data.
  - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: [1:24k Portal and Stampede](#)
- USDA Natural Resources Conservation Service Soil Survey. Citation: [USDA-NRCS. 2012. Soil Survey of Burke County, North Dakota.   
http://websoilsurvey.nrcs.usda.gov/app.](#)
- National wetlands inventory map(s). Cite name: [USFWS. 2012. United States Fish and Wildlife Service. National Wetlands Inventory.   
http://wetlandsfws.er.usgs.gov/NWI/](#)
- State/Local wetland inventory map(s):
  - 100-year Floodplain Elevation is: \_\_\_\_\_ (National Geodetic Vertical Datum of 1929)
- Photographs:  Aerial (Name & Date): [Bing Maps \(Accessed October 30, 2012\).](#)  
or  Other (Name & Date): [Lignite Pipeline Photos \(Appendix C,   
Photographs, September 19, 2012\).](#)
- Applicable/supporting scientific literature:
- Other information (please specify):

**E. Additional Comments:**

[Wetland 20 appears to be isolated showing no surface connection to the stream to the north or to Stream 19 to the east.](#)

**Appendix C**  
**Photographs**



**Photo 1.** Direction: Southwest. Wetland 1.



**Photo 2.** Direction: Southeast. Wetland 3.



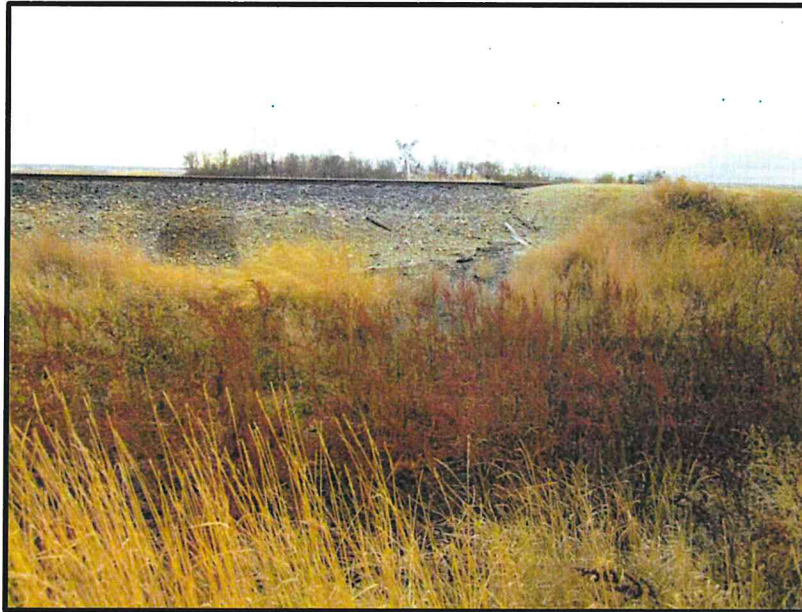
**Photo 3.** Direction: West. Wetland 4.



**Photo 4.** Direction: West-Northwest. Wetland 5.



**Photo 5.** Direction: South. Wetland 6.



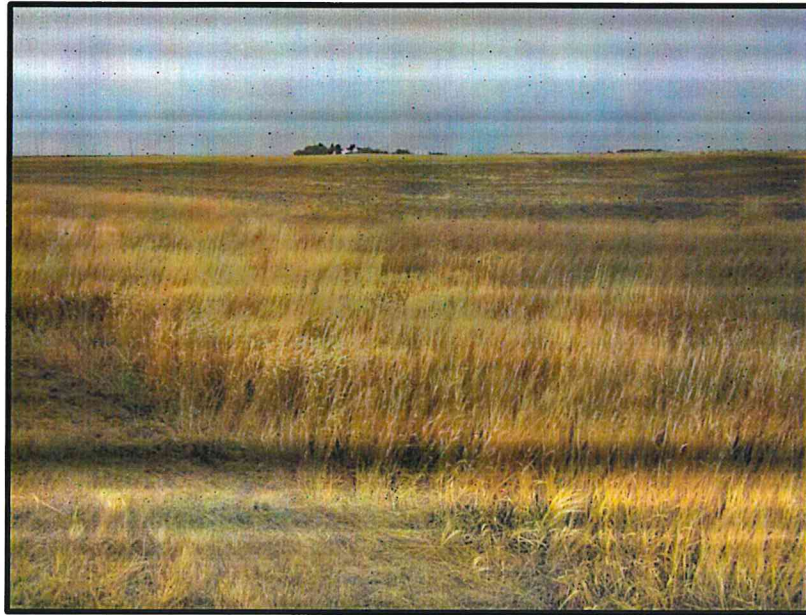
**Photo 6.** Direction: Southwest. Wetland 7. This wetland connects to Wetland 7B which is situated west of the section line road between the two wetlands.



**Photo 7.** Direction: West. Stream 9.



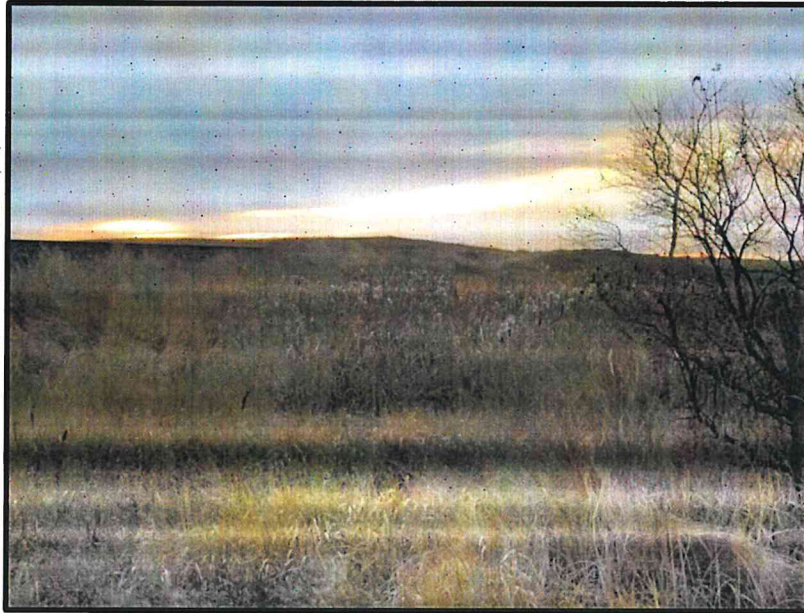
**Photo 8.** Direction: West-Southwest. Wetland 10.



**Photo 9.** Direction: Northeast. Wetland 11.



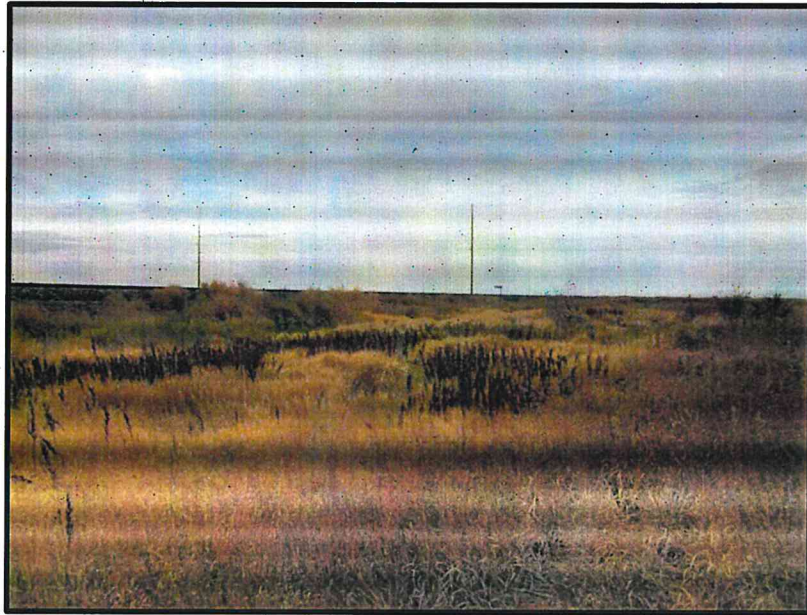
**Photo 10.** Direction: Southwest. Wetland 12.



**Photo 11.** Direction: West. Wetland 13.



**Photo 12.** Direction: South. Wetland 14.



**Photo 13.** Direction: Southwest. Wetland 15.



**Photo 14.** Direction: South. Wetland 16.



**Photo 15.** Direction: South. Wetland 17.



**Photo 16.** Direction: Northeast. Wetland 18.



**Photo 17.** Direction: Southeast. Stream 19. Note the bridge allowing water movement.



**Photo 18.** Direction: Southwest. Wetland 20.



**Photo 19.** Direction: Southwest. Wetland 21.



**Photo 20.** Direction: Southwest. Wetland 22.



**Photo 21.** Direction: Northwest. Wetland 23.



**Photo 22.** Direction: Southwest. Stream 24. Note the culvert allowing water movement under the railroad tracks.



**Photo 23.** Direction: Northwest. Wetland 25.



**Photo 24.** Direction: West. Wetland 26. Note the storage tank on the horizon.



**Photo 25.** Direction: West. Wetland 27 on left and Wetland 28 on right side of image.



**Photo 26.** Direction: Northwest. Wetland 29 in the middle of the image. The facility on the right side of the image is the pipeline endpoint.

**Appendix D**  
**Wetland Determination Data Forms**

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 1-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 3, 162N, 92W  
 Landform (hillslope, terrace, etc.): upland Local relief (concave, convex, none): convex Slope (%): 2  
 Subregion (LRR): F Lat: 48.888377 Long: -102.602198 Datum: NAD83  
 Soil Map Unit Name: 2179 - Noonan-Niobell loams, 0-6% slopes NWI classification: ----  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

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

**VEGETATION – Use scientific names of plants**

Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
<b>Tree Stratum</b>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
1. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
2. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
3. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____ Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
4. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>Sapling/Shrub Stratum</b> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>Herb Stratum</b> (Plot Size: _____)				
1. <u>Bromus inermis</u>	<u>70</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Poa pratensis</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Cirsium arvense</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>100</u>	= Total Cover		
<b>Woody Vine Stratum</b> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 1-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 3, 162N, 92W  
 Landform (hillslope, terrace, etc.): basin Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): F Lat: 48.888312 Long: -102.602141 Datum: NAD83  
 Soil Map Unit Name: 2179 - Noonan-Niobell loams, 0-6% slopes NWI classification: ----  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland. Railroad bed runs through wetland.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
		<u>0</u>	= Total Cover	<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____ Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
		<u>0</u>	= Total Cover	
<b>Herb Stratum (Plot Size: _____)</b>				
1. <u>Panicum amphibia</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Phalaris arundinaceae</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
		<u>50</u>	= Total Cover	
<b>Woody Vine Stratum (Plot Size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
		<u>0</u>	= Total Cover	
% Bare Ground in Herb Stratum <u>50</u>				
<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 1-W

**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 2/1	100					loam	A
8-15	5Y 5/1	93	7.5YR 4/4	7	C	M	sil	E
15-18	2.5Y 3/2	98	7.5YR 4/4	2	C	M	Siel	Bt
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

<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)
- Sandy Gleyed Matrix (S4)
- Sandy Gleyed Matrix (S4)
- Sandy Gleyed Matrix (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)
- (MLRA 72 & 73 of LRR H)

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

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

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

**Restrictive Layer (if present):**

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

Hydric Soils Present? Yes  No

Remarks:

Tonka soil

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

Remarks:

hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 2-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 4, 162N, 92W  
 Landform (hillslope, terrace, etc.): upland Local relief (concave, convex, none): convex Slope (%): 2  
 Subregion (LRR): F Lat: 48.887486 Long: -102.614248 Datum: NAD83  
 Soil Map Unit Name: 2179 - Noonan-Niobell loams, 0-6% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or 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)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)				
1. <b>Triticum sp.</b>	<u>70</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>70</u> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>30</u>				
<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 2-U

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 2/2	100	_____	_____	_____	_____	loam	Ap
6-15	10YR 3/2	100	_____	_____	_____	_____	loam	Bw
15-16	10YR 4/3	100	_____	_____	_____	_____	CL	Bk
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)	
<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"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)		

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

Restrictive Layer (if present):		Hydric Soils Present?	
Type: _____		Yes	<input type="checkbox"/> No <input checked="" type="checkbox"/>
Depth (Inches): _____			

Remarks:  
Williams soil

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> (where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7)	

Field Observations:				Wetland Hydrology Present?	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____		Yes	<input type="checkbox"/> No <input checked="" type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____			
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____			

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

Remarks:  
no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 2-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 4, 162N, 92W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887453 Long: -102.614248 Datum: NAD83  
 Soil Map Unit Name: 2179 - Noonan-Niobell loams, 0-6% slopes NWI classification: PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Is the Sampling Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Remarks: <b>Wetland. Railroad ditch.</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____  Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<u>Herb Stratum</u> (Plot Size: 5 ft. radius)				
1. <u>Phalaris arundinaceae</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Spartina pectinata</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Artemisia biennis</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>60</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
<u>% Bare Ground in Herb Stratum</u> <u>40</u>				
<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

