BASIN ELECTRIC POWER COOPERATIVE

1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA 58503-0564
PHONE 701-223-0441
FAX: 701/224-5336

September 9, 2008

Annette Bendish, Counsel
North Dakota Public Service Commission
600 East Boulevard Avenue, Dept. 408
Bismarck, ND 58505

Dear Ms. Bendish:

On July 29, 2008, the North Dakota Public Service Commission held a siting hearing in New England, North Dakota on Case No. PU07-169 regarding the Belfield to Rhame 230kv Transmission Line to be built by Basin Electric Power Cooperative. During the hearing, the Commission made a number of requests for additional information to be submitted as "late filed exhibits". The following is a list of the documents requested.

Exhibit 9 - Final Plan and Profile Drawings [5 copies & 1 electronic copy]

Exhibit 10 - Information regarding the Bowman Airport – response from North Dakota Aeronautical Commission [5 copies]

Exhibit 11 - Report of Consultation with Formation Resources regarding potential uranium mining operations [5 copies]

Exhibit 12 - Whooping crane migration flyway map with route overlaid [5 copies]

Exhibit 13 - Vegetation Management - Report on right-of-way width in shelterbelts to meet NERC and other standards [5 copies]

Exhibit 14 - Electronic copy of route maps (Mike Murray Exhibit) [1 copy]

Enclosed with this letter are the above named documents. In addition to the "late filed exhibits", Basin Electric is also submitting five copies of the Wetland Delineation Report and five copies of the Cultural Resource Inventory. The Commission also requested Basin Electric provide a copy of the Western Area Power Administration's Environmental Assessment when it is final, we shall do so.

If you have any questions regarding this letter or any of the enclosures, please call me at (701) 355-5713.

Sincerely,

Deborah Fohr Levchak
Staff Counsel

dfl/ds
enclosures

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PHONE 701-223-0441
FAX: 701/224-5336

MEMORANDUM

To: North Dakota Public Service Commission

From: Kevin Solie, Senior Environmental Analyst KS

Date: August 7, 2008

Re: Case No. PU-07-169, Late Filed Exhibit – Bowman Airport Exhibit 10

Per the Commission's request for additional information regarding the potential location of a new City of Bowman Airport, on July 30, 2008, I contacted the North Dakota Aeronautical Commission regarding the Bowman Airport relocation study. I was primarily interested in the status of "Study Area B" which is north of Bowman and possibly in conflict with Basin Electric's proposed Belfield to Rhame transmission line project. Mr. Mark Holzer, North Dakota Aeronautical Commission Acting Director, indicated Study Area B was no longer under consideration as an airport relocation site because of issues with existing communication towers and wetlands. Mr. Holzer suggested I contact Mr. John Scraper of Ulteig Engineering for further information.

I contacted Mr. Scraper on July 30th, 2008 and he confirmed that Study Area B was no longer under consideration as a site for the relocation of the Bowman Airport. Mr. Scraper indicated the preferred site for the airport relocation is approximately three miles east and one mile south of Bowman. As such, the proposed airport location is at least six miles from any proposed transmission line segment.

ks/ds

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MEMORANDUM

To: North Dakota Public Service Commission

From: Kevin Solie, Senior Environmental Analyst

Date: August 7, 2008

Re: Case No. PU-07-169, Late Filed Exhibit – Uranium Development Exhibit 11

Per the Commission's request for additional information regarding potential uranium mining, on July 30, 2008, I contacted Mr. Ed Murphy of the North Dakota Geological Survey regarding uranium development in southwestern North Dakota. Mr. Murphy indicated exploration drilling was occurring in Sections 5 and 6, T136N R100W and Sections 26-28 and 32-35, T137N R100W in Slope County.

The proposed transmission line corridor and consequently the transmission line route are not located in either of the aforementioned townships and, thus, do not impact the potential uranium development.

On July 30, 2008, I also spoke with Mr. Jim Guilinger of World Industrial Minerals regarding uranium development in southwestern North Dakota. World Industrial Minerals is the Colorado based exploration company performing work for Formation Resources; Mr. Guilinger indicated he had recently briefed the North Dakota Public Service Commission regarding Formation Resource's plans for uranium development in North Dakota. Mr. Guilinger indicated the 5000 acre area of interest was about 17 miles south of Belfield, and west of US Highway 85. I explained our proposed transmission line corridor and route were east of US Highway 85; we agreed there was no conflict between the two projects because of the physical separation between them.

ks/ds

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BISMARCK, NORTH DAKOTA 58503-0564
PHONE 701-223-0441
FAX: 701/224-5336

MEMORANDUM

To: North Dakota Public Service Commission

From: Kevin Solie, Senior Environmental Analyst

Date: August 11, 2008

Exhibit 12

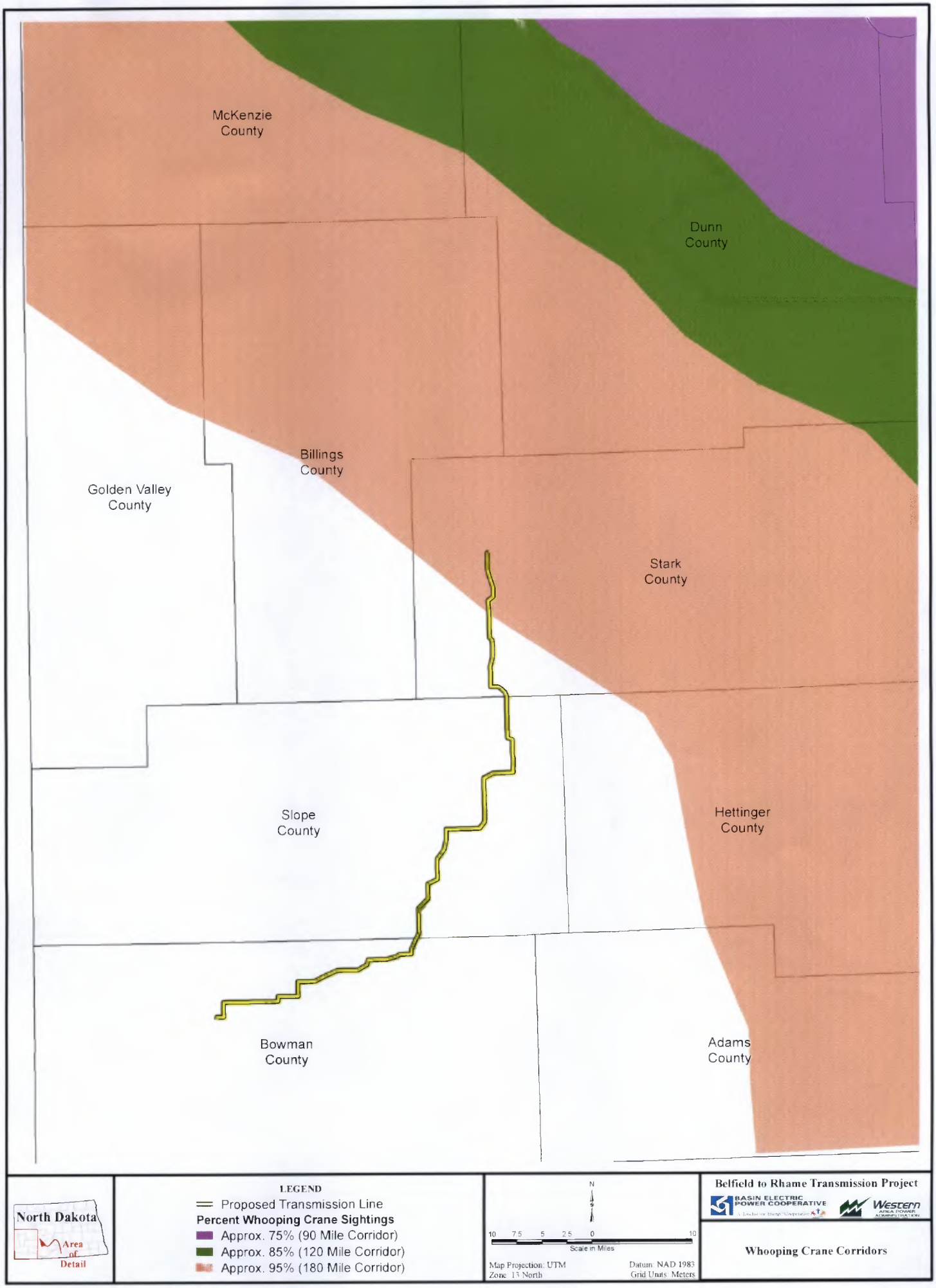
Re: Case No. PU-07-169, Late Filed Exhibit – Whooping Crane Migration Flyway

Per the Commission's request for additional information regarding the relationship of the whooping crane migration flyway and the proposed route for the Belfield to Rhame 230kV transmission line on July 29, 2008, I have prepared a map (attached) that reflects the flyway and the proposed route.

The map shows the proposed Belfield to Rhame transmission line with respect to the whooping crane migration flyway. The majority of the proposed transmission line route is outside the180 mile wide migration flyway; however, a small segment of the route overlaps the outer fringe of the flyway.

Basin Electric has agreed to mark the transmission line, in high risk areas, with the best available technology to help reduce the possibility of avian collisions. High risk areas will be identified in consultation with Western Area Power Administration biologists. Line marking, coupled with the low density of wetlands (stopover habitat) and the nearly 30 mile distance from the nearest whooping crane stopover sighting, suggests the proposed transmission line would have minimal impact on the whooping crane, as well as having minimal impact on other avian species.

ks/ds



North Dakota
Area of Detail

LEGEND
Proposed Transmission Line
Percent Whooping Crane Sightings
Approx. 75% (90 Mile Corridor)
Approx. 85% (120 Mile Corridor)
Approx. 95% (180 Mile Corridor)

N
10 7.5 5 2.5 0 10
Scale in Miles
Map Projection: UTM
Zone 13 North
Datum: NAD 1983
Grid Units: Meters

Belfield to Rhame Transmission Project
BASIN ELECTRIC POWER COOPERATIVE
Western Area Power Administration

Whooping Crane Corridors

BASIN ELECTRIC POWER COOPERATIVE

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BISMARCK, NORTH DAKOTA 58503-0564
PHONE 701-223-0441
FAX: 701/224-5336

To: North Dakota Public Service Commission

From: Duey Marthaller, Project Manager

Date: August 18, 2008

Re: Case No. PU-07-169, Late Filed Exhibit – Vegetation Management Exhibit 13

Per the Commission's request for additional information on July 29, 2008, regarding the right-of-way width in shelterbelts and policies concerning vegetation within those rights-of-way, we provide the following information:

Basin Electric's policy is to retain a right-of-way easement of a constant width for the entire length of the transmission line. The reason for this policy is for ease and access of equipment to construct and maintain the line.

Basin Electric Power Cooperative's policy is to remove any vegetation from the right-of-way that is currently or would grow to a height of 12 feet or more at maturity. Therefore, when a transmission line intersects a shelterbelt, trees meeting this description are removed in accordance with easement conditions. If necessary, smaller trees may be removed to accommodate equipment movement during maintenance activities or emergency restoration.

In 2003, a blackout affecting large portions of the Northeast and Midwest United States and Ontario, Canada was caused by inadequate control of tree growth. As a result, the Federal Energy Regulatory Commission (FERC) requires utilities to have a vegetation management standard and to report results of their inspections. In addition, any outages caused by vegetation must be reported to Regional Reliability Councils and the North American Electric Reliability Council (NERC). Basin Electric's Transmission Line Vegetation Management Program and the NERC Adopted Standard FAC-003-1 Transmission Vegetation Management Program are both attached.

dm/ds
enclosure

Basin Electric Power Cooperative

Transmission Line Vegetation Management Program

Rev.1 added compatible vegetation definition 11/04/2005..
Rev.2 Revised section F. 09/08/2006..
Rev.3 added Planted Vegetation section and marked it G. also changed Annual Work Plan section to H. 10/12/2006..
Rev. 4 added paragraph 3 to Vegetation Management Strategy 10/10/07.

Purpose: To ensure the transmission of safe and reliable electrical power while minimizing adverse impacts on the environment.

Vegetation management strategy: (1.) Non-compatible vegetation shall be cleared from the right-of-way when authorized by easements, landowner/tenant or controller. **(2.)** Compatible vegetation that does not interfere with access, operation or maintenance of the line shall be left undisturbed. The ultimate goal is to convert the right-of-way to low growing plants that keep tall growing vegetation out. Every effort will be made to preserve natural habitat when ever practical and possible. All pruning practices will follow modern guidelines and standards. **(3.)** Herbicide application to clear cut areas to prevent regrowth on R/W where applicable and to control small brush for R/W access for operation and maintenance of power lines.

Definition:

Compatible Vegetation - must not exceed a maximum height of 12 feet at maturity, and may not interfere with Basin Electric's access and/or maintenance requirements.

National Electrical Safety Code: NESC requires that vegetation does not interfere with workers maintaining, upgrading or repairing a line. NESC requires removal of any trees or other vegetation that is a hazard to the power system or that could become a hazard to the system.

A. All spans with non-compatible vegetation shall be identified and listed for each transmission line.

B. Minimum of three aerial inspections annually of all transmission lines to update vegetation span list.

C. Minimum of 2 ground inspections annually of all non-compatible vegetation spans.

D. 1. Side trees outside of the right-of-way which would strike the line when falling shall be removed or top trimmed at a 45 degree angle away from the line. **2.** Landowner permission shall be received prior to cutting trees outside of the right-of-way.

E. Right-of-way width maintained: 115KV = 100 feet, 230KV = 125 feet, 345KV = 150 feet

F. Clearance 1- <u>Minimum</u> Clearance distance between Vegetation and energized conductors to be achieved at the time of vegetation management work: 115KV = 20', 230KV = 25', 345 = 25'

Clearance 2 – <u>Minimum</u> Clearance distance between Vegetation and energized conductors: 115KV = 10', 230KV = 15', 345KV = 20'

G. Planted Vegetation: Vegetation planted within Basin Electric Power Cooperative rights of way must not exceed a maximum height of 12 feet at maturity, and may not interfere with Basin Electric's access and/or maintenance requirements. Vegetation planted on Basin Electric Power Cooperative powerline rights of way must be approved by Basin Electric Land Management.

H. Annual Work Plan:

1. Aerial Patrol all lines a minimum of 3 times per year to update and verify tree spans.

2. Ground patrol all tree spans a minimum of 2 times per year.

3. Remove or cut danger trees at time of ground patrol inspection.

4. Identify other problem trees during ground inspection for remedial action prior to June 15.

5. Document all activity on appropriate inspection and action forms.
6. Report all vegetation related outages as soon as possible.

A. Introduction

1. **Title:** **Transmission Vegetation Management Program**

2. **Number:** FAC-003-1

3. **Purpose:** To improve the reliability of the electric transmission systems by preventing outages from vegetation located on transmission rights-of-way (ROW) and minimizing outages from vegetation located adjacent to ROW, maintaining clearances between transmission lines and vegetation on and along transmission ROW, and reporting vegetation-related outages of the transmission systems to the respective Regional Reliability Organizations (RRO) and the North American Electric Reliability Council (NERC).

4. **Applicability:**

   4.1. Transmission Owner.

   4.2. Regional Reliability Organization.

   4.3. This standard shall apply to all transmission lines operated at 200 kV and above and to any lower voltage lines designated by the RRO as critical to the reliability of the electric system in the region.

