

**BASIN ELECTRIC
POWER COOPERATIVE**

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October 20, 2009

VIA HAND DELIVERY
RECEIVED

Darrell Nitschke, Director of Administration
North Dakota Public Service Commission
600 East Boulevard Avenue, Dept. 408
Bismarck, ND 58505

OCT 20 2009

PUBLIC SERVICE COMMISSION

RE: ND PSC Case No. PU-07-671 (Basin Electric Power Cooperative – Certificate of
Corridor Compatibility and Route Permit for Williston to Tioga 230 kV Transmission line)

Dear Mr. Nitschke:

In compliance with the PSC order requiring Basin Electric Power Cooperative to file a map detailing proposed final transmission line structure locations on or before October 20, 2009, I have enclosed ten copies of the plan and profile drawings for the proposed Williston to Tioga 230 kV transmission line.

I have also enclosed copies of the wetland delineation and the cultural resources report for the project. Due to the volume of these studies, I have included five copies of the wetland delineation report and three copies of the cultural resource report. Please contact me if additional copies of these reports are needed.

If you have any questions regarding this letter or any of the enclosures, please contact me at 701.557.5495.

Sincerely,

A handwritten signature in black ink, appearing to read 'K. Solie', written over a white background.

Kevin L. Solie
Senior Environmental Analyst

/gmj
Enclosures

Prepared for:
Basin Electric Power Cooperative – Tioga, North Dakota
Mountrail and Williams Counties, North Dakota



Wetland Delineation Survey for Proposed Williston-Tioga Transmission Line

Tioga, North Dakota

ENSR Corporation
October 2008
Document No.: 10735-007

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

Wetland Delineation Survey for Proposed Williston-Tioga Transmission Line

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ENSR Corporation
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1.0 Introduction

This report summarizes the results of ENSR Corporation's (ENSR) wetland delineation surveys that were performed in September 2008 for the proposed Basin Electric Power Cooperative (BEPC) transmission line from Williston to Tioga, ND. 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 Williston-Tioga Project (the Project) is located within Williams and Mountrail counties, northwestern North Dakota. The proposed transmission line is needed to meet base load forecasts of BEPC customers in northwestern North Dakota. The Project would run from the substation in Williston, North Dakota to a substation near Tioga that is owned and operated by BEPC. Williston Substation is in Williams County, southwest of the City of Williston. The Tioga Substation is located in Mountrail County, east of the City of Tioga. The proposed transmission line would be constructed using steel single-pole self-supporting structures within a 125-foot-wide right-of-way (ROW). Modifications to the existing Williston Substation would be minor and would take place entirely within the existing substation fence.

The Project lies within the Missouri Coteau Geological Region. The rolling hills of the Missouri Coteau mark the edge of glaciation in North Dakota. Although streams and rivers are limited in this area, there is a high concentration of wetlands and a prevalence of alkali lakes (Hagen, Isakson, & Dyke 2005). Habitats along the Project are dominated by cultivated cropland, native prairie grasslands, and planted grasslands, but also include, riparian/wetlands areas, open water, and shrublands.

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. Williams and Mountrail counties are currently experiencing a moderate to severe drought, due to 20-40% below average precipitation in consecutive years (High Plains Regional Climate Center [HPRCC] 2008).

2.0 Survey Methods

2.1 Field Survey

Wetlands delineation methodology, as described in the United States Army Corps of Engineers (USACE) *Corps of Engineers Wetland Delineation Manual* (1987) and the *Interim Regional Supplemental to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (USACE-Engineer Research and Development Center [ERDC] 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-ERDC 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/XH global positioning system (GPS) receiver and used to calculate the area of the wetland using ArcMap 9.3 Geographic Information System (GIS) software. The survey corridor along the proposed alignments was 125 feet in width centered on the centerline of the proposed transmission line. 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* (Reed 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, USACE-ERDC 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-ERDC 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 (Munsell Color 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 were assessed for the Great Plains Region and subregion as defined by the U.S. Department of Agriculture, Natural Resource Conservation Service (USDA-NRCS). The Project lies within Northern Great Plains Land Resource Region also known as LRR F (USDA-NRCS 2006).

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 *Corps of Engineers Wetland Delineation Manual* (1987) and the *Interim Regional Supplemental to the Corps of Engineers Wetland Delineation Manual: Great Plains*

Region (USACE-ERDC 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. Pits were located in both wetland and upland plant communities for each site.

2.2.3 Hydrology

Field observations were made to determine if primary and secondary indicators of hydrology were present, as outlined in the *Corps of Engineers Wetland Delineation Manual* (1987) and the *Interim Regional Supplemental to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (USACE-ERDC 2008). Primary indicators for wetland hydrology include: inundation, soil saturation within 12 inches of the soil surface, water marks on vegetation, sediment deposits, drift deposits, algal crusts/mats, iron deposits, inundation visible on aerial imagery, water stained leaves, salt crust, aquatic invertebrates, hydrogen sulfide odor, dry season water table, oxidized rhizospheres associated with living roots, presence of reduced iron, and thin muck surface. Secondary indicators for wetland hydrology include: surface soil cracks, sparsely vegetated concave surface, drainage patterns associated with wetlands, oxidized rhizospheres associated with living roots, crayfish burrows, saturation visible on aerial imagery, geomorphic position, frost-heave hummocks, 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 *Corps of Engineers Wetland Delineation Manual* (USACE 1987), areas where all three parameters met the wetland criteria were determined to be 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 GeoXH handheld GPS receivers were used to record wetland and waterbody locations identified by ENSR biologists. Trimble GeoXH receivers are equipped with EVEREST™ multipath rejection technology to provide sub-meter 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.

Features identified 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, 1B, 1C, 1D)

CC – County Abbreviation (MO = Mountrail, WI = Williams)

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, 22 wetlands, and 58 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 species that are found in wetland communities and upland fringes can be found in **Table 3**. Sources used to identify plants include: Great Plains Flora Association (GPFA) 1986; Stevens 1963; Van Bruggen 1976; United States Department of Agriculture (USDA) 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** (USDA-NRCS 2007). Other sources used to determine the soil types include the Munsell Soil Color Charts (Munsell Color 1992).

3.1.3 Hydrology

The terrain is the primary influencing factor of wetland hydrology. General topography along the survey area is rolling plains. 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.

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: saturation, presence of reduced iron, oxidized rhizospheres, salt crusts, high water table, surface water, hydrogen sulfide odor, drift deposits, sediment deposits, water stained leaves, inundation on aerial photo, and algal mat/crusts. Secondary wetland indicators that were observed included: drainage patterns, saturation on aerial photo, frost-heave hummocks, surface soil cracks, and positive FAC-Neutral tests.

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 datasheets that can be found in **Attachment B**.

Table 1 Wetland and Waterbody Crossings Identified Along the Project Alignment

Feature ID	Name	Type	NAD 83 UTM 13 Easting	NAD 83 UTM 13 Northing	Acres
S1AWI001	UN-NAMED	EPH	595721	5335154	0.36
S1AWI002	SAND CREEK	INT	595668	5338065	0.05
S1AWI003	SAND CREEK	INT	595671	5338101	0.07
S1AWI005	UN-NAMED	EPH	595629	5340405	0.06
S1AWI006	UN-NAMED	EPH	605721	5349312	0.06
S1AWI007	COW CREEK	PER	605814	5349314	0.33
S1AWI008	UN-NAMED	EPH	605846	5349322	0.02
S1AWI009	UN-NAMED	PER	605847	5349304	0.05
S1AWI010	UN-NAMED	EPH	608227	5355314	0.16
S1AWI010A	UN-NAMED	EPH	608487	5355325	0.08
S1AWI010B	UN-NAMED	EPH	608920	5355326	0.34
S1AWI011	UN-NAMED	EPH	632386	5355089	0.78
S1AWI012	UN-NAMED	OW	632418	5355078	0.05
S1AWI013	UN-NAMED	EPH	634639	5355135	0.15
S1AWI015	UN-NAMED	EPH	596337	5342344	0.03
S1AWI016	UN-NAMED	EPH	596893	5342348	0.76
S1AWI017	UN-NAMED	EPH	597079	5342354	0.14
S1AWI017A	UN-NAMED	EPH	597100	5342360	0.18
S1AWI018	UN-NAMED	EPH	598882	5342566	0.16
S1BWI001	UN-NAMED	EPH	595733	5334272	0.06
S1BWI002	UN-NAMED	INT	595692	5336637	0.07
S1BWI003	UN-NAMED	EPH	595688	5337173	0.01

Table 1 Wetland and Waterbody Crossings Identified Along the Project Alignment

Feature ID	Name	Type	NAD 83 UTM 13 Easting	NAD 83 UTM 13 Northing	Acres
S1BWI004	UN-NAMED	EPH	595610	5341094	0.12
S1BWI005	UN-NAMED	EPH	601089	5347797	0.06
S1BWI006	UN-NAMED	EPH	601158	5347936	0.09
S1BWI007	UN-NAMED	EPH	601154	5348107	0.09
S1BWI008	UN-NAMED	EPH	601154	5348470	0.14
S1BWI009	UN-NAMED	EPH	608280	5349770	0.02
S1BWI010	UN-NAMED	EPH	608274	5350269	0.17
S1BWI011	UN-NAMED	EPH	608267	5350476	0.08
S1BWI012	UN-NAMED	EPH	608242	5351734	0.07
S1BWI013	UN-NAMED	EPH	608235	5352104	0.01
S1BWI014	UN-NAMED	EPH	617631	5355510	0.05
S1BWI015	UN-NAMED	EPH	621665	5355598	0.02
S1BWI016	UN-NAMED	EPH	622073	5355605	0.05
S1BWI017	UN-NAMED	EPH	623634	5355636	0.06
S1BWI018	UN-NAMED	EPH	626787	5355700	0.09
S1BWI019	UN-NAMED	EPH	636653	5355207	0.16
S1BWI021	UN-NAMED	EPH	636848	5355710	0.05
S1BWI022	UN-NAMED	EPH	655565	5356345	0.14
S1BWI023	UN-NAMED	INT	656795	5356391	0.06
S1BWI024	UN-NAMED	EPH	659126	5358033	0.09
S1BWI025	UN-NAMED	EPH	659002	5358222	0.06
S1BWI026	UN-NAMED	EPH	658909	5358359	0.05
S1BWI027	UN-NAMED	EPH	658550	5358898	0.05
S1BWI028	UN-NAMED	EPH	658071	5359623	0.03

Table 1 Wetland and Waterbody Crossings Identified Along the Project Alignment

Feature ID	Name	Type	NAD 83 UTM 13 Easting	NAD 83 UTM 13 Northing	Acres
S1BWI029	UN-NAMED	EPH	657702	5360172	0.02
S1BWI030	UN-NAMED	PER	657518	5360444	0.15
S1BWI031	UN-NAMED	PER	657418	5360593	0.04
S1BWI032	UN-NAMED	PER	657372	5360677	0.07
S1BWI033	UN-NAMED	PER	657355	5360849	0.37
S1BWI034	UN-NAMED	INT	657344	5360967	0.08
S1BWI035	UN-NAMED	PER	657307	5362184	0.22
S1BWI036	UN-NAMED	EPH	659308	5357560	0.08
S1BWI037	UN-NAMED	EPH	659240	5357862	0.06
S1BWI038	UN-NAMED	INT	657845	5359938	0.16
S1BWI038	UN-NAMED	INT	658268	5359319	0.16
S1CMO001	UN-NAMED	EPH	657485	5363239	0.03
S1CWI001	UN-NAMED	INT	638081	5356741	0.10
S1CWI002	UN-NAMED	INT	641332	5356899	0.25
S1CWI003	UN-NAMED	INT	652131	5356883	0.12
S1CWI004	UN-NAMED	INT	652090	5356946	0.09
S1DWI001	UN-NAMED	EPH	598789	5344582	0.54
S1DWI002	UN-NAMED	EPH	598790	5344463	0.03
S1DWI003	UN-NAMED	EPH	598793	5344024	0.02
W1AWI001	UN-NAMED	PEM	595665	5338121	0.15
W1AWI001	UN-NAMED	PEM	595667	5338075	0.24
W1AWI001	UN-NAMED	PEM	595677	5338089	0.03
W1AWI003	UN-NAMED	PEM	606044	5349317	0.39
W1AWI004	UN-NAMED	PEM	606153	5349321	0.17

Table 1 Wetland and Waterbody Crossings Identified Along the Project Alignment

Feature ID	Name	Type	NAD 83 UTM 13 Easting	NAD 83 UTM 13 Northing	Acres
W1AWI005	UN-NAMED	PEM	633269	5355095	0.04
W1AWI007	UN-NAMED	PEM	635472	5355130	1.15
W1AWI007	UN-NAMED	PEM	635497	5355129	0.30
W1BWI001	UN-NAMED	PEM	595705	5336528	0.03
W1BWI002	UN-NAMED	PEM	595682	5336580	0.04
W1BWI002	UN-NAMED	PEM	595688	5336640	0.77
W1BWI003	UN-NAMED	PEM	595682	5336907	0.11
W1BWI003	UN-NAMED	PEM	595688	5336876	0.40
W1BWI003	UN-NAMED	PEM	595701	5336908	0.01
W1BWI004	UN-NAMED	PEM	614574	5355439	0.63
W1BWI005	UN-NAMED	PEM	616973	5355493	0.20
W1BWI007	UN-NAMED	PEM	621668	5355597	0.14
W1BWI008	UN-NAMED	PEM	636868	5355528	0.57
W1BWI010	UN-NAMED	PEM	645185	5356984	1.73
W1BWI011	UN-NAMED	PEM	646871	5357022	0.00
W1BWI011	UN-NAMED	PEM	646916	5357027	0.36
W1BWI012	UN-NAMED	PEM	647623	5357037	0.19
W1BWI013	UN-NAMED	PEM	648159	5357047	0.01
W1BWI013	UN-NAMED	PEM	648160	5357056	0.05
W1BWI014	UN-NAMED	PEM	648624	5357064	0.18
W1BWI015	UN-NAMED	PEM	648879	5357071	0.50
W1BWI016	UN-NAMED	PEM	657438	5360577	0.16
W1BWI017	UN-NAMED	PEM	657377	5360668	0.10
W1BWI017	UN-NAMED	PEM	657394	5360654	0.01

Table 1 Wetland and Waterbody Crossings Identified Along the Project Alignment

Feature ID	Name	Type	NAD 83 UTM 13 Easting	NAD 83 UTM 13 Northing	Acres
W1BWI018	UN-NAMED	PEM	657340	5360747	0.10
W1BWI019	UN-NAMED	PEM	657331	5360830	0.01
W1BWI019	UN-NAMED	PEM	657338	5360831	0.03
W1BWI020	UN-NAMED	PEM	657294	5362016	0.00
W1BWI020	UN-NAMED	PEM	657307	5362137	0.21
W1BWI020	UN-NAMED	PEM	657310	5362074	0.94
W1CMO001	UN-NAMED	PEM	657288	5363232	0.64
W1CMO002	UN-NAMED	PEM	657529	5363237	0.15
W1CMO003	UN-NAMED	PEM	658045	5363238	0.05
W1CMO004	UN-NAMED	PEM	658090	5363238	0.00
W1CWI001	UN-NAMED	PEM	639438	5356842	0.36
W1CWI002	UN-NAMED	PEM	639919	5356856	0.20
W1CWI002	UN-NAMED	PEM	639938	5356861	0.01

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

Feature ID	NAD83 UTM 13 Easting	NAD83 UTM 13 Northing	Township-Range-Section	Soil Map Unit Name, Percent Slopes	Acres	Drainage Class	Hydric Rating
W1AWI001	595665	5338121	T 154 N R 101 W S 6	Williams-Zahl loams, 3 to 6 percent slopes	0.1500	Well drained	Partially Hydric
W1AWI001	595667	5338075	T 154 N R 101 W S 6	Harriet and Stirum soils, 0 to 2 percent slopes	0.2362	Poorly drained	Partially Hydric
W1AWI001	595677	5338089	T 154 N R 101 W S 6	Wabek sandy loam, 2 to 6 percent slopes	0.0279	Excessively drained	Not Hydric
W1AWI003	606044	5349317	T 156 N R 100 W S 32	Harriet and Stirum soils, 0 to 2 percent slopes	0.3903	Poorly drained	Partially Hydric
W1AWI004	606153	5349321	T 156 N R 100 W S 32	Harriet and Stirum soils, 0 to 2 percent slopes	0.1656	Poorly drained	Partially Hydric
W1AWI005	633269	5355095	T 156 N R 97 W S 18	Tonka silt loam, 0 to 1 percent slopes	0.0409	Poorly drained	Partially Hydric
W1AWI007	635472	5355130	T 156 N R 97 W S 16	Water	1.1531		
W1AWI007	635497	5355129	T 156 N R 97 W S 16	Williams-Bowbells loams, 3 to 6 percent slopes	0.2979	Well drained	Partially Hydric
W1BWI001	595705	5336528	T 154 N R 101 W S 7	Zahl-Williams loams, 15 to 60 percent slopes	0.0306	Well drained	Partially Hydric
W1BWI002	595682	5336580	T 154 N R 101 W S 7	Zahl-Williams loams, 15 to 60 percent slopes	0.0426	Well drained	Partially Hydric
W1BWI002	595688	5336640	T 154 N R 101 W S 7	Harriet and Stirum soils, 0 to 2 percent slopes	0.7727	Poorly drained	Partially Hydric
W1BWI003	595682	5336907	T 154 N R 101 W S 7	Williams-Zahl loams, 6 to 9 percent slopes	0.1139	Well drained	Partially Hydric
W1BWI003	595701	5336908	T 154 N R 101 W S 7	Zahl-Williams loams, 15 to 60 percent slopes	0.0113	Well drained	Partially Hydric
W1BWI003	595688	5336876	T 154 N R 101 W S 7	Harriet and Stirum soils, 0 to 2 percent slopes	0.3955	Poorly drained	Partially Hydric
W1BWI004	614574	5355439	T 156 N R 99 W S 17	Zahl-Williams loams, 15 to 60 percent slopes	0.6303	Well drained	Partially Hydric
W1BWI005	616973	5355493	T 156 N R 99 W S 16	Tonka silt loam, 0 to 1 percent slopes	0.2030	Poorly drained	Partially Hydric