**SOIL**

Sampling Point: 2-W

**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>		
0-5	10YR 2/1	100					loam	Ap
5-16	5Y 5/2	90	7.5YR 4/4	7	C	M	CL	C

<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"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Remarks:  
Endoaqualls

Hydric Soils Present? Yes  No

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7)

**Field Observations:**

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

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

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

Wetland Hydrology Present? Yes  No

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

Remarks:  
hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 3-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 4, 162N, 92W  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 2  
 Subregion (LRR): E Lat: 48.887586 Long: -102.617086 Datum: NAD83  
 Soil Map Unit Name: 2023 - Williams-Niobell loams, 0-3% slopes NWI classification: ----  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

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

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or 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)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____  Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)				
1. <u>Triticum sp.</u>	<u>70</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>30</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 3-U

**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>		
0-7	10YR 2/2	100					loam	Ap
7-14	10YR 3/2	100					cL	Bt1
14-17	10YR 3/3	100					CL	Bt2

<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)
- Sandy Gleyed Matrix (S4)
- 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 Soils Present? Yes  No

Remarks:  
Bowbells

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

Remarks:  
no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 3-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 4, 162N, 92W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-1  
 Subregion (LRR): E Lat: 48.887556 Long: -102.617710 Datum: NAD83  
 Soil Map Unit Name: 1835 - Tonka silt loam, 0-1% slopes NWI classification: PEMC

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____  Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u>Typha angustifolia</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Phalaris arundinaceae</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3. <u>Hordeum jubatum</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
4. <u>Echinochloa crus-galli</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>55</u> = Total Cover				
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>% Bare Ground in Herb Stratum <u>30</u></b>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 3-W

**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					loam	Ap
6+	5Y 5/2	90	7.5YR 4/4	10	C	M	silt	E
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

<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"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Hydric Soils Present? Yes  No

Remarks:  
Tonka soil

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7)

**Field Observations:**

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

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

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

Wetland Hydrology Present? Yes  No

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

Remarks:  
hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 4-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 4, 162N, 92W  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 3  
 Subregion (LRR): F Lat: 48.887632 Long: -102.621687 Datum: NAD83  
 Soil Map Unit Name: 1835 - Tonka silt loam, 0-1% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																									
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u> (A)																								
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>1</u> (B)																								
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u> (A/B)																								
4. _____	_____	_____	_____	Prevalence Index worksheet:																									
_____ = Total Cover																													
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				<table style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species</td> <td>_____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species</td> <td>_____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species</td> <td>_____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species</td> <td>_____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species</td> <td>_____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals:</td> <td>_____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="3" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>		<u>Total % Cover of:</u>		<u>Multiply by:</u>	OBL species	_____	x1 = _____	FACW species	_____	x2 = _____	FAC species	_____	x3 = _____	FACU species	_____	x4 = _____	UPL species	_____	x5 = _____	Column Totals:	_____ (A)	_____ (B)	Prevalence Index = B/A = _____		
<u>Total % Cover of:</u>		<u>Multiply by:</u>																											
OBL species	_____	x1 = _____																											
FACW species	_____	x2 = _____																											
FAC species	_____	x3 = _____																											
FACU species	_____	x4 = _____																											
UPL species	_____	x5 = _____																											
Column Totals:	_____ (A)	_____ (B)																											
Prevalence Index = B/A = _____																													
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																									
2. _____	_____	_____	_____																										
3. _____	_____	_____	_____																										
4. _____	_____	_____	_____																										
5. _____	_____	_____	_____																										
6. _____	_____	_____	_____																										
7. _____	_____	_____	_____																										
8. _____	_____	_____	_____																										
9. _____	_____	_____	_____																										
10. _____	_____	_____	_____																										
_____ = Total Cover																													
Herb Stratum (Plot Size: 5 ft. radius)																													
1. <u>Triticum sp.</u>	<u>70</u>	<u>Y</u>	<u>UPL</u>																										
2. <u>Bassia scoparia</u>	<u>10</u>	<u>N</u>	<u>FACU</u>																										
3. _____	_____	_____	_____																										
4. _____	_____	_____	_____																										
5. _____	_____	_____	_____																										
6. _____	_____	_____	_____																										
7. _____	_____	_____	_____																										
8. _____	_____	_____	_____																										
9. _____	_____	_____	_____																										
10. _____	_____	_____	_____																										
_____ = Total Cover	<u>80</u>																												
Woody Vine Stratum (Plot Size: 15 ft. radius)																													
1. _____	_____	_____	_____																										
2. _____	_____	_____	_____																										
_____ = Total Cover																													
% Bare Ground in Herb Stratum <u>20</u>				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																									
Remarks: <b>non-hydrophytic vegetation</b>																													

**SOIL**

Sampling Point: 4-U

**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>		
0-7	10YR 2/2	100	_____	_____	_____	_____	loam	Ap
7-16	10YR 2/2	100	_____	_____	_____	_____	loam	A1
16-18	2.5Y 4/3	100	_____	_____	_____	_____	CL	B
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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)
- Sandy Gleyed Matrix (S4)
- 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 Soils Present? Yes  No

Remarks:

Bowbells soil

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

Remarks:

no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 4-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 4, 162N, 92W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887530 Long: -102.621761 Datum: NAD83  
 Soil Map Unit Name: 1835 - Tonka silt loam, 0-1% slopes NWI classification: ----  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0</b> = Total Cover				Total Number of Dominant Species Across All Strata: _____ (B)
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0</b> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)				
1. <u>Typha angustifolia</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Poa palustris</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Phalaris arundinaceae</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
4. <u>Persicaria amphibia</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>90</b> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
<b>0</b> = Total Cover				
% Bare Ground in Herb Stratum <b>10</b>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 4-W

**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					sil	Ap
6-10	2.5Y 4/2	95	7.5YR 4/6	5	C	M, PL	sil	A1
10-16	5Y 4/2	92	7.5YR 4/4	8	C	M	sil	E
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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

<b>Hydric Soil Indicators:</b> (Applicable to all LRRs, unless otherwise noted.)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)
<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"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)	

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

<b>Restrictive Layer (if present):</b>		<b>Hydric Soils Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____	Depth (Inches): _____	
Remarks: Tonka soil		

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	

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

Remarks: hydrology present
-------------------------------

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 5-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 4, 162N, 92W  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 3  
 Subregion (LRR): E Lat: 48.887643 Long: -102.628358 Datum: NAD83  
 Soil Map Unit Name: 2023 - Williams-Niobell loams, 0-3% slopes NWI classification: ----  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <b>0</b> (A)  Total Number of Dominant Species Across All Strata: <b>1</b> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <b>0</b> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0</b> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____ Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0</b> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b> _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Triticum sp.</u>	<u>70</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Conyza canadensis</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
3. <u>Artemisia biennis</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>90</b> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>0</b> = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 5-U

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>		
0-7	10YR 2/2	100	_____	_____	_____	_____	loam	Ap
7-13	10YR 3/2	100	_____	_____	_____	_____	loam	Bw
13-18	10YR 3/2	100	_____	_____	_____	_____	CL	Bt
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)			
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)			
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)			
<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)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)				

<b>Restrictive Layer (if present):</b>		<b>Hydric Soils Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Type: _____	Depth (Inches): _____	

Remarks:  
Noonan soils

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7)	

<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
			<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

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

Remarks:  
no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 5-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 4, 162N, 92W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887634 Long: -102.628488 Datum: NAD83  
 Soil Map Unit Name: 2023 - Williams-Niobell loams, 0-3% slopes NWJ classification: PEMC

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0</b> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____  Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0</b> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)				
1. <u>Poa palustris</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Panicum amphibium</u>	<u>15</u>	<u>Y</u>	<u>OBL</u>	
3. <u>Rumex crispus</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
4. <u>Spartina pectinata</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
5. <u>Echinochloa crus-galli</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>65</b> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>0</b> = Total Cover				
% Bare Ground in Herb Stratum <u>35</u>				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 5-W

**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>		
0-7	10YR 2/1	100					sil	Ap
7-12	5Y 4/2	90	7.5YR 4/6	10	C	M, PL	sil	E
12-18	2.5Y 3/2	100					sic	Bt
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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

<b>Hydric Soil Indicators:</b> (Applicable to all LRRs, unless otherwise noted.)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<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"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)		

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Remarks:  
Tonka soil

**Hydric Soils Present?** Yes  No

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes  No

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

Remarks:  
hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 6-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 4, 162N, 92W  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 4  
 Subregion (LRR): E Lat: 48.887578 Long: -102.631974 Datum: NAD83  
 Soil Map Unit Name: 882 - Hamerly-Tonka complex, 0-3% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or 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)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			<u>0</u> = Total Cover	<b>Prevalence Index worksheet:</b>  Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____ Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
			<u>0</u> = Total Cover	
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u>Triticum sp.</u>	<u>70</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Artemisia biennis</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			<u>80</u> = Total Cover	
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			<u>0</u> = Total Cover	
<b>% Bare Ground in Herb Stratum <u>20</u></b>				
<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 6-U

**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 2/2	100	_____	_____	_____	_____	loam	Ap
6-15	10YR 3/2	100	_____	_____	_____	_____	CL	Bt
15-17	10YR 4/3	100	_____	_____	_____	_____	CL	Bk
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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)
- Sandy Gleyed Matrix (S4)
- 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)
- High Plains Depressions (F16)  
(MLRA 72 & 73 of LRR H)

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

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

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

**Restrictive Layer (if present):**

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

Hydric Soils Present? Yes  No

Remarks:

Niobell soil

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

Remarks:

no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 6-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 4, 162N, 92W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887448 Long: -102.632017 Datum: NAD83  
 Soil Map Unit Name: 2179 - Noonan-Niobell loams, 0-6% slopes NWI classification: ----  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland. Railroad ditch.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0</b> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____  Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0</b> = Total Cover				
<u>Herb Stratum</u> (Plot Size: 5 ft. radius)				
1. <u>Spartina pectinata</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Eleocharis palustris</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>80</b> = Total Cover				
<u>Woody Vine Stratum</u> (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>0</b> = Total Cover				
% Bare Ground in Herb Stratum <u>20</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 6-W

**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>		
0-4	10YR 2/2	100					loam	Ap
4-12	2.5Y 4/2	90	7.5YR 6/6	10	C	M, PL	loam	Bw
12-16	2.5Y 4/3	99	7.5YR 6/6	1	C	M	Cl	C
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

<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.)

- 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)
- Sandy Gleyed Matrix (S4)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

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

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

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

**Restrictive Layer (if present):**

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

Hydric Soils Present? Yes  No

Remarks:  
Endoaqualls

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

Remarks:

hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 7-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 4, 162N, 92W  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 3  
 Subregion (LRR): E Lat: 48.887660 Long: -102.633649 Datum: NAD83  
 Soil Map Unit Name: 882 - Hamerly-Tonka complex, 0-3% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or 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)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____  Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b> _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Bromus inermis</u>	<u>70</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Poa pratensis</u>	<u>30</u>	<u>N</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Remarks: <b>non-hydrophytic vegetation</b>
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 7-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 4, 162N, 92W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887460 Long: -102.633736 Datum: NAD83  
 Soil Map Unit Name: 882.- Hamerly-Tonka complex, 0-3% slopes NWI classification: ----

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland. Ditch. Wetland connects under north/south road to Wetland 7B (located on west side of north/south road) via culvert.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or 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)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species            _____ x1 = _____ FACW species          _____ x2 = _____ FAC species            _____ x3 = _____ FACU species          _____ x4 = _____ UPL species            _____ x5 = _____ Column Totals:        _____ (A)      _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)				
1. <u>Rumex crispus</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Persicaria amphibia</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>70</u> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 7-W

**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>		
0-4	10YR 2/2	100					loam	Ap
4-12	5Y 4/2	91	7.5YR 4/4	9	C	M, PL	loam	C1
12-16	5Y 4/2	99	7.5YR 4/4	1	C	M	sicl	C2

<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"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)
<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)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Remarks:  
Endoaqualls

**Hydric Soils Present?** Yes  No

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<b>Primary Indicators</b> (minimum of one required; check all that apply)	<b>Secondary Indicators</b> (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7)

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes  No

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

Remarks:  
hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 8-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 5, 162N, 92W  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 2  
 Subregion (LRR): E Lat: 48.887498 Long: -102.637169 Datum: NAD83  
 Soil Map Unit Name: 1835 - Tonka silt loam, 0-1% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____ Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u>Poa pratensis</u>	<u>60</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Bromus inermis</u>	<u>40</u>	<u>Y</u>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u> = Total Cover				
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>% Bare Ground in Herb Stratum <u>0</u></b>				
<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 8-U

