

December 22, 2011

Mr. Jason Renschler
U.S. Army Corps of Engineers, Omaha District
North Dakota Regulatory Office
1513 South 12th Street
Bismarck, ND 58504

**RE: Delineation Report
Center to Grand Forks 345 kV Transmission Line Project [NWO-2009-1037-BIS]
Missouri River, North Dakota**

Dear Mr. Renschler:

Attached is the Delineation Report prepared for Minnkota Power Cooperative, Inc.'s (Minnkota) proposed Center to Grand Forks 345 kilovolt (kV) Transmission Line Project (Project). The proposed Project will traverse a 250-mile-long 150-foot-wide right-of-way from the Center Substation near Center, Oliver County, North Dakota to the Prairie Substation near Grand Forks, Grand Forks County, North Dakota. At this time, Minnkota is requesting a Preliminary Jurisdictional Determination for water resources located in the proposed Project area. At the time of writing this report, preliminary wetland impacts were calculated using the most current alignment and structure location information, dated November 11, 2011. Preliminary impacts are as follows:

- 107.669 ac of temporary impacts. Impacts were calculated by assuming a 30-foot-wide access road along the centerline between structure locations, and a 60 foot diameter construction area around the pole locations, 2,827-square-feet per pole.
- 2,496 sq ft [0.0573 ac] of permanent impacts. Impacts were calculated by assuming a 78-square-foot footprint for structure locations, 10 foot diameter foundation. A total of 32 structures will be located within wetland basins.
- 0.496 ac of permanent conversion impacts. Impacts related to changing forested wetlands to a different (non-forested) wetland cover type. The permanent conversion impacts occur to one individual wetland basin that directly abuts the Sheyenne River in Griggs County, North Dakota.

Minnkota and their consultant (HDR Engineering, Inc. (HDR)) met with you on March 24, 2011 to discuss Section 10 and Section 404 permitting details. As discussed at the meeting, it is understood that the Missouri River crossing for this proposed Project will be permitted with a LOP to the Section 10 permit. In addition, wetland impacts associated with the Project would be permitted under the 2007 NWP12 - *Utility Line Activities*. Separate submittals requesting a LOP along with Pre-Construction Notification will be submitted at a later date.

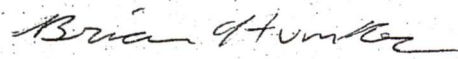
Mr. Jason Renschler
U.S. Army Corps of Engineers

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Please contact John Graves at 701-795-4221 (jgraves@minnkota.com) or myself at 763-278-5927 (brian.hunker@hdrinc.com) with any questions you may have regarding the Delineation Report or with any additional data needs. Thank you for your assistance.

Sincerely,

HDR Engineering, Inc.



Brian Hunker
Environmental Scientist

Enclosure: Delineation Report

cc: John Graves, Minnkota
Michael Hennes, Minnkota

Delineation Report

Center to Grand Forks 345 kV Transmission Line

U.S. Army Corps of Engineers

NWO-2009-1037-BIS

December 2011

Prepared for:

Minnkota Power Cooperative, Inc.



Prepared by:

HDR Engineering, Inc.



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1.0 EXECUTIVE SUMMARY

Minnkota Power Cooperative (Minnkota) has proposed the construction of approximately 250 miles of 345-kilovolt (kV) transmission line from Center to Grand Forks, North Dakota. This proposed project is referred to as the Center to Grand Forks Project (Project). It is anticipated to be completed by 2013 to enable the transmission of energy from the existing Milton R. Young Generation Station to Minnkota's service territory.

HDR Engineering, Inc. (HDR), conducted wetland delineations for Minnkota in the sections containing the proposed Project (See Table 3). The wetland delineations were conducted using the "Routine Determination, Onsite Inspection Necessary," outlined in the *1987 Corps of Engineers Wetlands Delineation Manual*.

From September 12 to 23, 2010, May 16 to 21, 2011, and November 1 to 4, 2011 HDR conducted onsite wetland inspections within a 150-foot-wide right-of-way (ROW) for the proposed Project and the 250-foot-wide ROW at the Missouri River. Wetland boundaries were reviewed within the proposed ROW where survey access was available. HDR conducted complete delineations on 85 wetland basins during the field review. Where survey access was unavailable, offsite reviews of wetland boundaries were performed through a review of multiple sources, including aerial photography, soil survey, U.S. Geological Survey (USGS) topographic maps, and national wetland inventory mapping.

Jurisdictional wetlands within the proposed ROW are regulated by the U.S. Army Corps of Engineers (USACE) through Section 404 of the Clean Water Act. The U.S. Fish and Wildlife Service (USFWS) maintains jurisdiction over wetlands located in USFWS wetland easements. Jurisdictional boundaries are not mutually exclusive; therefore, both USACE and USFWS permits are required for wetland impacts resulting from the proposed Project. A total of 0.0573 ac of wetlands would be permanently impacted due to structure placement as a result of the Project. Additional impacts to wetlands would occur through vegetation management of the proposed ROW. Vegetation maintenance procedures under transmission lines prevent trees from establishing within the ROW. Existing trees must be removed along the ROW, including forested wetlands. As a result of this, a total of 0.496 acres (1 wetland basin) of forested wetland (PFOA) would be cleared of trees and converted to non-forested wetland.

2.0 INTRODUCTION

Minnkota Power Cooperative, Inc. (Minnkota) has proposed the construction of approximately 250 miles of 345-kilovolt (kV) transmission line from Center to Grand Forks, North Dakota. The proposed transmission route extends from the Center 345 kV Substation in Oliver County near the Milton R. Young Generation Station, to the Prairie Substation west of Grand Forks, North Dakota, in Grand Forks County (Figure 1). The proposed project is referred to as the Center to Grand Forks Project (Project). Within this report, the proposed right-of-way (ROW) refers to the 150-foot-wide ROW and 250-foot-wide ROW at the Missouri River crossing, the proposed Route refers to the 1,000-foot-wide route, proposed lay down areas refers to the areas where construction staging will occur.

3.0 PURPOSE

Wetland delineations are required in order to determine potential regulated proposed Project impacts and to acquire necessary state and federal permits or approvals. Additionally, wetland delineations provide information valuable in identifying avoidance and minimization strategies, as well as in determining appropriate construction techniques as specified in state and federal permits or approvals.

Wetlands delineated for the Project may fall under either U.S. Army Corps of Engineers (USACE) and/or U.S. Fish and Wildlife Service (USFWS) jurisdiction, depending on their location within the landscape. The delineations completed for this report follow wetland delineation guidance for USACE in all cases other than USFWS wetland easements, where USFWS guidance was used. In general, USFWS wetland delineation guidance tends to include areas that are inundated for less time than that specified in USACE guidance. As a result, wetlands within USFWS easements may have been delineated to include larger areas than those not on USFWS easements. More specific methodology for wetland delineations can be found in Section 4.2.

4.0 METHODS

The wetland delineation was conducted using the “Routine Determination, Onsite Inspection Necessary” method outlined in the *1987 Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Great Plains Regional Supplement* (USACE 2010) for all wetlands. In addition, wetlands on USFWS easements were delineated using the additional guidance provided by the USFWS. USACE defines areas as wetlands based on the following:

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas [33 CFR 328 3.b].

Wetland delineations are based on the presence of the following three parameters:

- The area must exhibit indicators of wetland hydrology
- The area must have a predominance of hydrophytic vegetation
- Hydric soils must be present

“Atypical” or “problem areas” may be missing one or more of the three parameters, and still be classified as wetlands.

USFWS wetland delineation guidance was applied only to wetlands within USFWS easements. Easement boundaries were provided in a non-digital format by the USFWS North Dakota Ecological Services. The USFWS does not have specific criteria identifying wetland easement boundaries. USFWS guidance suggests using aerial photographs from multiple years to establish wetland boundaries, using visual indicators of inundation such as dark areas or a lack of vegetation. Typically, wetland boundaries are defined by the wettest year of aerial photography available. This methodology was applied during the offsite review. The field review considered aerial photography signatures when field verifying the offsite review. In addition, boundaries for any wetland on a USFWS easement where a permanent impact will occur will be field reviewed with USFWS staff prior to construction.

4.1 Offsite Review

Initial offsite evaluation for the presences of wetlands within the proposed ROW was performed using available information including; USGS topographic maps (Figures 2.01-2.04) USFWS National Wetland Inventory (NWI) maps (Figures 3.01-3.04), Natural Resource Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database (Figures 4.01-4.04), Farm Service Agency (FSA) aerial photographs, and high-resolution, custom aerial photography created specifically for the proposed Project. Aerial photographs from the wettest year in recent history for which information was available (2009) were used to estimate wetland boundaries on USFWS wetland easements.

This analysis generated wetland boundaries within the proposed ROW that reflected recent changes in hydrology and land use and were considered more accurate than NWI mapping. The results of the offsite review are incorporated into the detailed wetland delineation figures (Figures 5.10-5.57).

4.1.1 Wetlands Located in Areas of Restricted Access

Approximately 9 miles of the proposed ROW was not field reviewed due to lack of access permission at the time of this report (Figures 5.01-5.57). Offsite review methods were used to identify wetland boundaries and to calculate possible impacts to resources where access was unavailable. Approximately 32 ac of wetland occur within the section of proposed ROW where access was unavailable.

4.2 Onsite Review

The “Routine Determination, Onsite Inspection Necessary” delineations focused on all wetlands within the proposed ROW. Onsite review focused on wetlands identified as part of the offsite review as well as low-lying and/or wet areas not identified by the offsite data sources. While all

wetland boundaries were reviewed within the proposed ROW, full delineations with datasheets were collected on wetlands that met one or a combination of any of following criteria:

- Wetlands that require the proposed transmission line to span a distance of 500 feet or greater
- Wetlands determined to be potentially USACE jurisdictional
- Wetlands occurring on USFWS easements

Data forms were not collected on river/waterway crossings. All waterways will be spanned with no permanent impacts occurring below the ordinary high water mark (OHWM). The banks of major rivers (the Missouri River, James River, and Sheyenne River) that occur within the proposed route were mapped using a GPS unit with sub-meter accuracy. Rivers will be spanned completely with no impacts occurring below the OHWM. All waterways were reviewed in the field for wetland fringe habitat. Where wetland fringe habitat was identified along a waterway, wetland data forms were collected.

Maps of all delineated wetland boundaries are shown in Figures 5.01 through 5.57. The onsite delineations were conducted from September 12 to 23, 2010, May 16 to 21, 2011, and November 1 to 4, 2011.

4.2.1 ROW Wetlands Requiring Routine Determination, Onsite Inspection Necessary”

Wetlands meeting criteria described in section 4.2 were delineated using methods described below. Data sheets and wetland boundaries were collected for these wetlands according to the *1987 Manual* and *Great Plains Regional Supplement* as described below. Wetlands were classified as possibly jurisdictional in accordance with guidance set forth in the 2007 *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook*.

Upland and wetland plots were collected and evaluated for all wetlands meeting the previously mentioned criteria. At each plot location, a soil pit was dug for observation of soil and hydrology characteristics. Hydric soil and wetland hydrology characteristics were identified using methods described in the *1987 Manual* and *Great Plains Regional Supplement*. The vegetation was analyzed for plant species dominance in a 5-foot radius from the sample pit for the herbaceous layer, in a 15-foot radius for shrub layer, and in a 30-foot radius for overstory trees. The wetland indicator status of plants was identified using the USFWS *1988 National List of Plant Species that Occur in Wetlands (Region 6)*.

Data collection points and the wetland boundaries were mapped using a GPS unit with sub-meter accuracy. Using GIS, an accurate delineation map (Figures 5.01 to 5.57) was created from the GPS data and field drawings, providing a permanent record of the onsite wetland delineation boundaries for the proposed Project.

4.2.2 ROW Wetlands Requiring a Crossing of Less Than 500 feet

Wetlands requiring a crossing of less than 500 feet were reviewed on site. Plot data was not collected because the project can span these wetlands and direct impacts would be avoided. Offsite wetland

boundaries were visually verified for accuracy. Adjustments to the wetland boundaries were made where justified based on field observations and visual indicators of wetland parameters outlined in the *1987 Manual* and *Great Plains Regional Supplement*.

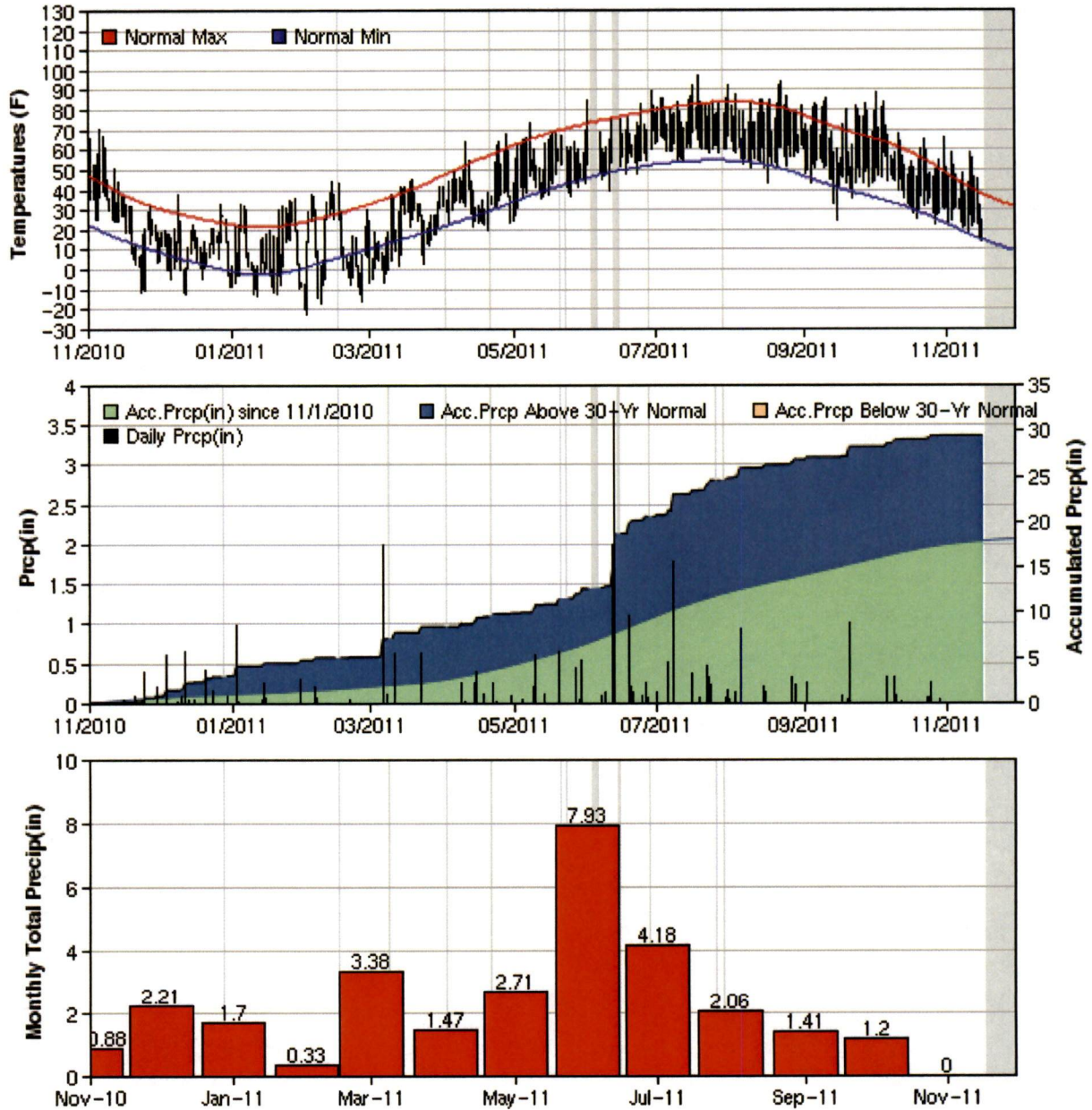
4.3 Precipitation History

Within the proposed Project area, total precipitation from November 2010 through November 2011 was approximately 29 inches, which is nearly double the normal precipitation level of 15 inches.

Temperatures during the delineation periods were near normal, ranging from approximately 40°F to 65°F. Table 1 and Table 2 summarize 2010 to 2011 climate data collected near Center and Grand Forks, North Dakota, respectively.

Table 1. Precipitation Data for Center, North Dakota
(Station #321465)

CENTER 4 SE, ND



Normals based up 1971-2000 Normals, if available
Grey Shading indicates where data are flagged as "Missing"
Accumulated Precip (where available) may not reflect actual deviations from normal if data are missing

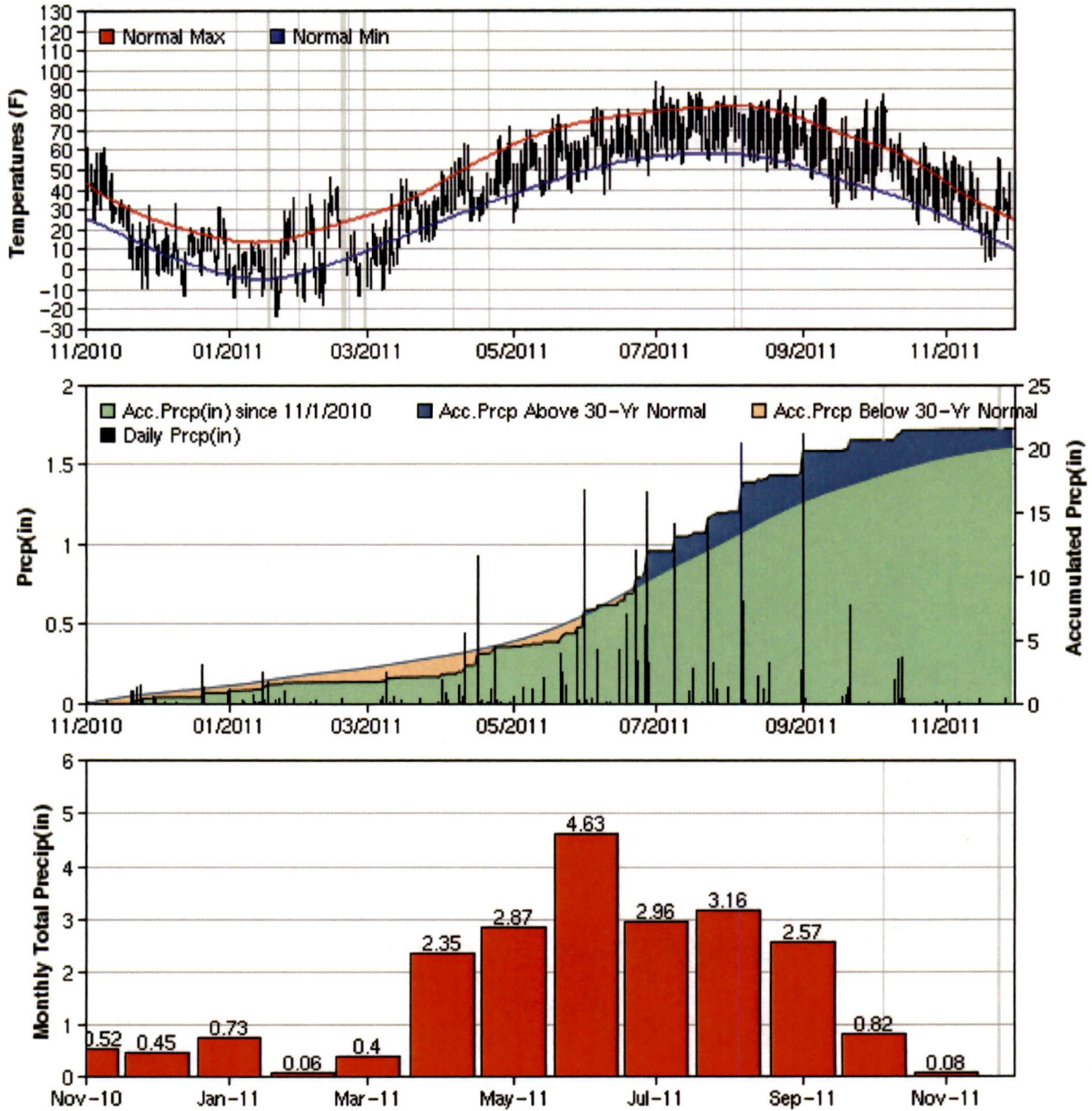
"Experimental" May Contain Preliminary Data
High Plains Regional Climate Center

<http://hprcc.unl.edu>

Source: High Plains Regional Climate Center, <https://www.hprcc.unl.edu/stations> Accessed November 30, 2011

Table 2. Precipitation Data for Grand Forks, North Dakota
(Station #323621)

GRAND FORKS UNIV, ND



Normals based up 1971-2000 Normals, if available
 Grey Shading indicates where data are flagged as "Missing"
 Accumulated Precip (where available) may not reflect actual deviations from normal if data are missing <http://hprcc.unl.edu>

"Experimental" May Contain Preliminary Data
 High Plains Regional Climate Center

Source: High Plains Regional Climate Center, <https://www.hprcc.unl.edu/stations> Accessed November 30, 2011

5.0 SITE DESCRIPTION

5.1 Physical Characteristics of the Project Area

The proposed ROW includes portions of eleven counties; from west to east: Oliver, Burleigh, McLean, Sheridan, Wells, Eddy, Foster, Griggs, Steele, Nelson, and Grand Forks (Figure 1). The proposed Project area consists mostly of tilled agricultural lands and rangeland. The majority of wetlands in the proposed Project area are isolated prairie pothole wetlands with a small percent of wetlands along wooded drainages or open ditches. Trees are sporadic throughout the proposed Project area, primarily as wooded draws, riparian areas, and windrows. Trees are more frequent in the eastern third of the proposed Project area. Major rivers crossed by the proposed Project include the Missouri, James, and Sheyenne. The proposed Project also crosses the McClusky Canal. Perennial streams are more frequent in the east half of the proposed Project area.

Elevations in the proposed Project area range from 840 feet to 2,130 feet above sea level. Elevations trend from higher in the west to lower in the east. A sharp topographic transition occurs in southwestern Wells County, which forms the eastern edge of the Missouri Plateau and divides the proposed Project into western and eastern portions (Figure 2.04). The landscape in the western part of the proposed Project area, which is on the Missouri Plateau, tends to be rolling plains with relatively well defined wetland basins. The landscape in the eastern part of the proposed Project area (east of the Missouri Plateau) is relatively flat with occasional end moraines and river valleys. The wetlands in the eastern part of the proposed Project area tend to have less well-defined boundaries and are commonly tilled and/or adjacent to tilled fields.

Table 3 lists the counties, townships, and sections crossed by the proposed ROW. The full alignment is shown in Figure 1.

Table 3. Counties, Townships, and Sections within the Proposed ROW

County	PLSS Township	Section	Civil Township
Burleigh	T142N R80W	6, 7, 18, 19	Painted Woods
	T142N R81W	1, 13, 14, 22, 23, 24, 27	Painted Woods
	T144N R79W	5, 6	Wilson
Eddy	T148N R63W	31, 32, 33, 34	Cherry Lake
	T148N R64W	31, 32, 33, 34, 35, 36	Columbia

County	PLSS Township	Section	Civil Township
	T148N R65W	31, 32, 33, 34, 35, 36	Pleasant Prairie
	T148N R66W	25, 26, 27, 28, 29, 30, 36	Superior
	T148N R67W	25, 26, 27, 28, 29, 30	Rosefield
Foster	T147N R62W	13, 14, 15, 16, 17, 18	McHenry
	T147N R63W	3, 10, 13, 14, 15	Florance
Grand Forks	T149N R56W	6	Loretta
	T150N R52W	1, 10, 11, 12, 15, 16, 19, 20, 21	Fairfield
	T150N R53W	19, 20, 21, 22, 23, 24	Pleasant View
	T150N R54W	24, 25, 31, 32, 33, 34, 35, 36	Avon
	T150N R55W	31, 32, 33, 34, 35, 36	Grace
	T150N R56W	31, 32, 33, 34, 35, 36	Logan Center
	T151N R51W	11, 12, 14, 15, 16, 17, 18	Brenna
	T151N R52W	13, 24, 25, 36	Oakville
Griggs	T147N R58W	1, 2, 3, 4, 5, 6	Romness
	T147N R59W	1, 2, 3, 4, 5, 6	Tyrol
	T147N R60W	1, 2, 3, 4, 5, 6	Addie

County	PLSS Township	Section	Civil Township
	T147N R61W	1, 2, 3, 10, 15, 16, 17, 18	Bryan
McLean	T143N R80W	1, 12, 13, 14, 15, 16, 17, 18	Unorganized Territory
	T143N R81W	13, 24, 25, 36	Unorganized Territory
	T144N R80W	1, 12, 13, 24, 25, 36	Unorganized Territory
	T145N R79W	2, 11, 14, 23, 26, 35	Unorganized Territory
	T146N R79W	13, 23, 24, 26, 35	Mercer
Nelson	T149N R57W	1, 11, 12, 14, 15, 22, 23, 27, 28, 32, 33	Ora
Oliver	T142N R81W	27, 28, 29, 30	Unorganized Territory
	T142N R82W	25, 26, 27, 28, 30, 31, 32, 33, 34, 35, 36	Unorganized Territory
	T142N R83W	26, 27, 33, 34, 35, 36	Unorganized Territory
Sheridan	T146N R78W	4, 5, 7, 8, 18	Pickard
	T147N R74W	7, 8, 9, 10, 11, 12	Boone
	T147N R75W	7, 8, 9, 10, 11, 12	Unorganized Territory
	T147N R76W	7, 8, 9, 10, 11, 12	Unorganized Territory
	T147N R77W	7, 8, 9, 10, 11, 12, 18	Unorganized Territory

County	PLSS Township	Section	Civil Township
	T147N R78W	13, 23, 24, 26, 27, 33, 34	Prophets
Steele	T147N R57W	6	Franklin
	T148N R57W	6, 7, 18, 19, 30, 31	Sharon
Wells	T147N R70W	4, 5, 6	South Cottonwood
	T147N R71W	1, 2, 3, 4	West Ontario
	T147N R72W	1, 2, 3, 4, 5, 6	Delger
	T147N R73W	1, 2, 7, 8, 9, 10, 11	Crystal Lake
	T148N R68W	25, 26, 27, 28, 29, 30	Fairville
	T148N R69W	25, 26, 27, 28, 29, 30	Germantown
	T148N R70W	25, 26, 27, 28, 33	Oshkosh
	T148N R71W	31, 32, 33, 34	St. Anna
	T148N R72W	36	Rusland

5.2 County Soils Surveys

County Soil Surveys were used to identify the soil units within the proposed Project area. The map units identified by the soil survey provide information about local landscape elevations and landscape position and slopes, as well as the identification of hydric soils that indicate the potential presence of wetlands within the proposed Project area. Hydric soil units present in the proposed ROW are shown in Figures 3.01 through 3.04.

5.3 NWI Mapping

The proposed Project spans an area that is generally described as part of the prairie pothole region. The prairie pothole region is characterized by numerous shallow freshwater lakes and wetlands that pockmark the landscape. This region, which extends from Canada to South Dakota and Minnesota, provides waterfowl habitat that is estimated to produce 50 to 75 percent of North American waterfowl in any given year (Witsch et al. 2000).

USFWS NWI mapping was reviewed to identify preliminary wetland locations within the proposed Project area. NWI data represents general locations and acreages of wetlands located within the proposed Project area. NWI data in North Dakota frequently underestimates that true size of wetlands; in some cases NWI appears to map wetlands at about 75 percent of the size indicated on current aerial photography. NWI-mapped wetlands throughout the Project area are shown in Figures 4.01 through 4.04.

6.0 RESULTS

6.1 Offsite Review Results

Using the methods presented in Section 4.1, wetlands occurring within the proposed Route were mapped to landscape-level accuracy. This information was used to provide preliminary indications of wetlands in the Project area. Table 4 includes a listing of the wetland types and total acreages within the proposed ROW.

Wetlands within the proposed Project area range in size from isolated basins covering less than a few hundred square feet, to large shallow or deep marshes covering more than 100 acres. The majority (90.8 percent) of the wetlands located within the proposed ROW are emergent basins; most commonly seasonally flooded basins (PEMC, 64.3 percent) or temporarily flooded basins (PEMA, 9.9 percent). Freshwater ponds (3.8 percent) and riverine wetlands (2.9 percent) are the next most common types, but represent a small fraction of the overall wetlands. Lakes compose 1.4 percent of the wetlands in the proposed ROW. Shrub wetlands, along with forested wetlands, make up less than 1 percent of the wetlands in the proposed ROW. The Missouri River represents the largest waterbody crossing within the proposed Project area.

Table 4. Wetland Types and Acreages within the ROW

Wetland Type	Acrees	Percent of total
<i>Lake</i>	<i>7.525</i>	<i>1.4</i>
L1UBGH	0.570	0.1
L2ABG	6.955	1.3
<i>Freshwater Pond</i>	<i>20.808</i>	<i>3.8</i>
PUBGx	3.181	0.6
PAB/EMF	3.175	0.6
PABF	3.386	0.6
PABFH	1.570	0.3

Wetland Type	Acres	Percent of total
PABFx	9.496	1.7
<i>Freshwater Emergent Wetland</i>	<i>492.305</i>	<i>90.8</i>
PEM/ABF	29.556	5.4
PEM/ABFd	1.400	0.3
PEM/SSC	0.322	0.1
PEMA	53.943	9.9
PEMAd	14.304	2.6
PEMC	344.000	63.4
PEMCd	20.519	3.8
PEMCh	0.861	0.2
PEMF	18.482	3.4
PEMFd	1.437	0.3
PEMFh	7.481	1.4
<i>Freshwater Forested Wetland</i>	<i>4.092</i>	<i>0.8</i>
PFOA	0.493	0.1
PFO/EMC	3.599	0.7
<i>Freshwater Shrub Wetland</i>	<i>1.751</i>	<i>0.3</i>
PSS/EMC	1.751	0.3
<i>Riverine</i>	<i>16.219</i>	<i>2.9</i>
R2UBG	0.437	0.1
R2UBGx	0.203	0.0
R2UBH	13.268	2.4
R4USF	1.891	0.3
R4USFx	0.420	0.1
Total	542.700	100.0

6.2 Results of Routine Determination, Onsite Inspection Necessary

A total of 85 wetlands were delineated during the survey. All wetlands within the proposed ROW were reviewed, but datasheets were only collected for wetlands meeting specific criteria described in Section 4.2.

All field reviewed wetlands are shown in Figures 5.001 to 5.101. A summary of the wetlands where onsite inspection was performed is presented in Table 5. Wetlands within the proposed Project are numbered from west to east, based on proposed Project milepost (MP) numbers, starting at the Center 345 kV Substation (MP 0) and traveling east to the Prairie Substation (MP 248). Field data sheets for the wetlands presented in Table 5 are attached as Appendix A.

Table 5. Wetland Delineation Summary

Wetland ID ¹	Section Township Range	Fig. Page	Major Watershed ²	Minor Watershed ³	County	Cowardin Classification	Circular 39 Classification	Wetland Crossing length at ROW Centerline (ft)	Jurisdictional Authority	Brief Wetland Description
001-2	S34T142R83	5.003	Square Butte Creek	Square Butte Creek	Oliver	PEMC	3	178	USACE	Floodplain wetland located along an intermittent drainage.
005-1	S32T142R82	5.004	Square Butte Creek	Square Butte Creek	Oliver	PEMCx	3	58, 204	USACE	Excavated cattle pond located along a perennial tributary.
013-1	S28T142R81	5.007	Sherk Creek-Missouri River	Horseshoe Butte-Missouri River	Oliver	R2UBH	90	2242, 70	USACE	Missouri River
013-2	S28T142R81	5.007	Sherk Creek-Missouri River	Sherk Creek	Oliver	PEMC	3	56	USACE	Drainage swale in the Missouri River floodplain.
016-1	S14T142R81	5.008	Sherk Creek-Missouri River	Horseshoe Butte-Missouri River	Burleigh	PEMC	3	5	USACE	Shallow, emergent basin along creek.
021-1	S36T143R81	5.010, 5.011	Painted Woods Creek	Yanktonai Creek	McLean	PEMC	3	761, 99, 606	USACE	Shallow, emergent basin along creek.
023-1	S24T143R81	5.011	Painted Woods Creek	Yanktonai Creek	McLean	PEMA	1	57	USACE	Floodplain wetland located along a perennial drainage.
026-1	S17T143R80	5.012	Painted Woods Creek	Yanktonai Creek	McLean	PEMC	3	76, 238, 209, 529	USACE	Shallow, emergent basin along creek.
032-1	S1T143R80	5.015	Painted Woods Creek	Grass Lake	McLean	PEMA	1	921; 343	USACE	Shallow, emergent basin in fenced rangeland.
033-1	S36T144R80	5.015	Painted Woods Creek	Fairview Church-Painted Woods Creek	McLean	PEMC	3	541	USACE	Shallow, emergent basin surrounded by tilled fields.
034-1	S25T144R80	5.016	Painted Woods Creek	Fairview Church-Painted Woods Creek	McLean	PEMA	1	376	USACE	Shallow, emergent basin along creek.
038-1	S1T144R80	5.018, 5.019	Painted Woods Creek	Fairview Church-Painted Woods Creek	McLean	PEMC	3	636, 178	USFWS	Shallow, emergent basin in fenced rangeland.
040-1	S5T144R79	5.019	City of McCluskey	Bethel Cemetery	Burleigh	PEMC	3	604	none	Shallow, emergent basin between roadway and tilled field.

Center to Grand Forks 345 kV Transmission Line

Wetland ID ¹	Section Township Range	Fig. Page	Major Watershed ²	Minor Watershed ³	County	Cowardin Classification	Circular 39 Classification	Wetland Crossing length at ROW Centerline (ft)	Jurisdictional Authority	Brief Wetland Description
043-1	S23T145R79	5.020	City of McCluskey	Bethel Cemetery	McLean	PEM/ABF	4	1119	none	Shallow, emergent basin with roadway to east and south.
047-1	S35T146R79	5.023	City of McCluskey	Village of Mercer	McLean	PEMC	3	324	USFWS	Narrow, emergent wetland between tilled field and roadway.
047-2	S26T146R79	5.023	City of McCluskey	Village of Mercer	McLean	PAB/EMF	4	552	USFWS	Open water impoundment basin with narrow emergent fringe around perimeter.
048-1	S26T146R79	5.024	City of McCluskey	Village of Mercer	McLean	PEMC	3	941	USFWS	Shallow emergent basin with areas of open water. Wide emergent fringe around perimeter.
049-1	S23T146R79	5.024	City of McCluskey	Village of Mercer	McLean	PEMC	3	423	USFWS	Shallow basin surrounded by tilled fields
049-2	S23T146R79	5.024	City of McCluskey	Village of Mercer	McLean	PEMC	3	360	USFWS	Shallow basin surrounded by tilled fields, bounded by highway on west side.
051-1	S13T146R79	5.024	City of McCluskey	Village of Mercer	McLean	PEMF	3	432	USFWS	Shallow basin surrounded by pasture.
051-2	S18T146R78	5.025	City of McCluskey	Village of Mercer	Sheridan	PEM/ABF	4	436	USFWS	Shallow basin surrounded by tilled field.
054-1	S8T146R78	5.026	City of McCluskey	Village of Mercer	Sheridan	PFO/EMC	3	563, 344, 988, 255, 33	USFWS	Large isolated basin surrounded by rangeland
058-2	S23T143R78	5.028	City of McCluskey	Prophets Mountains	Sheridan	PEMcd	3	941, 490	USFWS	Large isolated basin surrounded by rangeland
063-1	S9T147R77	5.029	City of McCluskey	Prophets Mountains	Sheridan	PEMC	3	735	none	Shallow basin surrounded by tilled fields
064-1	S10T147R77	5.030	Headwaters Sheyenne River	McClusky Canal	Sheridan	PEM/ABF	4	67, 83, 556	USFWS	Open water impoundment basin with narrow emergent fringe around perimeter, surrounded by tilled fields.
066-1	S12T147R77	5.030	Headwaters Sheyenne River	McClusky Canal	Sheridan	PEMC	3	520	USFWS	Shallow basin dominated by emergent vegetation. Surrounded by tilled fields with

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Wetland ID ¹	Section Township Range	Fig. Page	Major Watershed ²	Minor Watershed ³	County	Cowardin Classification	Circular 39 Classification	Wetland Crossing length at ROW Centerline (ft)	Jurisdictional Authority	Brief Wetland Description
										narrow upland fringe dominated by weeds.
069-2	S9T147R76	5.032	Headwaters Sheyenne River	Kindschi Lake	Sheridan	PEMC	3	827, 29	USFWS	Large open water basin with narrow emergent fringe in
070-1	S10T147R76	5.032	Headwaters Sheyenne River	Kindschi Lake	Sheridan	PEMC	3	642	none	Shallow emergent basin in tilled field. Tilled area extends to wetland boundary.
072-1	S12T147R76	5.033	Headwaters Sheyenne River	Village of Lincoln Valley-Sheyenne River	Sheridan	PEMC	3	897	none	Large open water basin with narrow emergent fringe. Tilled area extends to wetland boundary.
073-1	S7T147R75	5.033	Headwaters Sheyenne River	Village of Lincoln Valley-Sheyenne River	Sheridan	PEMC	3	212, 27	none	Large open water basin with narrow emergent fringe. Tilled area extends to wetland boundary.
086-1	S8T147R73	5.037	Silver Lake	Pony Gulch	Wells	PEMC	3	227	USFWS	Shallow Basin partially located on USFWS easement.
089-1	S11T147R73	5.038	Silver Lake	Pony Gulch	Wells	PEMC	3	851, 622	USFWS	Shallow basin surrounded by tilled fields.
100-1	S32T148R71	5.042, 5.043	Big Slough	Hirshkorn Lake	Wells	PEMC	3	167, 135, 405	USACE	Shallow, emergent basin along creek
103-1	S1T147R71	5.044	Big Slough	Hirshkorn Lake	Wells	PEMA	1	709	none	Shallow emergent area between tilled fields. No standing water.
115-1	S27T148R69	5.048	Rocky Run	Rosefield Slough	Wells	PEMC	3	1142	none	Open water basin with wide emergent fringe. Wide upland buffer present between tilled fields and wetland boundary.
121-1	S27T148R68	5.050	Rocky Run	Rosefield Slough	Wells	PEMA	1	801, 132	USACE	Emergent area between tilled fields. Drier areas of delineated wetland show evidence of tilling during dry periods.

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Wetland ID ¹	Section Township Range	Fig. Page	Major Watershed ²	Minor Watershed ³	County	Cowardin Classification	Circular 39 Classification	Wetland Crossing length at ROW Centerline (ft)	Jurisdictional Authority	Brief Wetland Description
121-2	S26T148R68	5.050	Rocky Run	Rosefield Slough	Wells	PEMC	3	609	none	Emergent area between tilled fields. Drier areas of delineated wetland show evidence of tilling during dry periods.
124-1	S30T148R67	5.051	Rocky Run	Rosefield Slough	Eddy	PEMC	3	252, 277	USACE	Floodplain wetland located along perennial drainage.
126-2	S28T148R67	5.051	Rocky Run	Rosefield Slough	Eddy	PEMFh	4	1292, 89, 312	USACE	Emergent impoundment along creek.
126-3	S28T148R67	5.052	Rocky Run	Rosefield Slough	Eddy	PEMC	3	550	USACE	Emergent wetland located adjacent to a perennial drainage
131-1	S29T148R66	5.054	Rocky Run	Lake Claire	Eddy	PEMA	1	1011	USACE	Shallow, emergent basin in fenced rangeland.
133-1	S27T148R66	5.055	Melby Hills	Rusten Slough	Eddy	PEM/ABF	4	490	none	Emergent wetland located within tilled field.
135-1	S25T148R66	5.056	Melby Hills	Rusten Slough	Eddy	PEM/ABF	4	336, 726	none	Large emergent wetland complex along drainage between tilled fields. Perimeter of wetland boundary shows tilling evidence.
141-1	S35T148R65	5.058	Melby Hills	Rusten Slough	Eddy	PEMCd	3	848, 305, 181	USFWS	Shallow, emergent basin between roadway and fenced rangeland.
142-1	S36T148R65	5.059	Melby Hills	Rusten Slough	Eddy	PEMA	1	675, 79	none	Shallow, emergent basin surrounded by tilled fields.
147-1	S35T148R64	5.060	Melby Hills	Ninemile Lake	Eddy	PEMC	3	636	USACE	Shallow, emergent basin surrounded by fenced rangeland.
148-1	S36T148R64	5.060	Melby Hills	Ninemile Lake	Eddy	PEMA	1	544	USACE	Shallow, emergent basin surrounded by fenced rangeland.
149-1	S31T148R63	5.061	Melby Hills	Ninemile Lake	Eddy	PEMC	3	291, 186, 349, 380	USACE	Shallow, emergent basin along creek surrounded by fenced rangeland.

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Wetland ID ¹	Section Township Range	Fig. Page	Major Watershed ²	Minor Watershed ³	County	Cowardin Classification	Circular 39 Classification	Wetland Crossing length at ROW Centerline (ft)	Jurisdictional Authority	Brief Wetland Description
151-2	S33T148R63	5.062	Melby Hills	Juanita Lake	Eddy	L2ABG	5	947	USACE	Large impoundment with small emergent fringe.
152-2	S34T148R63	5.062	Melby Hills	Juanita Lake	Eddy	PEMC	3	891, 47	USACE	Large, emergent wetland complex located within fenced rangeland. Fringes of wetland are being hayed.
156-1	S14T147R63	5.064	Baldhill Creek	Stony Lake-Baldhill Creek	Foster	PEMC	3	401	USFWS	Shallow, emergent basin surrounded by tilled fields.
160-1	S17T147R62	5.065	Baldhill Creek	Stony Lake-Baldhill Creek	Foster	PEMC	3	572, 1464	none	Tilled wetland with minimal vegetative cover due to recent plowing. Portion of wetland area are dominated by wetland vegetation but majority of wetland is heavily degraded from regular tilling.
161-1	S15T142R62	5.065, 5.066	Baldhill Creek	Stony Lake-Baldhill Creek	Foster	PEMC	3	1297, 168	none	Emergent wetland in tilled field.
161-2	S15T147R62	5.066	Baldhill Creek	Stony Lake-Baldhill Creek	Foster	PEMC	3	943	none	Emergent wetland in tilled field.
167-1	S16T147R61	5.067	Baldhill Creek	Village of Glenfield-Baldhill Creek	Griggs	PEMC	3	611, 22	USFWS	Open water basin between roadway and tilled field. Wide emergent fringe around entire wetland.
172-1	S1T147R61	5.071	Baldhill Creek	Sibley Lake-Baldhill Creek	Griggs	PEMC	3	1695	USACE	Wide emergent wetland along meandering creek between tilled fields.
176-1	S3T147R60	5.072	Pickrel Lake Creek-Sheyenne River	Lake Norway	Griggs	PEMC	3	573	USFWS	Emergent wetland area between tilled fields. No open water.
177-1	S2T147R60	5.073	Pickrel Lake Creek-Sheyenne River	Lake Norway	Griggs	PEMF	4	536	USFWS	Open water basin with wide emergent fringe. Gravel road cuts through wetland. Wide upland area between tilled fields and wetland boundary on both east and west sides.

Center to Grand Forks 345 kV Transmission Line

Wetland ID ¹	Section Township Range	Fig. Page	Major Watershed ²	Minor Watershed ³	County	Cowardin Classification	Circular 39 Classification	Wetland Crossing length at ROW Centerline (ft)	Jurisdictional Authority	Brief Wetland Description
177-2	S2T147R60	5.073	Pickerel Lake Creek-Sheyenne River	Lake Norway	Griggs	L2ABG	5	1116	none	Large open water basin with narrow emergent fringe.
180-1	S5T147R59	5.074	Pickerel Lake Creek-Sheyenne River	Village of Jessie	Griggs	PEMC	3	551, 403, 306	USACE	Shallow, emergent basin along creek.
182-1	S3T147R59	5.075	Pickerel Lake Creek-Sheyenne River	Village of Jessie	Griggs	PEMC	3	232	USACE	Shallow, emergent basin along creek.
185-1	S6T147R58	5.076	Pickerel Lake Creek-Sheyenne River	Butte Michaud-Sheyenne River	Griggs	PEMCd	3	282	USACE	Emergent basin located within the Sheyenne River floodplain
185-2	S6T147R58	5.076	Pickerel Lake Creek-Sheyenne River	Butte Michaud-Sheyenne River	Griggs	R2UBG	90	122	USACE	Sheyenne River
185-3	S6T147R58	5.076	Pickerel Lake Creek-Sheyenne River	Butte Michaud-Sheyenne River	Griggs	PFOA	1	105	USACE	Forested wetland located within the Sheyenne River floodplain.
192-1	S30T148R57	5.079	Pickerel Lake Creek-Sheyenne River	Pickerel Lake Creek	Steele	PSS/EMC	6	694, 472	USACE	Open water basin with wide emergent fringe. Surrounded by tilled fields with wide upland boundary between tilled fields and wetland boundary.
196-1	S6T148R57	5.081	Pickerel Lake Creek-Sheyenne River	Headwaters Pickerel Lake Creek	Steele	PEMF	4	926	none	Open water basin with wide emergent fringe. Surrounded by tilled fields.
196-2	S6T148R57	5.081	Pickerel Lake Creek-Sheyenne River	Headwaters Pickerel Lake Creek	Steele	PEMC	3	738	USFWS	Emergent basin surrounded by tilled fields.
197-1	S32T149R57	5.082	Pickerel Lake Creek-Sheyenne River	Headwaters Pickerel Lake Creek	Nelson	PEMC	3	1481, 705	USFWS	Large wetland complex composed mostly of emergent vegetation with small areas of open water. Surrounded by tilled fields on all sides.
198-1	S28T149R57	5.082	Pickerel Lake	Headwaters	Nelson	PEMA	1	573	USFWS	Large emergent basin

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Wetland ID ¹	Section Township Range	Fig. Page	Major Watershed ²	Minor Watershed ³	County	Cowardin Classification	Circular 39 Classification	Wetland Crossing length at ROW Centerline (ft)	Jurisdictional Authority	Brief Wetland Description
			Creek-Sheyenne River	Pickereel Lake Creek						surrounded tilled fields. Small open water areas in wetland interior.
201-1	S14T149R57	5.084	Middle Branch Goose River	Headwaters Middle Branch Goose River	Nelson	PEMC	3	288, 129, 649	none	Large wetland complex composed of roughly equal parts emergent vegetation and open water. Adjacent to tilled fields on all sides with wide upland fringe between fields and wetland boundary.
204-1	S6T149R56	5.085	Beaver Creek-Goose River	Goose Creek	Grand Forks	PEMA	1	42, 622, 253, 226, 80	USACE	Emergent wetland complex in tilled field. Composed of emergent basin with small areas open water (north) and narrow emergent fringe along channelized stream (south).
209-1	S36T150R56	5.087	Headwaters Goose River	Spring Creek	Grand Forks	PEMC	3	377, 143, 87	USACE	Shallow emergent basin along creek.
210-1	S31T150R55	5.087	Headwaters Goose River	Spring Creek	Grand Forks	PEMCd	3	702, 769	USACE	Shallow emergent swale in rangeland. Wide upland buffer area between tilled fields and wetland boundary.
213-1	S34T150R55	5.088	Headwaters Goose River	Logan Center-Goose River	Grand Forks	PEMF	4	1012	none	Emergent basin surrounded by tilled fields.
216-1	S31T150R54	5.089	Headwaters Goose River	Little Goose River	Grand Forks	PEMC	3	111	USACE	Shallow, emergent basin along creek.
231-1	S19T150R52	5.094	English Coulee	Middle English Coulee	Grand Forks	PEMC	3	207	USACE	Emergent wetland located along the English Coulee.

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Wetland ID ¹	Section Township Range	Fig. Page	Major Watershed ²	Minor Watershed ³	County	Cowardin Classification	Circular 39 Classification	Wetland Crossing length at ROW Centerline (ft)	Jurisdictional Authority	Brief Wetland Description
235-1	S11T150R52	5.096	English Coulee	Middle English Coulee	Grand Forks	PEMC	3	85, 316, 809, 54, 126	USACE	Large emergent wetland complex in grassland area (possible CRP field). Wetland is crossed multiple times by proposed transmission line. Most of complex is wet meadow adjacent to mesic grassland. South eastern portion of wetland is adjacent to shallow ditch. No areas of open water within route.
235-2	S11T150R52	5.096	English Coulee	Middle English Coulee	Grand Forks	PABFx	4	2398, 227	USACE	Large emergent wetland complex in grassland area (possible CRP). Most of complex is wet meadow adjacent to mesic grassland.
238-2	S36T151R52	5.097	English Coulee	Middle English Coulee	Grand Forks	PEMC	3	4449	USACE	Large emergent saline wetland complex located within a grazed pasture
241-1	S13T151R52	5.099	Town of Emerado	Fresh Water Coulee	Grand Forks	PEMC	3	364, 595	USACE	Large emergent wetland complex in grassland area (possible CRP). Most of complex is wet meadow adjacent to tilled fields.
laydown-2	S15T145R79	5.039	City of McCluskey	Bethel Cemetery	McLean	PEMB	2	N/A	none	Emergent basin surrounded by tilled fields.

¹ Wetlands fields delineated by HDR are identified by milepost.

² Watersheds are based on HUC10 data provided by the United States Geological Survey.

³ Watersheds are based on HUC12 data provided by the United States Geological Survey

7.0 IMPACTS

At the time this report was written, impacts were calculated using November 11, 2011 alignment and structure location information. Three types of wetland impacts could result from proposed Project construction:

- **Permanent impacts** related to structure placement in wetlands (impacts were calculated by assuming a 78-square-foot footprint for structure locations, 10 foot diameter foundation)
- **Permanent conversion impacts** related to changing forested wetlands to a different (non-forested) wetland cover type
- **Temporary impacts** related to construction activities (impacts were calculated by assuming a 30-foot-wide access road along the centerline between structure locations, and a 60 foot diameter construction area around the pole locations, 2,827-square-feet per pole)

Wetlands classified as riverine (R2UBG, R2UBGX, R2UBH, R4USF, and R4USFx) were excluded from temporary impacts as crossing these features with an access road was not considered feasible. Table 6 presents possible permanent and temporary impacts.

Table 6. Proposed Wetland Impacts

Wetland Type	Temporary Impacts (ac)	Number of Structures in Wetlands	Permanent Impacts (sq ft) [ac]
<i>Lake</i>			
L1UBGH	0.105	-	-
L2ABG	1.420	-	-
<i>Fresh Water Pond</i>			
PAB/EMF	0.582	-	-
PUBGx	0.679	-	-
PABF	0.624	-	-
PABFh	0.350	-	-
PABFx	1.939	2	156 [0.003]
<i>Freshwater Emergent Wetland</i>			
PEM/ABF	6.013	2	156 [0.003]
PEM/ABFd	0.284	-	-
PEM/SSC	0.080	-	-
PEMA	10.829	1	78 [0.0015]
PEMAd	3.074	1	78 [0.0015]
PEMB	0.488	-	-
PEMC	69.732	23	1,794 [0.0345]
PEMCd	3.969	-	-
PEMCh	0.174	-	-
PEMF	3.763	-	-
PEMFd	0.300	-	-

Wetland Type	Temporary Impacts (ac)	Number of Structures in Wetlands	Permanent Impacts (sq ft) [ac]
PEMFh	1.607	2	156 [0.003]
<i>Freshwater Forested Wetland</i>			
PFO/EMC	0.900	1	78 [0.0015]
PFOA	0.073	-	-
<i>Freshwater Shrub Wetland</i>			
PSS/EMC	0.469	-	-
<i>Riverine</i>			
R2UBG	-	-	-
R2UBGx	-	-	-
R2UBH	-	-	-
R4USF	-	-	-
R4USFx	-	-	-
Total	107.669 ac	32	2,496.000 sq ft 0.0573 ac

Permanent conversion impacts would result from vegetation maintenance procedures under transmission lines that prevent trees from establishing within the ROW. Existing trees must be removed throughout the entire ROW, including forested wetlands. As a result of this, a total of 0.496 acres (1 wetland basin; Figure 5.076) of forested wetland would be cleared of trees and converted to non-forested wetland. Impacts to wetland 54-1, which is classified as PFO/EMC were not included in the conversion impact total for forested wetlands. Picture 54-1 included in Appendix B and HDR observations on the vegetation coverage for wetland 54-1 (Appendix A; USACE data form 54-1 wet) show the wetland system type to be consistent with that of a freshwater pond (PABF).

Of the proposed permanent impacts, 312 square feet (4 structures) are located in areas of the ROW where access was restricted at the time of writing this report. These wetland boundaries have been mapped by aerial photo interpretation but have not been field reviewed (Figures 5.001-5.101).

8.0 CONCLUSIONS

At this time, Minnkota is requesting a preliminary jurisdictional determination for water resources located within the Project Area. Minnkota is of the understating that each individual wetland crossing would be considered a separate and complete project providing independent utility (HDR 2011). Therefore this project would meet impact threshold requirements to be permitted under the 2007 Nation Wide Permit (NWP) 12 – *Utility Line Activities*.

Minnkota understands that within the proposed Route, the Missouri River is regulated as a navigable water under Section 10 the Rivers and Harbors Act of 1899. Based on communications between Minnkota and the USACE, authorization for construction of the proposed Project across the

Missouri River would require a Letter of Permission (LOP) from USACE (HDR 2011). A separate submittal requesting LOP for the Missouri River crossing, which will include additional documentation of the Missouri River crossing, will be submitted to the USACE at a later date.

Minnkota will be submitting Pre-Construction Notification for this project in accordance with the notification requirements of NWP – 12 and Nationwide General Permit Condition – 27 *Pre-construction Notification* no later than 45 days prior to scheduled construction of the Project.

8.1 Agency Coordination

Minnkota has been in coordination with multiple regulatory authorities in regard to the Project. The U.S. Department of Agriculture (USDA) Rural Utilities Service (RUS) issued an Environmental Assessment (EA) of the Project in November 2011. As part of the EA for the Project, Minnkota is currently in consultation with the USFWS regarding Section 7 of the Endangered Species Protection Act and the North Dakota State Historic Preservation Office (SHPO) regarding Section 106 of the National Historic Preservation Act. Table 7 includes a list of regulatory agencies, their respective authority, and the status of authorization for all agencies involved with the Project.

Table 7. Status of Approvals for the Project

Federal Agency	Permit/Approval	Status/Assign
Rural Utilities Service	Approval of Financial Assistance	Undergoing NEPA review
	NEPA Compliance, Finding of No Significant Impact	Provide final decision for Environmental Assessment
	Section 7 of the Endangered Species Act	Biological Assessment Under Review
	Section 106 of the National Historic Preservation Act coordination	Programmatic Agreement Signed
	Native American Consultation	Implement Programmatic Agreement
Environmental Protection Agency	Spill Prevention Control and Countermeasure (SPCC) Plan	A copy of the plan will be maintained on file with the substation's owner/operator and will be reviewed by the certifying engineer every five years.
Federal Aviation Administration	Acknowledgement of Receipt of Notice, FAA Form 7460-1	Will submit prior to construction
	FAA Form 7460-2 - Notice of Actual Construction or Alteration	Submitted
	FAA Form 7461-1, Notice of Proposed Construction Hazard Determination	Submitted
US Fish and Wildlife Service	Section 7 of the Endangered Species Act, Migratory Bird Treaty Act of 1918, and Bald and Golden Eagle Protection Act of 1972	Section 7 Consultation under NEPA for Special Use Permit
	Special Use Permit and Compatibility Determination	Environmental Assessment Submitted

Department of Agriculture – Natural Resources Conservation Service	Farmland Conversion Form - Form AD-1006	Submitted December 2011
U.S. Department of the Interior - Bureau of Reclamation	Special Use Permit (SUP)	Will submit prior to construction
State Agency	Permit/Approval	Status/Assign
Public Service Commission	Waiver of Procedures and Time Schedules	Filed
	Letter of Intent	Filed
	Certificate of Corridor Compatibility	Filed
	Route Permit	Submitted
ND Department of Public Health	401 Water Quality Certification	Given with NPDES
	NPDES Permit: General Construction Storm Water	Will submit prior to construction
	SWPPP	Will submit prior to construction
ND Division of Emergency Management	Emergency Planning and Community Right-to-Know Act (EPCRA) Tier II Report	Will submit prior to construction
State Historical Society	Permit to Investigate Effects on Cultural Resources	Submitted
	Section 106 Compliance Approval	Submitted
ND Department of Transportation	Road Approach/Access Permit	Will submit prior to construction
	Utility Permit/Risk Management Documents	Will submit prior to construction
ND Highway Patrol	Overheight/Overweight Permit	Will submit prior to construction
ND State Land Department	Right-of-Way Permit on Trust Lands	Will submit prior to construction
State Water Commission – Office of State Engineer	State Sovereign Lands Permit	Will submit prior to construction
	Conditional Water Permit	Will submit prior to construction (if needed)
Local	Permit/Approval	Status/Assign
Counties – Burleigh, Eddy (some townships also require permits), Foster (one township requires permit), Griggs, McLean, Oliver, Sheridan (one township requires permit), Steele, Nelson	Conditional Use Permit	Will submit prior to construction
	Building Permit	Will submit prior to construction
	Haul Road Agreement	Will submit prior to construction
	Utility Permit	Will submit prior to construction
Townships – Painted Woods Twp and Wilson Twp – Burleigh Co. Addie Twp – Griggs Co. Sharon Twp and Franklin Twp. – Steele Co. Fairfield Twp, Logan Twp and Loretta Twp – Grand Forks Co.	Conditional Use Permit	Will submit prior to construction

9.0 REFERENCES

HDR. 2011. Meeting between USACE, Minnkota Power Cooperative Inc. and HDR on March 24, 2011 at USACE North Dakota regulatory office. Bismarck, North Dakota.

U.S. Army Corps of Engineers. 1987. *Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1*, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS, 100 pp. and appendices.

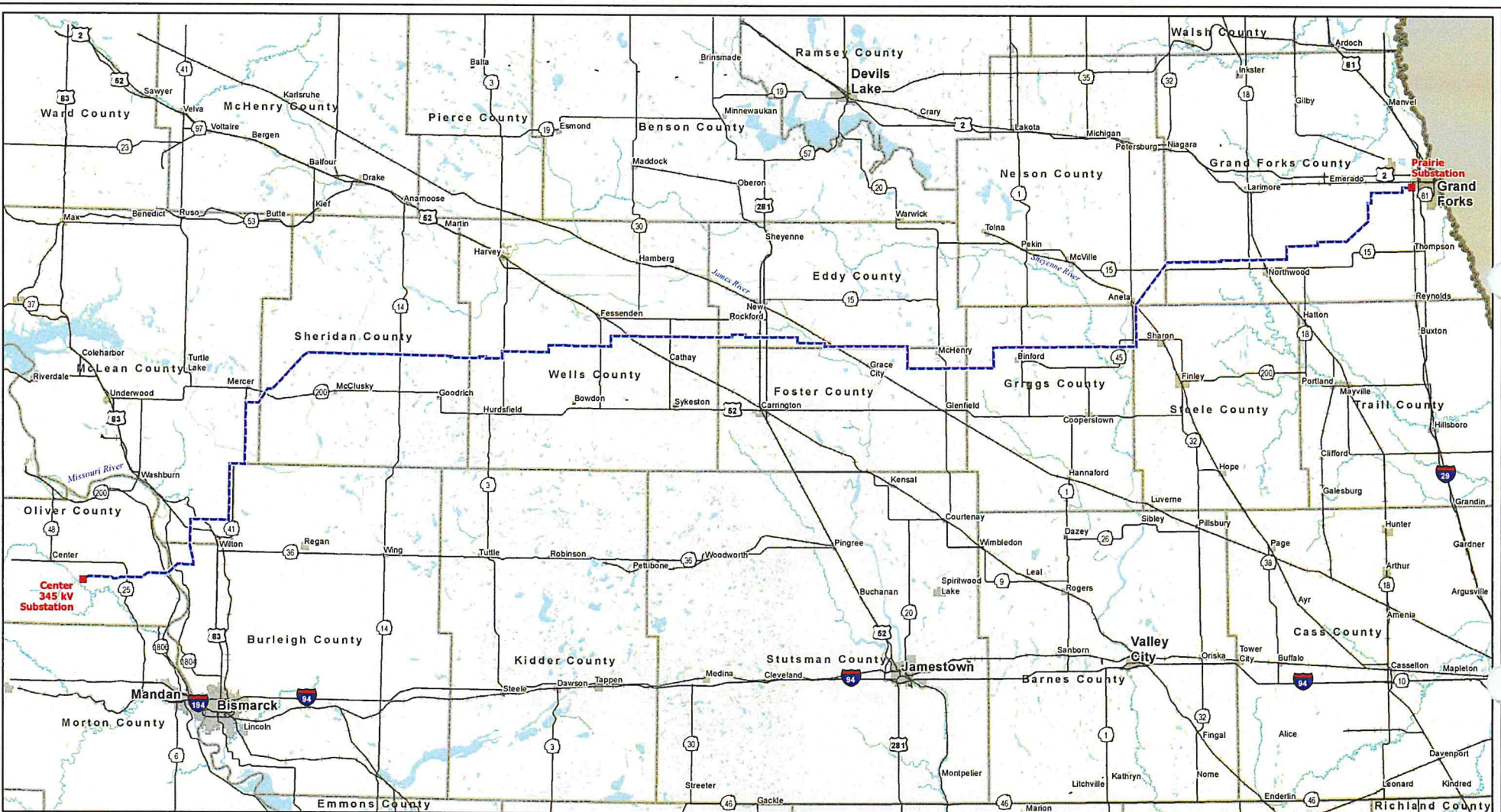
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Witsch, William and James Gosselink. 2000. *Wetlands: 3rd Ed.* New York. 920 pp.