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

Feature ID	NAD83 UTM 13 Easting	NAD83 UTM 13 Northing	Township-Range-Section	Soil Map Unit Name, Percent Slopes	Acres	Drainage Class	Hydric Rating
W1BWI007	621668	5355597	T 156 N R 99 W S 13	Zahl-Williams loams, 9 to 15 percent slopes	0.1407	Well drained	Partially Hydric
W1BWI008	636868	5355528	T 156 N R 97 W S 16	Korchea-Divide loams, channeled 0 to 2 percent slopes	0.5739	Well drained	Partially Hydric
W1BWI010	645185	5356984	T 156 N R 96 W S 9	Parnell silty clay loam, 0 to 1 percent slopes	1.7312	Very poorly drained	Partially Hydric
W1BWI011	646916	5357027	T 156 N R 96 W S 10	Parnell silty clay loam, 0 to 1 percent slopes	0.3616	Very poorly drained	Partially Hydric
W1BWI011	646871	5357022	T 156 N R 96 W S 10	Williams-Bowbells loams, 3 to 6 percent slopes	0.0015	Well drained	Partially Hydric
W1BWI012	647623	5357037	T 156 N R 96 W S 10	Williams-Zahl loams, 6 to 9 percent slopes	0.1941	Well drained	Partially Hydric
W1BWI013	648160	5357056	T 156 N R 96 W S 11	Williams-Zahl loams, 6 to 9 percent slopes	0.0457	Well drained	Partially Hydric
W1BWI013	648159	5357047	T 156 N R 96 W S 11	Williams-Zahl-Parnell complex, 0 to 9 percent slopes	0.0075	Well drained	Partially Hydric
W1BWI014	648624	5357064	T 156 N R 96 W S 11	Williams-Zahl loams, 6 to 9 percent slopes	0.1764	Well drained	Partially Hydric
W1BWI015	648879	5357071	T 156 N R 96 W S 11	Southam silty clay loam, 0 to 1 percent slopes	0.4978	Very poorly drained	All Hydric
W1BWI016	657438	5360577	T 157 N R 94 W S 31	Straw loam, channeled, 0 to 2 percent slopes	0.1589		Partially Hydric
W1BWI017	657377	5360668	T 157 N R 94 W S 31	Straw loam, channeled, 0 to 2 percent slopes	0.1041		Partially Hydric
W1BWI017	657394	5360654	T 157 N R 94 W S 31	Zahl-Williams loams, 9 to 25 percent slopes	0.0064	Well drained	Partially Hydric
W1BWI018	657340	5360747	T 157 N R 94 W S 31	Zahl-Williams loams, 9 to 25 percent slopes	0.0986	Well drained	Partially Hydric
W1BWI019	657338	5360831	T 157 N R 94 W S 31	Straw loam, channeled, 0 to 2 percent slopes	0.0265		Partially Hydric

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

Feature ID	NAD83 UTM 13 Easting	NAD83 UTM 13 Northing	Township-Range-Section	Soil Map Unit Name, Percent Slopes	Acres	Drainage Class	Hydric Rating
W1BWI019	657331	5360830	T 157 N R 94 W S 31	Zahl-Williams loams, 9 to 25 percent slopes	0.0074	Well drained	Partially Hydric
W1BWI020	657307	5362137	T 157 N R 94 W S 30	Korchea and Straw loams, 0 to 2 percent slopes	0.2133	Well drained	Partially Hydric
W1BWI020	657294	5362016	T 157 N R 94 W S 30	Vallers loam, saline	0.0009	Poorly drained	Partially Hydric
W1BWI020	657310	5362074	T 157 N R 94 W S 30	Southam silty clay loam	0.9423	Very poorly drained	Partially Hydric
W1CMO001	657288	5363232	T 157 N R 94 W S 19	Williams-Zahl loams, 3 to 6 percent slopes	0.6376	Well drained	Partially Hydric
W1CMO002	657529	5363237	T 157 N R 94 W S 19	Straw loam, channeled, 0 to 2 percent slopes	0.1490		Partially Hydric
W1CMO003	658045	5363238	T 157 N R 94 W S 19	Straw loam, channeled, 0 to 2 percent slopes	0.0534		Partially Hydric
W1CMO004	658090	5363238	T 157 N R 94 W S 20	Straw loam, channeled, 0 to 2 percent slopes	0.0009		Partially Hydric
W1CWI001	639438	5356842	T 156 N R 97 W S 11	Tonka silt loam, 0 to 1 percent slopes	0.3576	Poorly drained	Partially Hydric
W1CWI002	639919	5356856	T 156 N R 97 W S 11	Williams-Bowbells loams, 0 to 3 percent slopes	0.1950	Well drained	Partially Hydric
W1CWI002	639938	5356861	T 156 N R 97 W S 11	Williams-Zahl loams, 6 to 9 percent slopes	0.0082	Well drained	Partially Hydric
W1AWI004	606153	5349321	T 156 N R 100 W S 32	Harriet and Stirum soils, 0 to 2 percent slopes	0.1656	Poorly drained	Partially Hydric
W1AWI005	633269	5355095	T 156 N R 97 W S 18	Tonka silt loam, 0 to 1 percent slopes	0.0409	Poorly drained	Partially Hydric
W1AWI007	635472	5355130	T 156 N R 97 W S 16	Water	1.1531		
W1AWI007	635497	5355129	T 156 N R 97 W S 16	Williams-Bowbells loams, 3 to 6 percent slopes	0.2979	Well drained	Partially Hydric
W1BWI001	595705	5336528	T 154 N R 101 W S 7	Zahl-Williams loams, 15 to 60 percent slopes	0.0306	Well drained	Partially Hydric

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

Feature ID	NAD83 UTM 13 Easting	NAD83 UTM 13 Northing	Township-Range-Section	Soil Map Unit Name, Percent Slopes	Acres	Drainage Class	Hydric Rating
W1BWI002	595682	5336580	T 154 N R 101 W S 7	Zahl-Williams loams, 15 to 60 percent slopes	0.0426	Well drained	Partially Hydric
W1BWI002	595688	5336640	T 154 N R 101 W S 7	Harriet and Stirum soils, 0 to 2 percent slopes	0.7727	Poorly drained	Partially Hydric
W1BWI003	595682	5336907	T 154 N R 101 W S 7	Williams-Zahl loams, 6 to 9 percent slopes	0.1139	Well drained	Partially Hydric
W1BWI003	595701	5336908	T 154 N R 101 W S 7	Zahl-Williams loams, 15 to 60 percent slopes	0.0113	Well drained	Partially Hydric
W1BWI003	595688	5336876	T 154 N R 101 W S 7	Harriet and Stirum soils, 0 to 2 percent slopes	0.3955	Poorly drained	Partially Hydric
W1BWI004	614574	5355439	T 156 N R 99 W S 17	Zahl-Williams loams, 15 to 60 percent slopes	0.6303	Well drained	Partially Hydric
W1BWI005	616973	5355493	T 156 N R 99 W S 16	Tonka silt loam, 0 to 1 percent slopes	0.2030	Poorly drained	Partially Hydric

Table 3 Dominant Wetland Plant Species Identified Along the Project

Scientific Name ¹	Synonyms	Common Name	Stratum	Indicator
<i>Spartina pectinata</i>		prairie cordgrass	Herb	FACW
<i>Phalaris arundinacea</i>		canary reedgrass	Herb	FACW+
<i>Polygonum amphibium var. emersum</i>		longroot smartweed	Herb	OBL
<i>Typha angustifolia</i>		narrowleaf cattail	Herb	OBL
<i>Typha latifolia</i>		broadleaf cattail	Herb	OBL
<i>Schoenoplectus pungens var. longispicatus</i>	<i>Scirpus americanus</i>	common threesquare	Herb	OBL ²
<i>Juncus arcticus</i>	<i>Juncus balticus</i>	arctic rush	Herb	OBL ²
<i>Schoenoplectus tabernaemontani</i>	<i>Scirpus validus</i>	softstem bulrush	Herb	OBL ²
<i>Sonchus arvensis</i>		field sowthistle	Herb	FAC
<i>Rumex crispus</i>		curly dock	Herb	FACW
<i>Artemisia biennis</i>		biennial wormwood	Herb	FAC
<i>Distichlis spicata</i>		saltgrass	Herb	FACW
<i>Salicornia rubra</i>		red swampfire	Herb	OBL
<i>Puccinellia distans</i>		weeping alkaligrass	Herb	FACW
<i>Triglochin palustris</i>		marsh arrowgrass	Herb	OBL

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

²Indicator status is associated with species synonym name.

4.0 Summary and Conclusions

As a result of the wetlands delineation surveys performed September 2008, 22 wetlands, and 58 waterbodies 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 avoiding the placement of permanent structures in wetland and riparian areas.

Power would be transferred from the Western grid at Williston, North Dakota to a substation that would be constructed near Tioga that is be owned and operated by BEPC. Construction of the transmission line 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; Eric Bray, ENSR, Wetlands Ecologist; Lindsey Hart, ENSR, Wetlands Ecologist; Rachel Ridenour, ENSR, Plant Ecologist, conducted wetland delineations September, 2008.

5.2 Reference Documents

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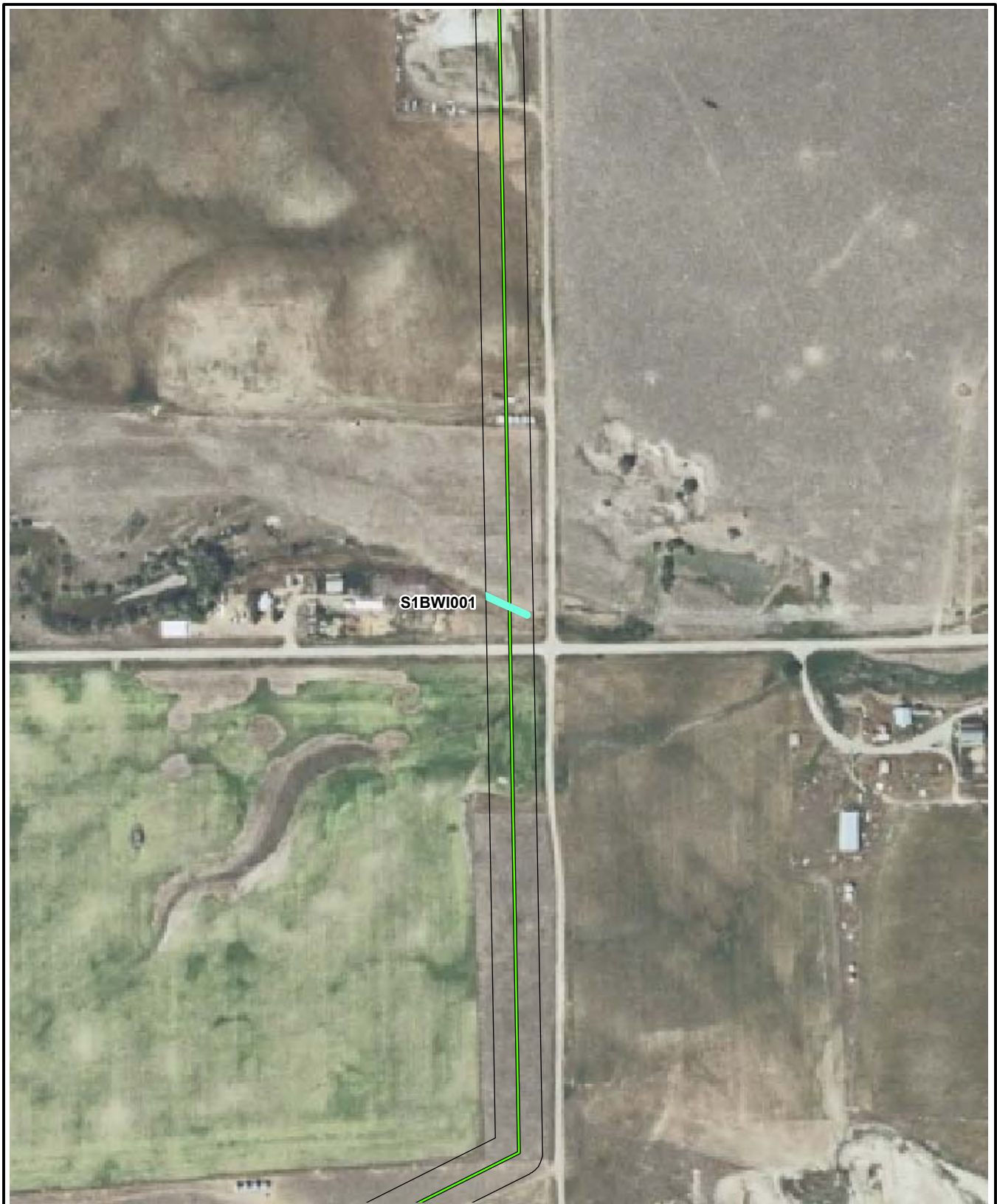
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Attachment A

Figures

Attachment B








Site Photographs and Field Data Forms

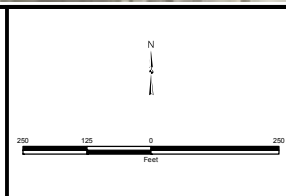


S1BWI001





Legend

 Preferred Route (10/02/2008)	 Ephemeral Stream
 125 Foot Survey Corridor	 Intermittent Stream
 PEM Wetland	 Perennial Stream
	 Open Water

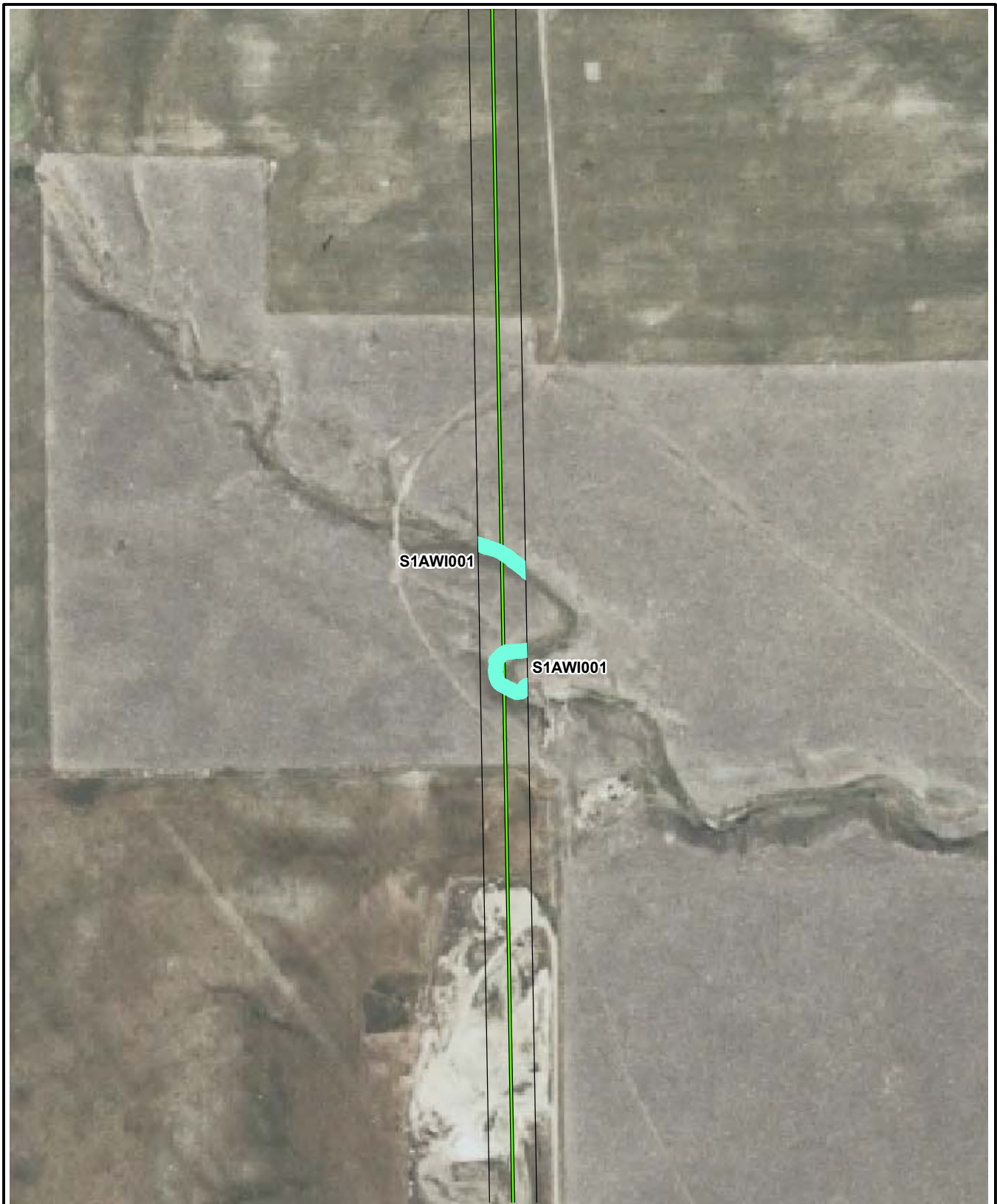


Williston to Tioga Transmission Project











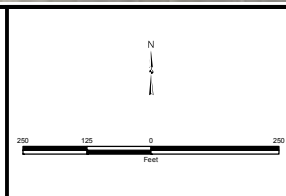
Wetlands and Waterbodies

Map 1 of 42





Legend

 Preferred Route (10/02/2008)	 Ephemeral Stream
 125 Foot Survey Corridor	 Intermittent Stream
 PEM Wetland	 Perennial Stream
	 Open Water

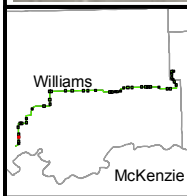
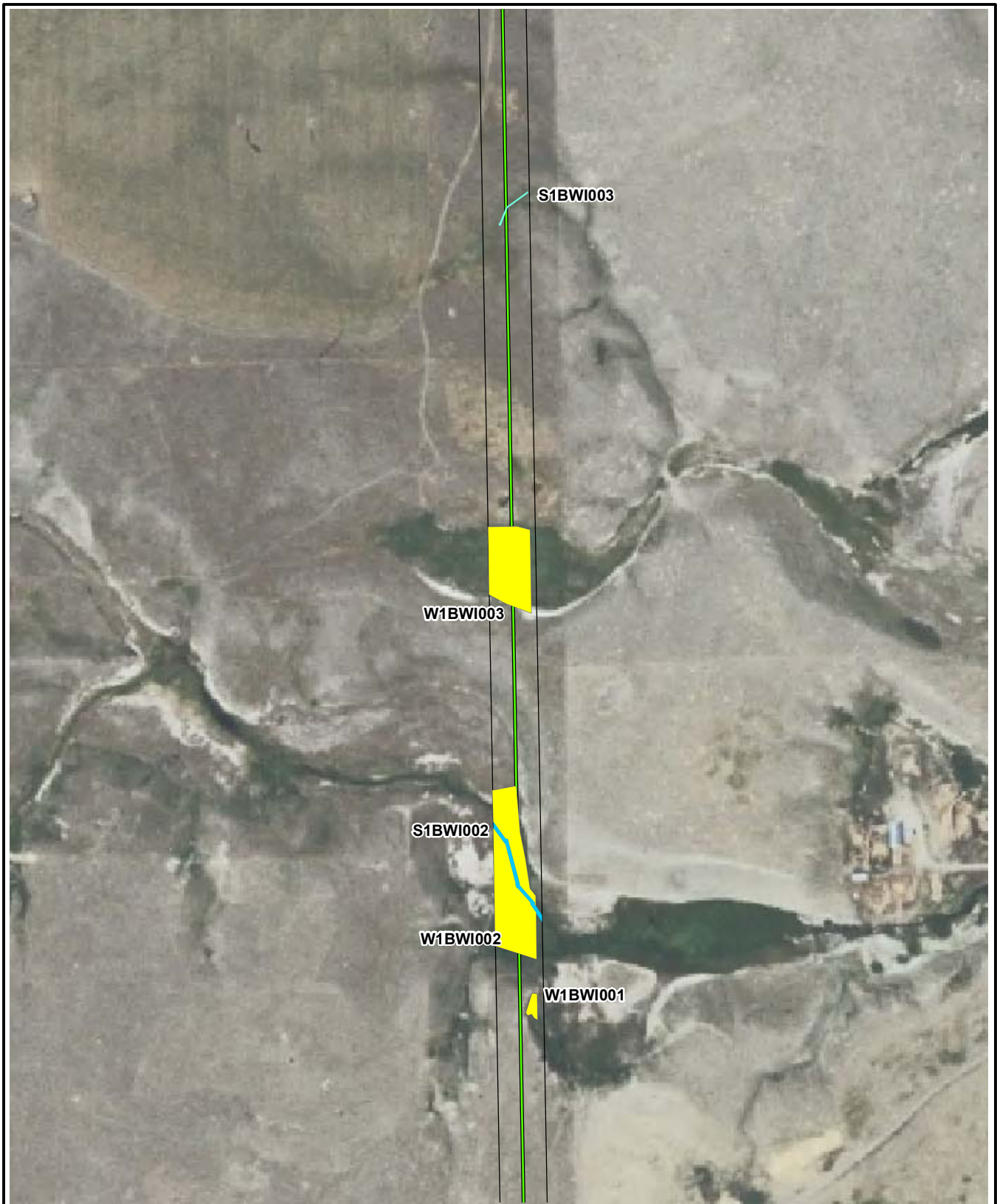