5. **Effective Dates:**

   5.1. One calendar year from the date of adoption by the NERC Board of Trustees for Requirements 1 and 2.

   5.2. Sixty calendar days from the date of adoption by the NERC Board of Trustees for Requirements 3 and 4.

B. Requirements

R1. The Transmission Owner shall prepare, and keep current, a formal transmission vegetation management program (TVMP). The TVMP shall include the Transmission Owner's objectives, practices, approved procedures, and work specifications[1].

R1.1. The TVMP shall define a schedule for and the type (aerial, ground) of ROW vegetation inspections. This schedule should be flexible enough to adjust for changing conditions. The inspection schedule shall be based on the anticipated growth of vegetation and any other environmental or operational factors that could impact the relationship of vegetation to the Transmission Owner's transmission lines.

R1.2. The Transmission Owner, in the TVMP, shall identify and document clearances between vegetation and any overhead, ungrounded supply conductors, taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, and the effects of wind velocities on conductor sway. Specifically, the Transmission Owner shall establish clearances to be achieved at the time of vegetation management work identified herein as Clearance 1, and shall also establish and maintain a set of clearances identified herein as Clearance 2 to prevent flashover between vegetation and overhead ungrounded supply conductors.

R1.2.1. Clearance 1 — The Transmission Owner shall determine and document appropriate clearance distances to be achieved at the time of transmission vegetation management work based upon local conditions and the expected time frame in which the Transmission Owner plans to return for future

[1] ANSI A300, Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices, while not a requirement of this standard, is considered to be an industry best practice.

vegetation management work. Local conditions may include, but are not limited to: operating voltage, appropriate vegetation management techniques, fire risk, reasonably anticipated tree and conductor movement, species types and growth rates, species failure characteristics, local climate and rainfall patterns, line terrain and elevation, location of the vegetation within the span, and worker approach distance requirements. Clearance 1 distances shall be greater than those defined by Clearance 2 below.

R1.2.2. Clearance 2 — The Transmission Owner shall determine and document specific radial clearances to be maintained between vegetation and conductors under all rated electrical operating conditions. These minimum clearance distances are necessary to prevent flashover between vegetation and conductors and will vary due to such factors as altitude and operating voltage. These Transmission Owner-specific minimum clearance distances shall be no less than those set forth in the Institute of Electrical and Electronics Engineers (IEEE) Standard 516-2003 (*Guide for Maintenance Methods on Energized Power Lines*) and as specified in its Section 4.2.2.3, Minimum Air Insulation Distances without Tools in the Air Gap.

R1.2.2.1 Where transmission system transient overvoltage factors are not known, clearances shall be derived from Table 5, IEEE 516-2003, phase-to-ground distances, with appropriate altitude correction factors applied.

R1.2.2.2 Where transmission system transient overvoltage factors are known, clearances shall be derived from Table 7, IEEE 516-2003, phase-to-phase voltages, with appropriate altitude correction factors applied.

R1.3. All personnel directly involved in the design and implementation of the TVMP shall hold appropriate qualifications and training, as defined by the Transmission Owner, to perform their duties.

R1.4. Each Transmission Owner shall develop mitigation measures to achieve sufficient clearances for the protection of the transmission facilities when it identifies locations on the ROW where the Transmission Owner is restricted from attaining the clearances specified in Requirement 1.2.1.

R1.5. Each Transmission Owner shall establish and document a process for the immediate communication of vegetation conditions that present an imminent threat of a transmission line outage. This is so that action (temporary reduction in line rating, switching line out of service, etc.) may be taken until the threat is relieved.

R2. The Transmission Owner shall create and implement an annual plan for vegetation management work to ensure the reliability of the system. The plan shall describe the methods used, such as manual clearing, mechanical clearing, herbicide treatment, or other actions. The plan should be flexible enough to adjust to changing conditions, taking into consideration anticipated growth of vegetation and all other environmental factors that may have an impact on the reliability of the transmission systems. Adjustments to the plan shall be documented as they occur. The plan should take into consideration the time required to obtain permissions or permits from landowners or regulatory authorities. Each Transmission Owner shall have systems and procedures for documenting and tracking the planned vegetation management work and ensuring that the vegetation management work was completed according to work specifications.

R3. The Transmission Owner shall report quarterly to its RRO, or the RRO's designee, sustained transmission line outages determined by the Transmission Owner to have been caused by vegetation.

R3.1. Multiple sustained outages on an individual line, if caused by the same vegetation, shall be reported as one outage regardless of the actual number of outages within a 24-hour period.

R3.2. The Transmission Owner is not required to report to the RRO, or the RRO's designee, certain sustained transmission line outages caused by vegetation: (1) Vegetation-related outages that result from vegetation falling into lines from outside the ROW that result from natural disasters shall not be considered reportable (examples of disasters that could create non-reportable outages include, but are not limited to, earthquakes, fires, tornados, hurricanes, landslides, wind shear, major storms as defined either by the Transmission Owner or an applicable regulatory body, ice storms, and floods), and (2) Vegetation-related outages due to human or animal activity shall not be considered reportable (examples of human or animal activity that could cause a non-reportable outage include, but are not limited to, logging, animal severing tree, vehicle contact with tree, arboricultural activities or horticultural or agricultural activities, or removal or digging of vegetation).

R3.3. The outage information provided by the Transmission Owner to the RRO, or the RRO's designee, shall include at a minimum: the name of the circuit(s) outaged, the date, time and duration of the outage; a description of the cause of the outage; other pertinent comments; and any countermeasures taken by the Transmission Owner.

R3.4. An outage shall be categorized as one of the following:

R3.4.1. Category 1 — Grow-ins: Outages caused by vegetation growing into lines from vegetation inside and/or outside of the ROW;

R3.4.2. Category 2 — Fall-ins: Outages caused by vegetation falling into lines from inside the ROW;

R3.4.3. Category 3 — Fall-ins: Outages caused by vegetation falling into lines from outside the ROW.

R4. The RRO shall report the outage information provided to it by Transmission Owner's, as required by Requirement 3, quarterly to NERC, as well as any actions taken by the RRO as a result of any of the reported outages.

C. Measures

M1. The Transmission Owner has a documented TVMP, as identified in Requirement 1.

M1.1. The Transmission Owner has documentation that the Transmission Owner performed the vegetation inspections as identified in Requirement 1.1.

M1.2. The Transmission Owner has documentation that describes the clearances identified in Requirement 1.2.

M1.3. The Transmission Owner has documentation that the personnel directly involved in the design and implementation of the Transmission Owner's TVMP hold the qualifications identified by the Transmission Owner as required in Requirement 1.3.

M1.4. The Transmission Owner has documentation that it has identified any areas not meeting the Transmission Owner's standard for vegetation management and any mitigating measures the Transmission Owner has taken to address these deficiencies as identified in Requirement 1.4.

M1.5. The Transmission Owner has a documented process for the immediate communication of imminent threats by vegetation as identified in Requirement 1.5.

M2. The Transmission Owner has documentation that the Transmission Owner implemented the work plan identified in Requirement 2.

M3. The Transmission Owner has documentation that it has supplied quarterly outage reports to the RRO, or the RRO's designee, as identified in Requirement 3.

M4. The RRO has documentation that it provided quarterly outage reports to NERC as identified in Requirement 4.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

RRO

NERC

1.2. Compliance Monitoring Period and Reset

One calendar Year

1.3. Data Retention

Five Years

1.4. Additional Compliance Information

The Transmission Owner shall demonstrate compliance through self-certification submitted to the compliance monitor (RRO) annually that it meets the requirements of NERC Reliability Standard FAC-003-1. The compliance monitor shall conduct an on-site audit every five years or more frequently as deemed appropriate by the compliance monitor to review documentation related to Reliability Standard FAC-003-1. Field audits of ROW vegetation conditions may be conducted if determined to be necessary by the compliance monitor.

2. Levels of Non-Compliance

2.1. Level 1:

2.1.1. The TVMP was incomplete in one of the requirements specified in any subpart of Requirement 1, or;

2.1.2. Documentation of the annual work plan, as specified in Requirement 2, was incomplete when presented to the Compliance Monitor during an on-site audit, or;

2.1.3. The RRO provided an outage report to NERC that was incomplete and did not contain the information required in Requirement 4.

2.2. Level 2:

2.2.1. The TVMP was incomplete in two of the requirements specified in any subpart of Requirement 1, or;

2.2.2. The Transmission Owner was unable to certify during its annual self-certification that it fully implemented its annual work plan, or documented deviations from, as specified in Requirement 2.

2.2.3. The Transmission Owner reported one Category 2 transmission vegetation-related outage in a calendar year.

2.3. Level 3:

2.3.1. The Transmission Owner reported one Category 1 or multiple Category 2 transmission vegetation-related outages in a calendar year, or;

2.3.2. The Transmission Owner did not maintain a set of clearances (Clearance 2), as defined in Requirement 1.2.2, to prevent flashover between vegetation and overhead ungrounded supply conductors, or;

2.3.3. The TVMP was incomplete in three of the requirements specified in any subpart of Requirement 1.

2.4. Level 4:

2.4.1. The Transmission Owner reported more than one Category 1 transmission vegetation-related outage in a calendar year, or;

2.4.2. The TVMP was incomplete in four or more of the requirements specified in any subpart of Requirement 1.

E. Regional Differences

None Identified.

Version History

Version	Date	Action	Change Tracking
Version 1	TBA	1. Added "Standard Development Roadmap." 2. Changed "60" to "Sixty" in section A, 5.2. 3. Added "Proposed Effective Date: April 7, 2006" to footer. 4. Added "Draft 3: November 17, 2005" to footer.	01/20/06

Basin Electric Power Cooperative
Microwave Tower and Substation:
A Cultural Resource Inventory of Two Project Locations in Bowman and Slope Counties, North Dakota

NDSHPO Reference No.: 08-0491

Principal Investigator:
William J. Bluemle

Prepared for:
ENSR International
Denver, CO 80525

On behalf of:
Basin Electric Power Cooperative
Bismarck, North Dakota

Prepared by:
William J. Bluemle
Metcalf Archaeological Consultants, Inc.
Bismarck, North Dakota

April 2008

Abstract

ENSR International on behalf of Basin Electric Power Cooperative requested that Metcalf Archaeological Consultants, Inc. conduct a Class III cultural resource inventory of a proposed microwave tower location on top of East Rainy Butte in Section 34, T. 135 N., R. 98 W., Slope County, North Dakota, and a proposed substation location south of the town of Rhame in Section 15, T. 131 N., R. 104 W., Bowman County, North Dakota. The tower location measured approximately 1,400 feet square, or 45 acres, and the substation location measured approximately 700 feet by 800 feet or 12.5 acres, for a total of 57.5 acres surveyed for these project locales.

On March 17 and 18, 2008, William J. Bluemle, Principal Investigator, and Bill Christensen conducted the inventory. During the inventory one historic site, 32SL161, an historic cairn, and two prehistoric isolated finds, 32SLx314, a piece of chipped stone flaking debris, and 32SLx315, a chipped stone tool, were found associated with the Slope County tower location.

Site 32SL161 is recommended not eligible for the National Register of Historic Places, with no avoidance necessary. The isolated finds are recommended as not significant and not eligible for nomination to the National Register of Historic Places, given that they do not possess information sufficient to meet National Register criteria. A finding of *No Historic Properties Affected* is recommended for the proposed undertakings as surveyed, mapped and described herein.

Introduction

ENSR International on behalf of Basin Electric Power Cooperative requested that Metcalf Archaeological Consultants, Inc. (MAC) conduct a Class III cultural resource inventory of a proposed substation location and a proposed microwave tower. The tower location measured approximately 1,400 feet square, or 45 acres, and the substation location measured approximately 700 feet by 800 feet or 12.5 acres, for a total of 57.5 acres surveyed for this project.

On March 17 and 18, 2008, William J. Bluemle, Principal Investigator, and Bill Christensen conducted the inventory. During the inventory one historic site, 32SL161, an historic cairn, and two prehistoric isolated finds, 32SLx314, a piece of chipped stone flaking debris and 32SLx315, a chipped stone tool, were found associated with the Slope County tower location.

Project Location

The substation location is located approximately six miles south of the town of Rhame in Section 15, T. 131 N., R. 104 W., Bowman County, North Dakota (Figure 1).

The microwave tower location is on top of East Rainy Butte in Section 34, T. 135 N., R. 98 W., Slope County, North Dakota (Figure 2).

Project Setting

The substation project area in Bowman County is located in the Little Missouri River Study Unit (Study Unit #1); and the microwave tower location in Slope County is in the Cannonball River Study Unit (Study Unit #2), as defined in *The North Dakota Comprehensive Plan for Historic Preservation: Archeological Component* (SHSND 1990).

The Bowman County substation project area is located in plains/badlands crossover with several small buttes nearby the project block, with numerous drainage cutting through the rolling prairie. The project location constitutes the entirety of a low, uncultivated hill in the middle of a large cultivated field. The hill itself has native prairie grasses and forbes providing 0-20% ground surface visibility (GSV) along the side slopes and 20-40% GSV in thinner vegetation on the hill top, with several areas with sparse vegetation providing 80-90% GSV. Cutbanks along the cultivated filed edge supplemented GSV. Plentiful silcrete boulders are strewn across the surface, and essentially "cap" this hill. Coyote Creek is located approximately one mile north of the project block, and several ephemeral drainage are located with a half mile. Soils are thin sandy silt loams and several of the buttes have very sparse-to-no soil or vegetation. The area had less than 5% snow cover, which did not hinder the investigation.

The Little Missouri River Study Unit has seen a vast quantity of archaeological survey work in the past 20 years related to energy development expansion in the southwest portion of the State of North Dakota. Numerous sites, both prehistoric and historic, have been recorded in the area around the Little Missouri River. The area is characterized by badlands relief surrounding the river valley, along with numerous minor buttes and several prominent buttes. Several types of raw

material are available in the area including porcellanite, chert, chalcedony, and silicified sediment. The area has a wide variety of flora and fauna including mixed grasses, sage, cactus, and wildflowers, and small to large game including a variety of birds, bison, deer and elk. A more comprehensive description of this study unit can be found in the SHSND (SHSND 1990:1.1-1.64).

The Slope County microwave tower project area is located on the top of East Rainy Butte, one of a cluster of several prominent buttes (including West Rainy Butte and Baldy Butte) located approximately seven miles west of the town of New England, North Dakota. The area consists of rolling uplands with numerous isolated buttes visible in all directions. East Rainy Buttes has many sandstone slabs on the surface. Vegetation and fauna is nearly identical to the Bowman discussion above. Vegetation was somewhat more sparse and closely grazed. Ground surface visibility was approximately 40% at the time of the inventory. Visibility was somewhat enhanced by mammal backdirt piles, wallows, and blowouts.