Figures

Date: 1/13/2011

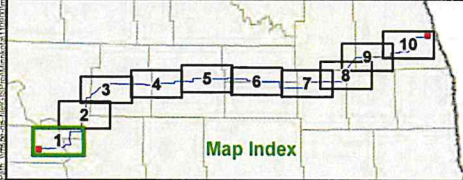
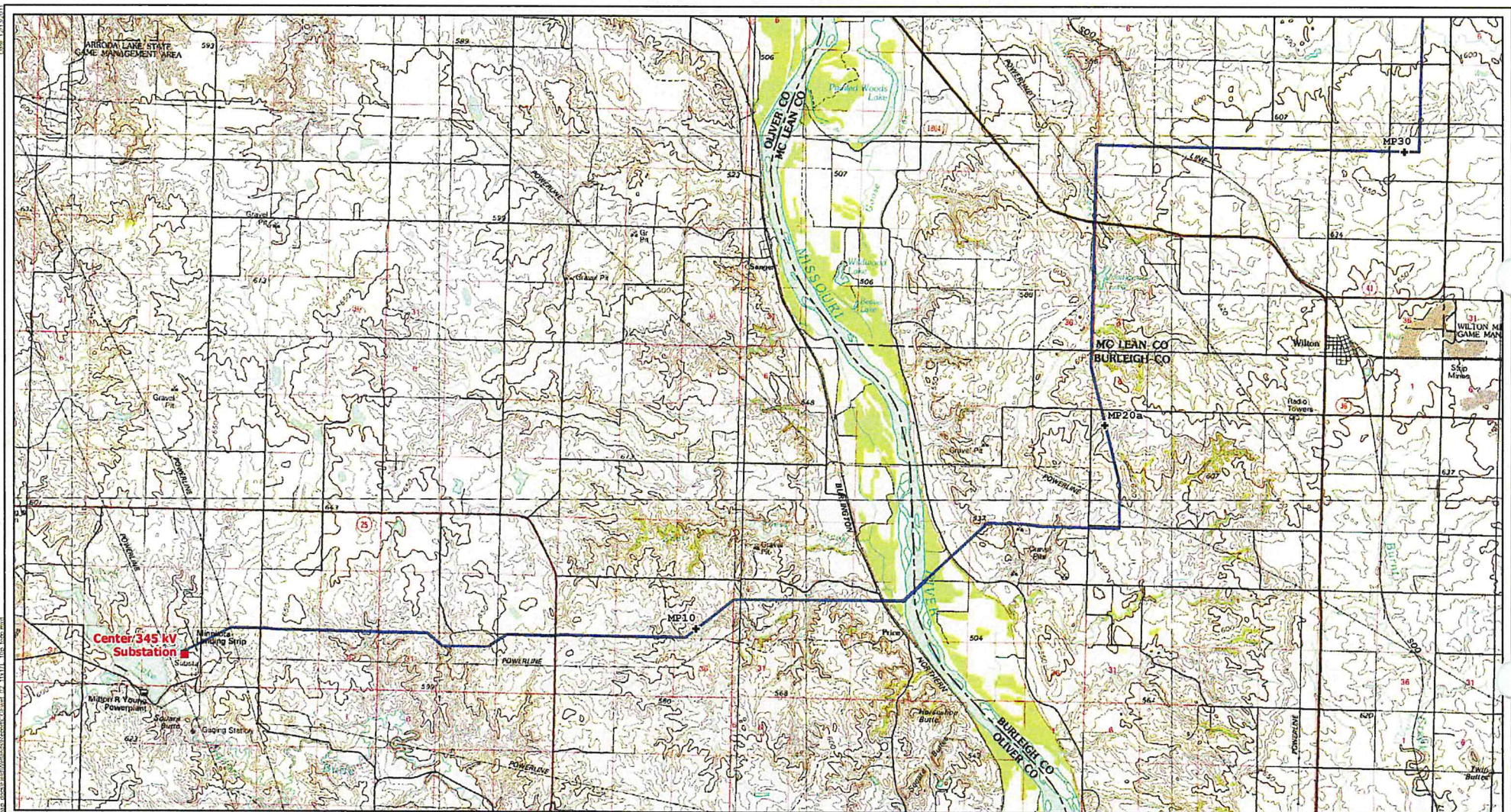
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- - - Project ROW
- November 11, 2011
- Project Substation

Figure 1
Project Location
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

0 5 10 Miles
Scale 1:850,000



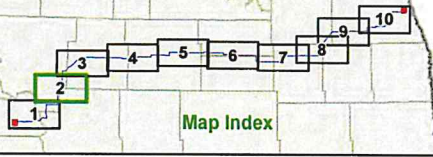
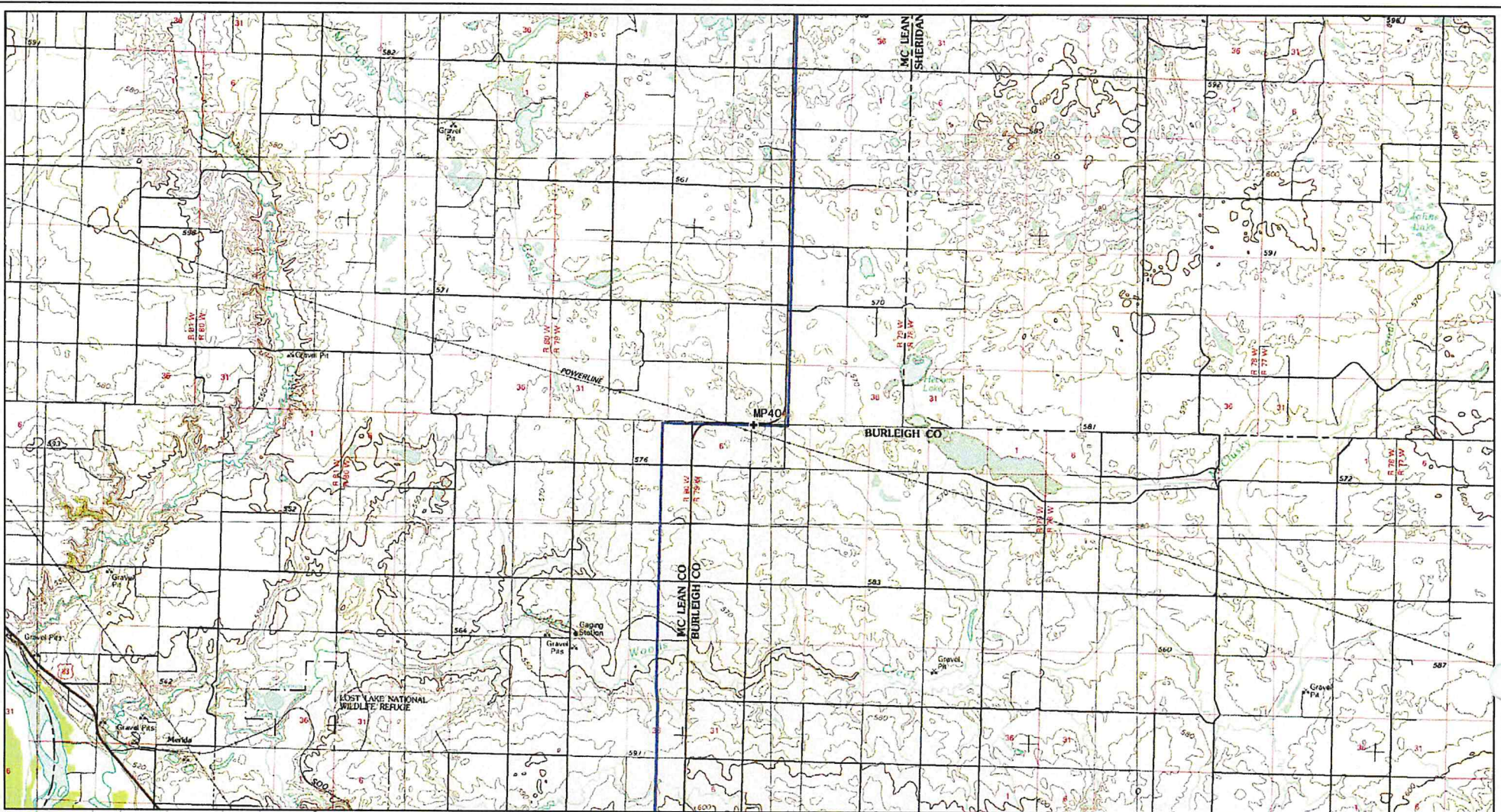
- Project ROW - November 11, 2011
- Project Substation
- + Reference Milepost

Figure 2.01
 USGS 1:100,000 Topographic Map
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

0 1 2 Miles
 Scale 1:100,000

Date: 11/11/2011

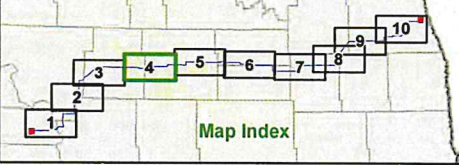
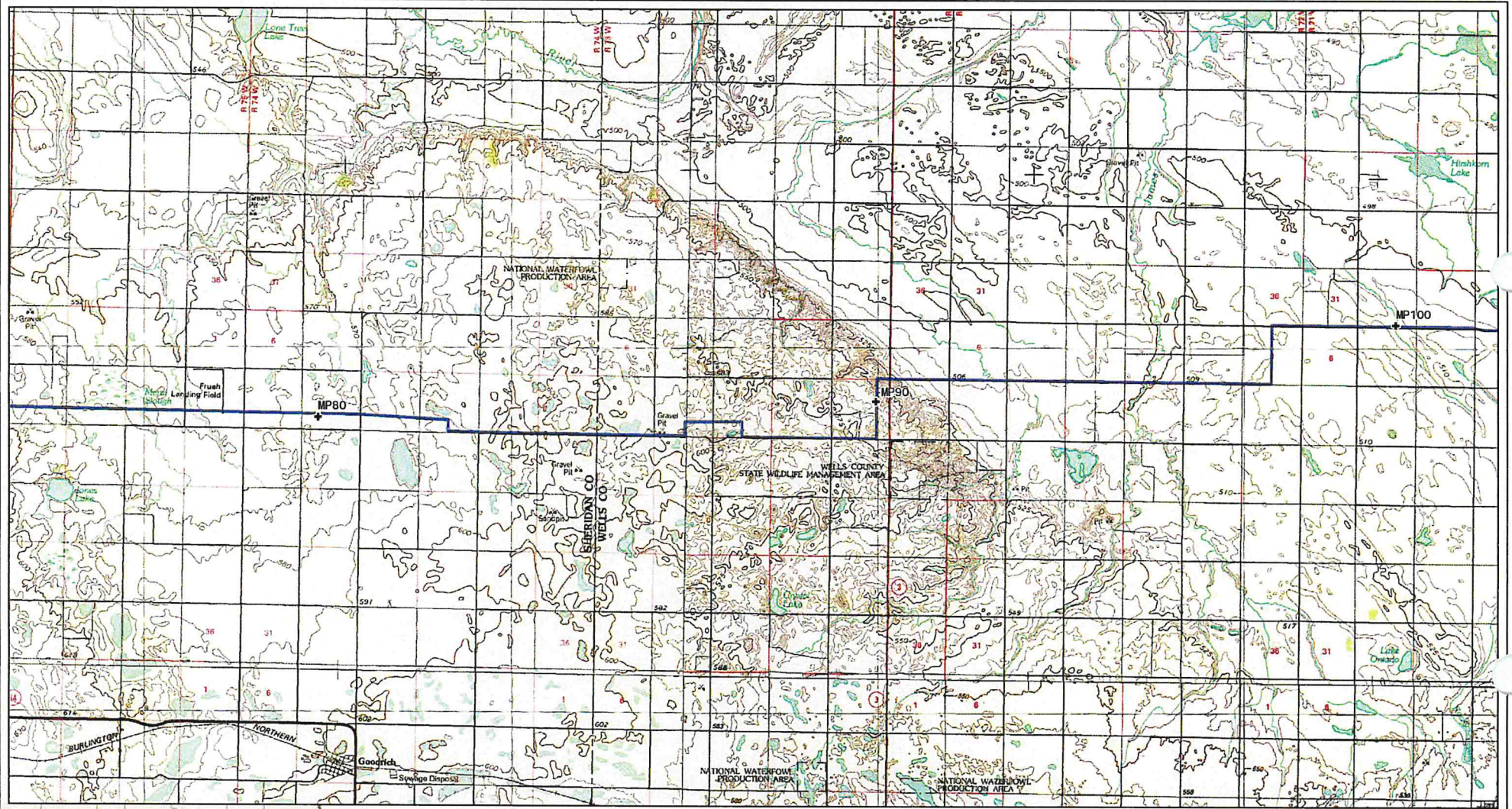
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- Project ROW - November 11, 2011
- Project Substation
- Reference Milepost

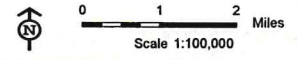
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 USGS 1:100,000 Topographic Map
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

0 1 2 Miles
 Scale 1:100,000

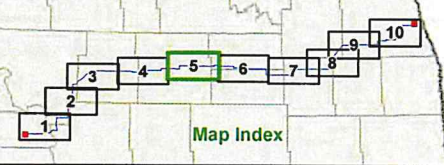
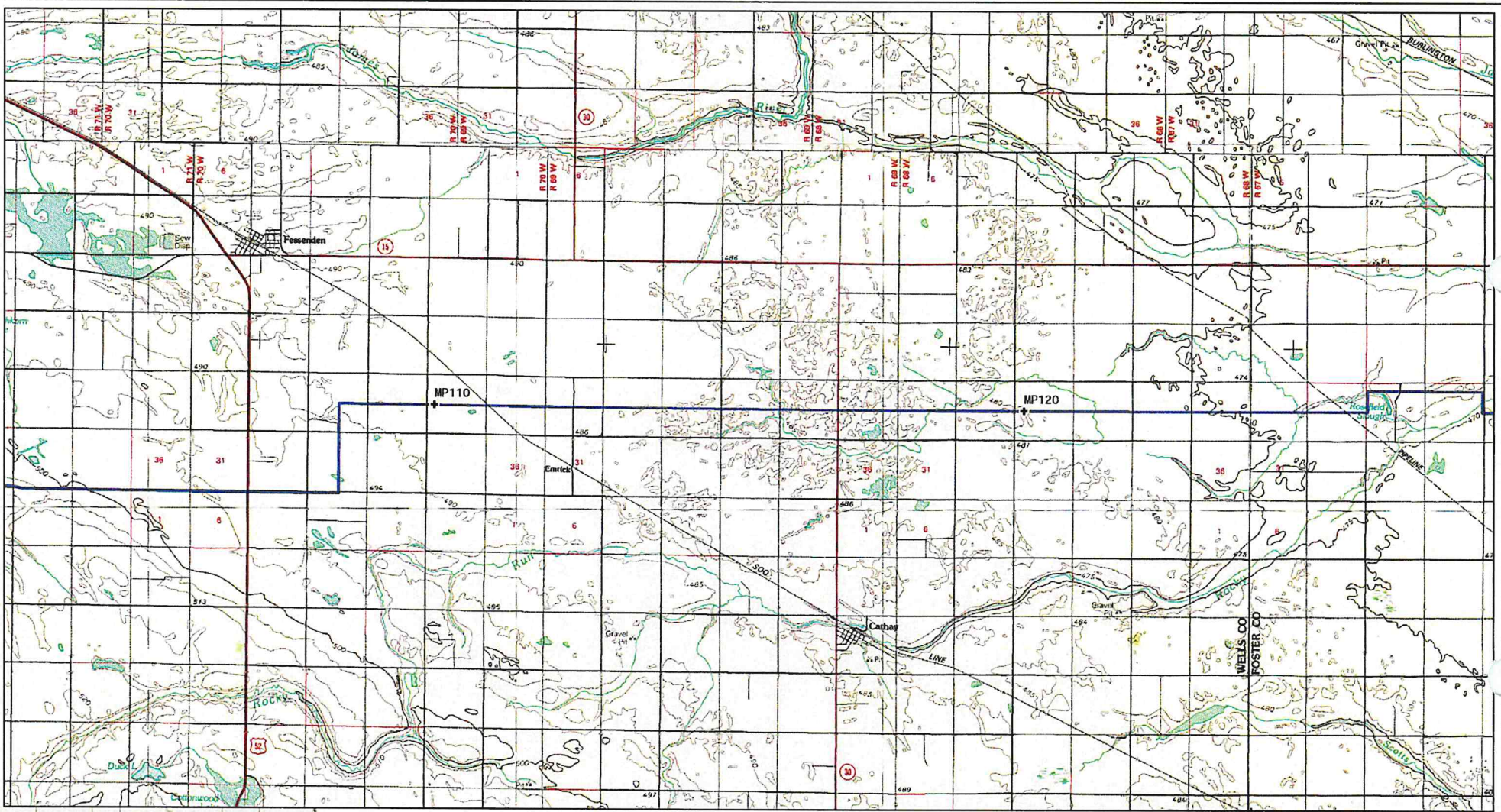


■ Project ROW - November 11, 2011
■ Project Substation
+ Reference Milepost

Figure 2.04
USGS 1:100,000 Topographic Map
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.



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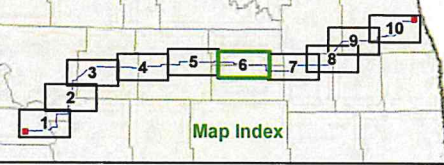
- Project ROW - November 11, 2011
- Project Substation
- + Reference Milepost

Figure 2.05
 USGS 1:100,000 Topographic Map
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

0 1 2 Miles
 Scale 1:100,000

Date: 12/13/2011

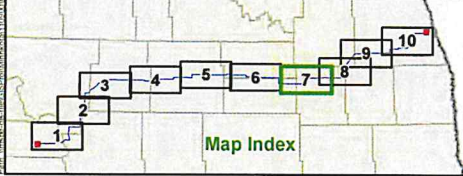
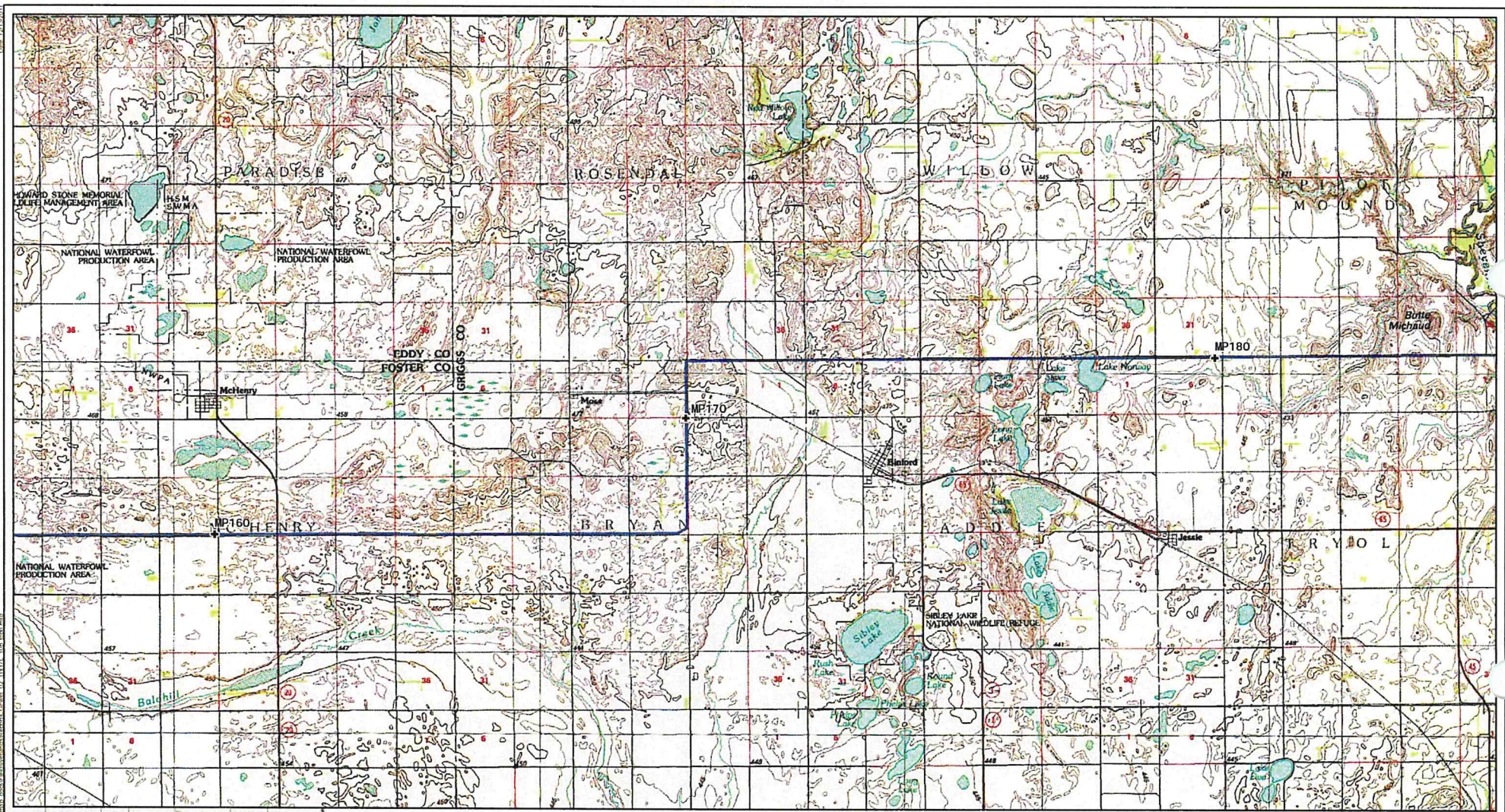
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- Project ROW - November 11, 2011
- Project Substation
- + Reference Milepost

Figure 2.06
 USGS 1:100,000 Topographic Map
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

0 1 2 Miles
 Scale 1:100,000



- Project ROW - November 11, 2011
- Project Substation
- + Reference Milepost

Figure 2.07
 USGS 1:100,000 Topographic Map
 Center to Grand Forks Project
 Minkota Power Cooperative, Inc.

0 1 2 Miles
 Scale 1:100,000

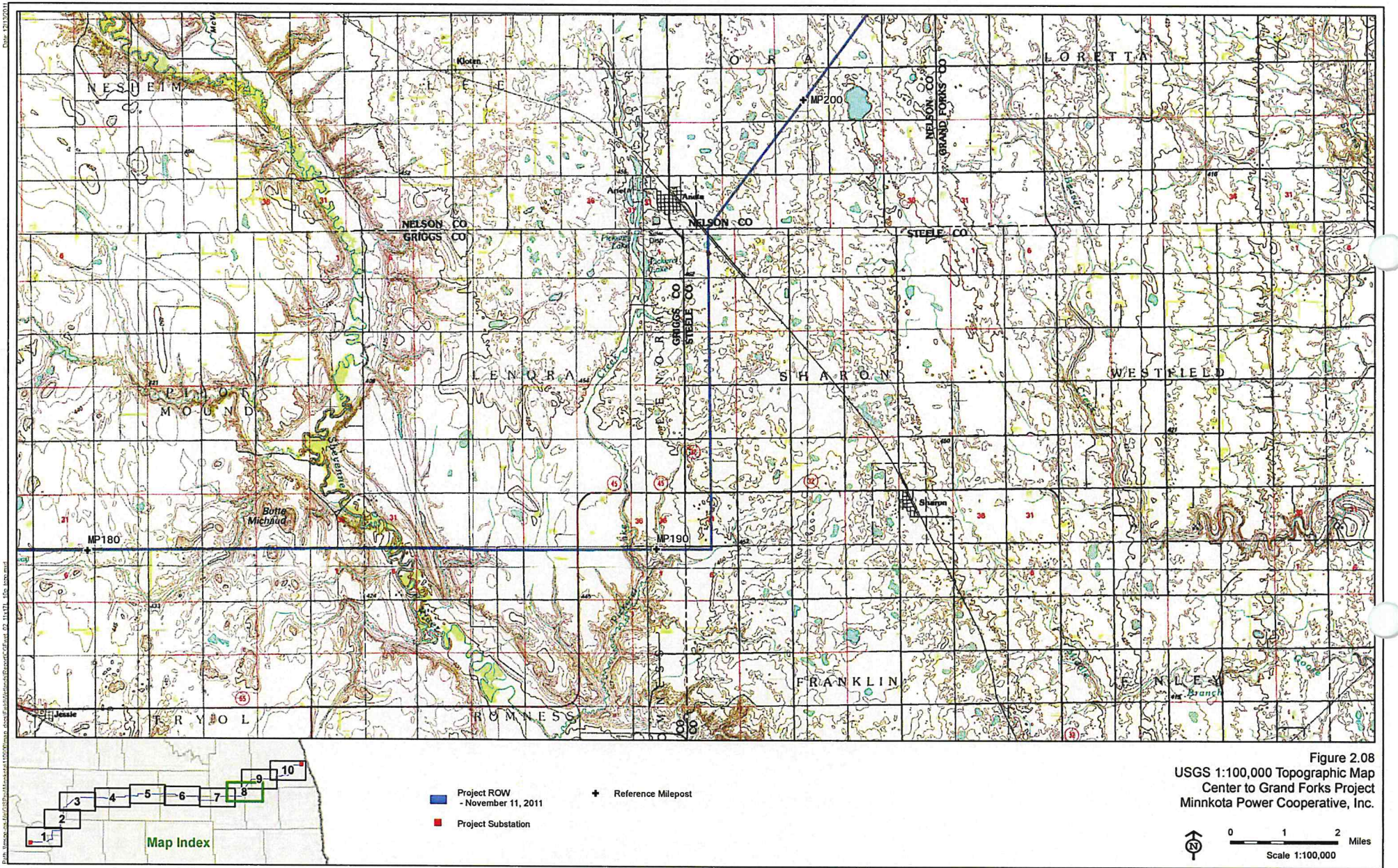
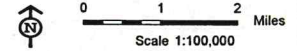
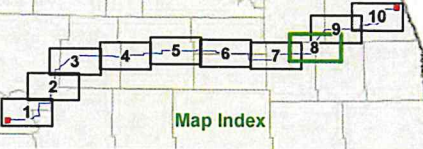


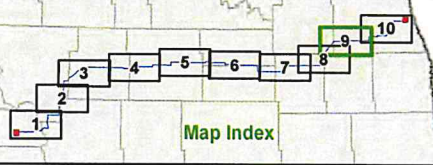
Figure 2.08
 USGS 1:100,000 Topographic Map
 Center to Grand Forks Project
 Minkota Power Cooperative, Inc.

- Project ROW - November 11, 2011
- Project Substation
- + Reference Milepost



Date: 11/11/2011

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■ Project ROW - November 11, 2011
■ Project Substation
+ Reference Milepost

Figure 2.09
 USGS 1:100,000 Topographic Map
 Center to Grand Forks Project
 Minkota Power Cooperative, Inc.
 0 1 2 Miles
 Scale 1:100,000

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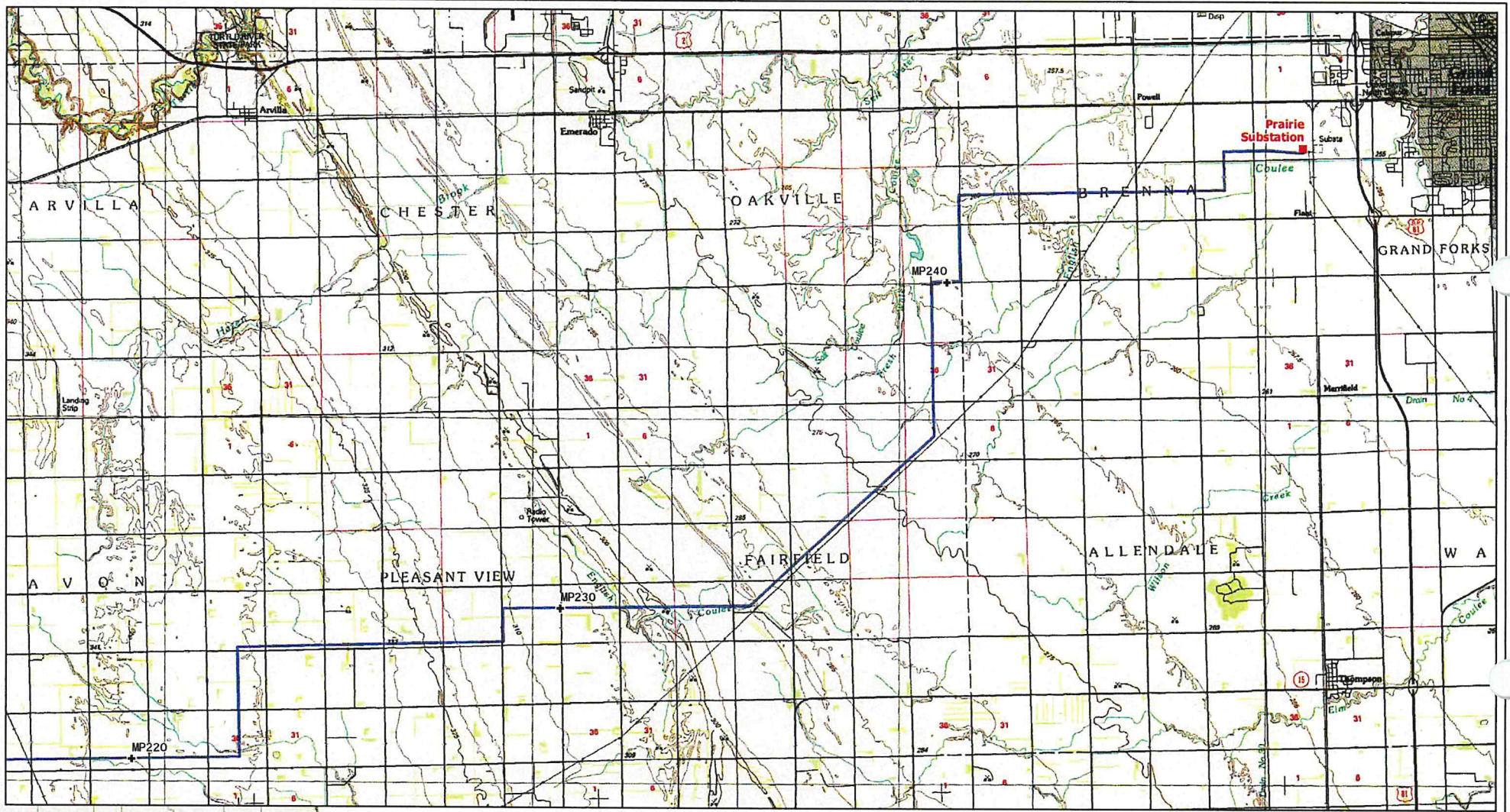
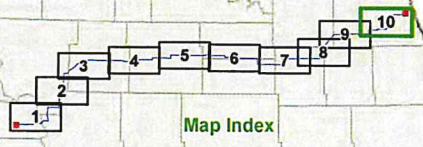
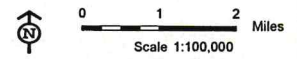
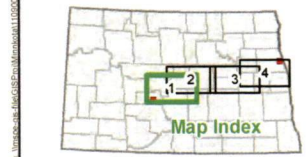
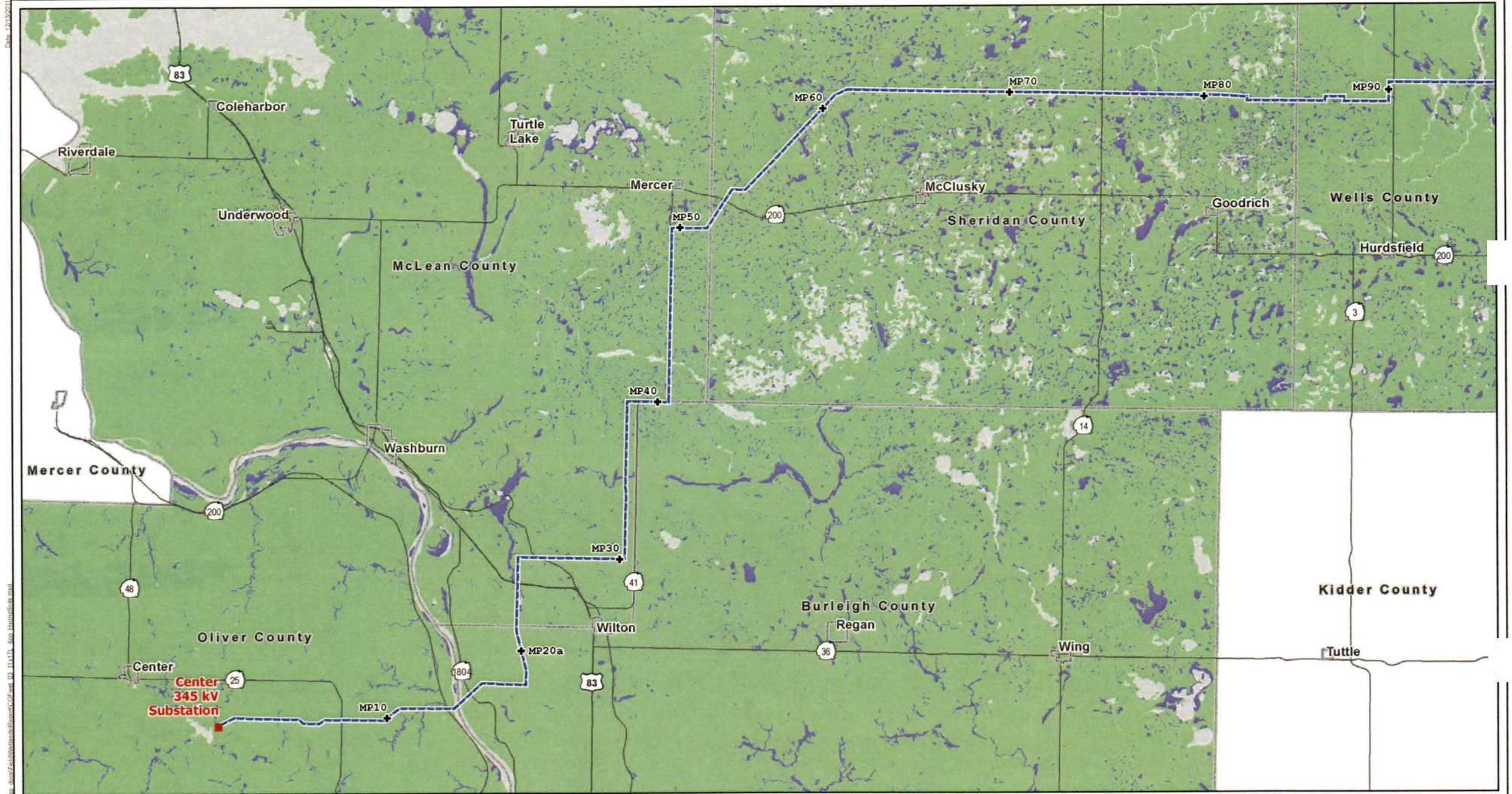


Figure 2.10
 USGS 1:100,000 Topographic Map
 Center to Grand Forks Project
 Minkota Power Cooperative, Inc.

- Project ROW - November 11, 2011
- Project Substation
- + Reference Milepost



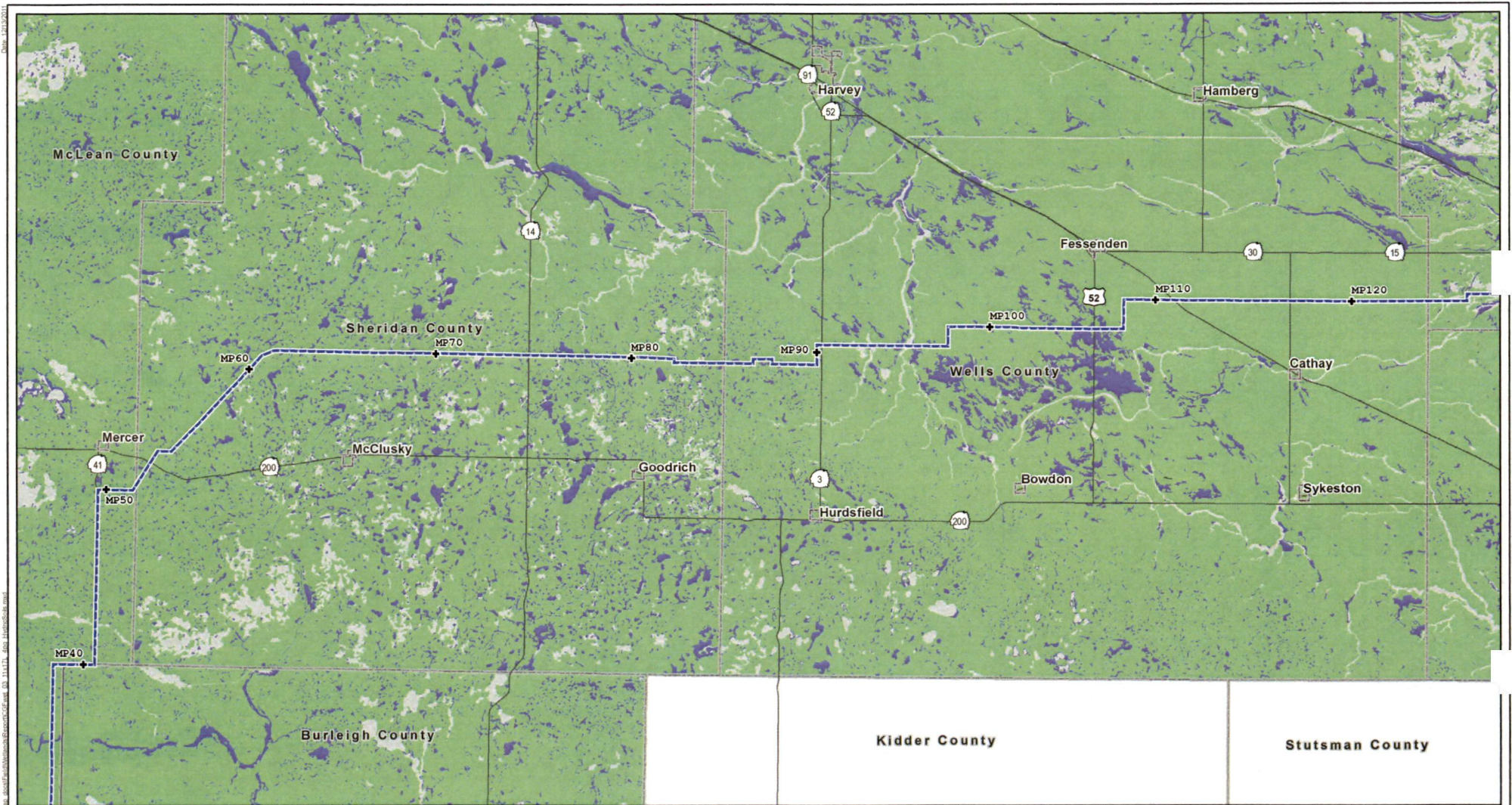
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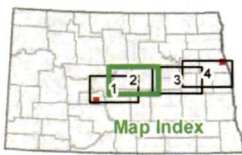
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Figure 3.01
Hydric Soils
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

0 2 4 Miles
Scale 1:300,000



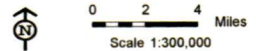
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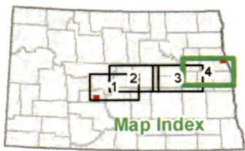
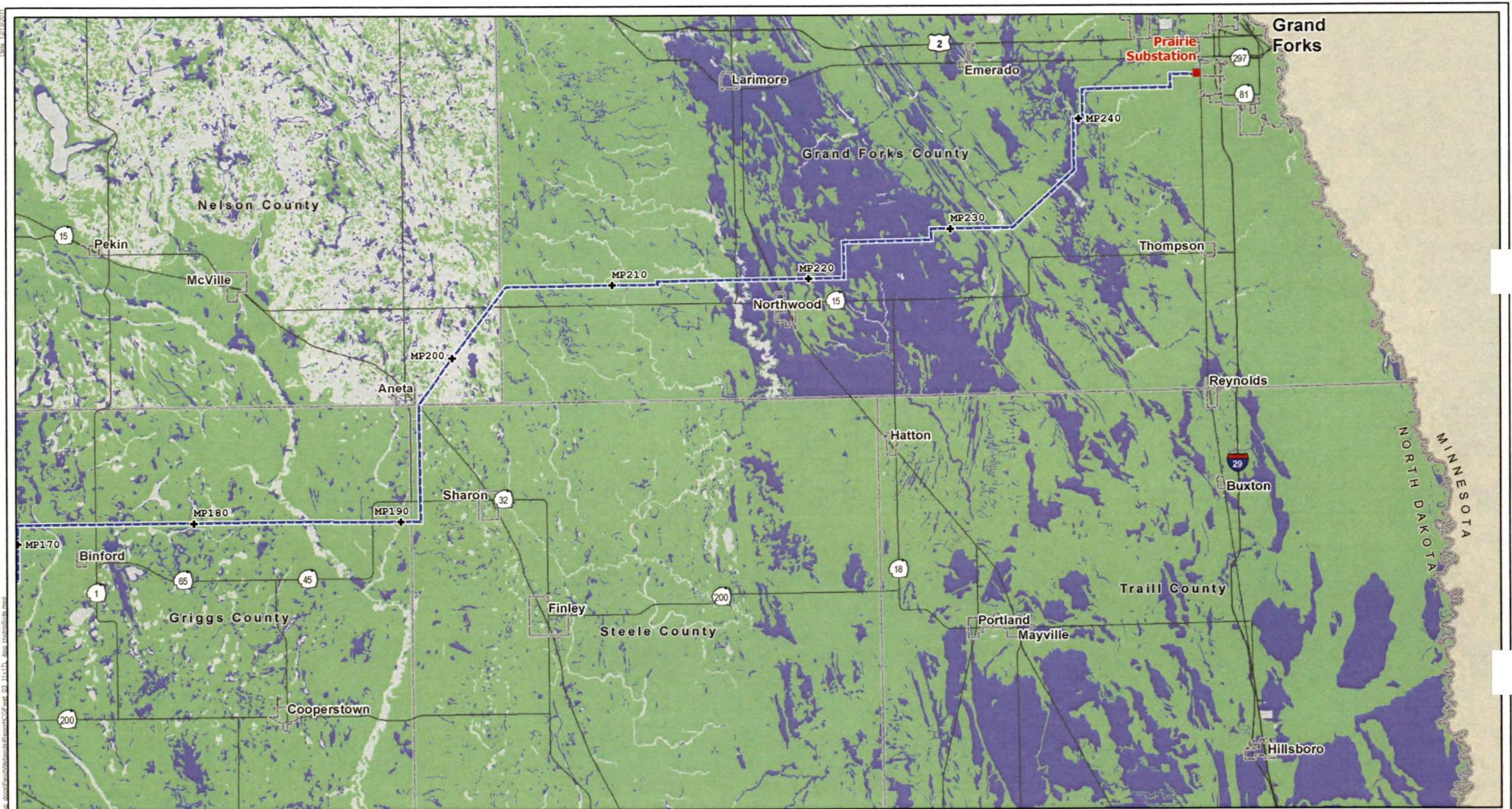


- Project ROW - November 11, 2011
- Project Substation
- Reference Milepost

- County Soil Survey
Hydric Soil
- Non-hydric Soil
- No Data

Figure 3.02
Hydric Soils
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.



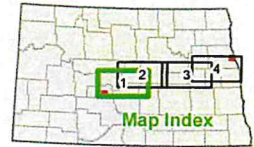
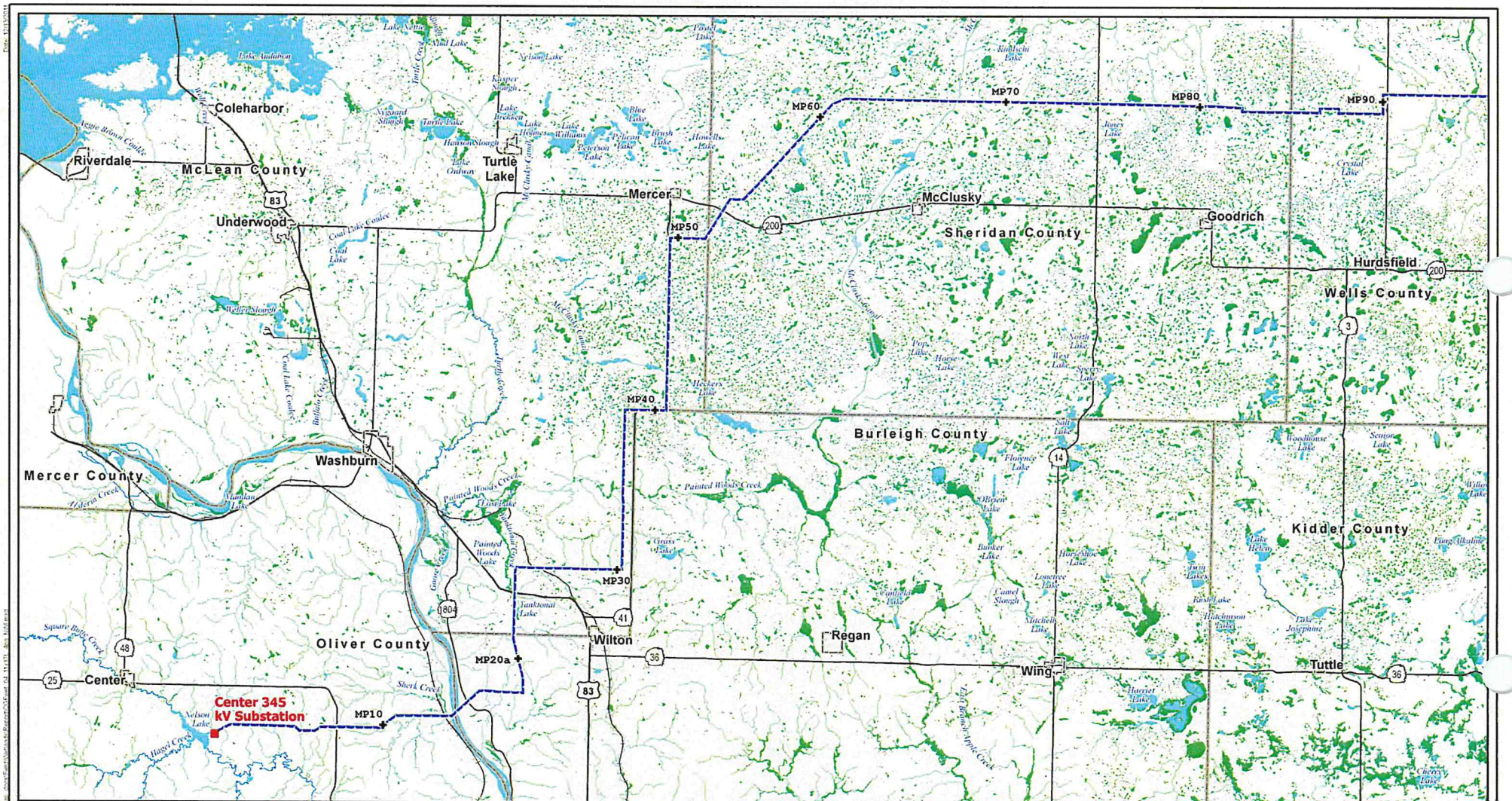


- - - Project ROW - November 11, 2011
- Project Substation
- + Reference Milepost

- County Soil Survey
- Hydric Soil
- Non-hydric Soil
- No Data

Figure 3.04
Hydric Soils
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

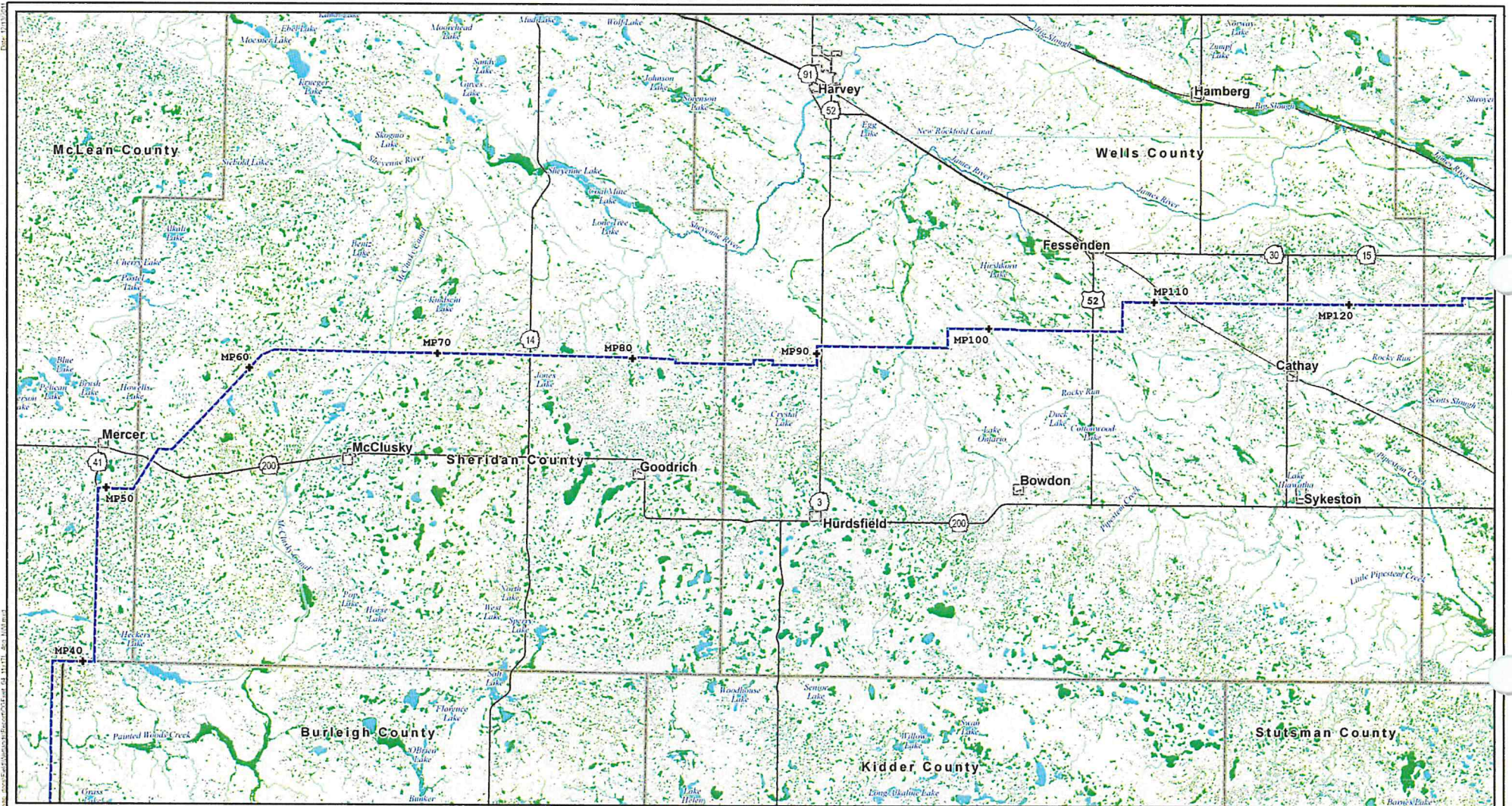




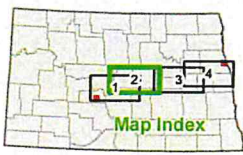
- Project ROW - November 11, 2011
- Project Substation
- + Reference Milepost
- NWI Wetlands
- Lake, Pond, or River
- Wetland
- USGS Streams
- Perennial River or Stream
- Intermittent Stream, Ditch or Canal

Figure 4.01
 National Wetlands Inventory
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

0 2 4 Miles
 Scale 1:300,000



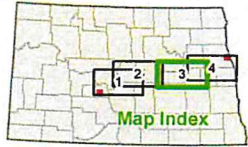
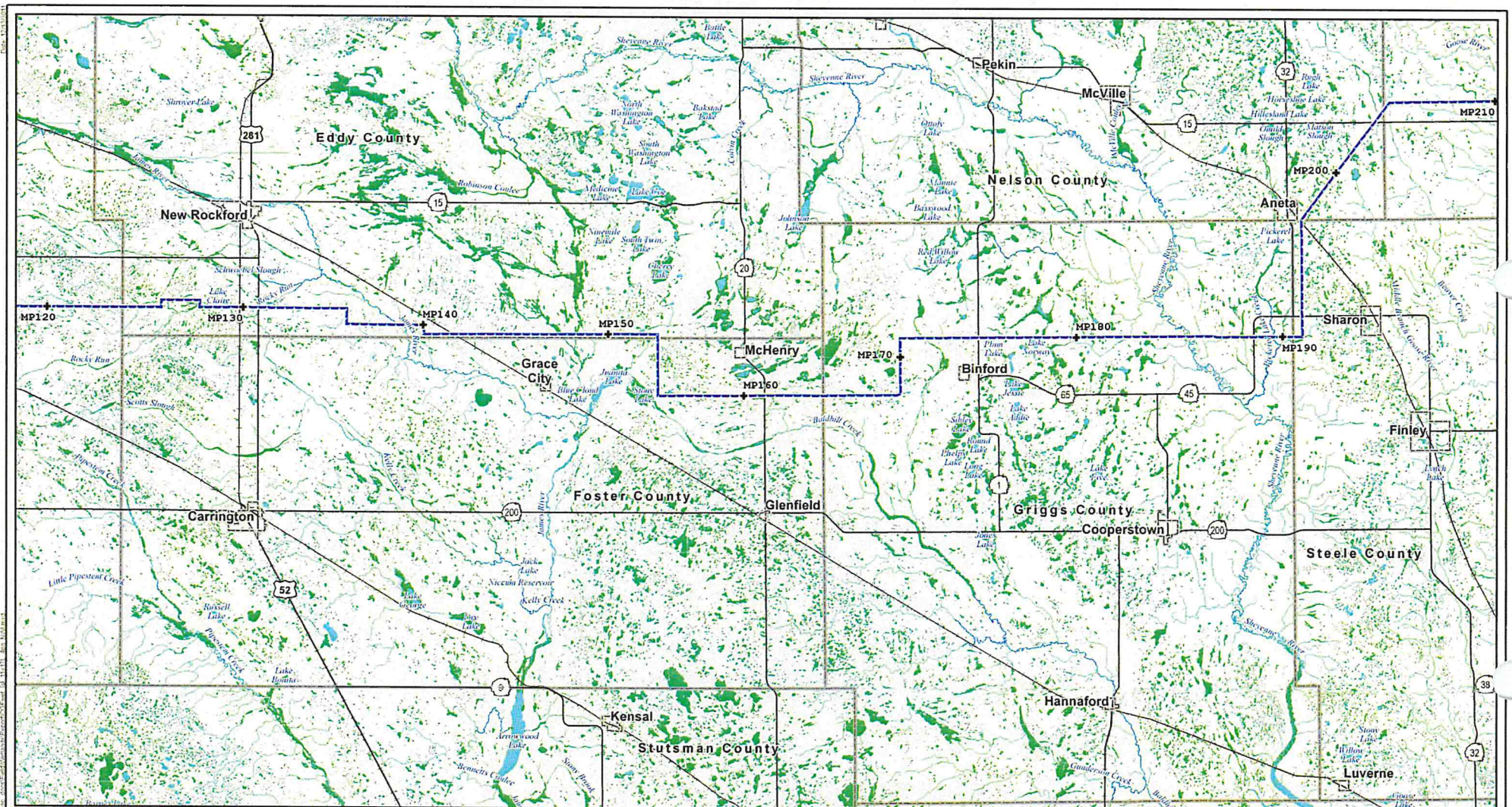
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- Project ROW - November 11, 2011
- Project Substation
- + Reference Milepost
- NWI Wetlands
- Lake, Pond, or River
- Wetland
- USGS Streams
- Perennial River or Stream
- Intermittent Stream, Ditch or Canal

Figure 4.02
National Wetlands Inventory
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

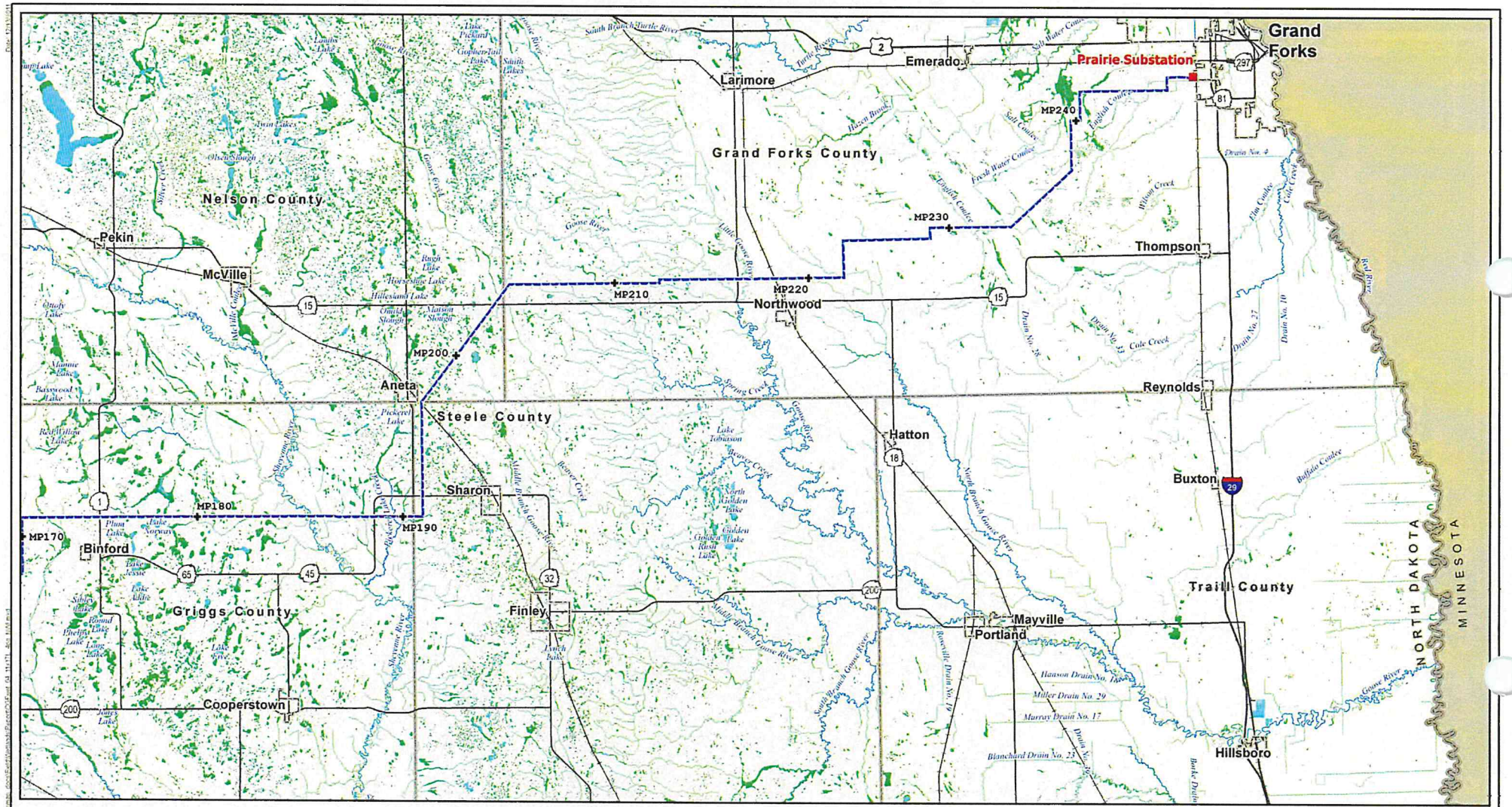
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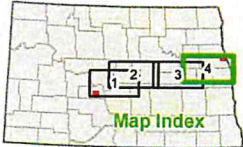
- Project ROW - November 11, 2011
- Project Substation
- + Reference Milepost
- NWI Wetlands
 - Lake, Pond, or River
 - Wetland
- USGS Streams
 - Perennial River or Stream
 - Intermittent Stream, Ditch or Canal

Figure 4.03
 National Wetlands Inventory
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

0 2 4 Miles
 Scale 1:300,000



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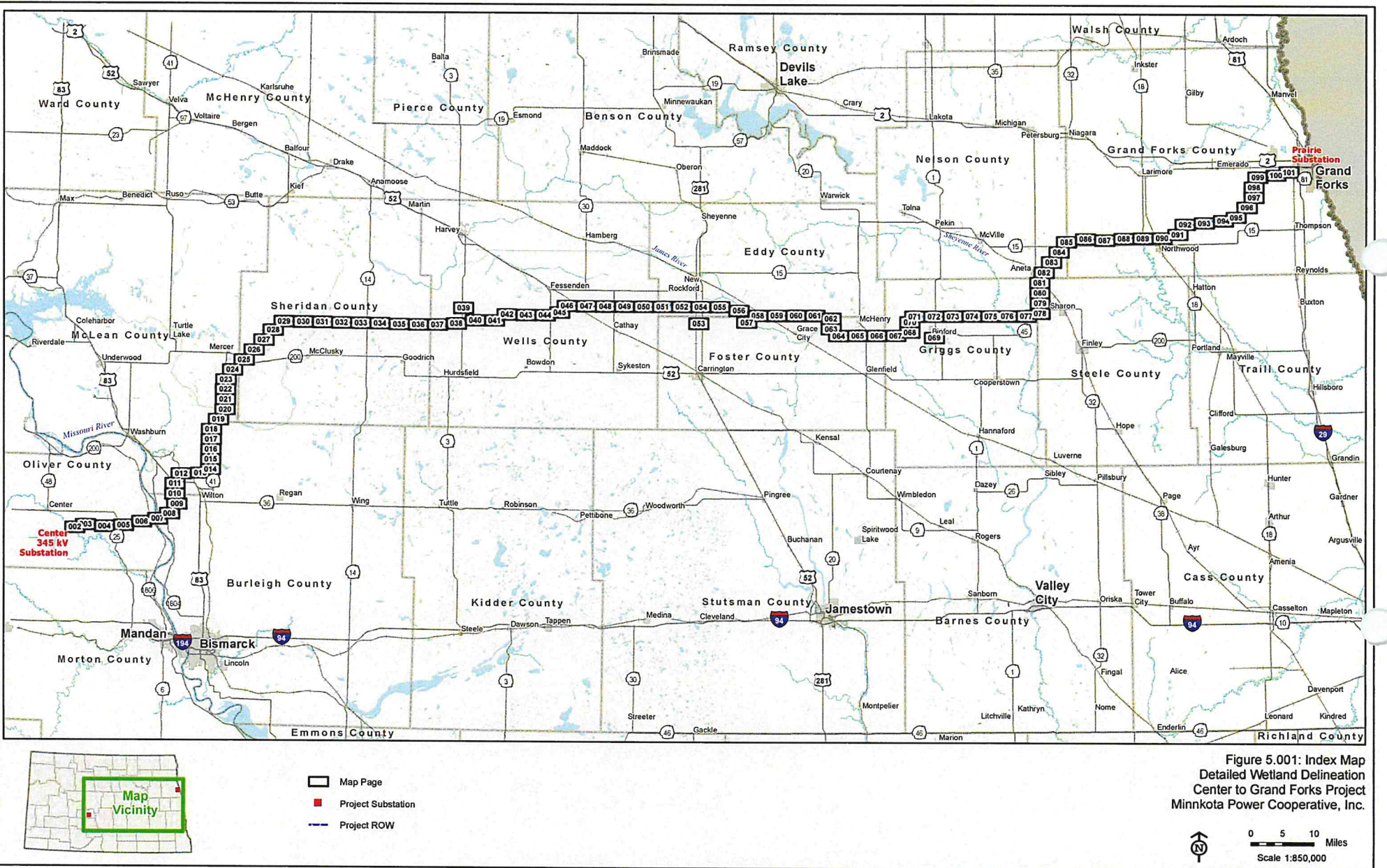


- - - Project ROW - November 11, 2011
- Project Substation
- + Reference Milepost
- NWI Wetlands
- Lake, Pond, or River
- Wetland
- USGS Streams
- Perennial River or Stream
- Intermittent Stream, Ditch or Canal

Figure 4.04
 National Wetlands Inventory
 Center to Grand Forks Project
 Minkota Power Cooperative, Inc.