Williston to Tioga Transmission Project

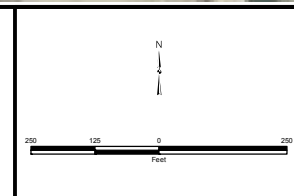
Wetlands and Waterbodies

Map 2 of 42



Legend

Preferred Route (10/02/2008)	Ephemeral Stream
125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water



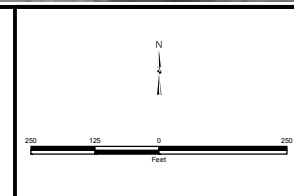
Williston to Tioga Transmission Project

Wetlands and Waterbodies

Map 3 of 42



Legend	
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	PEM Wetland
	Ephemeral Stream
	Intermittent Stream
	Perennial Stream
	Open Water










Williston to Tioga Transmission Project

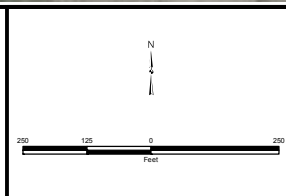
Wetlands and Waterbodies

Map 4 of 42





Legend

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 PEM Wetland	 Perennial Stream
	 Open Water

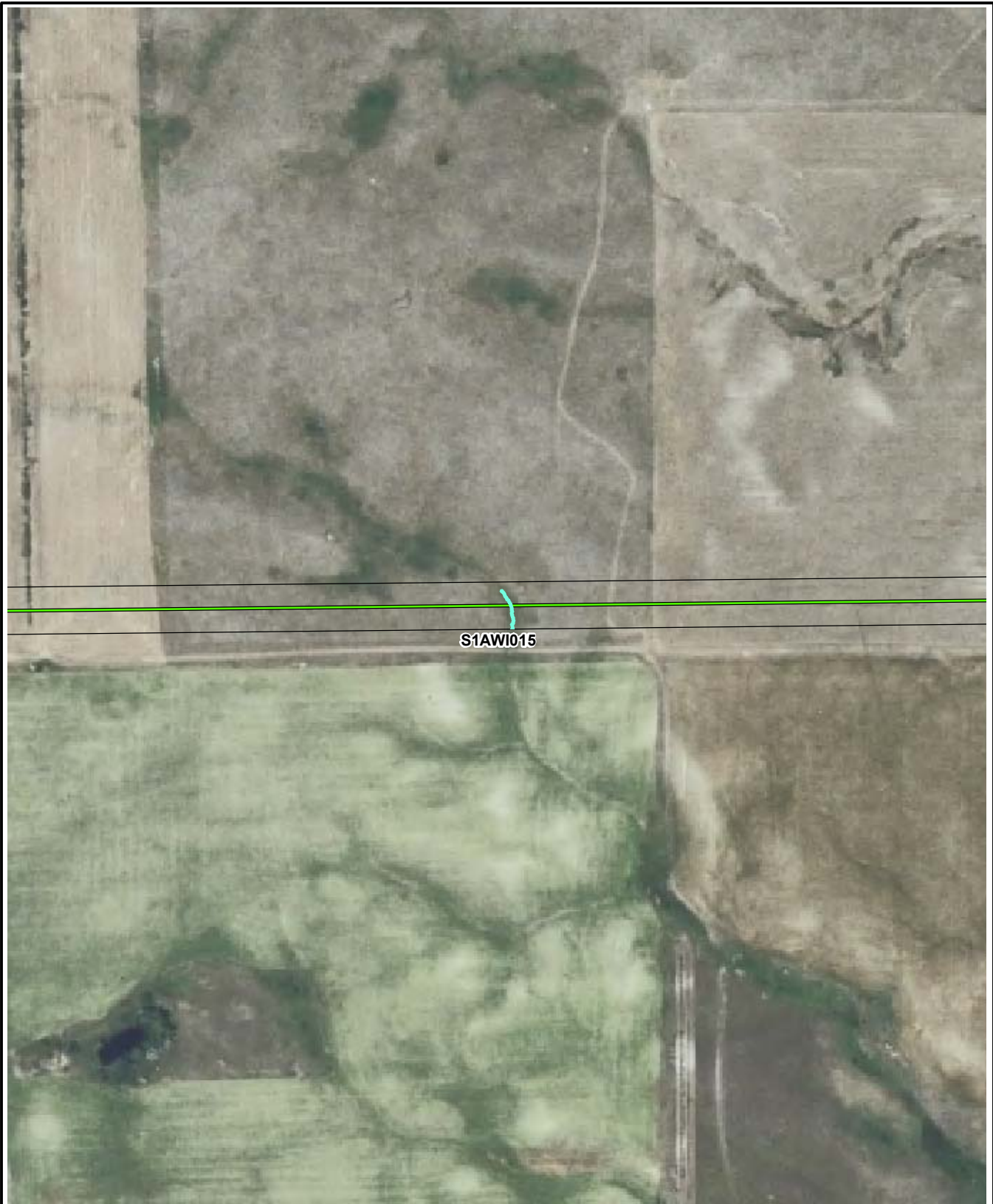


Williston to Tioga Transmission Project

Wetlands and Waterbodies

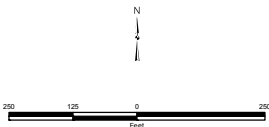
Map 5 of 42



S1AWI015

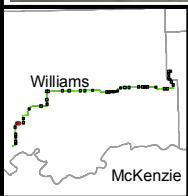
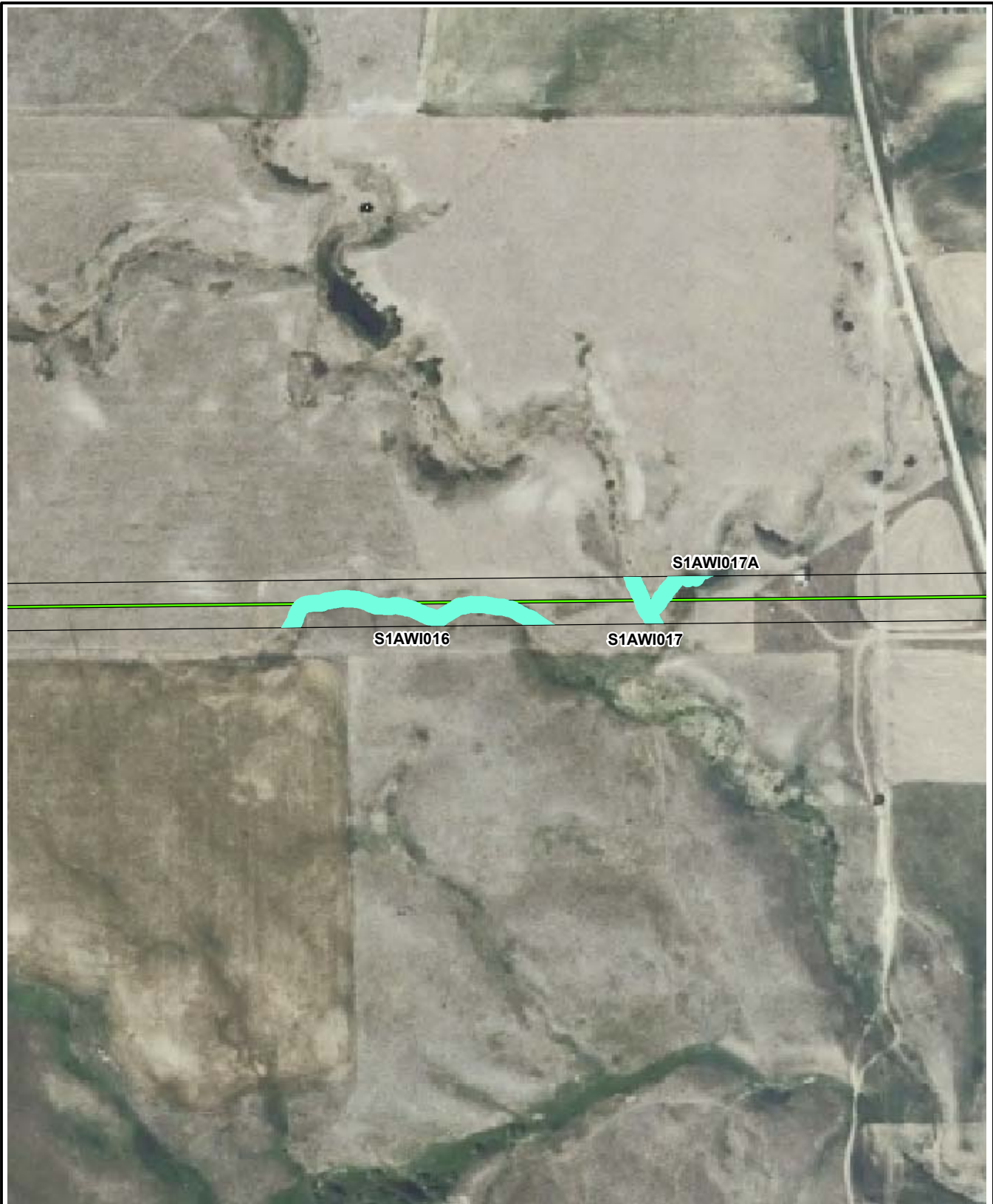


- Legend**
- Preferred Route (10/02/2008)
 - 125 Foot Survey Corridor
 - PEM Wetland
 - Ephemeral Stream
 - Intermittent Stream
 - Perennial Stream
 - Open Water



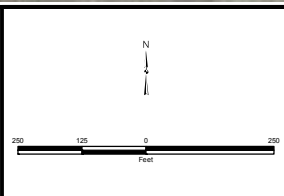
Williston to Tioga Transmission Project
 BASIN ELECTRIC POWER COOPERATIVE
 A Tractor Supply Company
 Western Energy Services

Wetlands and Waterbodies



Legend

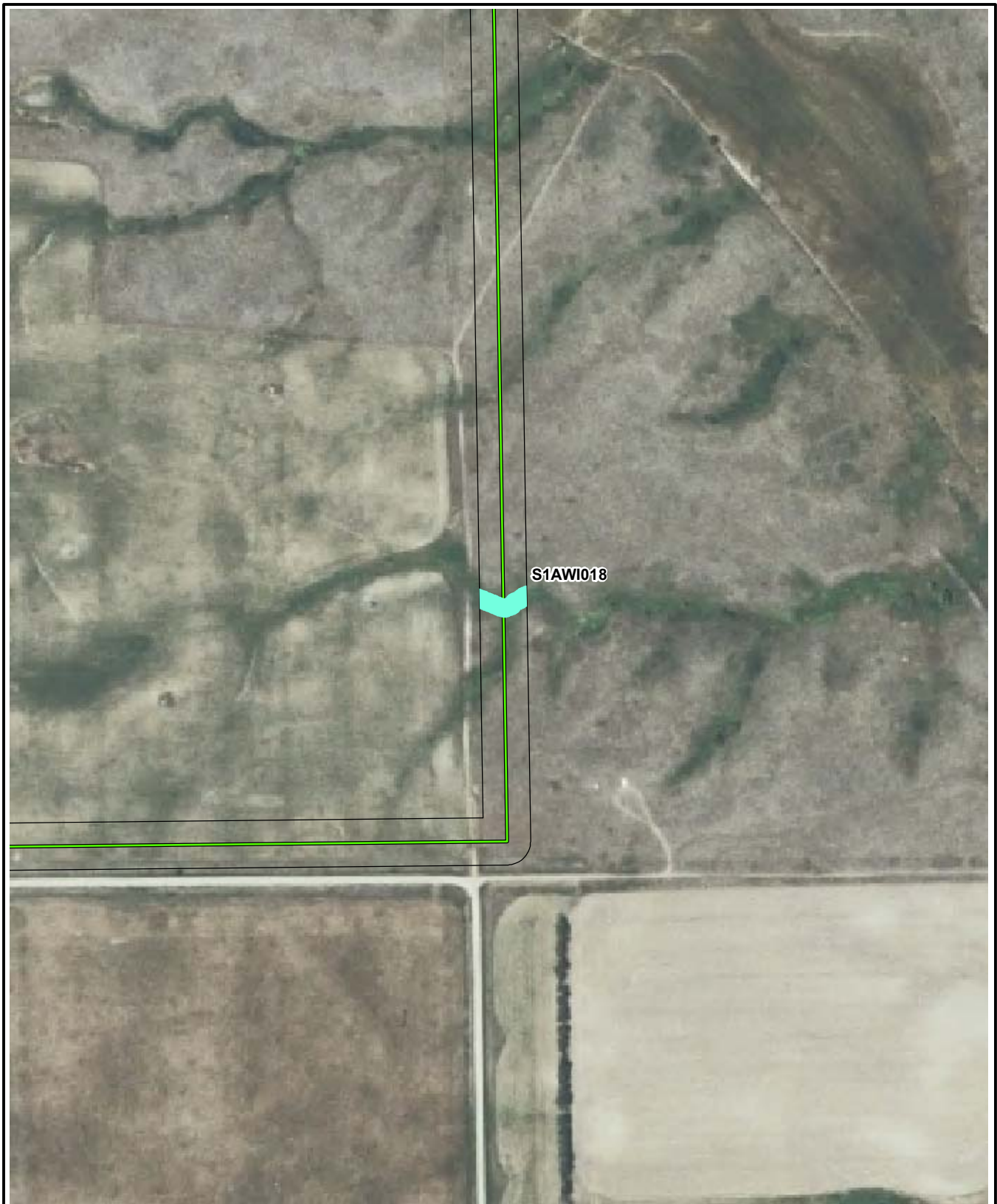
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125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water










Williston to Tioga Transmission Project

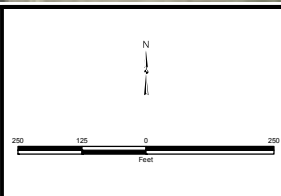
Wetlands and Waterbodies

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Legend

 Preferred Route (10/02/2008)	 Ephemeral Stream
 125 Foot Survey Corridor	 Intermittent Stream
 PEM Wetland	 Perennial Stream
	 Open Water

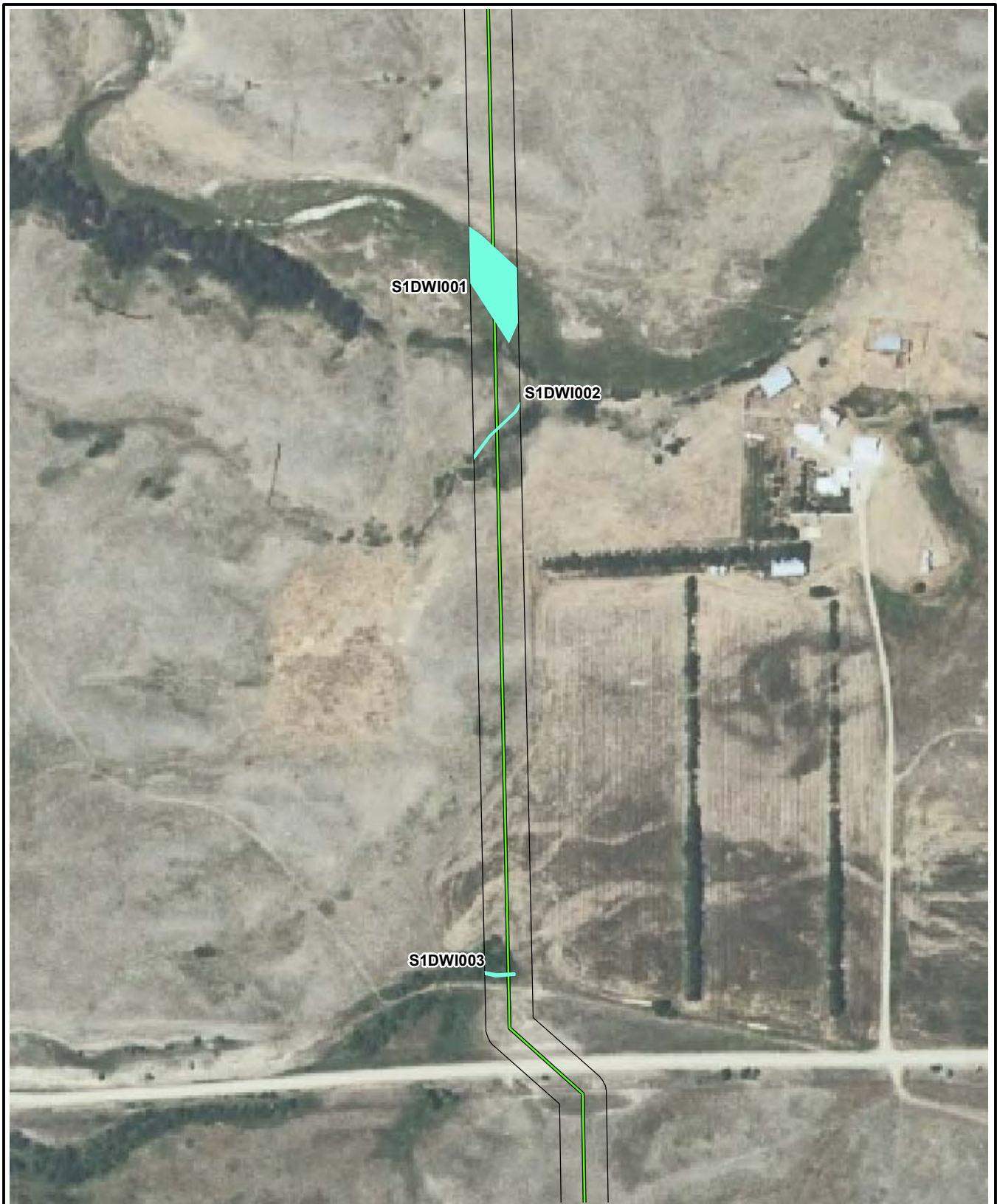


Williston to Tioga Transmission Project











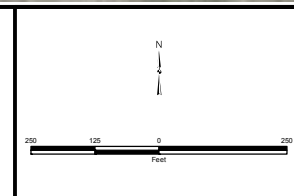
Wetlands and Waterbodies

Map 8 of 42





Legend

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 125 Foot Survey Corridor	 Intermittent Stream
 PEM Wetland	 Perennial Stream
	 Open Water