**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>		
0-7	10YR 2/2	100	_____	_____	_____	_____	loam	Ap
7-14	10YR 2/2	100	_____	_____	_____	_____	silt	A1
14-17	10YR 3/2	100	_____	_____	_____	_____	CL	Bt
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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

<b>Hydric Soil Indicators:</b> (Applicable to all LRRs, unless otherwise noted.)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)	
<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"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)		

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Remarks:  
Bowbells soil

**Hydric Soils Present?** Yes  No

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes  No

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

Remarks:  
no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 8-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 5, 162N, 92W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887614 Long: -102.637707 Datum: NAD83  
 Soil Map Unit Name: 1835 - Tonka silt loam, 0-1% slopes NWI classification: PEMA

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or 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)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____  Column Totals:      _____ (A)      _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u>Poa palustris</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Rumex crispus</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Persicaria amphibia</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>90</u> = Total Cover				
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>% Bare Ground in Herb Stratum <u>10</u></b>				
<b>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 8-W

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>		
0-5	10YR 2/1	100					sil	Ap
5-16	5Y 5/1	89	7.5YR 4/6	11	C	M, PL	sil	E

<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.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<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"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)		

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

<b>Restrictive Layer (if present):</b> Type: _____ Depth (Inches): _____	Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

Remarks:  
Tonka soil

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	--

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

Remarks:  
hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 9-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 5, 162N, 92W  
 Landform (hillslope, terrace, etc.): stream channel Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887636 Long: -102.645217 Datum: NAD83  
 Soil Map Unit Name: 1871 - Vallers loam, saline, 0-1% slopes NWI classification: PEMA

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0</b> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____  Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0</b> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)				
1. <u>Spartina pectinata</u>	<u>70</u>	<u>Y</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Rumex crispus</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
3. <u>Typha latifolia</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>90</b> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>0</b> = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 9-W

**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>		
0-5	10YR 2/1	97	7.5YR 4/4	3	C	M, PL	sicl	A
5-16	2.5Y 4/1	100					Sic	C

<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.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<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"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)		

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

**Hydric Soils Present?** Yes  No

Remarks:  
Grano soils saline

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes  No

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

Remarks:  
hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 9-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 5, 162N, 92W  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 4  
 Subregion (LRR): E Lat: 48.887622 Long: -102.644883 Datum: NAD83  
 Soil Map Unit Name: 1871 - Vallery loam, saline, 0-1% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			<u>0</u> = Total Cover	<b>Prevalence Index worksheet:</b>  Total % Cover of:      Multiply by: OBL species            _____ x1 = _____ FACW species          _____ x2 = _____ FAC species            _____ x3 = _____ FACU species          _____ x4 = _____ UPL species            _____ x5 = _____  Column Totals:        _____ (A)      _____ (B)  Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
			<u>0</u> = Total Cover	
Herb Stratum (Plot Size: 5 ft. radius)				
1. <b>Bromus inermis</b>	<u>60</u>	<u>Y</u>	<u>UPL</u>	
2. <b>Poa pratensis</b>	<u>40</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			<u>100</u> = Total Cover	
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			<u>0</u> = Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
<b>Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></b>				
Remarks: <b>non-hydrophytic vegetation</b>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 10-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 5, 162N, 92W  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 0-3  
 Subregion (LRR): E Lat: 48.887605 Long: -102.650239 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: ----

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

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

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

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____ Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <b>Bromus inermis</b>	<u>50</u>	<u>Y</u>	<u>UPL</u>	
2. <b>Bassia scoparia</b>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>80</u> = Total Cover				
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>% Bare Ground in Herb Stratum <u>20</u></b>				
<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 10-U

**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 2/2	100	_____	_____	_____	_____	loam	Ap
6-17	10YR 3/2	100	_____	_____	_____	_____	loam	Bw
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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)
- Sandy Gleyed Matrix (S4)
- 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 Soils Present? Yes  No

Remarks:

Bowbells soil

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

Remarks:

no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 10-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 5, 162N, 92W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): F Lat: 48.887705 Long: -102.650918 Datum: NAD83  
 Soil Map Unit Name: 1835 - Tonka silt loam, 0-1% slopes NWI classification: PEMC

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u>Typha latifolia</u>	<u>50</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Persicaria amphibia</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Spartina pectinata</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>90</u> = Total Cover				
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>				
<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 11-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 5, 162N, 92W  
 Landform (hillslope, terrace, etc.): ditch slope Local relief (concave, convex, none): convex Slope (%): 0-3  
 Subregion (LRR): E Lat: 48.887685 Long: -102.655805 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: ----

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

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: <b>Upland. Ditch slope.</b>			

### VEGETATION – Use scientific names of plants

Stratum (Plot Size: <u>30 ft. radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species            _____ x1 = _____ FACW species          _____ x2 = _____ FAC species            _____ x3 = _____ FACU species          _____ x4 = _____ UPL species            _____ x5 = _____ Column Totals:        _____ (A)      _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: <u>15 ft. radius</u>)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Herb Stratum (Plot Size: <u>5 ft. radius</u>)</b>				
1. <u>Bromus inermis</u>	<u>50</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Poa pratensis</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>90</u> = Total Cover				
<b>Woody Vine Stratum (Plot Size: <u>15 ft. radius</u>)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>% Bare Ground in Herb Stratum <u>10</u></b>				
<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 11-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 5, 162N, 92W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887677 Long: -102.655760 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: ----

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland basin. Road ditch.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
		<b>0</b>	= Total Cover	<b>Prevalence Index worksheet:</b>  Total % Cover of:      Multiply by: OBL species            _____ x1 = _____ FACW species          _____ x2 = _____ FAC species            _____ x3 = _____ FACU species          _____ x4 = _____ UPL species            _____ x5 = _____  Column Totals:        _____ (A)      _____ (B)  Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
		<b>0</b>	= Total Cover	
Herb Stratum (Plot Size: 5 ft. radius)				
1. <b>Phalaris arundinaceae</b>	<b>100</b>	<b>Y</b>	<b>FACW</b>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
		<b>100</b>	= Total Cover	
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
		<b>0</b>	= Total Cover	
% Bare Ground in Herb Stratum <b>0</b>				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 11-W

**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>		
0-5	10YR 2/2	100					loam	Ap
5-17	5Y 4/2	94	7.5YR 4/4	6	C	M, PL	CL	C
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

<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"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)
<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)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Hydric Soils Present? Yes  No

Remarks:  
Endoaqualls

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)				Secondary Indicators (2 or more required)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)		<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drainage Patterns (B10)		<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	(where tilled)		<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)		<input checked="" type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> FAC-Neutral Test (D5)		<input type="checkbox"/> Frost-Heave Hummocks (D7)			
<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 checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)						
<input type="checkbox"/> Water-Stained Leaves (B9)							

**Field Observations:**

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

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

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

Wetland Hydrology Present? Yes  No

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

Remarks:  
hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 12-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 6, 162N, 92W  
 Landform (hillslope, terrace, etc.): ditch slope Local relief (concave, convex, none): convex Slope (%): 10  
 Subregion (LRR): E Lat: 48.887748 Long: -102.655903 Datum: NAD83  
 Soil Map Unit Name: 2179 - Noonan-Niobell loams, 0-6% slopes NWI classification: ----

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

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: <b>Upland. Road ditch.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____ Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b> _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Poa pratensis</u>	<u>80</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Bromus inermis</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Remarks: <b>non-hydrophytic vegetation</b>
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 12-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 6, 162N, 92W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): F Lat: 48.887754 Long: -102.655948 Datum: NAD83  
 Soil Map Unit Name: 2179 - Noonan-Niobell loams, 0-6% slopes NWI classification: ----

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland basin. Road ditch.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0</b>		= Total Cover		<b>Prevalence Index worksheet:</b>  Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____ Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0</b>		= Total Cover		
Herb Stratum (Plot Size: 5 ft. radius)				
1. <b><u>Phragmites australis</u></b>	<b>60</b>	<b>Y</b>	<b>FACW</b>	
2. <b><u>Rumex crispus</u></b>	<b>15</b>	<b>N</b>	<b>FAC</b>	
3. <b><u>Hordeum jubatum</u></b>	<b>15</b>	<b>N</b>	<b>FACW</b>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>90</b>		= Total Cover		
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>0</b>		= Total Cover		
% Bare Ground in Herb Stratum <b>10</b>				
<b>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 12-W

**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>		
0-5	10YR 2/2	100					loam	Ap
5-10	2.5Y 4/2	97	7.5YR 4/4	3	C	M	loam	C1
10+	2.5Y 4/2	91	7.5YR 4/6	9	C	M	CL	C2

<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)
- Sandy Gleyed Matrix (S4)
- Sandy Gleyed Matrix (S4)
- Sandy Gleyed Matrix (S4)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)
- (MLRA 72 & 73 of LRR H)

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

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

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

**Restrictive Layer (if present):**

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

Hydric Soils Present? Yes  No

Remarks:  
Endoaqualls

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

Remarks:  
hydrology present

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

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 13-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 6, 162N, 92W  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 5  
 Subregion (LRR): E Lat: 48.887492 Long: -102.656500 Datum: NAD83  
 Soil Map Unit Name: 2179 - Noonan-Niobell loams, 0-6% slopes NWI classification: ----

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

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

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

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u> (A/B)
4. _____	<u>0</u>	= Total Cover			
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	Total % Cover of:	Multiply by:
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
	<u>0</u>	= Total Cover		UPL species _____	x5 = _____
Herb Stratum (Plot Size: 5 ft. radius)				Column Totals:	<u>_____</u> (A) <u>_____</u> (B)
1. <b>Bromus inermis</b>	<u>95</u>	<u>Y</u>	<u>UPL</u>	Prevalence Index = B/A = _____	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
	<u>95</u>	= Total Cover			
Woody Vine Stratum (Plot Size: 15 ft. radius)				Hydrophytic Vegetation Indicators:	
1. _____	_____	_____	_____	_____ 1 – Rapid Test for Hydrophytic Vegetation	
2. _____	_____	_____	_____	_____ 2 - Dominance Test is >50%	
	<u>0</u>	= Total Cover		_____ 3 – Prevalence Index is ≤3.0 <sup>1</sup>	
% Bare Ground in Herb Stratum <u>0</u>				_____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
Remarks: <b>non-hydrophytic vegetation</b>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 13-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 6, 162N, 92W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex; none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887453 Long: -102.656479 Datum: NAD83  
 Soil Map Unit Name: 2179 - Noonan-Niobell loams, 0-6% slopes NWI classification: ----  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland basin, railroad ditch.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			<u>0</u> = Total Cover	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
			<u>0</u> = Total Cover	
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u><i>Typha latifolia</i></u>	<u>60</u>	<u>Y</u>	<u>OBL</u>	
2. <u><i>Spartina pectinata</i></u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. <u><i>Hordeum jubatum</i></u>	<u>15</u>	<u>N</u>	<u>FACW</u>	
4. <u><i>Phalaris arundinaceae</i></u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			<u>100</u> = Total Cover	
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			<u>0</u> = Total Cover	
<b>% Bare Ground in Herb Stratum <u>0</u></b>				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 13-W

**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>		
0-5	10YR 2/2	100					loam	Ap
5+	5Y 4/2	92	10YR 4/6	8	C	M	CL	C
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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)
- Sandy Gleyed Matrix (S4)
- Sandy Gleyed Matrix (S4)
- 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)
- High Plains Depressions (F16)
- 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)
- High Plains Depressions (F16)
- High Plains Depressions (F16)
- 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 Soils Present? Yes  No

Remarks:

Endoaqualls

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

Remarks:

hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 14-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 6, 162N, 92W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887495 Long: -102.663681 Datum: NAD83  
 Soil Map Unit Name: 2182 - Portal-Lihen fine sandy loams, 0-2% slopes NWI classification: ----

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland basin, railroad ditch.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0 = Total Cover</b>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0 = Total Cover</b>				
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <b><u>Phalaris arundinaceae</u></b>	<b>50</b>	<b>Y</b>	<b>FACW</b>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <b><u>Spartina pectinata</u></b>	<b>30</b>	<b>Y</b>	<b>FACW</b>	
3. <b><u>Rumex crispus</u></b>	<b>10</b>	<b>N</b>	<b>FAC</b>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>90 = Total Cover</b>				
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>0 = Total Cover</b>				
<b>% Bare Ground in Herb Stratum <u>10</u></b>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 14-W

**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					sil	Ap
6-17	5Y 5/2	92	7.5YR 4/4	8	C	M, PL	sil	E
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

<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)
- Sandy Gleyed Matrix (S4)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)  
(MLRA 72 & 73 of LRR H)

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

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

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

**Restrictive Layer (if present):**

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

Hydric Soils Present? Yes  No

Remarks:  
Tonka soil

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

Remarks:  
hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 14-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 6, 162N, 92W  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 4  
 Subregion (LRR): F Lat: 48.887691 Long: -102.664039 Datum: NAD83  
 Soil Map Unit Name: 2179 - Noonan-Niobell loams, 0-6% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or 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)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____  Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)				
1. <u>Triticum sp.</u>	<u>60</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>60</u> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>40</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 14-U