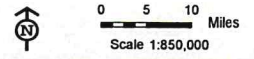
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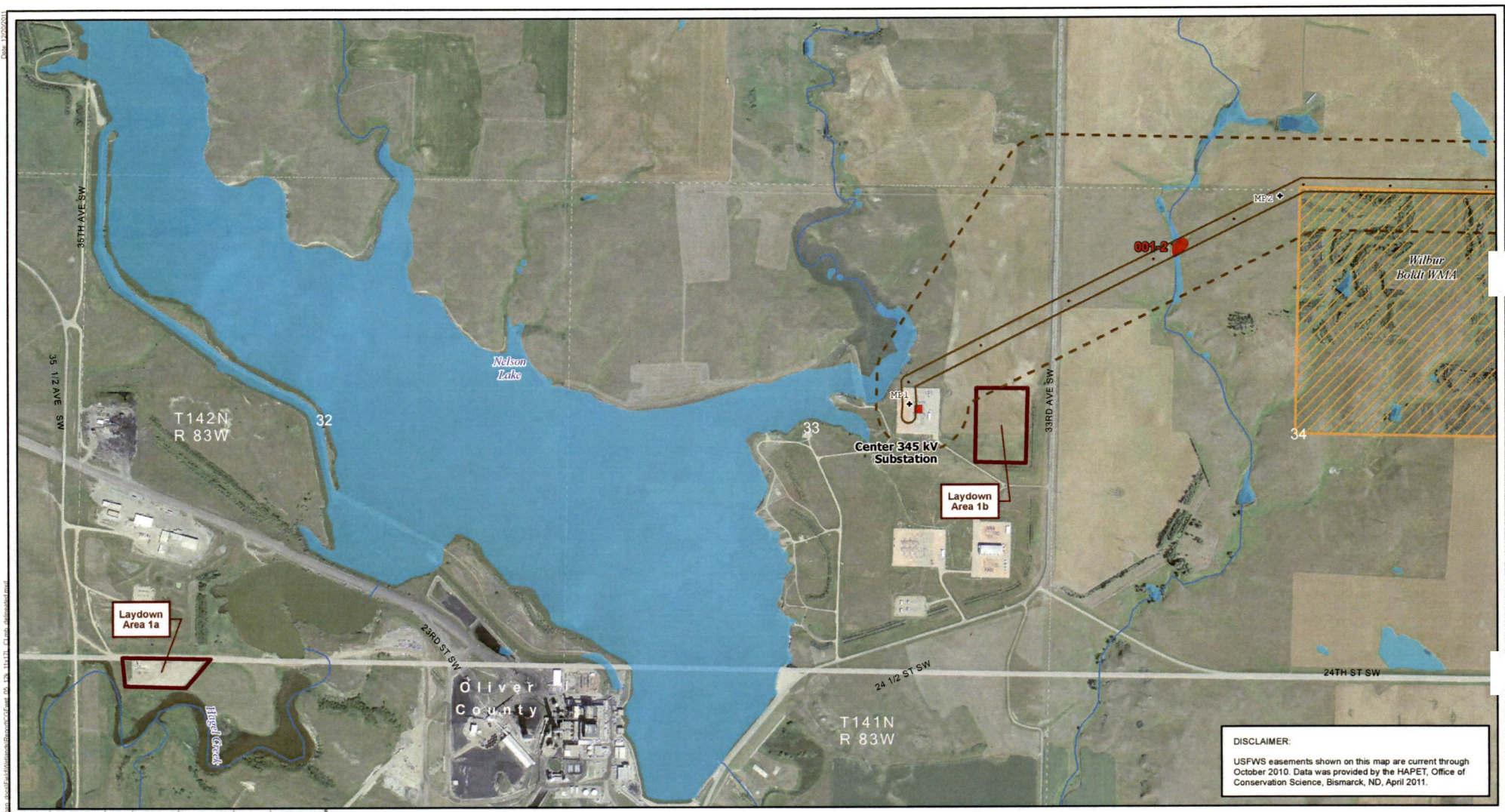
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- Map Page
- Project Substation
- Project ROW

Figure 5.001: Index Map Detailed Wetland Delineation Center to Grand Forks Project Minnkota Power Cooperative, Inc.





DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



- | | | | |
|---------------------------------------|-----------------------------|--------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | | |
| Laydown Area | Wetland Crossing > 500 feet | | |
| | Permanent Wetland Impacts | | |

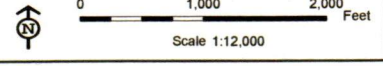
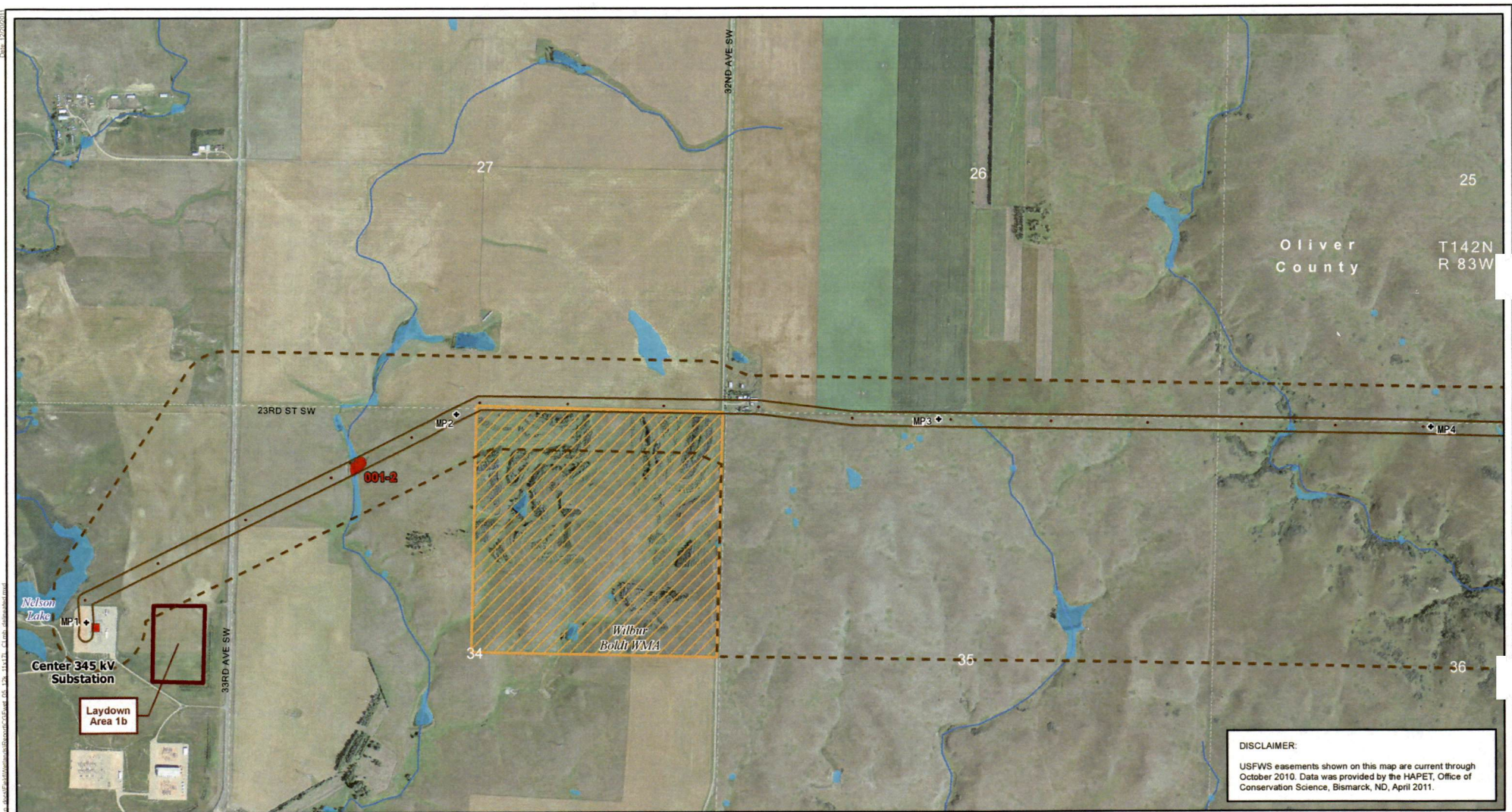


Figure 5.002
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



- | | | | |
|---------------------------------------|-----------------------------|--------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | | |
| Laydown Area | Wetland Crossing > 500 feet | | |
| | Permanent Wetland Impacts | | |

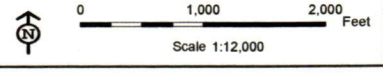
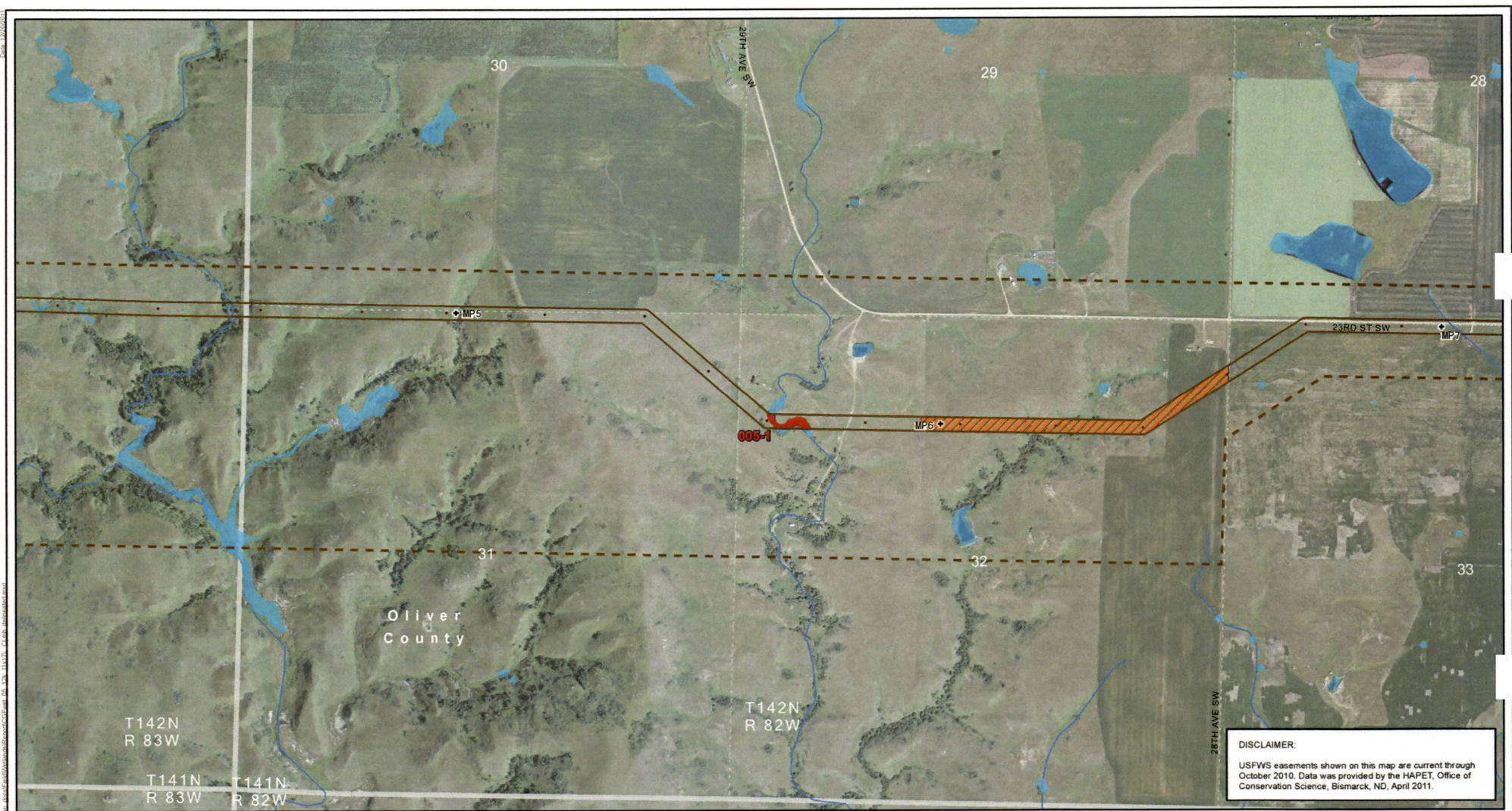


Figure 5.003
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



- | | | | |
|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

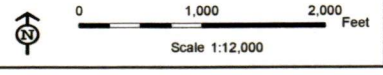
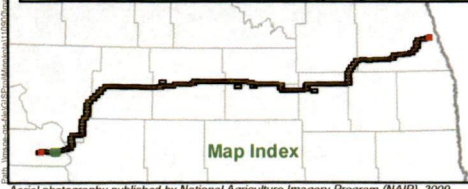


Figure 5.004
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



- | | | | |
|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

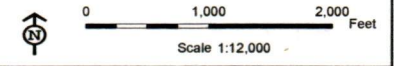
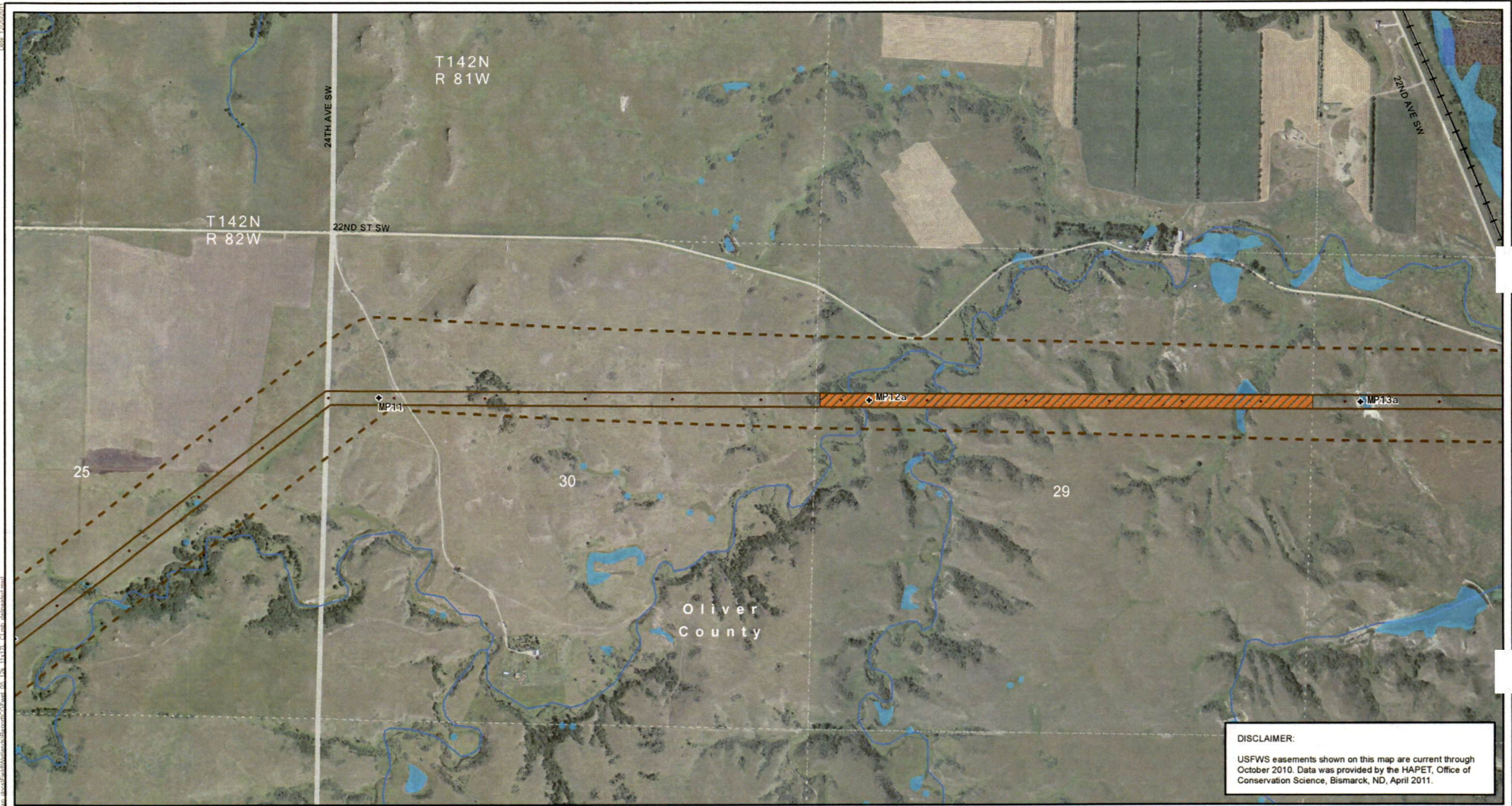
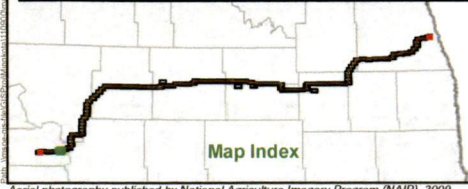


Figure 5.005
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



- | | | | |
|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
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| Laydown Area | Permanent Wetland Impacts | | |

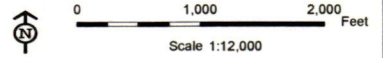
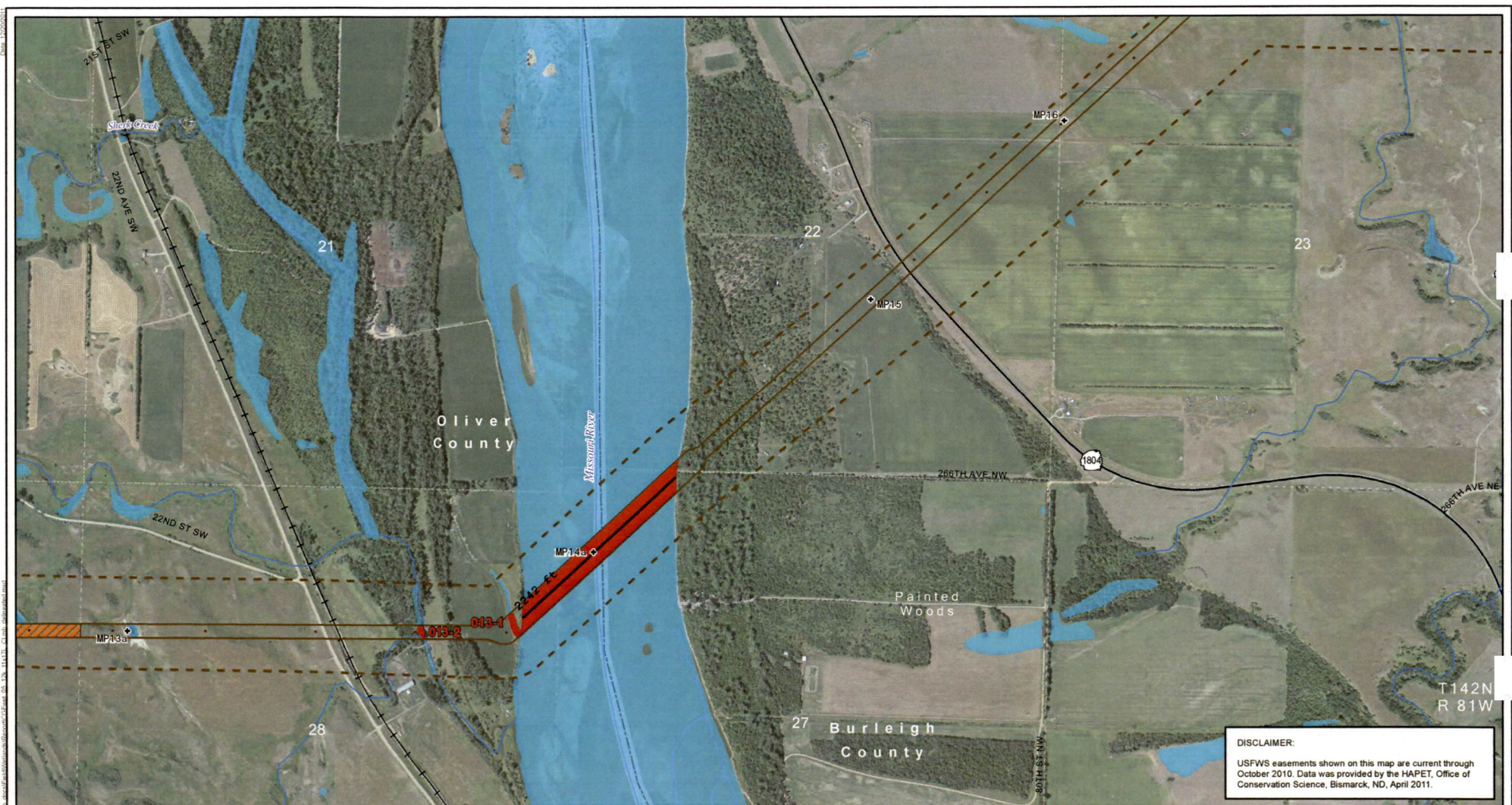


Figure 5.006
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



- Field Survey Incomplete
- Project Corridor - November 18, 2011
- Project ROW - November 11, 2011
- Project Structure - November 11, 2011
- Laydown Area
- Wetland
- Delineated Wetland Basin
- Forested Wetland Basin
- Wetland Crossing > 500 feet
- Permanent Wetland Impacts
- Reference Milepost
- USGS Mapped Waterway
- USFWS Wetland Easement
- USFWS Grassland Easement
- State Park, Recreation Area or WMA
- USFWS WPA or WDA
- US Bureau of Reclamation Land

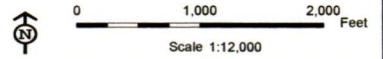
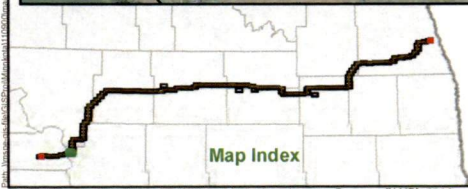
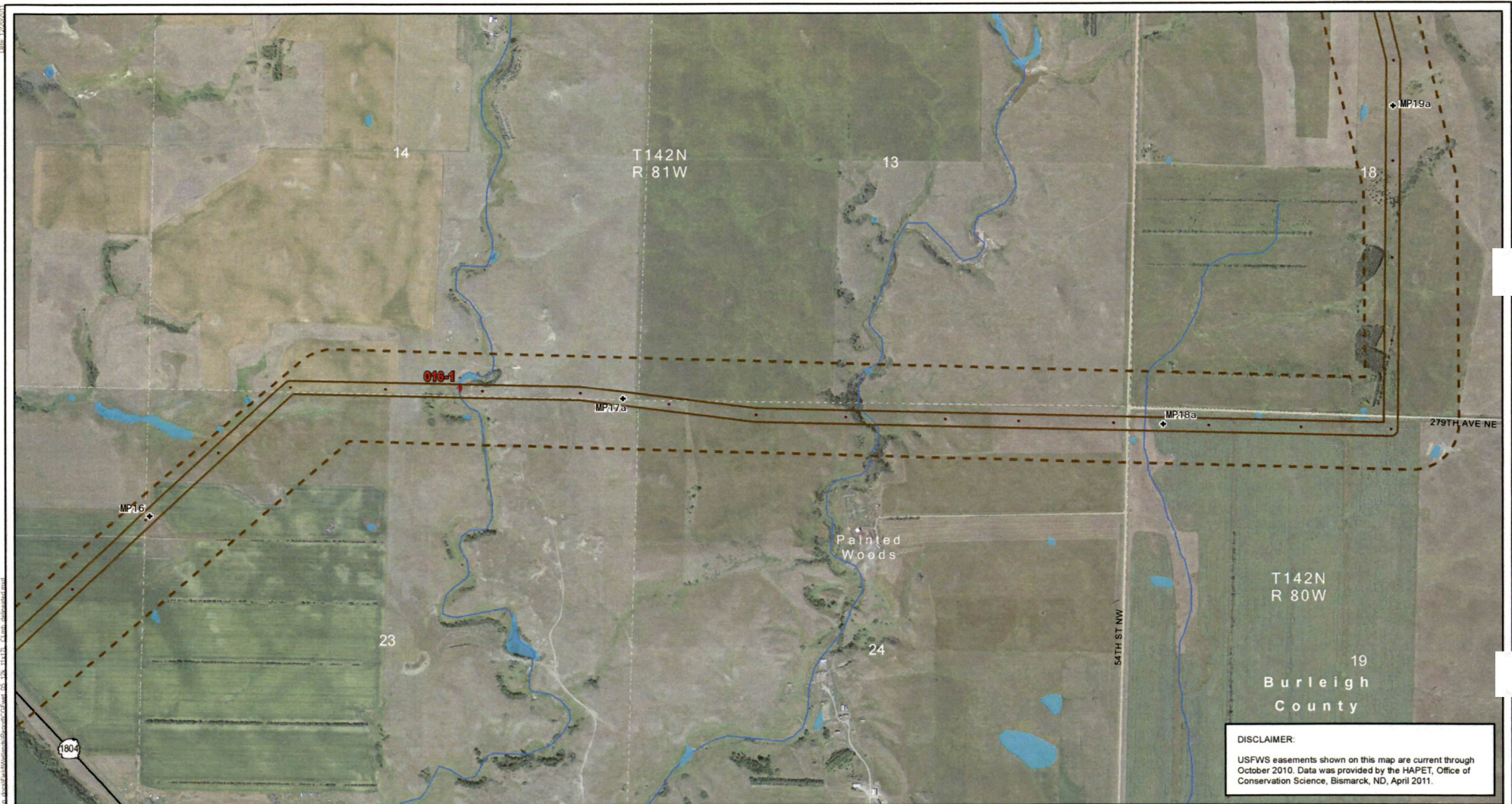


Figure 5.007
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.

- | | | | |
|---------------------------------------|-----------------------------|--------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | | |
| Laydown Area | Wetland Crossing > 500 feet | | |
| | Permanent Wetland Impacts | | |

DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.

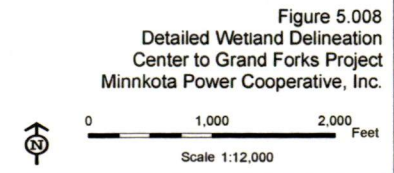
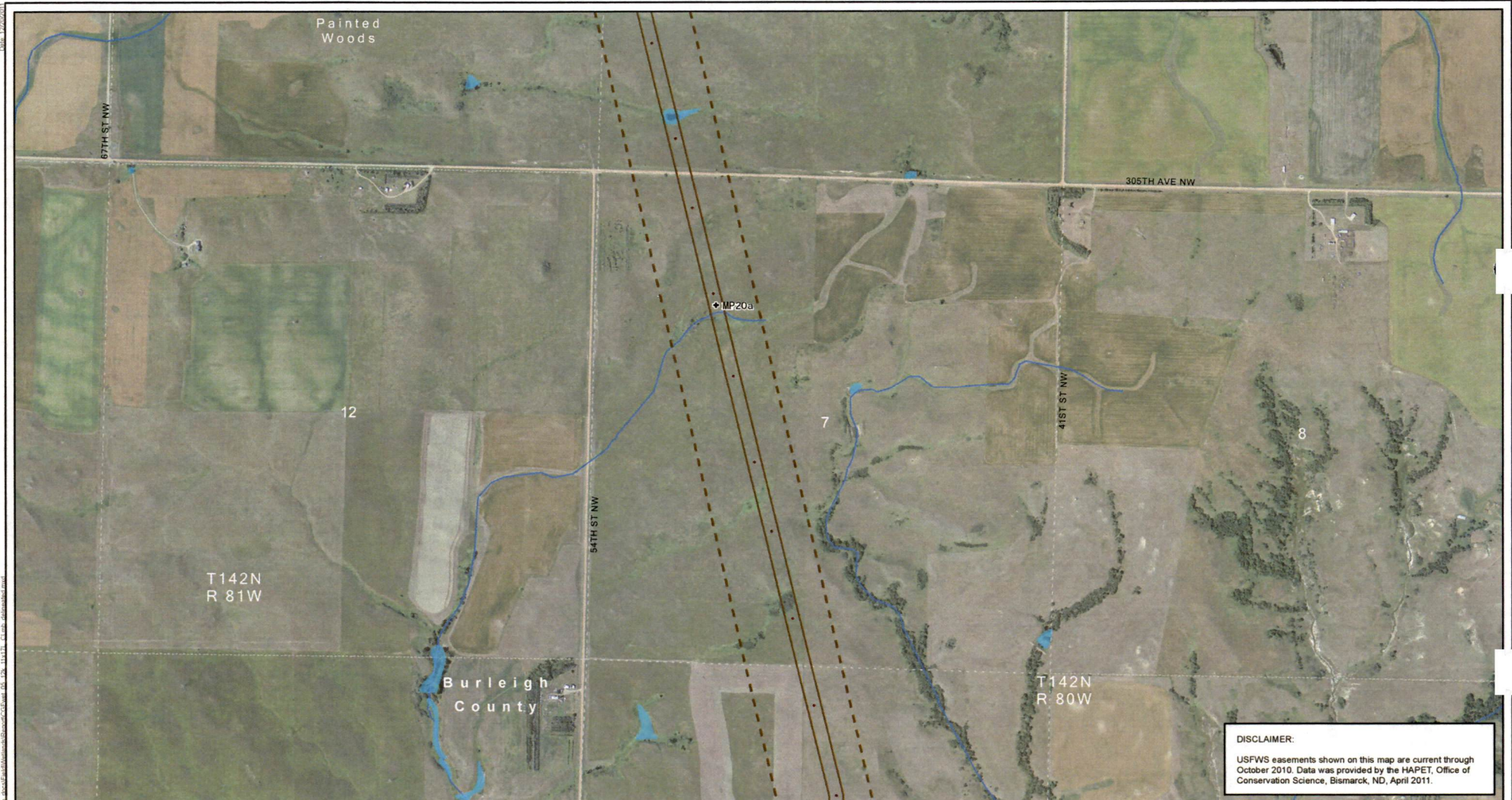
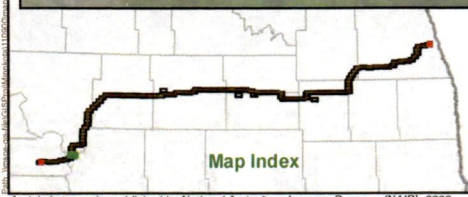


Figure 5.008
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.



DISCLAIMER:
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|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
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| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

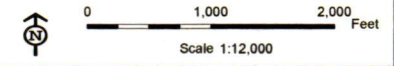
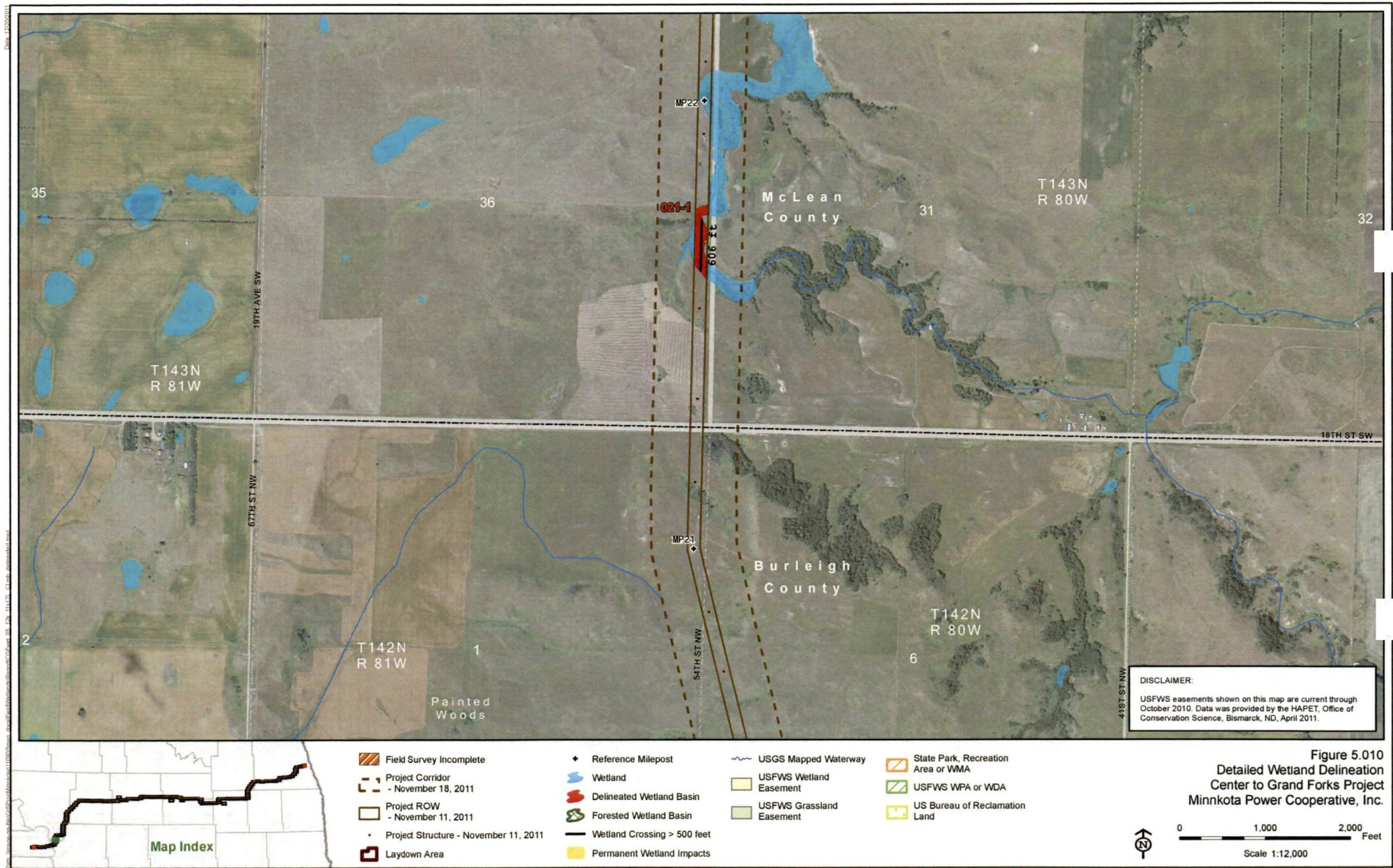
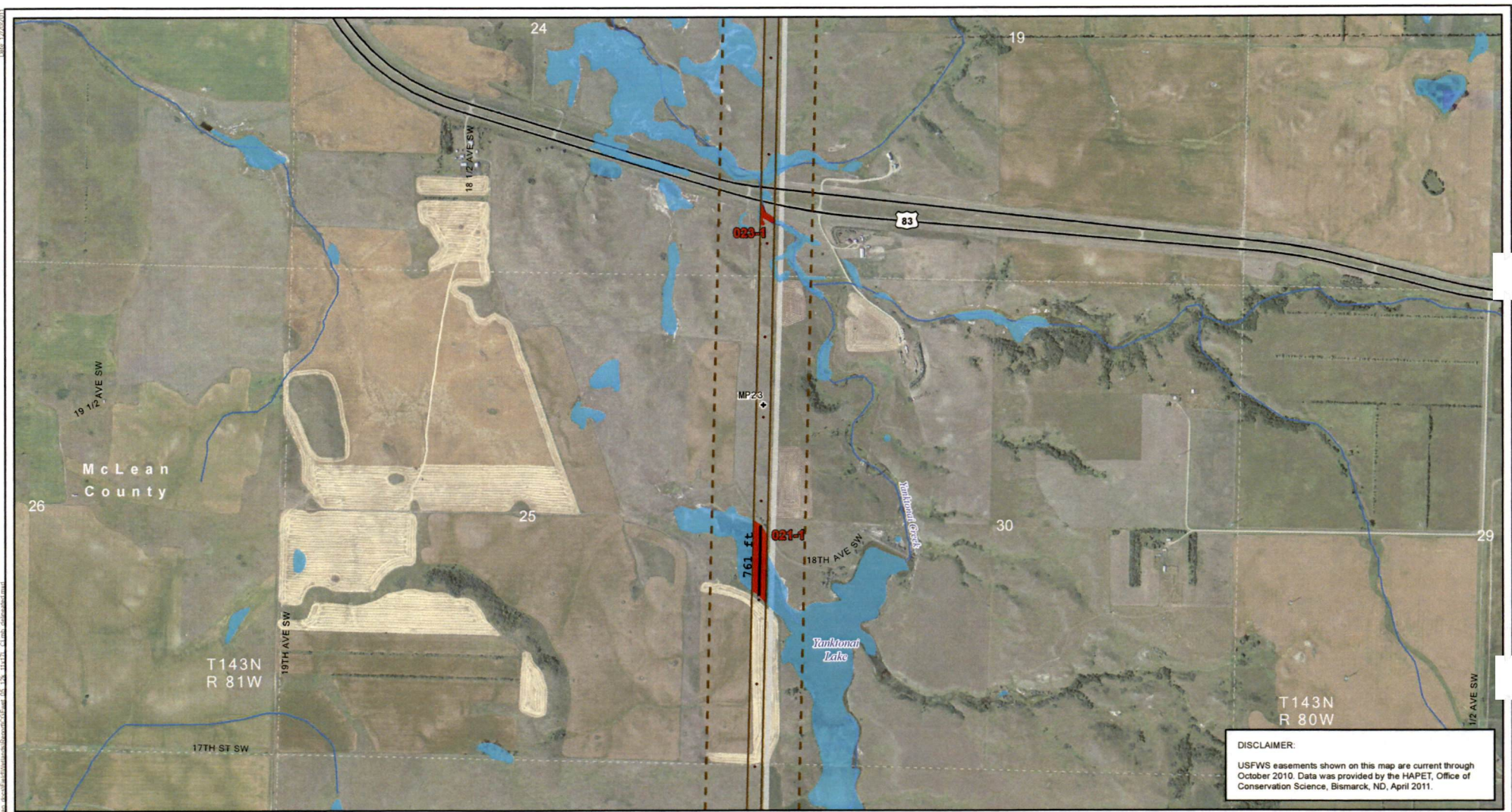


Figure 5.009
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

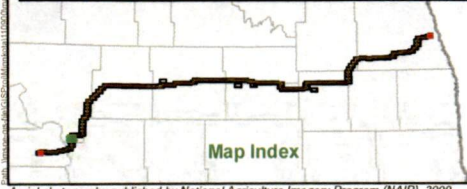
Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

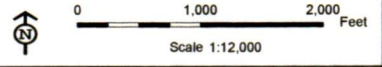
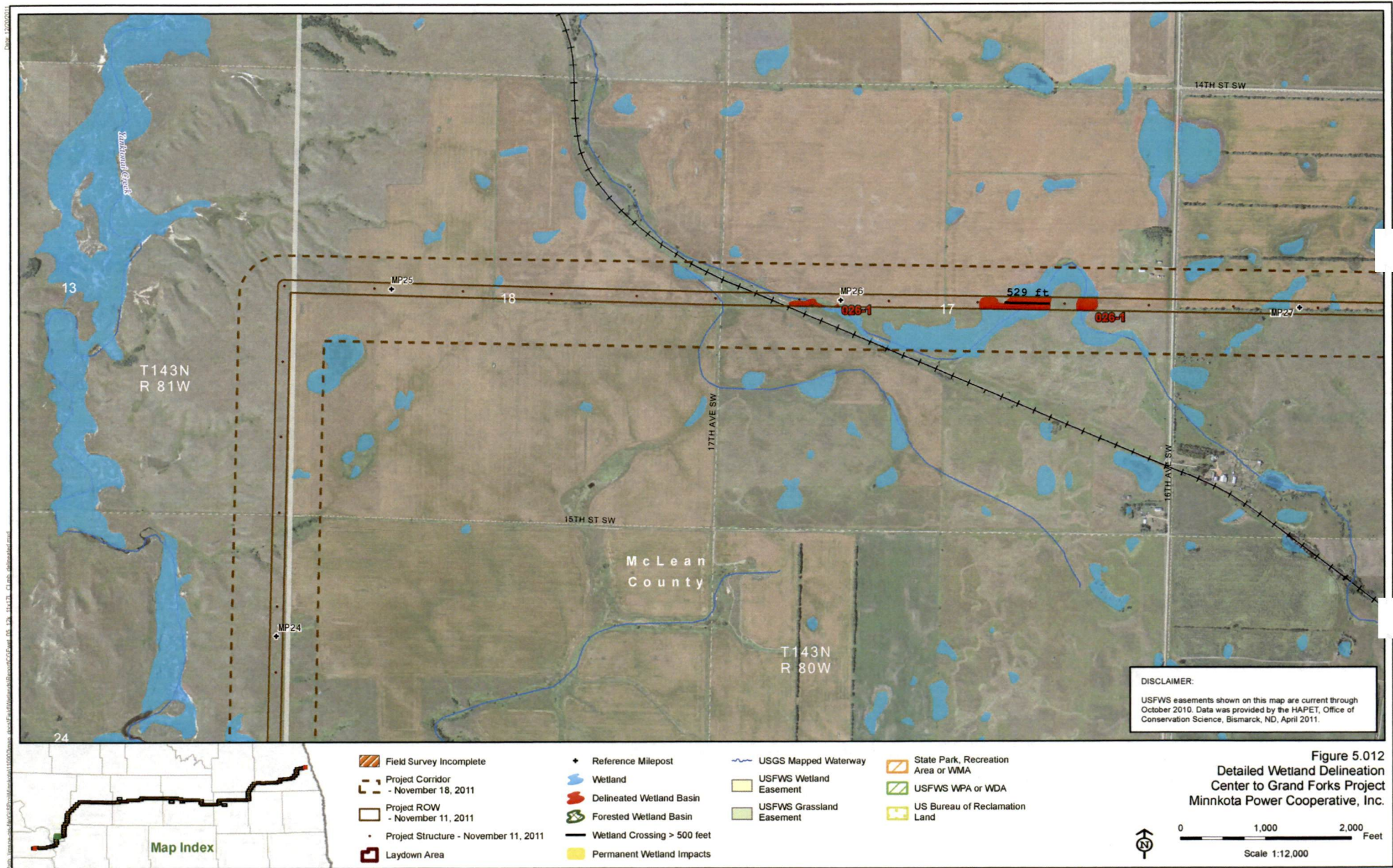


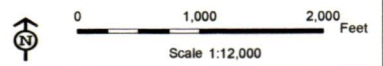
Figure 5.011
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.

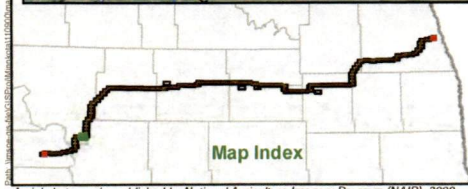
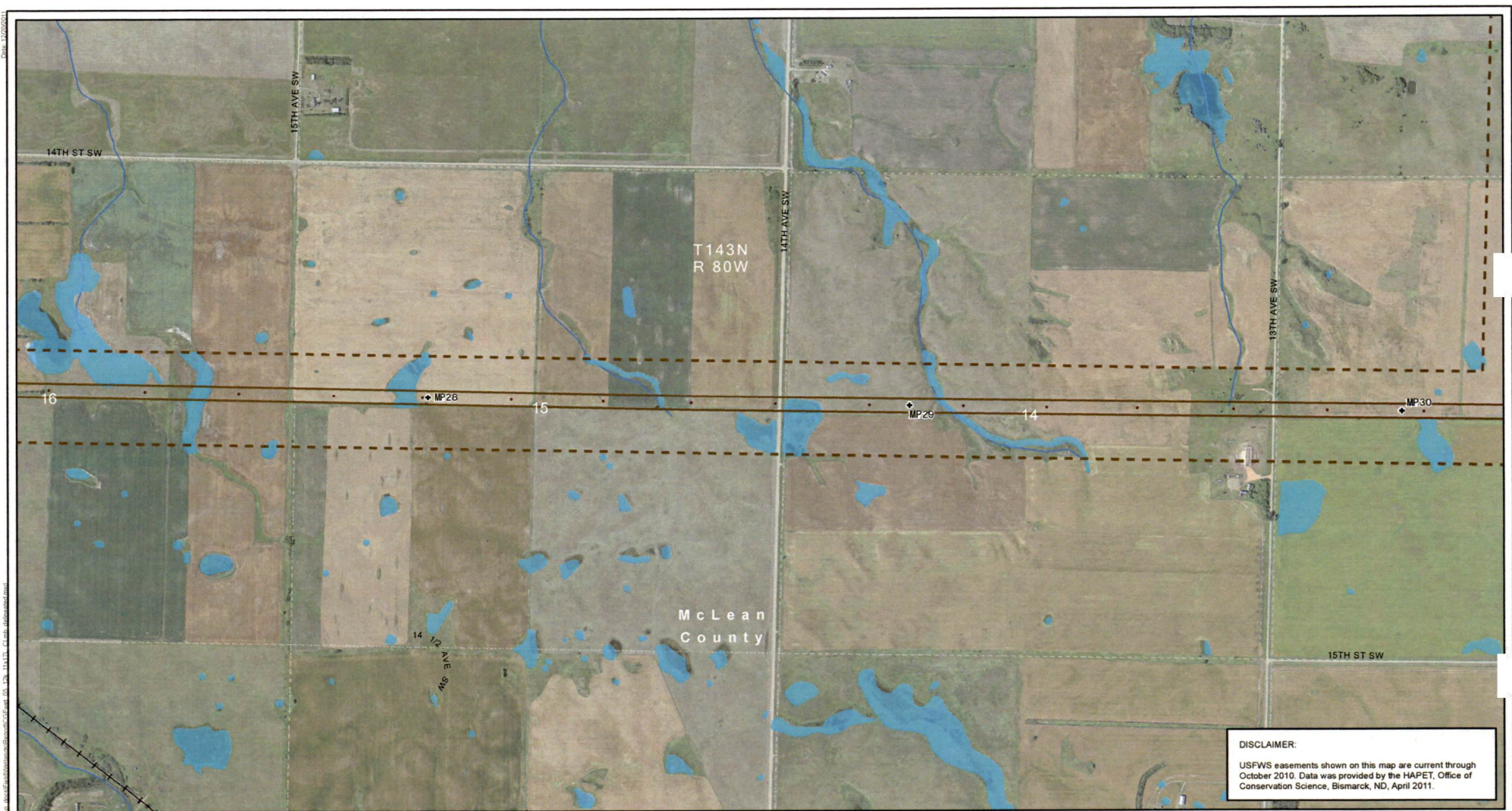


DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.

Figure 5.012
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.



Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



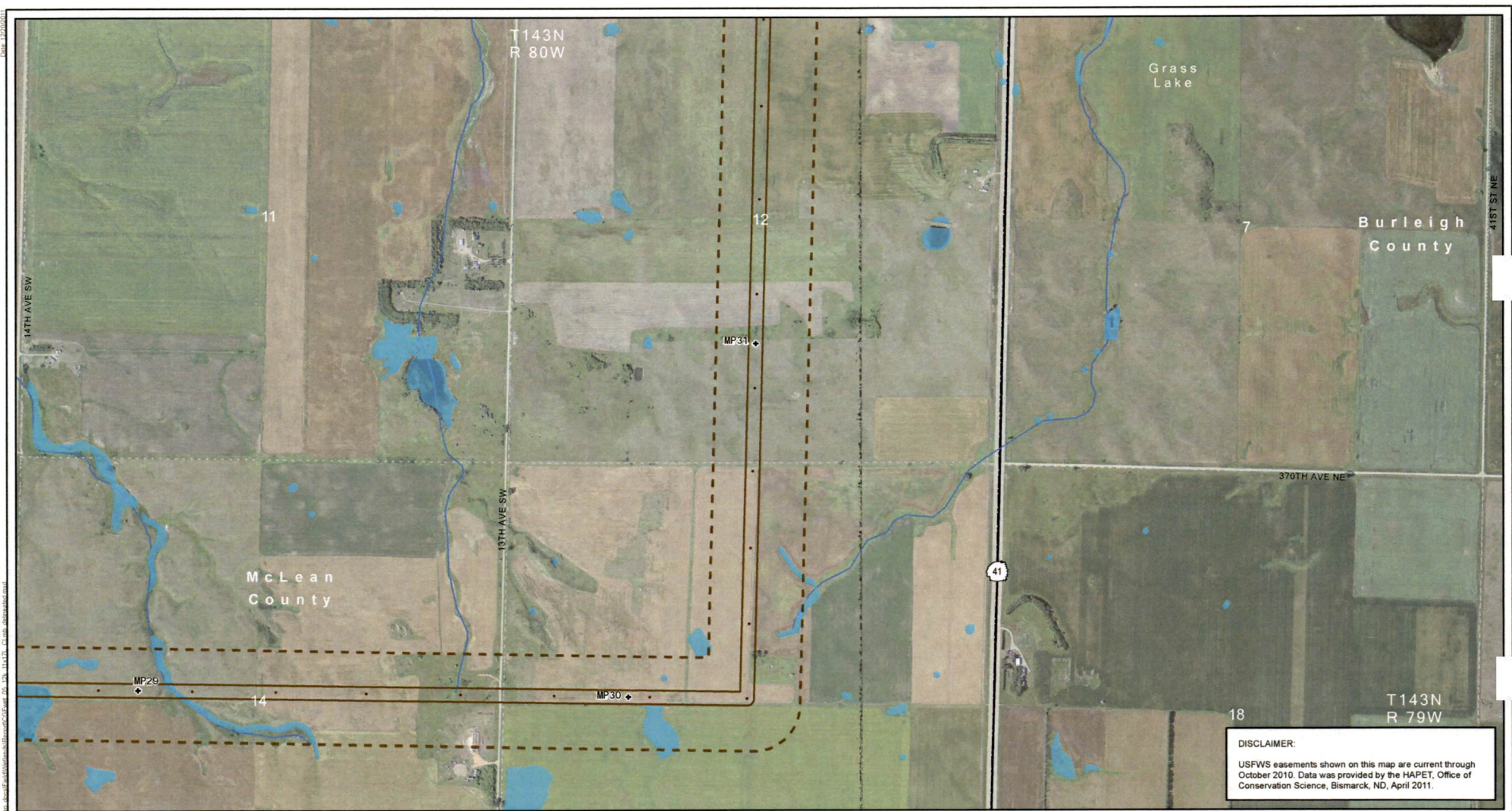
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| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

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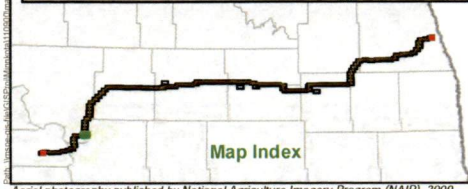


Figure 5.013
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | | |
| Laydown Area | Wetland Crossing > 500 feet | | |
| | Permanent Wetland Impacts | | |

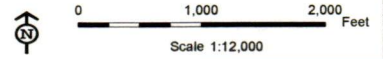
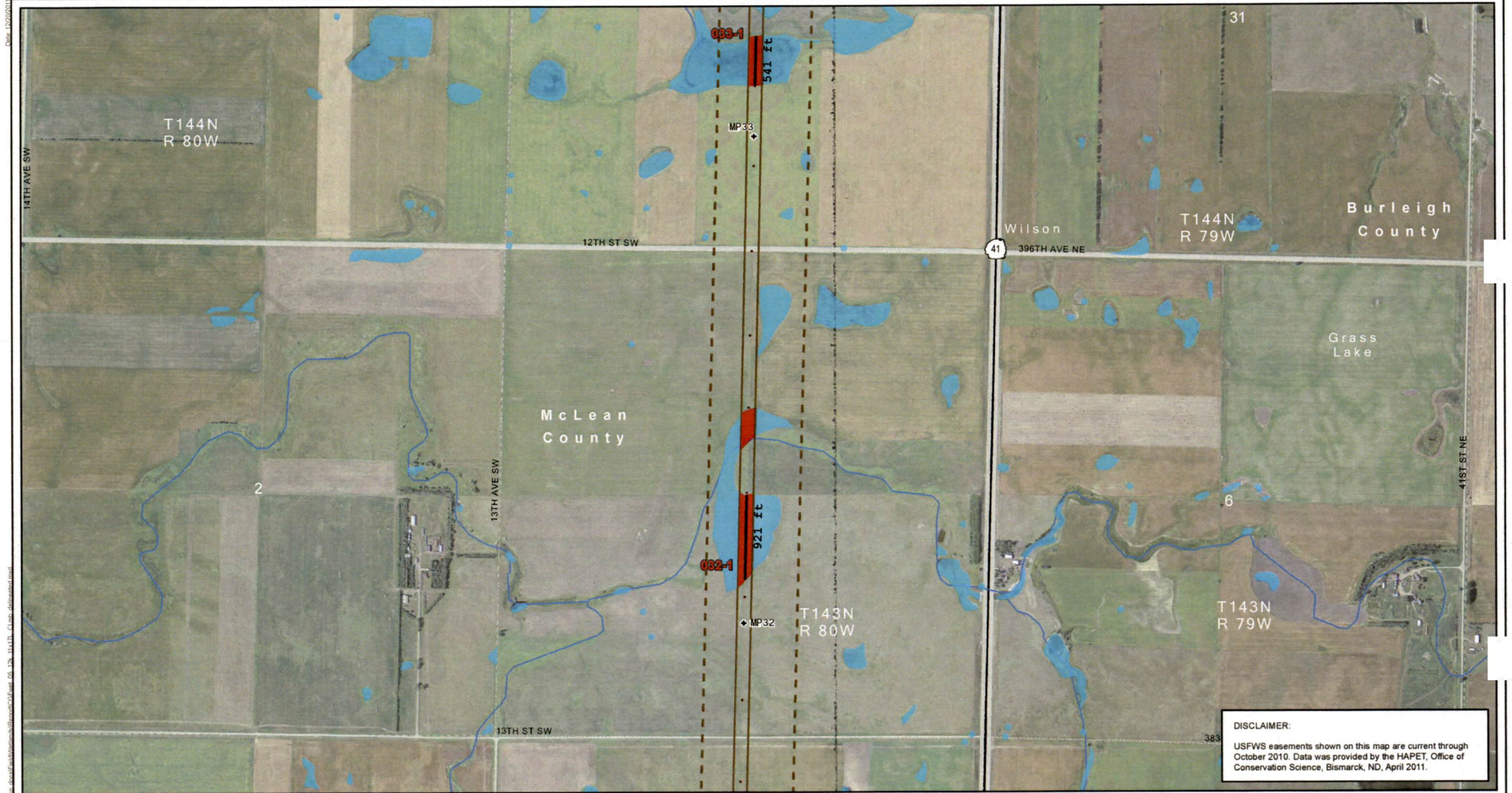


Figure 5.014
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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|---------------------------------------|-----------------------------|--------------------------|------------------------------------|
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| Project Structure - November 11, 2011 | Forested Wetland Basin | | |
| Laydown Area | Wetland Crossing > 500 feet | | |
| | Permanent Wetland Impacts | | |

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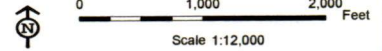
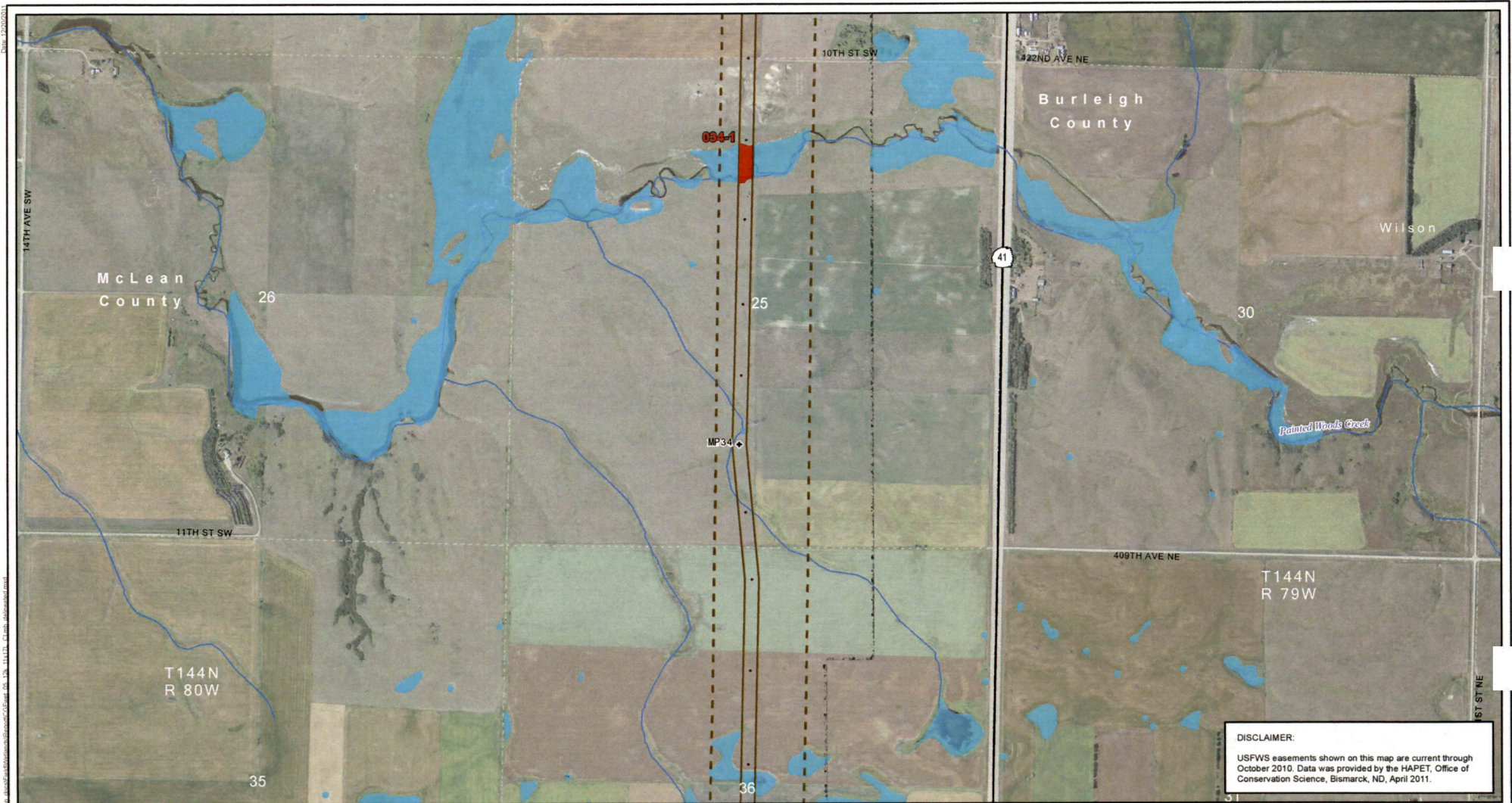


Figure 5.015
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

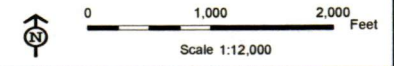
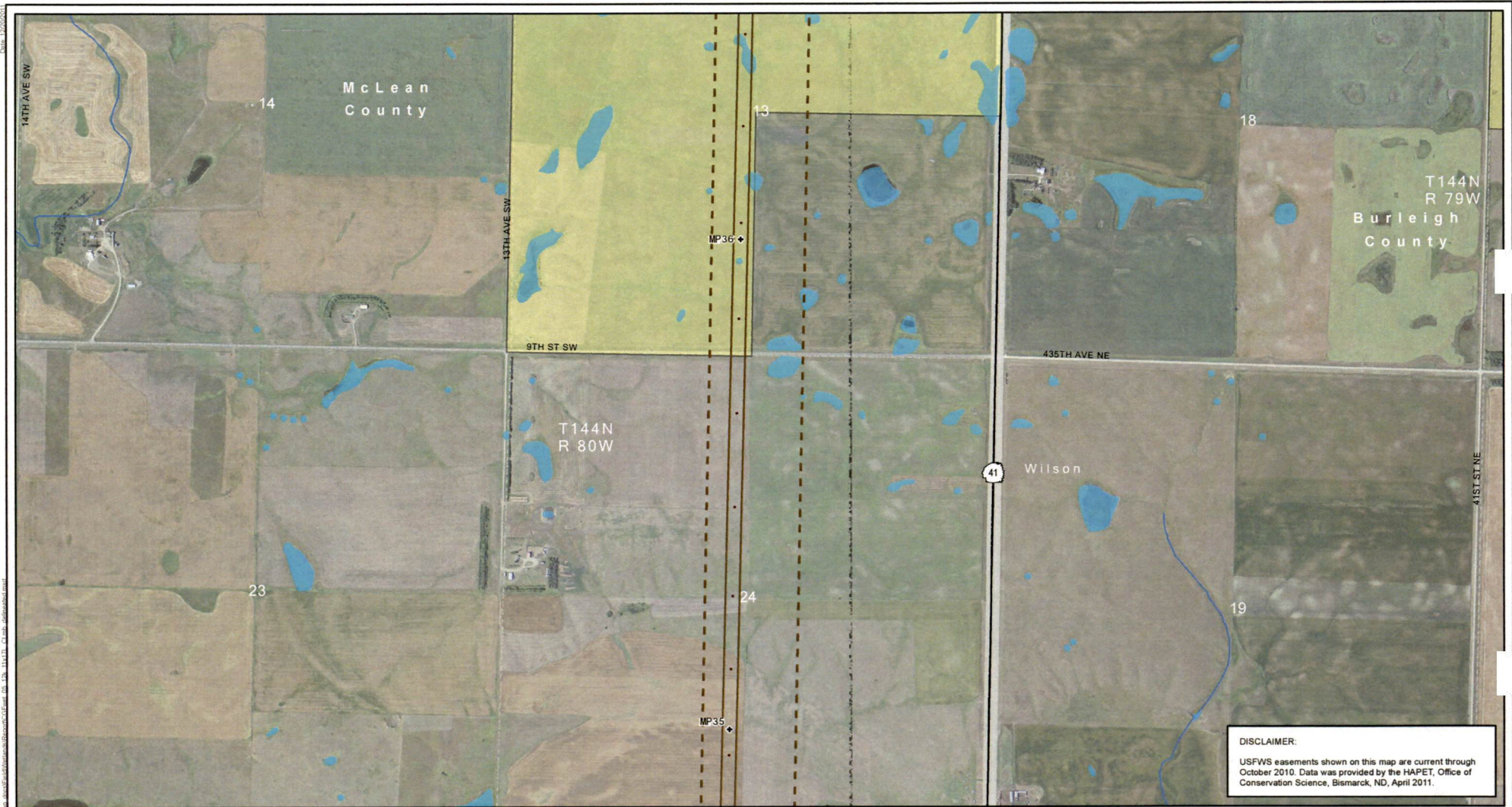