Williston to Tioga Transmission Project

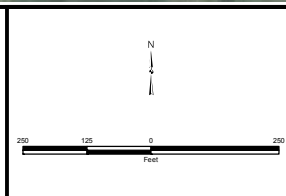



Wetlands and Waterbodies

Map 9 of 42



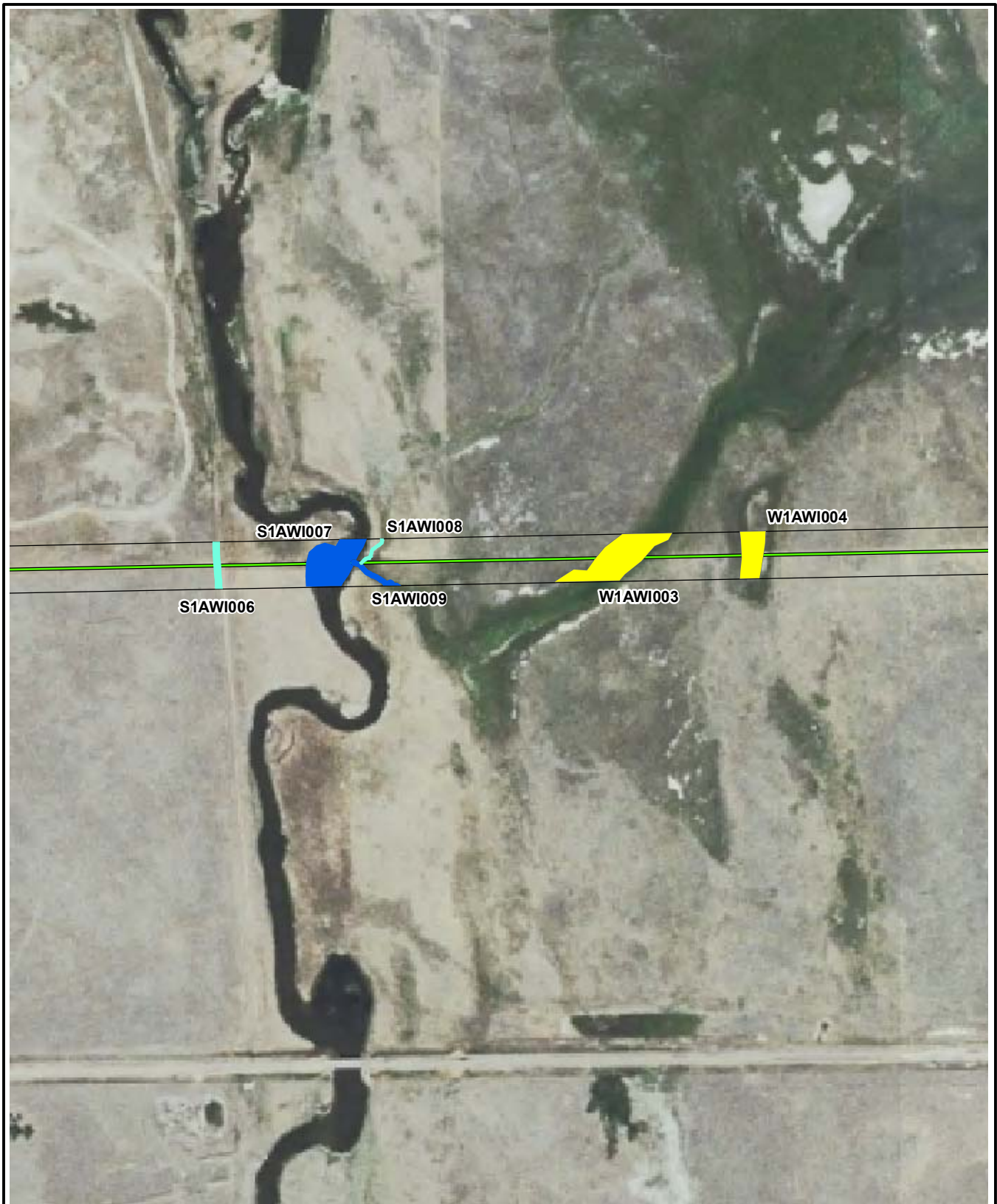
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	PEM Wetland
	Ephemeral Stream
	Intermittent Stream
	Perennial Stream
	Open Water



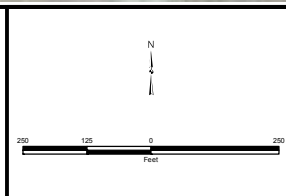
Williston to Tioga Transmission Project

Wetlands and Waterbodies

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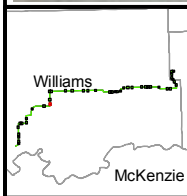
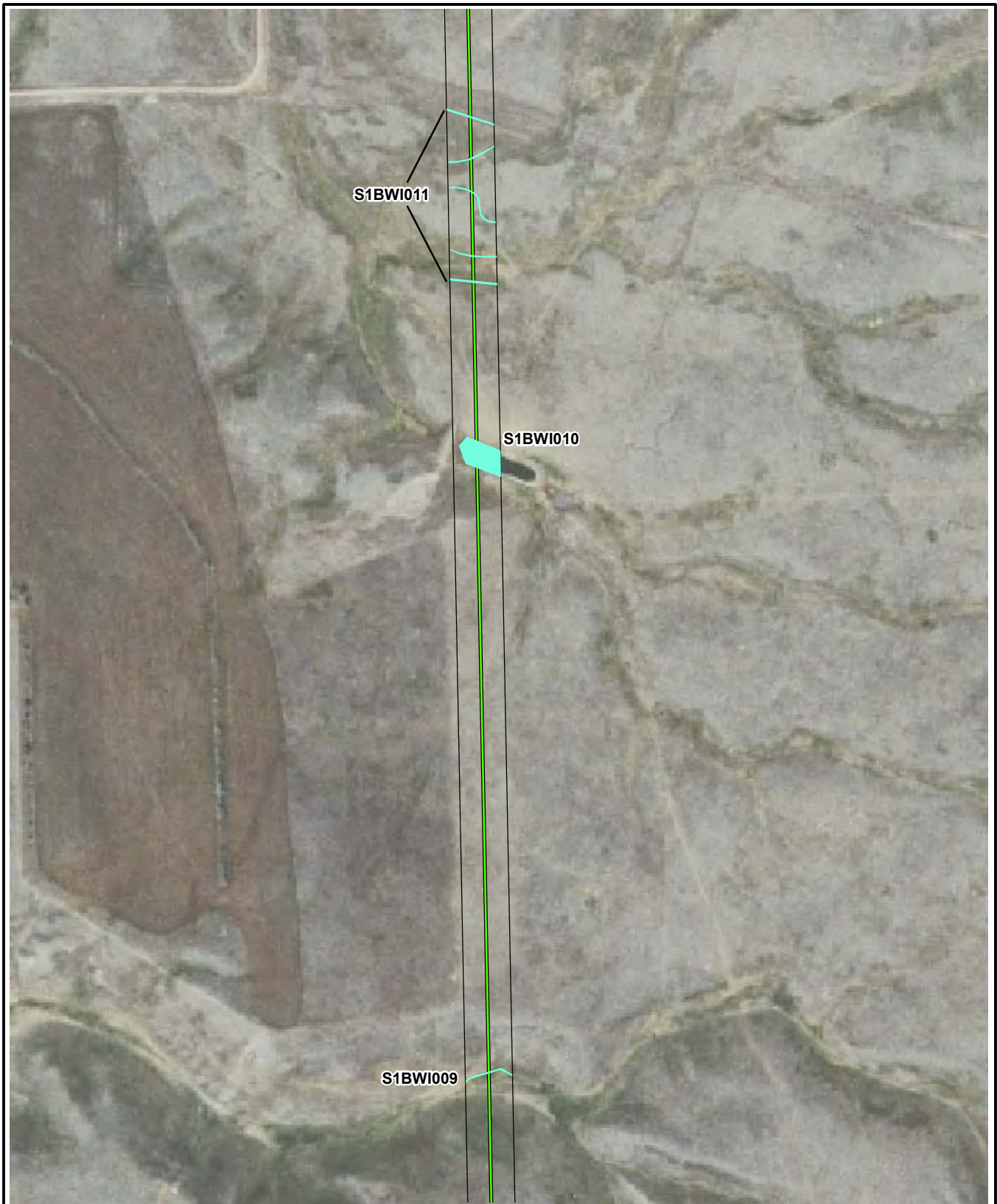
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	PEM Wetland
	Ephemeral Stream
	Intermittent Stream
	Perennial Stream
	Open Water



Williston to Tioga Transmission Project

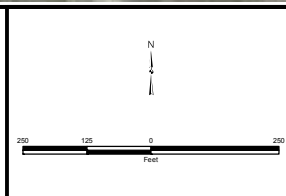
Wetlands and Waterbodies

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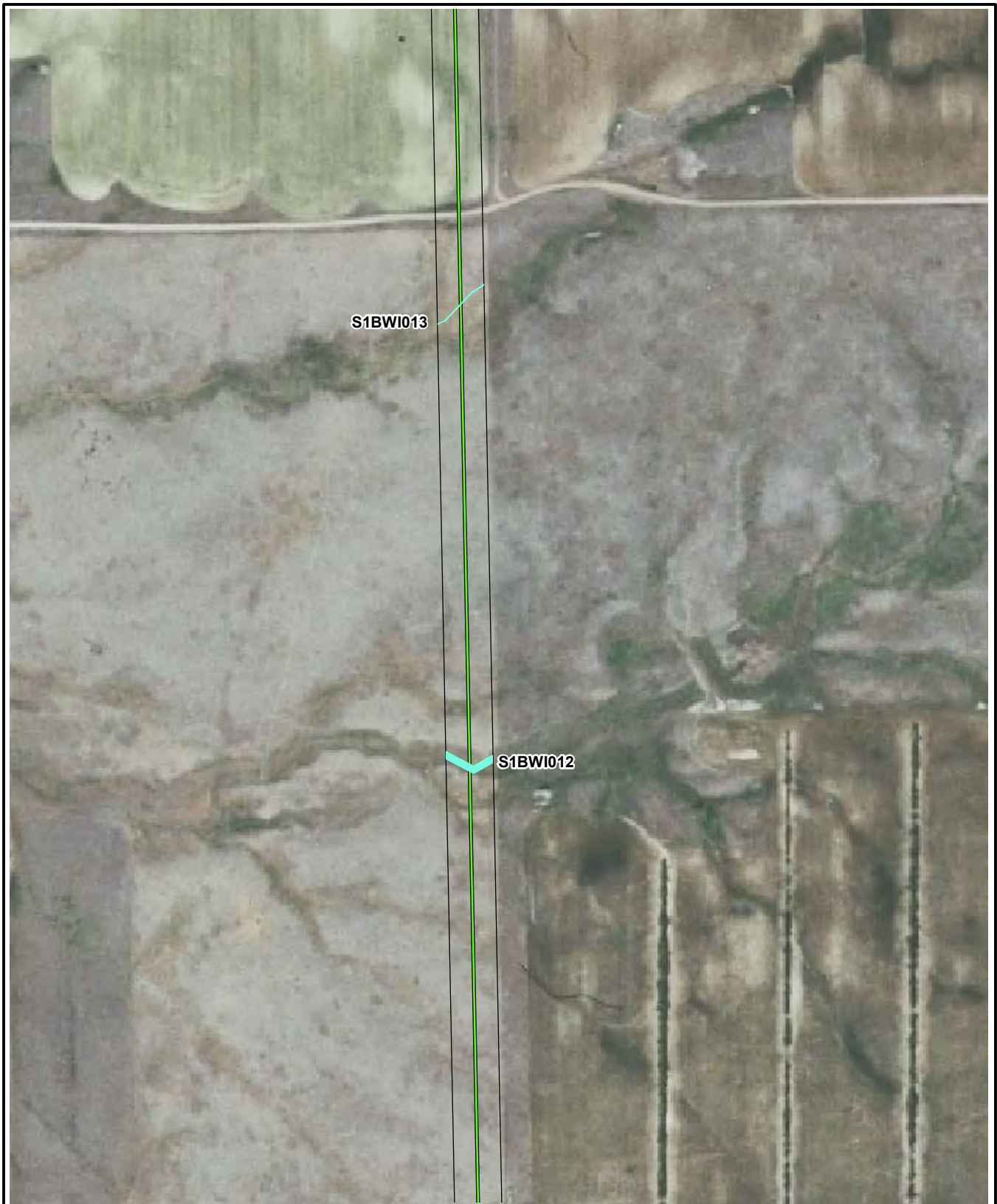
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PEM Wetland	Perennial Stream
	Open Water



Williston to Tioga Transmission Project

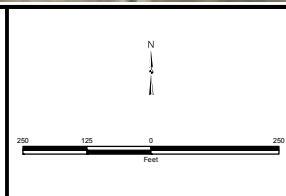
Wetlands and Waterbodies

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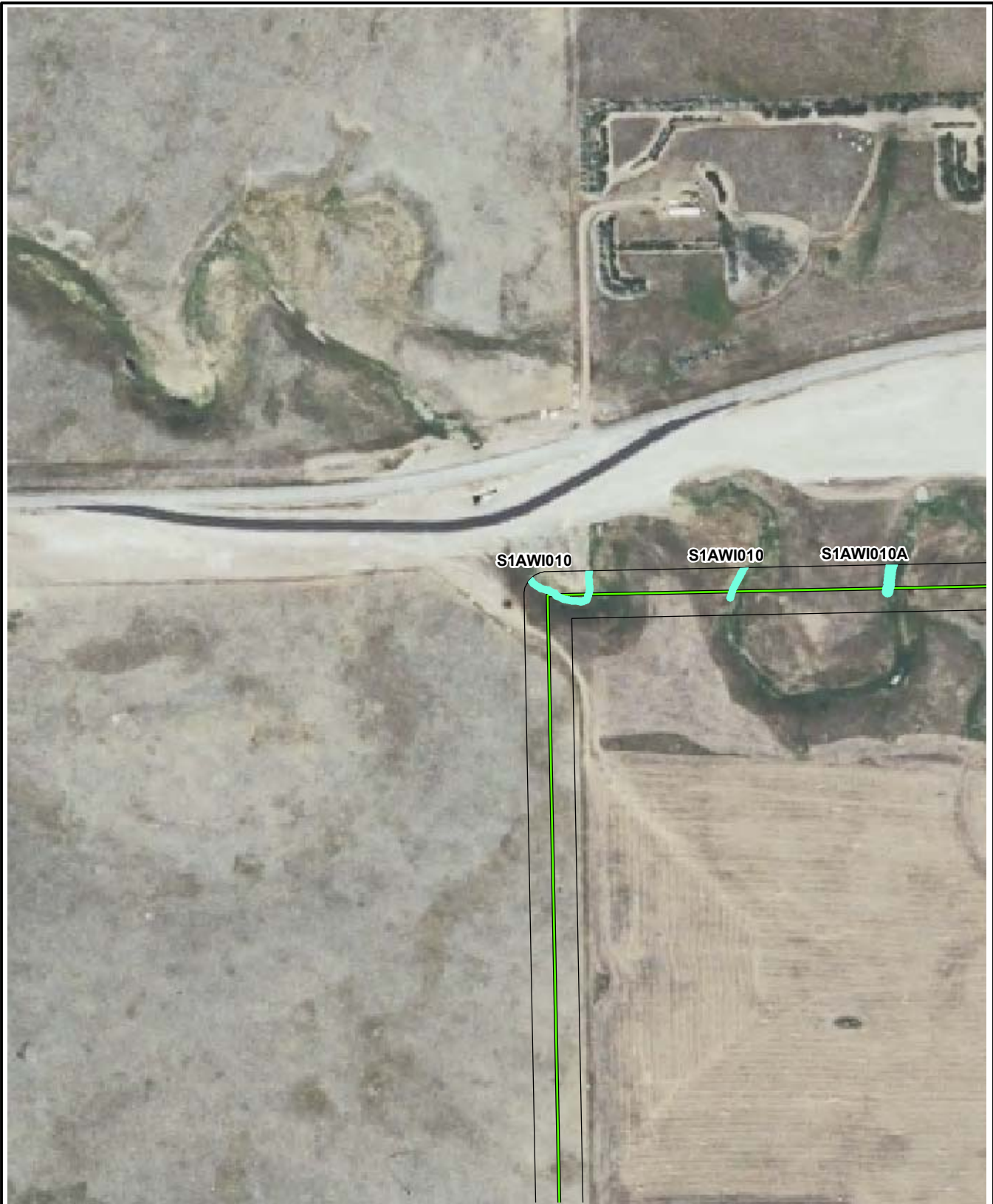
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125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water










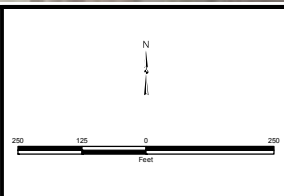
Williston to Tioga Transmission Project

Wetlands and Waterbodies



Map 13 of 42



Legend	
	Preferred Route (10/02/2008)
	125 Foot Survey Corridor
	PEM Wetland
	Ephemeral Stream
	Intermittent Stream
	Perennial Stream
	Open Water



Williston to Tioga Transmission Project

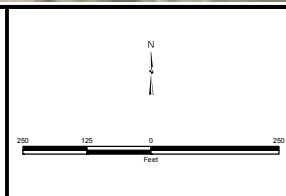
Wetlands and Waterbodies

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Legend

Preferred Route (10/02/2008)	Ephemeral Stream
125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water



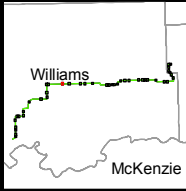
Williston to Tioga Transmission Project

Wetlands and Waterbodies

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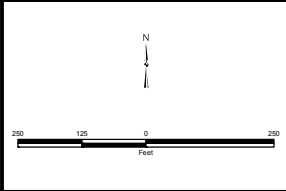


W1BWI004



Legend

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PEM Wetland	Perennial Stream
	Open Water



Williston to Tioga Transmission Project

Wetlands and Waterbodies

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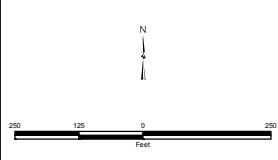


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S1BW1014

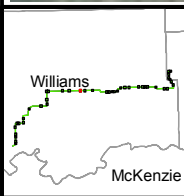
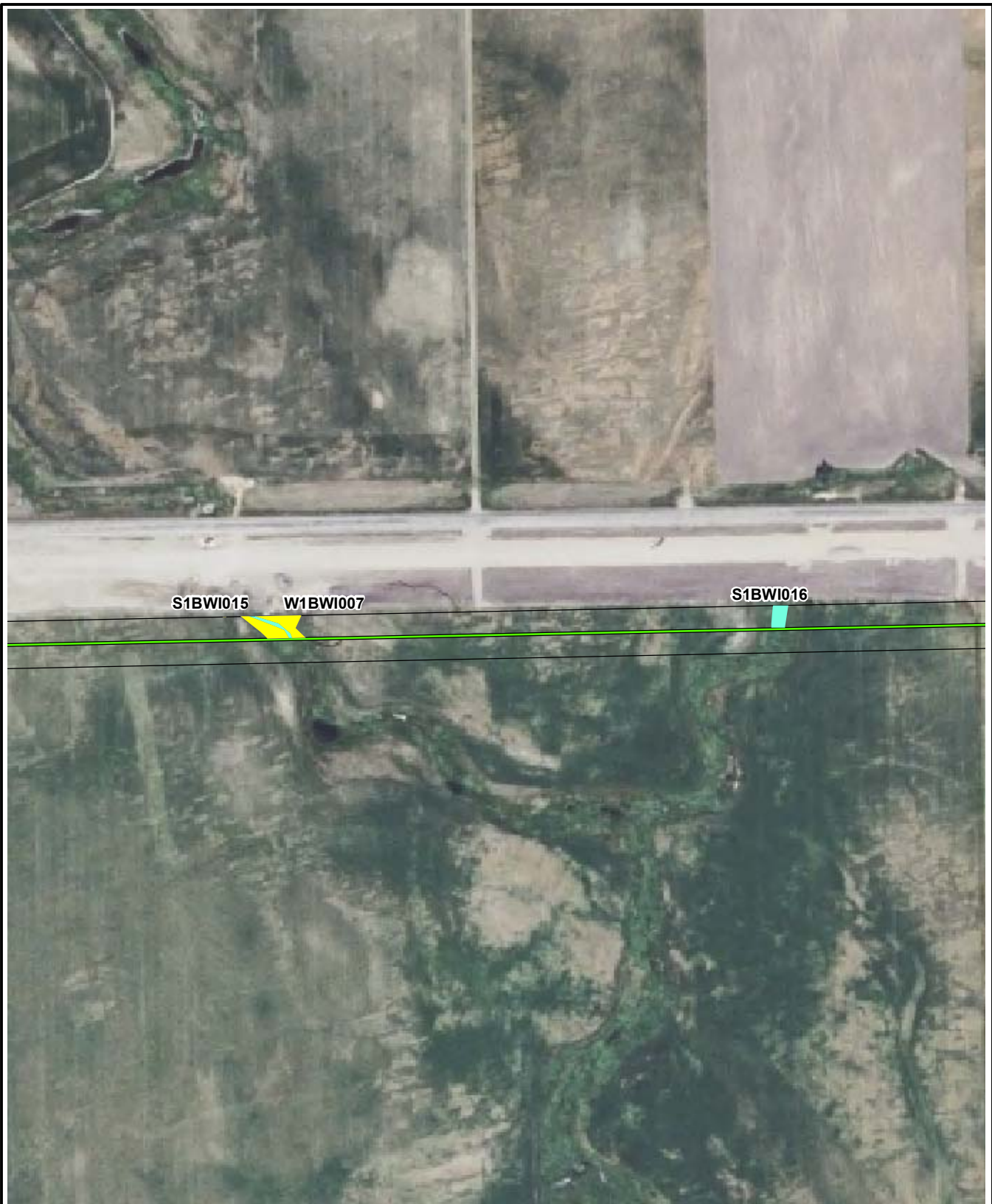