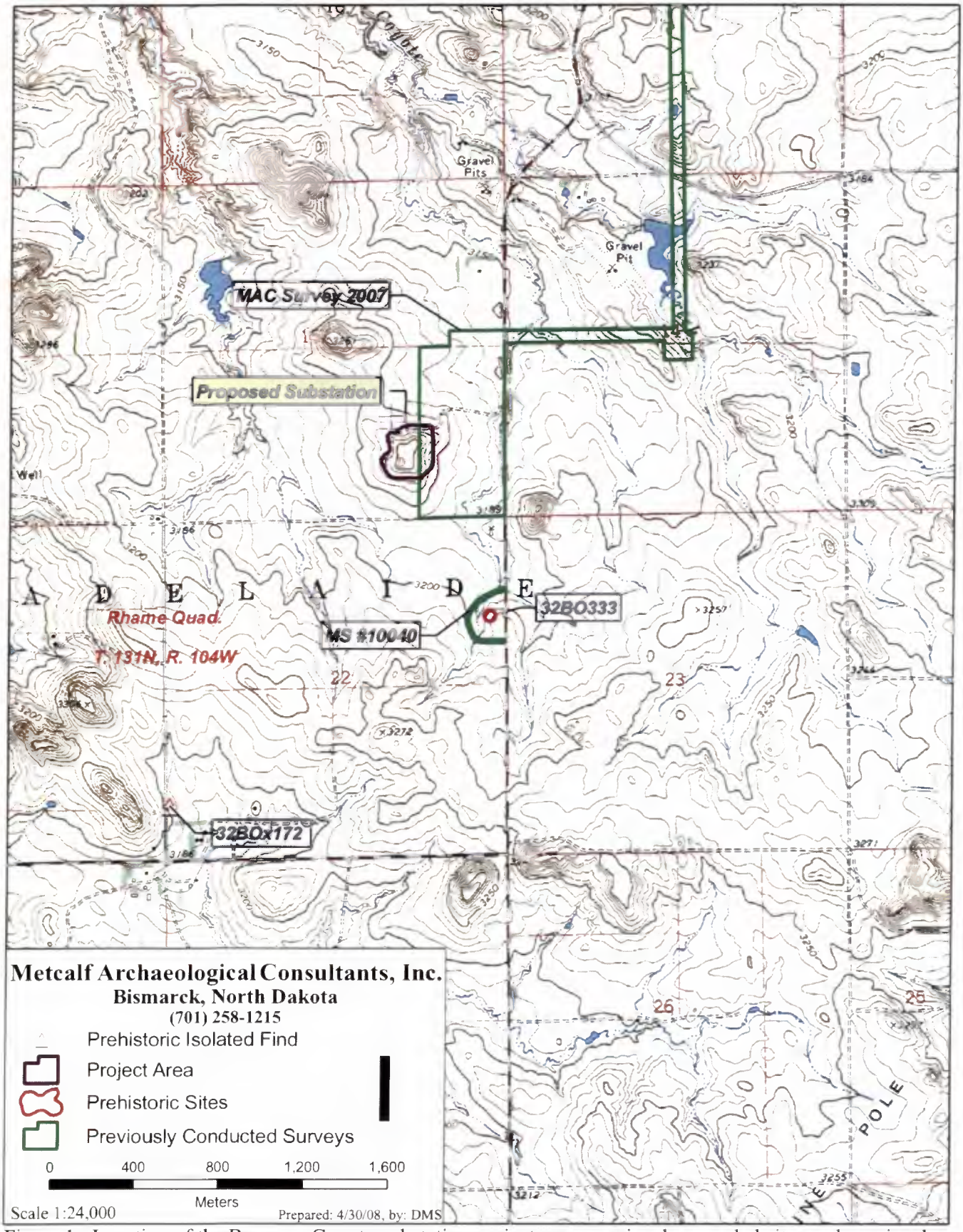

Figure 1: Location of the Bowman County substation project area, previously recorded sites and previously conducted surveys as depicted on the USGS 7.5' Rhame (1973) quadrangle map.

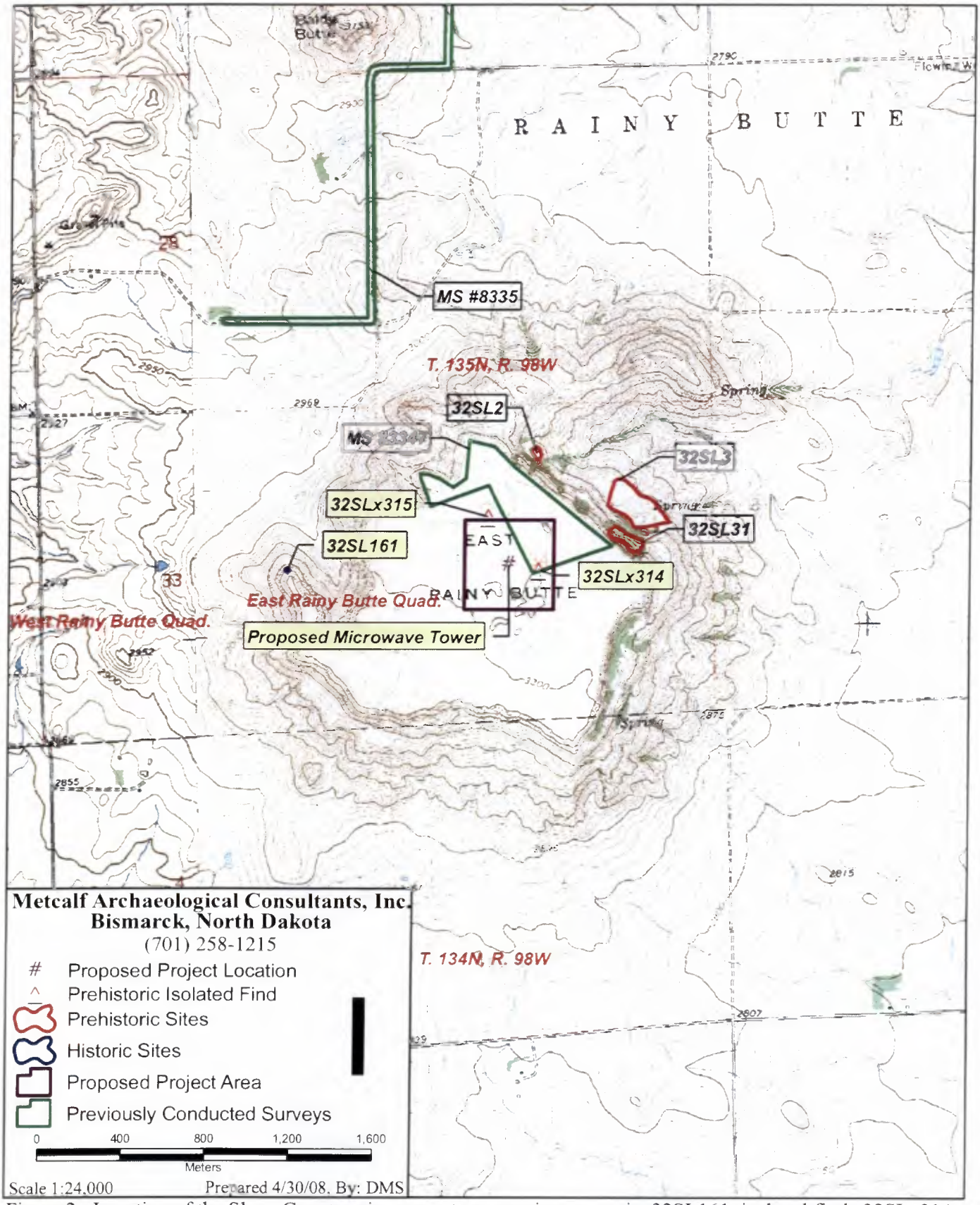

Figure 2: Location of the Slope County microwave tower project area, site 32SL161, isolated finds 32SLx314, 32SLx315, previously recorded sites, and previously conducted surveys as depicted on the USGS 7.5' East Rainy Butte (1973) quadrangle map.

Research Goals

Following the mandated policies implementing the National Historic Preservation Act (NHPA [Public Law 89-665]), as amended, this project was inventoried to locate any cultural resources within the area of potential effect. An additional goal of the survey was to allow the client to avoid any significant cultural resources, and if that were not possible to test, evaluate, and if necessary mitigate within the project area(s) prior to ground disturbance.

Files Search Results

On March 11, 2008, Brett Ewald of MAC conducted a search of the State Historical Society of North Dakota's site and manuscript files for both project areas. The search revealed one site and an isolated find within a mile of the substation project area (Bowman County) and only one previous survey within a half mile of the project. A recently completed inventory by MAC, related to this project, overlaps a portion of the survey block. That inventory has not yet had a manuscript number assigned but is plotted on the final project results map. At the microwave tower location (Slope County) there were three previously recorded sites within a half mile of the project block along with one inventory that overlaps the block. The entire block for both current projects was inventoried regardless of these overlaps. The following presents the results of the files search and the relevant or mappable portions of the files search also appears in Figures 1 and 2.

Files Search Results

T/R-Section	SITS #	Site Type & Description	Recorder, Date	MS #
Bowman County				
131/104-14	no sites/no surveys			
131/104-15	no sites-no surveys			
131/104-22	32BO333	archaeological lithic scatter	Heiner, 2007	6855, 8335, 8492, 10040
	32BOx172	archaeological chipped stone	Haakenson, 1996	
131/104-23	no sites no surveys			
Slope County				
134/98-2	no sites/no surveys			
134/98-3	no sites/no surveys			
135/98-4	no sites/no surveys			
135/98-26	no sites/no surveys			

Files Search Results				
T/R-Section	SITS #	Site Type & Description	Recorder, Date	MS #
135/98-27	no sites/no surveys			
135/98-28	32SL404	archaeological- quarry/mine, CMS, chipped stone	Purcell, 1979	5466 8335
135/98-33	no sites/ no surveys			
135/98-34	32SL2	archaeological- CMS, chipped stone, projectile point, FCR	Mallory, 1966 Volk, 1979	3347
135/98-34	32SL3	archaeological- stone circle, CMS, chipped stone, projectile point (Paleo?)	Ahler, 1979 Volk, 1980 LCT, 1989	
135/98-34	32SL31	archaeological- CMS, hearth, ceramics, copper, flora and faunal remains, FCR, proj. point, chipped stone	Loendorf, 1983	
135/98-35	no sites/no surveys			

Manuscript List	
MS #	Reference
3347	Phillips, B. 1983 Cultural Resources Surveys: Billing Microwave System in Golden Valley, Morton, Oliver, Mercer, Slope, Stark, & Billings County, North Dakota
5466	Loendorf, L. 1978 An Evaluation of 110 Archaeological and Historical Sites, McKenzie, Billings, Golden Valley, Bowman, and Slope Counties in the Little Missouri Grasslands of North Dakota
6855	Kulevsky, A. & E. Stine 1996 KLJ-Consolidated Telephone Cooperative Rhame Exchange: A Class II and III Cultural Resource Inventory in Bowman and Slope Counties, North Dakota
8335	Wermers, G. 2002 Southwest Pipeline Project- Class III Cultural Resource Investigations for the Twin Buttes Service Area and West Rainy Butte Booster Area Rural Water Distribution System (Contract 7-7B/7-3C) Bowman County, North Dakota
8492	Wermers, G. 2003 Class III Inventories for Pipeline Additions and Reroutes in the Twin Buttes Service Area (Contract 7-7B/7-3C) UW #2315
10040	Heiner, P. & J. Harty 2007 Three Fiber Optic Cable Routes: Class II and Class III Cultural Resource Inventories, Bowman and Dunn Counties, ND

Field Methods

The survey was accomplished by employing zig zag pedestrian transects spaced no more than 20 meters apart. Areas of enhanced surface visibility such as rodent backdirt piles were closely examined. Field notes were maintained, relevant points were shot in with a hand-held global positioning system and photos were taken of the project areas. All of the field notes, electronic photo images and maps are on file at the MAC Bismarck office.

If an artifact and/or feature was encountered during the survey, the location was marked with a pinflag and the surrounding area was intensively scoured to locate any other associated artifacts or features. Based on the number and type of artifacts/features pinflagged during the search, the grouping was determined to be either an isolated find or a site. After the resource was adequately defined, the appropriate site or isolated find forms and other documentation were completed. The additional documentation includes plotting the resource on a USGS, 7.5' topographic map using a Garmin GPS unit, photographing the resource, generating a sketch map using a Brunton compass and pacing for distance.

Results

On March 17-18, 2008, William J. Bluemle, Principal Investigator, and Bill Christensen conducted the inventory. During the inventory three cultural resources were located at the microwave tower location, 32SL161, a historic cairn, and 32SLx314 along with 32SLx315 two prehistoric isolated finds.

32SL161

While this site is out of the project area proper it was recorded because it is so clearly visible from the microwave tower project block (Figure 2). This cairn appears to be an historic marker similar to several other prominent markers visible at several other locations in western North Dakota. It is approximately 2.25 meters tall and 2.5 meters wide at the base tapering to 0.5 meter wide at the top and is clearly visible from miles away. A conversation with Mike Sondeland (personal communication 2008), the recently retired (after 20+ years) District Conservationist with the Natural Resource Conservation Service (NRCS) for Bowman and Slope counties, backed up some of the commonly held beliefs regarding the function of features such as this. In his opinion, cairns such as these served to mark/identify locations leading to water, trail routes and territorial boundaries. These cairns date back to the era of large scale sheep and cattle herding in the area. This would predate any patents granted on the property, which would have been given in the early 1900's. It is unclear if this cairn is actually one of these markers and as its actual function is speculative we recommend that it is not eligible for the National Register and at any rate is well out the project block.

32SLx314

This isolated find consists of a single lightly patinated Knife River flint (KRF) tertiary flake. It is located approximately 150 meters east of the proposed microwave tower location. There is little in the way of Holocene deposits in the area and no other cultural materials were observed in the area. This isolate is recommended as not eligible for the National Register.

32SLx315

This isolated find consists of a middle stage (of manufacture) KRF biface located near the north edge of the 40 acre project block. It is not diagnostic and is located in an area with little Holocene deposition. It is also recommended as not eligible for the National Register.

Evaluation of Research

The stated goal of the project was to locate and, if possible, to avoid any cultural resources within the project areas. No National Register eligible cultural resources were encountered within the project blocks so no avoidance measures are needed. Our goals were accomplished.

Summary and Management Recommendations

No National Register eligible cultural materials/sites are located within the project blocks and a finding of *No Historic Properties Affected* is recommended for the proposed undertaking(s) as surveyed, mapped and described herein.

References Cited

State Historical Society of North Dakota
1990 *The North Dakota Comprehensive Plan for Historic Preservation: Archeological Component.* Archeology and Historic Preservation Office, State Historical Society of North Dakota, Bismarck, North Dakota.