Figure 5.016
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
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| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

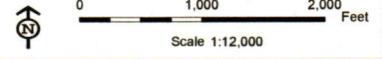
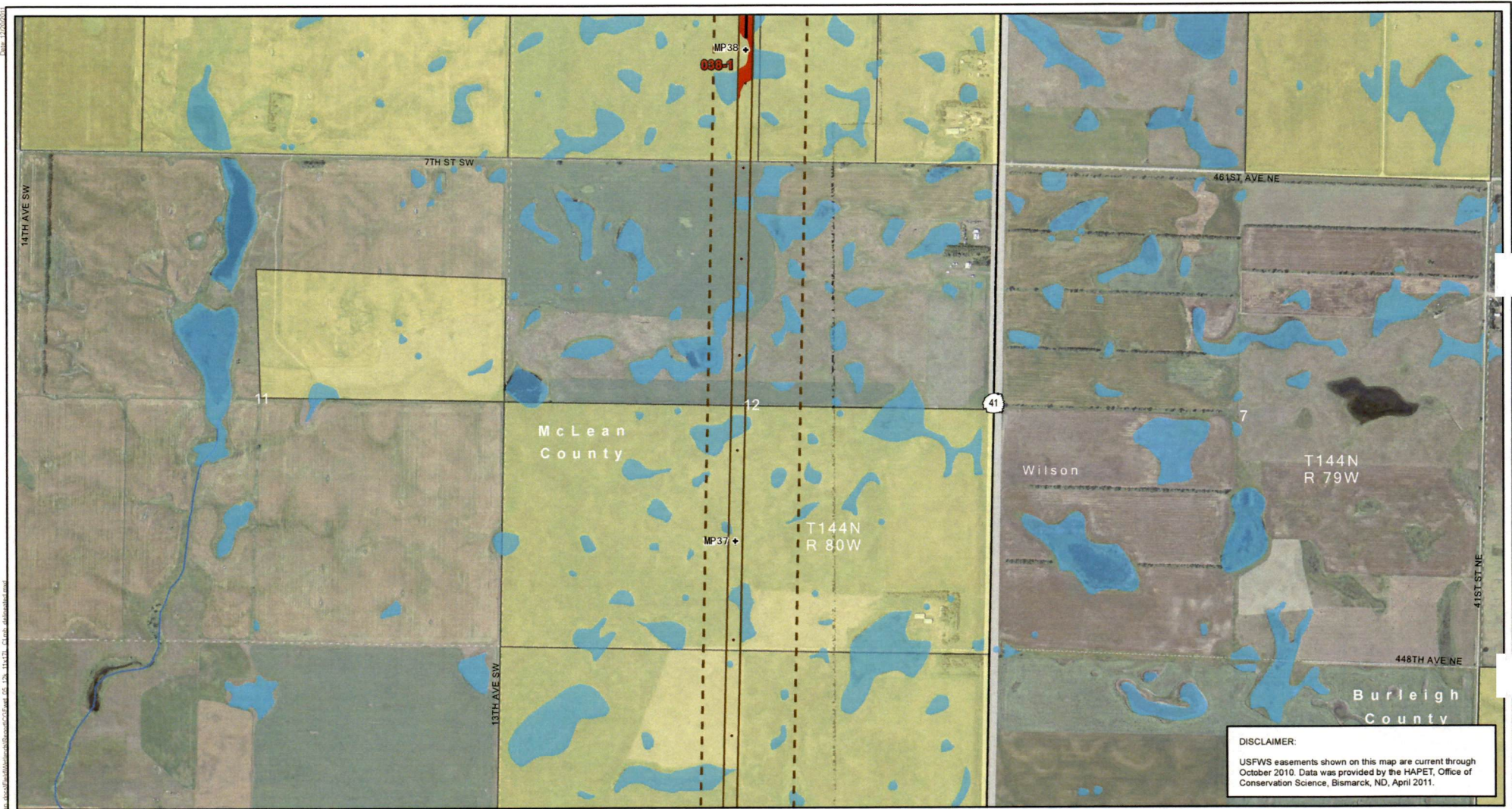


Figure 5.017
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

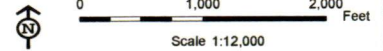
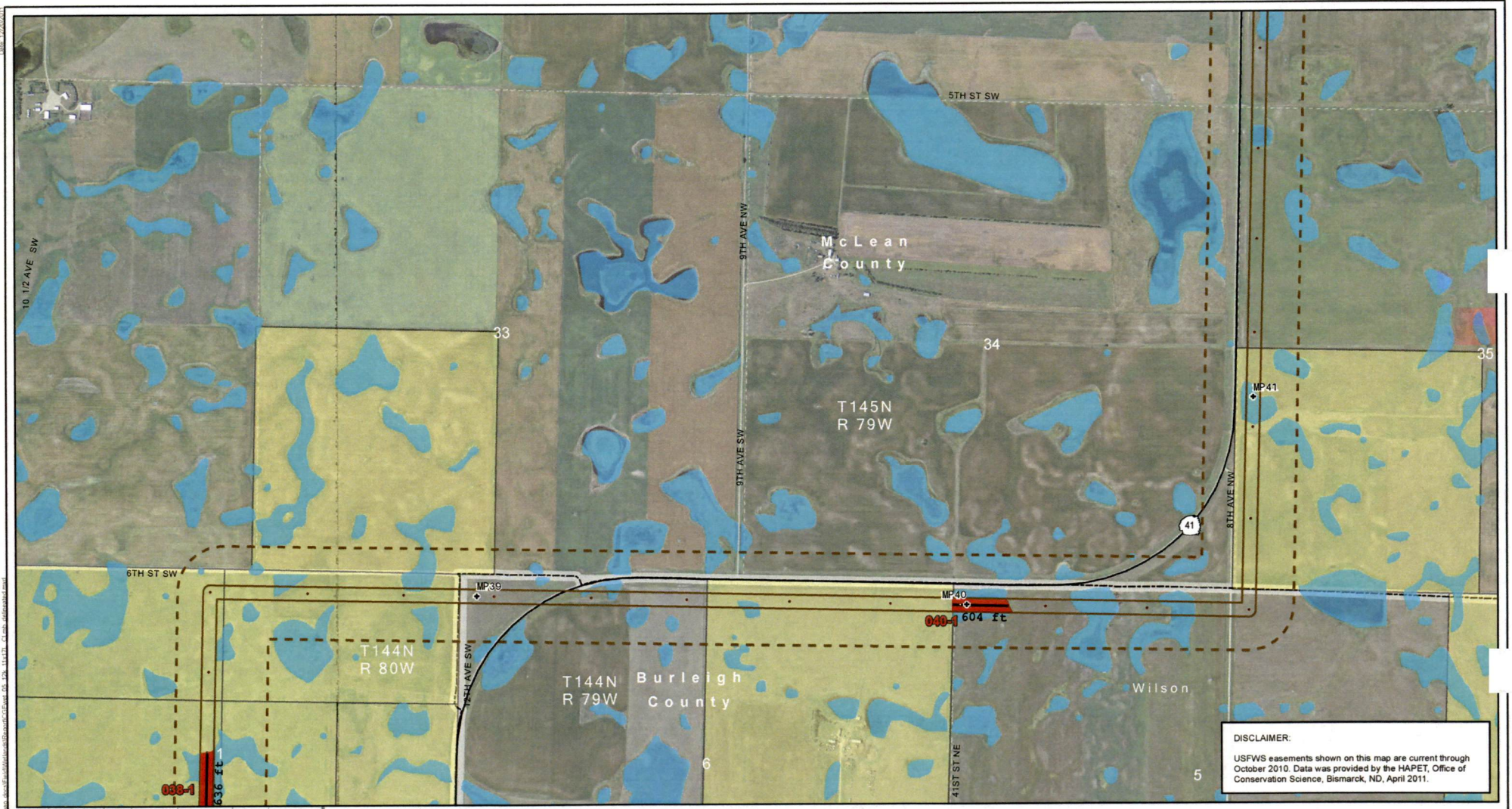


Figure 5.018
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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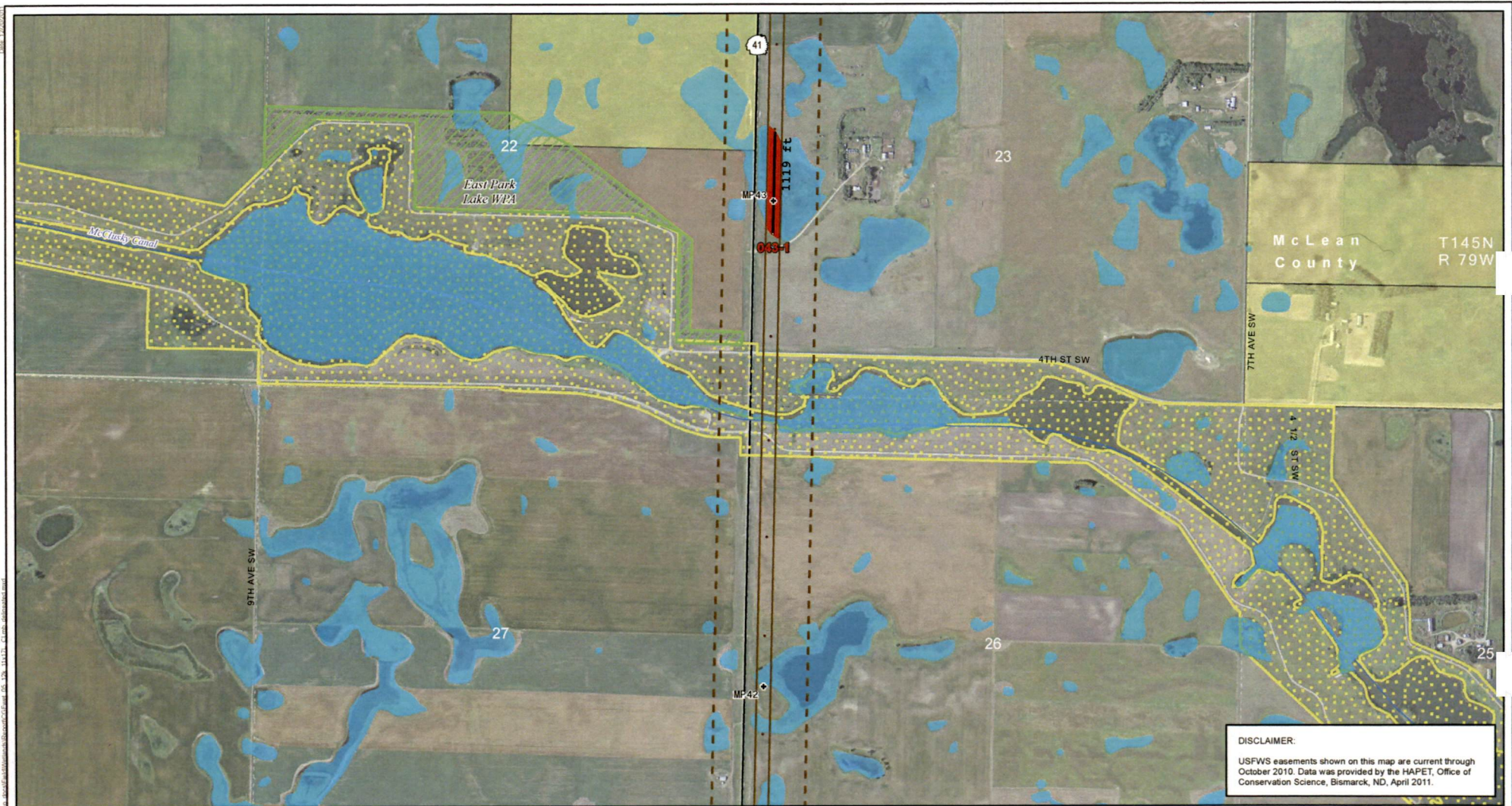


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| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
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| Project Structure - November 11, 2011 | Forested Wetland Basin | | |
| Laydown Area | Wetland Crossing > 500 feet | | |
| | Permanent Wetland Impacts | | |

Figure 5.019
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

0 1,000 2,000 Feet
 Scale 1:12,000

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

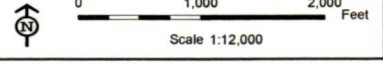
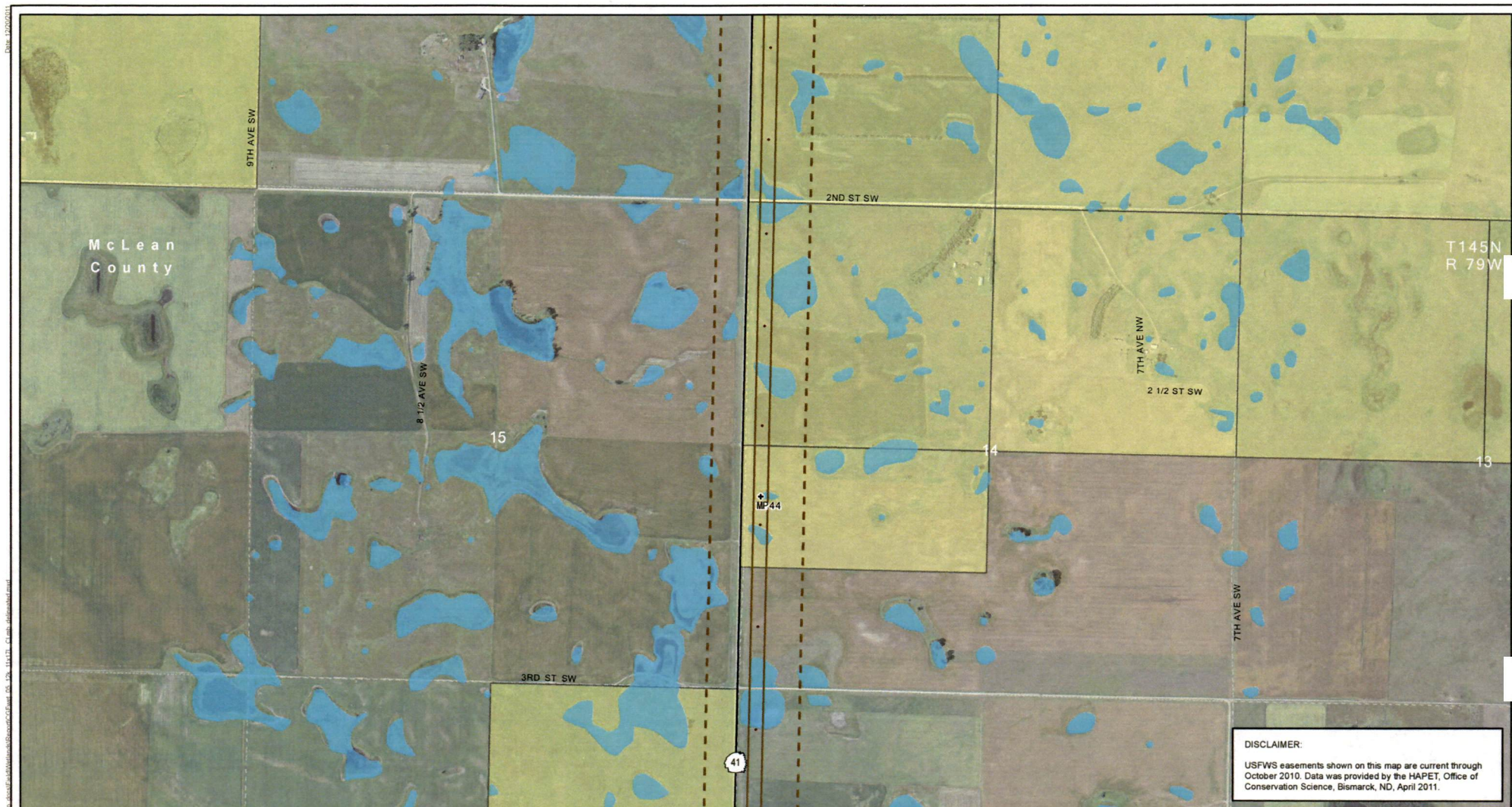


Figure 5.020
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
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| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

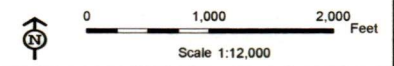
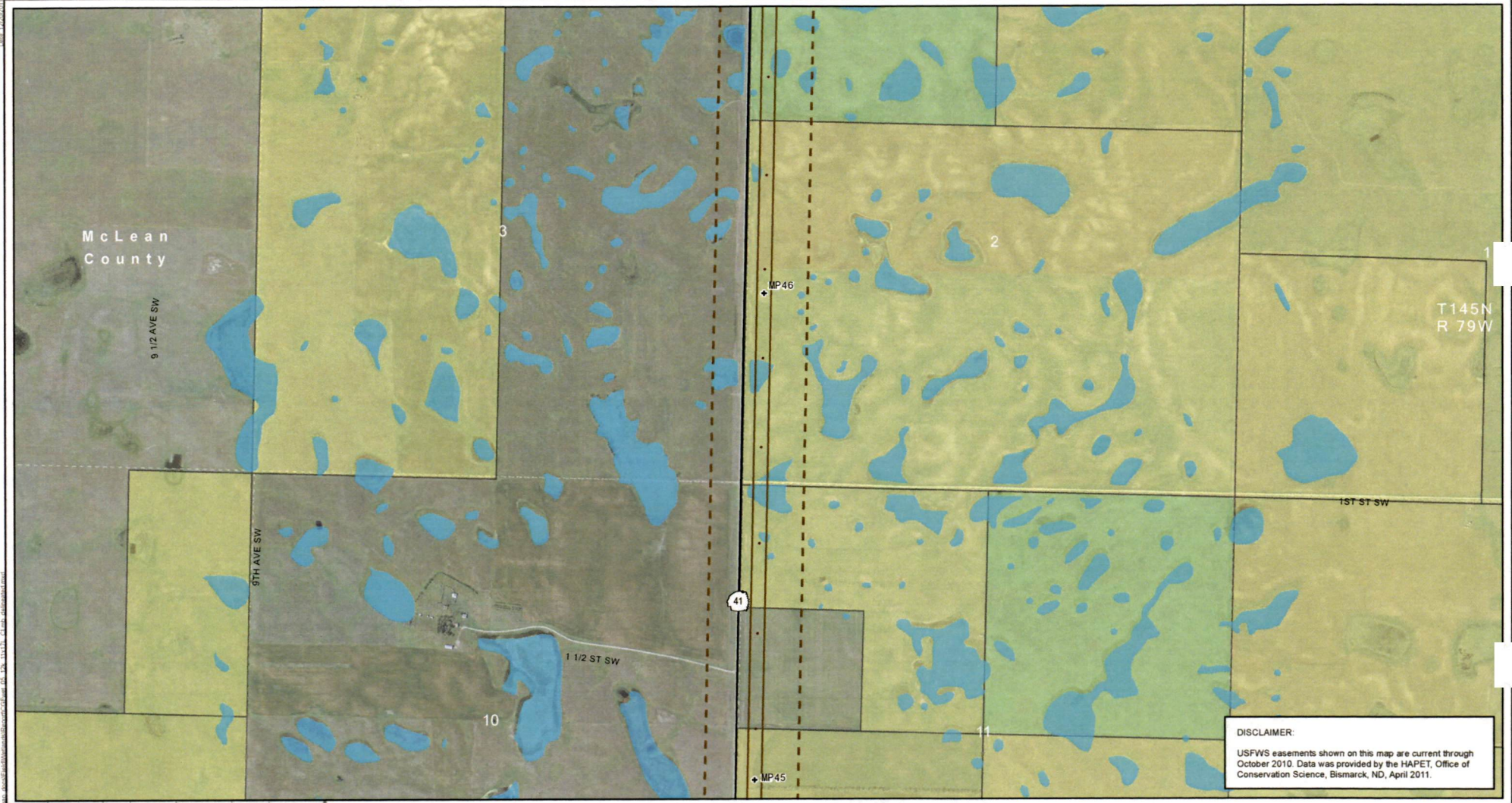


Figure 5.021
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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|---------------------------------------|-----------------------------|--------------------------|------------------------------------|
| Field Survey Incomplete | Wetland | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Delineated Wetland Basin | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Forested Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Wetland Crossing > 500 feet | | |
| Laydown Area | Permanent Wetland Impacts | | |

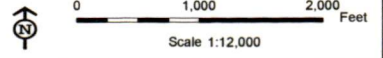
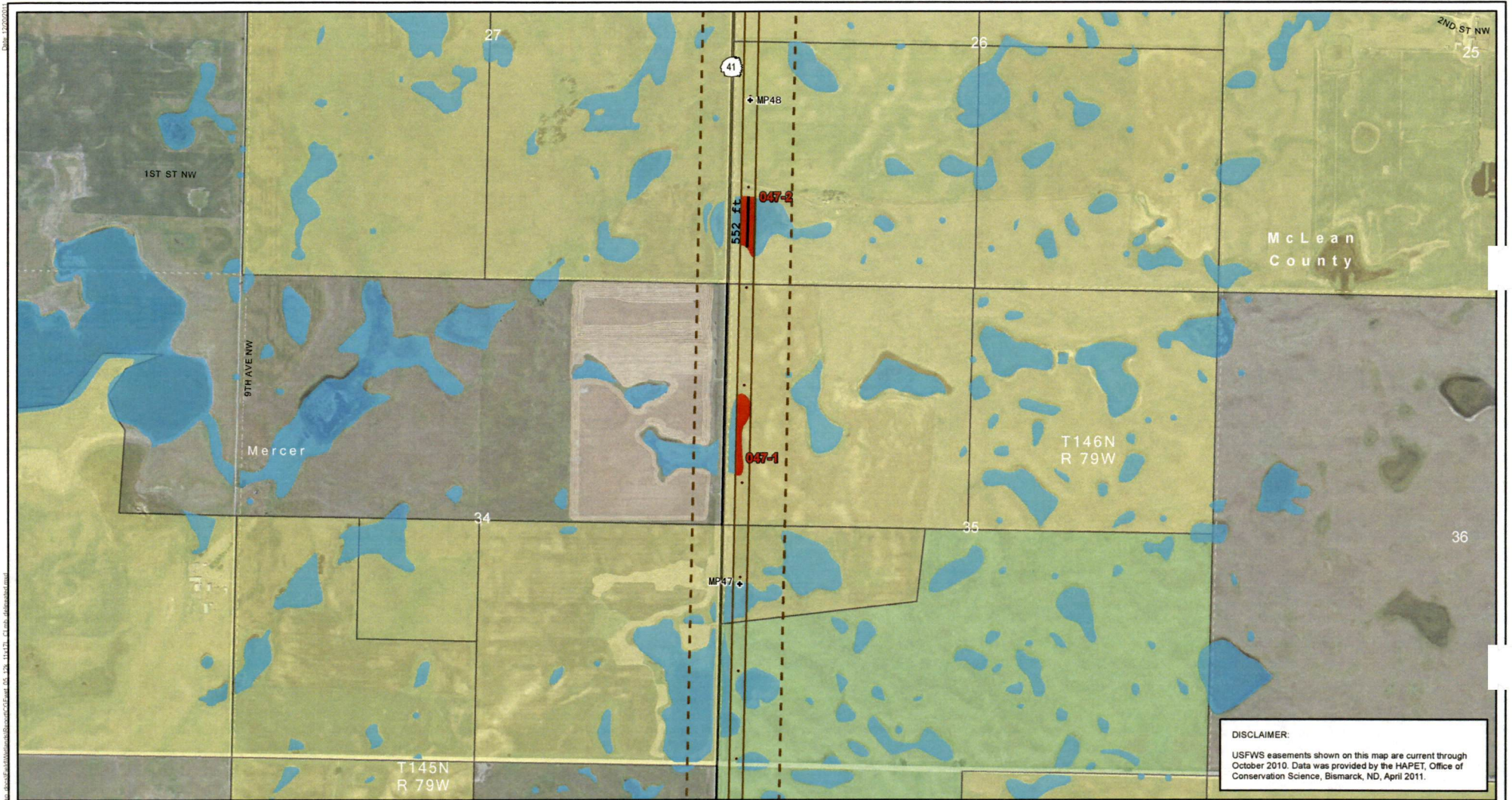
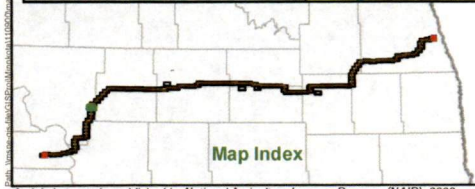


Figure 5.022
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
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| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

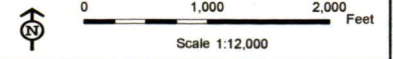
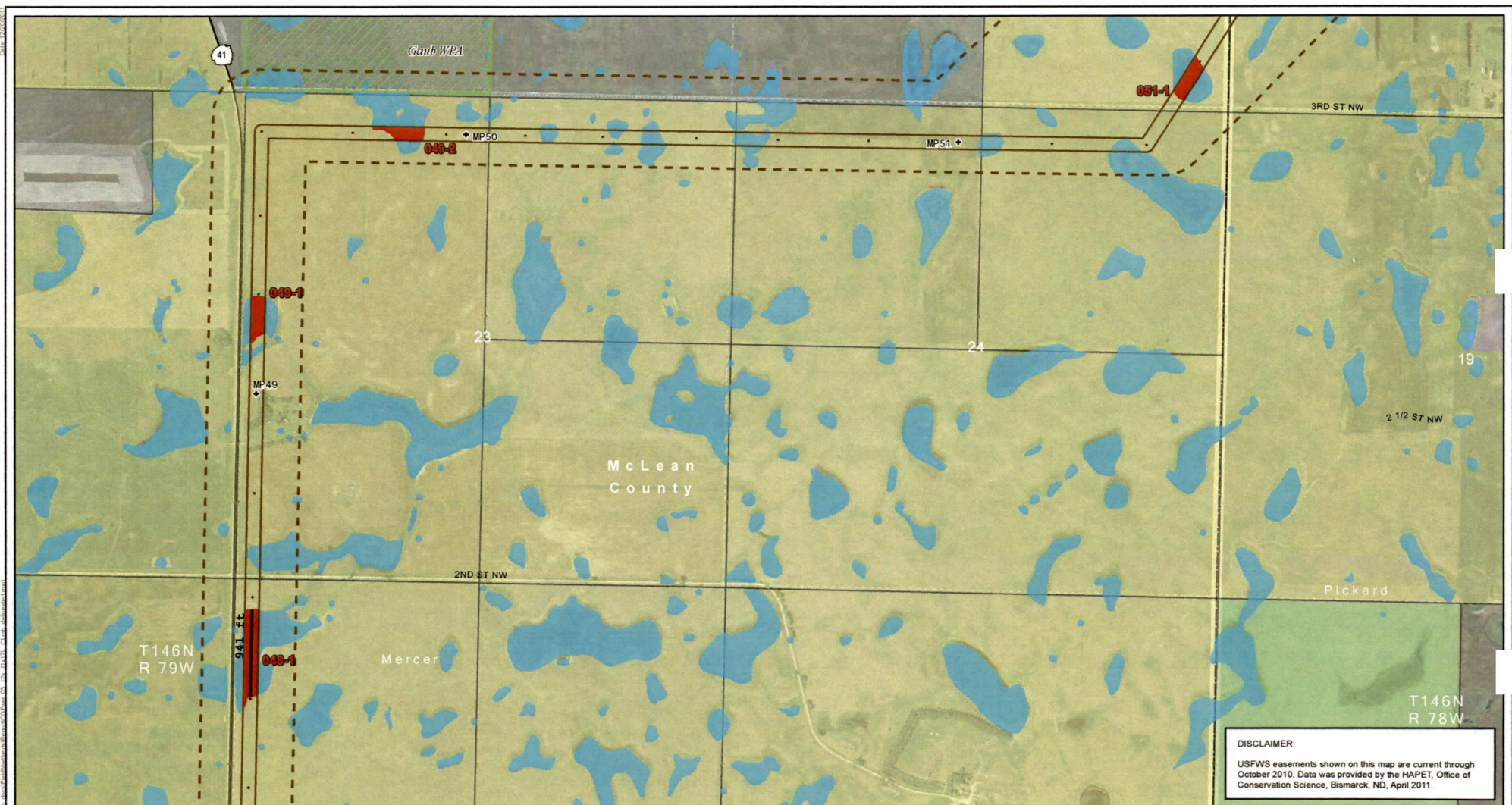
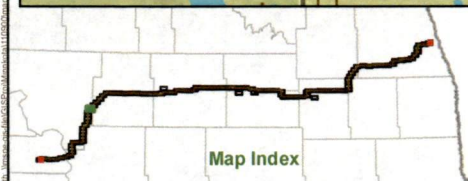


Figure 5.023
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Laydown Area | Permanent Wetland Impacts | | |

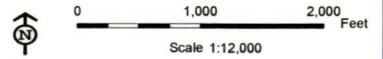
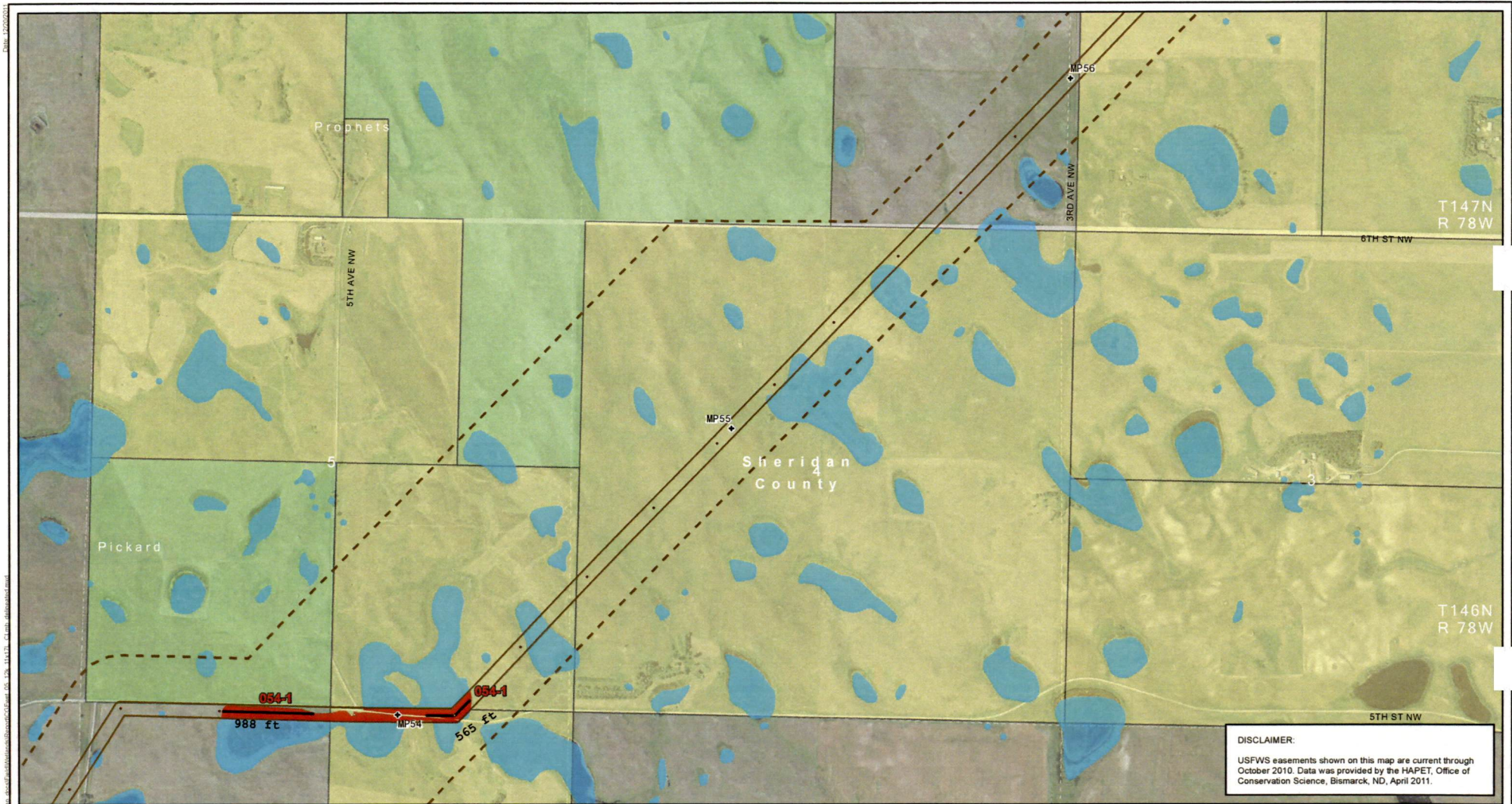


Figure 5.024
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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- Field Survey Incomplete
- Project Corridor - November 18, 2011
- Project ROW - November 11, 2011
- Project Structure - November 11, 2011
- Laydown Area
- Wetland
- Delineated Wetland Basin
- Forested Wetland Basin
- Wetland Crossing > 500 feet
- Permanent Wetland Impacts
- USGS Mapped Waterway
- USFWS Wetland Easement
- USFWS Grassland Easement
- State Park, Recreation Area or WMA
- USFWS WPA or WDA
- US Bureau of Reclamation Land
- Reference Milepost

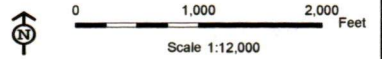
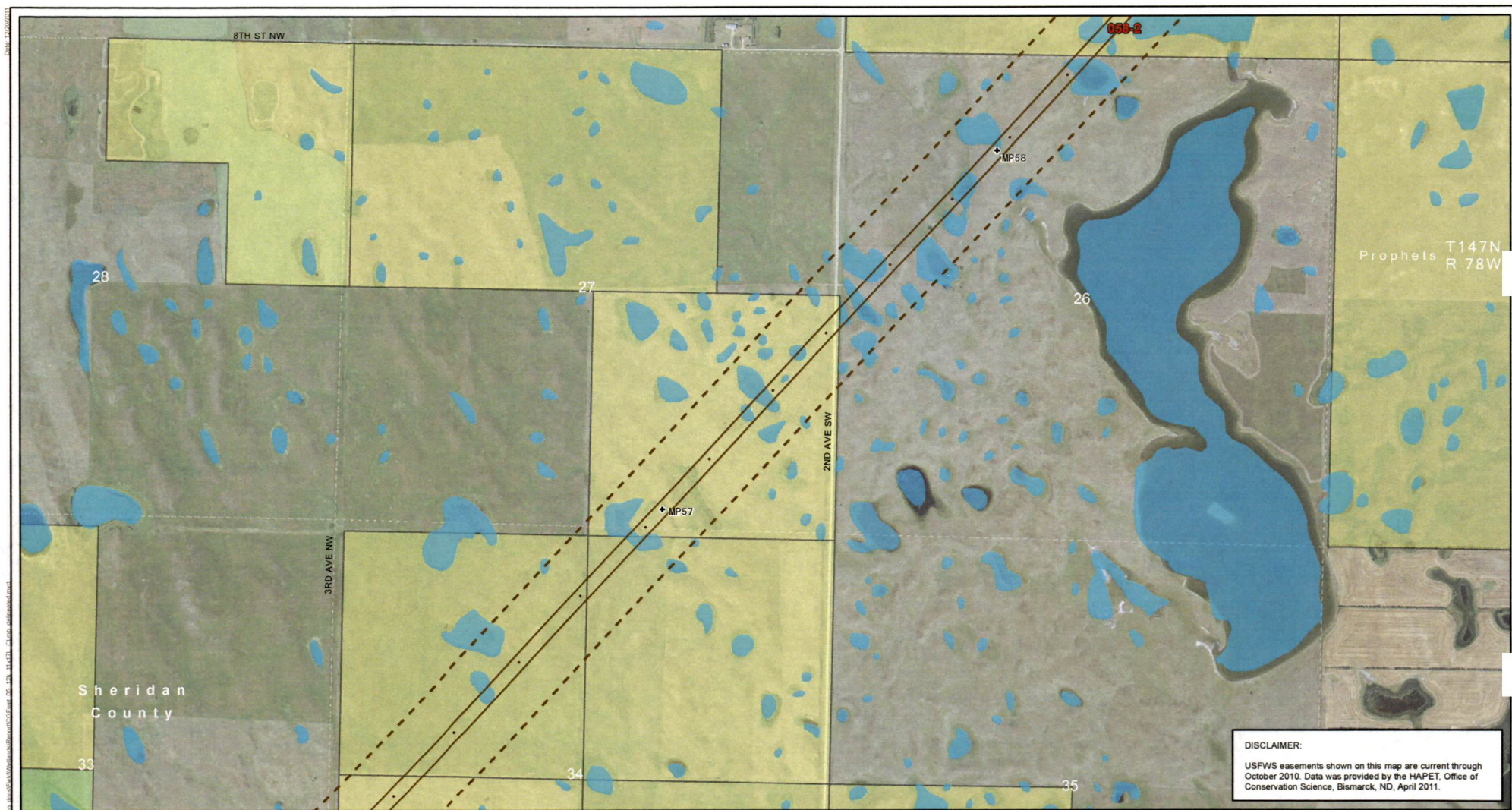


Figure 5.026
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
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| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

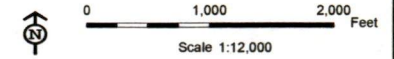
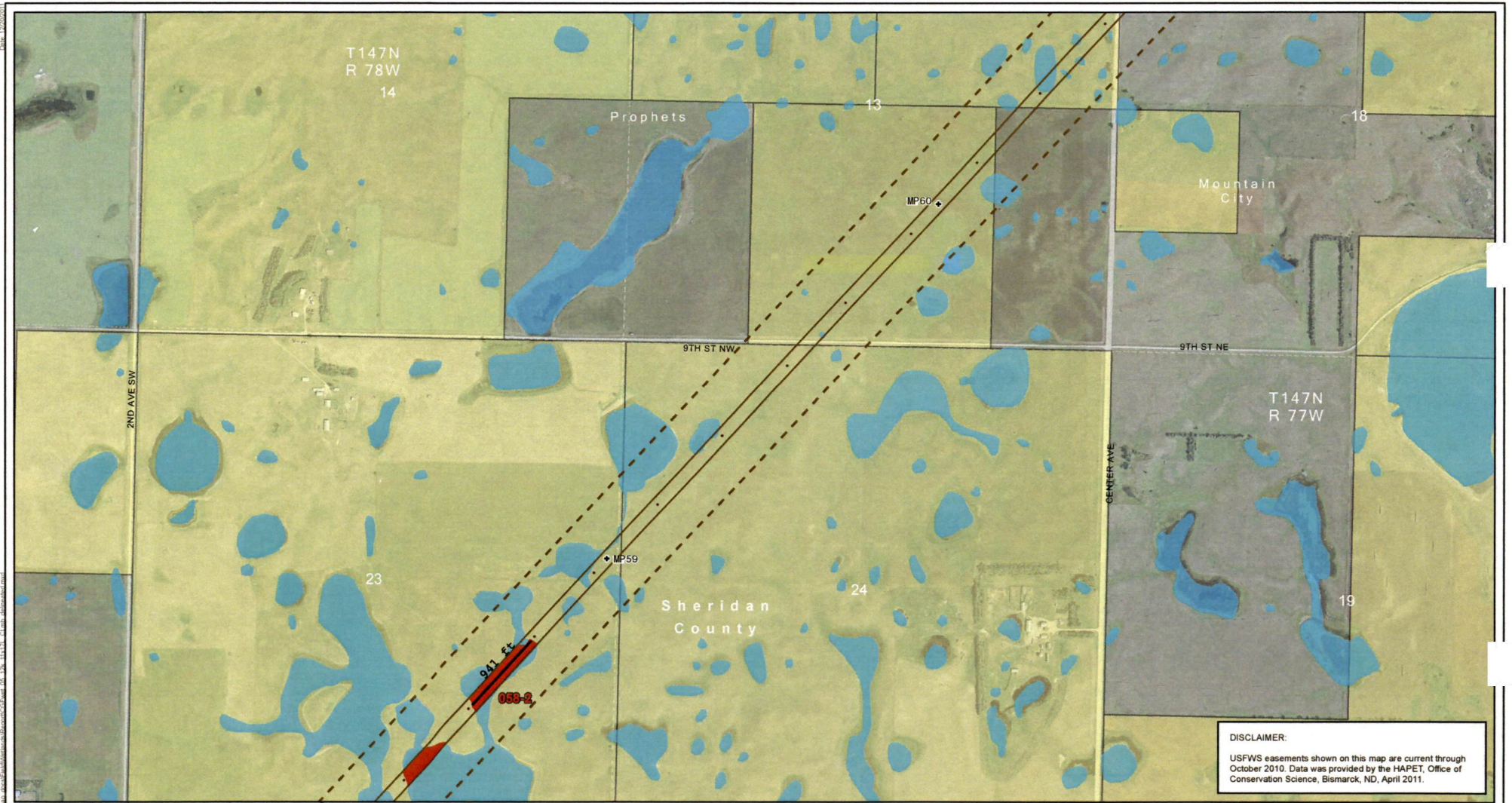


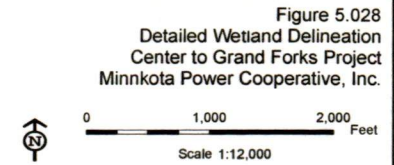
Figure 5.027
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.

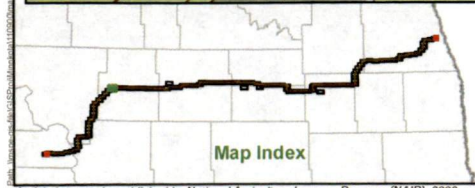
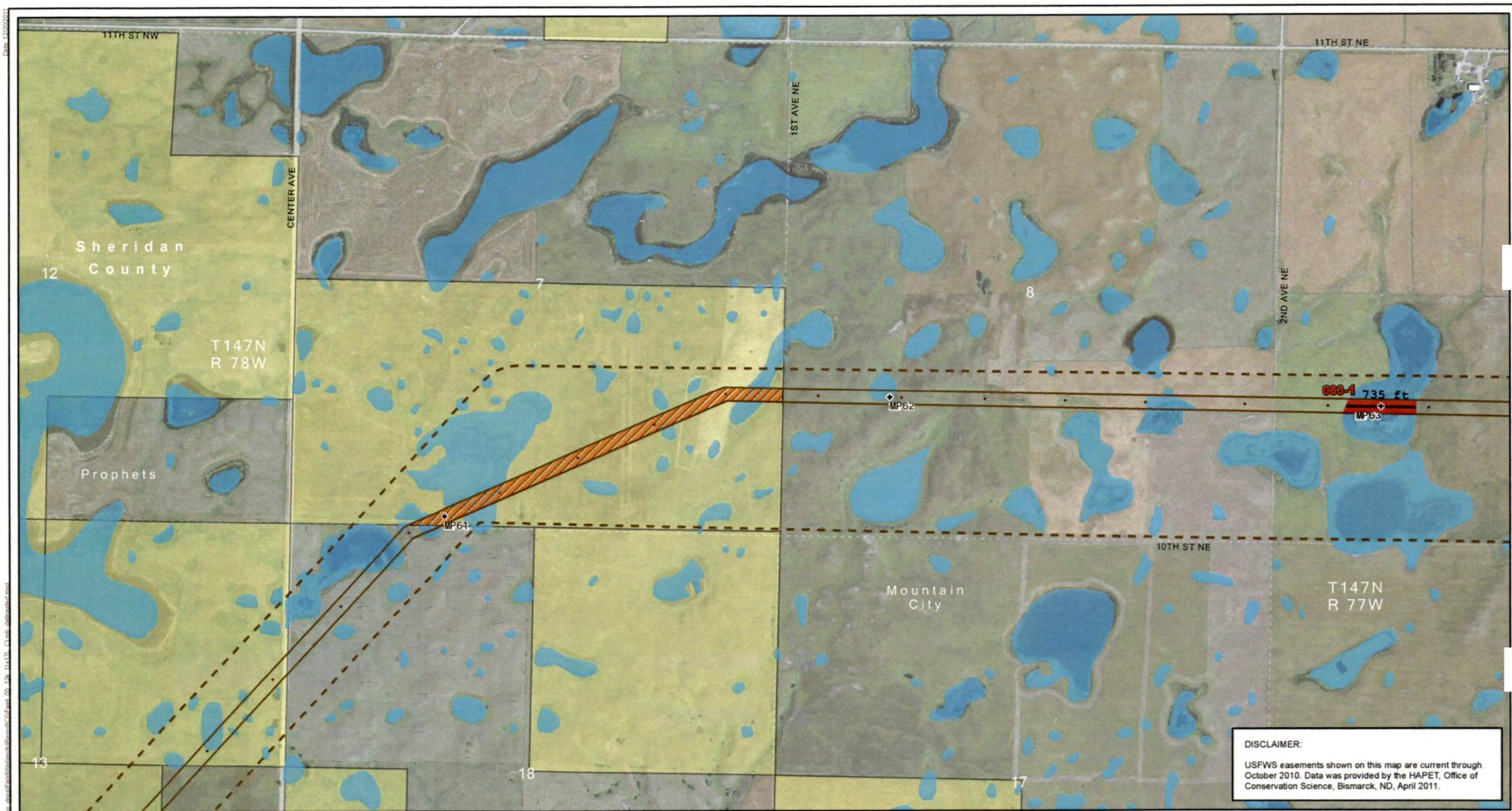


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- Field Survey Incomplete
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- Project ROW - November 11, 2011
- Project Structure - November 11, 2011
- Laydown Area
- Wetland
- Delineated Wetland Basin
- Forested Wetland Basin
- Wetland Crossing > 500 feet
- Permanent Wetland Impacts
- USGS Mapped Waterway
- USFWS Wetland Easement
- USFWS Grassland Easement
- State Park, Recreation Area or WMA
- USFWS WPA or WDA
- US Bureau of Reclamation Land
- Reference Milepost

DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.

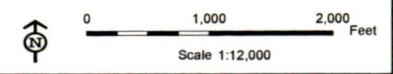
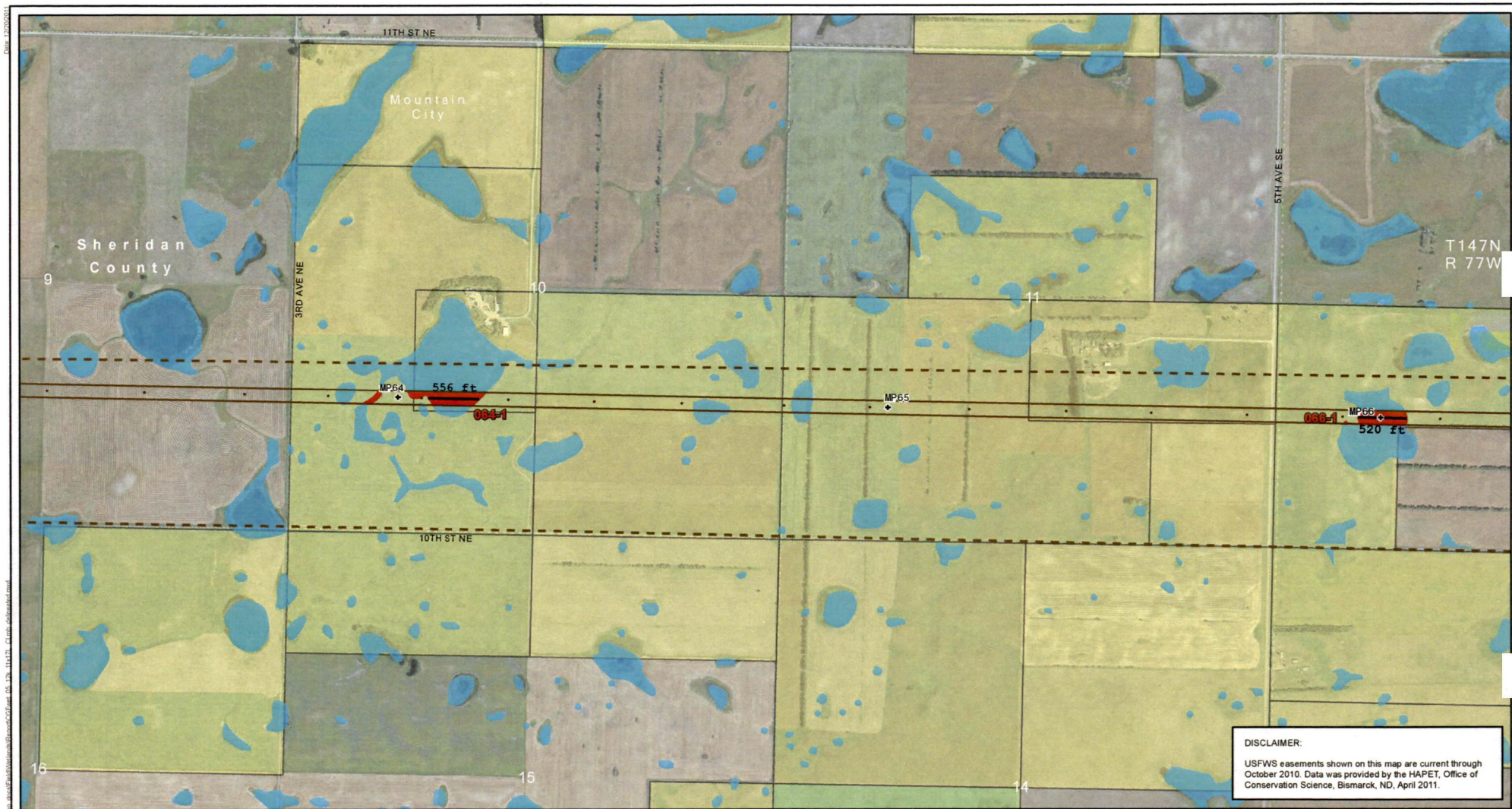


Figure 5.029
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



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|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

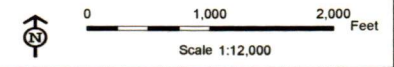
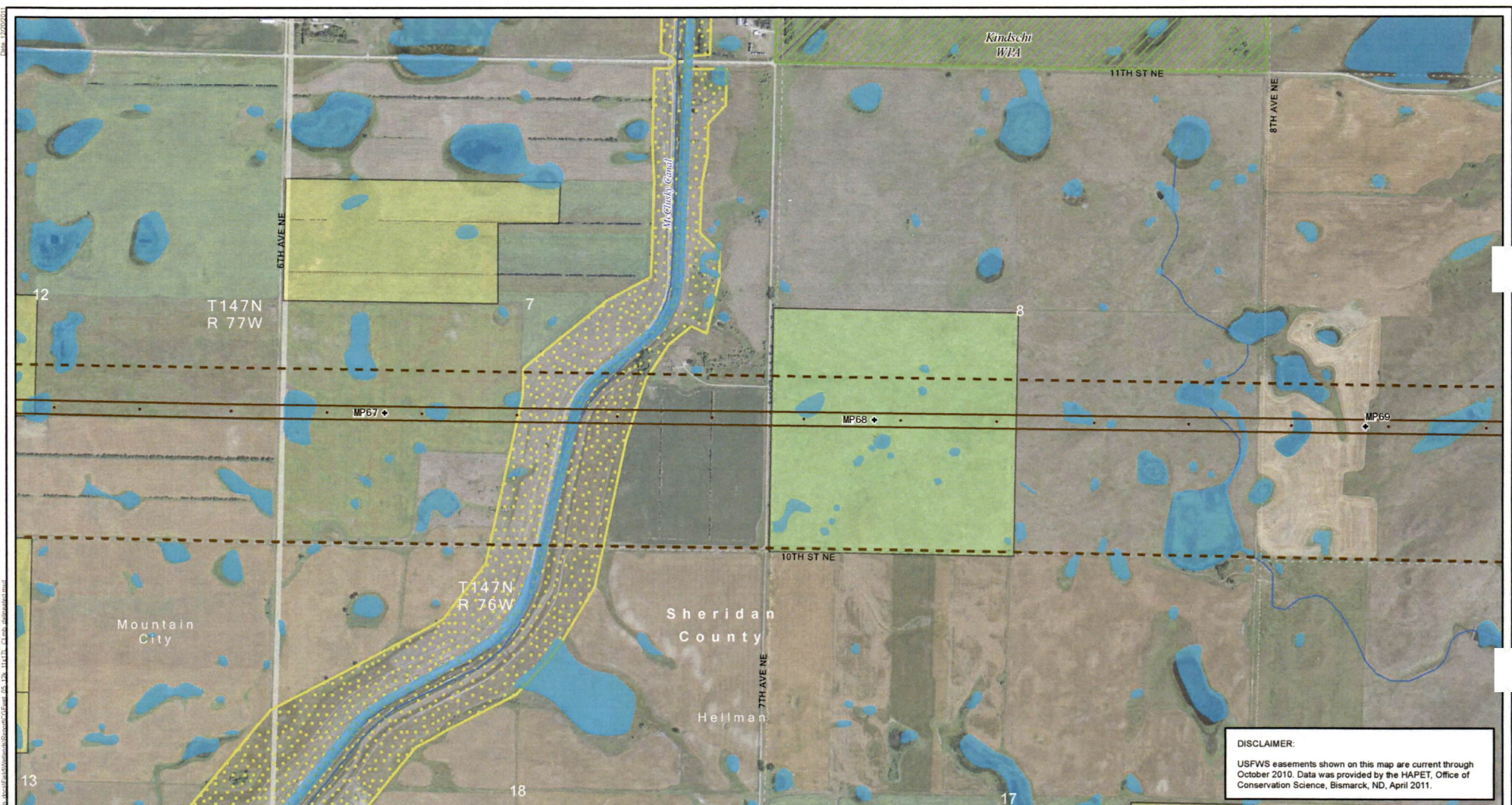


Figure 5.030
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



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|---------------------------------------|-----------------------------|--------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | | |
| Laydown Area | Wetland Crossing > 500 feet | | |
| | Permanent Wetland Impacts | | |

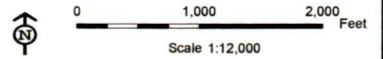
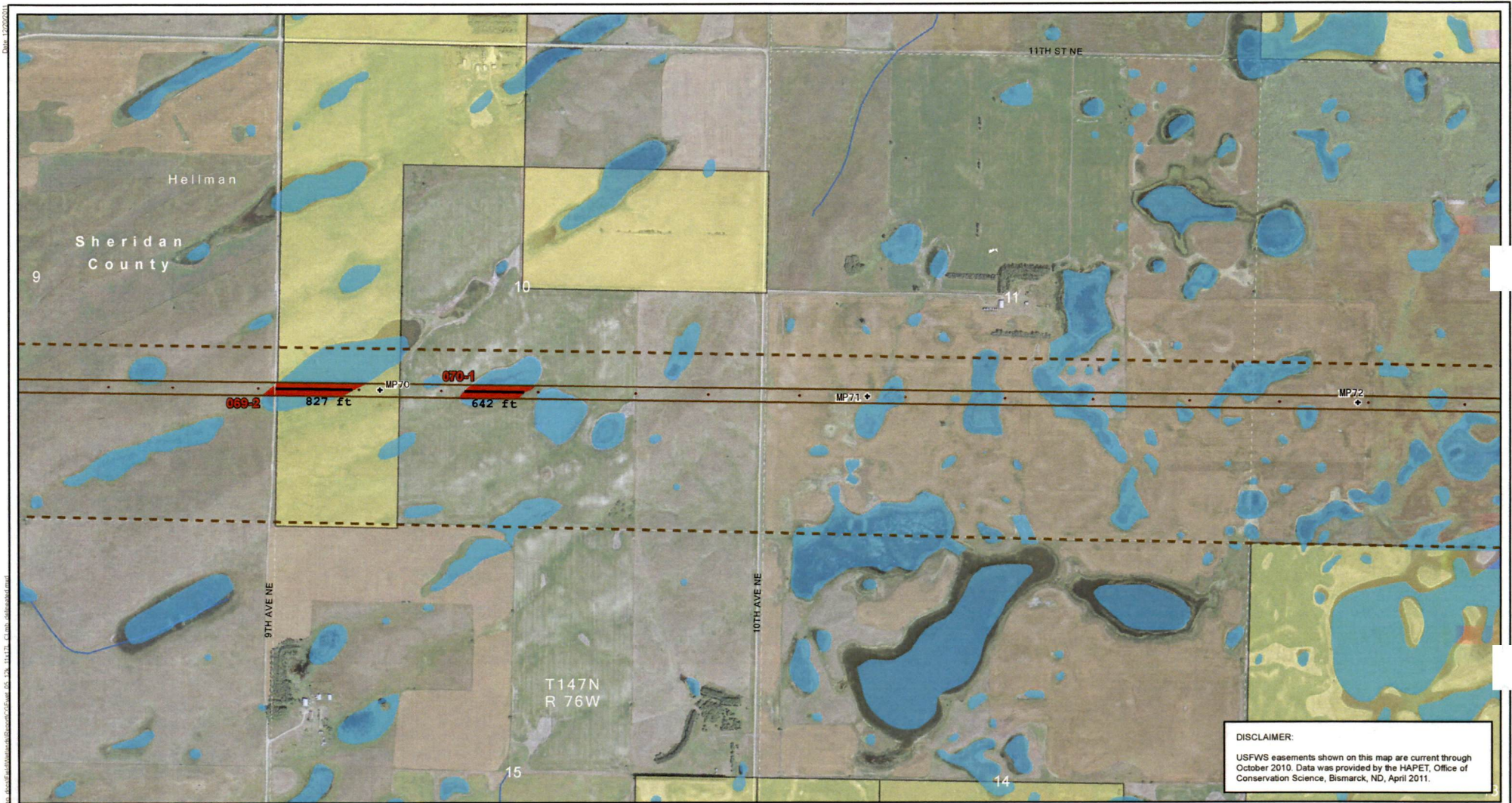


Figure 5.031
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



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|---------------------------------------|-----------------------------|--------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | | |
| Laydown Area | Wetland Crossing > 500 feet | | |
| | Permanent Wetland Impacts | | |

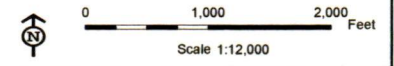
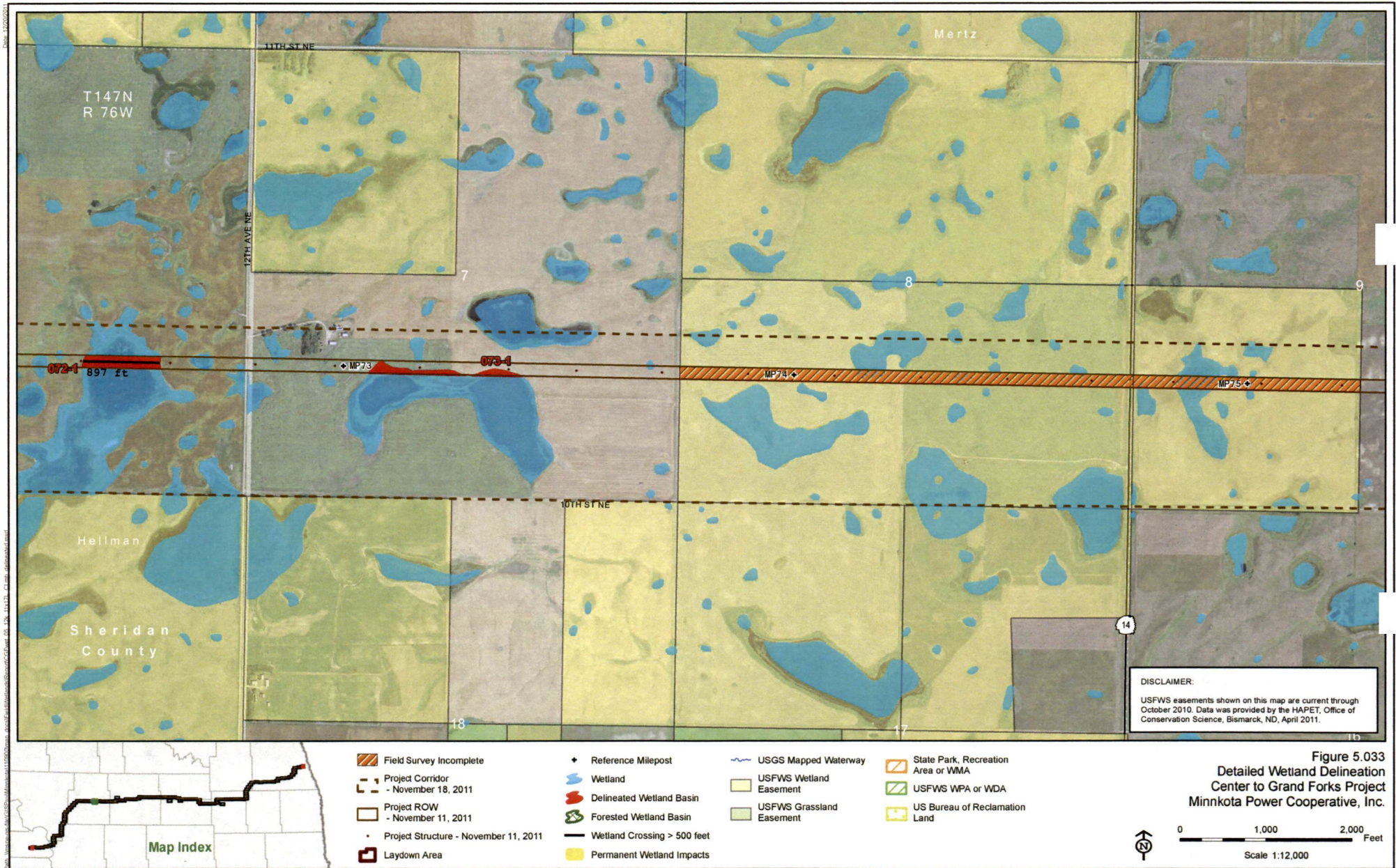


Figure 5.032
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

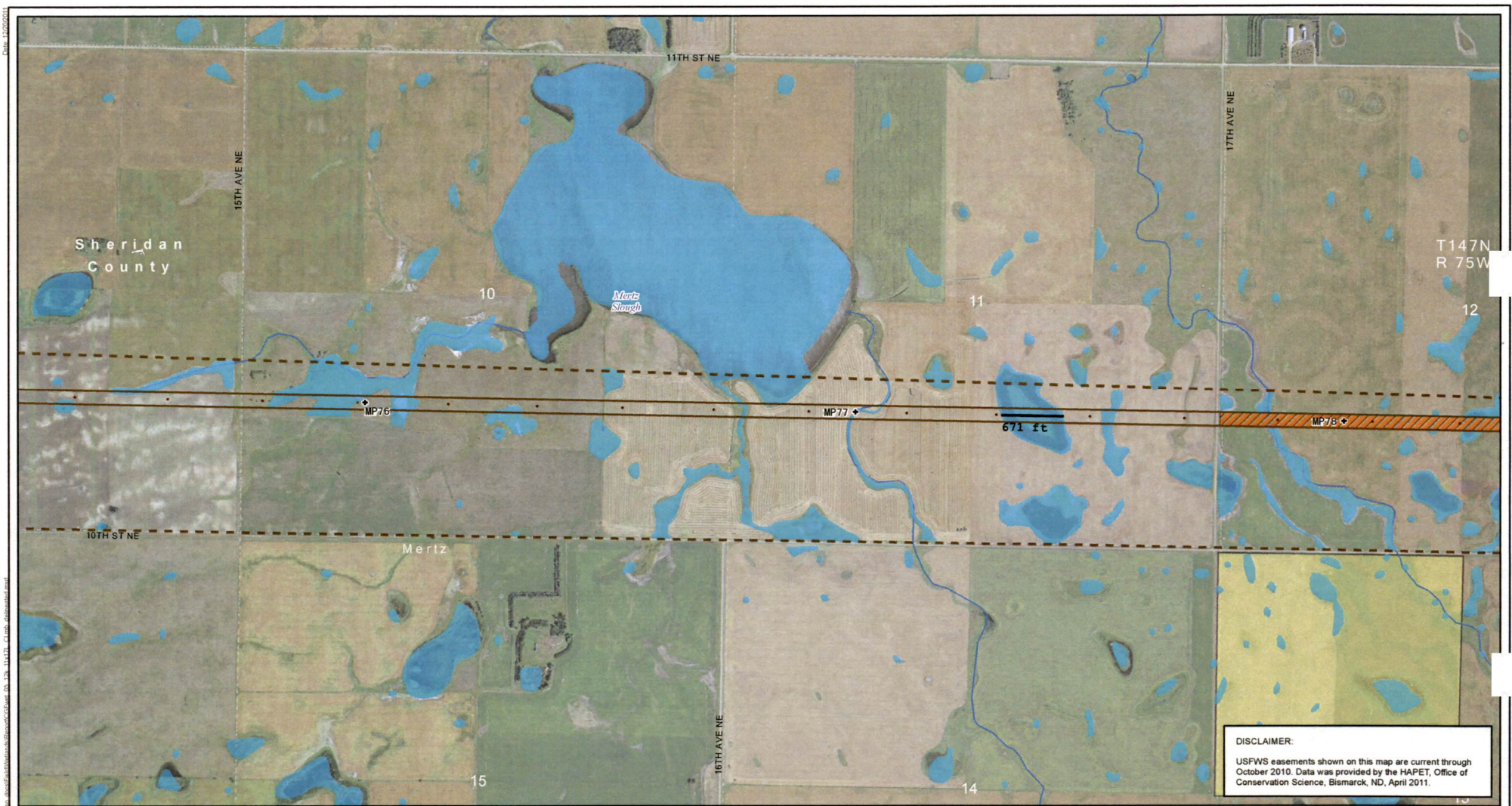
Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



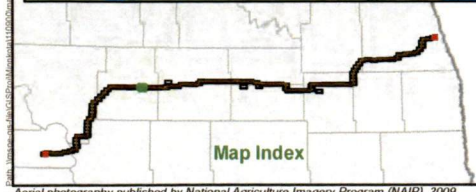
DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.