- Legend**
- Preferred Route (10/02/2008)
 - 125 Foot Survey Corridor
 - PEM Wetland
 - Ephemeral Stream
 - Intermittent Stream
 - Perennial Stream
 - Open Water



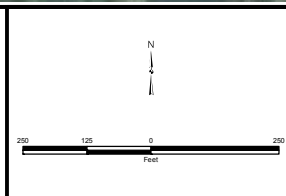
Williston to Tioga Transmission Project
 BASIN ELECTRIC POWER COOPERATIVE
 A Tractor Supply Company
 Western Energy Services

Wetlands and Waterbodies



Legend

Preferred Route (10/02/2008)	Ephemeral Stream
125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water



Williston to Tioga Transmission Project

Wetlands and Waterbodies

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S1BWI017



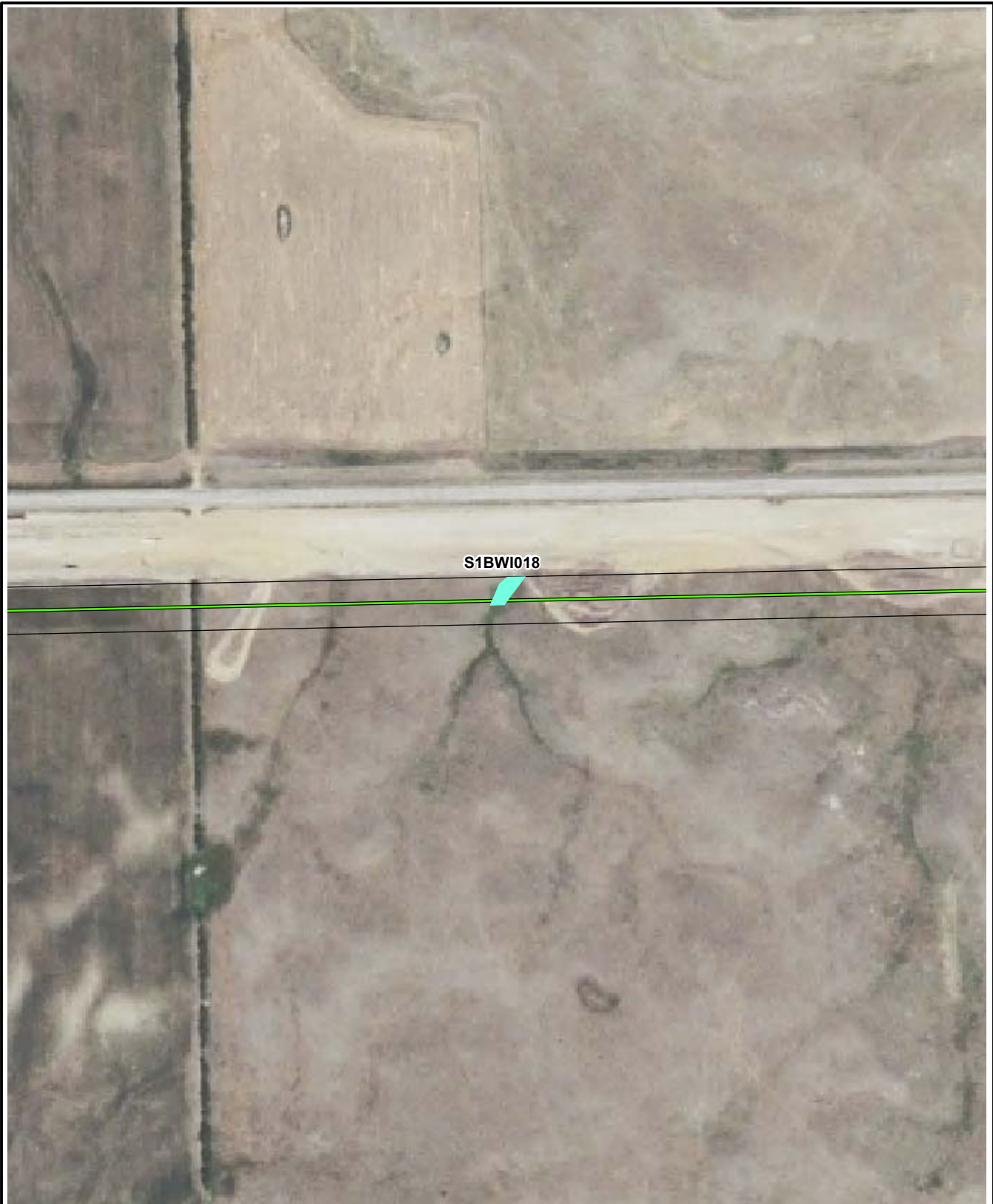
Legend

Preferred Route (10/02/2008)	Ephemeral Stream
125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water

Williston to Tioga Transmission Project

Wetlands and Waterbodies








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S1BW1018



Legend

 Preferred Route (10/02/2008)	 Ephemeral Stream
 125 Foot Survey Corridor	 Intermittent Stream
 PEM Wetland	 Perennial Stream
	 Open Water

Williston to Tioga Transmission Project

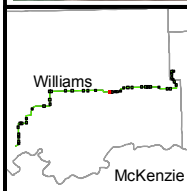
Wetlands and Waterbodies

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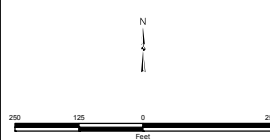


S1AWI011

S1AWI012



- Legend**
- Preferred Route (10/02/2008)
 - 125 Foot Survey Corridor
 - PEM Wetland
 - Ephemeral Stream
 - Intermittent Stream
 - Perennial Stream
 - Open Water

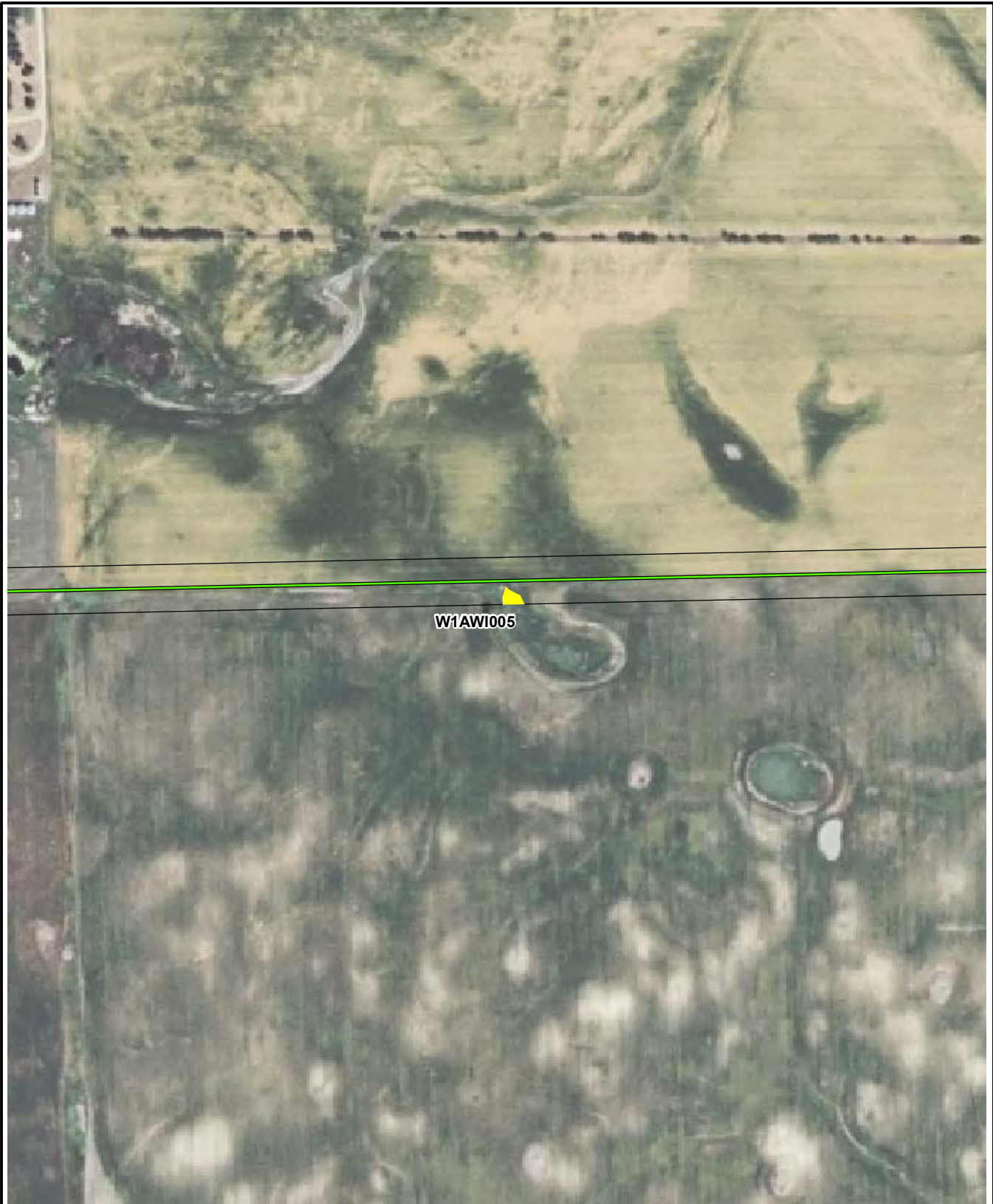


Williston to Tioga Transmission Project



Wetlands and Waterbodies

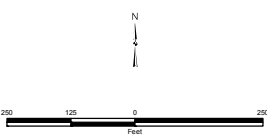
Map 21 of 42



W1AW1005

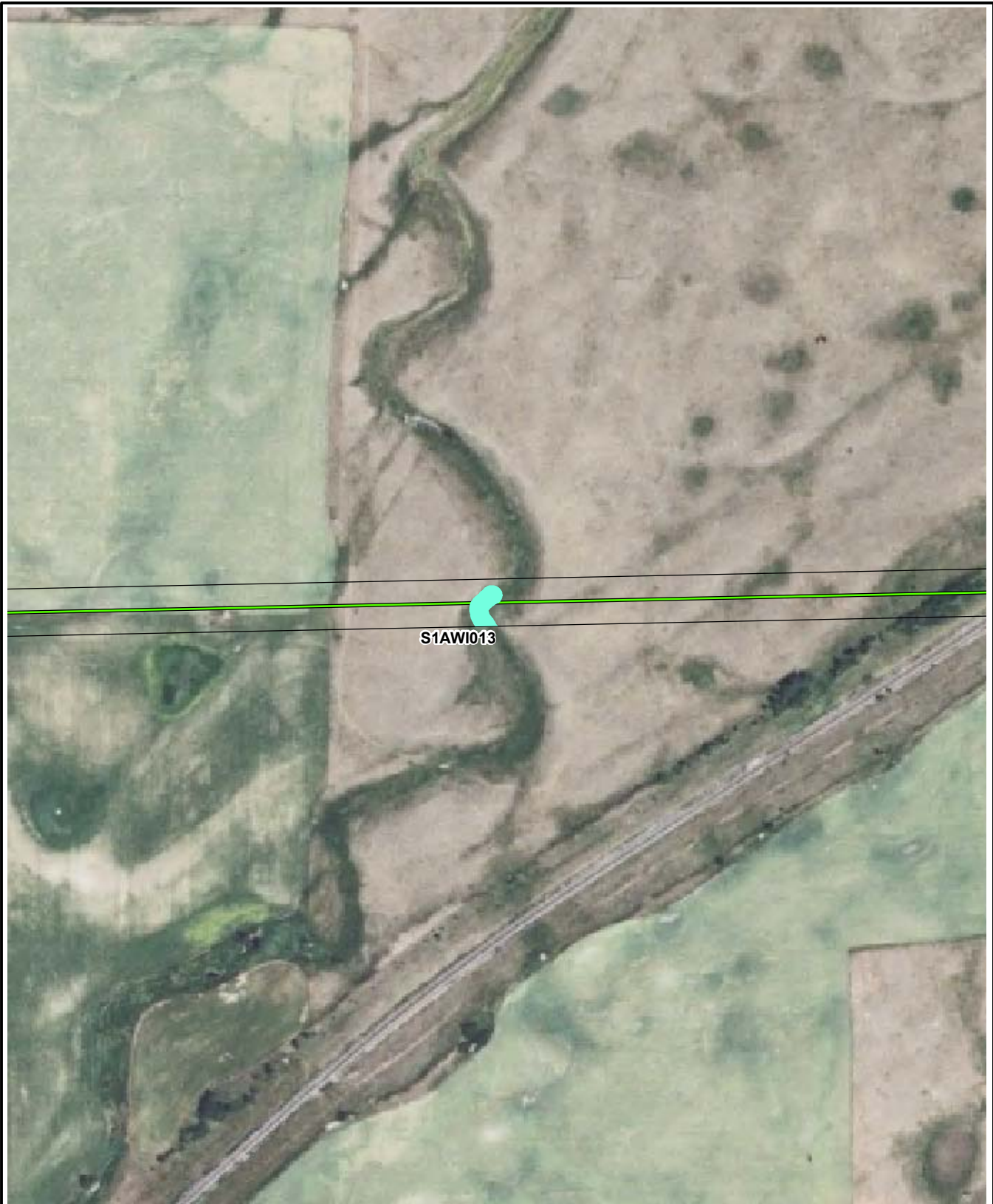


- Legend**
- Preferred Route (10/02/2008)
 - 125 Foot Survey Corridor
 - PEM Wetland
 - Ephemeral Stream
 - Intermittent Stream
 - Perennial Stream
 - Open Water

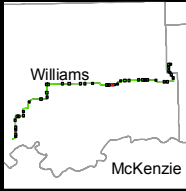


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 & Tractor Supply Company
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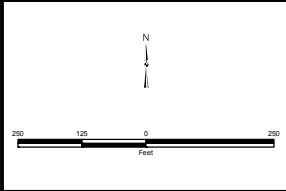
Wetlands and Waterbodies



S1AWI013



Legend	
	Preferred Route (10/02/2008)
	125 Foot Survey Corridor
	PEM Wetland
	Ephemeral Stream
	Intermittent Stream
	Perennial Stream
	Open Water



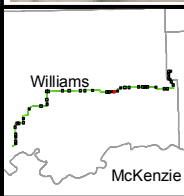
Williston to Tioga Transmission Project

Wetlands and Waterbodies

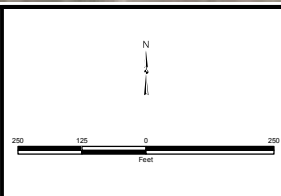
Map 23 of 42



W1AWI007



Legend	
	Preferred Route (10/02/2008)
	125 Foot Survey Corridor
	PEM Wetland
	Ephemeral Stream
	Intermittent Stream
	Perennial Stream
	Open Water










Williston to Tioga Transmission Project

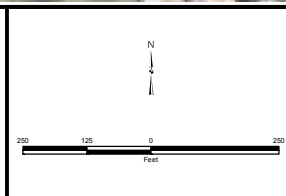
Wetlands and Waterbodies

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Legend

 Preferred Route (10/02/2008)	 Ephemeral Stream
 125 Foot Survey Corridor	 Intermittent Stream
 PEM Wetland	 Perennial Stream
	 Open Water



Williston to Tioga Transmission Project

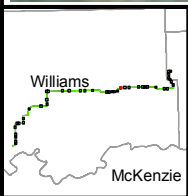



Wetlands and Waterbodies

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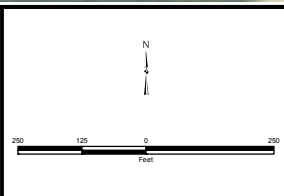


S1CWI001



Legend

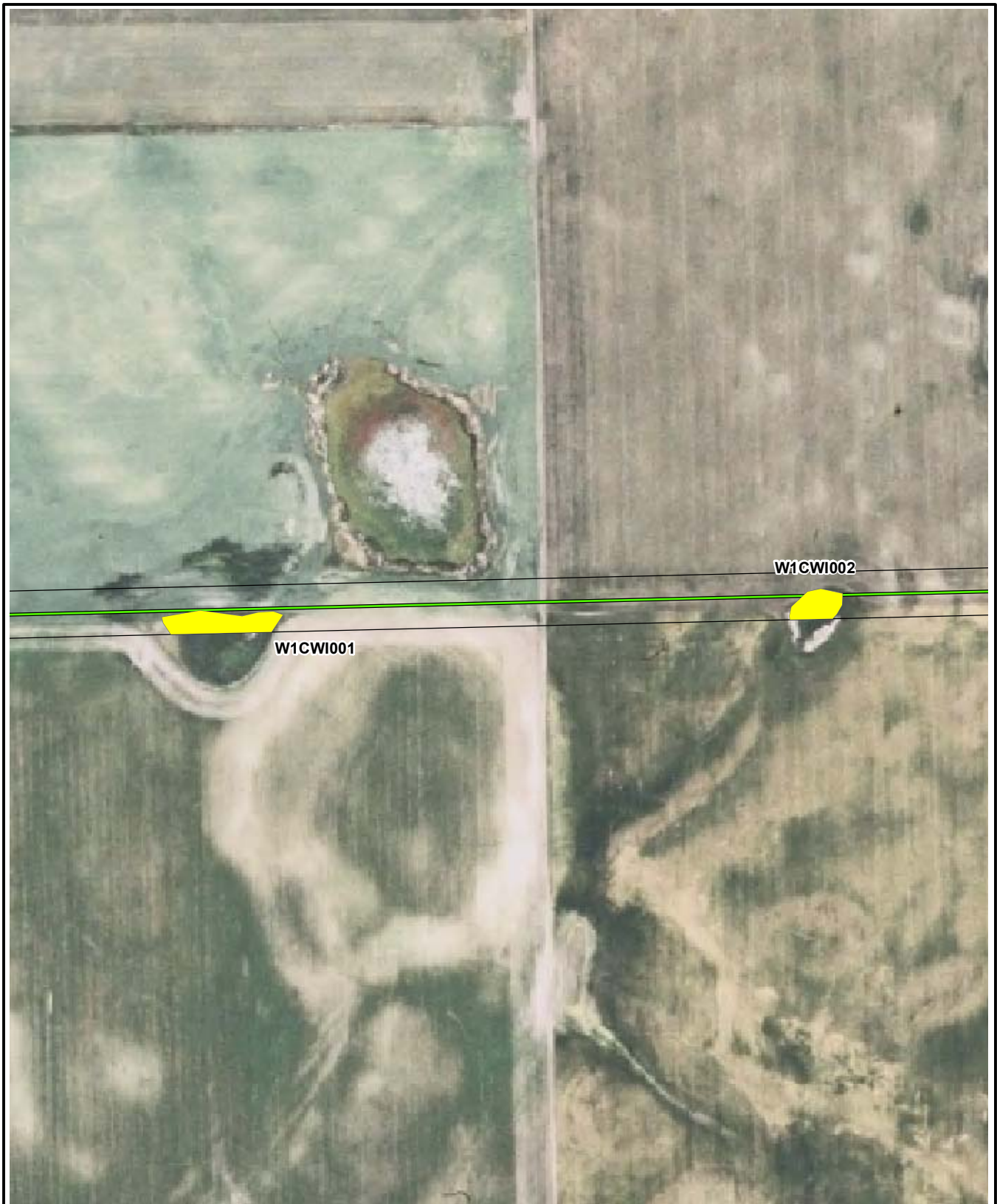
Preferred Route (10/02/2008)	Ephemeral Stream
125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water