Appendix A:
Project Photographs

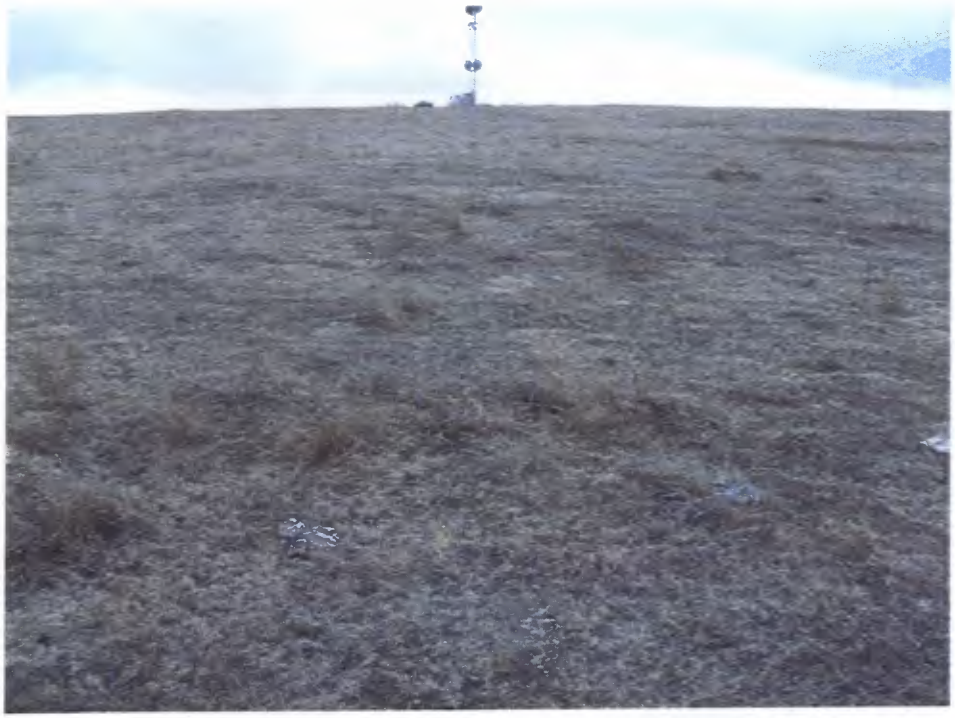

Figure 3: View to south over microwave tower project area (Image 4801).

Figure 4: View to north over substation project area (Image 4851).

Prepared for:
Basin Electric Power Cooperative – Rhame, North Dakota
Bowman, Slope, and Stark Counties, North Dakota

Wetland Delineation Survey for Proposed Belfield – Rhame Transmission Line

Rhame, North Dakota

ENSR Corporation
August 2008
Document No.: 10735-006

ENSR | AECOM

Prepared for:
Basin Electric Power Cooperative – Bismarck, North Dakota

Wetland Delineation Survey for Proposed Belfield – Rhame Transmission Line

Prepared By: Erin Bergquist, Plant Ecologist

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ENSR Corporation
August 2008
Document No.: 10735-006

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1.0 Introduction

This report summarizes the results of ENSR Corporation's (ENSR) wetland delineation surveys that were performed in July 2008 for the proposed Basin Electric Power Cooperative (BEPC) transmission line. The scope of work involved conducting wetland and waterbody assessments and delineations along the proposed route. Written and photographic documentation of all wetlands and water features identified during the survey are included in this report. Field survey methods and results also are presented and discussed in this report. Project maps are included as **Attachment A**, copies of field data sheets and photographs are included on compact disc as **Attachment B**.

1.1 Project and Site Description

The Basin Electric Power Cooperative Belfield-Rhame Project (the Project) is located within Stark, Slope, and Bowman counties, southwestern North Dakota. The proposed transmission line and the proposed Rhame Substation are needed to meet base load forecasts of BEPC customers in southwestern North Dakota. Approximately 55 megawatts of power would be transferred from the Western Area Power Administration (Western) grid at Belfield, North Dakota to a new substation that would be constructed near Rhame that would be owned and operated by BEPC. Belfield Substation is in Stark County, southeast of the City of Belfield. The proposed Rhame Substation would be located in Bowman County, south of the City of Rhame. The proposed transmission line would be constructed using steel H-frame structures within a 125-foot-wide right-of-way (ROW). Modifications to the existing Belfield Substation would be minor and would take place entirely within the existing substation fence. The proposed substation near Rhame would be a new facility.

The Project lies within the Missouri Slope Geological Region. This region's geology is comprised of sandstone and shale layers that were largely unaffected by glaciers covering the eastern half of North Dakota. The Missouri Slope Region contains irregular topography including the occasional butte and complex drainage systems that cut breaks through the topography (Hagen et al. 2005). The landscape includes level to rolling plains topography with isolated sandstone buttes or badland formations. Shrubsteppe communities are also scattered throughout. Habitats along the Project are dominated by cultivated cropland, mixed grass prairie grasslands, and rangelands, but also include forested areas, riparian/wetlands areas, badlands, and open water.

The climate within the project area is continental and characterized by large variances in seasonal and daily temperature. Precipitation ranges from low to moderate at 13 to 20 inches a year with June and January receiving the most precipitation. Stark and Slope counties are currently experiencing a severe drought, due to below average precipitation this year (High Plains Regional Climate Center [HPRCC] 2008).

2.0 Survey Methods

2.1 Field Survey

Wetlands delineation methodology, as described in the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (1987) and the Interim Regional Supplemental to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (2008) requires investigation of three wetland parameters: hydrophytic vegetation, hydric soils, and hydrological characteristics at selected sampling points within a study area. Positive indicators of each of the three parameters must be present for an area to be classified as a wetland. The USACE 1987 and USACE 2008 methodology was applied by ENSR at sample points in potential wetland areas to determine if wetlands were present. The coordinates of wetland boundary points were logged using a Trimble Geo/XT global positioning system (GPS) receiver and used to calculate the area of the wetland using Arcview 9.1 Geographic Information System (GIS) software. The survey corridor along the proposed alignments was 125 feet in width centered on the centerline of the proposed pipeline. Parcels were only surveyed if landowner permission for access was granted and safe access was apparent. When access was not available, wetlands and waterbodies were delineated based on aerial photography, topographic maps, and visual observation. The three-parameter approach assessed vegetation, soils, and hydrology for wetland conditions. Evaluation of these parameters is discussed below.

2.2 Wetlands

2.2.1 Vegetation

Dominant vegetation was identified to species (occasionally to genus) and then classified according to the U.S. Fish and Wildlife Service (USFWS) National List of Plant Species that Occur in Wetlands: North Plains Region 4 (USFWS 1988). The Indicator status identifies a range of probabilities that an individual species is estimated to be found in wetland or upland areas in a defined region (USACE 1987; 2008). Obligate (OBL) plants are those found within wetlands more than 99 percent of the time. Facultative wetland (FACW) plants are found in wetlands 67 to 99 percent of the time. Facultative (FAC) plants are found in wetlands 33 to 66 percent of the time. Facultative upland (FACU) plants are found in wetlands 1 to 33 percent of the time. Obligate upland (UPL) plants are found in wetlands less than 1 percent of the time. The indicator status is further defined by a + or –; meaning it is on the wetter or drier end of the probability range. The plant community is determined to be hydrophytic if more than 50 percent of the dominant species in a community are found to have wetland indicator status of OBL, FACW, or FAC (excluding FAC-). If the plant community fails to meet this requirement, but the site meets the other two criteria, hydric soils and wetland hydrology, the vegetation can be re-evaluated using the Prevalence Index which takes into account the non-dominant species, or by observing morphological adaptations for life in wetlands (USACE 2008).

2.2.2 Hydric Soils

Hydric soils are soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation. Hydric soil indicators relate to color, structure, organic content, and the presence of reducing conditions. Color characteristics (Hue, Value, and Chroma) were recorded using Munsell Soil Color Charts (Kollmorgen Corporation 1992). Typically, soil observations were focused on the area immediately below the 'A' horizon (topmost mineral horizon) or 10 inches, whichever is shallower. At each sampling point, hydrological wetland indicators for the Great Plains Region and subregion as defined by the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service Land Resource Region (NRCS LRR) were assessed (NRCS 2006). The Project lies within Northern Great Plains Land Resource Region (LRR F). Hydrological wetland indicators for LRR F include depleted soil matrix, stratified layers, and a thick dark surface.

Subsequently, soils were assessed as to type and whether they met the criteria for hydric (wetland) or non-hydric (non-wetland) per criteria outlined in the USACE Wetland Delineation Manual (USACE 1987) and Great Plains Region Supplemental (USACE 2008). Soils were examined in the field by hand excavating test

pits ranging from 6 to 12 inches in diameter and 12 to 20 inches deep in areas exhibiting different plant communities.

2.2.3 Hydrology

Field observations were made to determine if primary and secondary indicators of hydrology, as outlined in the USACE Wetland Delineation Manual (USACE 1987), and Great Plains Regional Supplement (USACE 2008) were present. Primary indicators for wetland hydrology include: inundation, soil saturation within 12 inches of the soil surface, water marks on vegetation, drift deposits, presence of salt crusts on the soil surface, and hydrogen sulfide odor. Secondary indicators for wetland hydrology include: oxidized rhizospheres (root channels) associated with living roots, drainage patterns associated with wetlands, sparsely vegetated concave surface, saturation visible on aerial imagery, and a positive FAC-Neutral test (comparative dominance of FACW and OBL vegetative species versus FACU and UPL vegetative species).

2.2.4 Documentation

As described in the USACE Wetland Delineation Manual (USACE 1987), areas where all three parameters met the wetland criteria were labeled as wetlands. Vegetation, soil, and hydrology data was collected at each sample point within the wetlands and immediately adjacent uplands and was entered onto the Great Plains Region Wetland Determination Data Form. Photographs were taken showing a representative view of each wetland visited.

Trimble GeoXT handheld GPS receivers were used to record wetland and waterbody locations identified by ENSR biologists. Trimble GeoXT receivers are equipped with EVEREST™ multipath rejection technology to provide submeter accuracy. Multipath rejection technology accomplishes a high level of accuracy by filtering satellite signals that are reflected by neighboring objects. The result is a clearer signal from satellites and a more accurate reading.

Identified features along the survey corridor were distinctly named in order to distinguish each feature. Features were labeled in the following manner: F-NN-CC-XXX, where:

F – Feature Type (W = Wetlands, S = Streams [including ponds, lakes, other waters of the U.S. (WUS)])

NN – Team Number (1A)

CC – County Abbreviation (BO = Bowman, SL = Slope, ST = Stark)

XXX – Feature Number (assigned based on feature type and county)

After collection, GPS data were added to a GIS that was created using ESRI ArcMap 9.3 software. Maps that were created in GIS illustrate the locations of the surveyed features within the environmental survey corridor (**Attachment A**). Representative photographs of wetland and waterbody features that were delineated by field teams are included in **Attachment B**.

2.2.5 Wetland Characterization

Wetlands were classified according to the Cowardin System, as described in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin 1979). This hierarchical system aids resource managers and others by providing uniformity of concepts and terms used to define wetlands to hydrologic, geomorphic, chemical, and biological factors.

2.3 Waterbodies

Waterbodies include linear water features (i.e., streams, rivers, and manmade ditches) as well as open water features (i.e., ponds, lakes). Linear waterbodies were classified by use as observed in the field and/or as determined from reviewing available data (e.g., maps) and include manmade ditches, streams, and rivers.

Open waterbody features were classified as ponds or lakes. During field surveys, applicable data were gathered for each waterbody feature including: bank height, bank slope, stream flow direction and type, water appearance, stream substrate, aquatic habitats, channel conditions, and disturbances, and were documented on Waterbody Data Sheets, which are provided in **Attachment B**. Waterbody Data Sheets were completed for surveyed stream crossings whether or not they supported adjunct wetland plant communities. For areas where both wetlands and other WUS were present, a Waterbody Data Sheet and a Great Plains Region Wetland Determination Data Form were completed for the survey site if the associated wetland was greater than 10 feet in width. Data points were collected along the upper banks or edges of the features within the survey corridor using GPS technologies, as described above in Section 2.2.4.

3.0 Results

The results of the wetland and waterbody field surveys for the Project are presented in the following sections. General descriptions of the soils, hydrology, and vegetation are discussed by feature type and summarized in applicable sections. Pertinent attachments include **Attachment A**, Figures of wetlands and waterbodies crossed and **Attachment B**, Field Data Sheets and Photographic Log.

3.1 Wetlands and Waterbodies

Along the Project route, 58 wetlands, and 72 waterbodies were identified within the ROW. **Table 1** lists all the wetland and waterbodies crossed by the Project. All the wetlands identified in the survey corridor were classified as palustrine emergent (PEM). **Table 2** lists the wetland areas identified within the survey corridor, along with location information, and the associated soil map units. The majority of waterbodies that were identified consist of intermittent/ephemeral washes with well to poorly defined bed and bank structures.

3.1.1 Vegetation

The dominant vegetation types that are found in wetland communities and upland fringes can be found in **Table 3**. Sources used to identify plants include: Chadde 2002; Stevens 1963; Reed 1988; USDA no date; USDA 2008; and USGS NPWR 2008.

3.1.2 Soils

Soil associations crossed by the project in North Dakota were determined using Soil Survey Geographic Database (SSURGO) data (2006-2007) and are listed in **Table 2**. Other sources used to determine the soil types include the Munsell Soil Color Charts (Kollmorgen Instrument Corporation 1992).

3.1.3 Hydrology

The terrain is the primary influencing factor of wetland hydrology. General topography along the survey area is level to rolling plains with isolated sandstone buttes or badland formations. Wetland development throughout the survey areas can be attributed to low lying areas, nearby waterbodies, and clay soils that exhibit poor drainage capabilities. The majority of the wetlands that were identified were associated with depressional areas in cropland and open fields, while others were associated with flood plains, swales, flats, outwash plains, and stream terraces.

Waterbodies that were identified during field surveys include ephemeral, intermittent, and perennial streams. The majority of the streams identified consist of intermittent/ephemeral washes with well to poorly defined bed and bank structures. The open water features consisted of man-made impoundments.

The development of emergent wetlands appears to be surface driven due to depressional areas that are located within low lying areas or areas that are associated with nearby waterbodies. They are supported by runoff from surrounding uplands and localized precipitation, specifically snowmelt. Typically, soils along the survey area are designated as silts and clays. These soils can be compacted, tilled, or disturbed depending on land use characteristics (agricultural or pastureland, predominately). Compacted and disturbed soils contribute to localized development of hydric conditions.

The hydrological indicators that are associated with identified wetlands varied due to wetland location and wetland development. Primary hydrological indicators observed along the route included: saturated soils, salt crusts, and water marks. Secondary wetland indicators that were observed included: sparsely vegetated concave surface, drainage patterns, and positive FAC-Neutral tests. Also, other indicators such as saturation being visible on aerial imagery, hummocks, and oxidized rhizospheres were observed and factored into the delineations.

Project location maps provided in **Attachment A** show wetlands and waterbodies identified within the Project corridor. Wetlands identified and classified during the field surveys were not always illustrated on the National Wetland Inventory (NWI) maps. In addition, some areas illustrated on the NWI maps as wetland did not meet the criteria to be designated as wetland. Detailed information on each feature surveyed in the field is provided on the USACE Wetland Data Sheets that can be found in **Attachment B**.