Figure 5.033
Detailed Wetland Delineation
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
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- Field Survey Incomplete
- Project Corridor - November 18, 2011
- Project ROW - November 11, 2011
- Project Structure - November 11, 2011
- Laydown Area
- Wetland
- Delineated Wetland Basin
- Forested Wetland Basin
- Wetland Crossing > 500 feet
- Permanent Wetland Impacts
- USGS Mapped Waterway
- USFWS Wetland Easement
- USFWS Grassland Easement
- State Park, Recreation Area or WMA
- USFWS WPA or WDA
- US Bureau of Reclamation Land

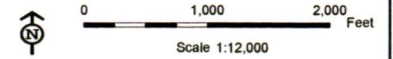


Figure 5.034
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



- | | | | |
|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

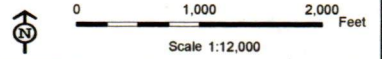
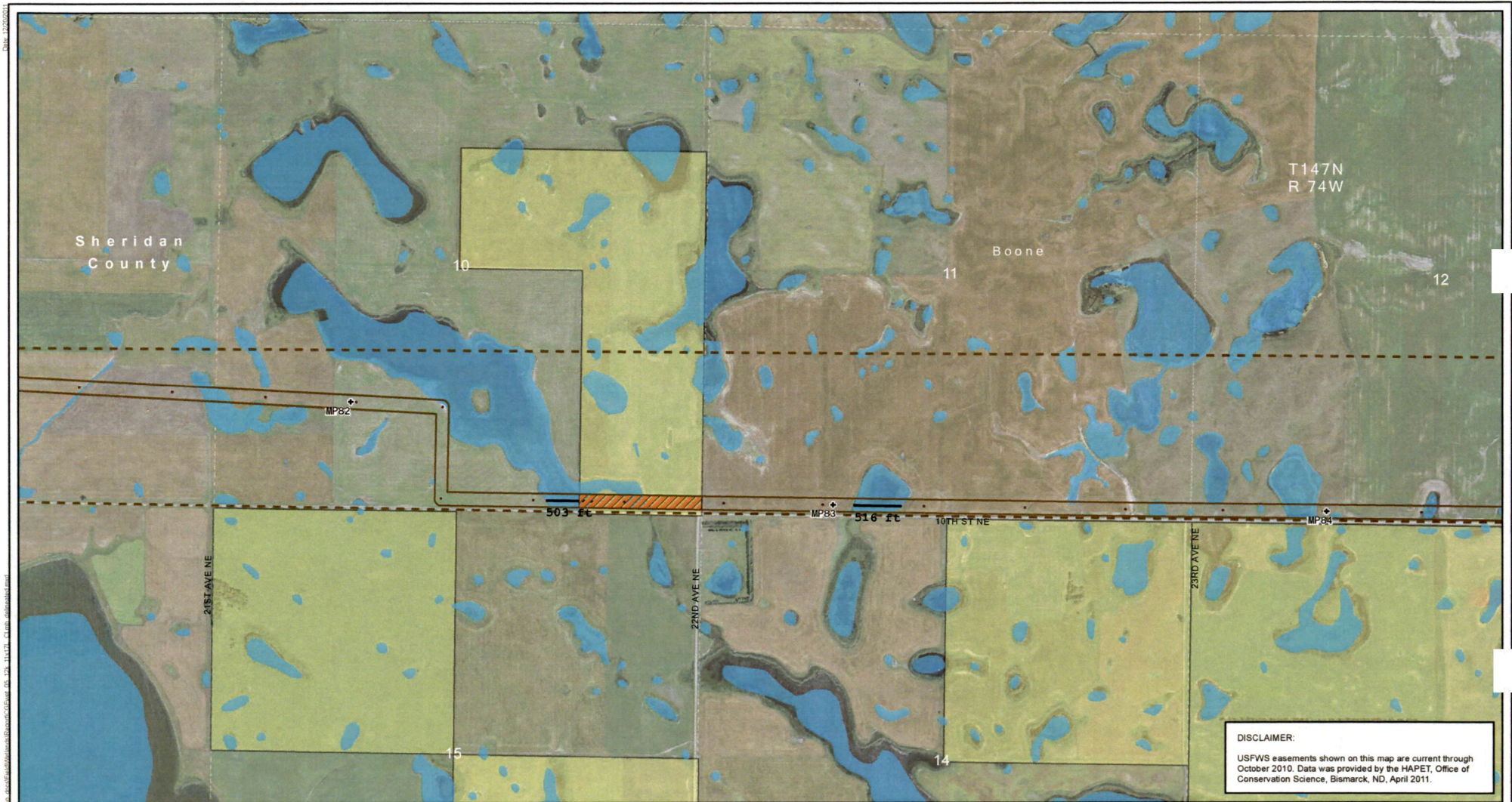
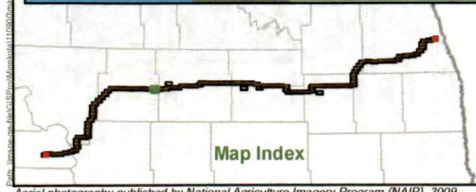


Figure 5.035
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



- Field Survey Incomplete
- Project Corridor - November 18, 2011
- Project ROW - November 11, 2011
- Project Structure - November 11, 2011
- Laydown Area
- Wetland
- Delineated Wetland Basin
- Forested Wetland Basin
- Wetland Crossing > 500 feet
- Permanent Wetland Impacts
- USGS Mapped Waterway
- USFWS Wetland Easement
- USFWS Grassland Easement
- State Park, Recreation Area or WMA
- USFWS WPA or WDA
- US Bureau of Reclamation Land
- Reference Milepost

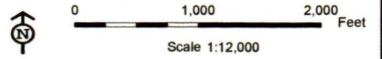
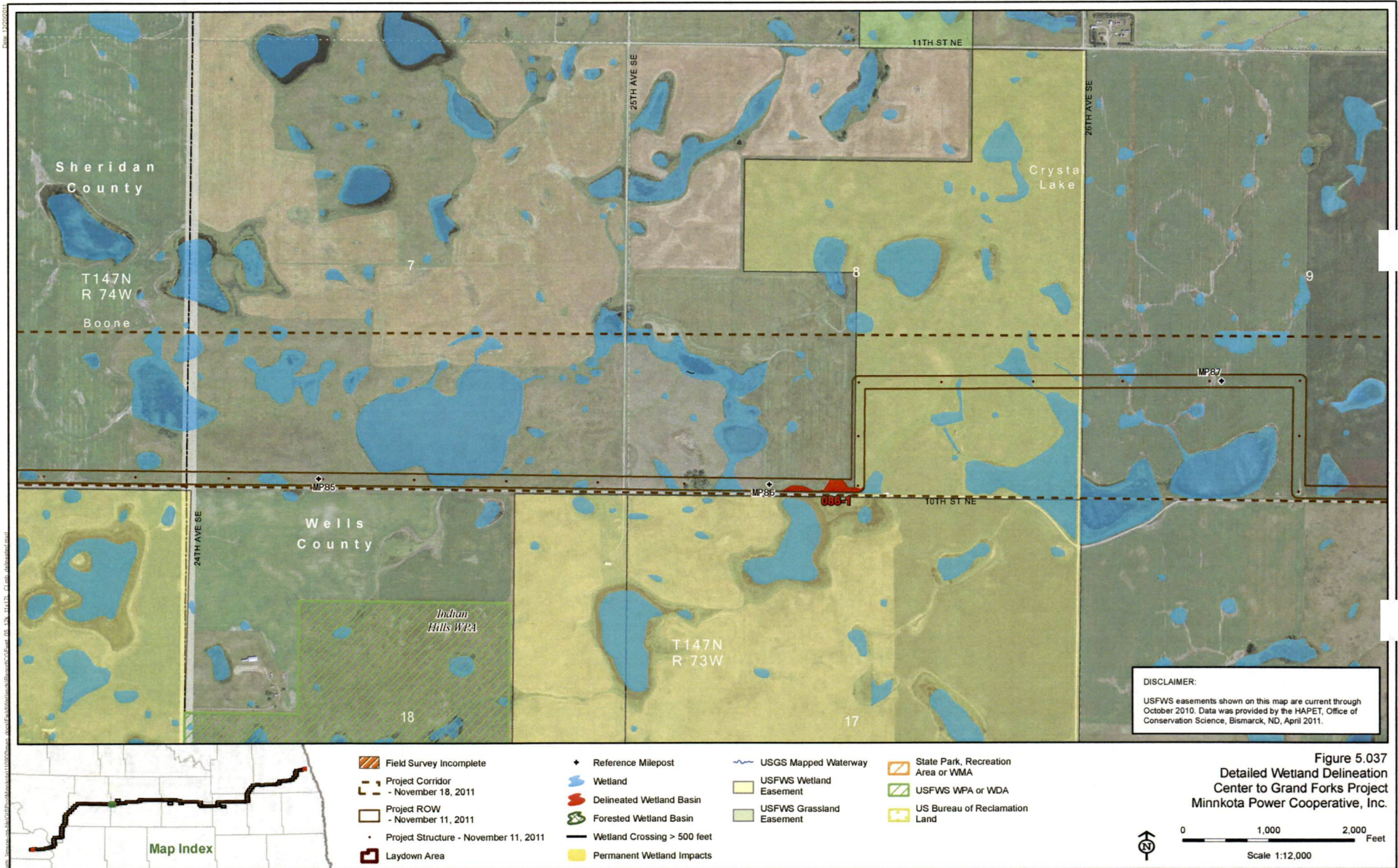


Figure 5.036
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.

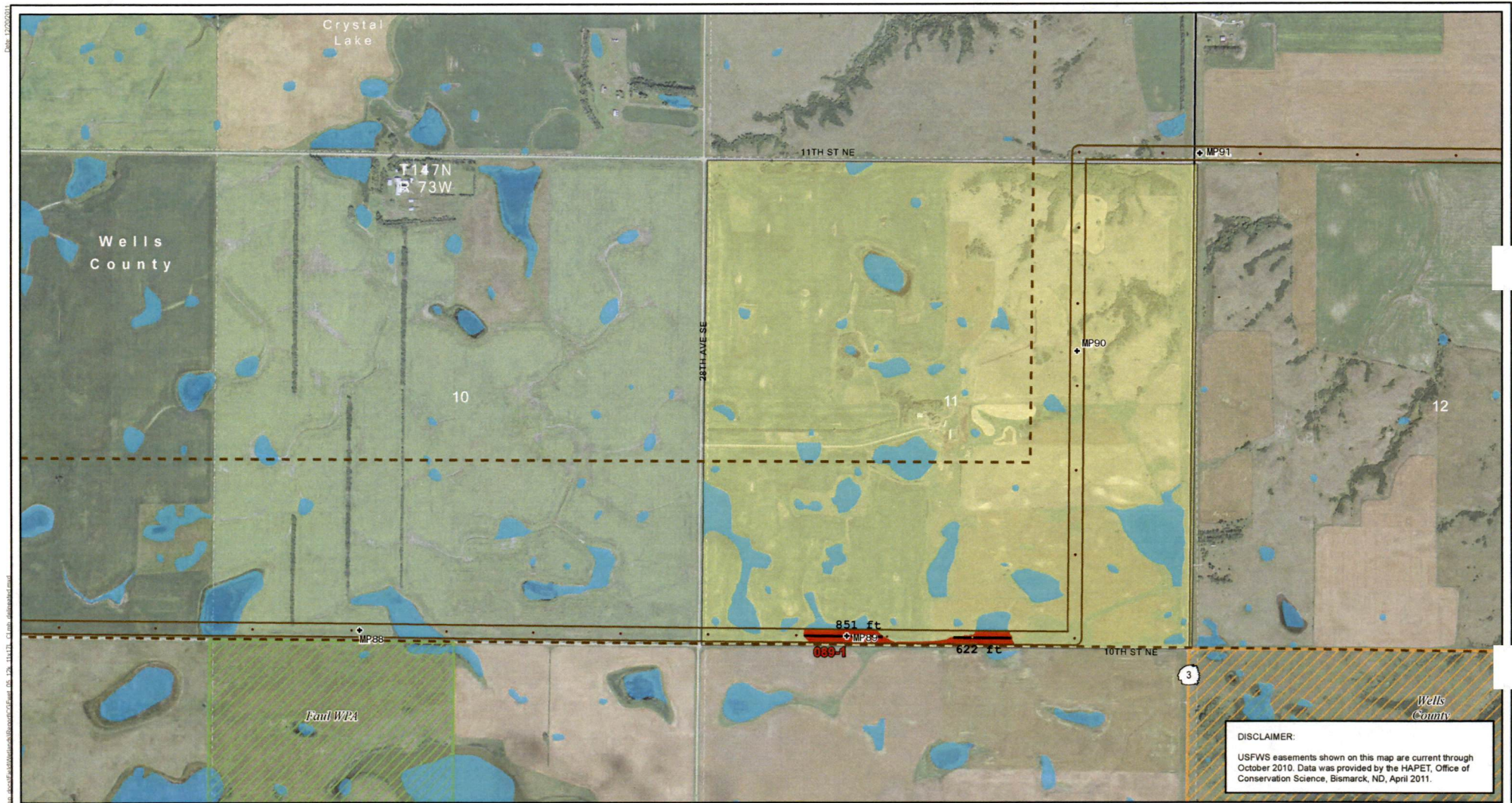


DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.

Figure 5.037
Detailed Wetland Delineation
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

0 1,000 2,000 Feet
 Scale 1:12,000

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
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- Field Survey Incomplete
- Project Corridor - November 18, 2011
- Project ROW - November 11, 2011
- Project Structure - November 11, 2011
- Laydown Area
- Wetland
- Delineated Wetland Basin
- Forested Wetland Basin
- Wetland Crossing > 500 feet
- Permanent Wetland Impacts
- USGS Mapped Waterway
- USFWS Wetland Easement
- USFWS Grassland Easement
- State Park, Recreation Area or WMA
- USFWS WPA or WDA
- US Bureau of Reclamation Land

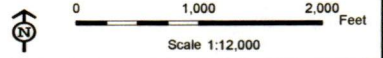
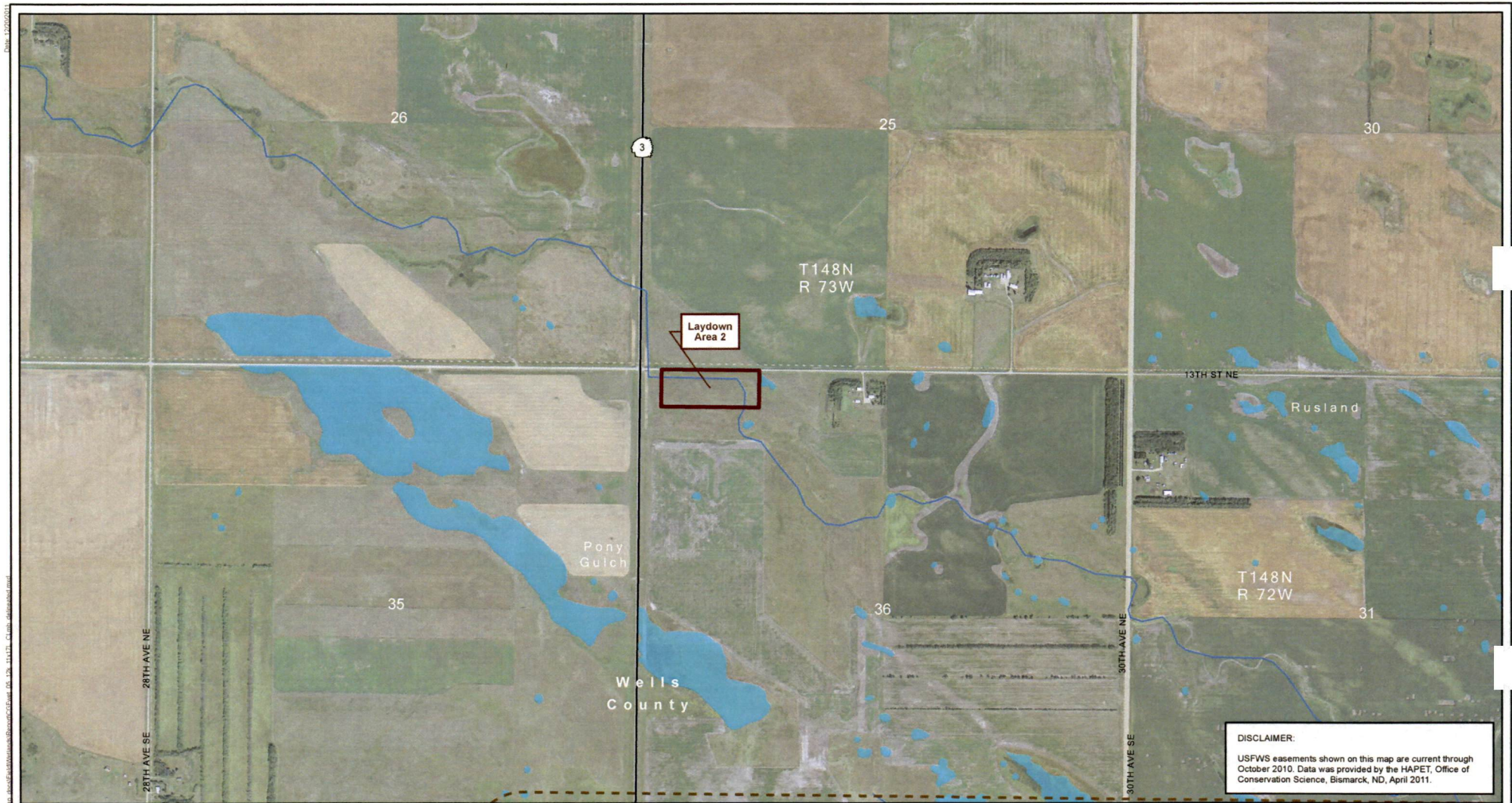


Figure 5.038
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



- | | | | |
|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

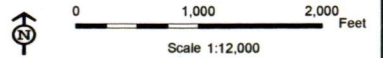
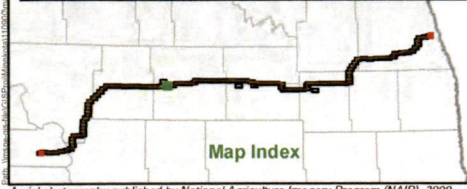


Figure 5.039
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.

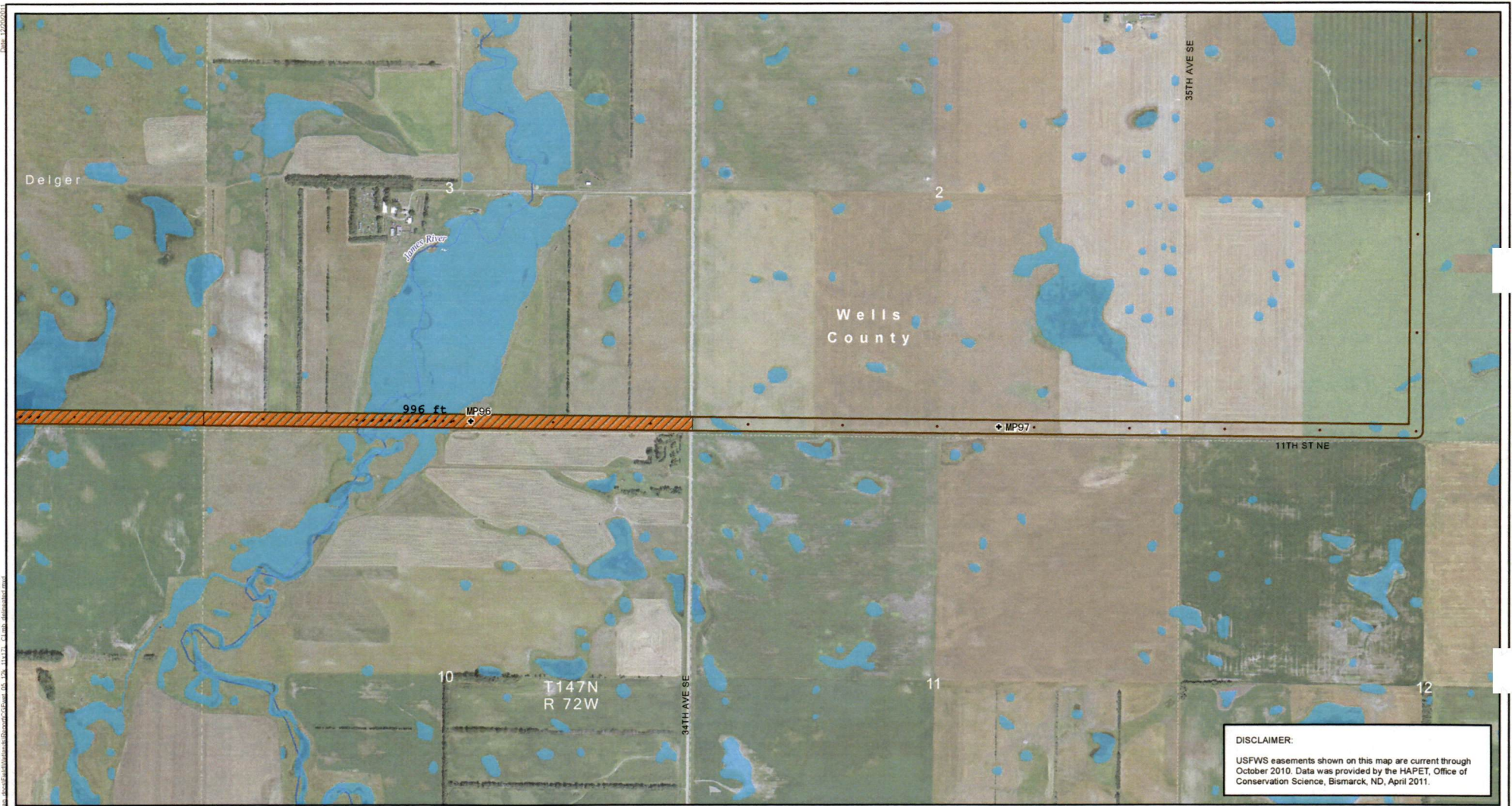


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|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

Figure 5.040
Detailed Wetland Delineation
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

Scale 1:12,000

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
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|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

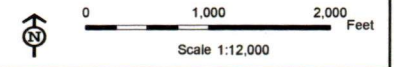
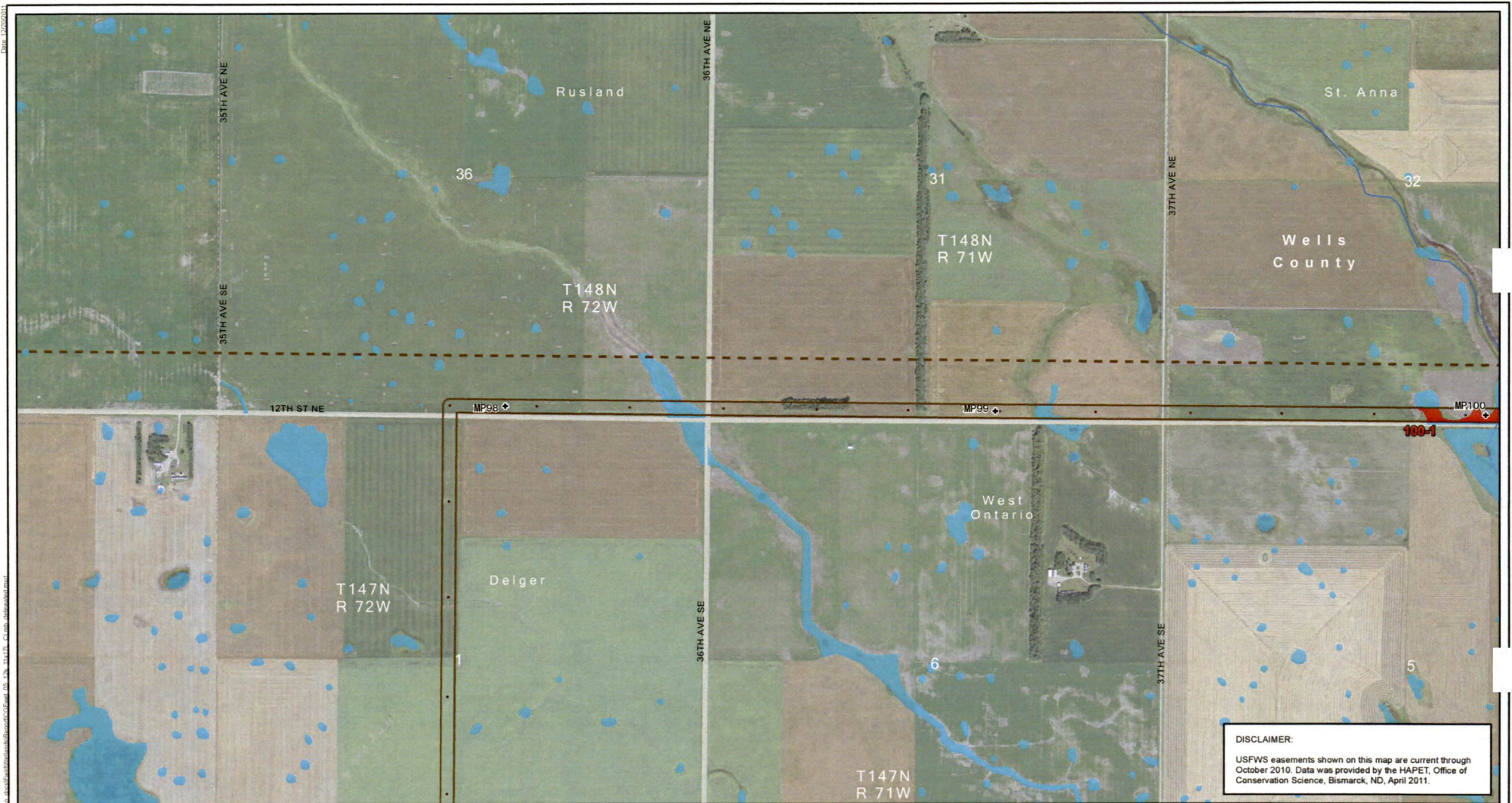
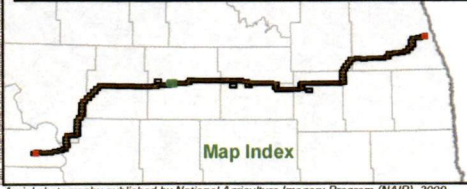


Figure 5.041
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



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|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

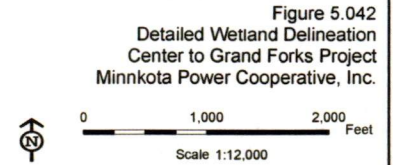
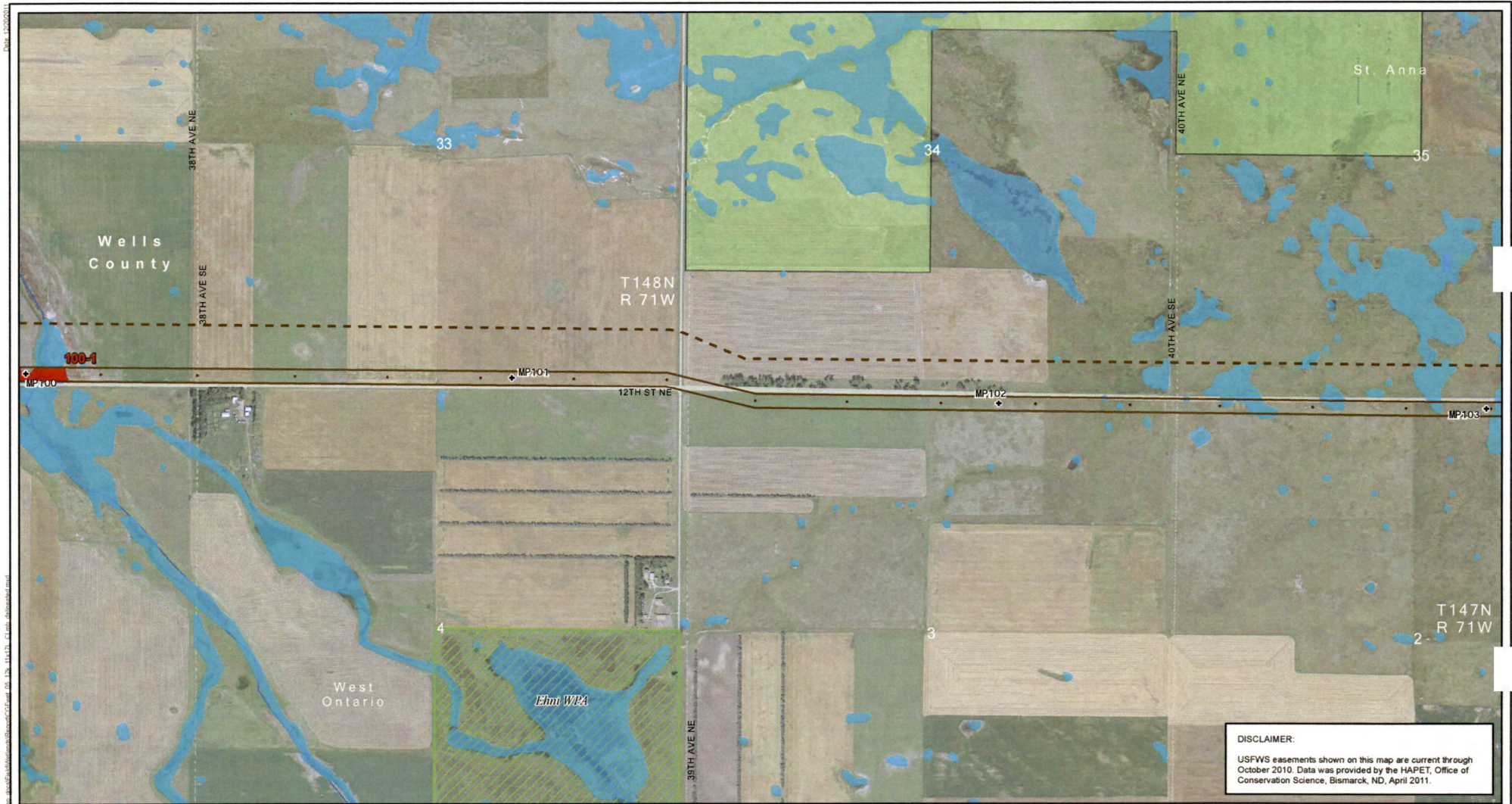


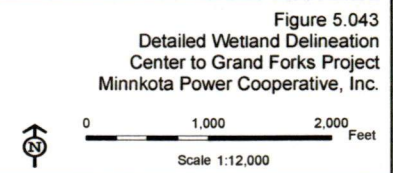
Figure 5.042
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.

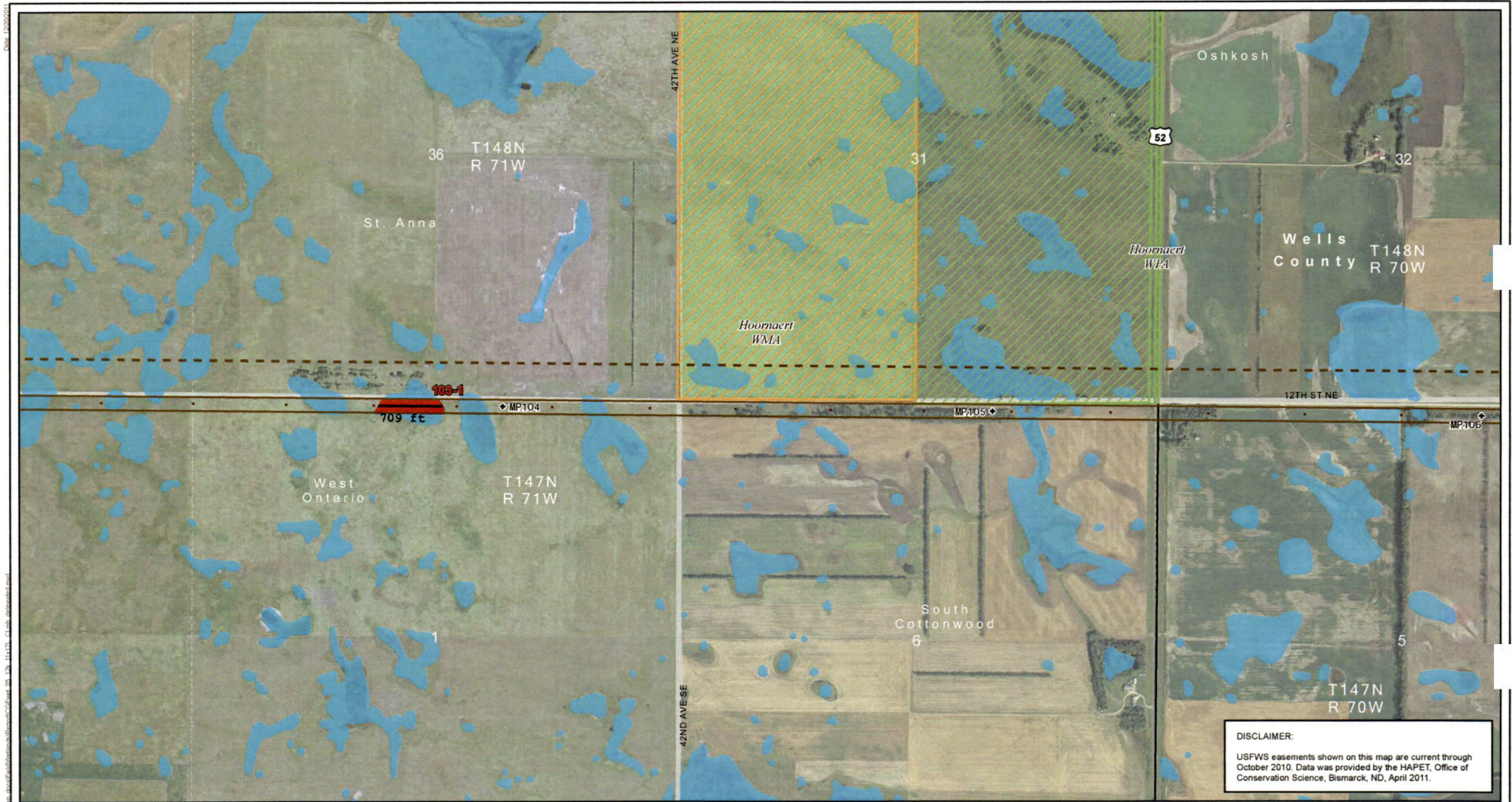


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|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

DISCLAIMER:
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Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

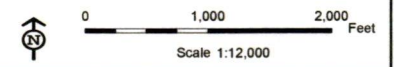


Figure 5.044
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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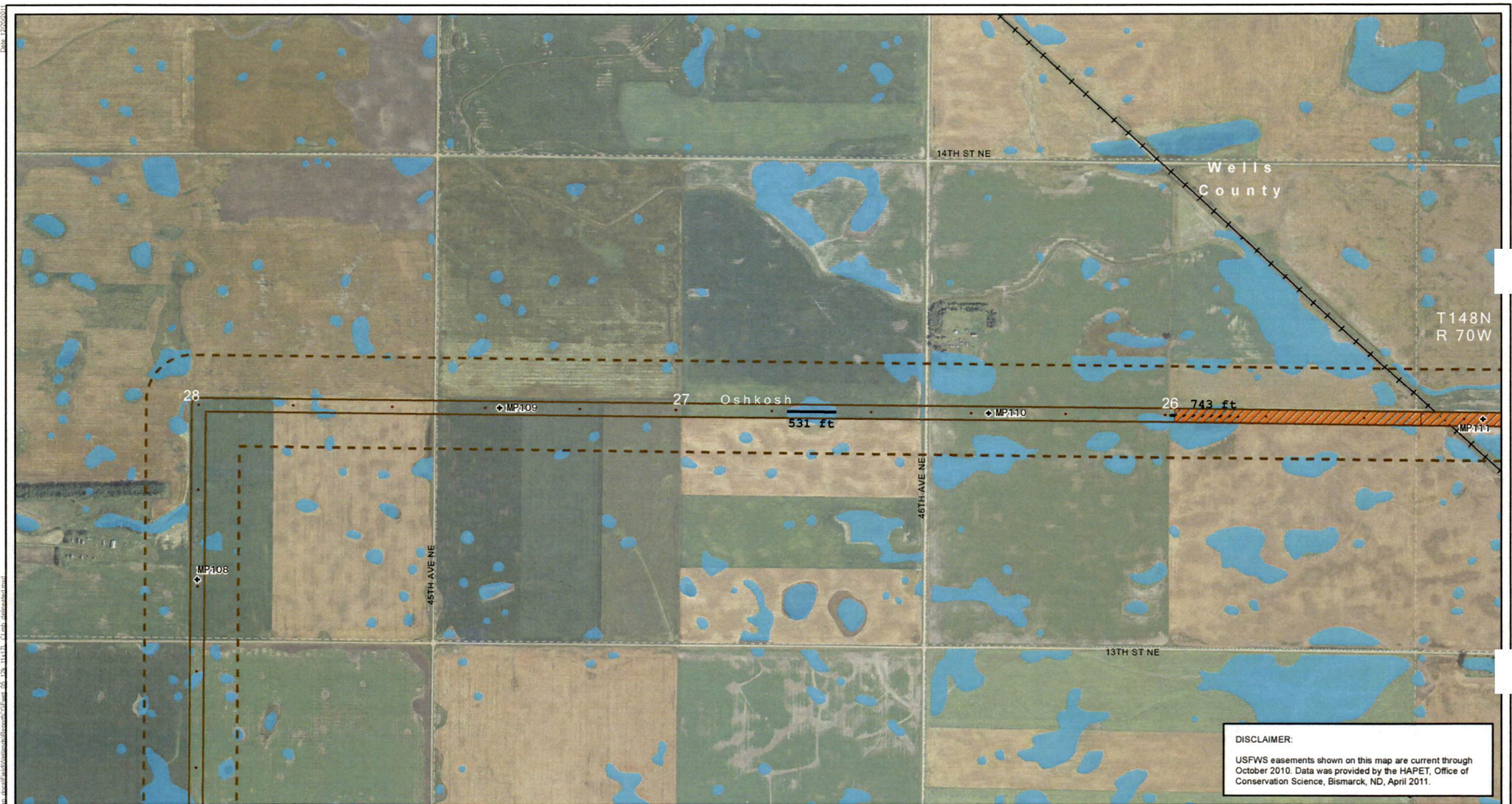


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|---------------------------------------|-----------------------------|--------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | | |
| Laydown Area | Wetland Crossing > 500 feet | | |
| | Permanent Wetland Impacts | | |

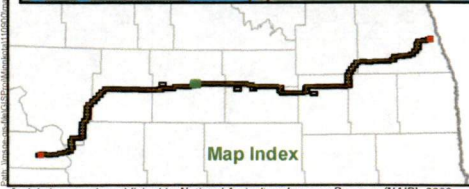
Figure 5.045
Detailed Wetland Delineation
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

0 1,000 2,000 Feet
 Scale 1:12,000

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
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|---------------------------------------|-----------------------------|--------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | | |
| Laydown Area | Wetland Crossing > 500 feet | | |
| | Permanent Wetland Impacts | | |

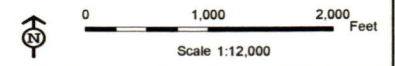


Figure 5.046
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



- | | | | |
|---------------------------------------|-----------------------------|--------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | | |
| Laydown Area | Wetland Crossing > 500 feet | | |
| | Permanent Wetland Impacts | | |

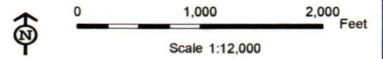
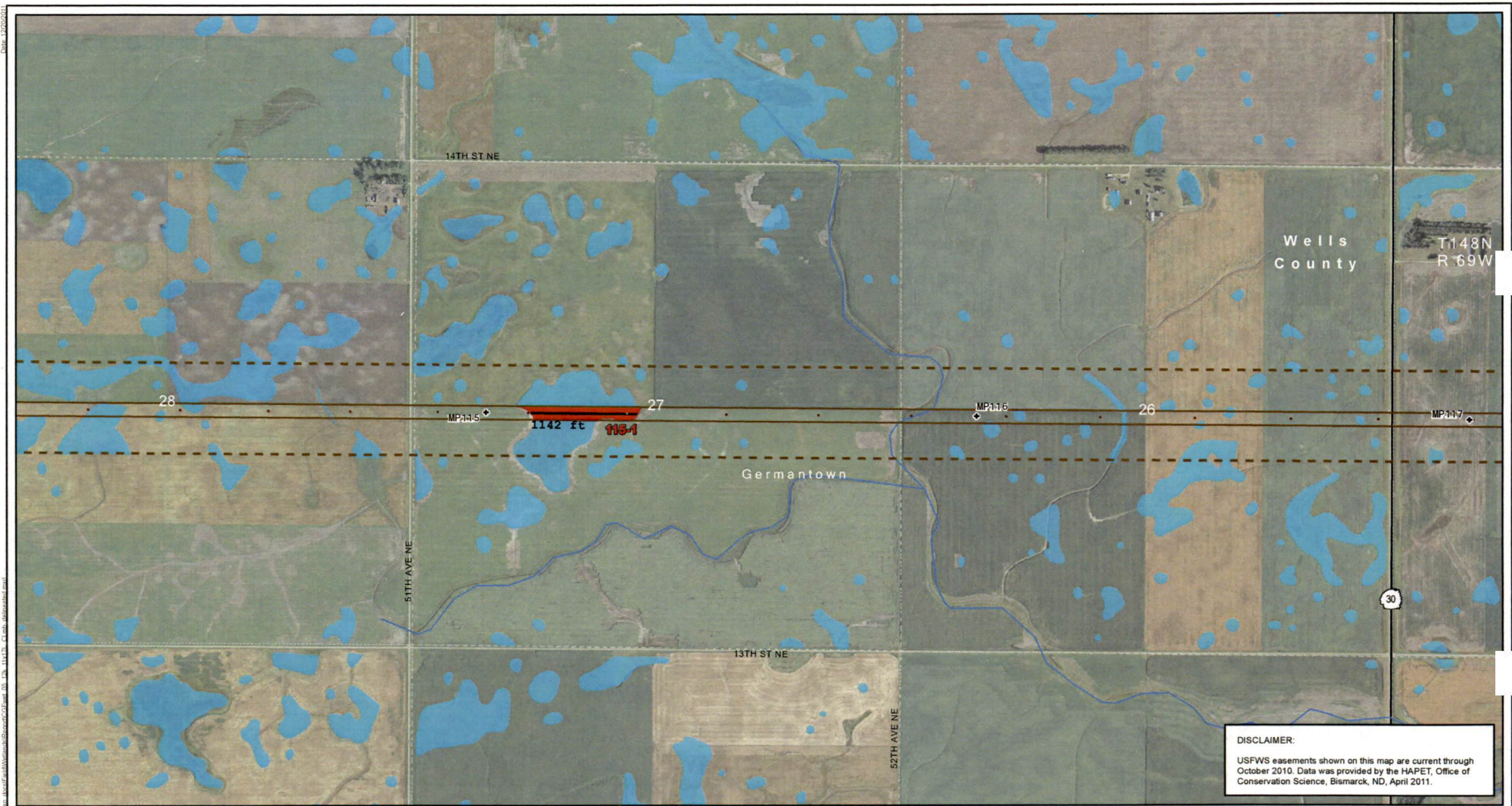
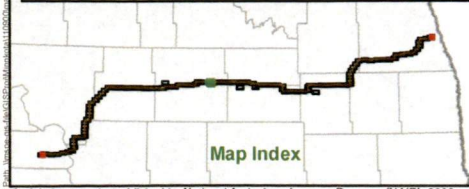


Figure 5.047
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



- | | | | |
|---------------------------------------|-----------------------------|--------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | | |
| Laydown Area | Wetland Crossing > 500 feet | | |
| | Permanent Wetland Impacts | | |

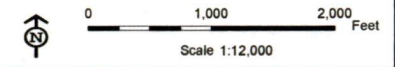
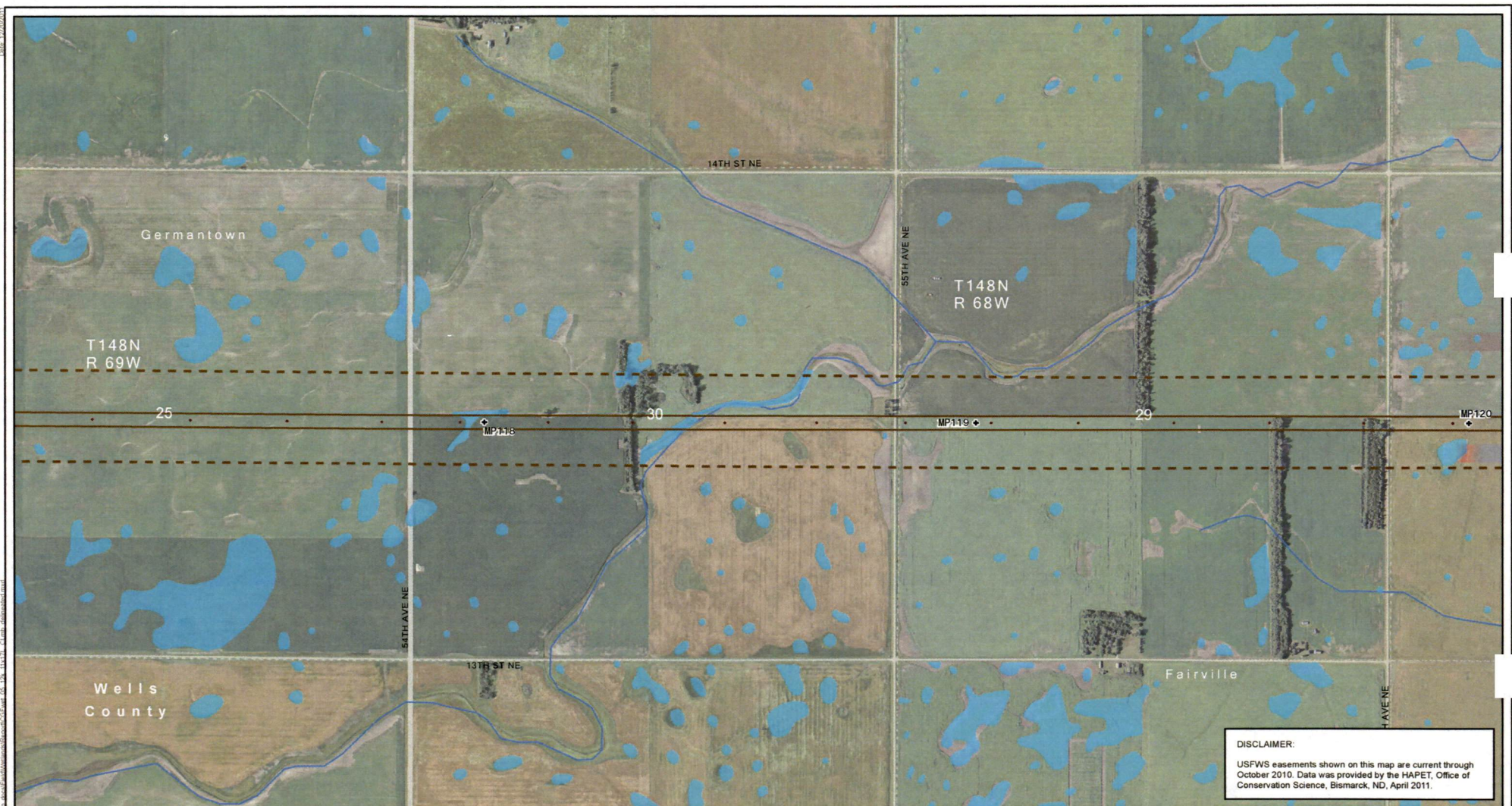
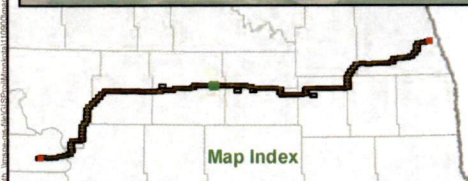


Figure 5.048
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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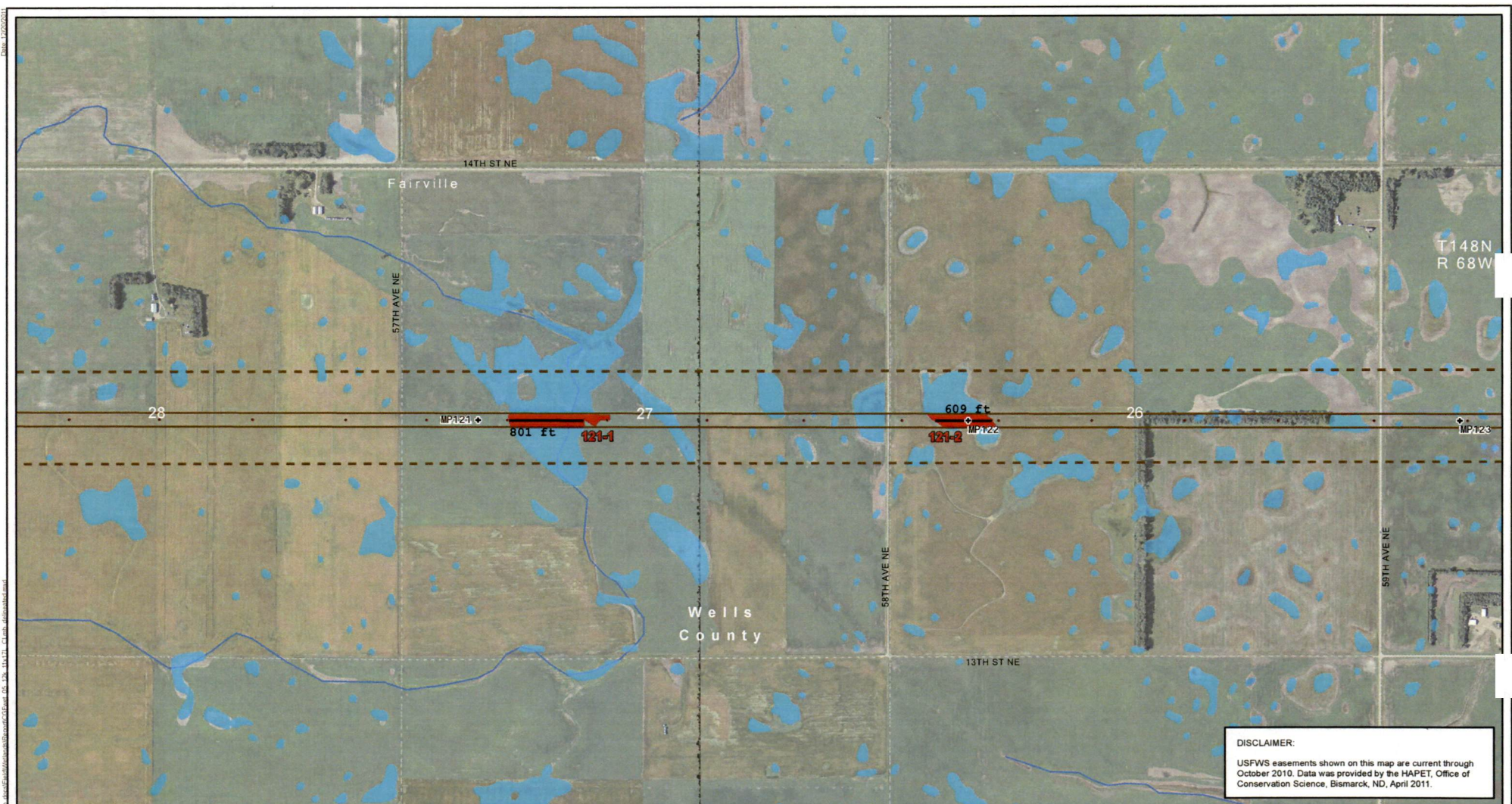


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|---------------------------------------|---------------------------|-----------------------------|------------------------------------|
| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
| Project Corridor - November 18, 2011 | Wetland | USFWS Wetland Easement | USFWS WPA or WDA |
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| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

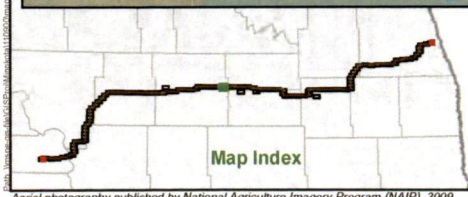
Figure 5.049
Detailed Wetland Delineation
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

0 1,000 2,000 Feet
 Scale 1:12,000

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Project Structure - November 11, 2011 | Forested Wetland Basin | | |
| Laydown Area | Wetland Crossing > 500 feet | | |
| | Permanent Wetland Impacts | | |

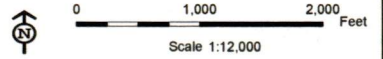
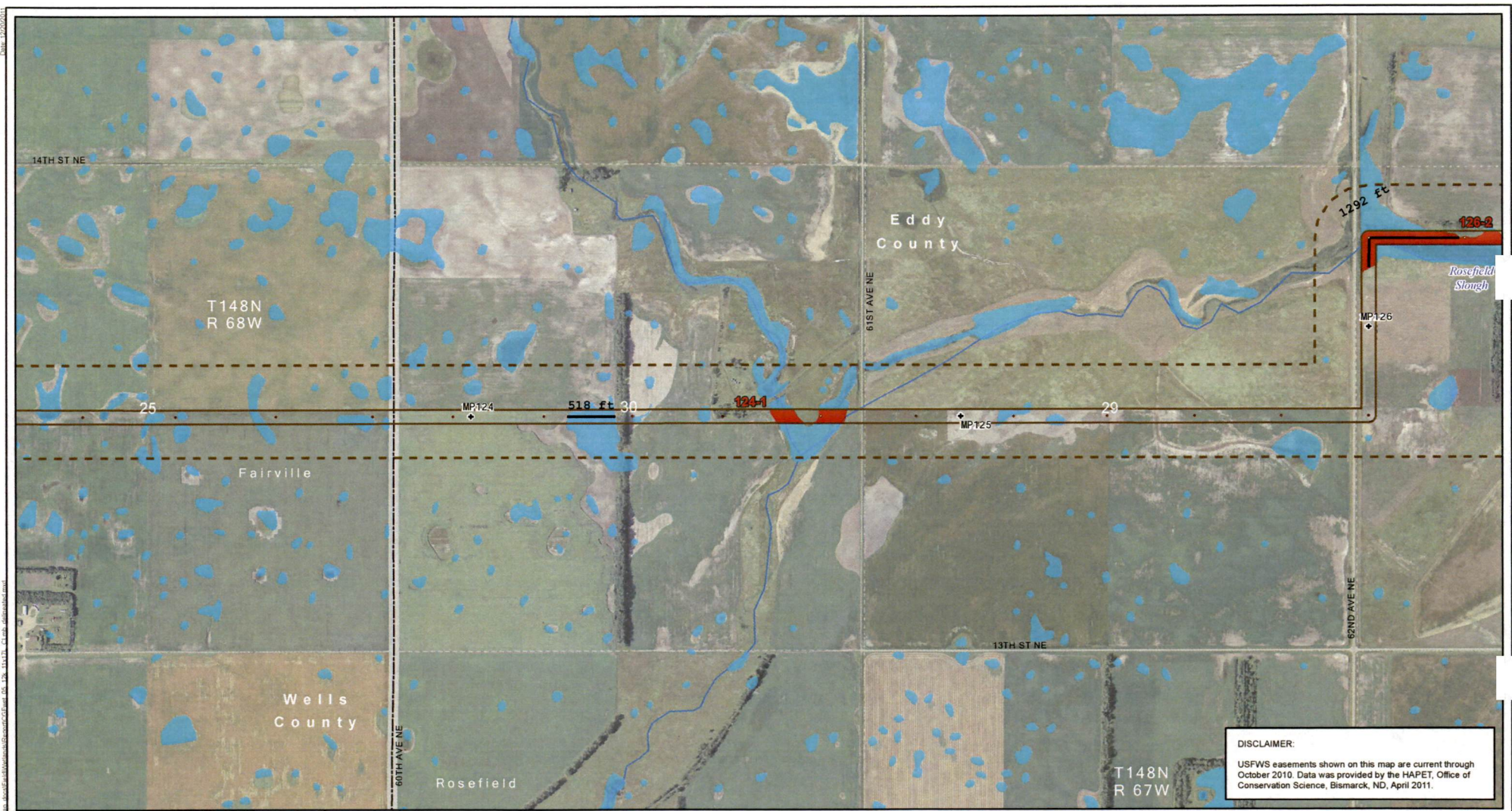


Figure 5.050
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

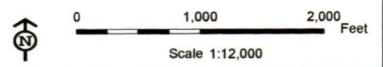
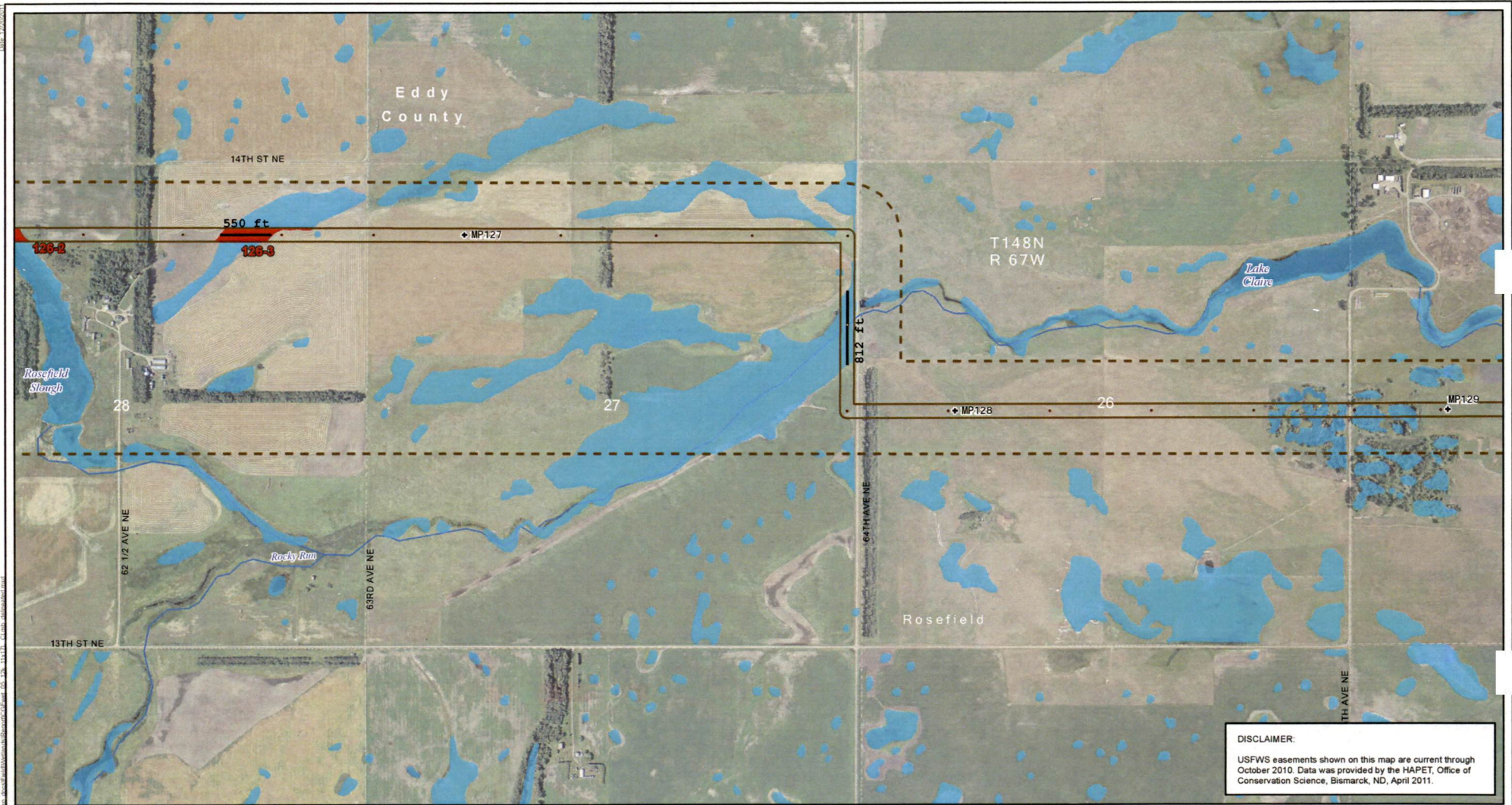
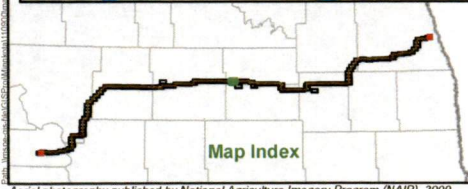