**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 2/2	100	_____	_____	_____	_____	loam	Ap
8-15	10YR 3/2	100	_____	_____	_____	_____	Clay	Bt1
15-17	10YR 3/2	100	_____	_____	_____	_____	CL	Bt2
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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

<b>Hydric Soil Indicators:</b> (Applicable to all LRRs, unless otherwise noted.)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<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"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)		

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Hydric Soils Present? Yes  No

Remarks:  
Noonan soil

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

**Field Observations:**

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

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

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

Wetland Hydrology Present? Yes  No

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

Remarks:  
no hydrology

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

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 15-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 6, 162N, 92W  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 3  
 Subregion (LRR): E Lat: 48.887739 Long: -102.674684 Datum: NAD83  
 Soil Map Unit Name: 2023 - Williams-Niobell loams, 0-3% slopes NWI classification: ----

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

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

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

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or 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)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____  Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u>Triticum sp.</u>	<u>60</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Bassia scoparia</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>70</u> = Total Cover				
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>% Bare Ground in Herb Stratum <u>30</u></b>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 15-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 6, 162N, 92W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887496 Long: -102.674716 Datum: NAD83  
 Soil Map Unit Name: 2169 - Harriet, Regan, and Stirum soils, 0-2% slopes NWI classification: ----  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland basin, railroad ditch.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or 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)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species            _____ x1 = _____ FACW species          _____ x2 = _____ FAC species            _____ x3 = _____ FACU species          _____ x4 = _____ UPL species            _____ x5 = _____ Column Totals:        _____ (A)      _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)				
1. <u>Phalaris arundinaceae</u>	<u>70</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Rumex crispus</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>90</u> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 15-W

**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 2/2	100					loam	Ap
6-13	5Y 4/2	94	7.5YR 4/6	6	C	M	CL	C1
13-16	5Y 4/2	99	7.5YR 4/6	1	C	M	CL	C2

<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)
- Sandy Gleyed Matrix (S4)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)  
(MLRA 72 & 73 of LRR H)

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

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

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

**Restrictive Layer (if present):**

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

**Hydric Soils Present?** Yes  No

Remarks:

Endoaqualls

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

**Wetland Hydrology Present?** Yes  No

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

Remarks:

hydrology present

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

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 16-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 6, 162N, 92W  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 2  
 Subregion (LRR): E Lat: 48.887803 Long: -102.676749 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: ----

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

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

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

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____ Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</u>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>Herb Stratum (Plot Size: 5 ft. radius)</u>				
1. <u>Bassia scoparia</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Ambrosia artemisiifolia</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>50</u>	= Total Cover		
<u>Woody Vine Stratum (Plot Size: 15 ft. radius)</u>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>% Bare Ground in Herb Stratum <u>50</u></u>				
<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 16-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 6, 162N, 92W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887789 Long: -102.676829 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: ----  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland basin. Road ditch.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0</b> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____  Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0</b> = Total Cover				
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u>Spartina pectinata</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Poa palustris</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Juncus arcticus</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
4. <u>Persicaria amphibia</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
5. <u>Phalaris arundinaceae</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>80</b> = Total Cover				
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>0</b> = Total Cover				
<b>% Bare Ground in Herb Stratum <u>20</u></b>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 17-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 1, 162N, 93W  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 2  
 Subregion (LRR): E Lat: 48.887794 Long: -102.677591 Datum: NAD83  
 Soil Map Unit Name: 2179 - Noonan-Niobell loams, 0-6% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____  Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot Size: 5 ft. radius)</b> 1. <u>Bassia scoparia</u> <u>20</u> <u>Y</u> <u>FACU</u> 2. <u>Triticum sp.</u> <u>20</u> <u>Y</u> <u>UPL</u> 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum <u>60</u>				
<b>Hydrophytic Vegetation Indicators:</b> _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 17-U

**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>		
0-7	10YR 2/2	100	_____	_____	_____	_____	loam	Ap
7-13	10YR 3/2	100	_____	_____	_____	_____	CL	Bt1
13-18	10YR 3/3	100	_____	_____	_____	_____	CL	Bt2
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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

<b>Hydric Soil Indicators:</b> (Applicable to all LRRs, unless otherwise noted.)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<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"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)		

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Remarks:  
Noonan soil

**Hydric Soils Present?** Yes  No

**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 along 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 (2 or more required)

<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Oxidized Rhizospheres along 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)

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes  No

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

Remarks:  
no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 17-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 1, 162N, 93W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887734 Long: -102.677213 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: ----  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

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

### VEGETATION – Use scientific names of plants

Stratum (Plot Size: <u>30 ft. radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: <u>15 ft. radius</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot Size: <u>5 ft. radius</u> )				
1. <u>Juncus arcticus</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Typha angustifolia</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	
3. <u>Rumex crispus</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>60</u> = Total Cover				
Woody Vine Stratum (Plot Size: <u>15 ft. radius</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>40</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 17-W

**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>		
0-7	10YR 2/1	100					sll	Ap
7-11	2.5Y 4/2	95	7.5YR 4/6	5	C	M	sll	A
11-16	5Y 5/2	92	7.5YR 4/4	8	C	M	sll	E

<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)
- Sandy Gleyed Matrix (S4)
- 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)
- High Plains Depressions (F16)  
(MLRA 72 & 73 of LRR H)

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

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

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

**Restrictive Layer (if present):**

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

Hydric Soils Present? Yes  No

Remarks:

Tonka soil

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

Remarks:

hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 18-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 1, 162N, 93W  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 2  
 Subregion (LRR): E Lat: 48.887613 Long: -102.685765 Datum: NAD83  
 Soil Map Unit Name: 2169 - Harriet, Regan, and Strum soils, 0-2% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u>		= Total Cover		<b>Prevalence Index worksheet:</b>  Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____  Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u>		= Total Cover		
Herb Stratum (Plot Size: 5 ft. radius)				
1. <u>Bromus inermis</u>	<u>60</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Poa pratensis</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u>		= Total Cover		
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u>		= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				
<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 18-U

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>		
0-7	10YR 2/2	100					loam	Ap
7-13	10YR 2/2	100					loam	A
13-18	2.5YR 3/2	100					CL	Bt

<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.)			Indicators for Problematic Hydric Soils <sup>3</sup> :			
<input type="checkbox"/>	Histosol (A1)		<input type="checkbox"/>	Sandy Gleyed Matrix (S4)	<input type="checkbox"/>	1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/>	Histic Epipedon (A2)		<input type="checkbox"/>	Sandy Redox (S5)	<input type="checkbox"/>	Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/>	Black Histic (A3)		<input type="checkbox"/>	Stripped Matrix (S6)	<input type="checkbox"/>	Dark Surface (S7) (LRR G)
<input type="checkbox"/>	Hydrogen Sulfide (A4)		<input type="checkbox"/>	Loamy Mucky Mineral (F1)	<input type="checkbox"/>	High Plains Depressions (F16)
<input type="checkbox"/>	Stratified Layers (A5) (LRR F)		<input type="checkbox"/>	Loamy Gleyed Matrix (F2)		(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/>	1 cm Muck (A9) (LRR F, G, H)		<input type="checkbox"/>	Depleted Matrix (F3)	<input type="checkbox"/>	Reduced Vertic (F18)
<input type="checkbox"/>	Depleted Below Dark Surface (A11)		<input type="checkbox"/>	Redox Dark Surface (F6)	<input type="checkbox"/>	Red Parent Material (TF2)
<input type="checkbox"/>	Thick Dark Surface (A12)		<input type="checkbox"/>	Depleted Dark Surface (F7)	<input type="checkbox"/>	Other (Explain in Remarks)
<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"/>	Sandy Gleyed Matrix (S4)			(MLRA 72 & 73 of LRR H)		

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

<b>Restrictive Layer (if present):</b>		
Type: _____		
Depth (Inches): _____		
Remarks: Bowbells soil saline		Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/>	Surface Water (A1)	<input 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 along Living Roots (C3)
<input type="checkbox"/>	Drift Deposits (B3)		(where 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)		
<b>Field Observations:</b>			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: no hydrology			

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 18-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 1, 162N, 93W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887761 Long: -102.686539 Datum: NAD83  
 Soil Map Unit Name: 2169 - Harriet, Regan, and Stirum soils, 0-2% slopes NWI classification: PEMF/PEMC  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland basin. Culvert is present, thus connecting to wetland area south of tracks.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)				
1. <u>Spartina pectinata</u>	<u>90</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Rumex crispus</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 19-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 1, 162N, 93W  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 3  
 Subregion (LRR): E Lat: 48.887961 Long: -102.692891 Datum: NAD83  
 Soil Map Unit Name: 2169 - Harriet, Regan, and Stirum soils, 0-2% slopes NWI classification: ----  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

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

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

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____  Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)				
1. <u>Poa pratensis</u>	<u>60</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Bromus inermis</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	
3. <u>Medicago sativa</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 19-U

**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 2/2	100	—	—	—	—	loam	Ap
6-14	10YR 3/2	100	—	—	—	—	ScL	B
14-18	10YR 4/3	100	—	—	—	—	ScL	C
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

<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

<b>Hydric Soil Indicators:</b> (Applicable to all LRRs, unless otherwise noted.)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<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"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)		

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

**Hydric Soils Present?** Yes  No

Remarks:  
Farmul soils

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes  No

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

Remarks:  
no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 20-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 2, 162N, 93W  
 Landform (hillslope, terrace, etc.): ditch slope Local relief (concave, convex, none): convex Slope (%): 16  
 Subregion (LRR): E Lat: 48.887565 Long: -102.698972 Datum: NAD83  
 Soil Map Unit Name: 2182 - Portal-Lihen fine sandy loams, 0-2% slopes NWI classification: ---  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____  Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <b>Bromus inermis</b>	<u>60</u>	<u>Y</u>	<u>UPL</u>	
2. <b>Agropyron cristatum</b>	<u>40</u>	<u>Y</u>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u> = Total Cover				
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>% Bare Ground in Herb Stratum <u>0</u></b>				
<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 20-U

**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>		
0-7	10YR 2/2	100	_____	_____	_____	_____	loam	Ap
7-16	10YR 4/3	100	_____	_____	_____	_____	cl	C
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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

<b>Hydric Soil Indicators:</b> (Applicable to all LRRs, unless otherwise noted.)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<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"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)		

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

<b>Restrictive Layer (if present):</b>	<b>Hydric Soils Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Type: _____	
Depth (Inches): _____	

Remarks:  
Haplustalls

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
<b>Primary Indicators</b> (minimum of one required; check all that apply)	<b>Secondary Indicators</b> (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
(where not tilled)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

<b>Field Observations:</b>	<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	

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

Remarks:  
no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 19-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 1, 162N, 93W  
 Landform (hillslope, terrace, etc.): Stream channel Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887632 Long: -102.693234 Datum: NAD83  
 Soil Map Unit Name: 2169 - Harriet, Regan, and Stirum soils, 0-2% slopes NWI classification: ---  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Stream. Bridge allows water movement through stream system.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0 = Total Cover</b>				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____  Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0 = Total Cover</b>				
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u><b>Typha latifolia</b></u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	
2. <u><b>Hordeum jubatum</b></u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>50 = Total Cover</b>				
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>0 = Total Cover</b>				
<b>% Bare Ground in Herb Stratum <u>50</u></b>				
<b>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 19-W

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>		
0-4	10YR 2/1	100					mucky loam A	
4-14	5Y 4/2	92	7.5YR 4/6	8	C	M	clay Bt	
14-18	5Y 4/1	97	7.5YR 4/4	3	C	M	clay C	

<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.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<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"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)		

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

<b>Restrictive Layer (if present):</b>	
Type: _____	
Depth (Inches): _____	
Remarks:	
Grano soils	

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input checked="" type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b>	
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
	<b>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: hydrology present	

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 20-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 2, 162N, 93W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887573 Long: -102.699032 Datum: NAD83  
 Soil Map Unit Name: 2182 - Portal-Lihen fine sandy loams, 0-2% slopes NWI classification: ---  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland. Road ditch.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0</b>		= Total Cover		<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0</b>		= Total Cover		
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u>Spartina pectinata</u>	<u>85</u>	<u>Y</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Typha latifolia</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>95</b>		= Total Cover		
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>0</b>		= Total Cover		
<b>% Bare Ground in Herb Stratum <u>5</u></b>				
<b>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 20-W

**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>		
0-4	10YR 2/2	100					loam	Ap
4-13	2.5Y 4/2	91	7.5YR 4/4	9	C	M, PL	loam	C1
13-18	5Y 5/2	95	7.5YR 4/4	5	C	M	CL	C2

<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)
- Sandy Gleyed Matrix (S4)
- 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 Soils Present?** Yes  No

Remarks:

Endoaqualls

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

**Wetland Hydrology Present?** Yes  No

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

Remarks:

hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 21-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 2, 162N, 93W  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 3  
 Subregion (LRR): E Lat: 48.887863 Long: -102.706299 Datum: NAD83  
 Soil Map Unit Name: 975 - Heil silt loam, 0-1% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	_____ (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	_____ (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	_____ (A/B)
4. _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>					
1. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
	<u>0</u>	= Total Cover		Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____ Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____	
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>					
1. <u>Triticum sp.</u>	<u>70</u>	<u>Y</u>	<u>UPL</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2. <u>Bassia scoparia</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
	<u>90</u>	= Total Cover		1 – Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 – Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>					
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
2. _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>10</u>					
Remarks: <b>non-hydrophytic vegetation</b>					

**SOIL**

Sampling Point: 21-U

**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 2/2	100					loam	Aq
6-15	10YR 2/2	100					loam	AB
15-18	10YR 3/2	100					clay	Bt

<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"/> Sandy Gleyed Matrix (S4)	(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 Soils Present? Yes  No

Remarks:  
Niobell soils

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

**Field Observations:**

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

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

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

Wetland Hydrology Present? Yes  No

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

Remarks:  
no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 21-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 2, 162N, 93W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887660 Long: -102.705991 Datum: NAD83  
 Soil Map Unit Name: 975 - Heil silt loam, 0-1% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0</b> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</u>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0</b> = Total Cover				
<u>Herb Stratum (Plot Size: 5 ft. radius)</u>				
1. <u><i>Typha latifolia</i></u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	
2. <u><i>Hordeum jubatum</i></u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>50</b> = Total Cover				
<u>Woody Vine Stratum (Plot Size: 15 ft. radius)</u>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>0</b> = Total Cover				
% Bare Ground in Herb Stratum <u>50</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 21-W

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 2/1	98	7.5YR 4/4	2	C	M	Sil	Ap
8-12	5Y 4/1	95	7.5YR 4/4	5	C	M	sil	E
12-17	2.5Y 3/1	100					Sic	Bt

<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.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
<input type="checkbox"/>	Histosol (A1)	<input type="checkbox"/>	Sandy Gleyed Matrix (S4)	<input type="checkbox"/>	1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/>	Histic Epipedon (A2)	<input type="checkbox"/>	Sandy Redox (S5)	<input type="checkbox"/>	Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/>	Black Histic (A3)	<input type="checkbox"/>	Stripped Matrix (S6)	<input type="checkbox"/>	Dark Surface (S7) (LRR G)
<input type="checkbox"/>	Hydrogen Sulfide (A4)	<input type="checkbox"/>	Loamy Mucky Mineral (F1)	<input type="checkbox"/>	High Plains Depressions (F16)
<input type="checkbox"/>	Stratified Layers (A5) (LRR F)	<input type="checkbox"/>	Loamy Gleyed Matrix (F2)	<input type="checkbox"/>	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/>	1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/>	Depleted Matrix (F3)	<input type="checkbox"/>	Reduced Vertic (F18)
<input checked="" type="checkbox"/>	Depleted Below Dark Surface (A11)	<input type="checkbox"/>	Redox Dark Surface (F6)	<input type="checkbox"/>	Red Parent Material (TF2)
<input type="checkbox"/>	Thick Dark Surface (A12)	<input type="checkbox"/>	Depleted Dark Surface (F7)	<input type="checkbox"/>	Other (Explain in Remarks)
<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"/>	Sandy Gleyed Matrix (S4)		(MLRA 72 & 73 of LRR H)		

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

Restrictive Layer (if present):		
Type:	_____	
Depth (Inches):	_____	
Remarks:		Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Tonka soil		

**HYDROLOGY**

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/>	Surface Water (A1)	<input 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 along Living Roots (C3)
<input 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 type="checkbox"/>	Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/>	Other (Explain in Remarks)
<input type="checkbox"/>	Water-Stained Leaves (B9)		
<input type="checkbox"/>	Surface Soil Cracks (B6)		
<input type="checkbox"/>	Sparsely Vegetated Concave Surface (B8)		
<input type="checkbox"/>	Drainage Patterns (B10)		
<input type="checkbox"/>	Oxidized Rhizospheres along Living Roots (C3)		(where tilled)
<input type="checkbox"/>	Crayfish Burrows (C8)		
<input checked="" type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)		
<input checked="" type="checkbox"/>	Geomorphic Position (D2)		
<input type="checkbox"/>	FAC-Neutral Test (D5)		
<input type="checkbox"/>	Frost-Heave Hummocks (D7)		

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

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

Remarks:  
hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 22-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 2, 162N, 93W  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 3  
 Subregion (LRR): E Lat: 48.887572 Long: -102.715657 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u> (A/B)
4. _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>					
1. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____ Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>					
1. <u>Triticum sp.</u>	<u>70</u>	<u>Y</u>	<u>UPL</u>	<b>Hydrophytic Vegetation Indicators:</b> _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
	<u>70</u>	= Total Cover			
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
<b>% Bare Ground in Herb Stratum <u>30</u></b>				<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <b>non-hydrophytic vegetation</b>					

**SOIL**

Sampling Point: 22-U

**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>		
0-7	10YR 2/2	100	_____	_____	_____	_____	loam	Ap
7-12	10YR 2/2	100	_____	_____	_____	_____	loam	A
12-17	10YR 3/2	100	_____	_____	_____	_____	CL	Bt
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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.)

- 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)
- Sandy Gleyed Matrix (S4)
- Sandy Gleyed Matrix (S4)
- 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)
- High Plains Depressions (F16)
- 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 Soils Present? Yes  No

Remarks:

Bowbells soils

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

Remarks:

no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 22-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 2, 162N, 93W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887573 Long: -102.715032 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <b>1</b> (A)  Total Number of Dominant Species Across All Strata: <b>2</b> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <b>50</b> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
		<b>0</b>	= Total Cover	<b>Prevalence Index worksheet:</b>  Total % Cover of:      Multiply by: OBL species            _____ x1 = _____ FACW species <b>10</b> x2 = <b>20</b> FAC species            _____ x3 = _____ FACU species <b>10</b> x4 = <b>40</b> UPL species            _____ x5 = _____ Column Totals: <b>20</b> (A) <b>60</b> (B) Prevalence Index = B/A = <b>3.0</b>
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
		<b>0</b>	= Total Cover	
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <b>Phalaris arundinaceae</b>	<b>10</b>	<b>Y</b>	<b>FACW</b>	
2. <b>Artemisia biennis</b>	<b>10</b>	<b>Y</b>	<b>FACU</b>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
		<b>20</b>	= Total Cover	
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
		<b>0</b>	= Total Cover	
<b>% Bare Ground in Herb Stratum <b>80</b></b>				
<b>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 22-W

**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>		
0-4	10YR 2/1	100					Sil	Ap
4-13	5Y 5/2	92	7.5YR 4/4	8	C	M	sil	E
13-18	2.5Y 3/2	100					Sic	Bt

<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 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"/> Sandy Gleyed Matrix (S4)	(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): \_\_\_\_\_

Remarks:  
Tonka soil

**Hydric Soils Present?** Yes  No

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes  No

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

Remarks:  
hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 23-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 2, 162N, 93W  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 3  
 Subregion (LRR): E Lat: 48.887567 Long: -102.717045 Datum: NAD83  
 Soil Map Unit Name: 2179 - Noonan-Niobell loams, 0-6% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or 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)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: <u>        </u> Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u>Triticum sp.</u>	<u>70</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>70</u> = Total Cover				
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>30</u>				
<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 23-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 2, 162N, 93W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887662 Long: -102.716831 Datum: NAD83  
 Soil Map Unit Name: 2179 - Noonan-Niobell loams, 0-6% slopes NWI classification: ---

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <b>1</b> (A)  Total Number of Dominant Species Across All Strata: <b>1</b> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <b>100</b> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0</b>		= Total Cover		<b>Prevalence Index worksheet:</b>  Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____  Column Totals:      _____ (A)      _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0</b>		= Total Cover		
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u>Echinochloa crus-galli</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>20</b>		= Total Cover		
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>0</b>		= Total Cover		
<b>% Bare Ground in Herb Stratum <u>80</u></b>				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 24-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 2, 162N, 93W  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 4  
 Subregion (LRR): E Lat: 48.887678 Long: -102.718472 Datum: NAD83  
 Soil Map Unit Name: 2169 - Harriet, Regan, and Stirum soils, 0-2% slopes NWI classification: ----  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed; explain any answers in Remarks.)

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or 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)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____  Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u>Bromus inermis</u>	<u>90</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Poa pratensis</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u> = Total Cover				
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 24-U

**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>		
0-7	10YR 2/2	100	_____	_____	_____	_____	loam	Ap
7-16	10YR 3/2	100	_____	_____	_____	_____	CL	Bt
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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)
- Sandy Gleyed Matrix (S4)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)  
(MLRA 72 & 73 of LRR H)

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

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

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

**Restrictive Layer (if present):**

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

Hydric Soils Present? Yes  No

Remarks:

Bowbells soils

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

Remarks:

no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 24-W  
 Investigator(s): Dan Ackerman (Wenck), Darrell Vanderbush Section, Township, Range: 2, 162N, 93W  
 Landform (hillslope, terrace, etc.): Stream channel Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887594 Long: -102.718670 Datum: NAD83  
 Soil Map Unit Name: 2169 - Harriet, Regan, and Stirum soils, 0-2% slopes NWI classification: ---  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b>  Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____  Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)				
1. <u>Typha latifolia</u>	<u>50</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Phalaris arundinaceae</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>80</u> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>20</u>				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 25-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 3, 162N, 93W  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 8  
 Subregion (LRR): E Lat: 48.887717 Long: -102.725075 Datum: NAD83  
 Soil Map Unit Name: 1709 - Southam silt loam, 0-1% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Stratum (Plot Size: <u>30 ft. radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			<u>0</u> = Total Cover	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: <u>15 ft. radius</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
			<u>0</u> = Total Cover	
Herb Stratum (Plot Size: <u>5 ft. radius</u> )				
1. <b>Bromus inermis</b>	<u>50</u>	<u>Y</u>	<u>UPL</u>	
2. <b>Poa pratensis</b>	<u>40</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			<u>90</u> = Total Cover	
Woody Vine Stratum (Plot Size: <u>15 ft. radius</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			<u>0</u> = Total Cover	
% Bare Ground in Herb Stratum <u>10</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 25-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 3, 162N, 93W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887704 Long: -102.725347 Datum: NAD83  
 Soil Map Unit Name: 1709 - Southam silt loam, 0-1% slopes NWI classification: PEMC

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or 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)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
		<u>0</u>	= Total Cover	<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____ Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
		<u>0</u>	= Total Cover	
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u>Panicum amphibia</u>	<u>60</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Echinochloa crus-galli</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
		<u>80</u>	= Total Cover	
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
		<u>0</u>	= Total Cover	
<b>% Bare Ground in Herb Stratum <u>20</u></b>				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 25-W

**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>		
0-5	10YR 2/1	100					sll	A
5-11	5Y 5/2	94	7.5YR 4/4	6	C	M	sll	E1
11-17	5Y 5/1	90	7.5YR 4/4	10	C	M	sll	E2
17-19	5Y 4/2	100					sic	Bt

<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)
- Sandy Gleyed Matrix (S4)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

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

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

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

**Restrictive Layer (if present):**

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

Hydric Soils Present? Yes  No

Remarks:  
Tonka soil

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Wetland Hydrology Present? Yes  No

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

Remarks:  
hydrology present

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 26-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 3, 162N, 93W  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 7  
 Subregion (LRR): F Lat: 48.887720 Long: -102.729804 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: ----

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

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: <b>Upland. No culvert present.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or 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)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: <u>        </u> Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Bassia scoparia</u>	<u>90</u>	<u>Y</u>	<u>FACU</u>	1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) _____ <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>90</u> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 26-U

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>		
0-7	10YR 2/2	100	_____	_____	_____	_____	loam	Ap
7-14	10YR 2/2	100	_____	_____	_____	_____	loam	A
14-18	10YR 3/2	100	_____	_____	_____	_____	loam	Bw
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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

<p><b>Hydric Soil Indicators:</b> (Applicable to all LRRs, unless otherwise noted.)</p> <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	<p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <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.