Table 1 Wetland and Waterbody Crossings Identified Along the Project Alignment

Feature_ID	Name	Type	WGS84 Latitude	WGS84 Longitude	Acres
W1ABO001	Unnamed	PEM	46.1697	-103.6598	0.3
S1ABO002	Unnamed	Ephemeral	46.1703	-103.6495	0.0
W1ABO002	Unnamed	PEM	46.1698	-103.6569	0.6
S1ABO001	Unnamed	Open Water	46.1743	-103.6496	0.4
W1ABO003	Unnamed	PEM	46.1916	-103.6031	0.2
W1ABO004	Unnamed	PEM	46.1915	-103.5786	0.2
W1ABO005	Unnamed	PEM	46.1915	-103.5765	0.6
W1ABO006	Unnamed	PEM	46.1915	-103.5407	2.0
S1ABO003	Unnamed	Ephemeral	46.1913	-103.5461	0.1
S1ABO005	Unnamed	Intermittent	46.1986	-103.5325	0.2
W1ABO008	Unnamed	PEM	46.1986	-103.5295	0.5
S1ABO004C	Unnamed	Intermittent	46.1987	-103.5253	0.1
S1ABO004A	Unnamed	Intermittent	46.1988	-103.5203	0.0
S1ABO004B	Unnamed	Intermittent	46.1988	-103.5209	0.0
S1ABO004	Unnamed	Intermittent	46.1986	-103.5196	0.1
W1ABO007	Unnamed	PEM	46.1984	-103.5014	0.0
W1ABO009	Unnamed	PEM	46.2125	-103.4936	0.3
W1ABO010	Unnamed	PEM	46.2271	-103.4357	3.3
W1ABO011	Unnamed	PEM	46.2350	-103.3858	0.4
S1ABO007	Unnamed	Open Water	46.2400	-103.3546	0.3
S1ABO008	Unnamed	Ephemeral	46.2455	-103.3476	0.0
S1ASL017	Tributary of the Cannon Ball River tributary	Perennial	46.5706	-103.0410	0.0
S1ASL017	Tributary of the Cannon Ball River tributary	Perennial	46.5719	-103.0410	0.4
S1AST014	Unnamed	Intermittent	46.7884	-103.0627	0.0
W1AST002	Unnamed	PEM	46.7889	-103.0628	0.1
W1AST003	Unnamed	PEM	46.7895	-103.0632	0.3
W1AST004	Unnamed	PEM	46.8188	-103.0733	0.2
S1AST016	Tributary of the Heart River	Perennial	46.8212	-103.0734	0.4
S1AST017	Unnamed	Ephemeral	46.8279	-103.0734	0.2
S1AST015	Unnamed	Open Water	46.7886	-103.0629	0.1
S1ABO009	Unnamed	Ephemeral	46.2495	-103.3375	0.6
S1ABO010	Unnamed	Ephemeral	46.2496	-103.3198	0.1
S1ABO009	Unnamed	Ephemeral	46.2494	-103.3320	0.0
S1ABO011	Unnamed	Ephemeral	46.2499	-103.3112	0.0
S1ABO012	Unnamed	Ephemeral	46.2496	-103.3090	0.0
S1ABO013	Unnamed	Ephemeral	46.2502	-103.3057	0.1

Table 1 Wetland and Waterbody Crossings Identified Along the Project Alignment

Feature_ID	Name	Type	WGS84 Latitude	WGS84 Longitude	Acres
W1ABO014	Unnamed	PEM	46.2532	-103.2868	2.4
W1ABO014	Unnamed	PEM	46.2516	-103.2949	2.7
S1ASL001	Unnamed	Intermittent	46.2812	-103.2429	0.1
W1ASL001	Unnamed	PEM	46.2815	-103.2424	0.5
W1ASL001	Unnamed	PEM	46.2803	-103.2435	0.0
W1ASL001	Unnamed	PEM	46.2813	-103.2426	0.1
W1ASL001	Unnamed	PEM	46.2820	-103.2421	0.1
W1ASL003	Unnamed	PEM	46.3285	-103.2310	0.5
S1ASL005	Unnamed	Ephemeral	46.3568	-103.2176	0.0
S1ASL006	Unnamed	Ephemeral	46.3733	-103.1965	0.0
W1ASL004	Unnamed	PEM	46.3766	-103.1966	0.1
S1ASL007	Unnamed	Ephemeral	46.3773	-103.1965	0.0
S1ASL002	Unnamed	Ephemeral	46.2868	-103.2386	0.0
W1ASL002	Unnamed	PEM	46.2869	-103.2387	0.2
W1ASL002	Unnamed	PEM	46.2867	-103.2387	0.1
S1ASL021	Philbrick Creek	Perennial	46.5947	-103.0412	0.2
S1ASL022	Philbrick Creek	Perennial	46.5955	-103.0412	0.2
S1ASL023	Philbrick Creek	Perennial	46.5966	-103.0411	0.2
S1AST002a	Unnamed	Intermittent	46.6447	-103.0662	0.0
S1AST001	Unnamed	Intermittent	46.6446	-103.0593	0.0
W1AST001	Unnamed	PEM	46.6446	-103.0583	0.5
S1AST002	Unnamed	Intermittent	46.6445	-103.0647	0.1
S1AST002a	Unnamed	Intermittent	46.6470	-103.0735	0.0
S1AST001	Unnamed	Intermittent	46.6416	-103.0529	0.1
S1AST001	Unnamed	Intermittent	46.6427	-103.0544	0.1
W1ABO013	Unnamed	PEM	46.2464	-103.3474	0.2
S1ABO0014	Unnamed	Ephemeral	46.2546	-103.2835	0.0
S1AST001	Unnamed	Intermittent	46.6413	-103.0516	0.0
S1AST001	Unnamed	Intermittent	46.6380	-103.0465	0.0
S1AST001	Unnamed	Intermittent	46.6388	-103.0475	0.0
S1AST001	Unnamed	Intermittent	46.6396	-103.0487	0.1
S1AST001	Unnamed	Intermittent	46.6348	-103.0432	0.0
S1AST001	Unnamed	Intermittent	46.6362	-103.0441	0.0
S1AST001	Unnamed	Intermittent	46.6369	-103.0444	0.0
S1AST001	Unnamed	Intermittent	46.6377	-103.0457	0.0
S1AST001	Unnamed	Intermittent	46.6337	-103.0422	0.0
S1AST001	Unnamed	Intermittent	46.6341	-103.0428	0.0
S1AST001	Unnamed	Intermittent	46.6359	-103.0437	0.0
S1AST013	Unnamed	Ephemeral	46.7062	-103.0678	0.0
S1AST012	Unnamed	Ephemeral	46.7434	-103.0730	0.0
S1AST006	Unnamed	Intermittent	46.7681	-103.0742	0.0
S1AST007	Unnamed	Intermittent	46.7668	-103.0743	0.0
S1AST008	Unnamed	Intermittent	46.7663	-103.0742	0.1
S1AST009	Unnamed	Intermittent	46.7650	-103.0740	0.0
S1AST010	Unnamed	Intermittent	46.7633	-103.0738	0.0
S1AST011	Unnamed	Intermittent	46.7629	-103.0737	0.0

Table 1 Wetland and Waterbody Crossings Identified Along the Project Alignment

Feature_ID	Name	Type	WGS84 Latitude	WGS84 Longitude	Acres
S1AST004	Unnamed	Intermittent	46.7733	-103.0688	0.0
S1AST004	Unnamed	Intermittent	46.7729	-103.0693	0.0
S1AST005	Unnamed	Intermittent	46.7728	-103.0699	0.0
S1ASL008	Unnamed	Ephemeral	46.4092	-103.1817	0.0
W1ASL005	Unnamed	PEM	46.4242	-103.1756	0.4
S1ASL010	Unnamed	Ephemeral	46.4394	-103.1494	0.0
W1ASL006	Unnamed	PEM	46.4394	-103.1325	1.6
S1ASL011	Unnamed	Ephemeral	46.4957	-103.0933	0.0
S1ASL012	Unnamed	Ephemeral	46.5046	-103.0934	0.0
S1ASL012a	Unnamed	Ephemeral	46.5051	-103.0936	0.0
S1ASL012b	Unnamed	Ephemeral	46.5064	-103.0936	0.0
W1ASL007	Unnamed	PEM	46.5103	-103.0934	0.4
S1ASL013	Unnamed	Intermittent	46.5144	-103.0864	0.0
W1ASL008	Unnamed	PEM	46.4809	-103.0934	0.1
S1ASL015	Unnamed	Ephemeral	46.5179	-103.0754	0.0
S1ASL014	Unnamed	Ephemeral	46.5183	-103.0747	0.0
S1ASL016	Unnamed	Ephemeral	46.5191	-103.0372	0.0
S1ASL020	Cannon Ball River	Perennial	46.5673	-103.0316	0.3
S1ASL019	Cannon Ball River	Perennial	46.5680	-103.0345	0.2
W1ASL009	Unnamed	PEM	46.5689	-103.0379	0.1
S1ASL018	Cannon Ball River	Perennial	46.5698	-103.0412	0.2

Table 2 Locations and Soil Types for Wetlands Identified Along the Project

Feature_ID	WGS84 Latittude	WGS84 Longitude	Section	Township	Range	Soil Map Unit Name, Percent Slopes	Acres	Drainage Class	Hydric Rating
W1ABO001	46.1697	-103.6598	14	T 131 N	R 104 W	Savage silty clay loam, 0 to 2 percent slopes	0	Well drained	Partially hydric
W1ABO001	46.1697	-103.6598	14	T 131 N	R 104 W	Alluvial land, strongly saline	0.3	Poorly drained	Partially hydric
W1ABO001	46.1697	-103.6598	14	T 131 N	R 104 W	Amor loam, 6 to 9 percent slopes	0	Well drained	Not hydric
W1ABO002	46.1698	-103.6569	14	T 131 N	R 104 W	Korchea-Straw complex, 0 to 2 percent slopes	0.6	Well drained	Partially hydric
W1ABO003	46.1916	-103.6031	6	T 131 N	R 103 W	Arnegard loam, 0 to 2 percent slopes	0.2	Well drained	Not hydric
W1ABO004	46.1915	-103.5786	5	T 131 N	R 103 W	Korchea and Straw soils, channeled, 0 to 2 percent slopes	0.2		Partially hydric
W1ABO005	46.1915	-103.5765	4	T 131 N	R 103 W	Korchea and Straw soils, channeled, 0 to 2 percent slopes	0.6		Partially hydric
W1ABO006	46.1915	-103.5407	3	T 131 N	R 103 W	Korchea and Straw soils, channeled, 0 to 2 percent slopes	1.5		Partially hydric
W1ABO006	46.1915	-103.5407	3	T 131 N	R 103 W	Stady loam, 0 to 2 percent slopes	0.4	Well drained	Not hydric
W1ABO006	46.1915	-103.5407	3	T 131 N	R 103 W	Rhoades-Absher complex, 0 to 2 percent slopes	0.1	Moderately well drained	Partially hydric
W1ABO007	46.1984	-103.5014	1	T 131 N	R 103 W	Blown-Out land-Ladner-Ekalaka complex, 0 to 6 percent slopes	0	Well drained	Not hydric
W1ABO008	46.1986	-103.5295	2	T 131 N	R 103 W	Rhoades-Absher complex, 0 to 2 percent slopes	0.5	Moderately well drained	Partially hydric
W1ABO009	46.2125	-103.4936	31	T 132 N	R 102 W	Cabba-Wayden-Shale outcrop complex, 6 to 70 percent slopes	0.1	Well drained	Not hydric
W1ABO009	46.2125	-103.4936	31	T 132 N	R 102 W	Rhoades-Absher complex, 0 to 2 percent slopes	0.2	Moderately well drained	Partially hydric
W1ABO010	46.2271	-103.4357	28	T 132 N	R 102 W	McKenzie and Heil silty clays, 0 to 1 percent slopes	3.3	Poorly drained	Partially hydric
W1ABO011	46.235	-103.3858	24	T 132 N	R 102 W	Belfield silty clay loam, 0 to 2 percent slopes	0	Moderately well drained	Not hydric
W1ABO011	46.235	-103.3858	24	T 132 N	R 102 W	Lawther-Rhoades silty clays, 0 to 2 percent slopes	0	Well drained	Partially hydric
W1ABO011	46.235	-103.3858	24	T 132 N	R 102 W	McKenzie and Heil silty clays, 0 to 1 percent slopes	0.4	Poorly drained	Partially hydric
W1ABO013	46.2464	-103.3474	20	T 132 N	R 101 W	Cabba complex, 6 to 9 percent slopes	0	Well drained	Not hydric

Table 2 Locations and Soil Types for Wetlands Identified Along the Project

Feature_ID	WGS84 Latittude	WGS84 Longitude	Section	Township	Range	Soil Map Unit Name, Percent Slopes	Acres	Drainage Class	Hydric Rating
W1ABO013	46.2464	-103.3474	20	T 132 N	R 101 W	Rhoades-Absher complex, 2 to 6 percent slopes	0.1	Well drained	Not hydric
W1ABO013	46.2464	-103.3474	20	T 132 N	R 101 W	Regent-Moreau-Dogtooth complex, 3 to 9 percent slopes	0.1	Well drained	Not hydric
W1ABO014	46.2532	-103.2868	14/15	T 132 N	R 101 W	Reeder-Dogtooth complex, 3 to 6 percent slopes	0	Well drained	Not hydric
W1ABO014	46.2532	-103.2868	14/15	T 132 N	R 101 W	Alluvial land, strongly saline	0.5	Poorly drained	Partially hydric
W1ABO014	46.2532	-103.2868	14/15	T 132 N	R 101 W	Cabba complex, 9 to 35 percent slopes	0.3	Well drained	Partially hydric
W1ABO014	46.2532	-103.2868	14/15	T 132 N	R 101 W	Cabba complex, 9 to 35 percent slopes	0.3	Well drained	Partially hydric
W1ABO014	46.2532	-103.2868	14/15	T 132 N	R 101 W	Alluvial land, wet	1.3	Very poorly drained	All hydric
W1ABO014	46.2516	-103.2949	15	T 132 N	R 101 W	Cabba complex, 9 to 35 percent slopes	0	Well drained	Partially hydric
W1ABO014	46.2516	-103.2949	15	T 132 N	R 101 W	Cabba complex, 9 to 35 percent slopes	0	Well drained	Partially hydric
W1ABO014	46.2516	-103.2949	15	T 132 N	R 101 W	Alluvial land, wet	2.5	Very poorly drained	All hydric
W1ABO014	46.2516	-103.2949	15	T 132 N	R 101 W	Cabba complex, 9 to 35 percent slopes	0.2	Well drained	Partially hydric
W1ASL001	46.2815	-103.2424	33	T 133 N	R 100 W	Korchea and Havre soils, channeled, 0 to 2 percent slopes	0.5	Well drained	Partially hydric
W1ASL001	46.2815	-103.2424	33	T 133 N	R 100 W	Shambo loam, 2 to 6 percent slopes	0	Well drained	Not hydric
W1ASL001	46.2803	-103.2435	33	T 133 N	R 100 W	Korchea and Havre soils, channeled, 0 to 2 percent slopes	0	Well drained	Partially hydric
W1ASL001	46.2803	-103.2435	33	T 133 N	R 100 W	Cabba-Badland complex, 9 to 70 percent slopes	0	Well drained	Not hydric
W1ASL001	46.2813	-103.2426	33	T 133 N	R 100 W	Korchea and Havre soils, channeled, 0 to 2 percent slopes	0.1	Well drained	Partially hydric
W1ASL001	46.282	-103.2421	33	T 133 N	R 100 W	Rhoades complex, 0 to 6 percent slopes	0	Moderately well drained	Not hydric
W1ASL001	46.282	-103.2421	33	T 133 N	R 100 W	Korchea and Havre soils, channeled, 0 to 2 percent slopes	0	Well drained	Partially hydric
W1ASL001	46.282	-103.2421	33	T 133 N	R 100 W	Shambo loam, 2 to 6 percent slopes	0.1	Well drained	Not hydric
W1ASL002	46.2869	-103.2387	33	T 133 N	R 100 W	Lallie silty clay loam, 0 to 2 percent slopes	0.2	Poorly drained	All hydric
W1ASL002	46.2867	-103.2387	33	T 133 N	R 100 W	Lallie silty clay loam, 0 to 2 percent slopes	0.1	Poorly drained	All hydric