Figure 5.051
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

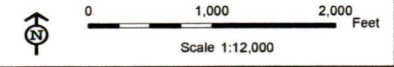


Figure 5.052
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

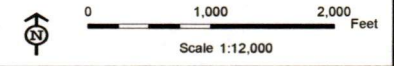
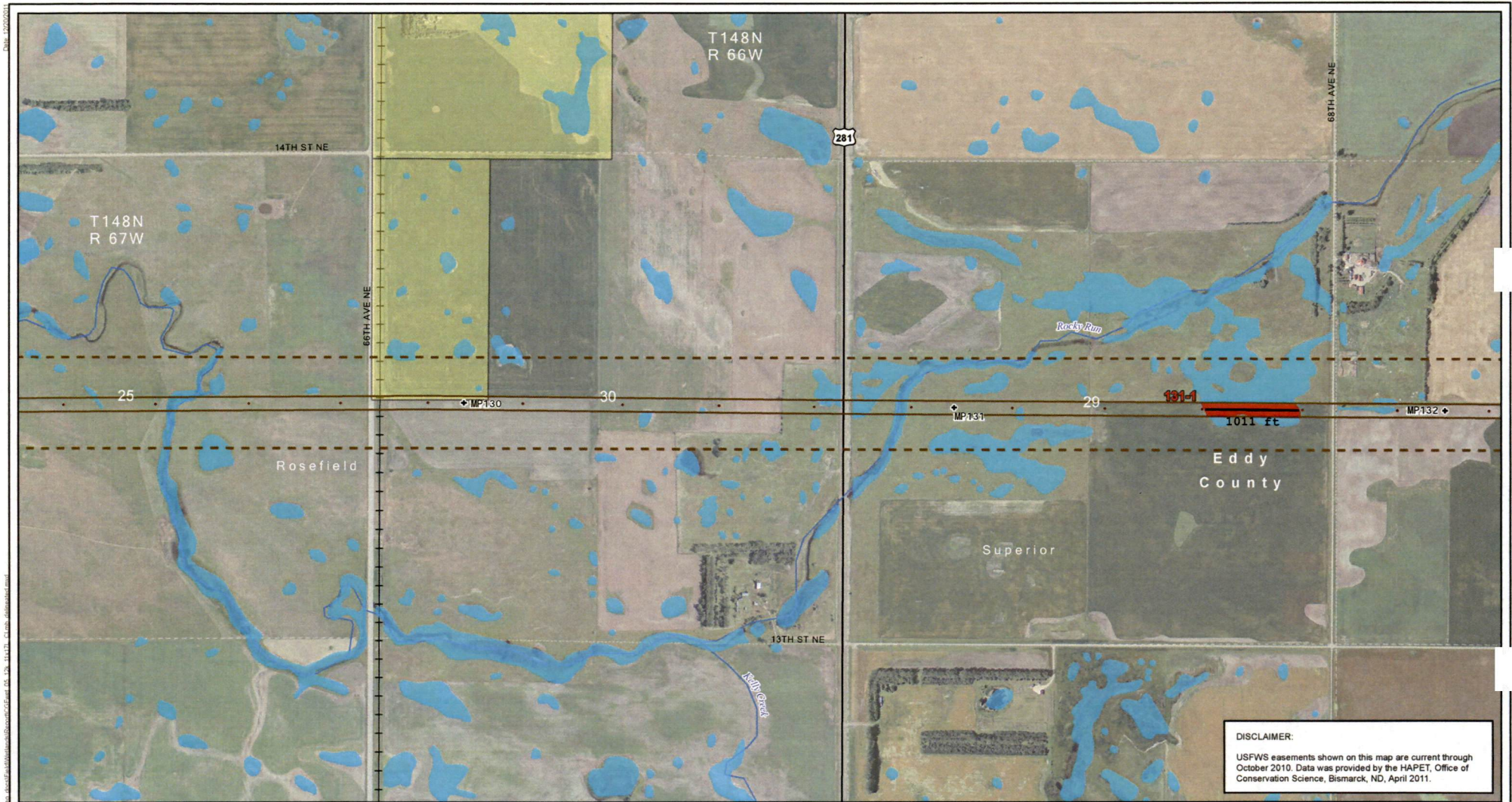


Figure 5.053
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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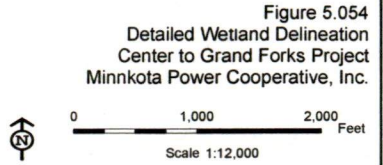
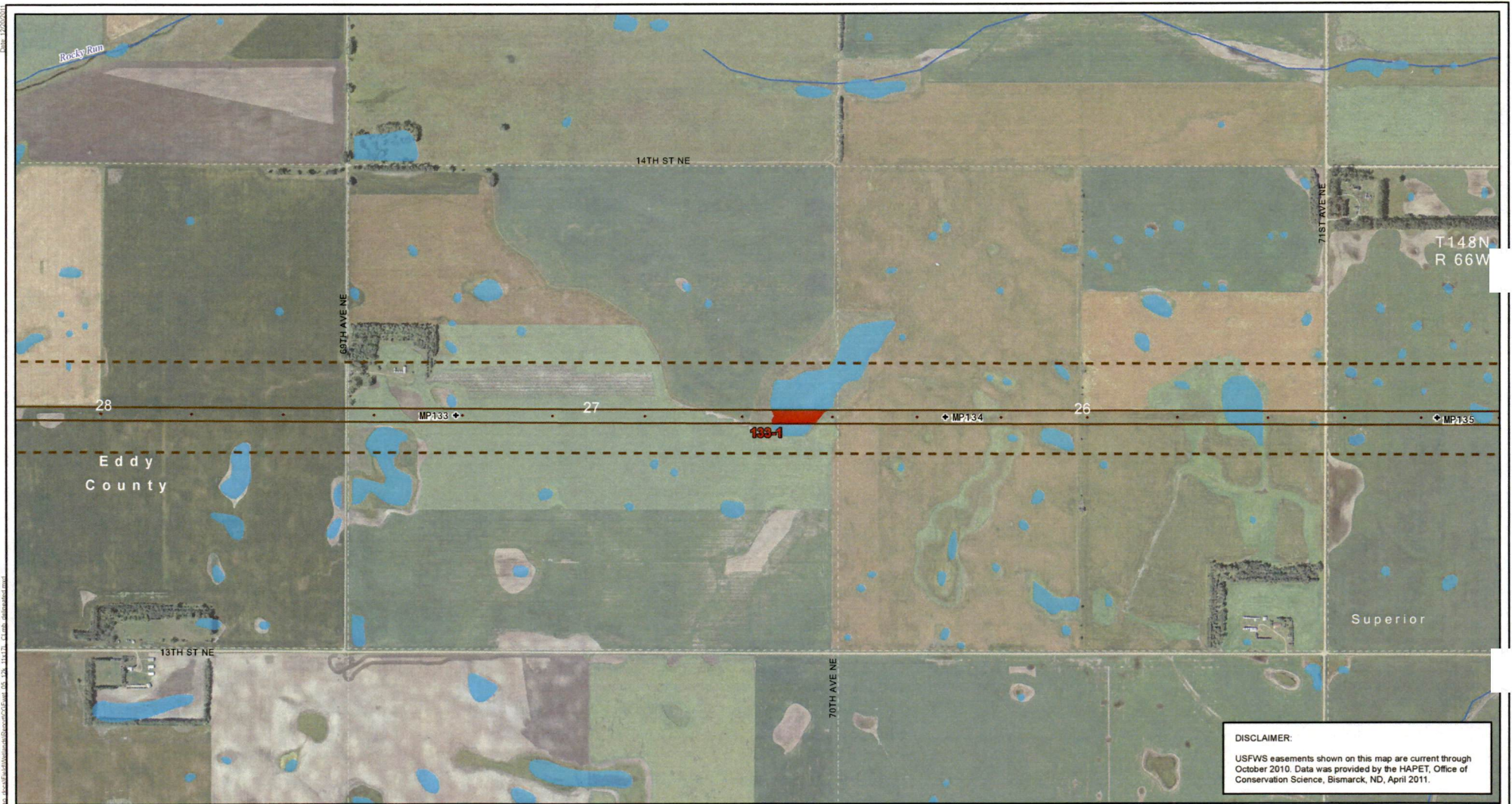
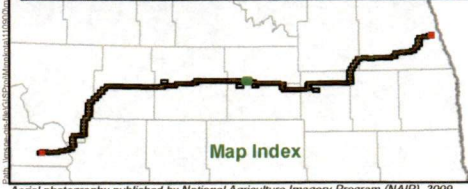


Figure 5.054
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

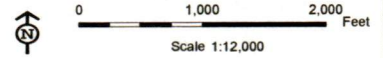
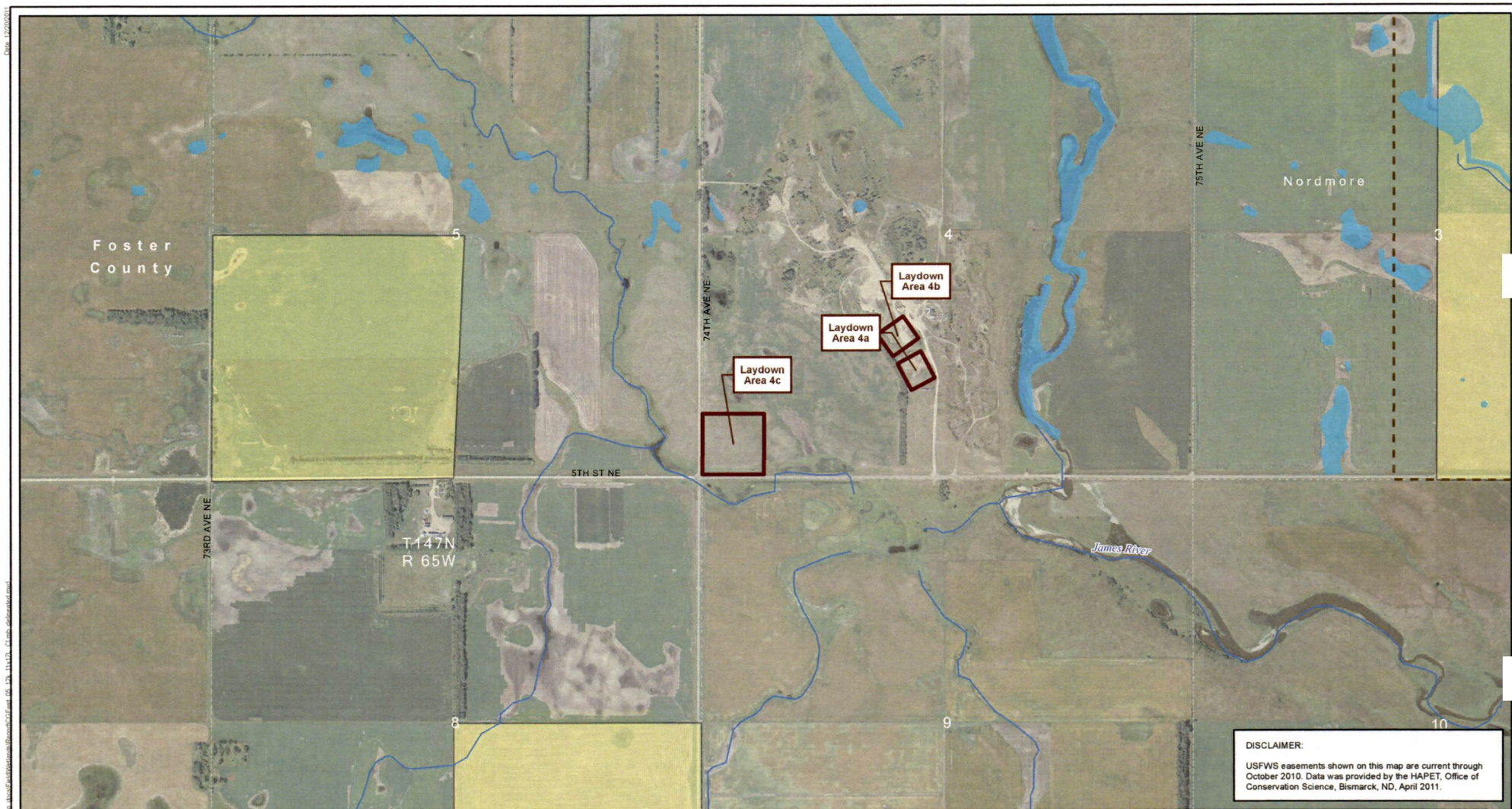


Figure 5.055
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

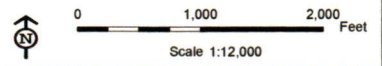
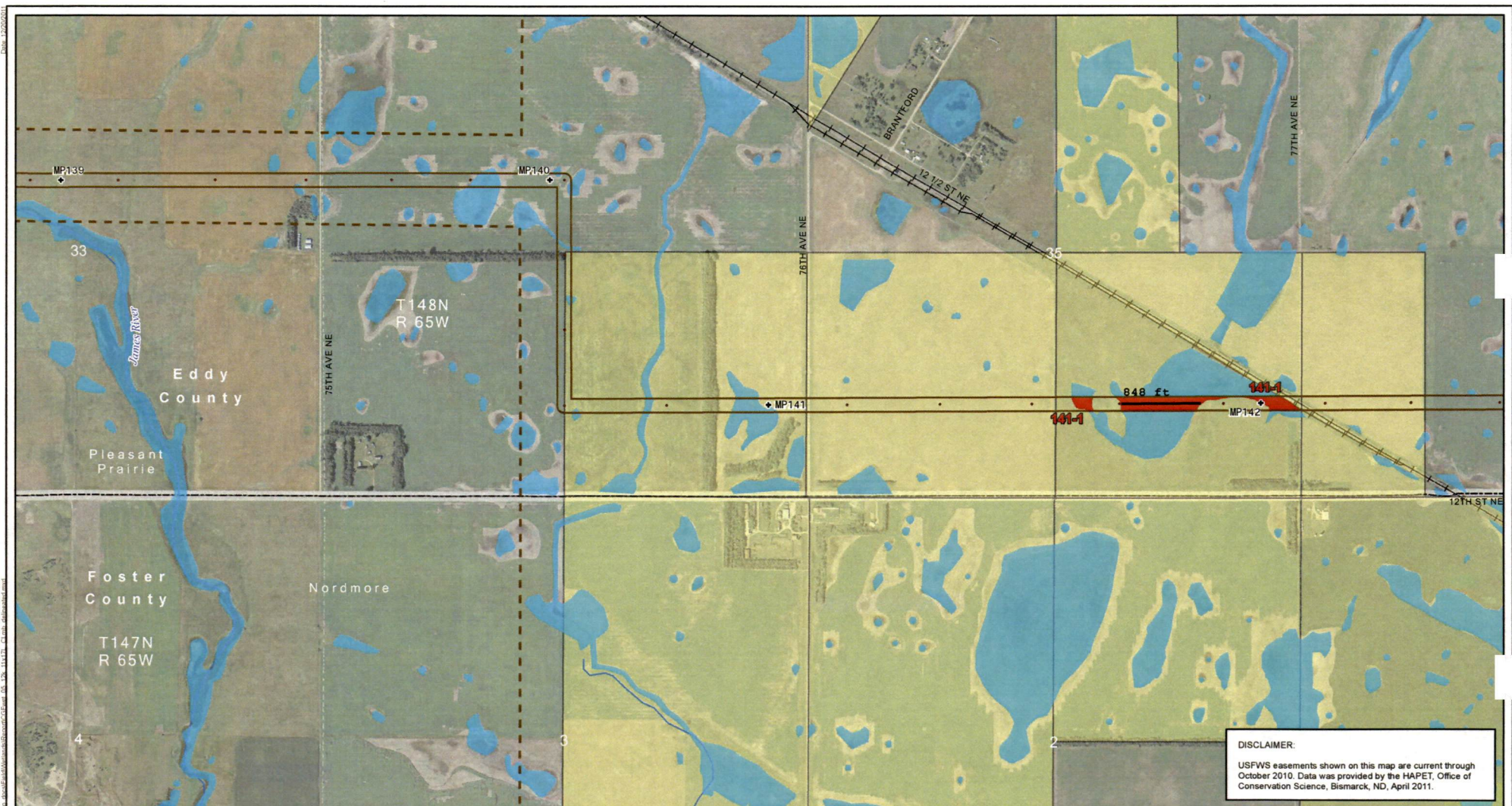


Figure 5.057
Detailed Wetland Delineation
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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- Field Survey Incomplete
- Project Corridor - November 18, 2011
- Project ROW - November 11, 2011
- Project Structure - November 11, 2011
- Laydown Area
- Reference Milepost
- Wetland
- Delineated Wetland Basin
- Forested Wetland Basin
- Wetland Crossing > 500 feet
- Permanent Wetland Impacts
- USGS Mapped Waterway
- USFWS Wetland Easement
- USFWS Grassland Easement
- State Park, Recreation Area or WMA
- USFWS WPA or WDA
- US Bureau of Reclamation Land

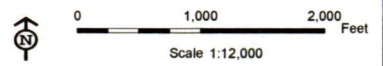
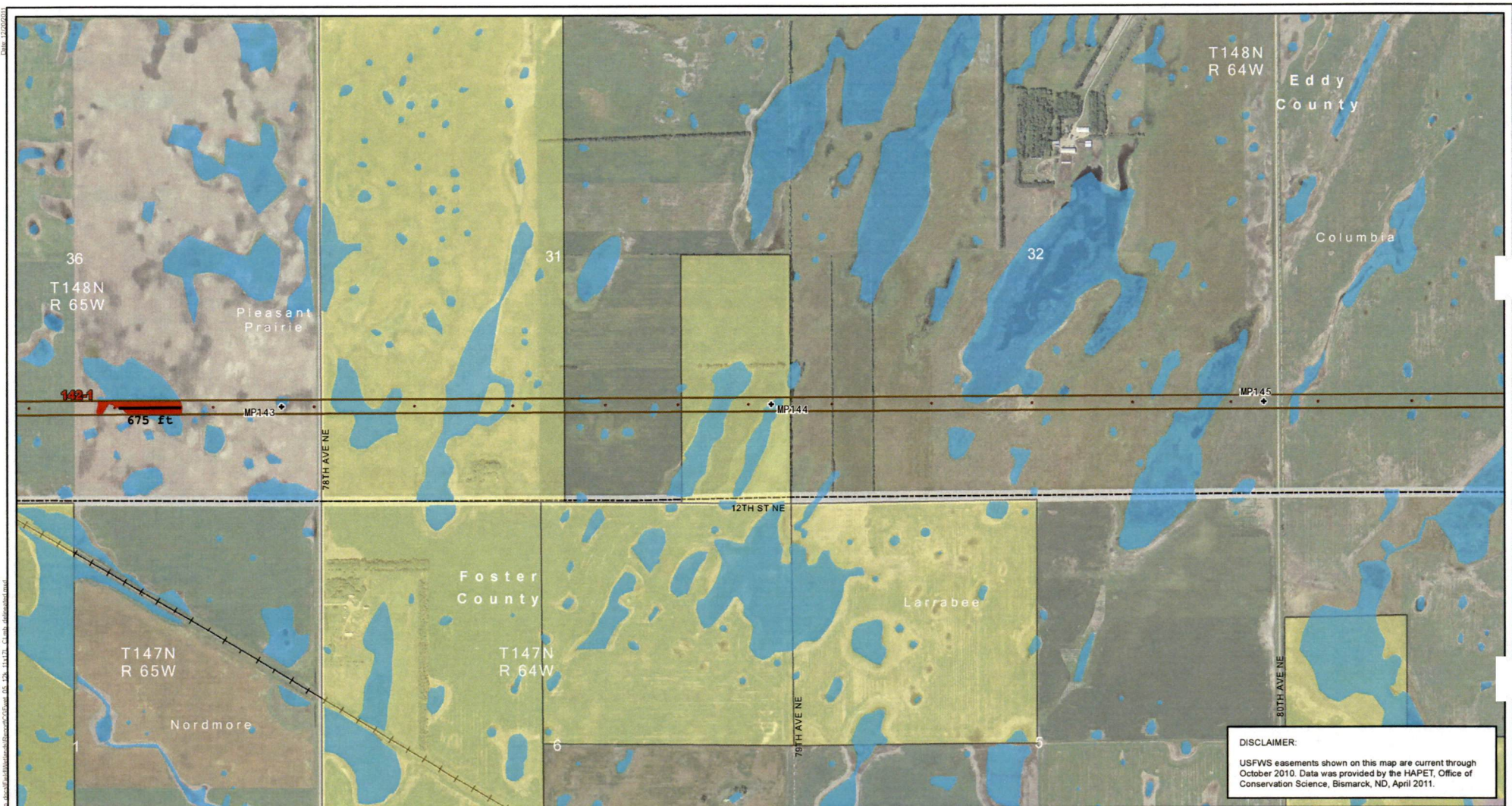


Figure 5.058
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | Permanent Wetland Impacts |
| Laydown Area | | | |

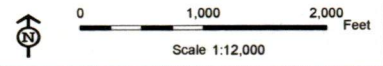
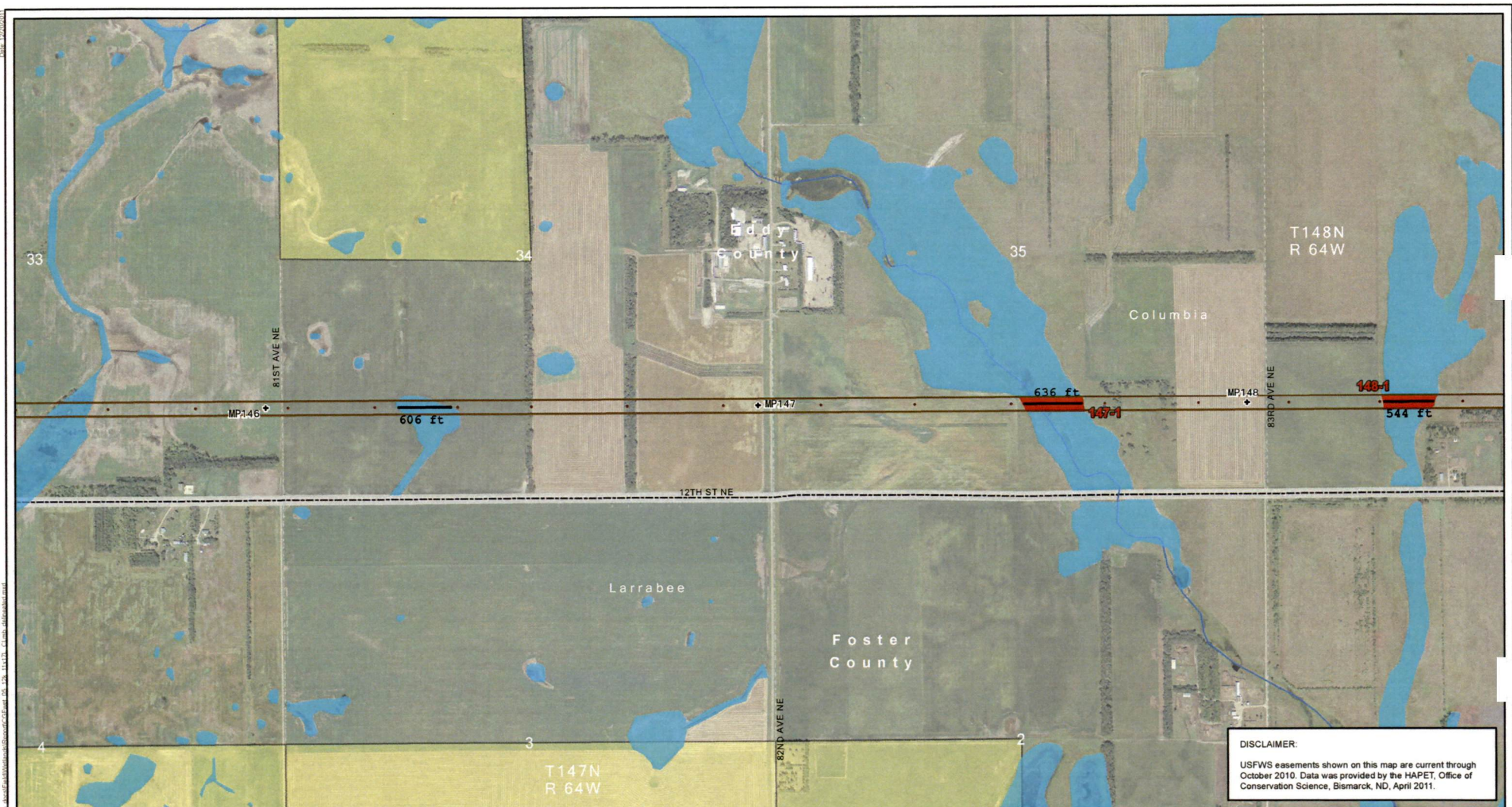


Figure 5.059
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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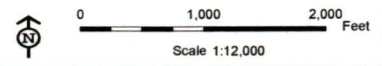
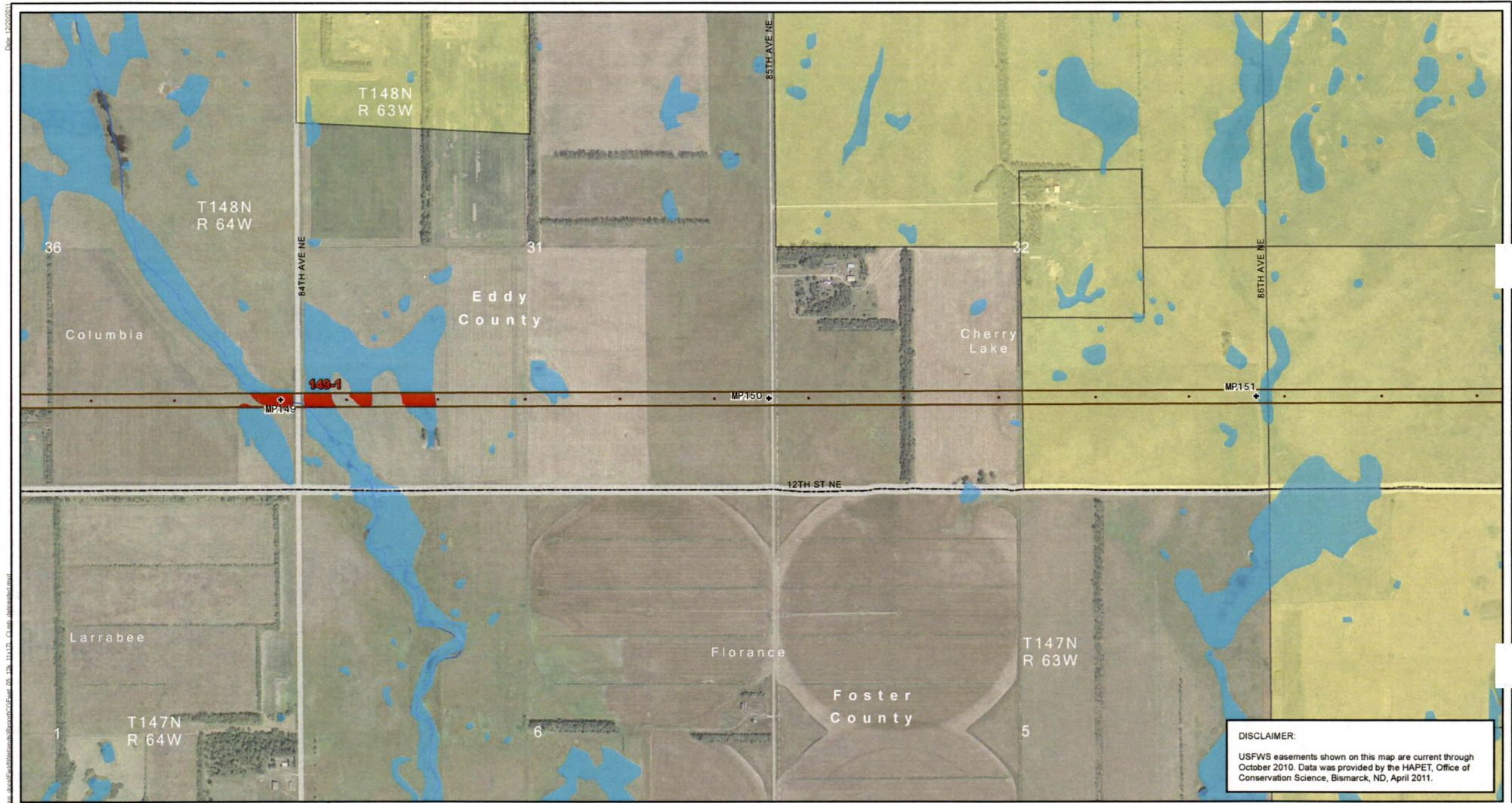


Figure 5.060
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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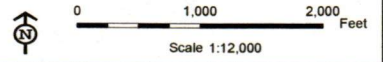
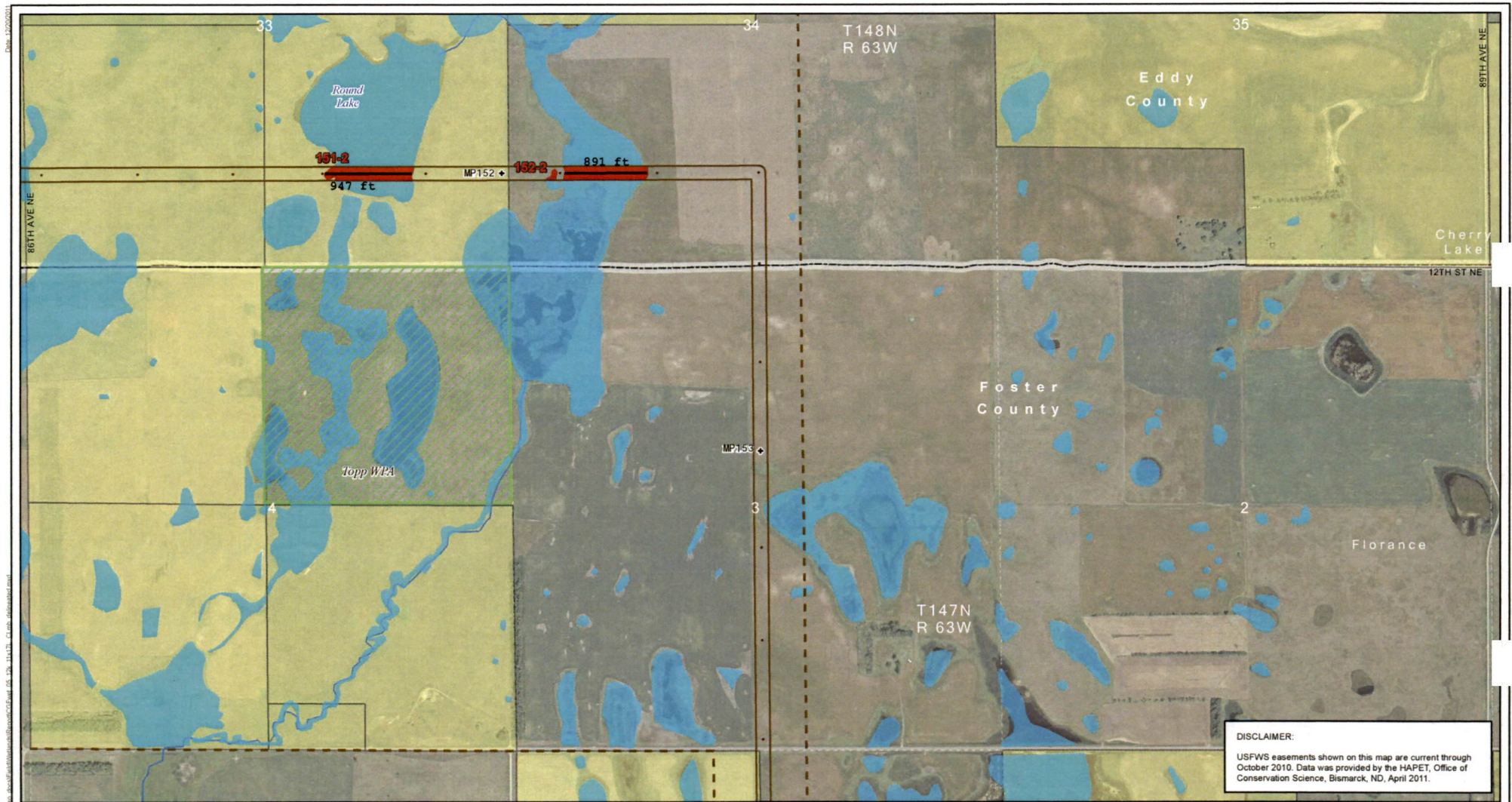


Figure 5.061
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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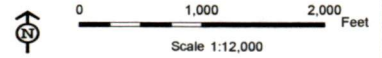
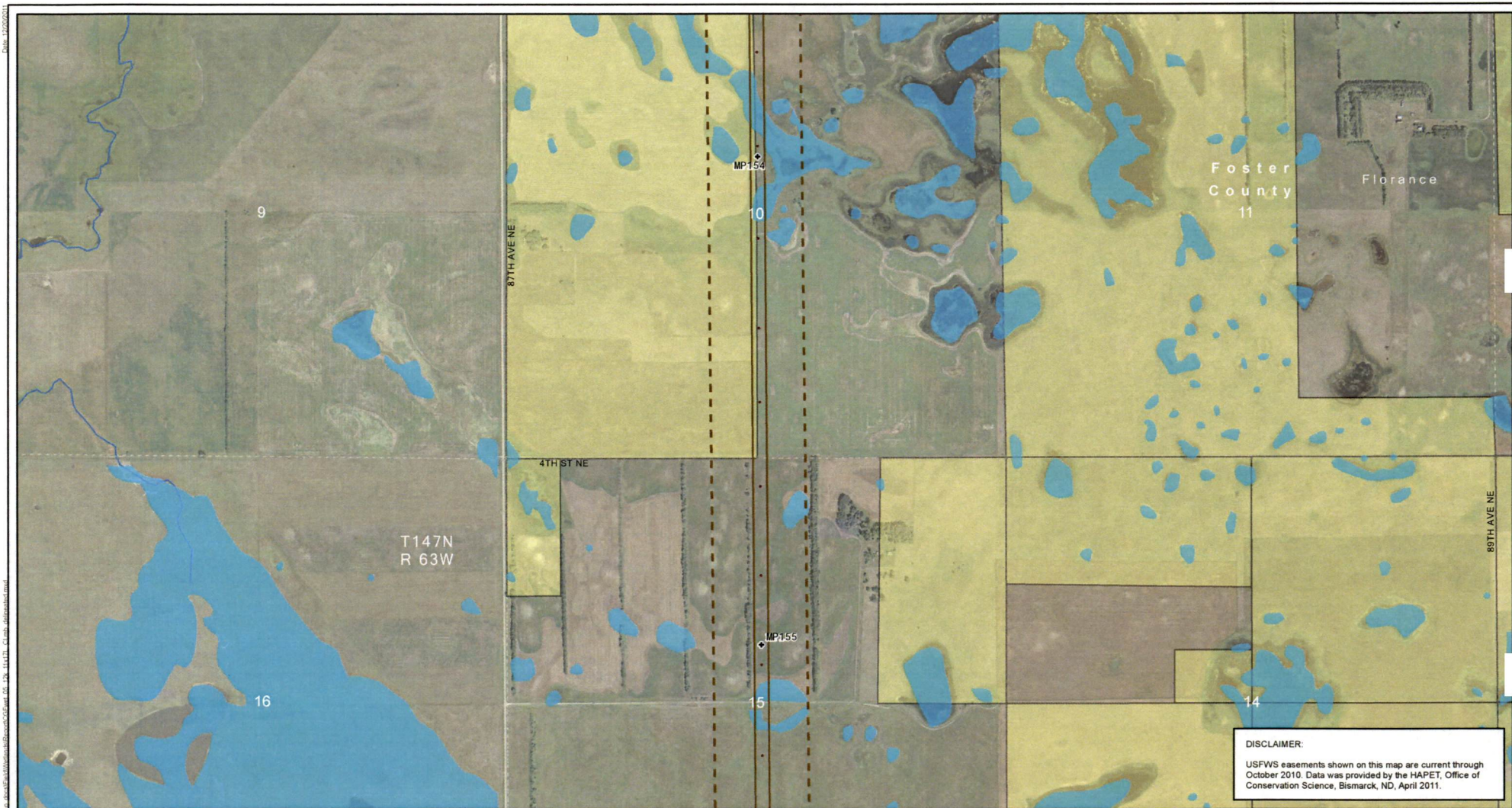


Figure 5.062
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Laydown Area | Permanent Wetland Impacts | | |

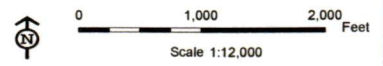
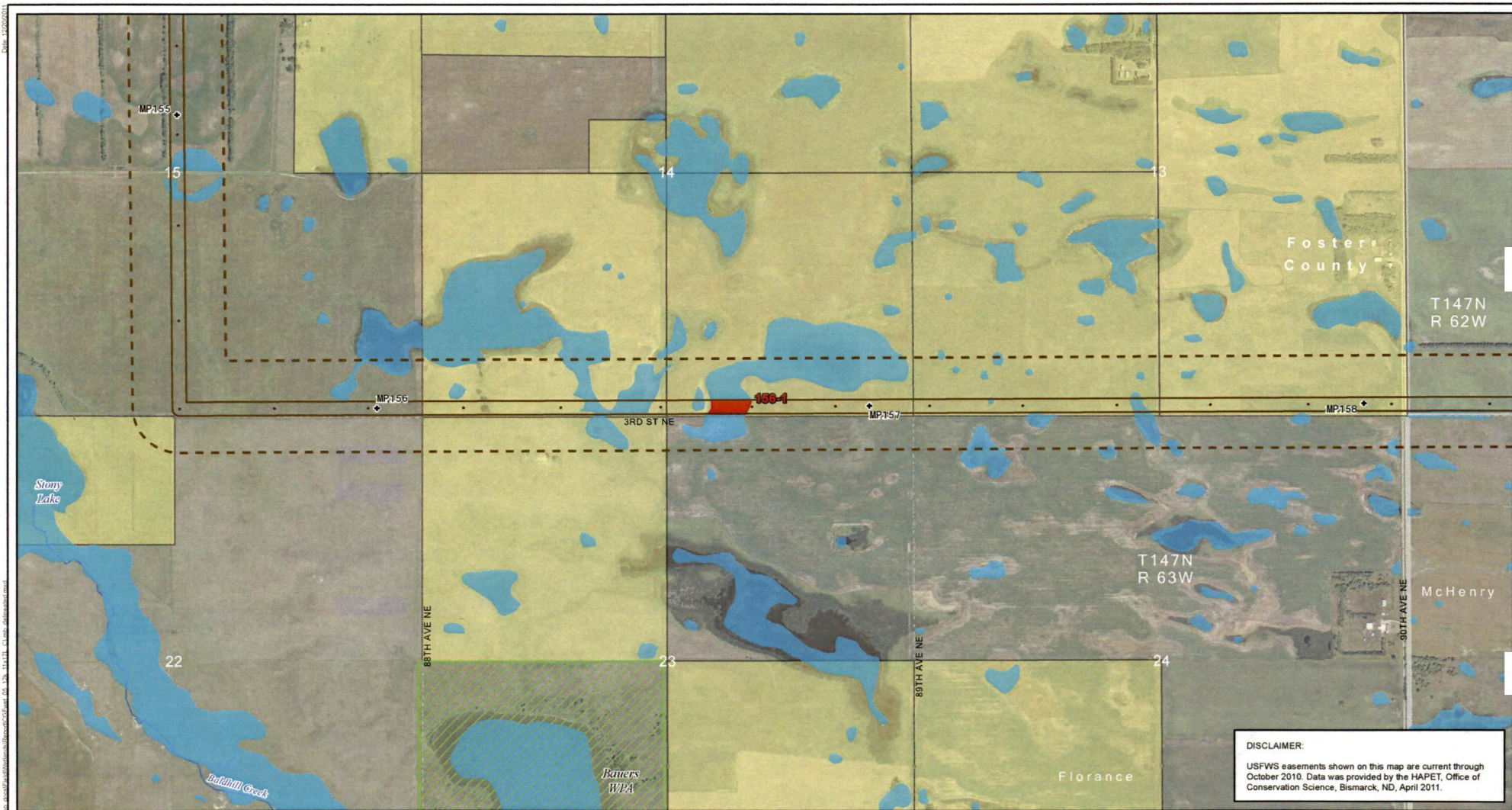


Figure 5.063
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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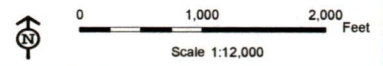
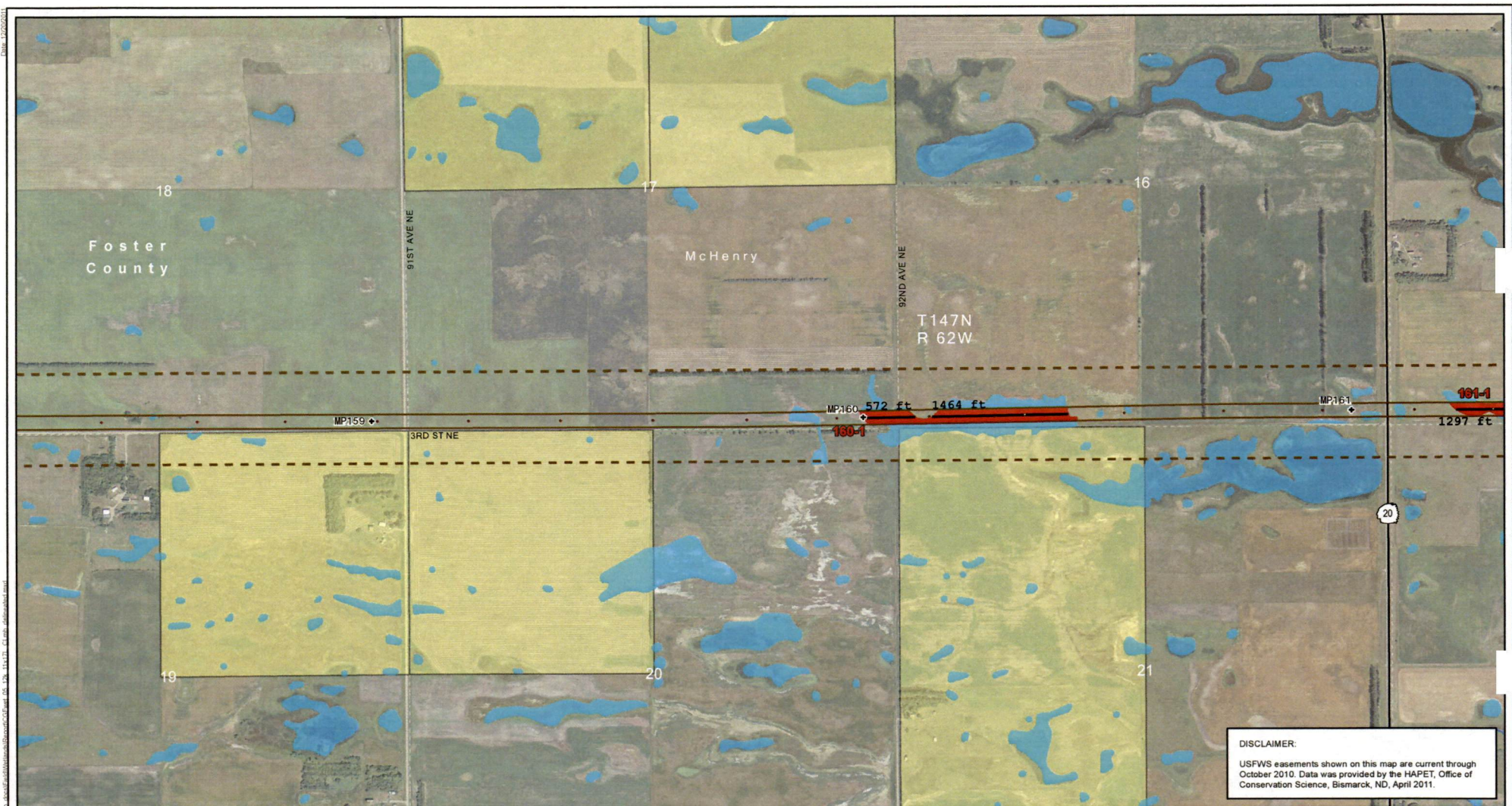


Figure 5.064
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

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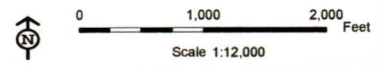
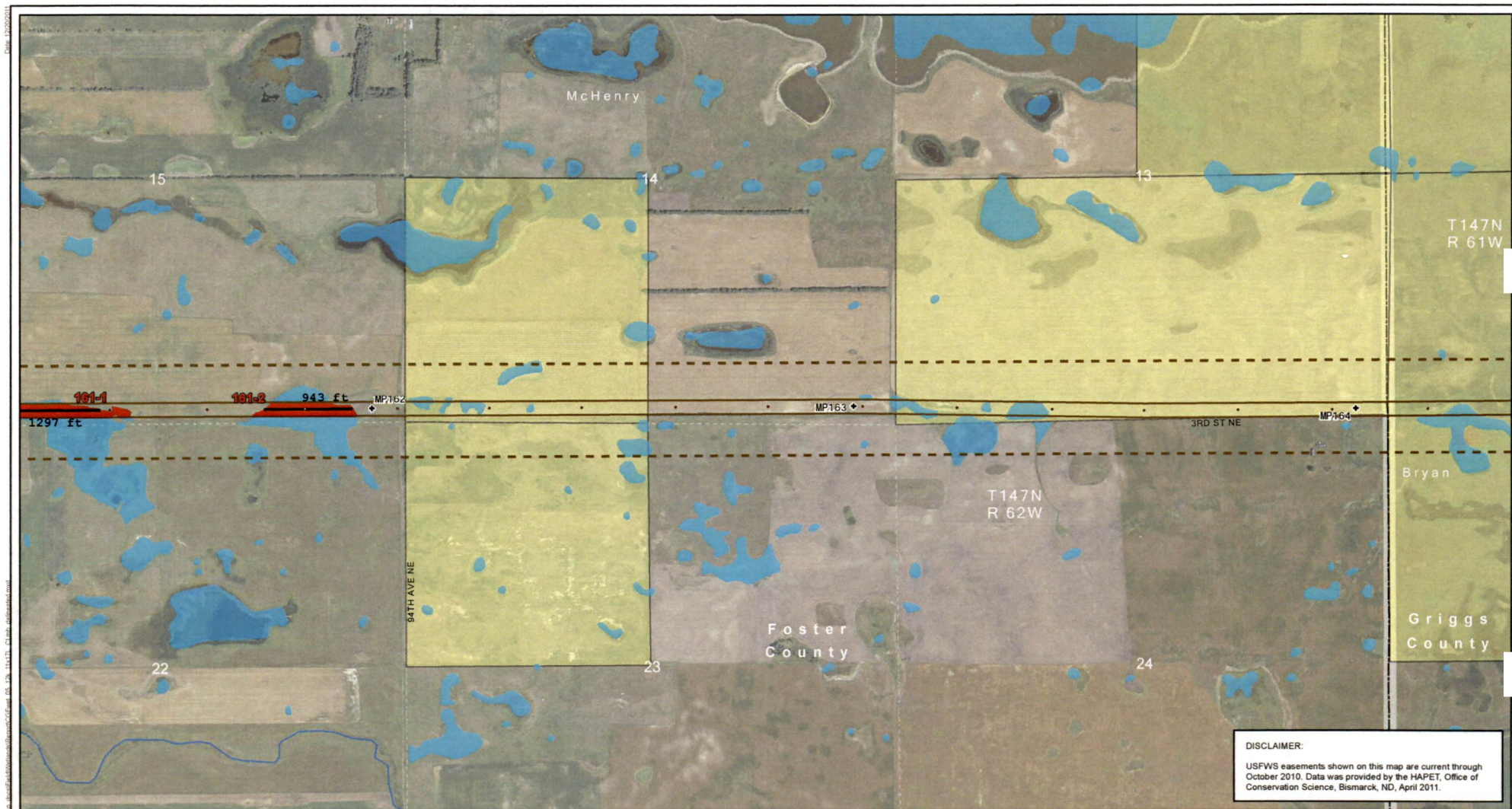


Figure 5.065
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

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- Field Survey Incomplete
- Project Corridor - November 18, 2011
- Project ROW - November 11, 2011
- Project Structure - November 11, 2011
- Laydown Area
- Wetland
- Delineated Wetland Basin
- Forested Wetland Basin
- Wetland Crossing > 500 feet
- Permanent Wetland Impacts
- USGS Mapped Waterway
- USFWS Wetland Easement
- USFWS Grassland Easement
- State Park, Recreation Area or WMA
- USFWS WPA or WDA
- US Bureau of Reclamation Land
- Reference Milepost

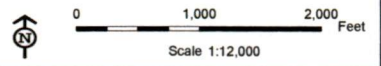
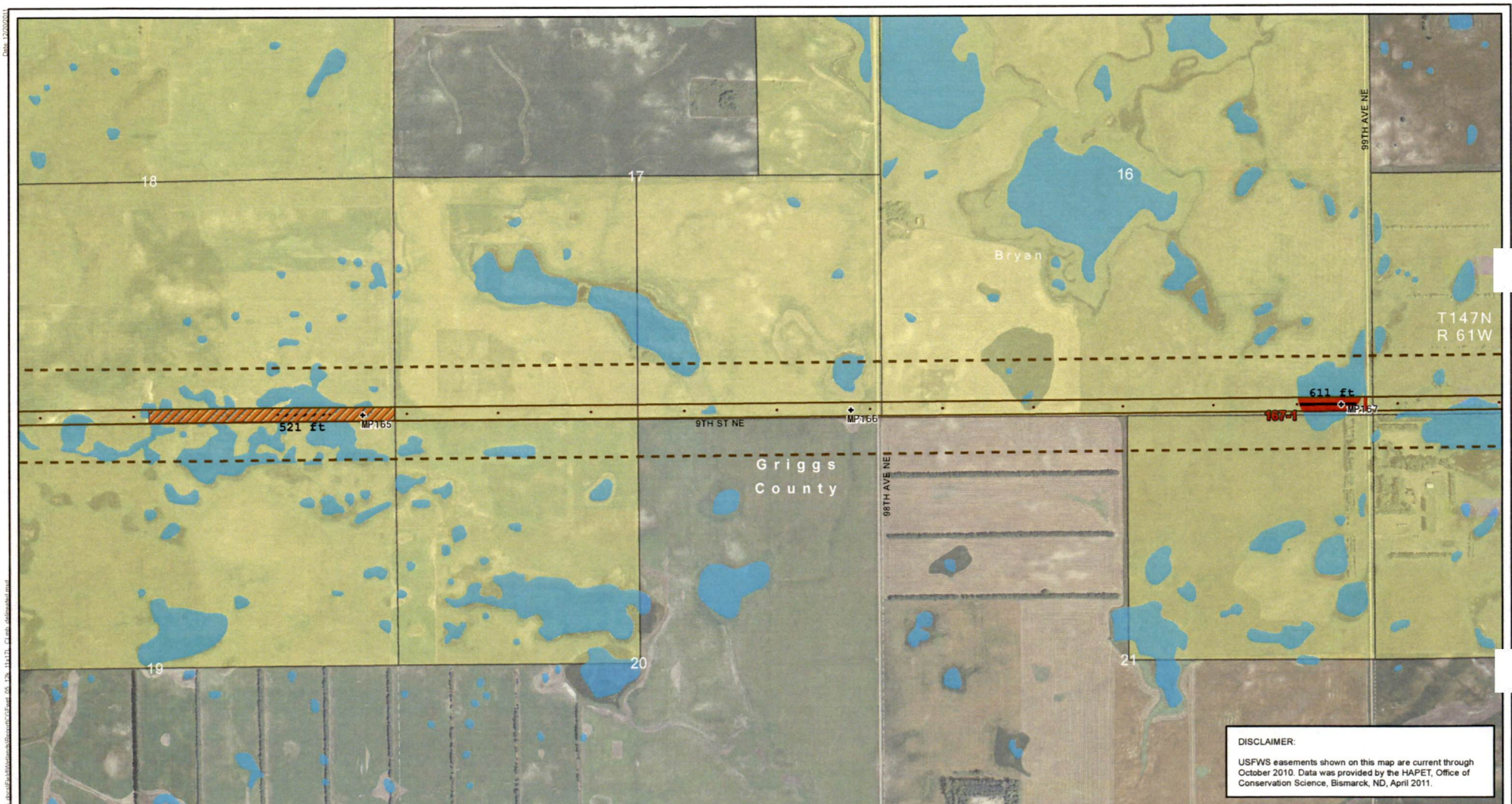


Figure 5.066
Detailed Wetland Delineation
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

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| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

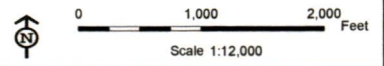
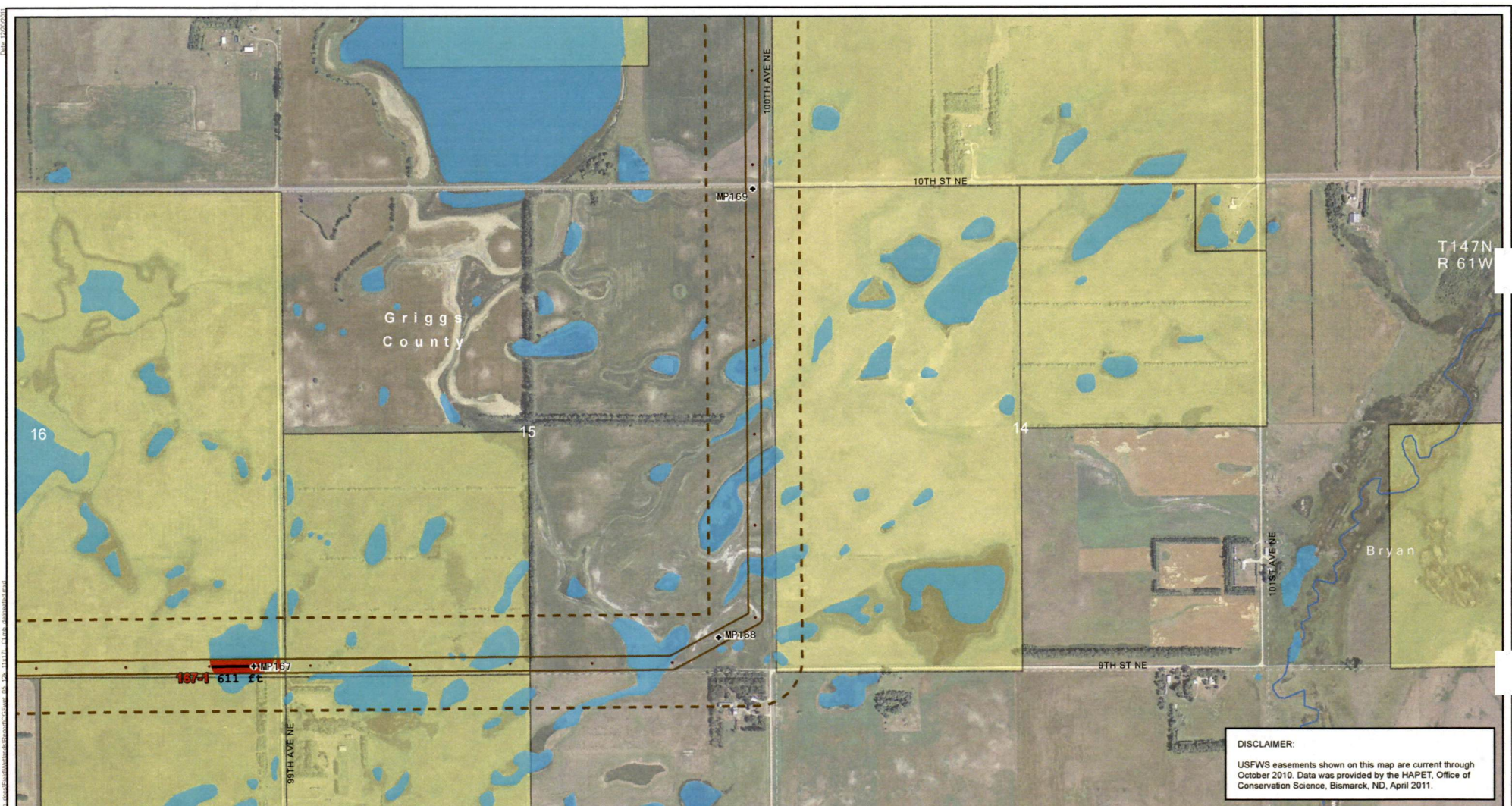


Figure 5.067
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

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| Laydown Area | Permanent Wetland Impacts | | |

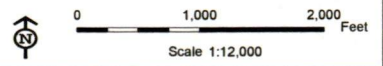
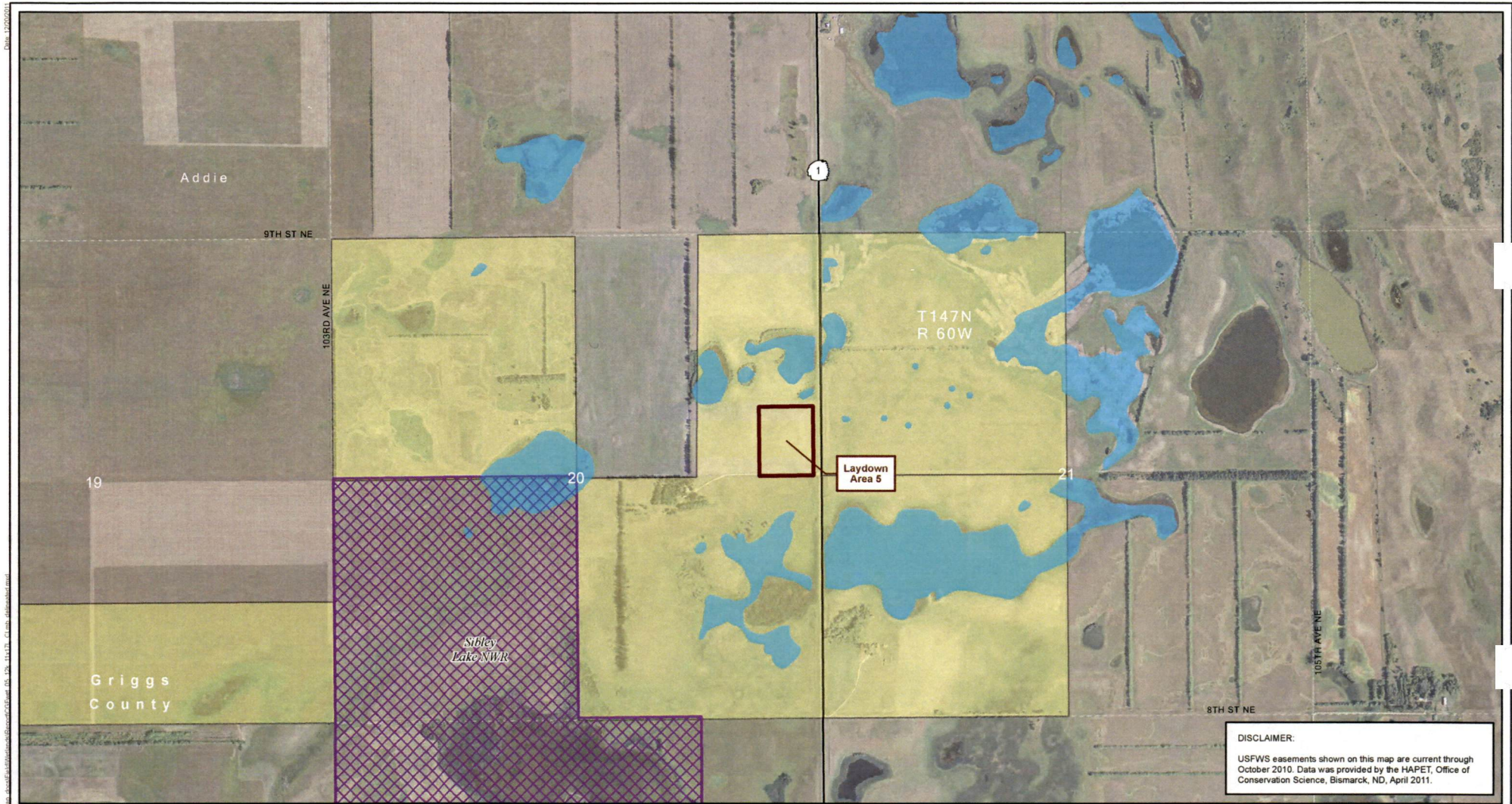


Figure 5.068
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
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| Field Survey Incomplete | Reference Milepost | USGS Mapped Waterway | State Park, Recreation Area or WMA |
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| Project ROW - November 11, 2011 | Delineated Wetland Basin | USFWS Grassland Easement | US Bureau of Reclamation Land |
| Project Structure - November 11, 2011 | Forested Wetland Basin | Permanent Wetland Impacts | |
| Laydown Area | Wetland Crossing > 500 feet | | |