<p><b>Restrictive Layer (if present):</b></p> Type: _____ Depth (Inches): _____	<p><b>Hydric Soils Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
--	---

Remarks:  
Max soil

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
<p>Primary Indicators (minimum of one required; check all that apply)</p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<p>Secondary Indicators (2 or more required)</p> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)

<p><b>Field Observations:</b></p> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	<p><b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
---	--

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

Remarks:  
no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 26-W  
 Investigator(s): Dan Ackerman (Wenck), Darrell Vanderbush Section, Township, Range: 3, 162N, 93W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope(%): 1  
 Subregion (LRR): E Lat: 48.887641 Long: -102.729874 Datum: NAD83  
 Soil Map Unit Name: 1709 - Southam silt loam, 0-1% slopes NWI classification: ----

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

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

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

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species            _____ x1 = _____ FACW species          _____ x2 = _____ FAC species            _____ x3 = _____ FACU species          _____ x4 = _____ UPL species            _____ x5 = _____ Column Totals:        _____ (A)      _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u>Phalaris arundinaceae</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> _____ 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Typha angustifolia</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	
3. <u>Rumex crispus</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
4. <u>Hordeum jubatum</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>90</u> = Total Cover				
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>% Bare Ground in Herb Stratum <u>10</u></b>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 27-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 3, 162N, 93W  
 Landform (hillslope, terrace, etc.): ditch slope Local relief (concave, convex, none): convex Slope (%): 7  
 Subregion (LRR): E Lat: 48.887725 Long: -102.734719 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: ----

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

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: <b>Upland. road ditch.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <b>0</b> (A)  Total Number of Dominant Species Across All Strata: <b>3</b> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <b>0</b> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0</b> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species      _____ x1 = _____ FACW species      _____ x2 = _____ FAC species      _____ x3 = _____ FACU species      _____ x4 = _____ UPL species      _____ x5 = _____ Column Totals:      _____ (A)      _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0</b> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)				
1. <b><u>Bassia scoparia</u></b>	<b>30</b>	<b>Y</b>	<b>FACU</b>	<b>Hydrophytic Vegetation Indicators:</b> _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <b><u>Poa pratensis</u></b>	<b>30</b>	<b>Y</b>	<b>FACU</b>	
3. <b><u>Bromus inermis</u></b>	<b>30</b>	<b>Y</b>	<b>UPL</b>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>90</b> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>0</b> = Total Cover				
% Bare Ground in Herb Stratum <b>0</b>				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: <b>non-hydrophytic vegetation</b>				



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 27-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 3, 162N, 93W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887687 Long: -102.734709 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: PEMC/PEMA

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

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland basin. Road ditch.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0</b>		= Total Cover		<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0</b>		= Total Cover		
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u><b>Typha angustifolia</b></u>	<u>60</u>	<u>Y</u>	<u>OBL</u>	
2. <u><b>Eleocharis palustris</b></u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>90</b>		= Total Cover		
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>0</b>		= Total Cover		
<b>% Bare Ground in Herb Stratum <u>10</u></b>				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 27-W

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>
0-4	10YR 2/1	97	7.5YR 4/4	3	C	M	loam	Ap
4-15	5Y 4/2	97	7.5YR 4/4	3	C	M	Sic	C1
15+	5Y 5/1	98	7.5YR 4/4	2	C	M	Sic	C2

<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.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<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"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)		

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Hydric Soils Present? Yes  No

Remarks:  
Endoaqualls

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Salt Crust (B11)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7)	

**Field Observations:**

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

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

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

Wetland Hydrology Present? Yes  No

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

Remarks:  
hydrology present

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

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 28-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 3, 162N, 93W  
 Landform (hillslope, terrace, etc.): ditch slope Local relief (concave, convex, none): convex Slope (%): 1  
 Subregion (LRR): E Lat: 48.887725 Long: -102.734719 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: ----

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

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Is the Sampling Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Remarks: <b>Upland. road ditch.</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		<b>Prevalence Index worksheet:</b> Total % Cover of: <u>        </u> Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>Herb Stratum (Plot Size: 5 ft. radius)</b>				
1. <u>Bassia scoparia</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Poa pratensis</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Bromus inermis</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>90</u>	= Total Cover		
<b>Woody Vine Stratum (Plot Size: 15 ft. radius)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				
<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 28-U

**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 2/2	100					loam	Ap
8-11	10YR 3/2	99	7.5YR 4/4	1	C	M	CL	C1
11-17	10YR 4/2	100					CL	C2

<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.)

- 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)
- Sandy Gleyed Matrix (S4)
- Sandy Gleyed Matrix (S4)
- Sandy Gleyed Matrix (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)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

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

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

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

**Restrictive Layer (if present):**

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

**Hydric Soils Present?** Yes  No

Remarks:  
Haplustalls

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

**Wetland Hydrology Present?** Yes  No

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

Remarks:  
no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 28-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 3, 162N, 93W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887774 Long: -102.734704 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: PEMC/PEMA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland basin. Road ditch.</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	_____ (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	_____ (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	_____ (A/B)
4. _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
<u>Sapling/Shrub Stratum (Plot Size: 15 ft. radius)</u>				<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____	Total % Cover of:      Multiply by:	
2. _____	_____	_____	_____	OBL species	_____ x1 = _____
3. _____	_____	_____	_____	FACW species	_____ x2 = _____
4. _____	_____	_____	_____	FAC species	_____ x3 = _____
5. _____	_____	_____	_____	FACU species	_____ x4 = _____
	<u>0</u>	= Total Cover		UPL species	_____ x5 = _____
<u>Herb Stratum (Plot Size: 5 ft. radius)</u>				Column Totals:	_____ (A)      _____ (B)
1. <u>Poa palustris</u>	<u>90</u>	<u>Y</u>	<u>FACW</u>	Prevalence Index = B/A = _____	
2. <u>Rumex crispus</u>	<u>10</u>	<u>N</u>	<u>FAC</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
	<u>100</u>	= Total Cover			
<u>Woody Vine Stratum (Plot Size: 15 ft. radius)</u>				<b>Hydrophytic Vegetation Indicators:</b>	
1. _____	_____	_____	_____	<input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
2. _____	_____	_____	_____	_____ 2 - Dominance Test is >50%	
	<u>0</u>	= Total Cover		_____ 3 – Prevalence Index is ≤3.0 <sup>1</sup>	
% Bare Ground in Herb Stratum <u>0</u>				_____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
Remarks: <b>hydrophytic vegetation</b>				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	



## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 29-U  
 Investigator(s): Dan Ackerman (Wenck); Darrell VanderBusch Section, Township, Range: 3, 162N, 93W  
 Landform (hillslope, terrace, etc.): ditch slope Local relief (concave, convex, none): convex Slope (%): 7  
 Subregion (LRR): E Lat: 48.887686 Long: -102.739130 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: ----  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: <b>Upland. road ditch side slope.</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)				
1. <u>Agropyron intermedium</u>	<u>60</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Cirsium arvense</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>80</u> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>5</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: <b>non-hydrophytic vegetation</b>				

**SOIL**

Sampling Point: 29-U

**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 2/2	100	_____	_____	_____	_____	CL	Ap
8-17	10YR 4/3	100	_____	_____	_____	_____	CL	C
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

<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

<b>Hydric Soil Indicators:</b> (Applicable to all LRRs, unless otherwise noted.)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)	
<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"/> Sandy Gleyed Matrix (S4)	(MLRA 72 & 73 of LRR H)		

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

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

Remarks:  
Haplustalls

**Hydric Soils Present?** Yes  No

**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 along 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 (2 or more required)

<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Oxidized Rhizospheres along 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)

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes  No

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

Remarks:  
no hydrology

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: Lignite Pipeline City/County: Burke County Sampling Date: 10/15 - 10/16/2012  
 Applicant/Owner: Electrical Consultants Inc. State: ND Sampling Point: 29-W  
 Investigator(s): Dan Ackerman (Wenck); Darrell Vanderbush Section, Township, Range: 3, 162N, 93W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.887641 Long: -102.739138 Datum: NAD83  
 Soil Map Unit Name: 2181 - Miranda-Noonan loams, 0-3% slopes NWI classification: ----  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Wetland basin. Road ditch very disturbed.</b>			

### VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <b>1</b> (A) Total Number of Dominant Species Across All Strata: <b>1</b> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <b>100</b> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<b>0</b> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species            _____ x1 = _____ FACW species          _____ x2 = _____ FAC species            _____ x3 = _____ FACU species          _____ x4 = _____ UPL species            _____ x5 = _____ Column Totals:        _____ (A)      _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: 15 ft. radius)	1. _____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<b>0</b> = Total Cover				
Herb Stratum (Plot Size: 5 ft. radius)	1. <b><u>Echinochloa crus-galli</u></b>	<b>60</b>	<b>Y</b> <b>FAC</b>	
2. <b><u>Spartina pectinata</u></b>	<b>10</b>	<b>N</b> <b>FACW</b>		
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<b>70</b> = Total Cover				
Woody Vine Stratum (Plot Size: 15 ft. radius)	1. _____	_____	_____	
2. _____	_____	_____	_____	
<b>0</b> = Total Cover				
% Bare Ground in Herb Stratum <b>30</b>				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>hydrophytic vegetation</b>				





Wenck Associates, Inc.  
301 1<sup>st</sup> St. NE, Suite 202  
Mandan, ND 58554

(701) 751-3370  
Fax (701) 751-3372  
E-mail: jaskim@wenck.com  
E-mail: jschulz@wenck.com

October 22, 2012

Crystal Kuntz, P.E.  
Electrical Consultants, Inc.  
3521 Gabel Road  
Billings, Montana 59102

**Re: Lignite Pipeline - Threatened and Endangered Species Determinations and Sharp-tailed Grouse Habitat Feasibility Assessment Report**

Dear Ms. Kuntz:

Wenck Associates, Inc. (Wenck) conducted a site visit on October 16, 2012 to determine if habitat for Threatened and Endangered Species and sharp-tailed grouse (*Tympanuchus phasianellus*) was present within a corridor surrounding the proposed Lignite Pipeline, between the cities of Lignite and Columbus, Burke County, North Dakota (Project Area/Site). The Project Area was in Section 34 of Township 163 North, Range 92 West; Sections 3, 4, 5, and 6 of Township 162 North, Range 92 West; and Sections 1, 2 and 3 of Township 162 North, Range 93 West (**Figure 1**). A corridor extending 75 feet from the centerline of the proposed pipeline (**Figure 1**) was surveyed to determine the presence or habitat for Threatened and Endangered species. Sharp-tailed grouse presence, habitat, and nesting habitat were assessed within a half-mile radius of the proposed pipeline route.

**Introduction**

The U.S. Fish and Wildlife Service (USFWS) identifies three federally listed species for Burke County: whooping crane, gray wolf, and piping plover. In addition, two species are candidates for listing under the Endangered Species Act (ESA): the Sprague's pipit and Dakota Skipper (USFWS 2012). Although delisted in 2007, the bald eagle remains a species of special concern to the USFWS for the region including Burke County. The golden eagle is not listed, but is also a species of concern for the region. Both the bald eagle and the golden eagle are protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. No federally listed species or species of concern were observed during field reconnaissance of the project area.

**Threatened and Endangered Species Determinations**

The determination of potential impacts of the proposed project on threatened, endangered, and candidate species was based on species presence/absence and availability of potential habitat on or near the project area. The following determinations were assigned: no effect, not likely to adversely affect, likely to adversely affect, beneficial effect. Measures to avoid or mitigate potential future effects/impacts were identified unless either "no effect" or "beneficial effect"

was determined. Specific comments and determinations for each special-status species are described below:

**Whooping crane** (*Grus americana*)

Status: Endangered

Determination: Not likely to adversely affect

Whooping cranes historically nested in North Dakota, but the whooping crane is currently only a migrant through North Dakota in the spring and fall. During migration, large shallow marshes with minimal to nonexistent emergent zones are preferred for roost sites and upland cropland and pastures adjacent to and usually within one kilometer (0.62 mile) are used for foraging (Howe 1989). Suitable roosting habitat (partially emergent seasonally flooded (PEMC) wetlands) for whooping cranes was present on-Site. The proposed project was within the Central Flyway where 75% of confirmed whooping crane sightings have occurred and suitable cropland food sources can be found nearby. The cropland/wetland matrix habitat at the proposed site makes migratory stopovers by whooping cranes possible. According to the USFWS (Mike Rabenberg, personal communication, October 17, 2012), on September 22, 2012 a whooping crane was observed approximately 11 miles northwest of the western end of the proposed pipeline. The project may affect, but is not likely to adversely affect, the whooping crane.

Mitigation: Per the USFWS recommendations, if a whooping crane is sighted within 1 mile of a site or associated facility while under construction, then all work would cease within 1 mile of that part of the project and the USFWS would be contacted immediately. In coordination with the USFWS, work may resume after the bird(s) leave the area.

**Gray wolf** (*Canis lupus*)

Status: Endangered

Determination: No effect

The most suitable habitat for the gray wolf in North Dakota is in the dense and contiguous forested areas in the north central and northeast parts of the state. There have been documented occurrences of gray wolves in south-central North Dakota (1985, 1990, and 1991) and confirmed reports of gray wolves in the Turtle Mountains of North Dakota (Grondahl, NDGFD, personal communication, 2006). The Site does not contain dense, contiguous forested areas required by the gray wolf and there have been no historical wolf sightings within or near the project area (USFWS 2006). No impacts are anticipated.