Table 2 Locations and Soil Types for Wetlands Identified Along the Project

Feature ID	WGS84 Latittude	WGS84 Longitude	Section	Township	Range	Soil Map Unit Name, Percent Slopes	Acres	Drainage Class	Hydric Rating
W1ASL003	46.3285	-103.231	15	T 133 N	R 100 W	Vebar-Tally fine sandy loams, 6 to 9 percent slopes	0	Well drained	Not hydric
W1ASL003	46.3285	-103.231	15	T 133 N	R 100 W	Harriet complex, 0 to 2 percent slopes	0.5	Poorly drained	Partially hydric
W1ASL004	46.3766	-103.1966	35	T 134 N	R 100 W	Cabba-Chama complex, 9 to 15 percent slopes	0.1	Well drained	Not hydric
W1ASL005	46.4242	-103.1756	13	T 134 N	R 100 W	Regent-Dogtooth silty clay loams, 3 to 9 percent slopes	0.4	Well drained	Not hydric
W1ASL006	46.4394	-103.1325	4	T 134 N	R 99 W	Grail silt loam, 0 to 2 percent slopes	1.6	Moderately well drained	Not hydric
W1ASL007	46.5103	-103.0934	14/15	T 135 N	R 99 W	Rhoades-Belfield complex, 0 to 2 percent slopes	0.3	Moderately well drained	Partially hydric
W1ASL007	46.5103	-103.0934	14/15	T 135 N	R 99 W	Morton-Dogtooth silt loams, 3 to 6 percent slopes	0.1	Well drained	Not hydric
W1ASL007	46.5103	-103.0934	14/15	T 135 N	R 99 W	Endoaquolls, silty clay loam, saline, 0 to 6 percent slopes	0	Poorly drained	Partially hydric
W1ASL008	46.4809	-103.0934	26	T 135 N	R 99 W	Regent-Dogtooth silty clay loams, 3 to 9 percent slopes	0	Well drained	Not hydric
W1ASL008	46.4809	-103.0934	26	T 135 N	R 99 W	Daglum-Rhoades silty clay loams, 0 to 6 percent slopes	0.1	Moderately well drained	Not hydric
W1ASL008	46.4809	-103.0934	26	T 135 N	R 99 W	Morton silt loam, 3 to 6 percent slopes	0	Well drained	Not hydric
W1ASL009	46.5689	-103.0379	30	T 136 N	R 98 W	Belfield silt loam, 0 to 2 percent slopes	0.1	Moderately well drained	Not hydric
W1AST001	46.6446	-103.0583	28	T 137 N	R 98 W	Straw-Daglum complex, channeled, 0 to 2 percent slopes	0.5	Moderately well drained	Partially hydric
W1AST001	46.6446	-103.0583	28	T 137 N	R 98 W	Lawther-Daglum complex, 2 to 6 percent slopes	0	Well drained	Not hydric
W1AST002	46.7889	-103.0628	8	T 138 N	R 98 W	Harriet silt loam, 0 to 2 percent slopes	0	Poorly drained	Partially hydric
W1AST002	46.7889	-103.0628	8	T 138 N	R 98 W	Rhoades-Daglum complex, 2 to 6 percent slopes	0.1	Moderately well drained	Not hydric
W1AST003	46.7895	-103.0632	5	T 138 N	R 98 W	Harriet silt loam, 0 to 2 percent slopes	0.3	Poorly drained	Partially hydric
W1AST004	46.8188	-103.0733	29	T 139 N	R 98 W	Mckeen loam, 0 to 1 percent slopes	0.2	Very poorly drained	Partially hydric

Table 3 Dominant Wetland Plant Species Identified Along the Project

Scientific Name[1]	Synonyms	Common Name	Stratum	Indicator
Schoenoplectus fluviatilis	*Scirpus fluviatilis*	River Bulrush	Herb	OBL
Equisetum laevigatum		Smooth Horsetail	Herb	FAC
Alopecurus aequalis		Shortawn Foxtail	Herb	OBL
Juncus arcticus	*Juncus balticus*	Mountain Rush	Herb	OBL[2]
Spartina pectinata		Prairie Cordgrass	Herb	FACW
Carex laeviconica		Smoothcone Sedge	Herb	OBL
Schoenoplectus tabernaemontani	*Scirpus validus*	Softstem bulrush	Herb	OBL
Hordeum jubatum		Foxtail barley	Herb	FACW
Eleocharis quinqueflora	*Eleocharis pauciflora*	Fewflower spikerush	Herb	OBL[2]
Typha angustifolia		Narrowleaf cattail	Herb	OBL
Calamagrostis canadensis		Blue joint	Herb	FACW+

[1]Scientific names based on USDA Plants Database (USDA 2008).

[2]Indicator status is associated with species synonym name.

4.0 Summary and Conclusions

As a result of the wetlands delineation surveys performed July, 2008, 58 wetlands and 72 water features were determined to be located along the Project route. All the wetlands identified were determined to be emergent wetlands. Maps showing the location of the wetlands and waterbodies can be found in **Attachment A**. Wetland determination was based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology in accordance with the USACE 3-parameter methodology. BEPC plans to minimize impacts to wetlands and riparian areas by limiting construction and operation activities and the placement of permanent structures in wetland and riparian areas.

Approximately 55 megawatts of power would be transferred from the Western grid at Belfield, North Dakota to a new substation that would be constructed near Rhame that would be owned and operated by BEPC. Construction of the transmission line and substation would likely begin in late-2008 or early-2009 and extend throughout the North Dakota construction season, usually beginning in March or April and ending in November or December of each year. BEPC has prepared this wetland delineation report to provide supporting documentation for the North Dakota Public Service Commission regarding wetland and streams identified within the Project survey corridor.

Routing of the proposed transmission line would avoid or span all wetlands. Impacts to wetlands would be avoided by placing transmission line structures outside wetlands. Conductor stringing would be carried out in a manner that also would avoid wetlands.

5.0 References

5.1 Persons Performing the Environmental Investigation

Erin Bergquist, ENSR, Plant Ecologist and Lindsey Hart, ENSR, Wetlands Ecologist, conducted wetland delineations July, 2008.

5.2 Reference Documents

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Attachment A

Figures

Belfield to Rhame Transmission Project

BASIN ELECTRIC POWER COOPERATIVE

Western Area Power Administration

Wetlands and Waterbodies

Map 01 of 26


W1ABO004
Billings
Stark
Slope
Bowman
Legend
Proposed Transmission Line
125 Foot Survey Corridor
PEM Wetland
Ephemeral Stream
Intermittent Stream
Perennial Stream
Open Water
N
Belfield to Rhame Transmission Project
BASIN ELECTRIC POWER COOPERATIVE
Western
Wetlands and Waterbodies
Map 02 of 26