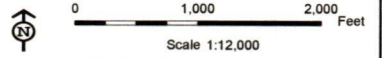
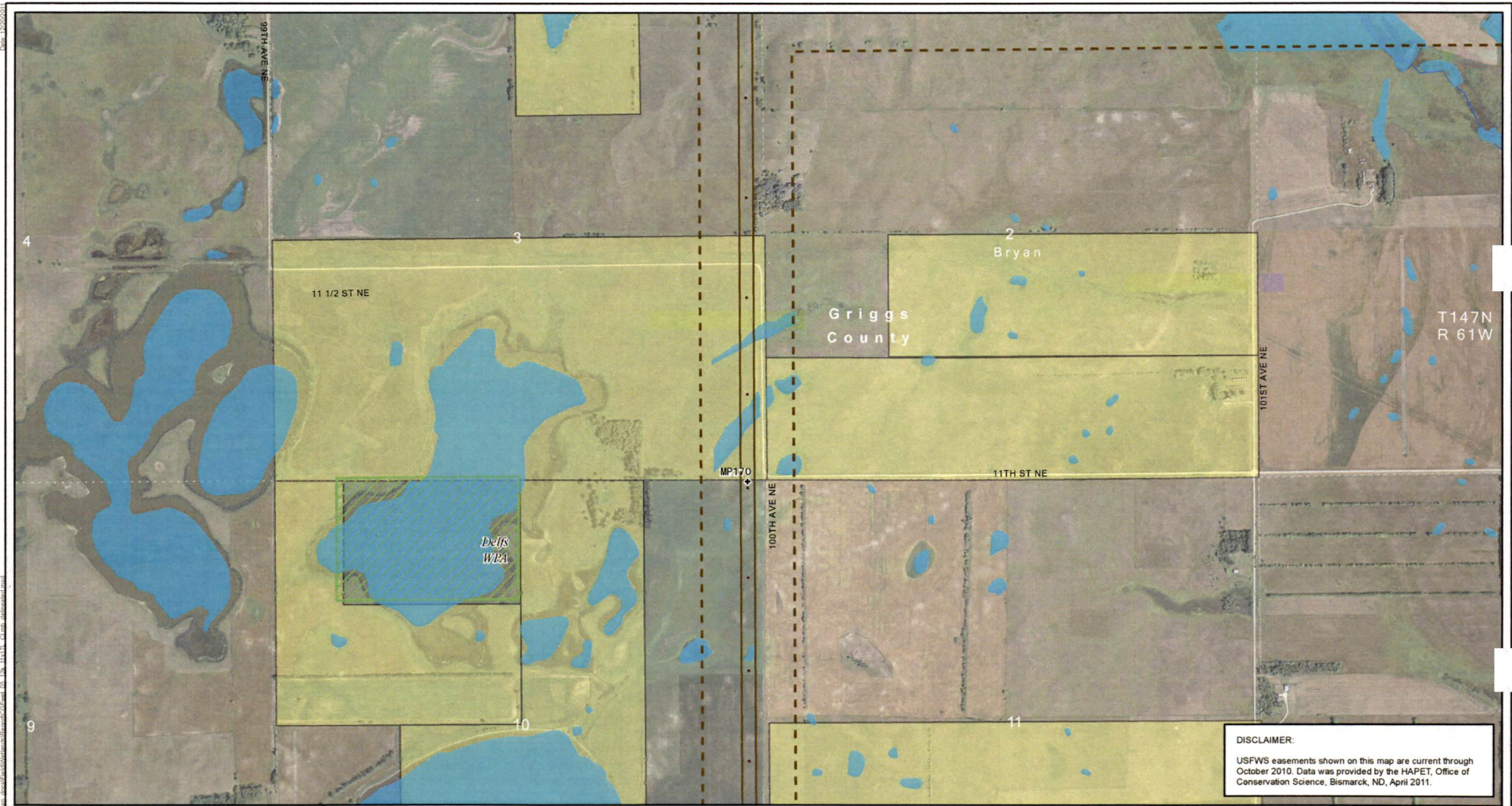


Figure 5.069
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Project Structure - November 11, 2011 | Forested Wetland Basin | Wetland Crossing > 500 feet | |
| Laydown Area | Permanent Wetland Impacts | | |

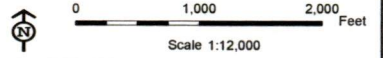
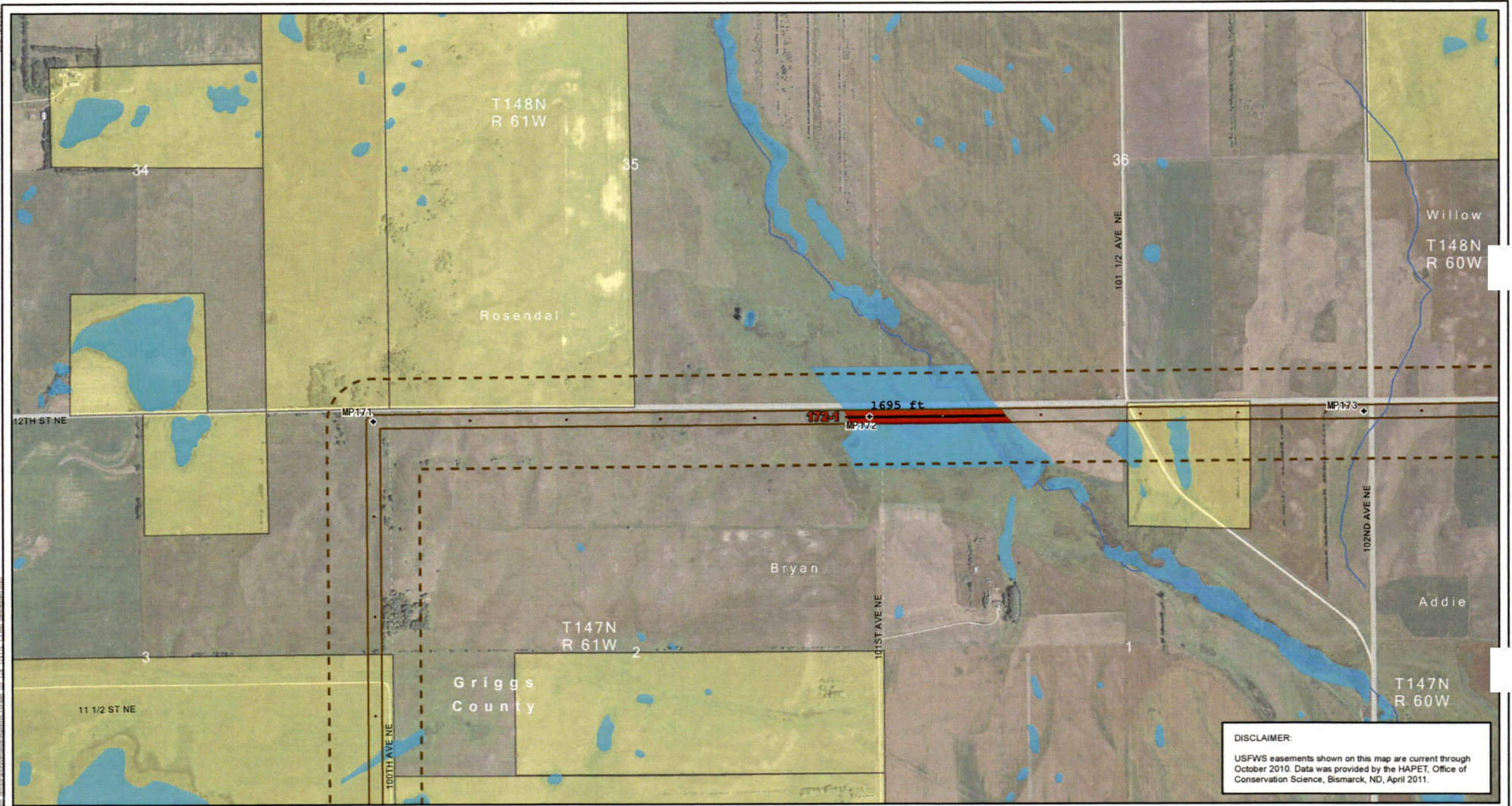


Figure 5.070
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Project Structure - November 11, 2011 | Forested Wetland Basin | Permanent Wetland Impacts | |
| Laydown Area | Wetland Crossing > 500 feet | | |

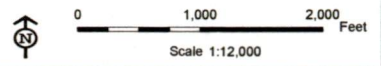
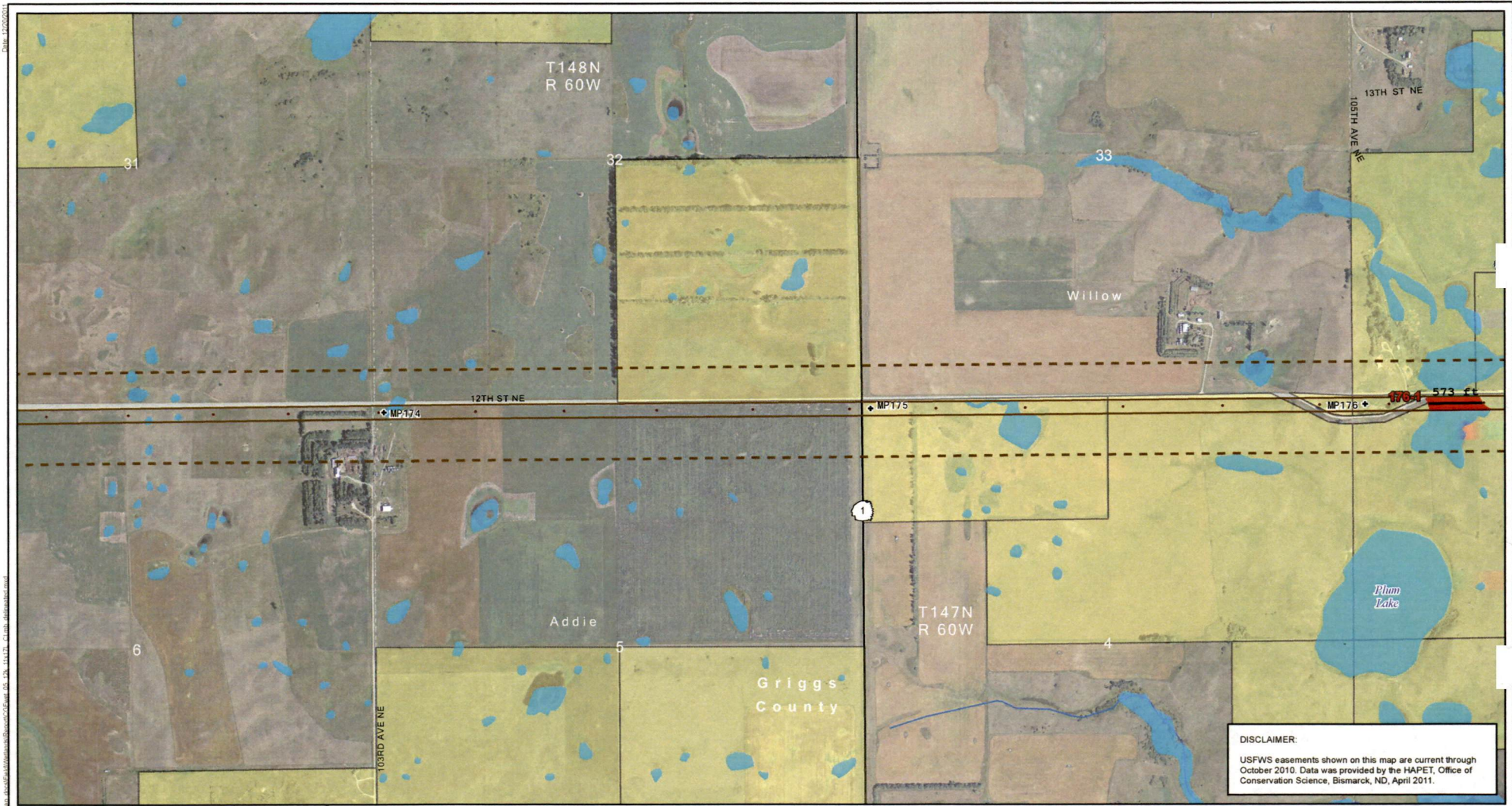


Figure 5.071
Detailed Wetland Delineation
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



DISCLAIMER:
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| Project Structure - November 11, 2011 | Forested Wetland Basin | | |
| Laydown Area | Wetland Crossing > 500 feet | | |
| | Permanent Wetland Impacts | | |

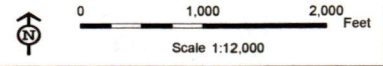
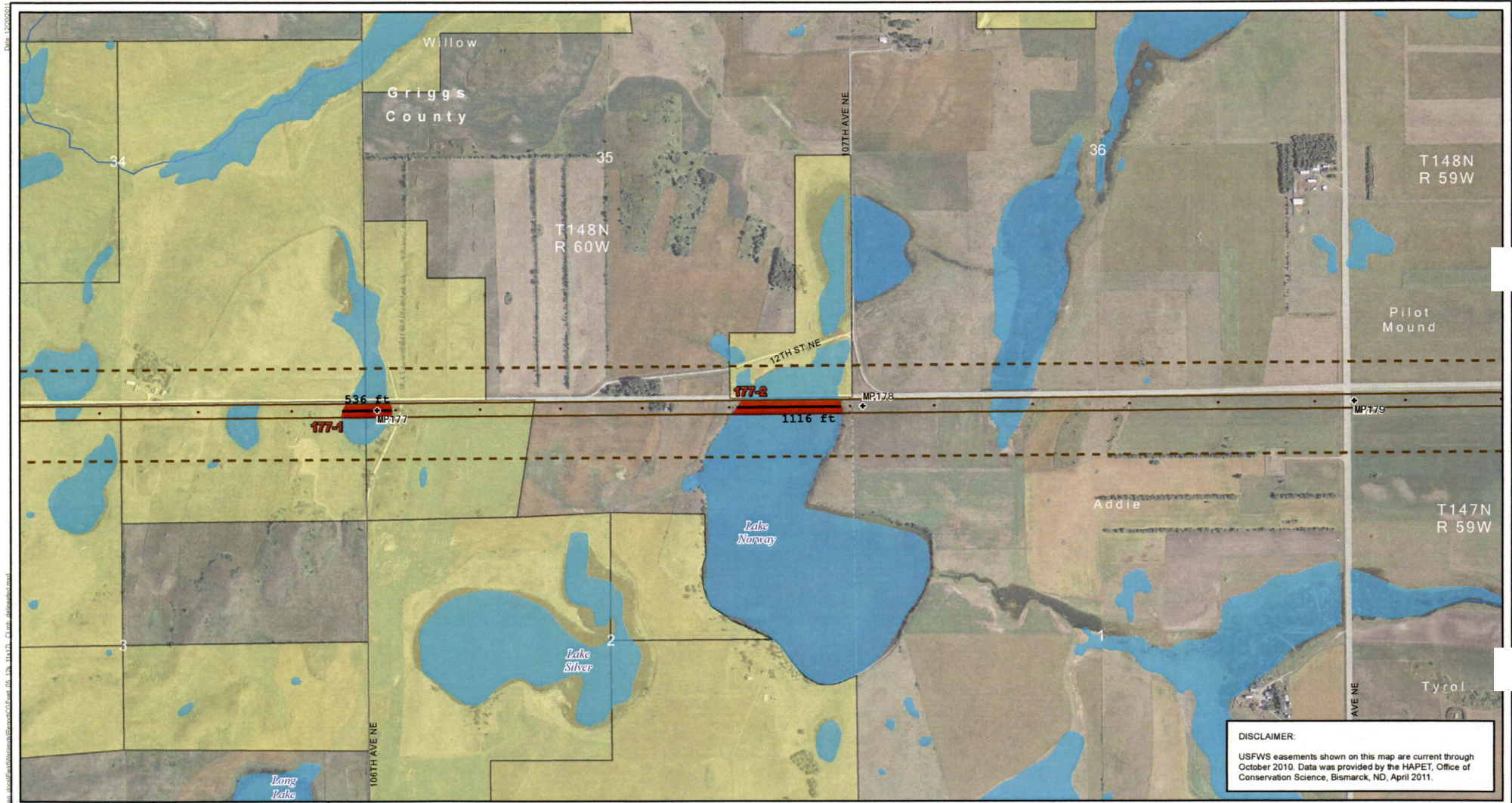


Figure 5.072
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Laydown Area | Permanent Wetland Impacts | | |

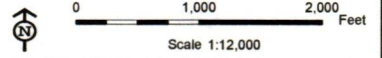
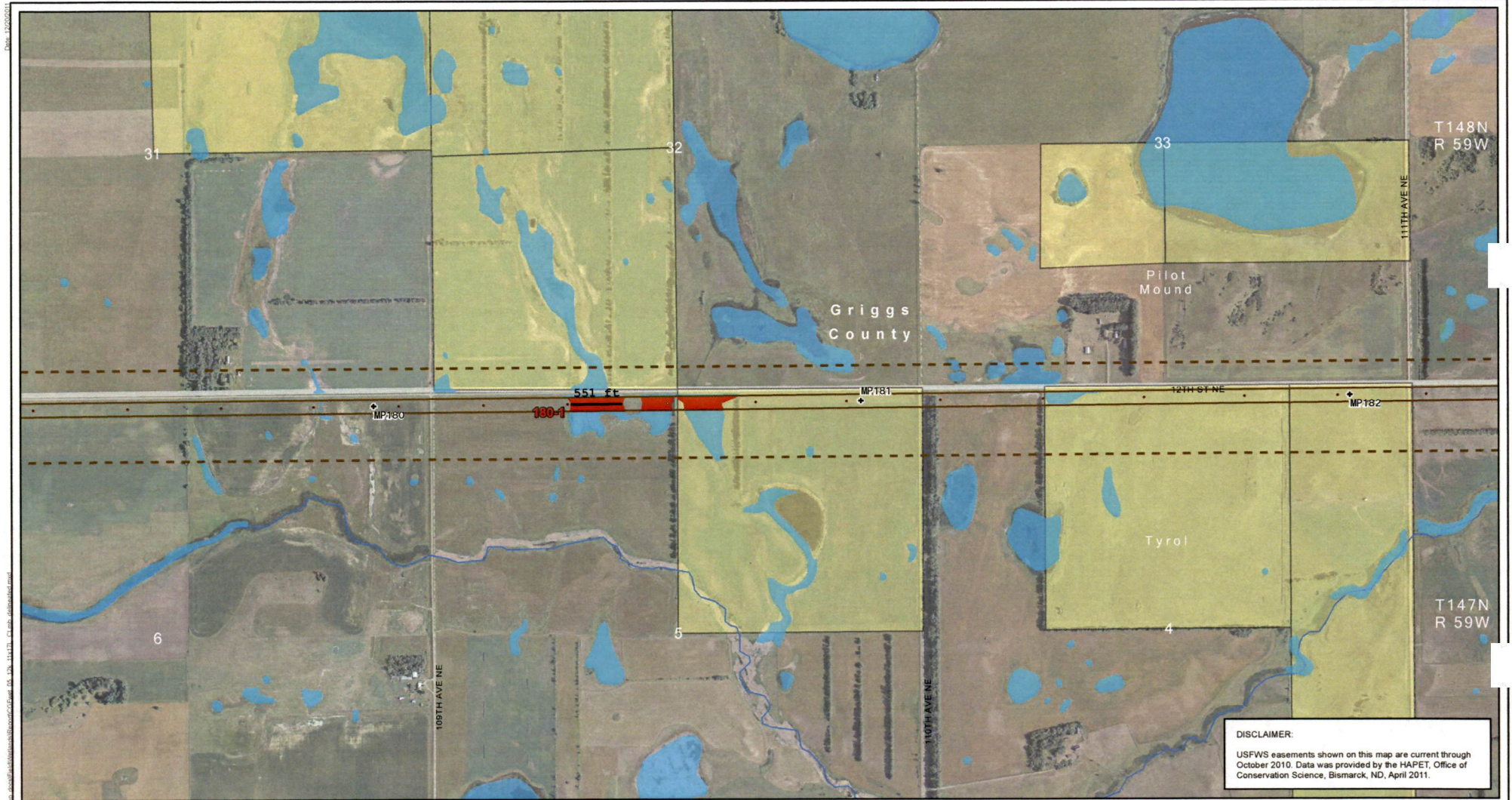


Figure 5.073
Detailed Wetland Delineation
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Laydown Area | Permanent Wetland Impacts | | |

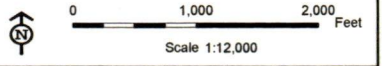
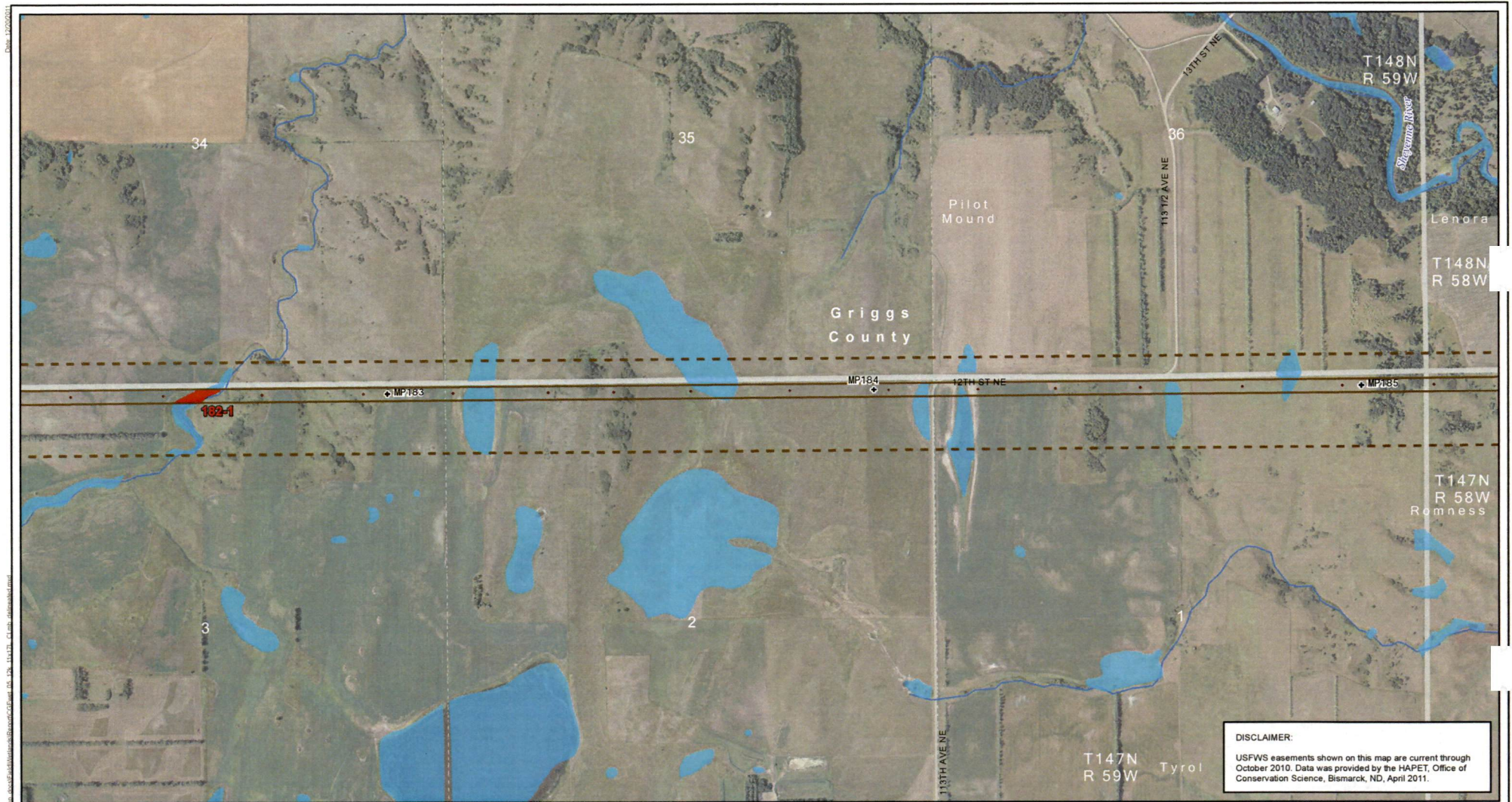


Figure 5.074
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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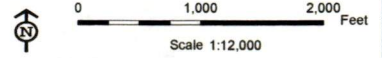
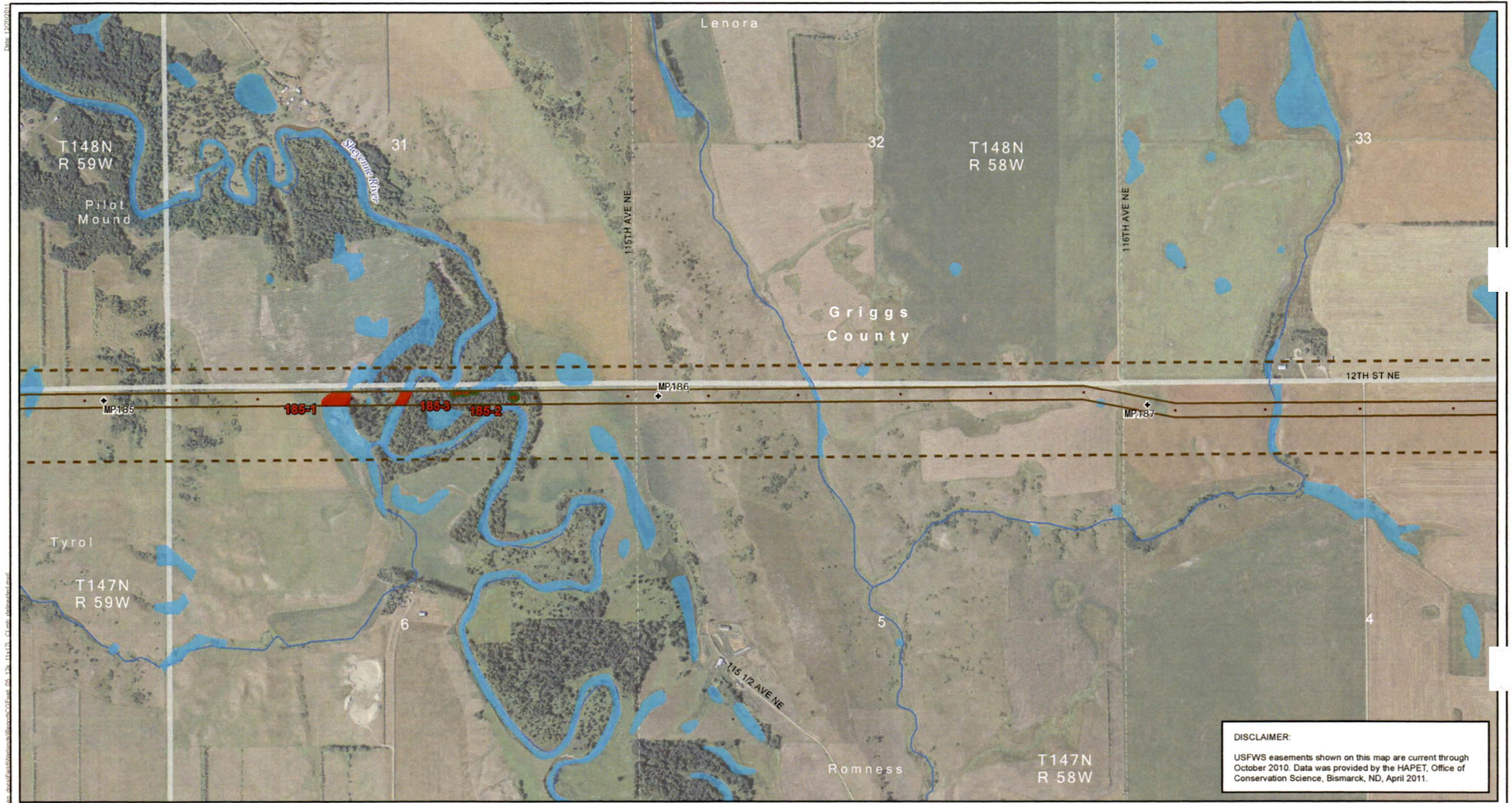


Figure 5.075
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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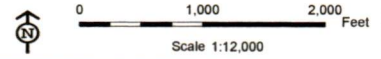
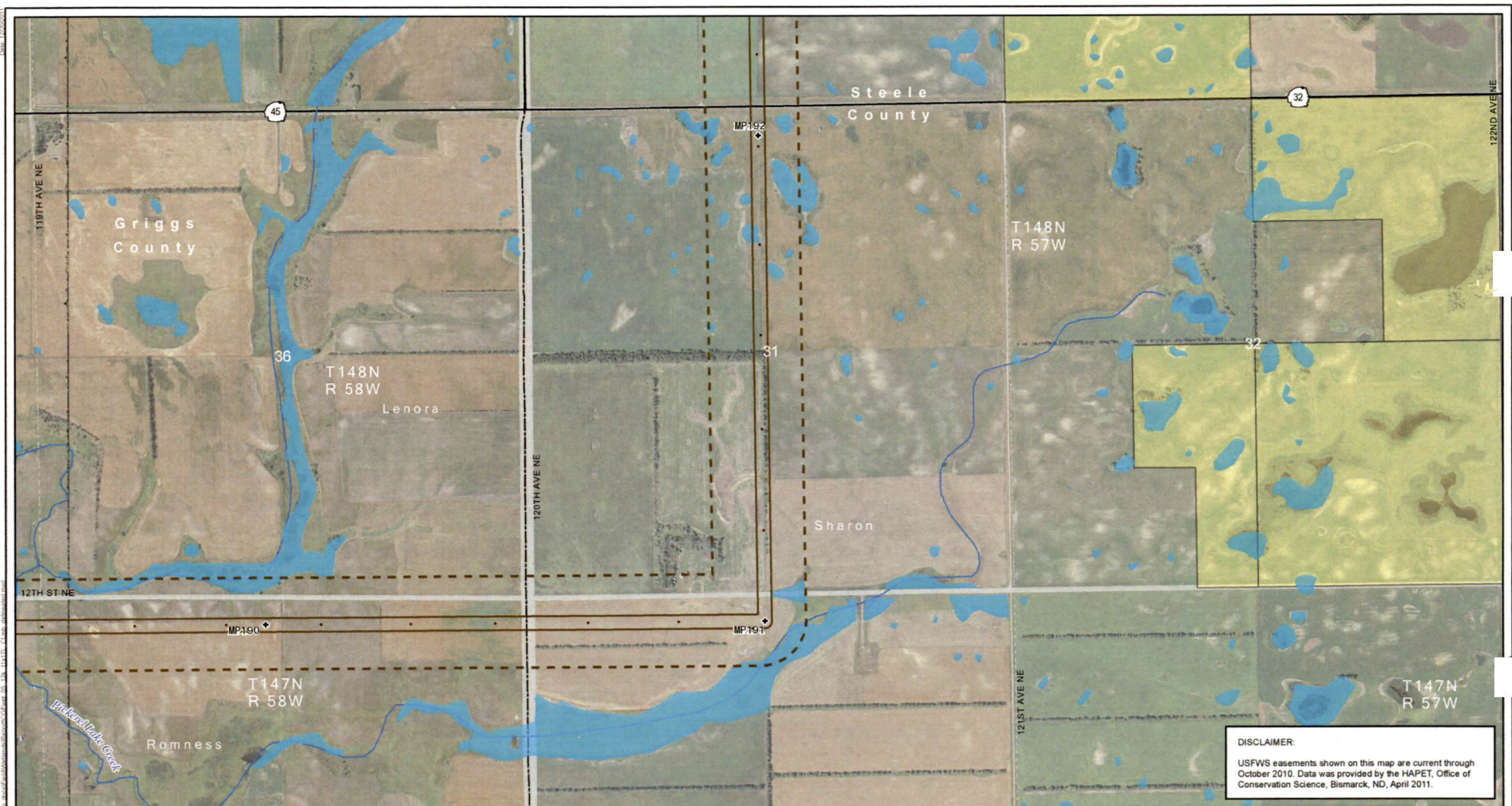


Figure 5.076
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Laydown Area | Permanent Wetland Impacts | | |

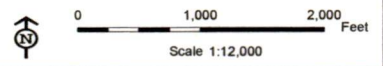
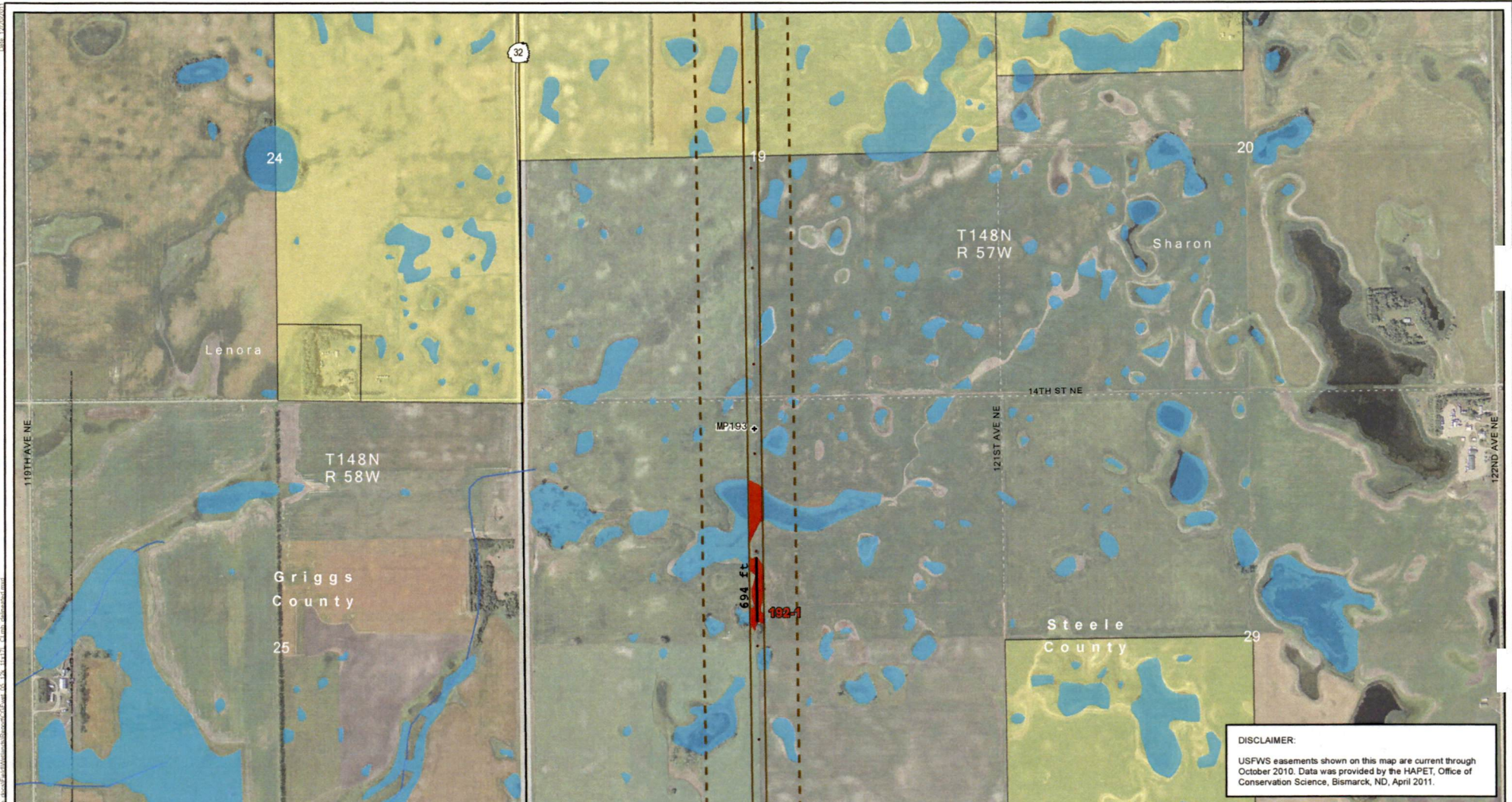


Figure 5.078
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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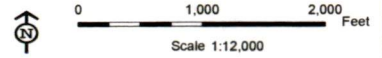
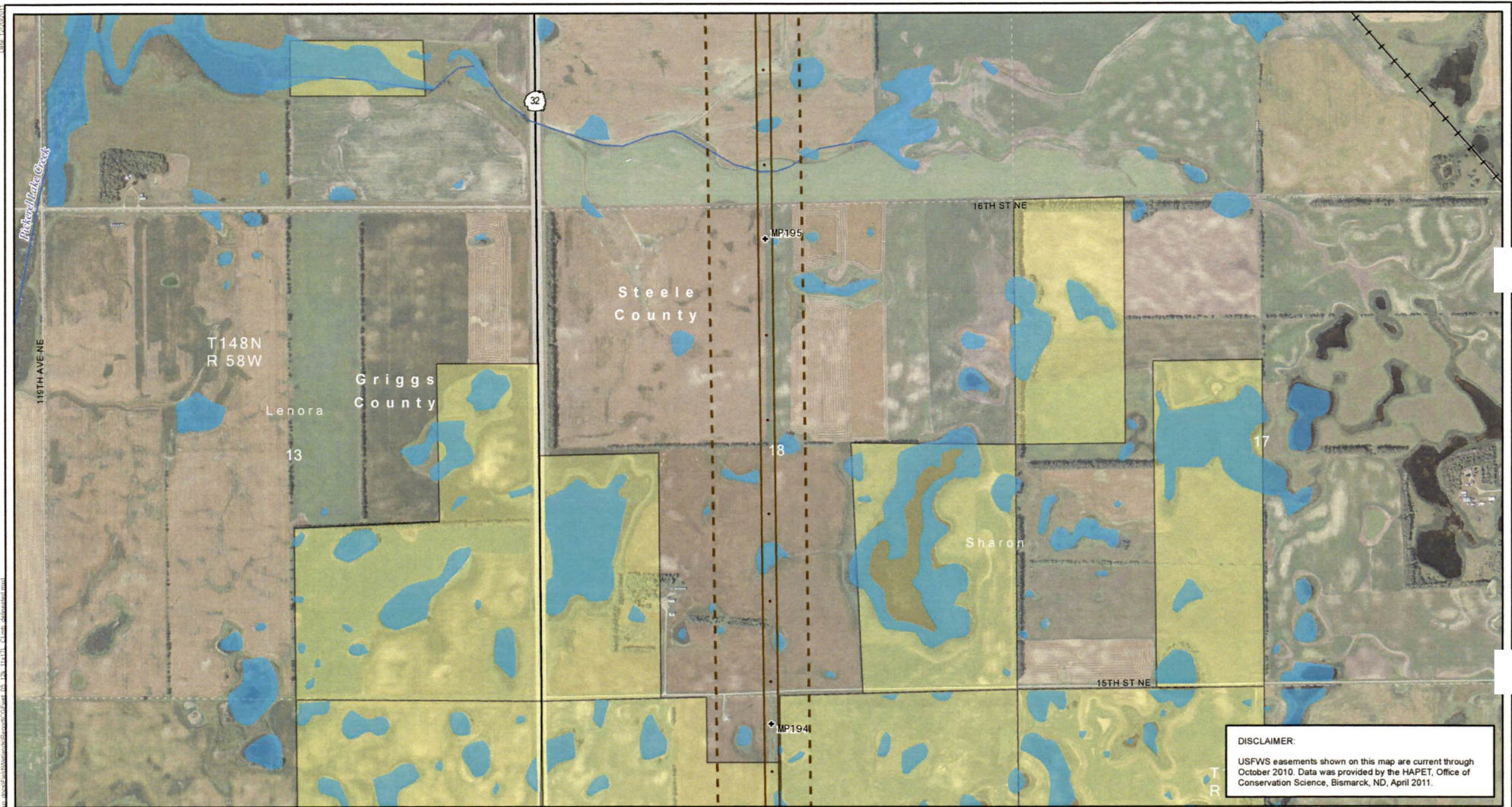


Figure 5.079
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Laydown Area | Permanent Wetland Impacts | | |

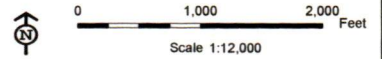
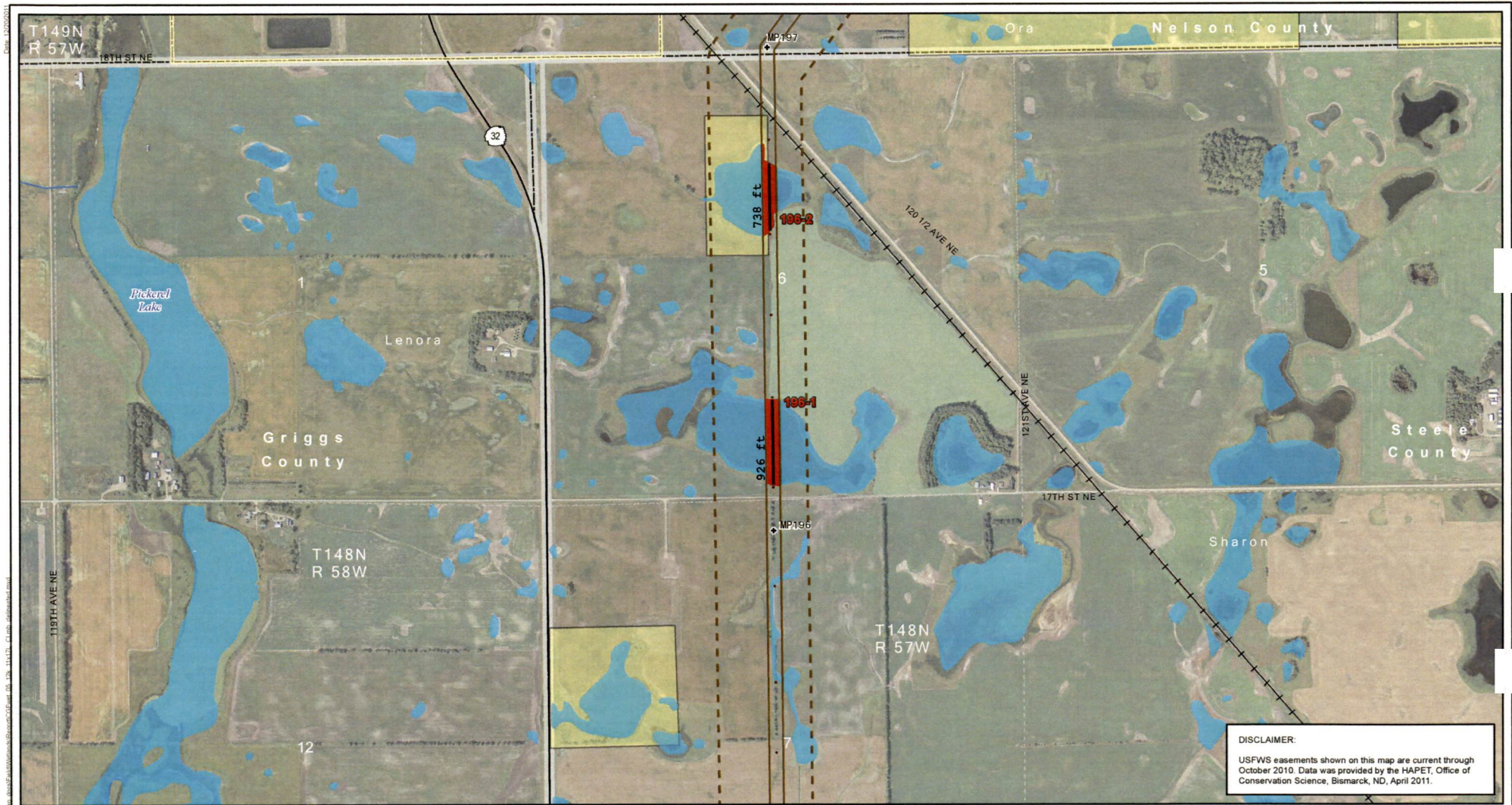


Figure 5.080
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Laydown Area | Permanent Wetland Impacts | | |

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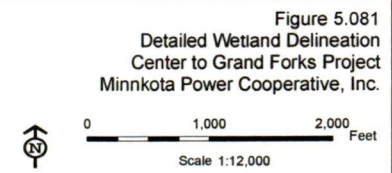
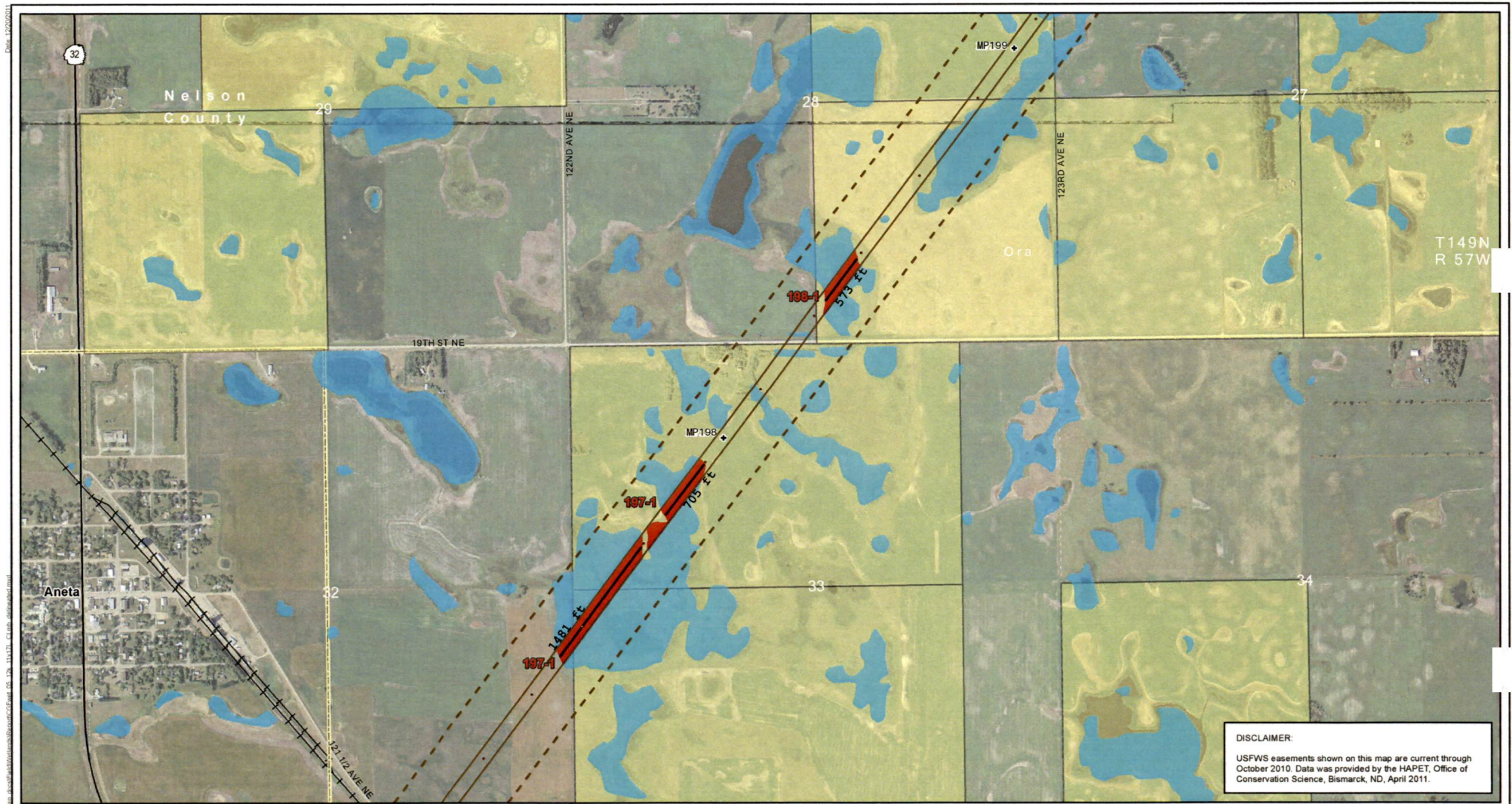


Figure 5.081
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Laydown Area | Permanent Wetland Impacts | | |

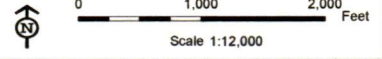
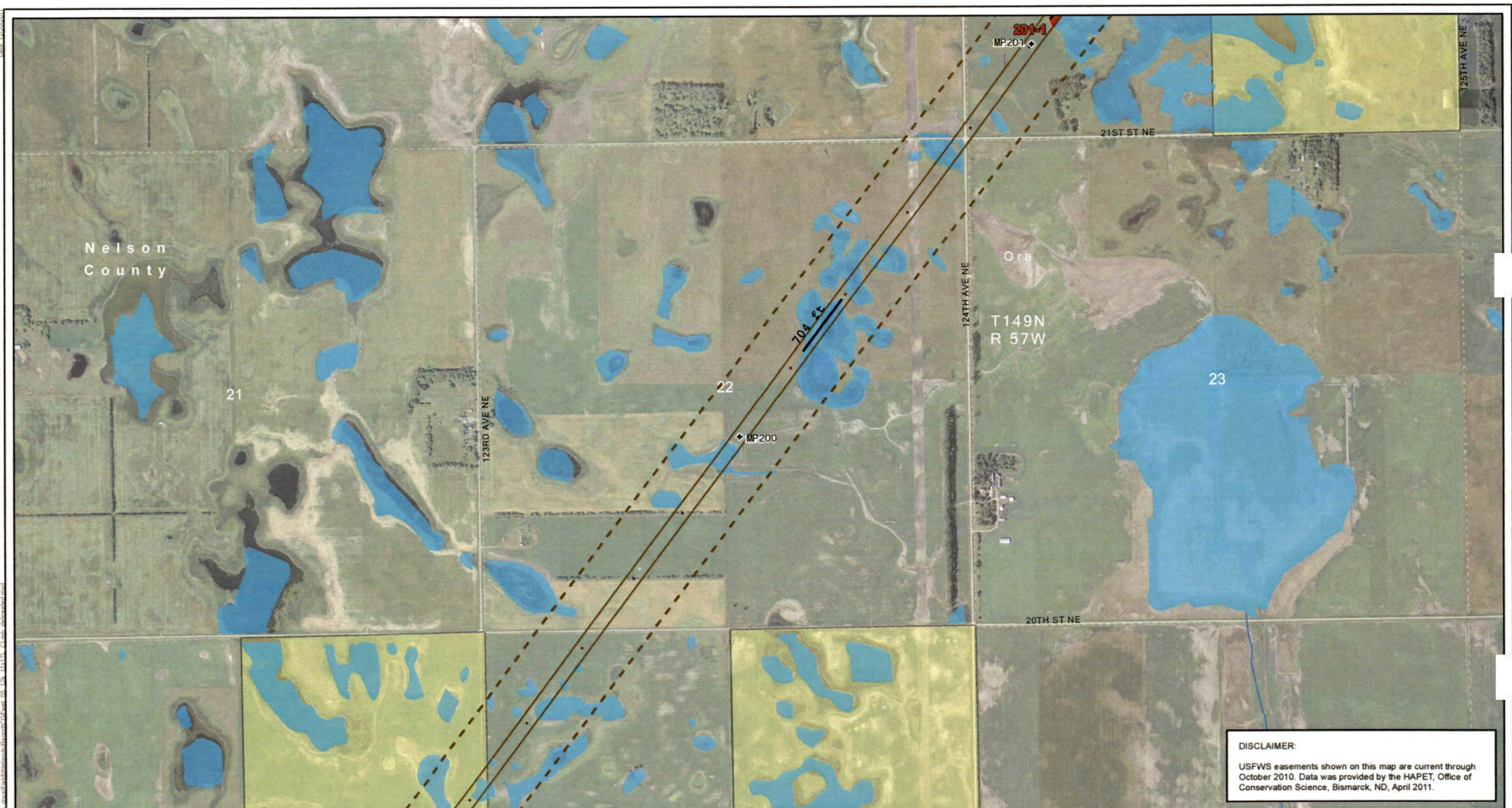


Figure 5.082
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Laydown Area | Permanent Wetland Impacts | | |

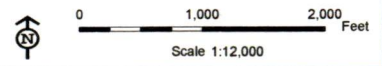
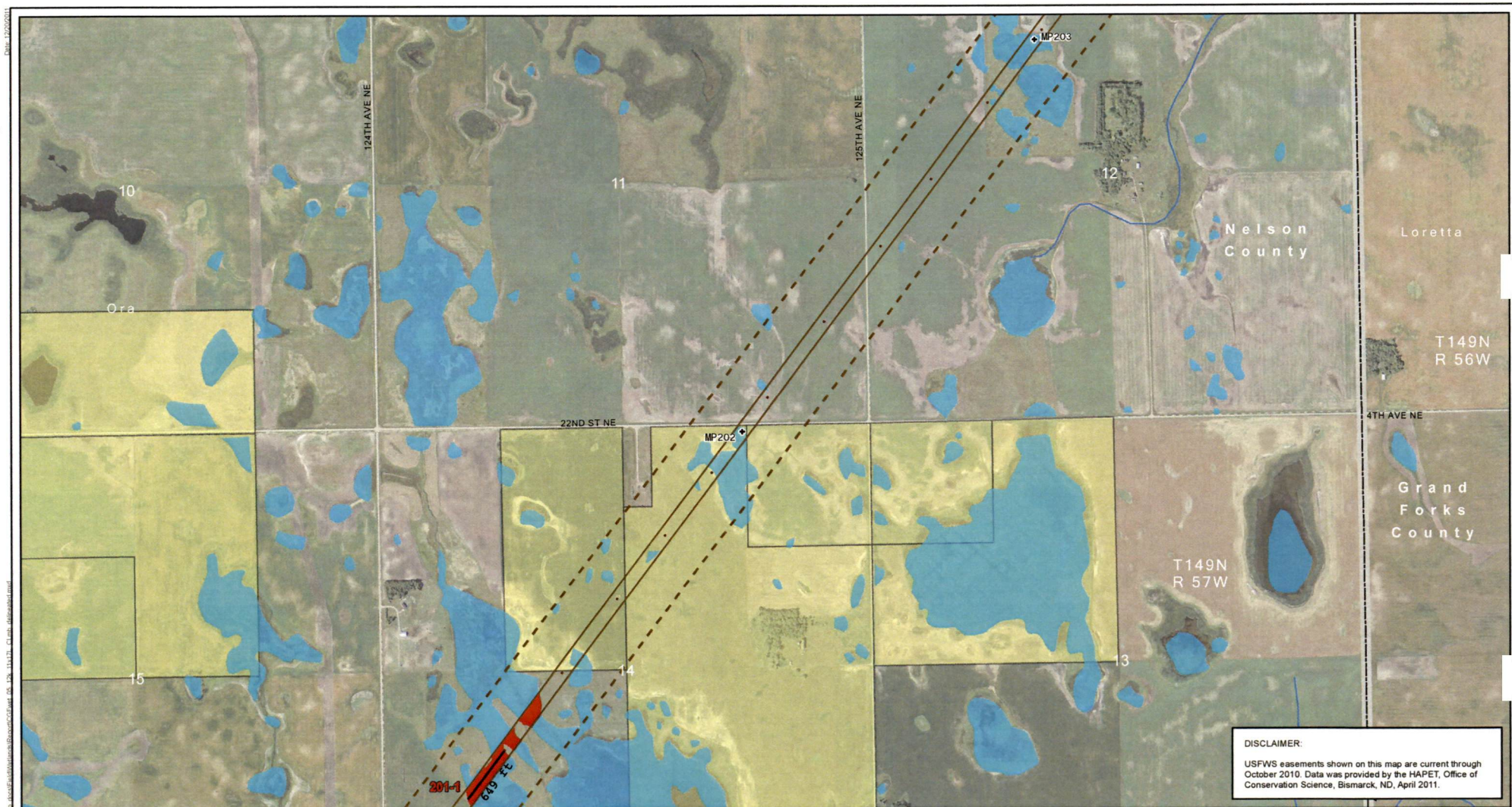


Figure 5.083
Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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| Laydown Area | Permanent Wetland Impacts | | |

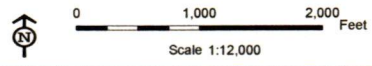
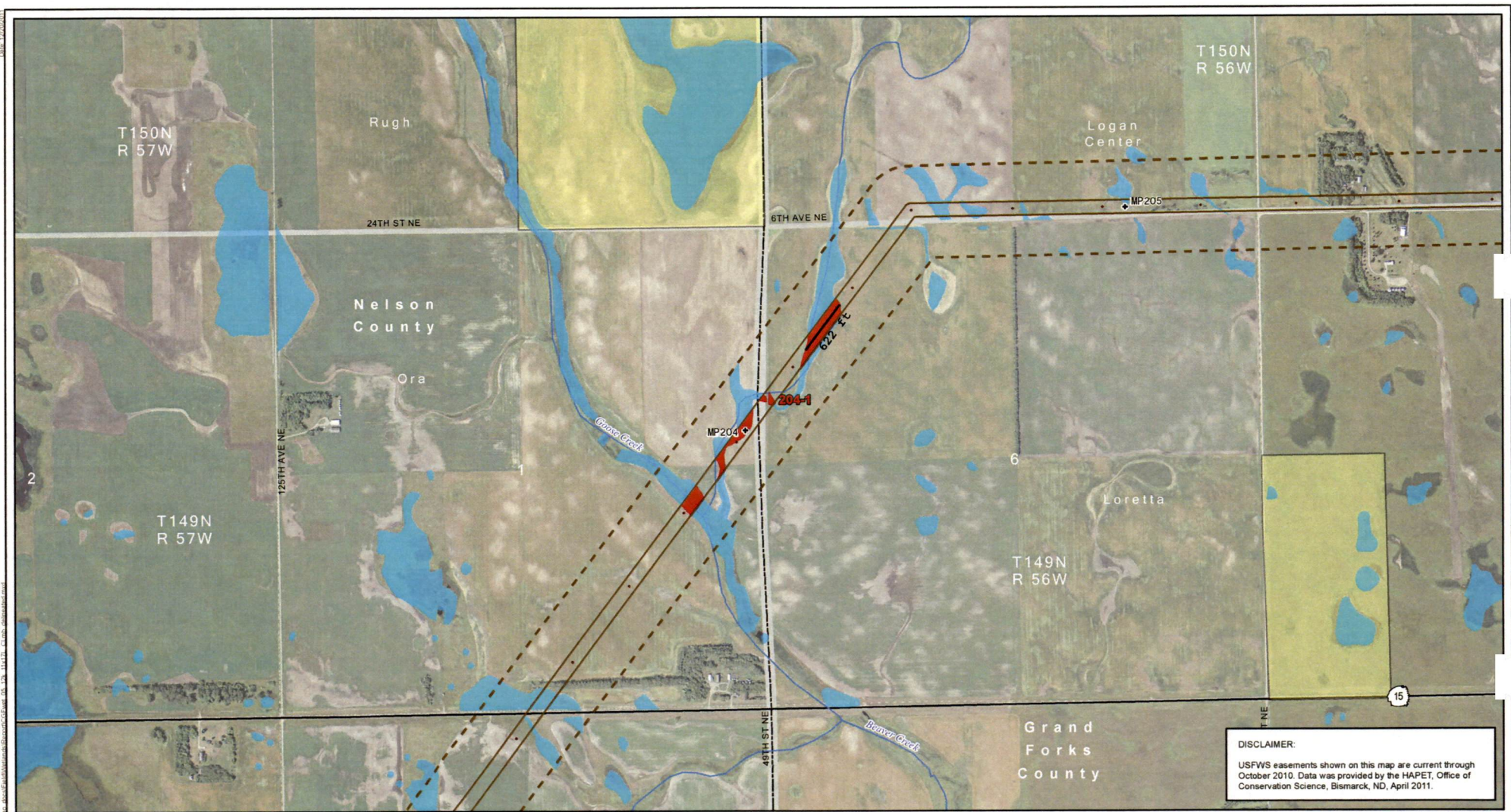


Figure 5.084
Detailed Wetland Delineation
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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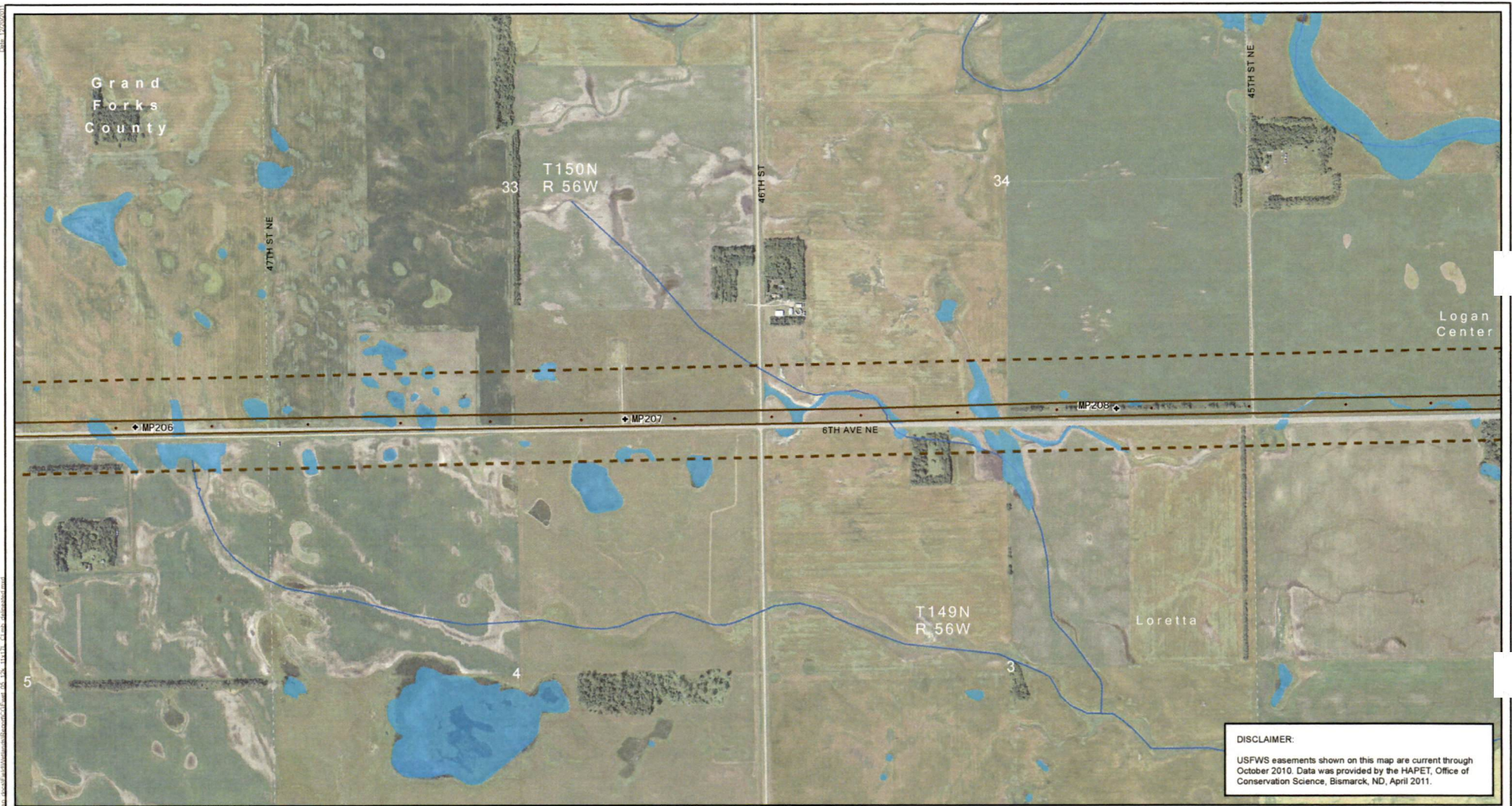


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| Laydown Area | Wetland Crossing > 500 feet | | |



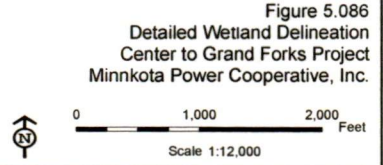
Figure 5.085
Detailed Wetland Delineation
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.