**Piping plover** (*Charadrius melodius*)

Status: Threatened

Determination: No effect

Critical habitat for the piping plover includes sparsely vegetated shoreline beaches, peninsulas, islands composed of sand, gravel, or shale, and their interface with water bodies (USFWS 2012). The Site is approximately eighteen (18) miles northwest of designated critical habitat for the piping plover (USFWS 2012). Suitable habitat for piping plovers is not present within or adjacent to the Site. The Site and surrounding area are primarily grassland habitats or agricultural land. Wetlands on-Site did not have sparsely vegetated margins. No impacts are anticipated.

**Sprague's Pipit (*Anthus spragueii*)**

Status: Candidate

Determination: No effect

Sprague's pipits have been historically observed in this region of North Dakota. Suitable Sprague's pipit habitat includes ungrazed or lightly grazed mixed-grass prairie that is open and extensive with minimal woody cover nearby. The Site had areas of mixed-grass prairie with no woody cover in the NW¼ of Section 1, T162N R93W; the NE¼ of Section 5, T162N R92W; and the NW¼ of Section 3, T162N R93W, (Photos 3, 6 and 11). However, these prairie remnants were small, low quality, and surrounded by agricultural land, which would not provide suitable potential habitat for this species. No impacts are anticipated.

**Dakota skipper (*Hesperia dacotae*)**

Status: Candidate

Determination: No effect

North Dakota has a decreasing population of Dakota skippers. In the western part of the state, its habitat includes ungrazed native prairie with little bluestem (*Schizachyrium scoparium*), needle and thread (*Stipa comata*), purple coneflower (*Echinacea* sp.) and high forb and grass diversity (USFWS 2006). The Dakota skipper has been documented within Burke County (USFWS 2006). Though the Site had parcels of remaining mixed grass prairie, these areas were small, low in quality and diversity and did not provide suitable potential habitat for the Dakota skipper. No impacts are anticipated.

**Bald Eagle (*Haliaeetus leucocephalus*)**

Status: Delisted in 2007; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

Determination: No effect

The project area does not contain suitable nesting/perching habitat, concentrated feeding areas, or other necessary habitat for the bald eagle. No impacts are anticipated.

**Golden Eagle (*Aquila chrysaetos*)**

Status: Unlisted; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

Determination: No effect

The golden eagle prefers habitat characterized by open prairie, plains, and forested areas. Usually, golden eagles can be found in proximity to badland cliffs that provide nesting habitat. No golden eagle nests were found within ½ mile of the project area, and the project area does not contain suitable nesting habitat for golden eagles. Eagle prey species may be present within and around the project area. No impacts are expected for this species as a result of the activities associated with the construction and operation of the project.

## Sharp-tailed Grouse Habitat Feasibility Assessment

Male sharp-tailed grouse congregate at historical/communal leks in the spring to compete for breeding opportunities. Both sexes return to their natal breeding grounds yearly for their entire life. Leks are typically found in areas with low vegetative growth on a hill, knoll or other point of high visibility. Fidelity to these locations is extremely high. Sharp-tailed grouse require nesting habitat within close proximity to the lek that is comprised of dense or residual vegetative cover to conceal and protect their nest from predators (Vodehnal and Haufler 2007).

A sharp-tailed grouse habitat feasibility assessment was done within a ½ mile radius of the project by walking the proposed pipeline route and surrounding areas. Sharp-tailed grouse were flushed throughout the entire proposed pipeline route.

Suitable sharp-tailed grouse habitat was present throughout the analysis area, including the NW¼ of Section 1, T162N R93W; the NE¼ of Section 5, T162N R92W; and the NW¼ of Section 3, T162N R93W (**Photos 3, 6 and 11**). These areas contained potential nesting and/or lekking habitat (**Figure 2**). Ideal nesting/lekking habitat for this species was found primarily south of the existing railroad tracks where dense vegetation adjacent to moderately grazed areas predominated.

Based on the field survey there is a high probability of a lek being found within close proximity of the proposed pipeline route. There is no state stipulation for limiting construction activity in relation to distance from leks. However, it is recommended to avoid construction activities during the ground nesting bird breeding season (March 1 to June 15) if a sharp-tailed grouse lek is found within the pipeline corridor.

### Summary

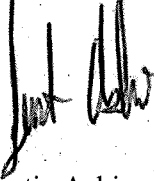
Construction and operation of the project is not expected to adversely affect federally listed threatened or endangered species that have ranges that include the project area. No effects are expected for the piping plover and gray wolf because these species do not occupy the Site or vicinity, other than occasional transients. The project area does have appropriate stopover habitat for migrating whooping cranes and is within their migration corridor; the proposed project may affect, but is not likely to adversely affect this species. Potential habitat for candidate species Sprague's pipit and Dakota skipper was not present on the Site.

If the pipeline is constructed within the sharp-tailed grouse lekking and nesting period (March 1 to June 15) it may displace nesting females and dancing males. It is recommended to conduct a lek survey during the spring of 2013 (between March 15 and April 15) to determine the presence/absence of leks within the proposed pipeline corridor.

The Burke County Waterfowl Production Area is located approximately 0.5 miles to the south of the proposed pipeline in Sections 9, 15, 16, 21 and 22, T162N R92W. The proposed project is not expected to have any direct impacts to the waterfowl production area.

If you have any questions on the results of this investigation, please contact Justin Askim at (701)751-6125 or [jaskim@wenck.com](mailto:jaskim@wenck.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Justin Askim". The signature is stylized and cursive.

Justin Askim  
Wenck Associates, Inc.

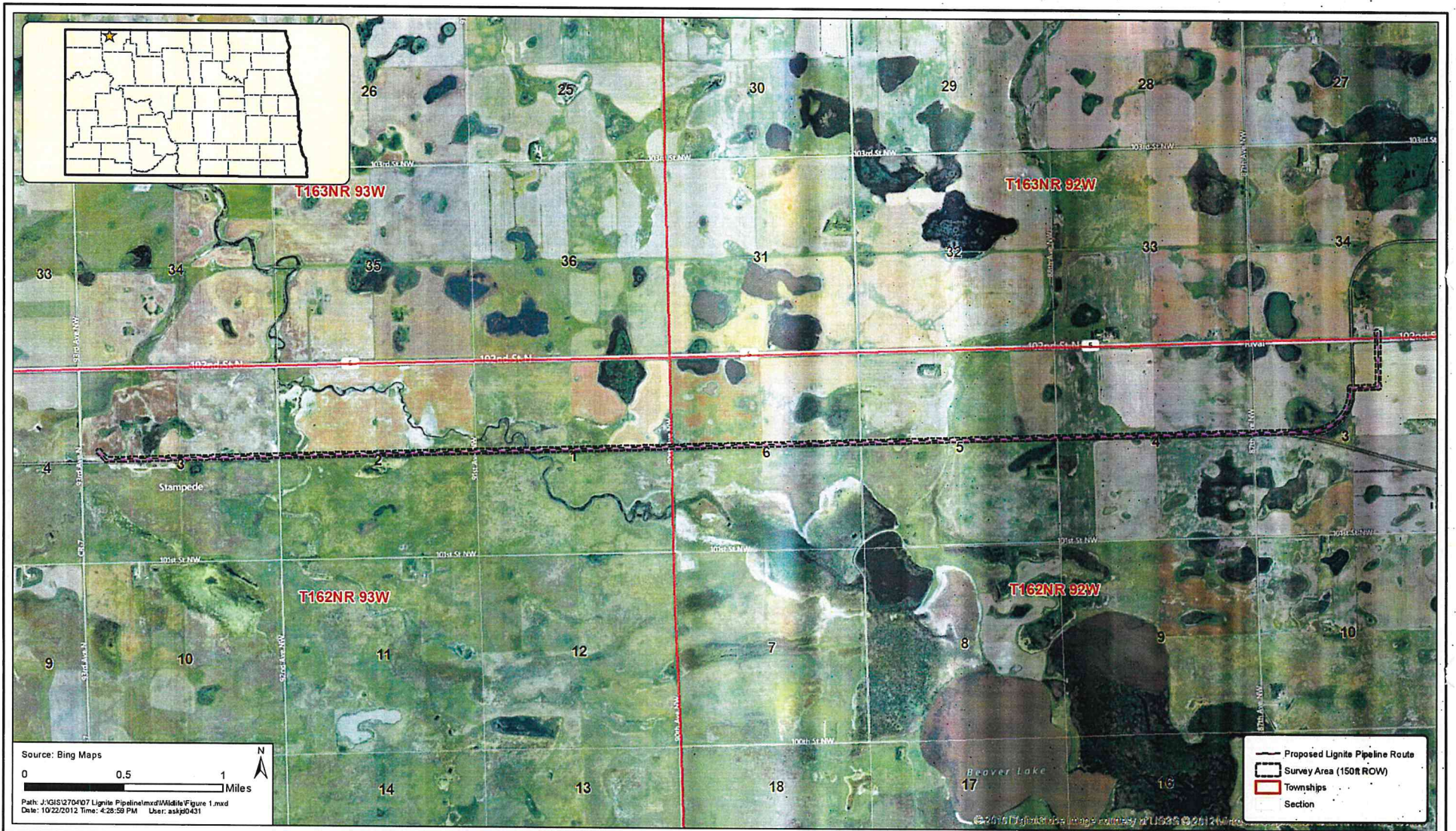
## References

- Howe, M.A. 1989. Migration of Radio-marked Whooping Cranes Migrating from Aransas-Wood Buffalo Population: Patterns of Habitat Use, Behavior, and Survival. USFWS, Fish Wildlife Tech. Rep. 21. 33pp.
- North Dakota Game and Fish Department. 2006. Gray Wolf Sightings and Locations in North Dakota. Letter from Chris Grondahl to John Schulz, dated March, 2006.
- U.S. Fish and Wildlife Service. 2012. County Occurrence of Endangered, Threatened, and Candidate Species and Designated Critical Habitat in North Dakota. USFWS Web Site: [www.fws.gov/northdakotafieldoffice/county-list.htm](http://www.fws.gov/northdakotafieldoffice/county-list.htm). Accessed September 18, 2012.
- Vodehnal, W.L. and J.B. Haufler. 2007. A grassland conservation plan for prairie Grouse. North American Grouse Partnership. Fruita, Colorado.

---


## Figures

---



Electrical Consultants, Inc.

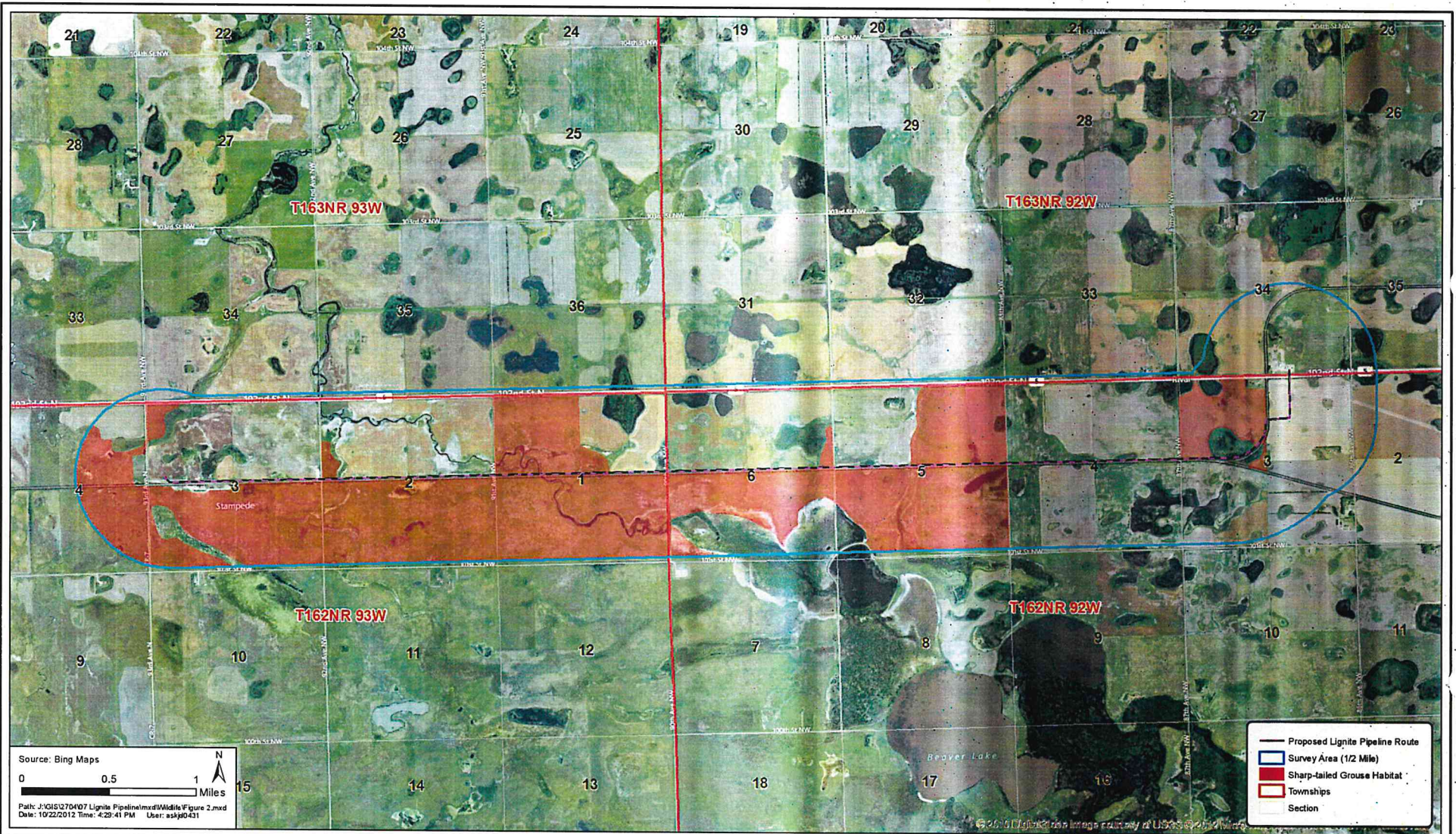
Lignite Pipeline-150ft Survey Area for Threatened and Endangered Species Determinations  
 Burke County, ND

  
 Engineers - Scientists  
 Business Professionals  
 www.wenck.com

**Wenck**  
 301 1st Street NE Suite 202  
 Mandan, ND 58554-3370  
 701-751-3370


OCT 2012

Figure 1



Electrical Consultants, Inc.