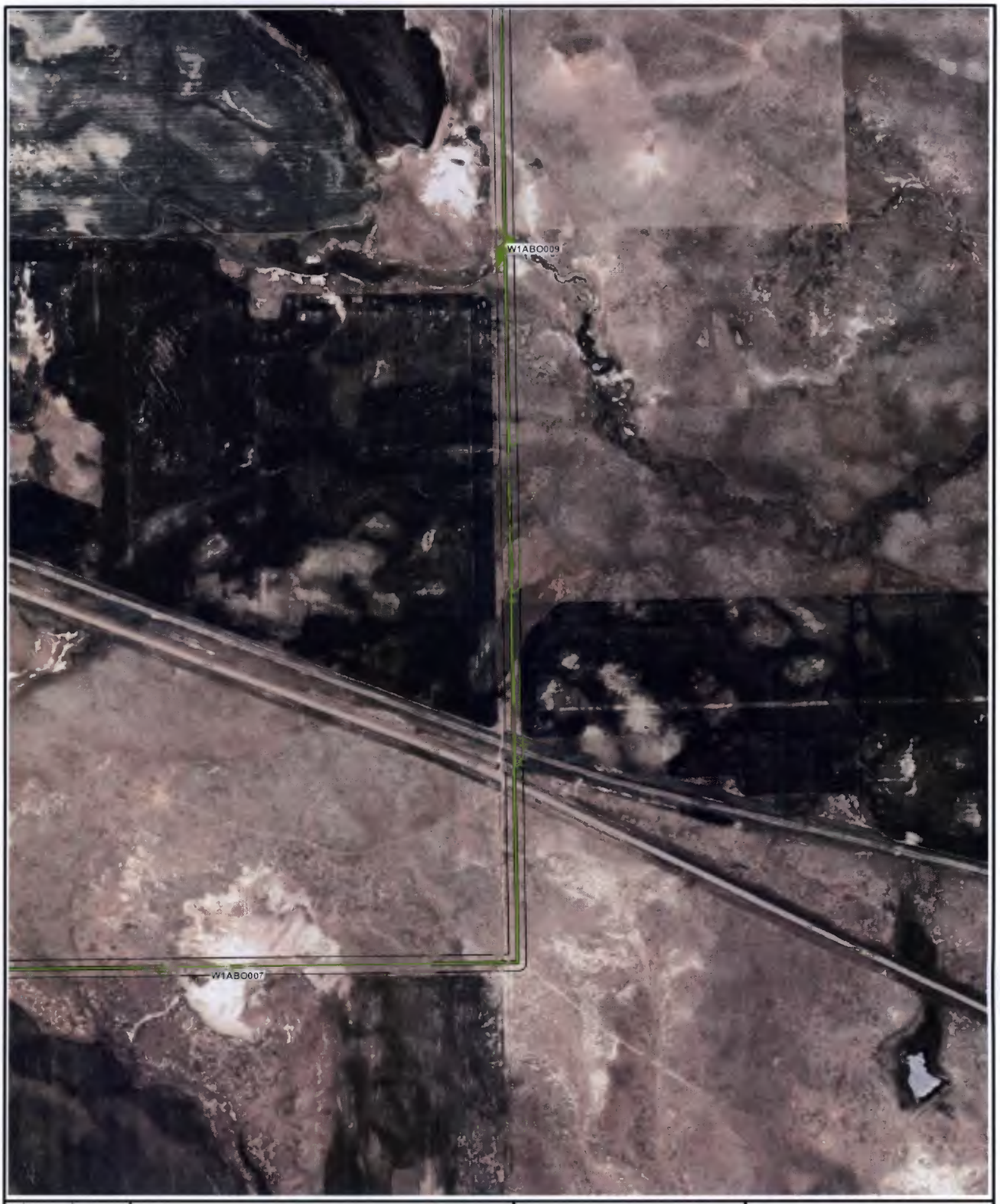
Belfield to Rhame Transmission Project

BASIN ELECTRIC POWER COOPERATIVE

Western

Wetlands and Waterbodies

Map 03 of 26



Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

N

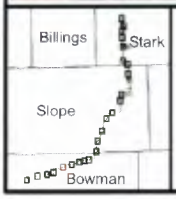
Belfield to Rhame Transmission Project

BASIN ELECTRIC POWER COOPERATIVE

Western Area Power Administration

Wetlands and Waterbodies

Map 04 of 26



Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

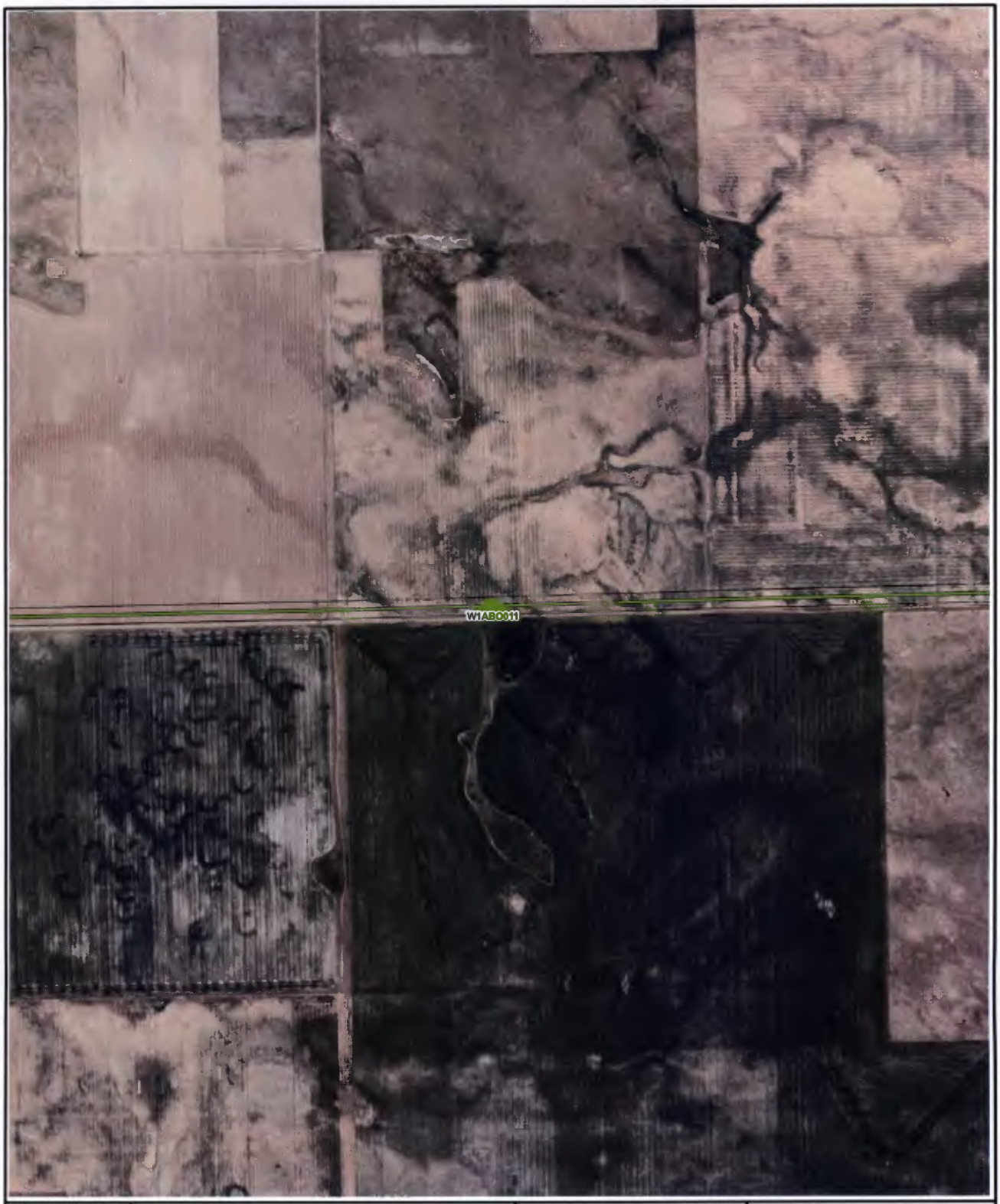
Belfield to Rhame Transmission Project

BASIN ELECTRIC POWER COOPERATIVE

Western Area Power Administration

Wetlands and Waterbodies

Map 05 of 26



Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

Belfield to Rhame Transmission Project

BASIN ELECTRIC POWER COOPERATIVE

Western Area Power Administration

Wetlands and Waterbodies

Map 06 of 26

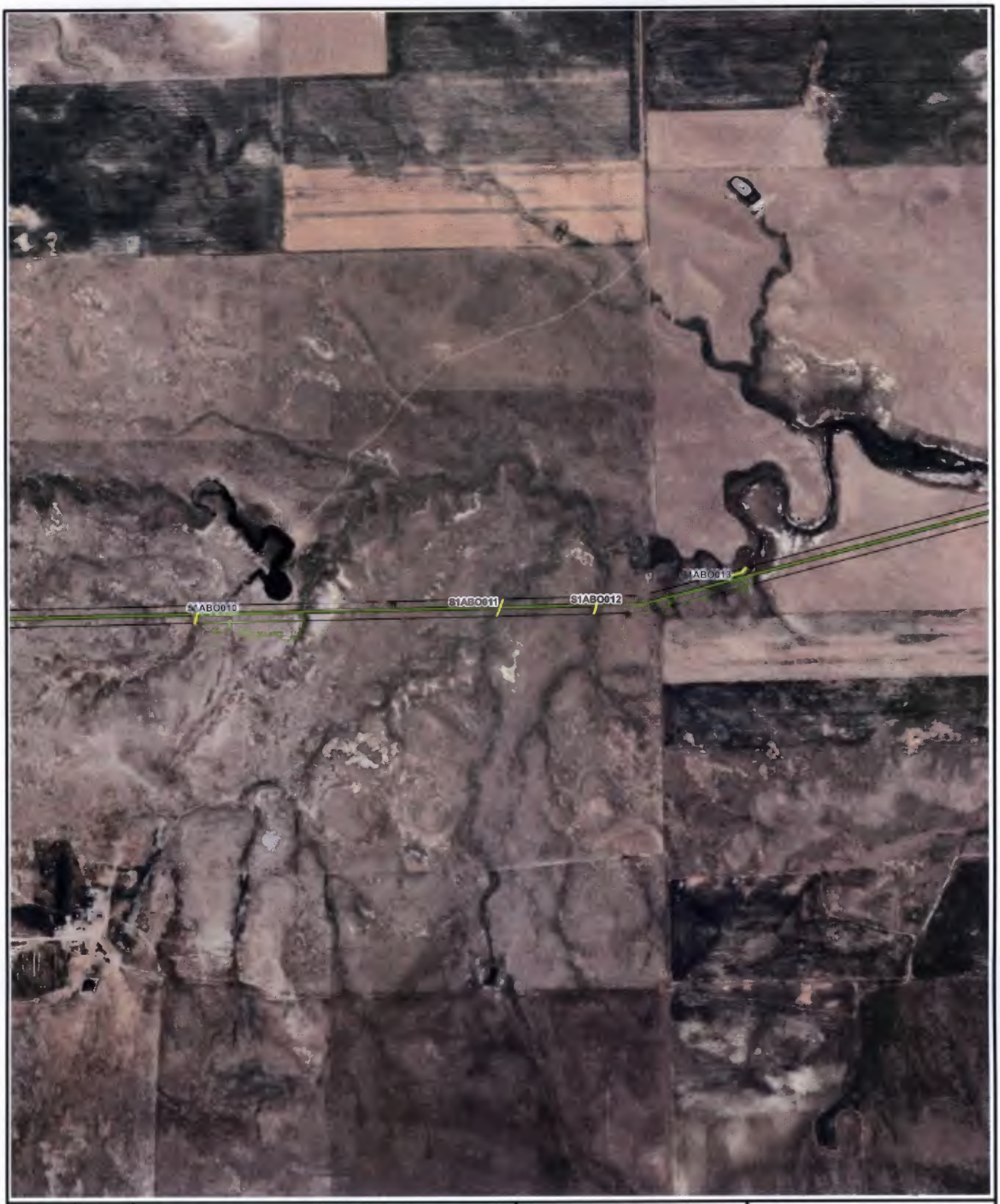
Belfield to Rhame Transmission Project

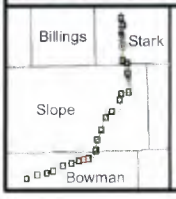
BASIN ELECTRIC POWER COOPERATIVE

Western Area Power Administration

Wetlands and Waterbodies

Map 07 of 26





Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

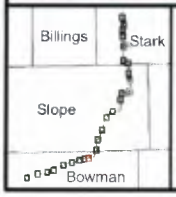
Belfield to Rhame Transmission Project

BASIN ELECTRIC POWER COOPERATIVE

Wescorp

Wetlands and Waterbodies

Map 08 of 26



Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

Belfield to Rhame Transmission Project

BASIN ELECTRIC POWER COOPERATIVE

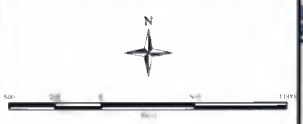
Western Area Power Administration

Wetlands and Waterbodies

Map 09 of 26

Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water



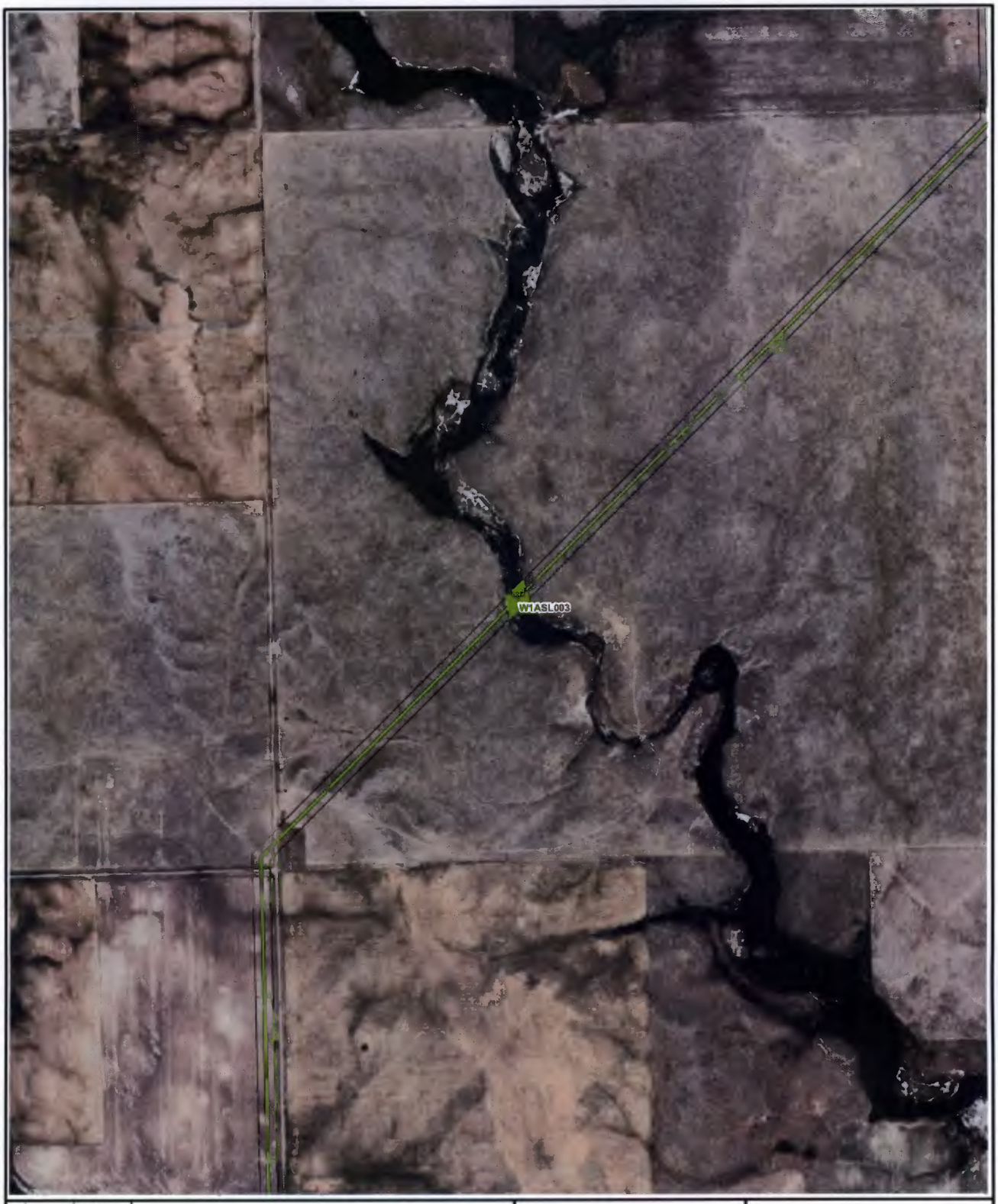
Belfield to Rhame Transmission Project

BASIN ELECTRIC POWER COOPERATIVE

Western Area Power Administration

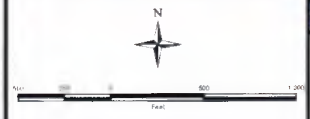
Wetlands and Waterbodies

Map 10 of 26



Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water



Belfield to Rhame Transmission Project

Basin Electric Power Cooperative

Western Area Power Administration

Wetlands and Waterbodies

Map 11 of 26

Billings
Stark
Slope
Bowman

Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

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Feet

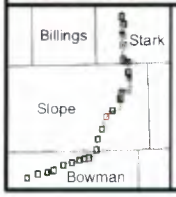
Belfield to Rhame Transmission Project

BASIN ELECTRIC POWER COOPERATIVE

Western Area Power Administration

Wetlands and Waterbodies

Map 12 of 26



Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

N

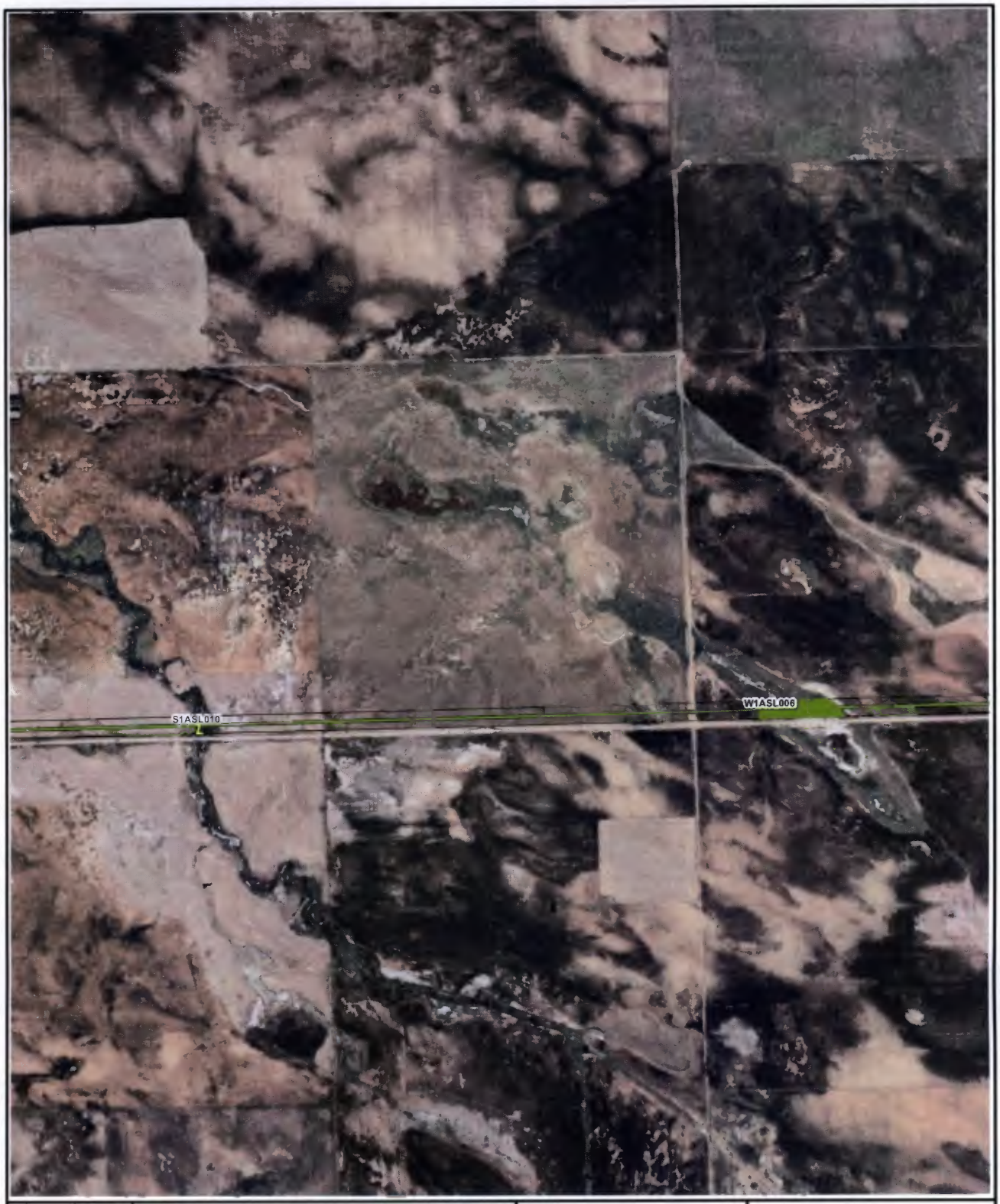
Belfield to Rhame Transmission Project

BASIN ELECTRIC POWER COOPERATIVE

Western Area Power Administration