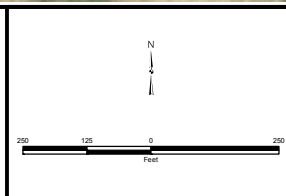
Williston to Tioga Transmission Project

Wetlands and Waterbodies

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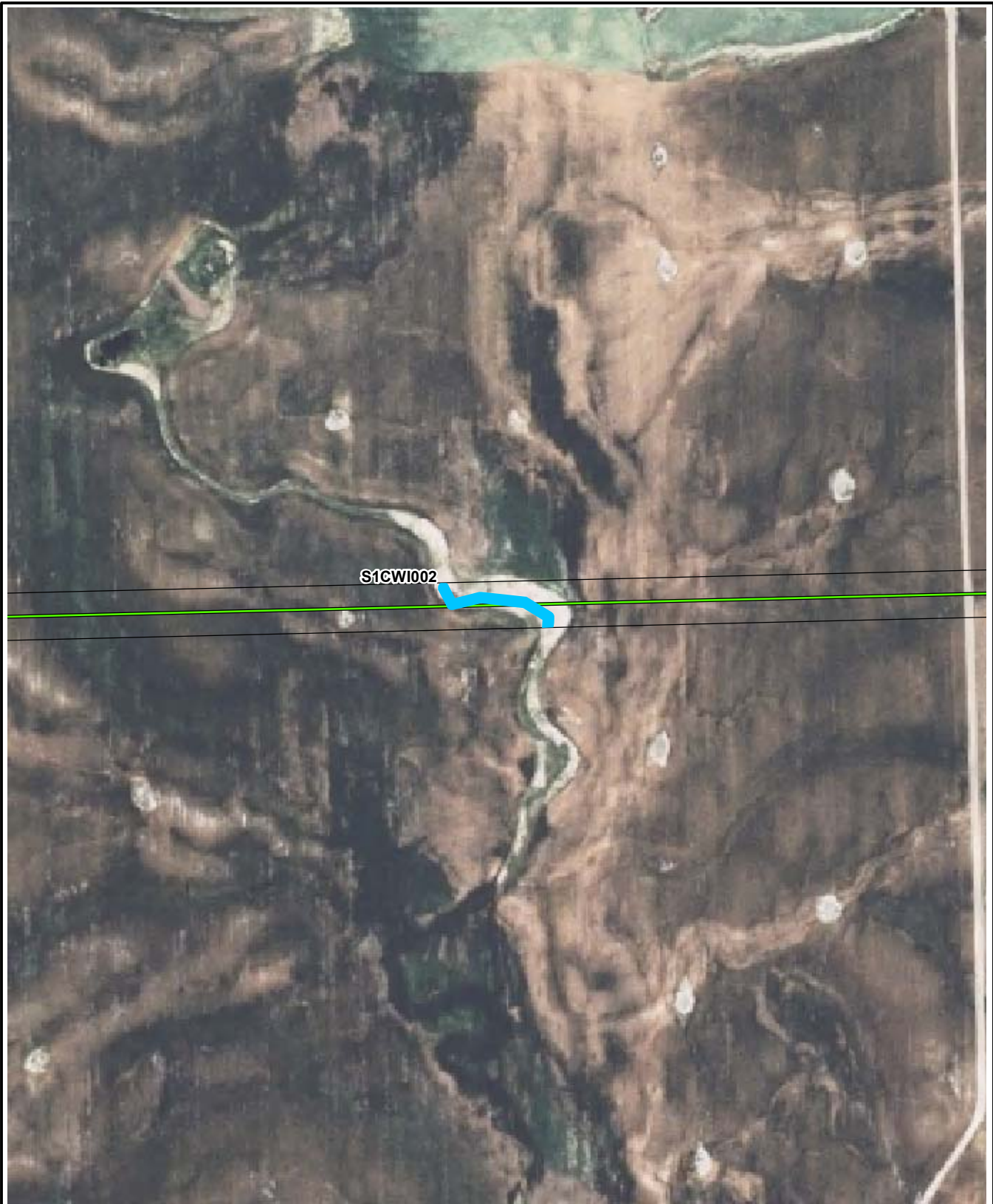
Legend	
Preferred Route (10/02/2008)	Ephemeral Stream
125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water



Williston to Tioga Transmission Project

Wetlands and Waterbodies

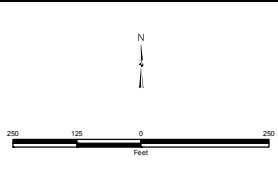
Map 27 of 42



S1CW1002



Legend	
	Preferred Route (10/02/2008)
	125 Foot Survey Corridor
	PEM Wetland
	Ephemeral Stream
	Intermittent Stream
	Perennial Stream
	Open Water



Williston to Tioga Transmission Project

Wetlands and Waterbodies

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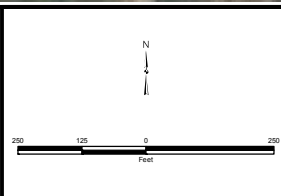


W1BW1010



Legend

Preferred Route (10/02/2008)	Ephemeral Stream
125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water



Williston to Tioga Transmission Project

Wetlands and Waterbodies

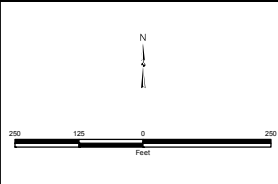
Map 29 of 42



W1BW1011



Legend	
	Preferred Route (10/02/2008)
	125 Foot Survey Corridor
	PEM Wetland
	Ephemeral Stream
	Intermittent Stream
	Perennial Stream
	Open Water



Williston to Tioga Transmission Project

Wetlands and Waterbodies

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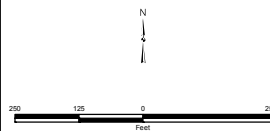


W1BW012

W1BW013



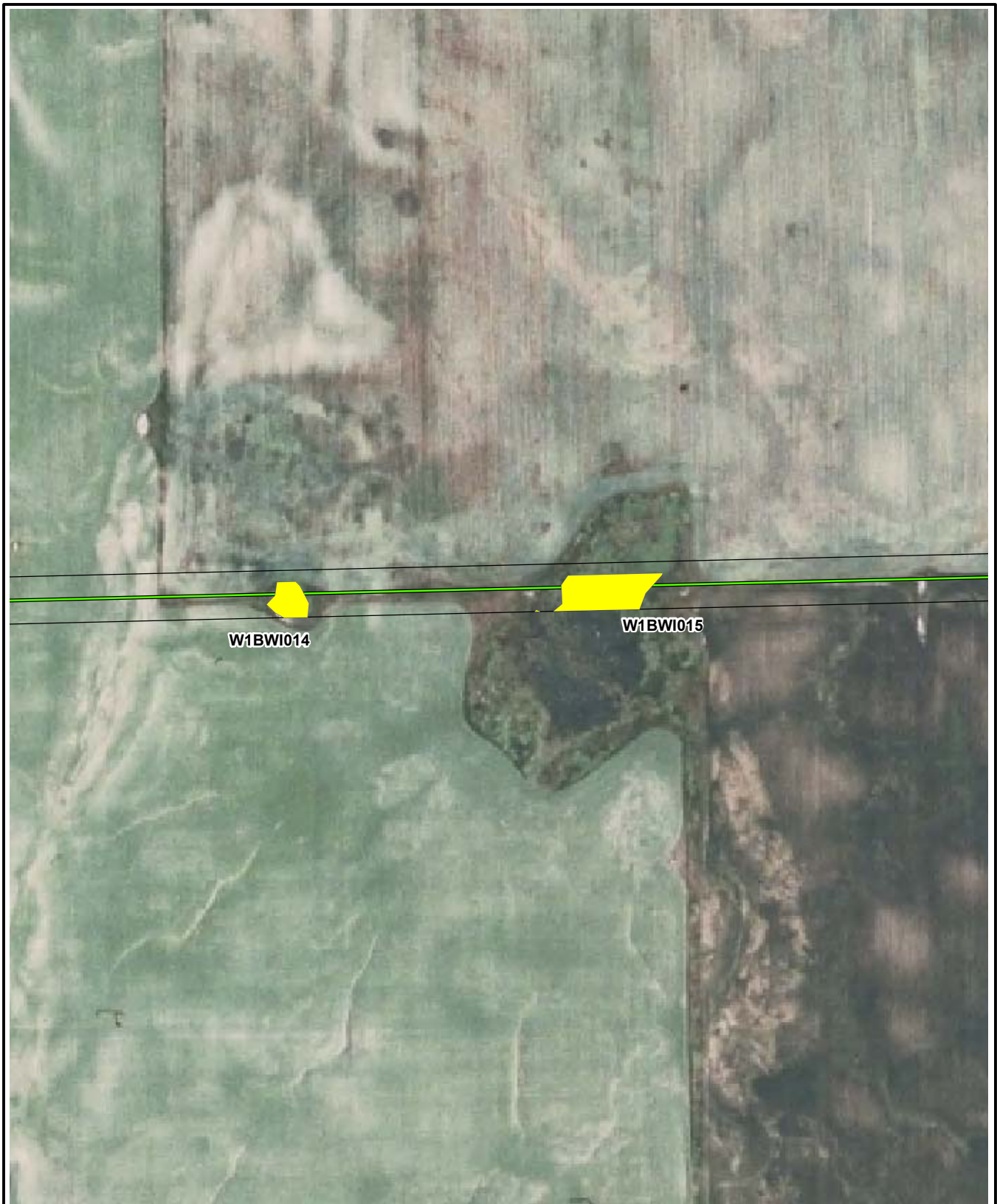
- Legend**
- Preferred Route (10/02/2008)
 - 125 Foot Survey Corridor
 - PEM Wetland
 - Ephemeral Stream
 - Intermittent Stream
 - Perennial Stream
 - Open Water










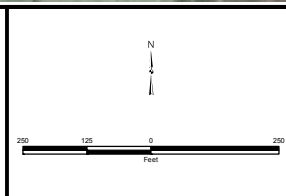
Williston to Tioga Transmission Project
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Wetlands and Waterbodies



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Legend	
	Preferred Route (10/02/2008)
	125 Foot Survey Corridor
	PEM Wetland
	Ephemeral Stream
	Intermittent Stream
	Perennial Stream
	Open Water

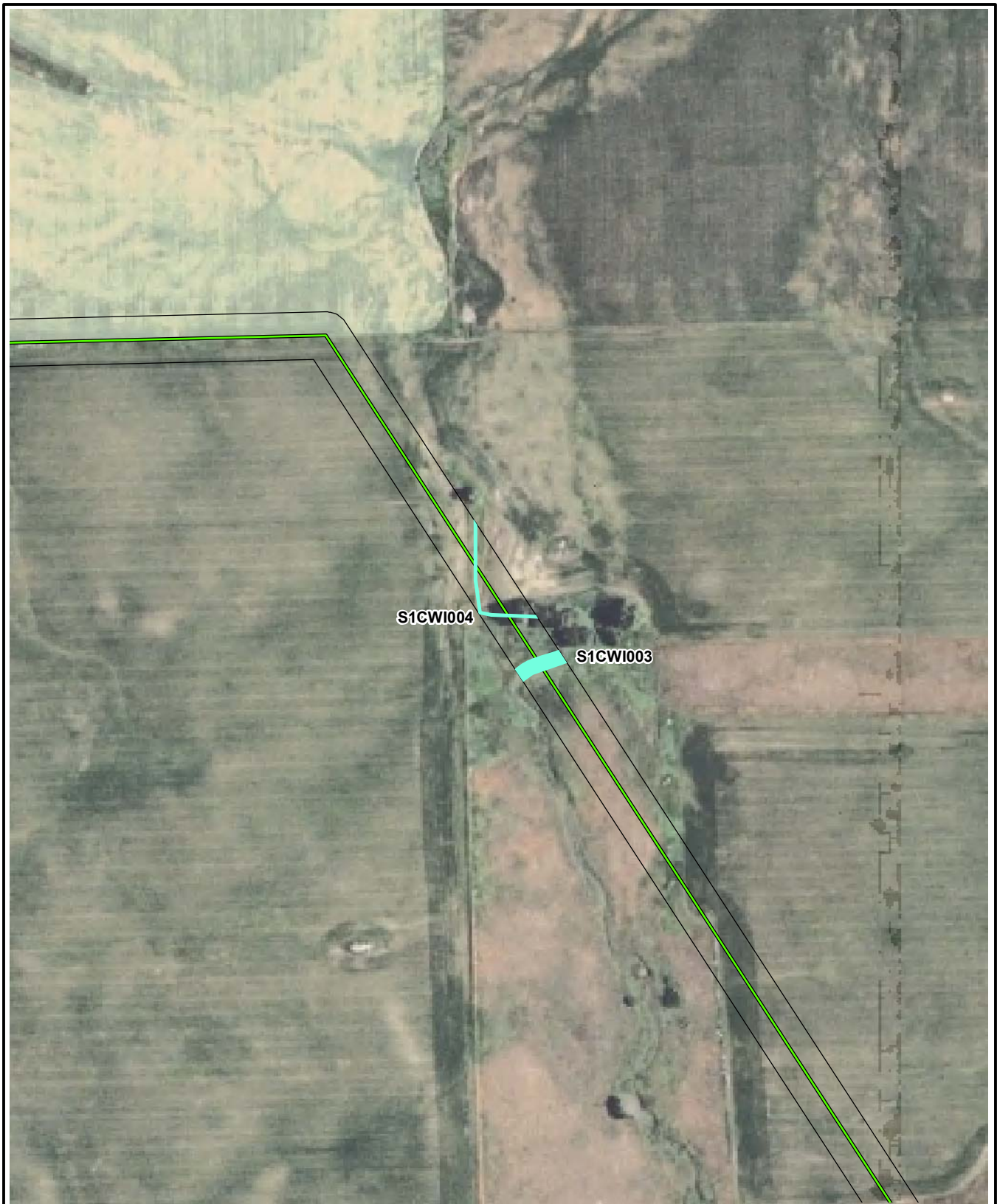


Williston to Tioga Transmission Project








 

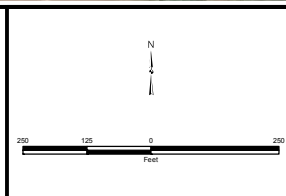
Wetlands and Waterbodies

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Legend

 Preferred Route (10/02/2008)	 Ephemeral Stream
 125 Foot Survey Corridor	 Intermittent Stream
 PEM Wetland	 Perennial Stream
	 Open Water

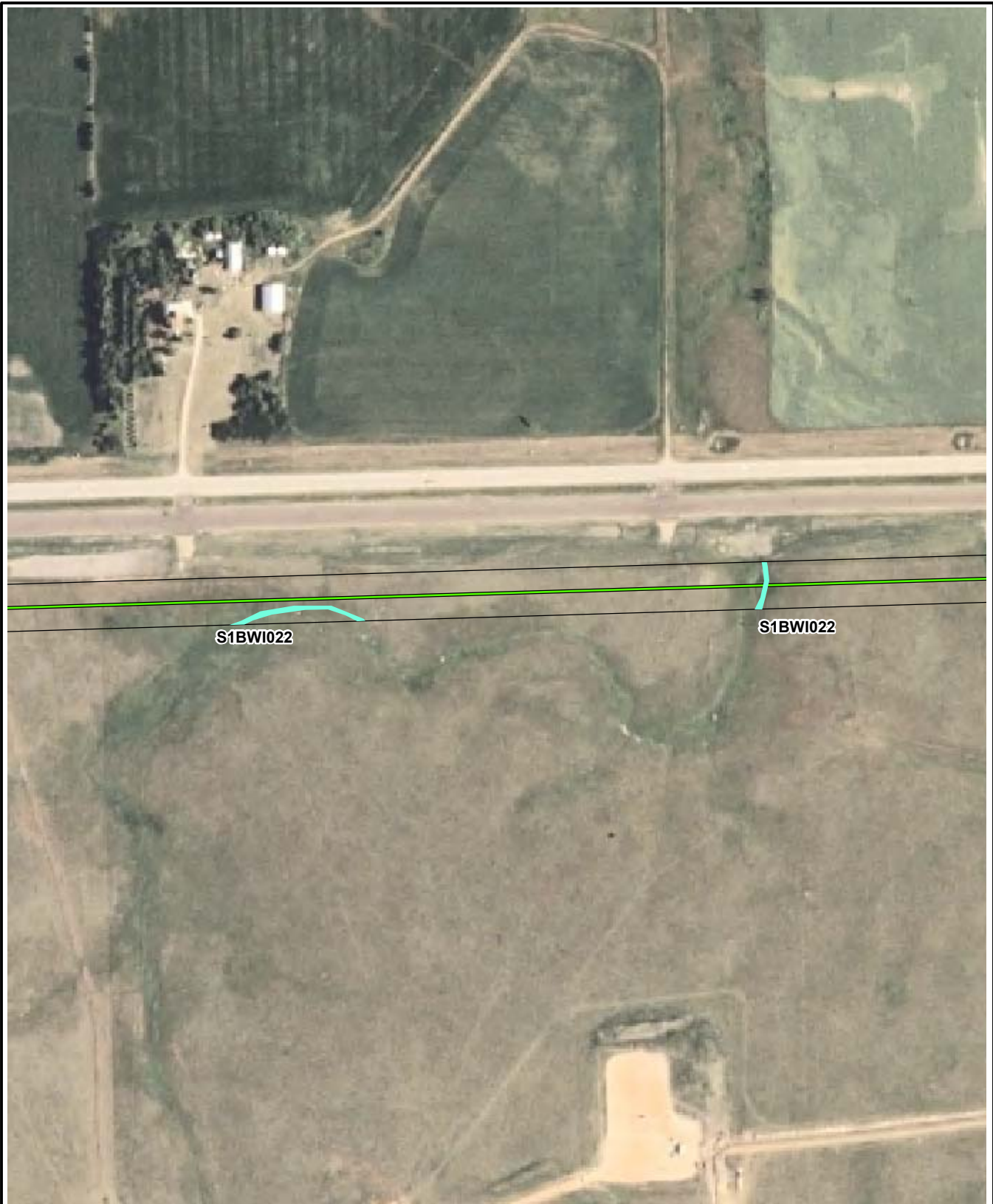


Williston to Tioga Transmission Project

Wetlands and Waterbodies

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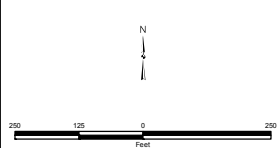