Lignite Pipeline-Half Mile Survey Area for Potential Sharp-tailed Grouse Habitat  
Burke County, ND

  
 Engineers - Scientists  
 Business Professionals  
[www.wenck.com](http://www.wenck.com)

**Wenck**  
 301 1st Street NE Suite 202  
 Mandan, ND 58554-3370  
 701-751-3370

OCT 2012

Figure 2

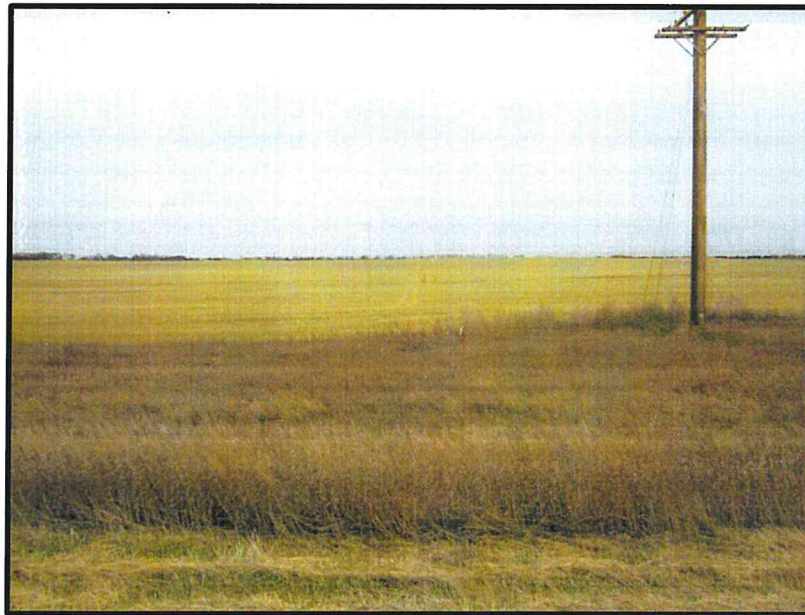
---

## Photos

---



**Photo 1.** Direction: North. Start of the proposed pipeline in the SE¼ of Section 34, T163N R92W. This tank site is on the northeast end of the proposed pipeline.



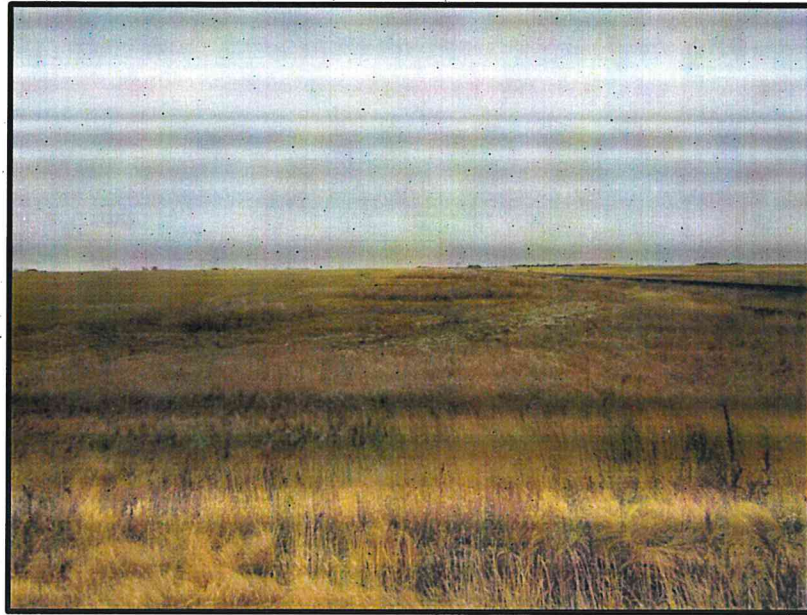
**Photo 2.** Direction: South. Proposed pipeline route directly south of the tank site after it crossed ND Highway 5.



**Photo 3.** Direction: East. Proposed pipeline route as it crossed the section line between Sections 3 and 4, T162N R92W, looking back into the west half of Section 3. The proposed pipeline route paralleled the north side of the existing railroad tracks visible in the photo.



**Photo 4.** Direction: West. The route as it crossed the section line between Sections 3 and 4, T162N R92W, toward the east half of Section 4. The proposed route paralleled the north side of the existing railroad tracks visible in the photo.



**Photo 5.** Direction: East. Pipeline route as it crossed the section line between Sections 4 and 5, T162N R92W, looking east into the west half of Section 4. The proposed route paralleled the north side of the existing railroad tracks visible in the photo.



**Photo 6.** Direction: West. The proposed pipeline route as it crossed the section line between Sections 4 and 5, T162N R92W, looking into the east half of Section 5. The proposed route paralleled the north side of the existing railroad tracks visible in the photo.



**Photo 7.** Direction: East. Pipeline route as it crossed the section line between Sections 5 and 6, T162N R92W, looking back into the west half of Section 5. The proposed route paralleled the north side of the existing railroad tracks visible in the photo.



**Photo 8.** Direction: West. Proposed pipeline route as it crossed the section line between Sections 5 and 6, T162N R92W, toward the east half of Section 6. The proposed route paralleled the north side of the existing railroad tracks visible in the photo.



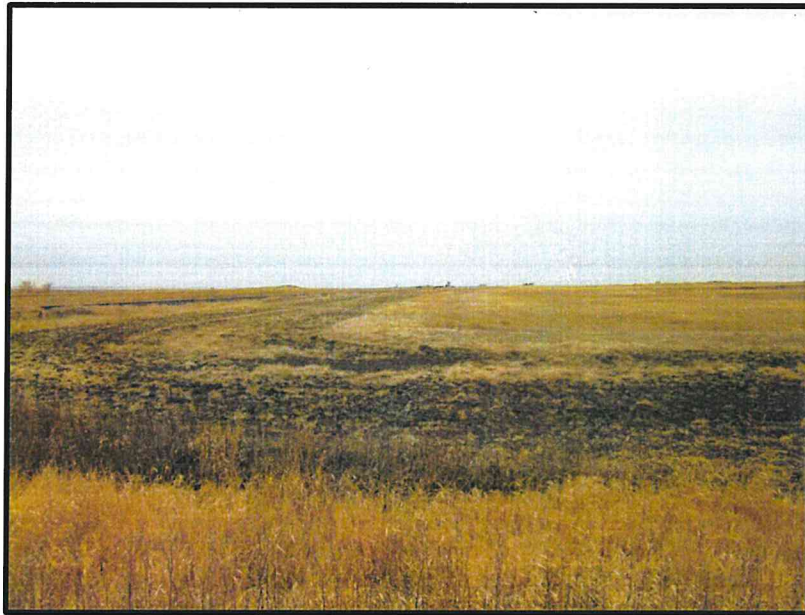
**Photo 9.** Direction: East. The route as it crossed the section line between Section 6, T162N R92W and Section 1, T162N R93W, toward the west half of Section 6. The proposed route paralleled the north side of the existing railroad tracks visible in the photo.



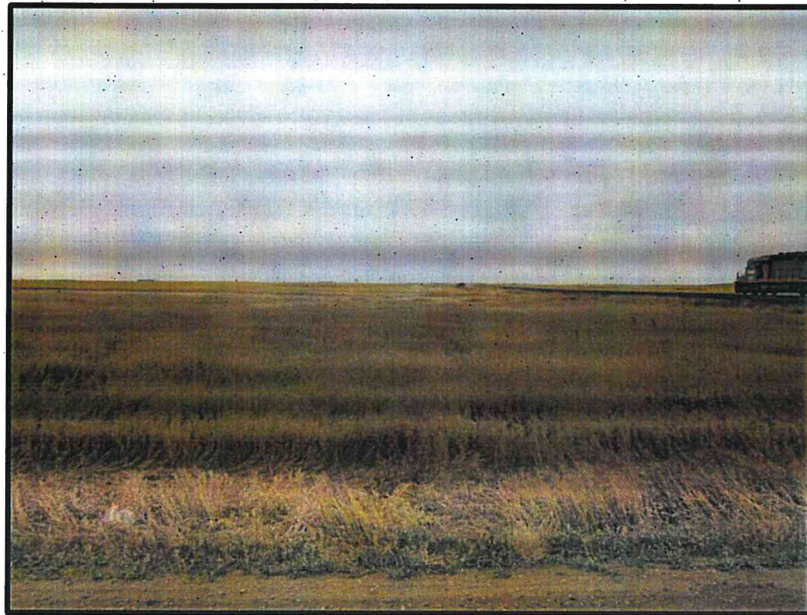
**Photo 10.** Direction: West. Pipeline route as it crossed the section line between Section 1, T162N R93W and Section 6, T162N R92W, toward the east half of Section 1. The proposed route paralleled the north side of the existing railroad tracks visible in the photo.



**Photo 11.** Direction: East. Pipeline route as it crossed the section line between Sections 1 and 2, T162N R93W, toward the west half of Section 1. The proposed route paralleled the north side of the existing railroad tracks visible in the photo.



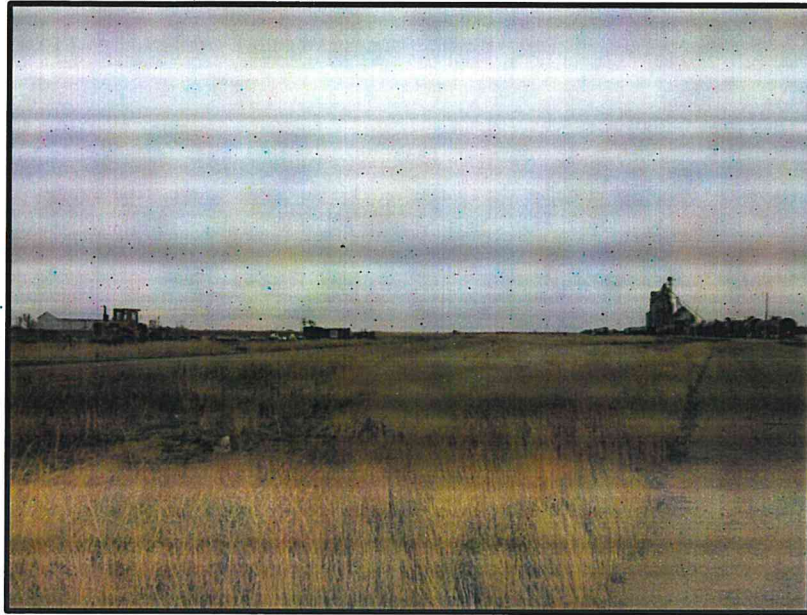
**Photo 12.** Direction: West. Pipeline route as it crossed the section line between Sections 1 and 2, T162N R93W, looking into the east half of Section 2. The proposed route paralleled the north side of the existing railroad tracks visible in the photo.



**Photo 13.** Direction: East. Pipeline route as it crossed the section line between Sections 2 and 3, T162N R93W, toward the west half of Section 2. The proposed route paralleled the north side of the existing railroad tracks visible in the photo.



**Photo 14.** Direction: West. Pipeline route as it crossed the section line between Sections 2 and 3, T162N R93W, toward the east half of Section 3. The proposed route paralleled the north side of the existing railroad tracks visible in the photo.



**Photo 15.** Direction: East. The western end of the proposed pipeline route as it connected with existing tanks located to the left just outside the view of the photo, in the west half of Section 3, T162N R93W.