Wetlands and Waterbodies

Map 13 of 26



Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

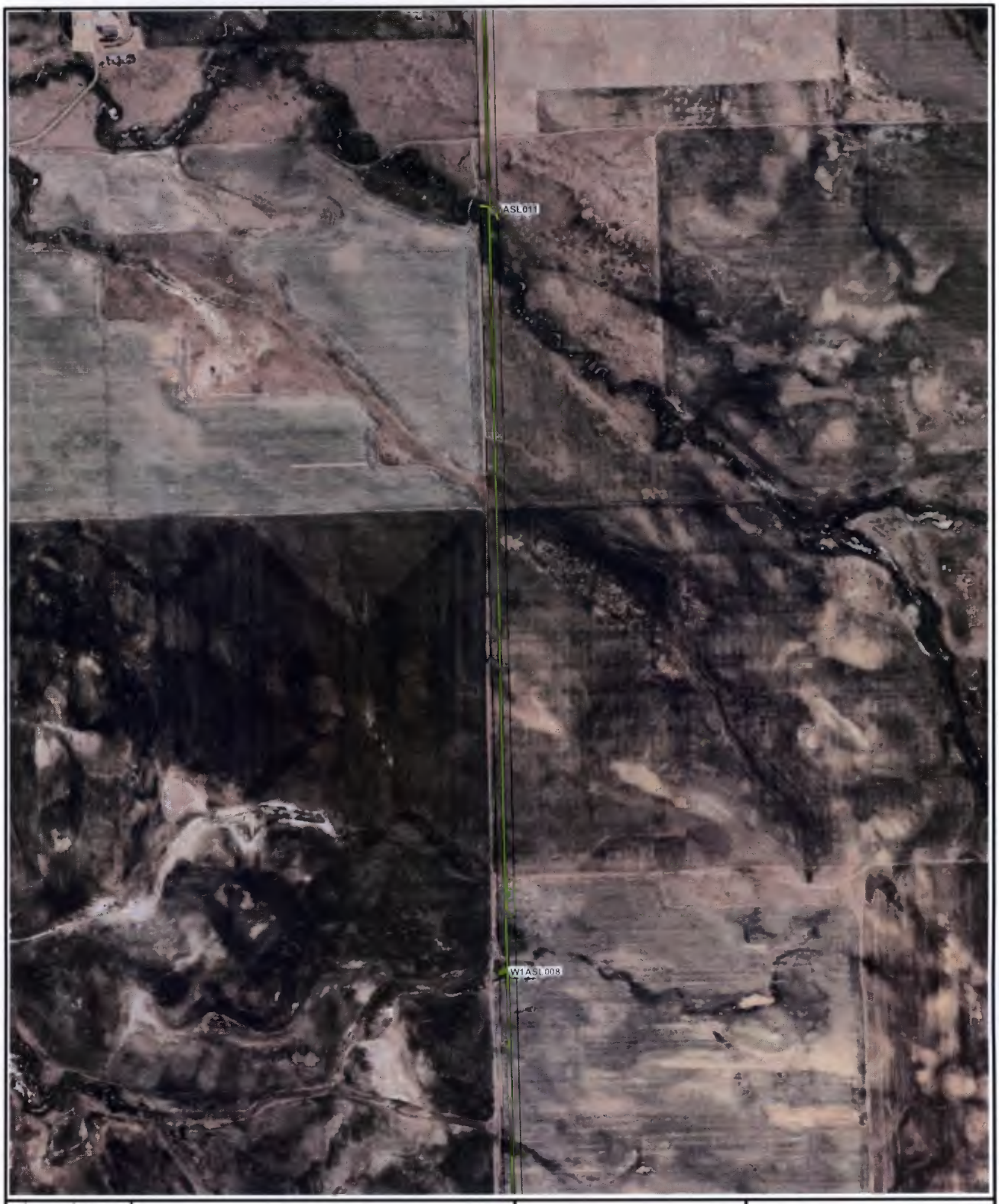
Belfield to Rhame Transmission Project

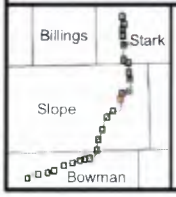
BASIN ELECTRIC POWER COOPERATIVE

Western Area Power Administration

Wetlands and Waterbodies

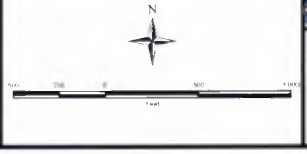
Map 14 of 26





Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water



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BASIN ELECTRIC POWER COOPERATIVE

Western Area Power Administration

Wetlands and Waterbodies

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Billings
Stark
Slope
Bowman

Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

N

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Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

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Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

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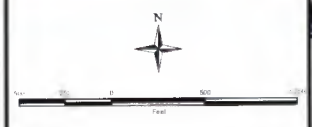
Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water



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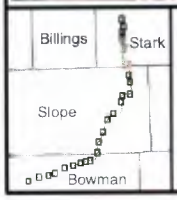
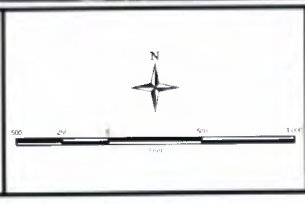


Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water



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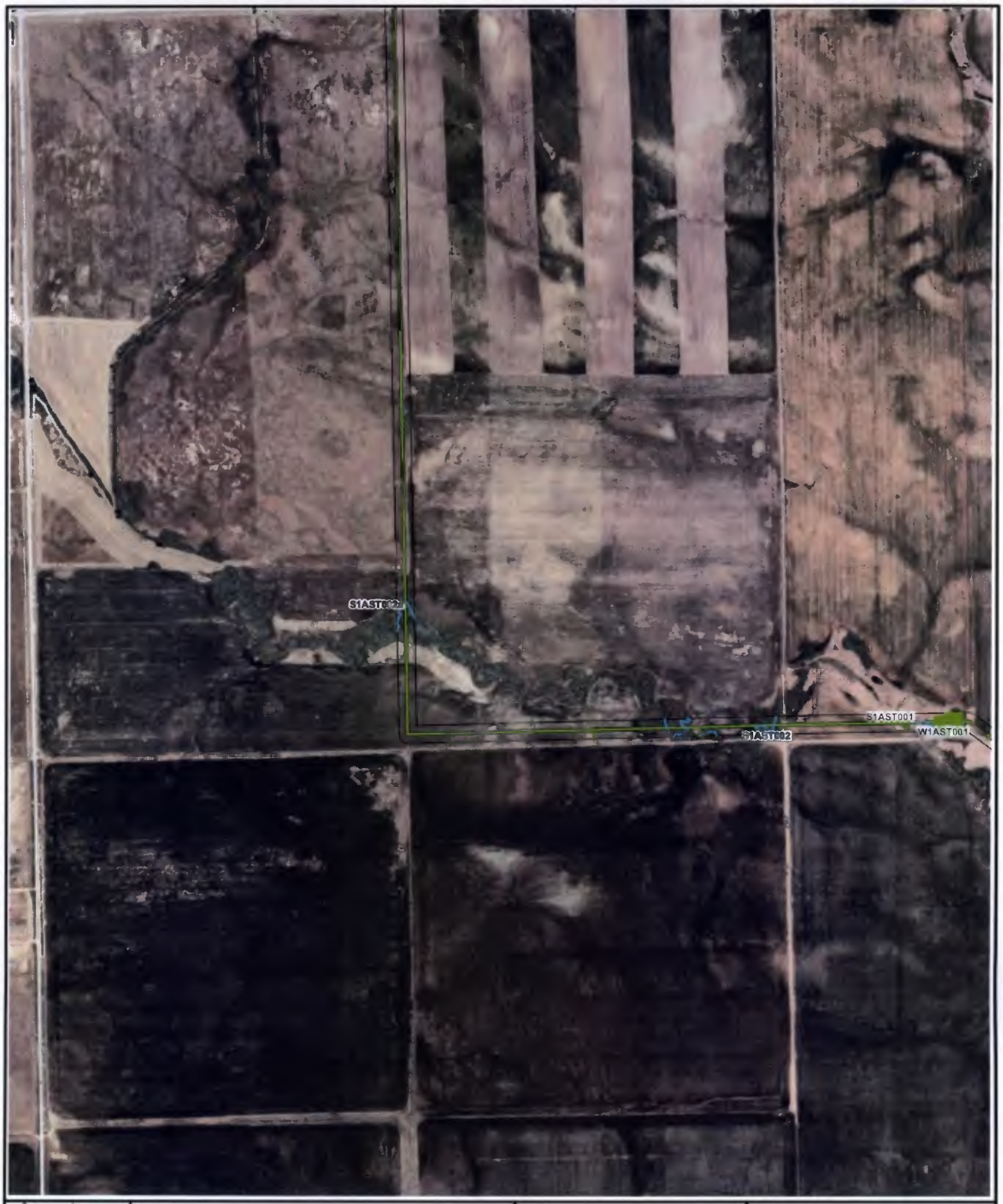

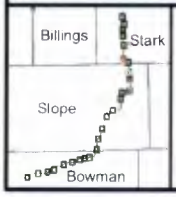

Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

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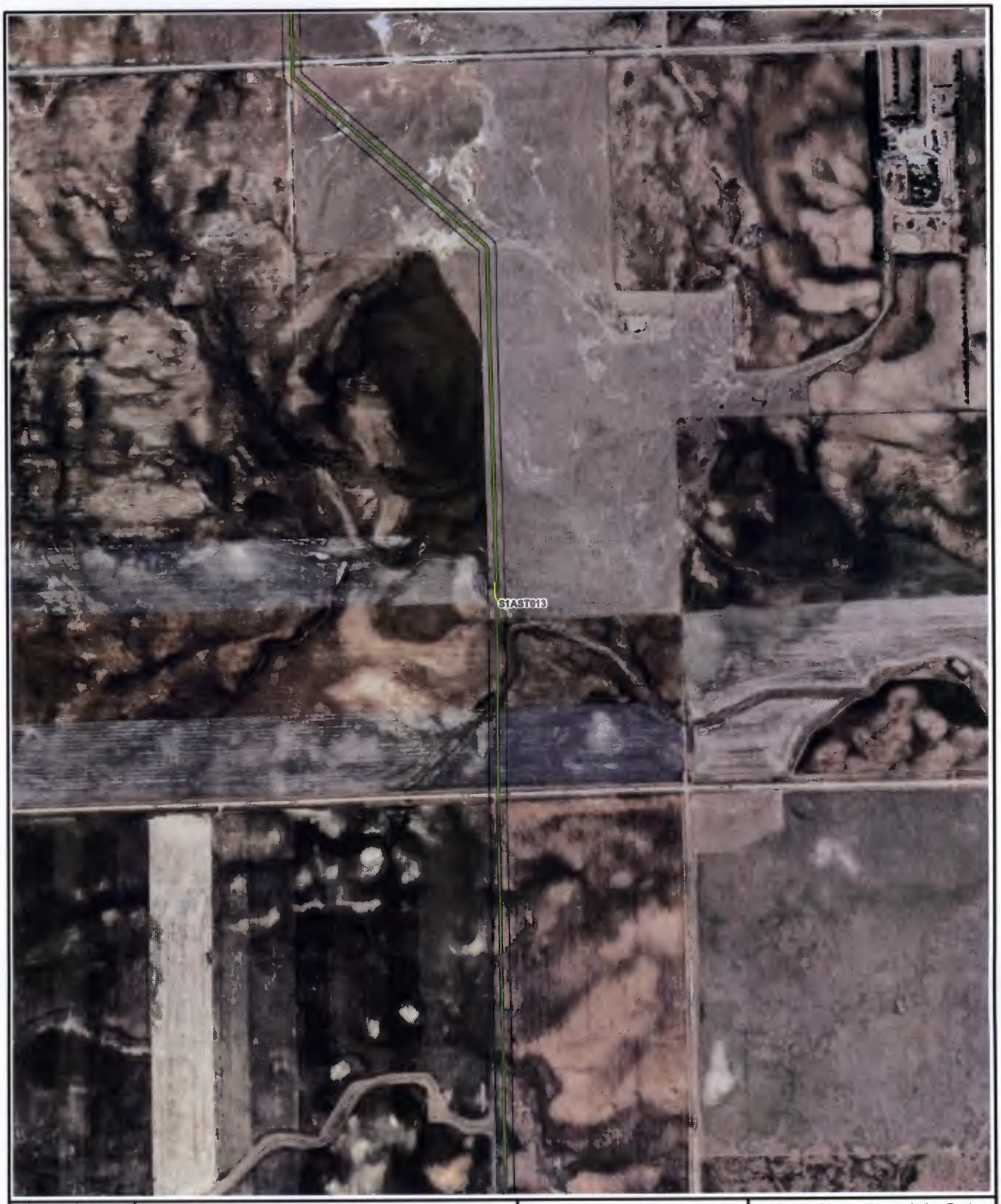

Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

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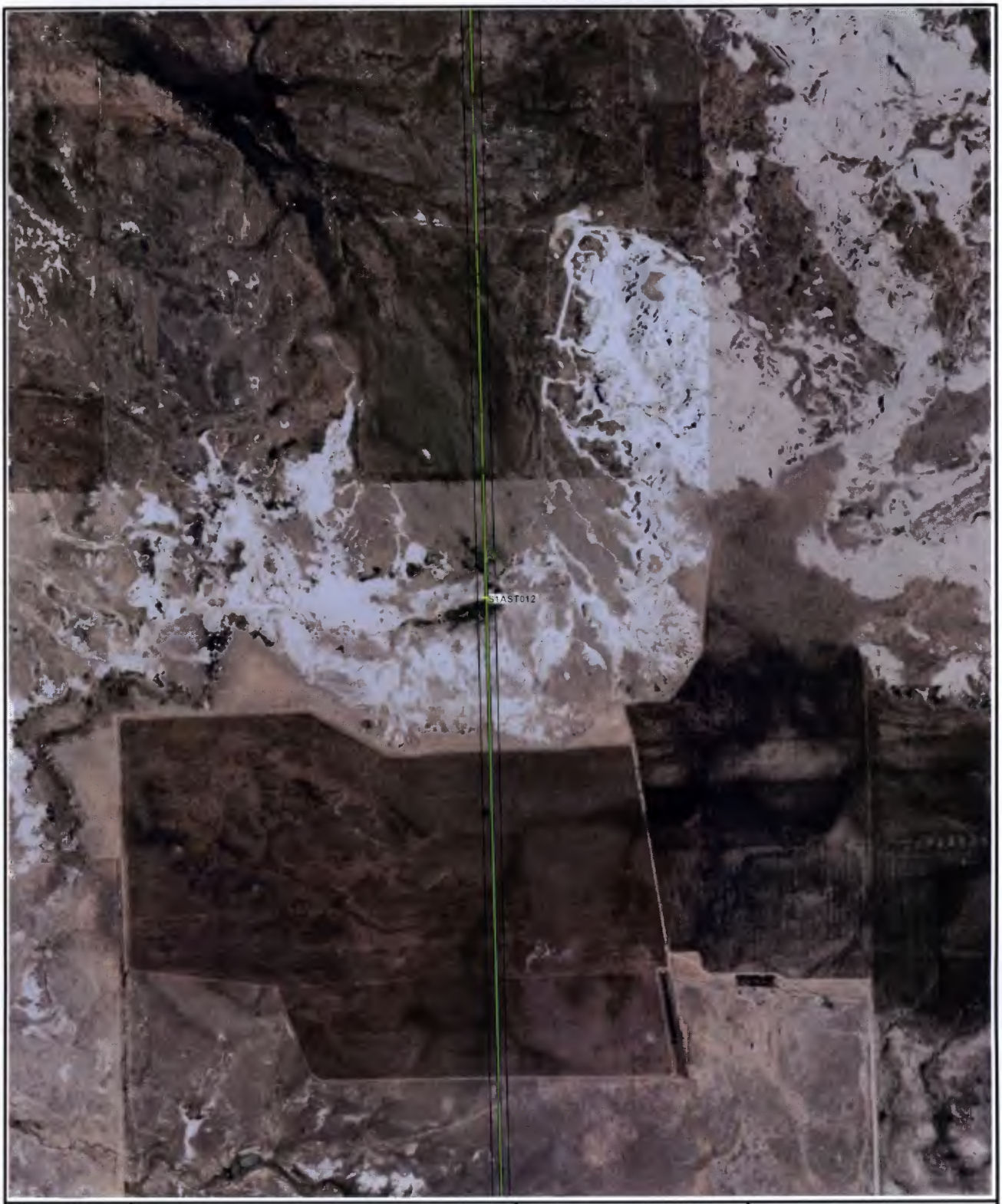

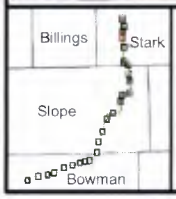

Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- EM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

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Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

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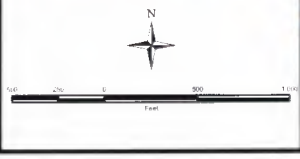
Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water



Belfield to Rhame Transmission Project

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Western

Wetlands and Waterbodies

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Billings
Stark
Slope
Bowman

Legend

- Proposed Transmission Line
- 125 Foot Survey Corridor
- PEM Wetland
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

N

Feet

Belfield to Rhame Transmission Project

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