S1BW1022

S1BW1022



- Legend**
- Preferred Route (10/02/2008)
 - 125 Foot Survey Corridor
 - PEM Wetland
 - Ephemeral Stream
 - Intermittent Stream
 - Perennial Stream
 - Open Water



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





Wetlands and Waterbodies




S1BW1023



Legend

 Preferred Route (10/02/2008)	 Ephemeral Stream
 125 Foot Survey Corridor	 Intermittent Stream
 PEM Wetland	 Perennial Stream
	 Open Water



N



250 125 0 250

Feet

Williston to Tioga Transmission Project

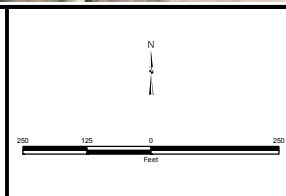
Wetlands and Waterbodies

Map 35 of 42



Legend

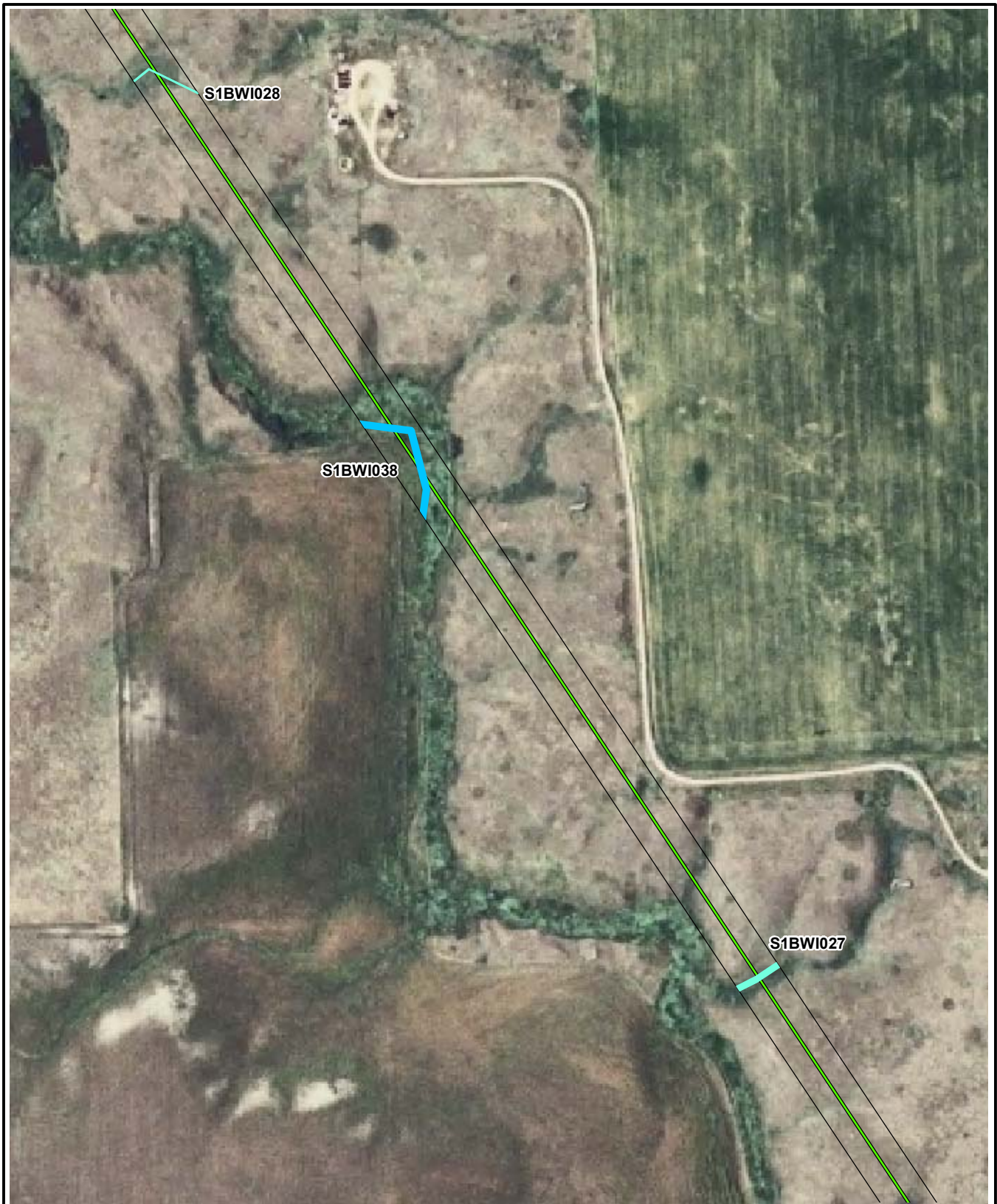
Preferred Route (10/02/2008)	Ephemeral Stream
125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water



Williston to Tioga Transmission Project

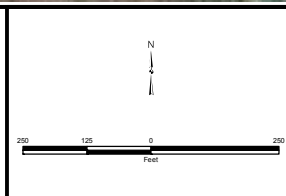
Wetlands and Waterbodies

Map 36 of 42



Legend

Preferred Route (10/02/2008)	Ephemeral Stream
125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water



Williston to Tioga Transmission Project

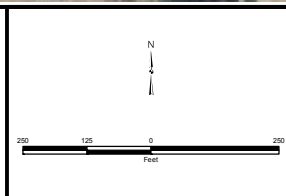
Wetlands and Waterbodies

Map 37 of 42



Legend

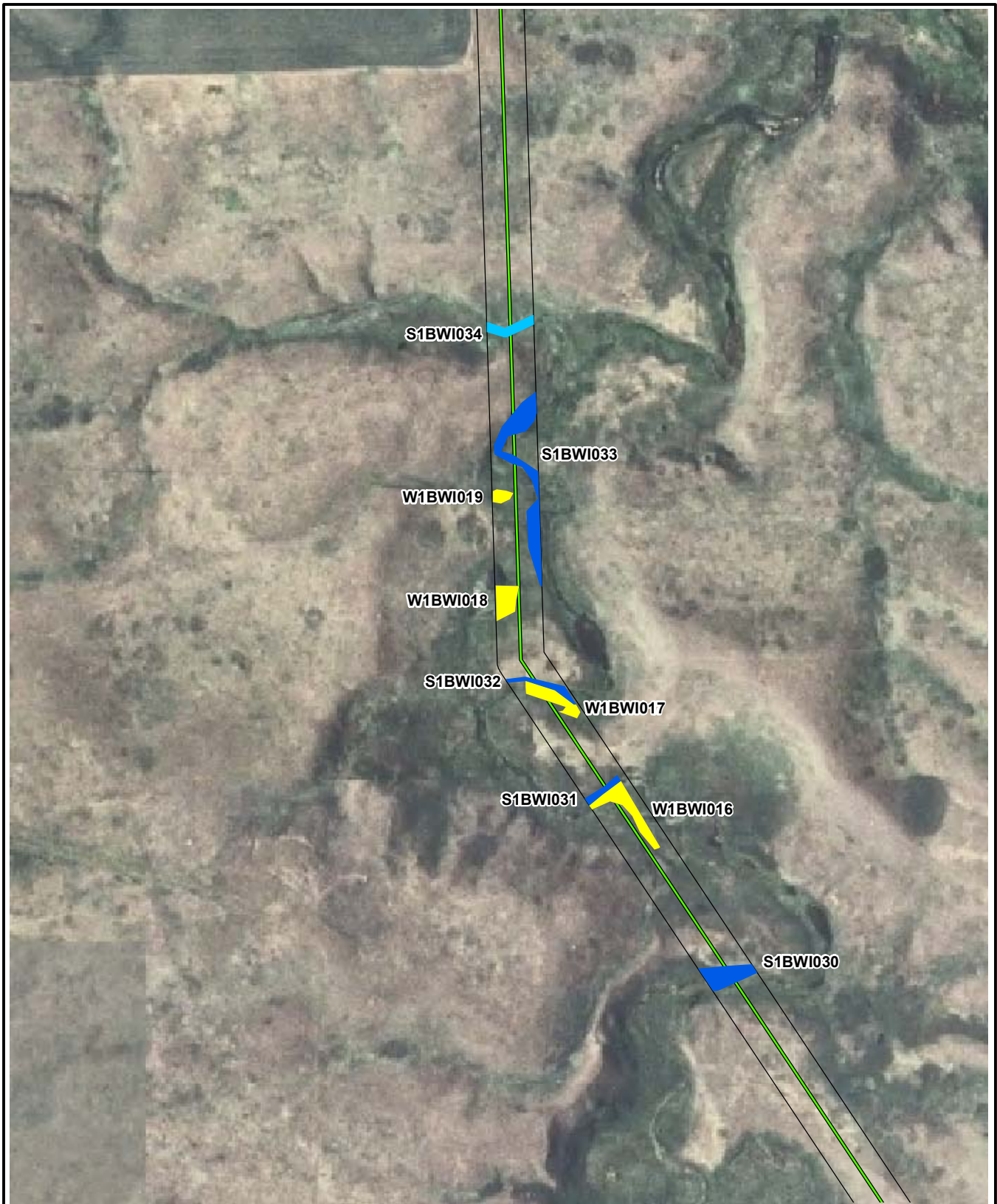
Preferred Route (10/02/2008)	Ephemeral Stream
125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water



Williston to Tioga Transmission Project

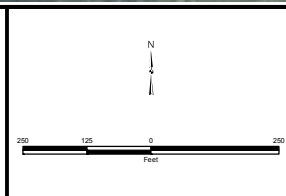
Wetlands and Waterbodies

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Legend

Preferred Route (10/02/2008)	Ephemeral Stream
125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water










Williston to Tioga Transmission Project

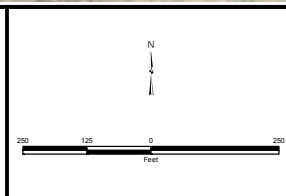
Wetlands and Waterbodies

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Legend

 Preferred Route (10/02/2008)	 Ephemeral Stream
 125 Foot Survey Corridor	 Intermittent Stream
 PEM Wetland	 Perennial Stream
	 Open Water

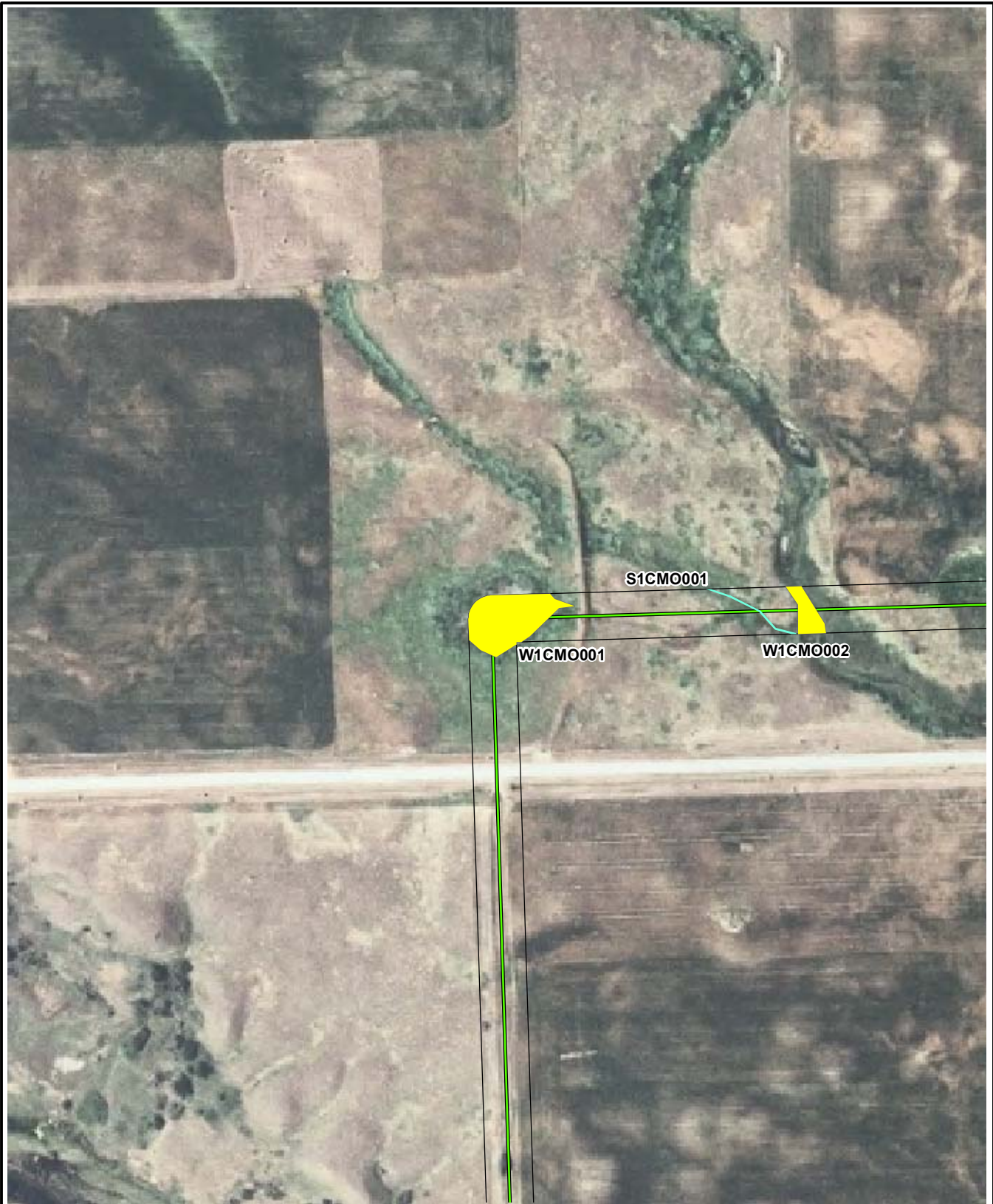


Williston to Tioga Transmission Project

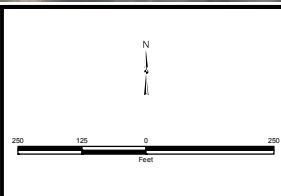



Wetlands and Waterbodies

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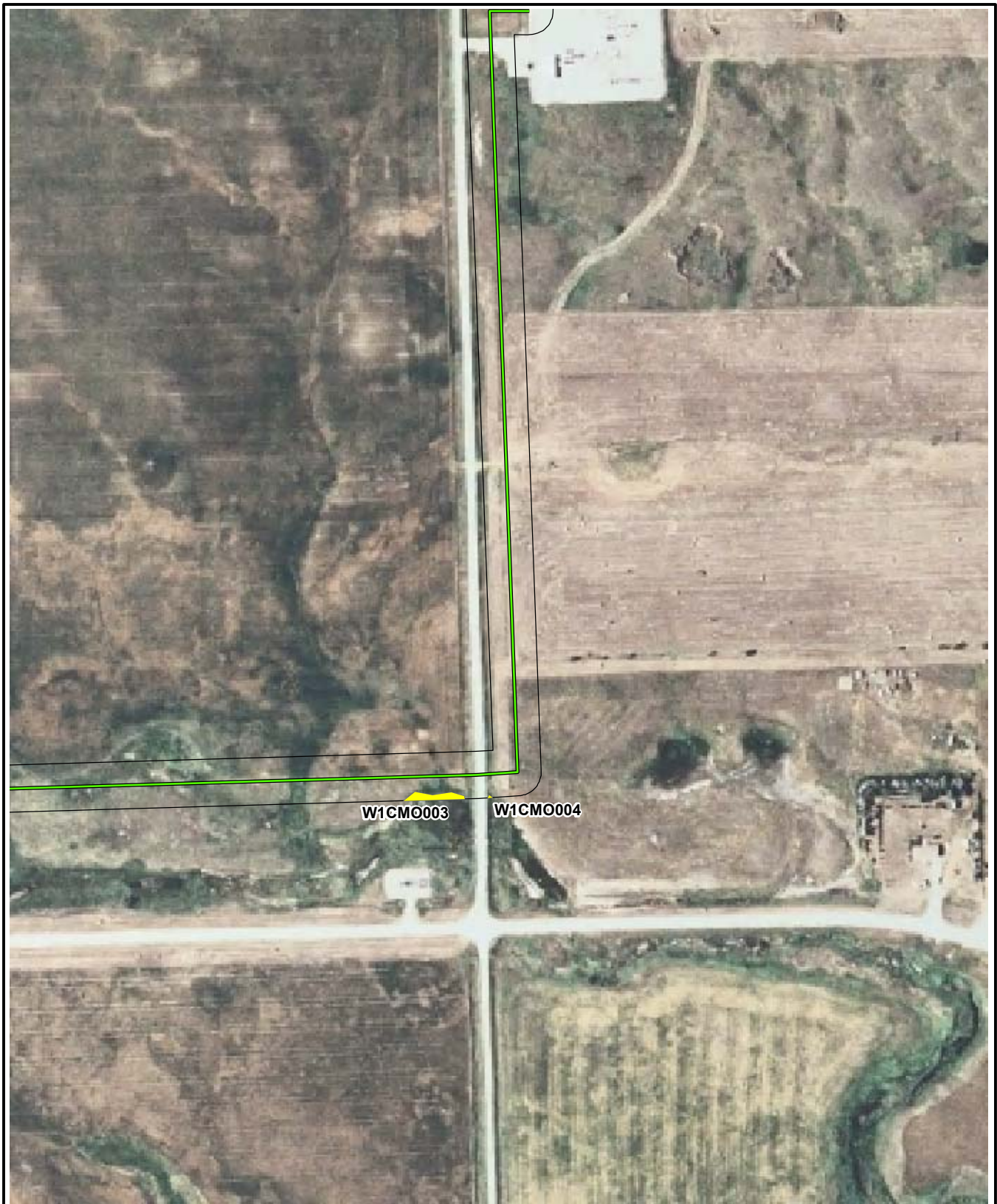
Legend	
Preferred Route (10/02/2008)	Ephemeral Stream
125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water



Williston to Tioga Transmission Project

Wetlands and Waterbodies

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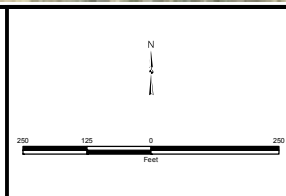


W1CMO003 W1CMO004



Legend

Preferred Route (10/02/2008)	Ephemeral Stream
125 Foot Survey Corridor	Intermittent Stream
PEM Wetland	Perennial Stream
	Open Water



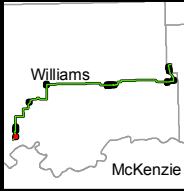
Williston to Tioga Transmission Project

Wetlands and Waterbodies

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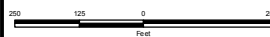
SEL1WI001



Legend

- Preferred Route (5/5/2009)
- 125 Foot Survey Corridor (5/5/09)
- 125 Foot Survey Corridor (10/2/08)
- Features Surveyed 06/09
- Ephemeral Stream
- Intermittent Stream
- Open Water
- PEM Wetland
- Perennial Stream

3

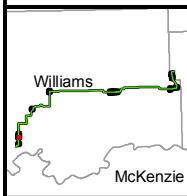
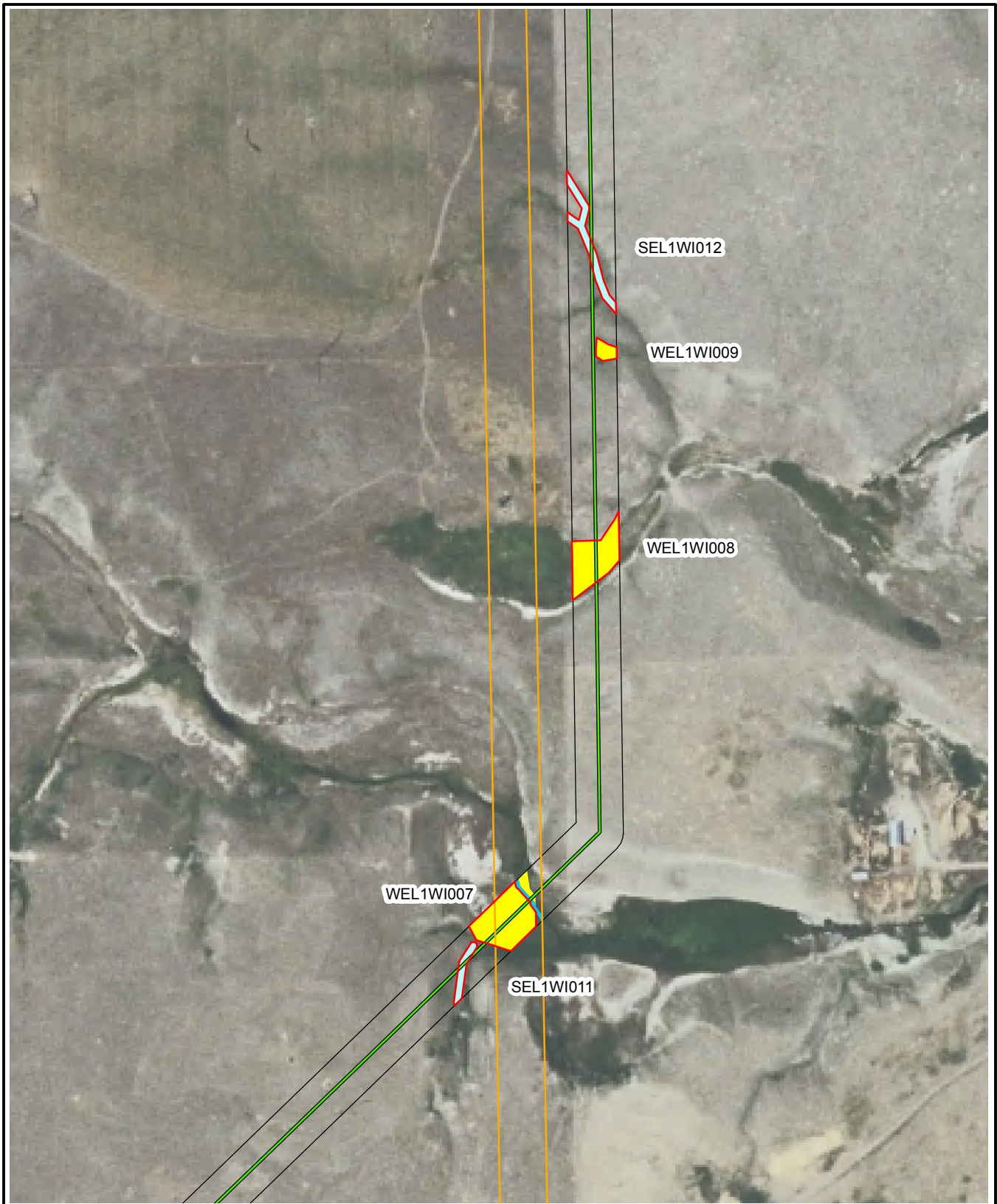


Williston to Tioga Transmission Project



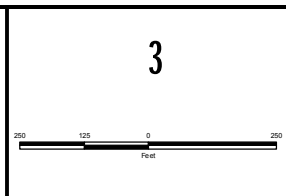
Wetlands and Waterbodies

Map 1 of 14



Legend

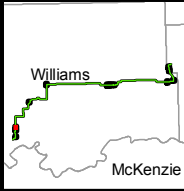
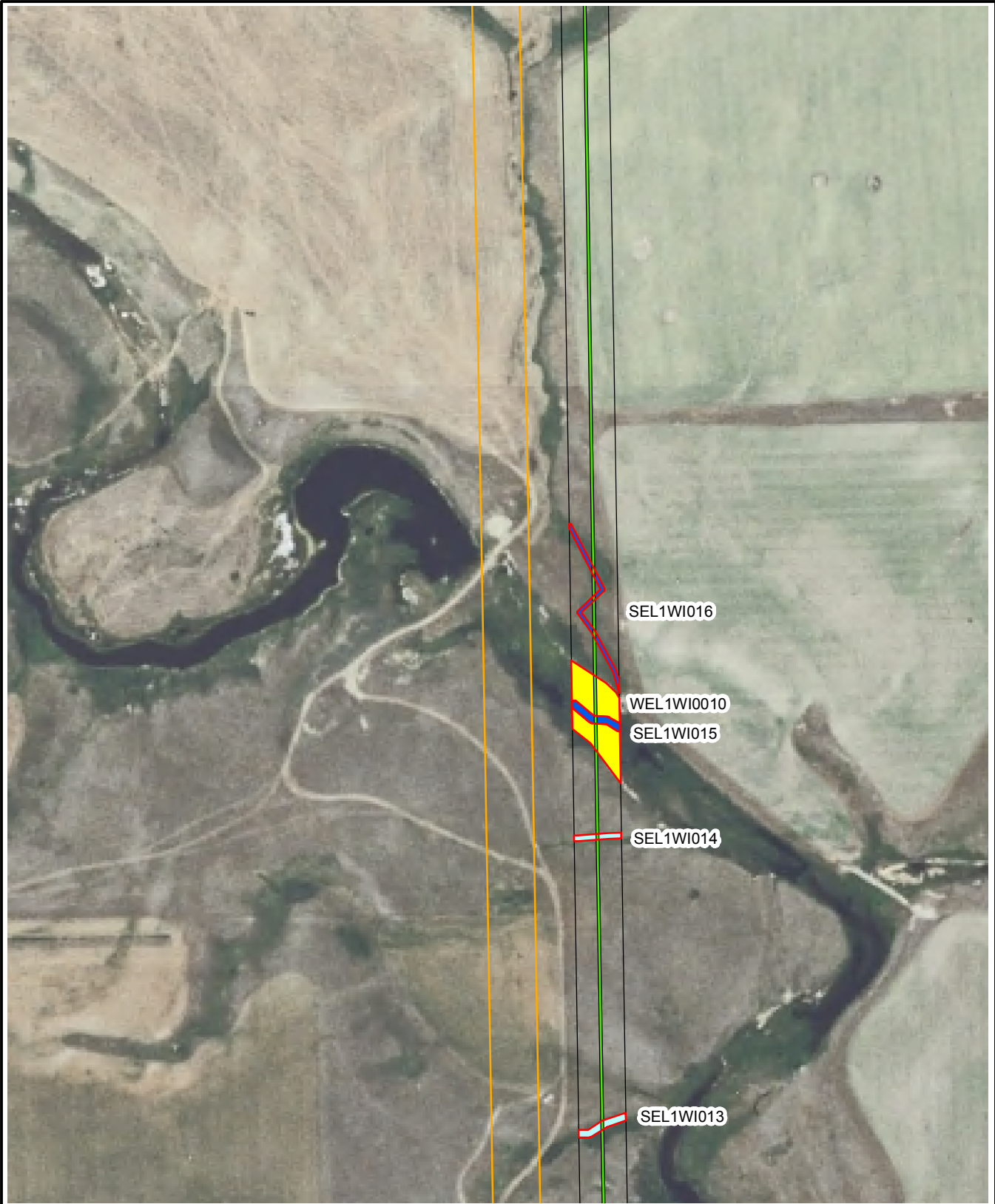
Preferred Route (5/5/2009)	Ephemeral Stream
125 Foot Survey Corridor (5/5/09)	Intermittent Stream
125 Foot Survey Corridor (10/2/08)	Open Water
Features Surveyed 06/09	PEM Wetland
	Perennial Stream



Williston to Tioga Transmission Project

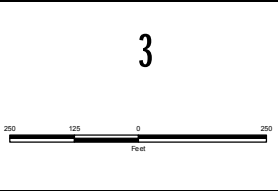
Wetlands and Waterbodies

Map 2 of 14



Legend

Preferred Route (5/5/2009)	Ephemeral Stream
125 Foot Survey Corridor (5/5/09)	Intermittent Stream
125 Foot Survey Corridor (10/2/08)	Open Water
Features Surveyed 06/09	PEM Wetland
	Perennial Stream



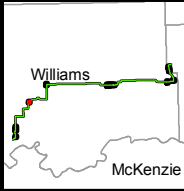
Williston to Tioga Transmission Project

Wetlands and Waterbodies

Map 3 of 14



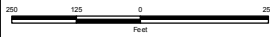
SEL1WI018



Legend

- Preferred Route (5/5/2009)
- 125 Foot Survey Corridor (5/5/09)
- 125 Foot Survey Corridor (10/2/08)
- Features Surveyed 06/09
- Ephemeral Stream
- Intermittent Stream
- Open Water
- PEM Wetland
- Perennial Stream

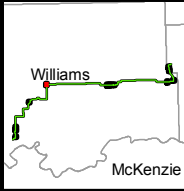
3



Williston to Tioga Transmission Project

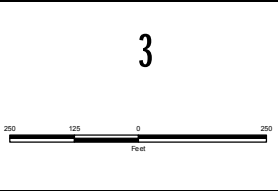

Wetlands and Waterbodies

Map 4 of 14



Legend

Preferred Route (5/5/2009)	Ephemeral Stream
125 Foot Survey Corridor (5/5/09)	Intermittent Stream
125 Foot Survey Corridor (10/2/08)	Open Water
Features Surveyed 06/09	PEM Wetland
	Perennial Stream



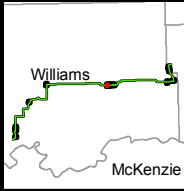
Williston to Tioga Transmission Project

Wetlands and Waterbodies

Map 5 of 14

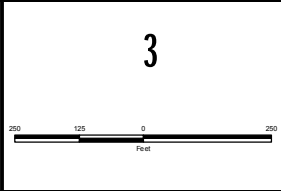


WEL1WI006



Legend

Preferred Route (5/5/2009)	Ephemeral Stream
125 Foot Survey Corridor (5/5/09)	Intermittent Stream
125 Foot Survey Corridor (10/2/08)	Open Water
Features Surveyed 06/09	PEM Wetland
	Perennial Stream



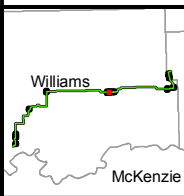
Williston to Tioga Transmission Project

Wetlands and Waterbodies

Map 6 of 14

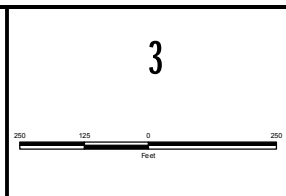


WEL1WI006



Legend

Preferred Route (5/5/2009)	Ephemeral Stream
125 Foot Survey Corridor (5/5/09)	Intermittent Stream
125 Foot Survey Corridor (10/2/08)	Open Water
Features Surveyed 06/09	PEM Wetland
	Perennial Stream



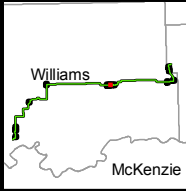
Williston to Tioga Transmission Project

Wetlands and Waterbodies

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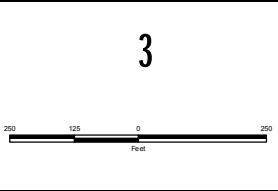


WEL1WI006



Legend

Preferred Route (5/5/2009)	Ephemeral Stream
125 Foot Survey Corridor (5/5/09)	Intermittent Stream
125 Foot Survey Corridor (10/2/08)	Open Water
Features Surveyed 06/09	PEM Wetland
	Perennial Stream



Williston to Tioga Transmission Project

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WEL1WI006

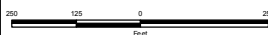
SEL1WI010

WEL1WI006

Legend

- Preferred Route (5/5/2009)
- 125 Foot Survey Corridor (5/5/09)
- 125 Foot Survey Corridor (10/2/08)
- Features Surveyed 06/09
- Ephemeral Stream
- Intermittent Stream
- Open Water
- PEM Wetland
- Perennial Stream

3



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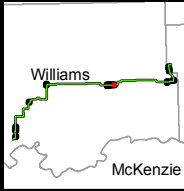
Wetlands and Waterbodies

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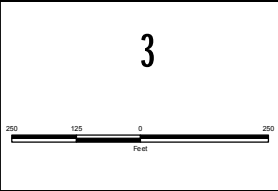


WEL1WI002



Legend

Preferred Route (5/5/2009)	Ephemeral Stream
125 Foot Survey Corridor (5/5/09)	Intermittent Stream
125 Foot Survey Corridor (10/2/08)	Open Water
Features Surveyed 06/09	PEM Wetland
	Perennial Stream



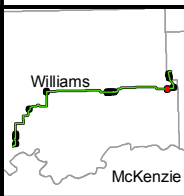
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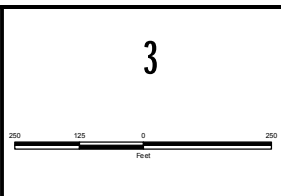


WEL1WI001



Legend

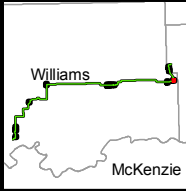
Preferred Route (5/5/2009)	Ephemeral Stream
125 Foot Survey Corridor (5/5/09)	Intermittent Stream
125 Foot Survey Corridor (10/2/08)	Open Water
Features Surveyed 06/09	PEM Wetland
	Perennial Stream



Williston to Tioga Transmission Project

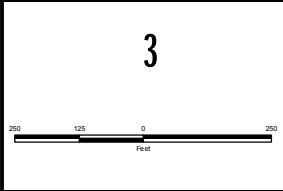
Wetlands and Waterbodies

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Legend

Preferred Route (5/5/2009)	Ephemeral Stream
125 Foot Survey Corridor (5/5/09)	Intermittent Stream
125 Foot Survey Corridor (10/2/08)	Open Water
Features Surveyed 06/09	PEM Wetland
	Perennial Stream



Williston to Tioga Transmission Project

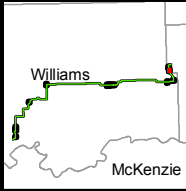
Wetlands and Waterbodies

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WEL1WI003

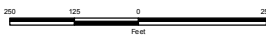
SEL1WI004



Legend

- Preferred Route (5/5/2009)
- 125 Foot Survey Corridor (5/5/09)
- 125 Foot Survey Corridor (10/2/08)
- Features Surveyed 06/09
- Ephemeral Stream
- Intermittent Stream
- Open Water
- PEM Wetland
- Perennial Stream

3

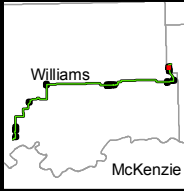
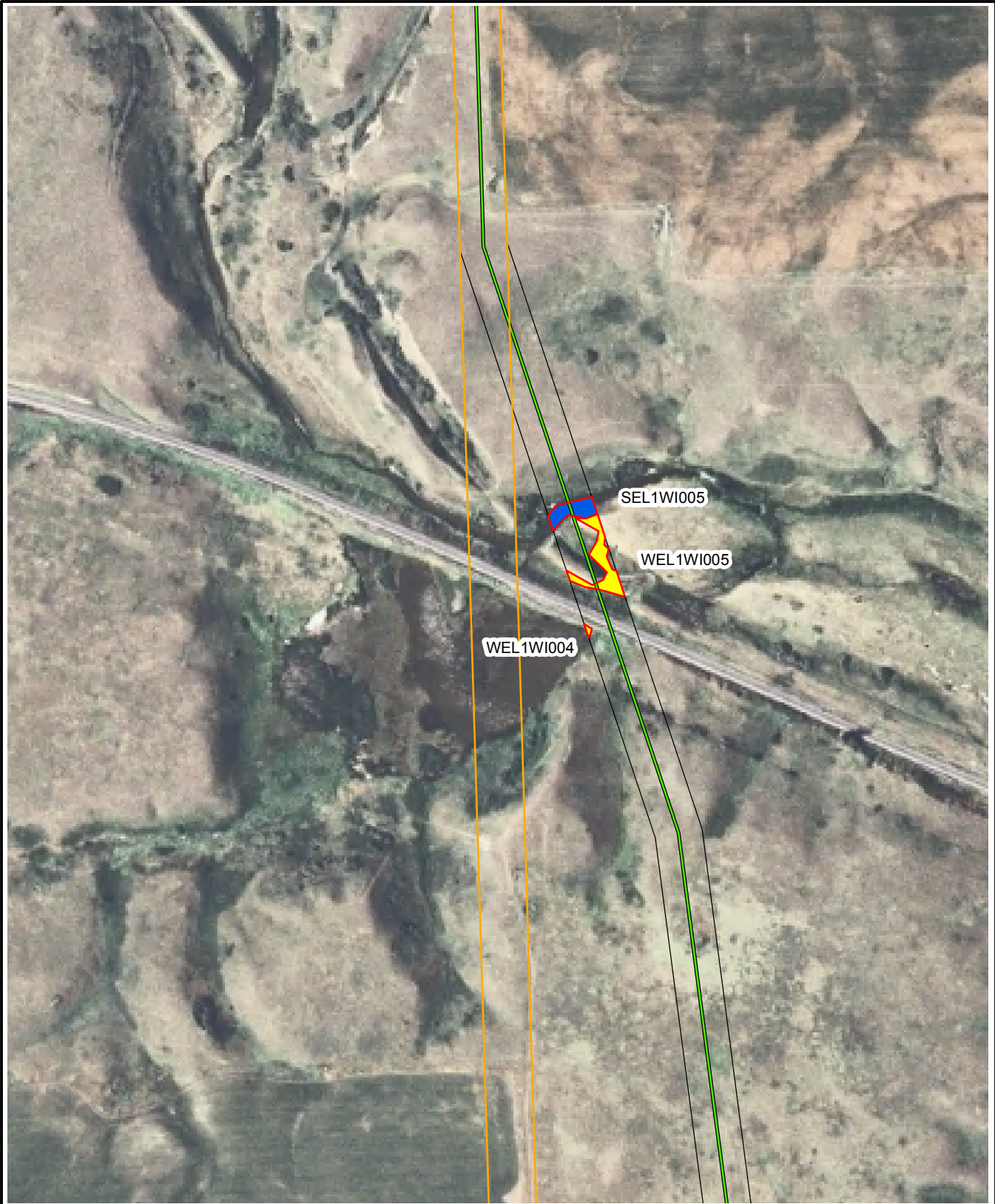


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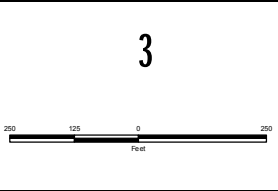
Wetlands and Waterbodies

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Legend

Preferred Route (5/5/2009)	Ephemeral Stream
125 Foot Survey Corridor (5/5/09)	Intermittent Stream
125 Foot Survey Corridor (10/2/08)	Open Water
Features Surveyed 06/09	PEM Wetland
	Perennial Stream



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