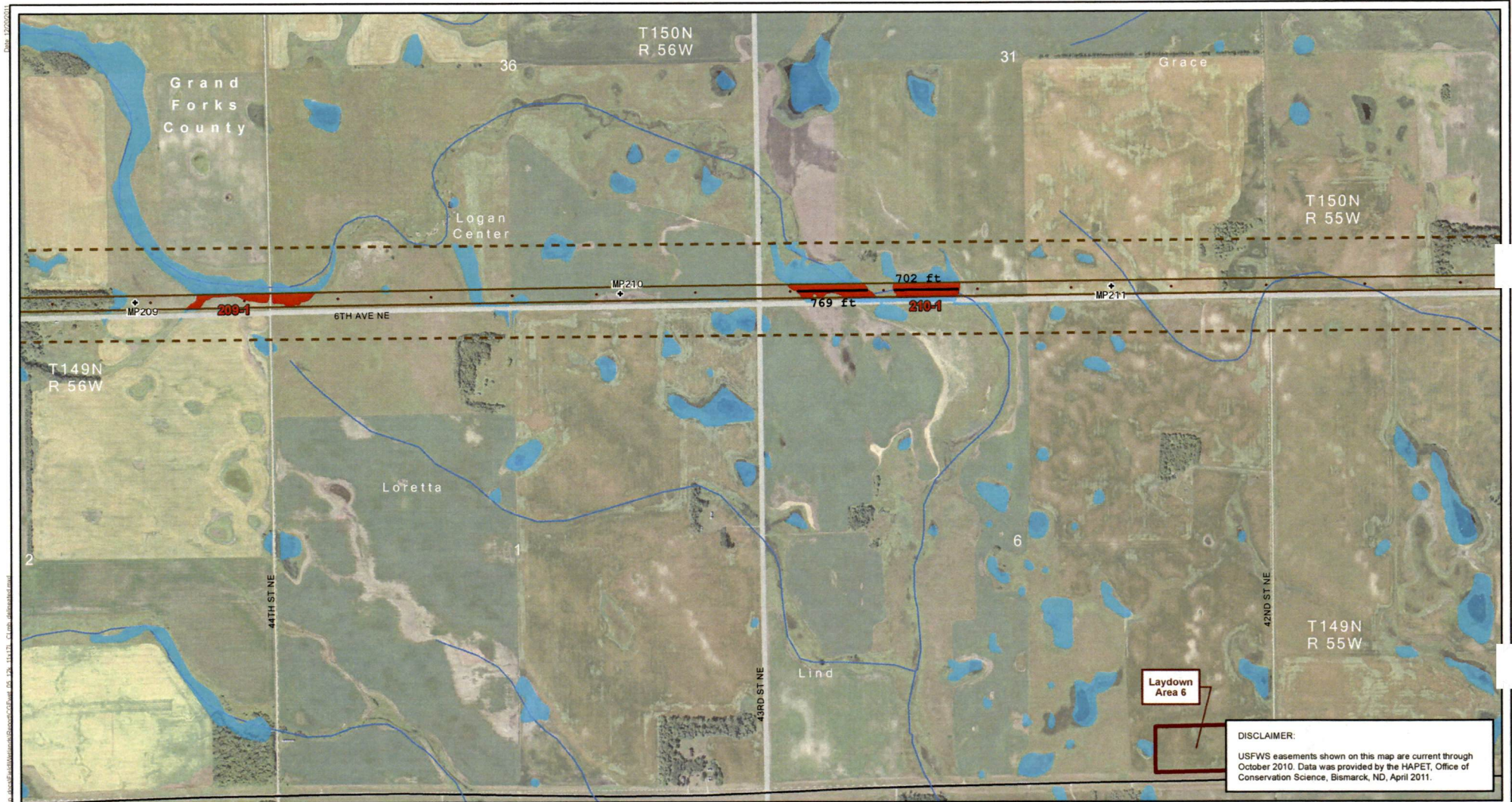


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| Project Structure - November 11, 2011 | Wetland Crossing > 500 feet | | |
| Laydown Area | Permanent Wetland Impacts | | |

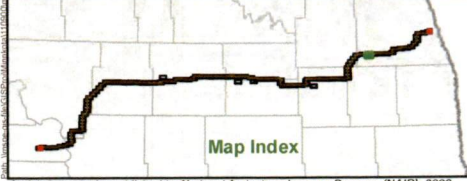
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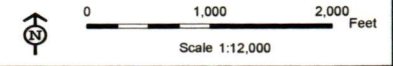
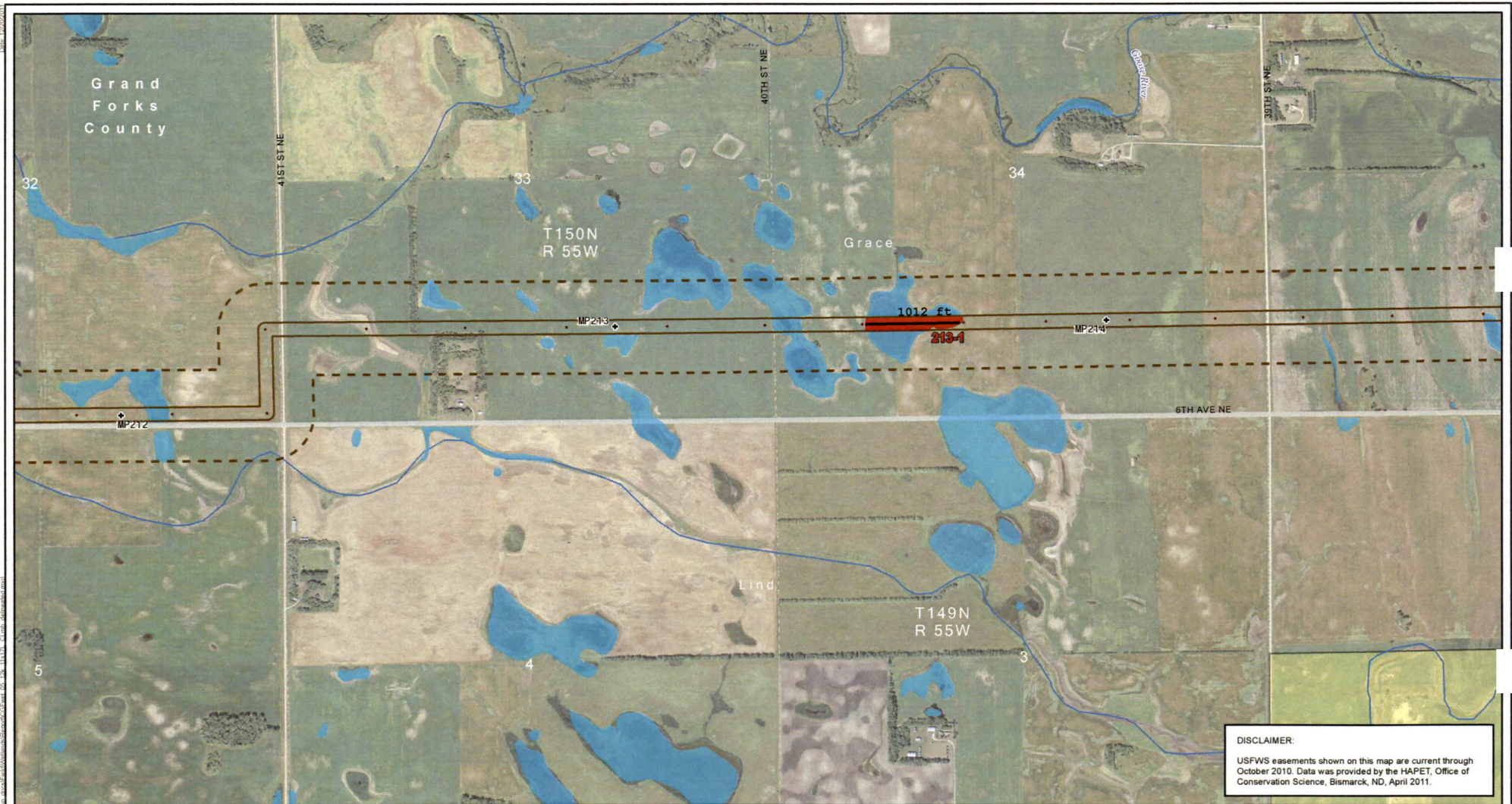


Figure 5.087
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

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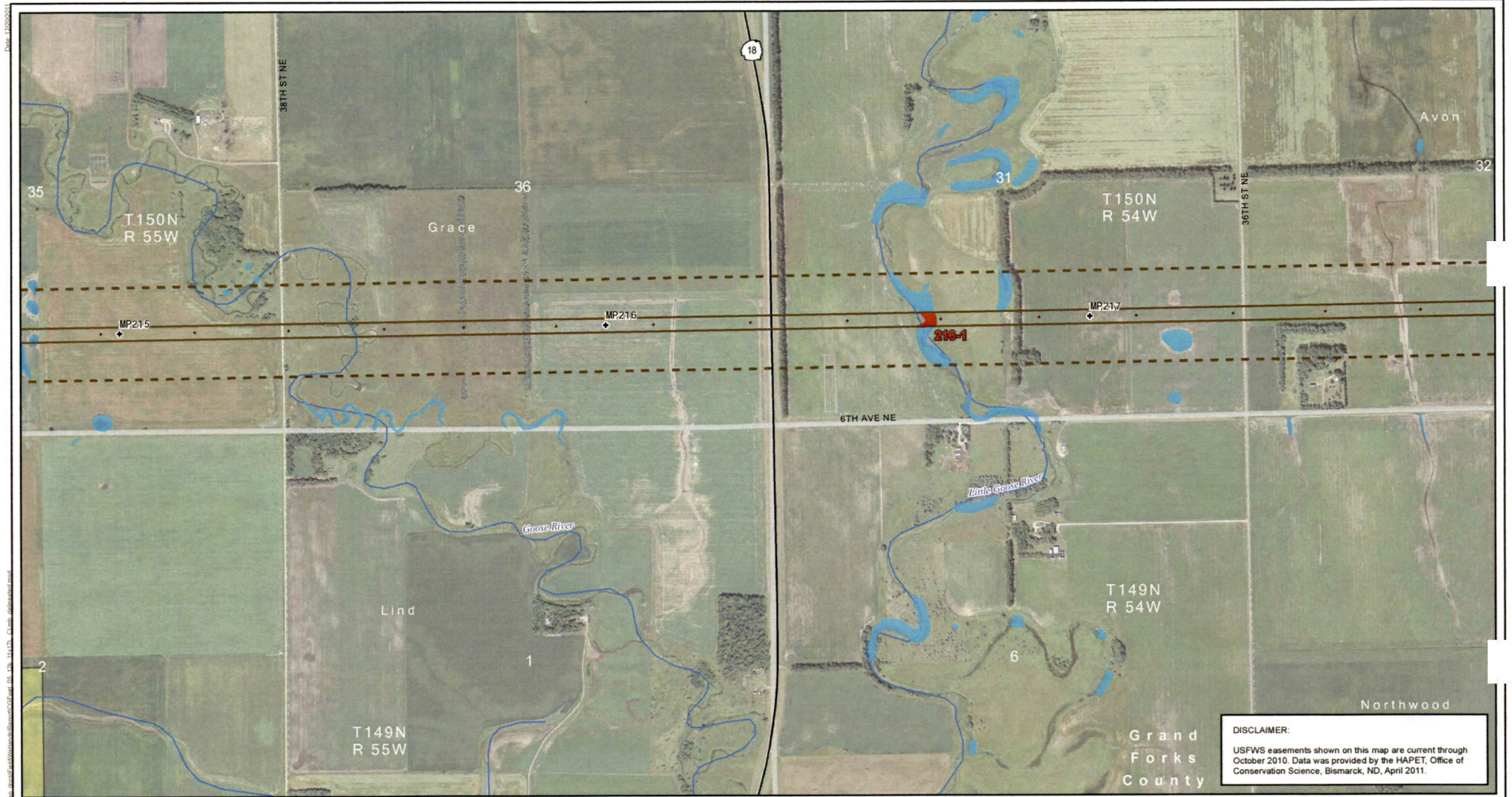


Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.

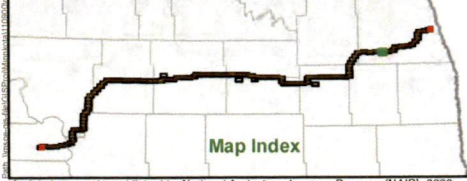
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Figure 5.088
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

0 1,000 2,000 Feet
 Scale 1:12,000



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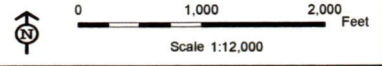
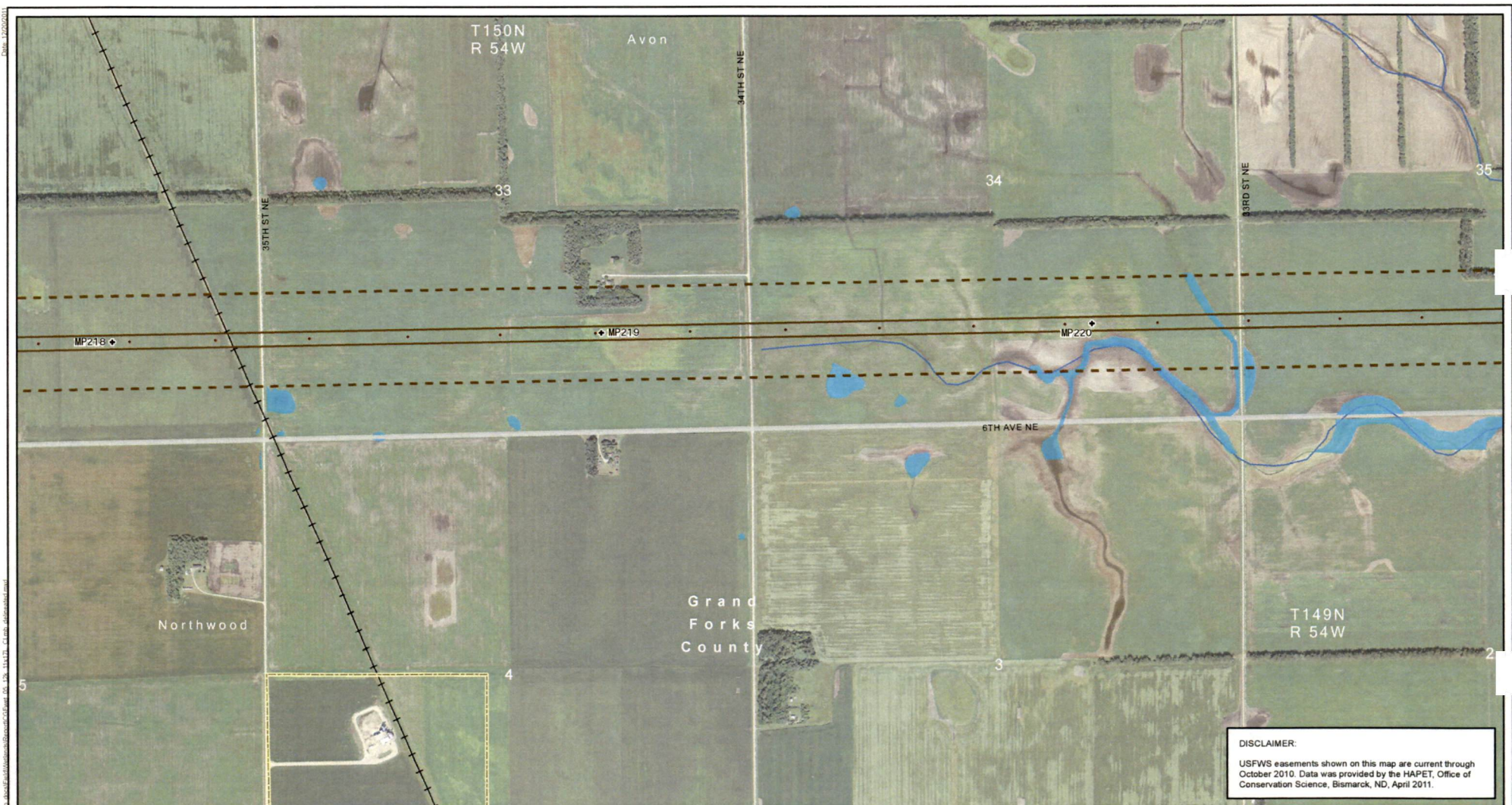


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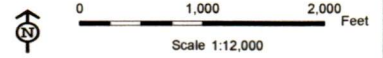


Figure 5.090
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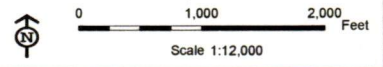


Figure 5.091
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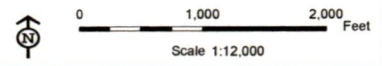
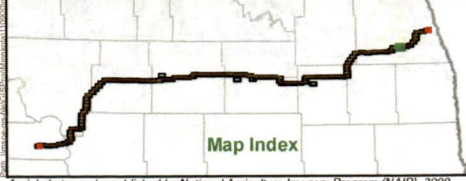


Figure 5.092
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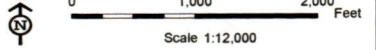
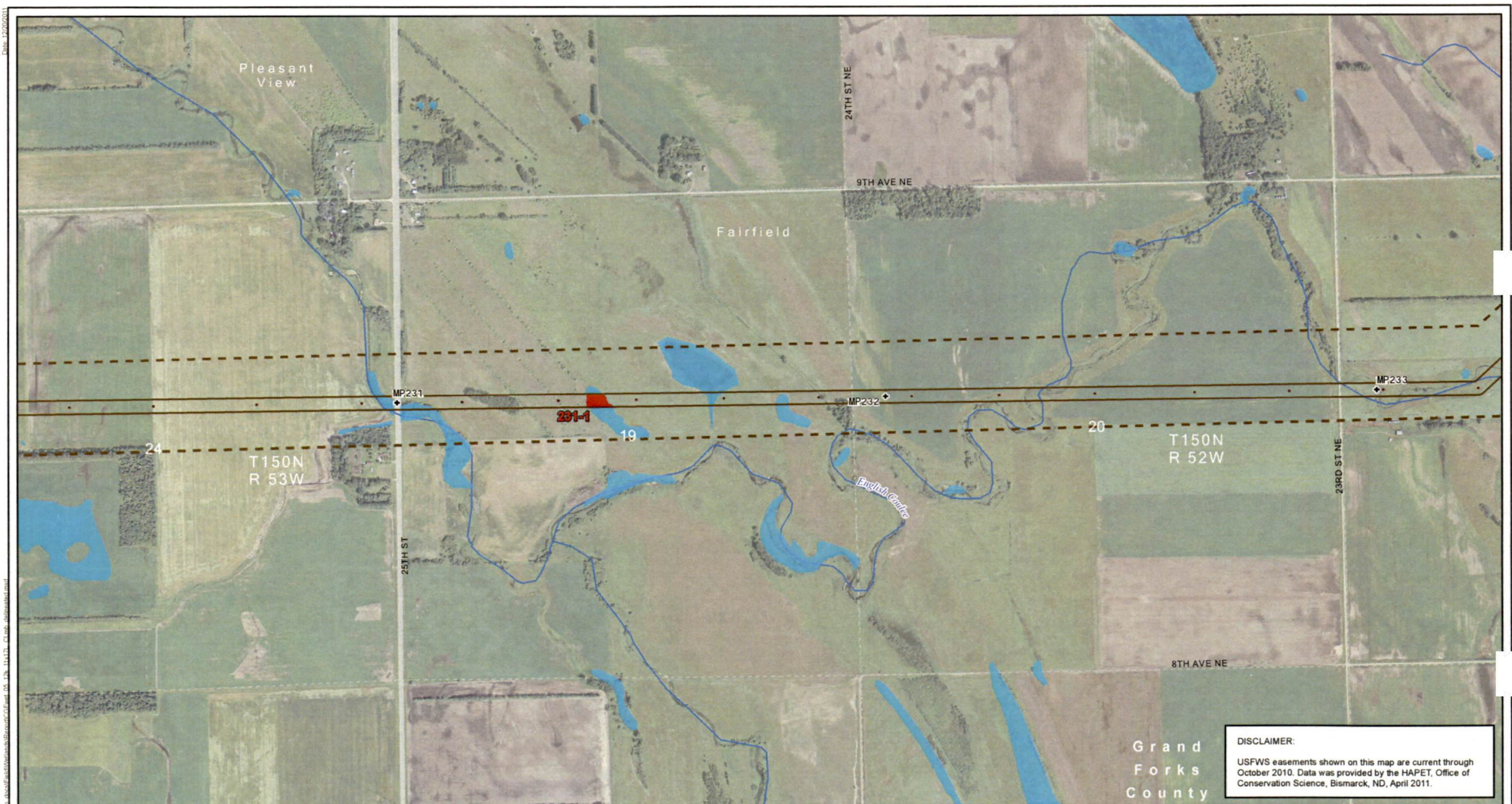


Figure 5.093
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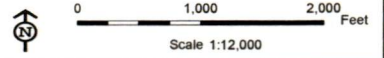
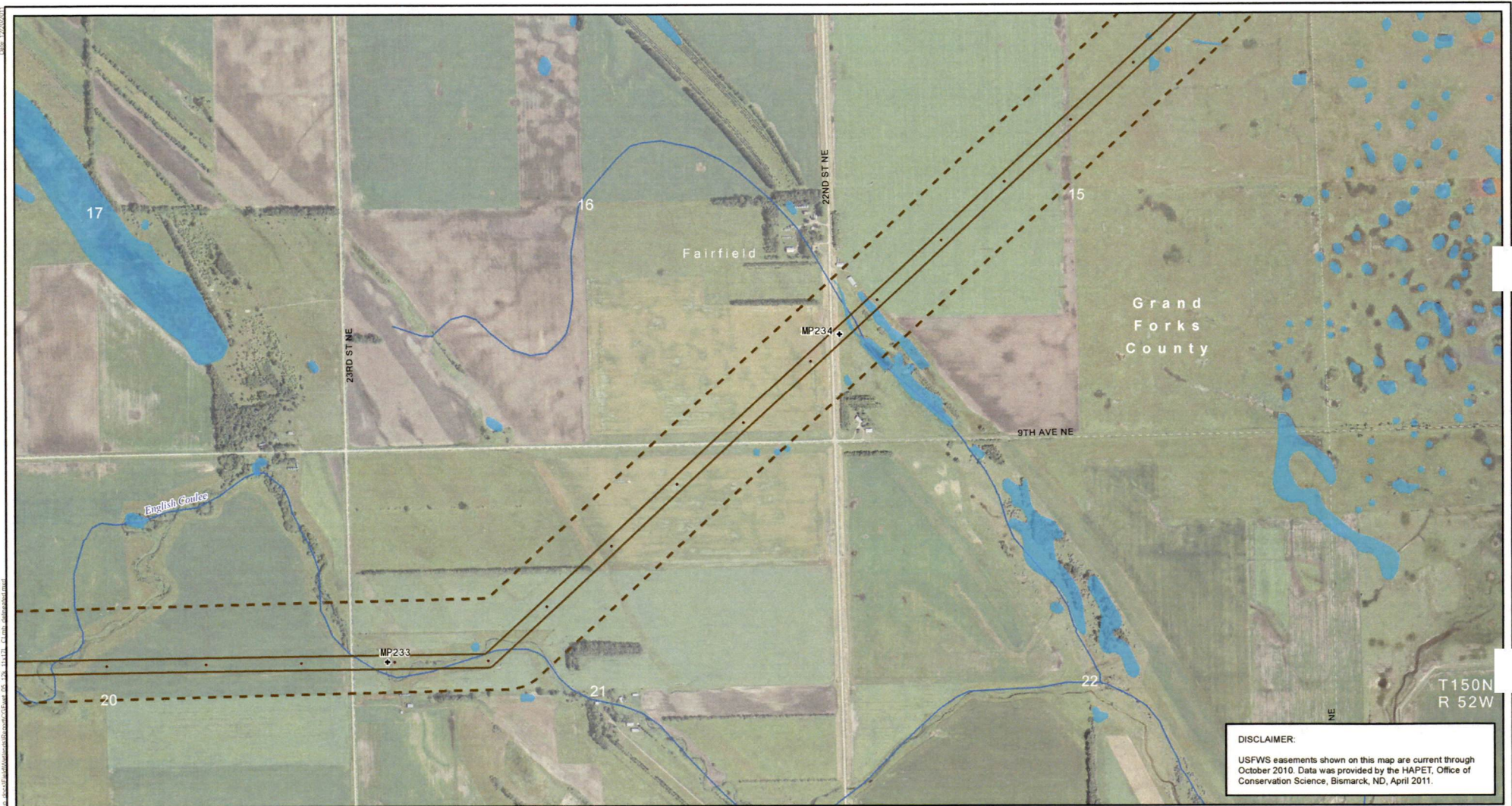


Figure 5.094
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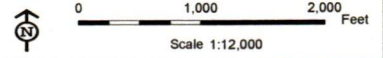
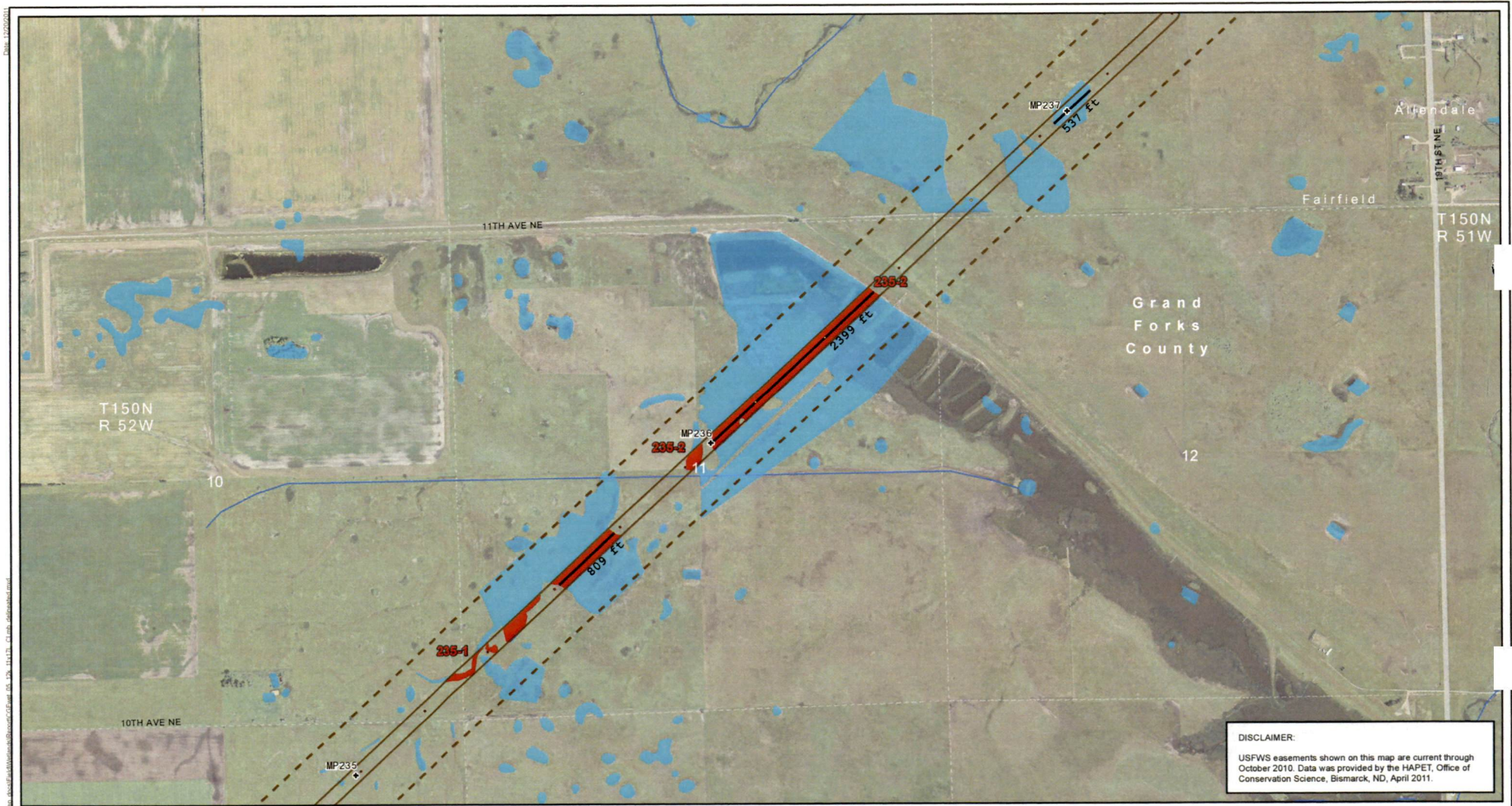
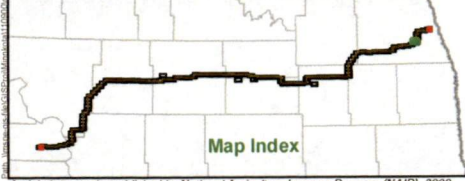


Figure 5.095
Detailed Wetland Delineation
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

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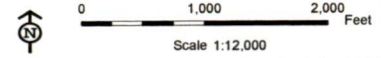
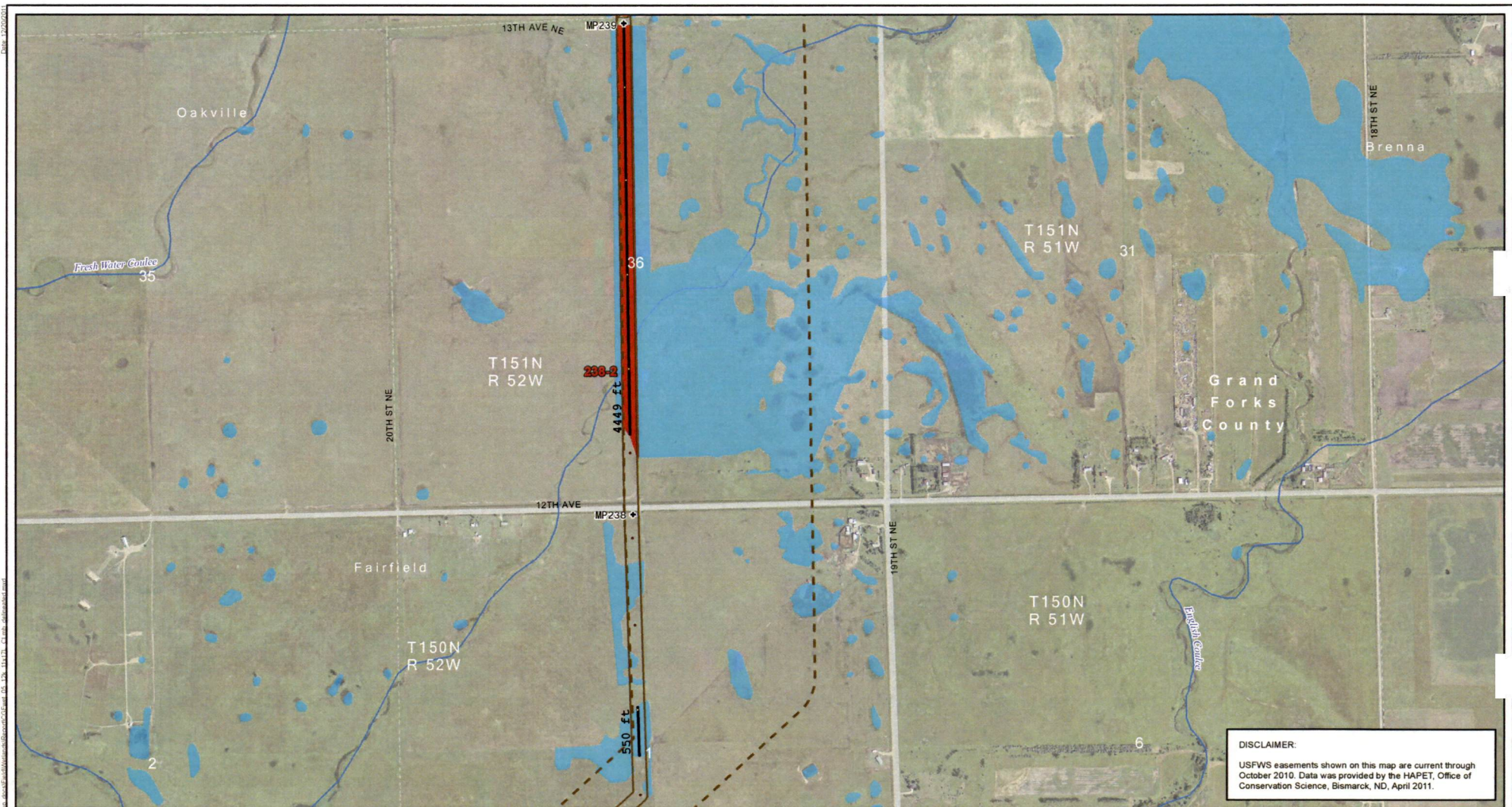


Figure 5.096
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 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

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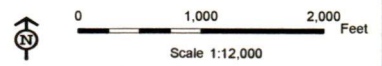
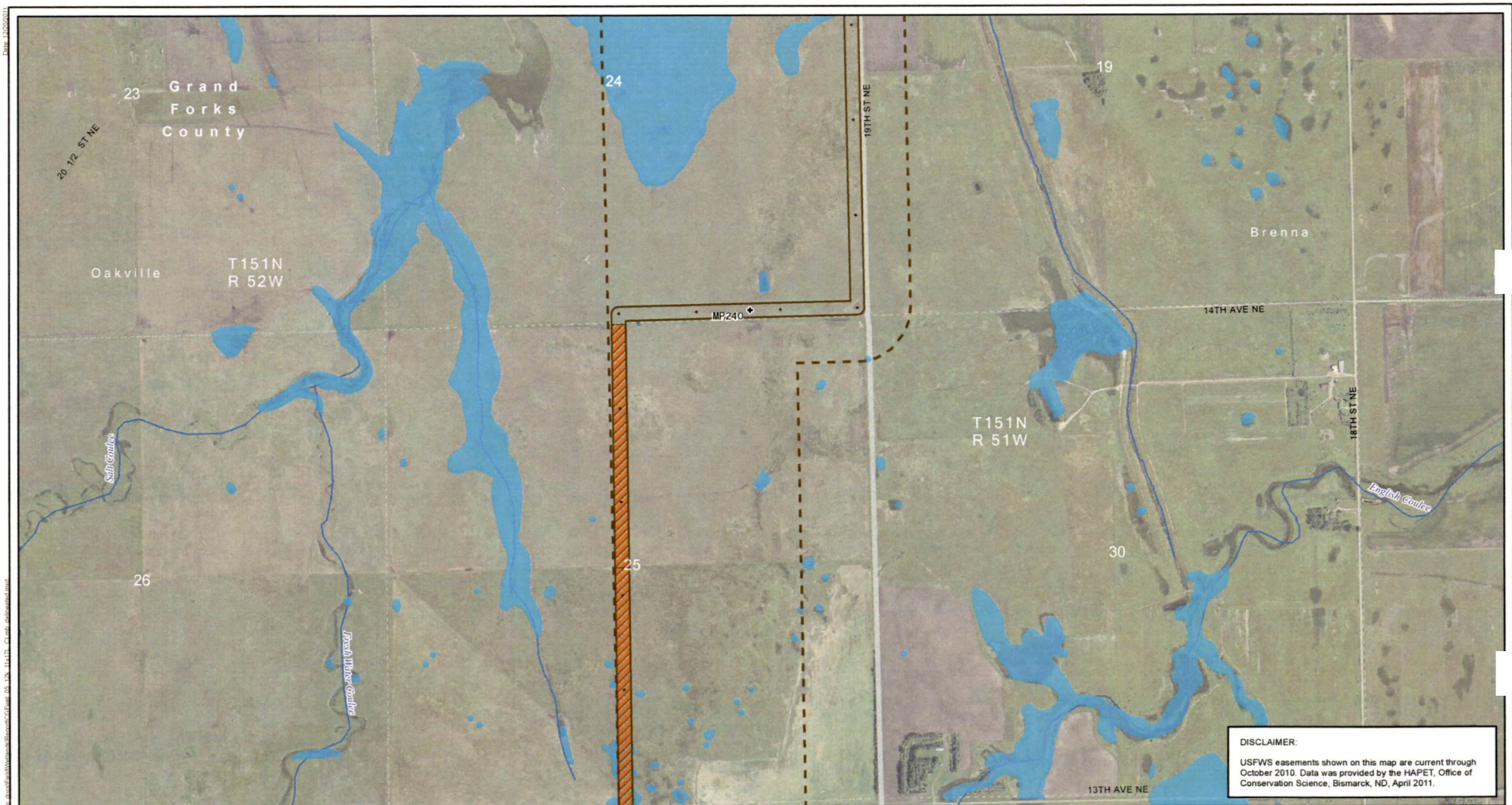


Figure 5.097
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 Minnkota Power Cooperative, Inc.

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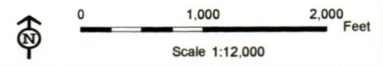
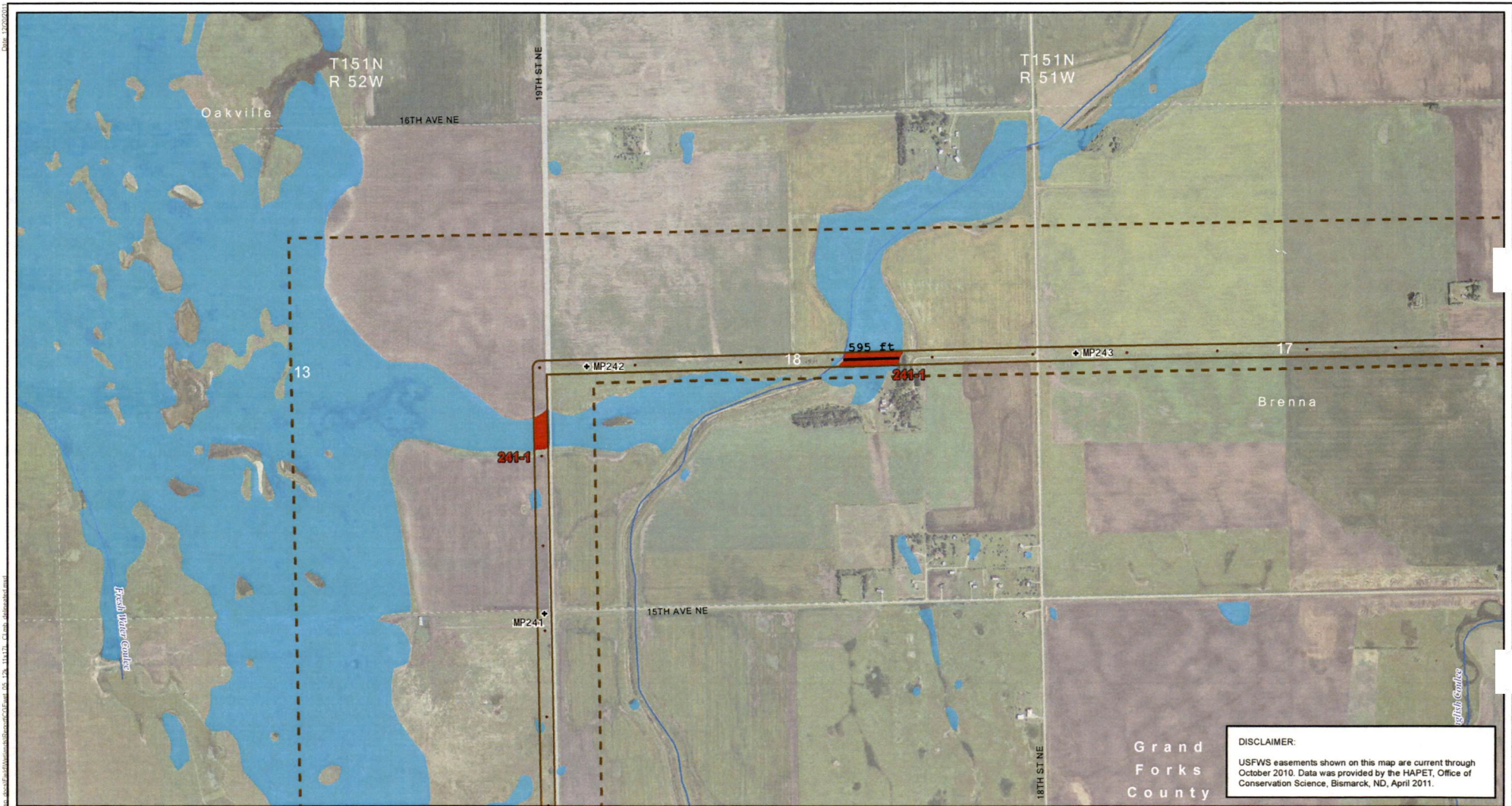


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- Field Survey Incomplete
- Project Corridor - November 18, 2011
- Project ROW - November 11, 2011
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- Laydown Area
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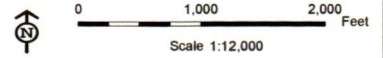


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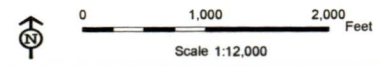
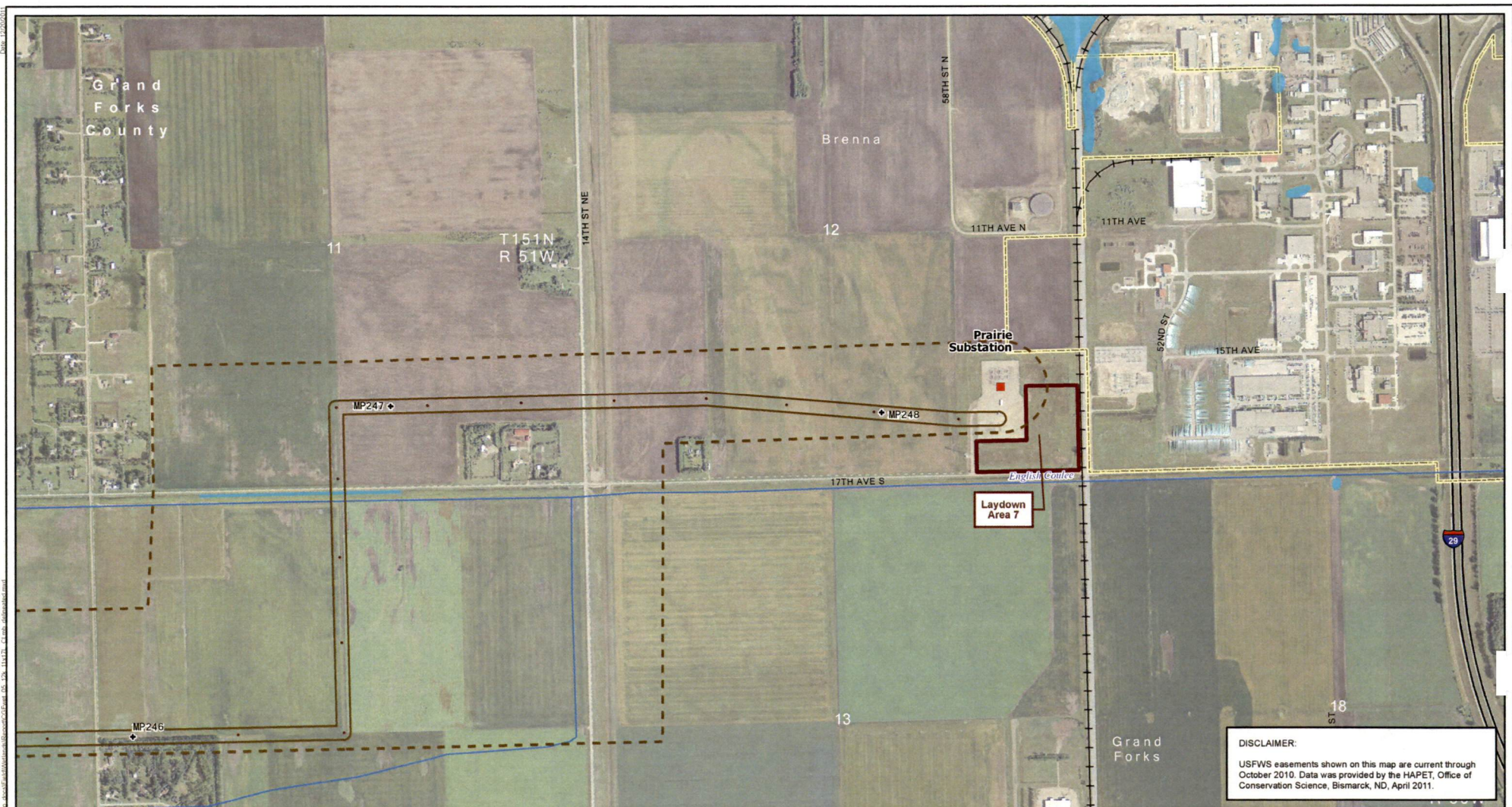


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Figure 5.101
Detailed Wetland Delineation
Center to Grand Forks Project
Minnkota Power Cooperative, Inc.

Scale 1:12,000

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.

Appendix A
Wetland Delineation Data Sheets

Omitted From Exhibit Due to Extensive Length

Copies Are Available Upon Request

Appendix B
Representative Wetland Photos



Wetland 1-2



Wetland 13-1 – Missouri River



Wetland 32-1



Wetland 40-1



Wetland 47-2



Wetland 54-1



Wetland 85-2



Wetland 133-1



Wetland 135-1



Wetland 160-1



Wetland 172-1



Wetland 185-3



Wetland 235-2



Wetland 238-1

**Delineation Report
Addendum
Center to Grand Forks
345 kV Transmission Line**

U.S. Army Corps of Engineers
NWO-2009-1037-BIS
February 2012

Prepared for:

Minnkota Power Cooperative, Inc.



Prepared by:

HDR Engineering, Inc.



Table of Contents

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1.0 INTRODUCTION

In December of 2011, HDR Engineering (HDR) submitted a Delineation Report for Minnkota Power Cooperative, Inc.'s (Minnkota) 345-kilovolt (kV) transmission line from Center to Grand Forks, North Dakota (Project). This addendum to the December 2011 Delineation Report is prepared to address four minor alignment shifts to the proposed 150-foot-wide right-of-way (ROW) and revised structure locations. These ROW shifts do not affect the proposed Missouri River crossing as shown in the December 2011 Delineation Report. The four ROW adjustments are as follows:

1. McLean County: A structure near MP 22 was shifted about 250' to the west in Section 36, Township 143 North, Range 81 West in order to avoid a cultural resource site (Figure A5.010)
2. Wells and Eddy Counties: An approximate 17.5-mile segment of the ROW running east-west and extending from Section 28, Township 148 North, Range 70 West in Oshkosh Township, Wells County to Section 28, Township 148 North, Range 67 West, in Rosefield Township, Eddy County was shifted about 50 feet to the south to accommodate landowner routing requests (Figures A5.046-A5.050)
3. Eddy County: The ROW was shifted about 250' north for 11,600' to the section line in Sections 27 and 28, Township 148 North, Range 67 West in Rosefield Township, Eddy County, and then turns south and east in the NW¹/₄ of Section 27. These adjustments were made to accommodate landowner routing requests (Figures A5.051-A5.052)
4. Grand Forks County: The ROW was shifted up to 125' to the north for about 5,000' in Sections 14 and 15, Township 151 North, Range 51 West in Brenna Township, Grand Forks County to accommodate landowners' routing requests (Figures A5.100-A5.101)

A total of 250 proposed structure locations shifted from locations shown in the December 2011 Delineation Report.

2.0 OFFSITE REVIEW

Methods presented in Section 4.1- Offsite Review of the December 2011 Delineation Report were used to identify wetland areas occurring within the ROW adjustment areas. The ROW adjustments resulted in a net increase of 2.86 acres of wetland areas within the ROW from the December 2011 Delineation Report (542.7 ac December 2011 Delineation Report, 545.56 ac February 2012 Delineation Report Addendum). Table 1 includes a listing of the wetland types and total acreages within the adjusted ROW areas. Table 2 includes a listing of the wetland types and total acreages within the entire Project ROW.

Table 1. Wetland Types and Acreages within the ROW Shifts

Wetland Type	Acres
PEMA	6.21
PEMA _d	2.80
PEMC	15.86
PEMF _h	2.53
PFO/EMC	0.05
Total	27.45

Table 2. Wetland Types and Acreages within the entire January 13, 2012 Project ROW

Wetland Type	Acres	Percent of total
<i>Lake</i>	<i>7.525</i>	<i>1.4</i>
L1UBGH	0.570	0.1
L2ABG	6.955	1.3
<i>Freshwater Pond</i>	<i>20.808</i>	<i>3.8</i>
PUBG _x	3.181	0.6
PAB/EMF	3.175	0.6
PABF	3.386	0.6
PABF _H	1.570	0.3
PABF _x	9.496	1.7
<i>Freshwater Emergent Wetland</i>	<i>495.115</i>	<i>90.8</i>
PEM/ABF	29.556	5.4
PEM/ABF _d	1.400	0.3
PEM/SSC	0.322	0.1
PEMA	56.623	9.9
PEMA _d	14.664	2.6
PEMC	345.380	63.4
PEMC _d	20.519	3.8
PEMCh	0.861	0.2
PEMF	18.482	3.4
PEMF _d	1.437	0.3
PEMF _h	5.871	1.4
<i>Freshwater Forested Wetland</i>	<i>4.142</i>	<i>0.8</i>
PFOA	0.493	0.1
PFO/EMC	3.649	0.7
<i>Freshwater Shrub Wetland</i>	<i>1.751</i>	<i>0.3</i>
PSS/EMC	1.751	0.3
<i>Riverine</i>	<i>16.219</i>	<i>2.9</i>
R2UBG	0.437	0.1
R2UBG _x	0.203	0.0
R2UBH	13.268	2.4

Wetland Type	Acres	Percent of total
R4USF	1.891	0.3
R4USFx	0.420	0.1
Total	545.560	100.0

3.0 IMPACTS

Revised impacts were calculated using January 13, 2012 alignment and structure location information. The structure shifts resulted in no net increase or decrease in proposed permanent impacts, although the locations of impacts have changed due to the ROW adjustments as show in Figure A5. Three types of wetland impacts would result from the proposed Project construction:

- **Permanent impacts** related to structure placement in wetlands (impacts were calculated by assuming a 78-square-foot footprint for structure locations based on a 10-foot diameter foundation).
- **Permanent conversion impacts** related to changing forested wetlands to a different (non-forested) wetland cover type.
- **Temporary impacts** related to construction activities (impacts were calculated by assuming a 30-foot-wide access road along the centerline between structure locations, and a 60-foot diameter construction area around the pole foundation, 2,827-square-feet per pole).

Wetlands classified as riverine (R2UBG, R2UBGX, R2UBH, R4USF, and R4USFx) were excluded from temporary impacts as crossing these features with an access road was not considered feasible. Table 3 presents permanent and temporary impacts.

Table 3. Proposed Wetland Impacts with the entire January 13, 2012 Project ROW

Wetland Type	Number of Structures in Wetlands	Temporary Impacts (ac)	Permanent Impacts (sq ft) [ac]
<i>Lake</i>			
L1UBGH	-	0.105	-
L2ABG	-	1.421	-
<i>Fresh Water Pond</i>			
PAB/EMF	-	0.582	-
PUBGx	1	0.679	78 [0.0015]
PABF	-	0.624	-
PABFh	-	0.350	-
PABFx	2	1.945	156 [0.003]
<i>Freshwater Emergent Wetland</i>			
PEM/ABF	1	6.012	78 [0.0015]
PEM/ABFd	-	0.284	-

Wetland Type	Number of Structures in Wetlands	Temporary Impacts (ac)	Permanent Impacts (sq ft) [ac]
PEM/SSC	-	0.080	-
PEMA	3	11.391	234 [0.0045]
PEMAd	1	2.828	78 [0.0015]
PEMC	22	69.656	1,716 [0.0330]
PEMCd	-	4.184	-
PEMCh	-	0.174	-
PEMF	-	3.763	-
PEMFd	-	0.300	-
PEMFh	2	1.239	156 [0.003]
<i>Freshwater Forested Wetland</i>			
PFO/EMC	-	0.899	-
PFOA	-	0.074	-
<i>Freshwater Shrub Wetland</i>			
PSS/EMC	-	0.469	-
<i>Riverine</i>			
R2UBG	-	-	-
R2UBGx	-	-	-
R2UBH	-	-	-
R4USF	-	-	-
R4USFx	-	-	-
Total	32	107.059 ac	2,496 sq ft 0.0573 ac

The permanent conversion impacts as described in the December 2011 Delineation Report remain the same at 0.469 ac.

4.0 MINIMIZATION AND AVOIDANCE

The majority of the wetlands that occur in the Project area would be spanned to avoid impacts. Wetland areas that must be impacted by the project would require a minimal amount of fill to be placed within the wetland (approximately 3 cubic yards of concrete per structure).

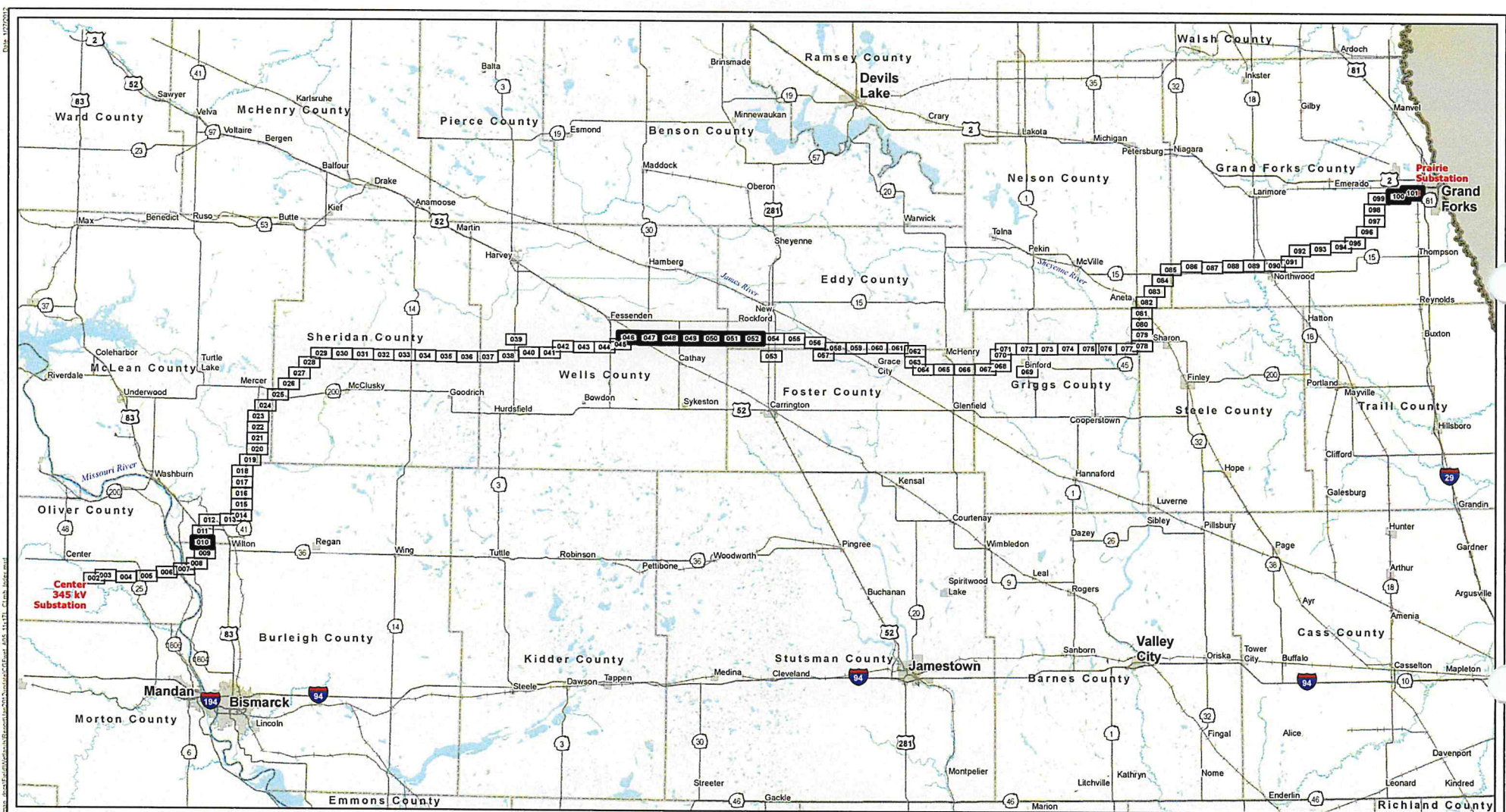
Construction activities would avoid wetland areas to the extent possible. Where construction activities within wetland areas could not be avoided, various BMPs would be used to protect topsoil and adjacent wetland resources, and to minimize soil erosion and impacts to wetland areas. Practices may include containing excavated material, the use of construction matting, protecting exposed soil, stabilizing restored material, and revegetating disturbed areas with native species. Any wetland areas impacted by construction activities, other than those identified as permanent impacts, would be returned to preconstruction grades.

5.0 REFERENCES

HDR. 2011. Center to Grand Forks 345kV Transmission Line Project Delineation Report.

HDR. 2011b. Meeting between USACE, Minnkota Power Cooperative Inc. and HDR on March 24, 2011 at USACE North Dakota regulatory office. Bismarck, North Dakota.

Figures



- 001 Map Page
- 030 Addendum Map Page
- Project Substation

Figure A5.001: Index Map Detailed Wetland Delineation Center to Grand Forks Project Minnkota Power Cooperative, Inc.

0 5 10 Miles
Scale 1:850,000



DISCLAIMER:
 USFWS easements shown on this map are current through October 2010. Data was provided by the HAPET, Office of Conservation Science, Bismarck, ND, April 2011.



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| Project Structure - Jan. 13, 2012 | Wetland Crossing > 500 feet | | |

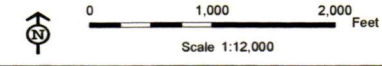
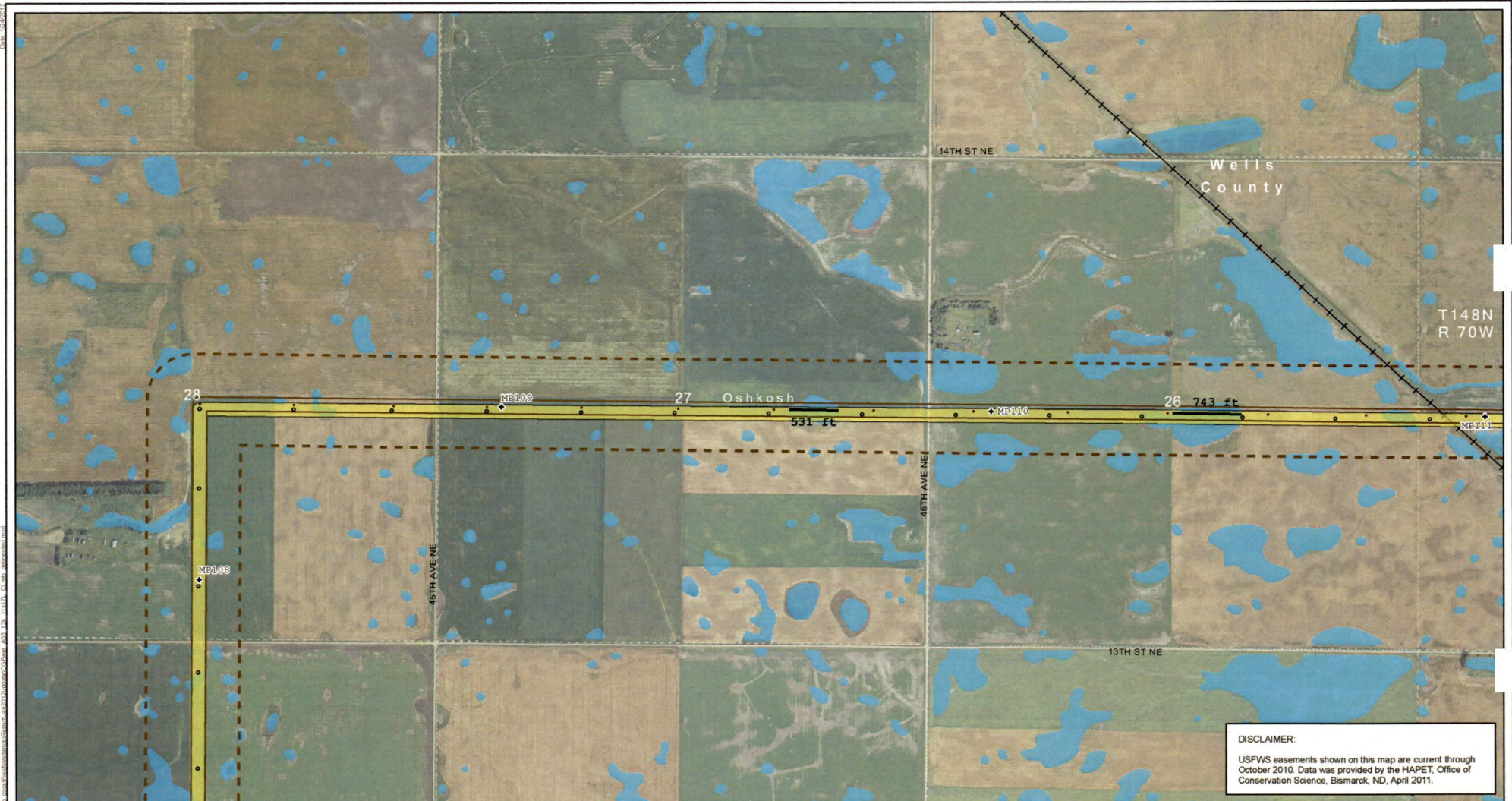


Figure A5.010
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

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| <ul style="list-style-type: none"> Project Corridor - Nov. 18, 2011 Proposed Modified Corridor Change - Jan. 13, 2012 Project ROW - Nov. 11, 2011 Project ROW - Jan. 13, 2012 Project Structure - Nov. 11, 2011 Project Structure - Jan. 13, 2012 | <ul style="list-style-type: none"> Laydown Area Reference Milepost Wetland Delineated Wetland Basin Forested Wetland Basin Wetland Crossing > 500 feet | <ul style="list-style-type: none"> USGS Mapped Waterway USFWS Wetland Easement USFWS Grassland Easement State Park, Recreation Area or WMA USFWS WPA or WDA US Bureau of Reclamation Land |
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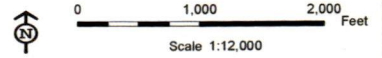
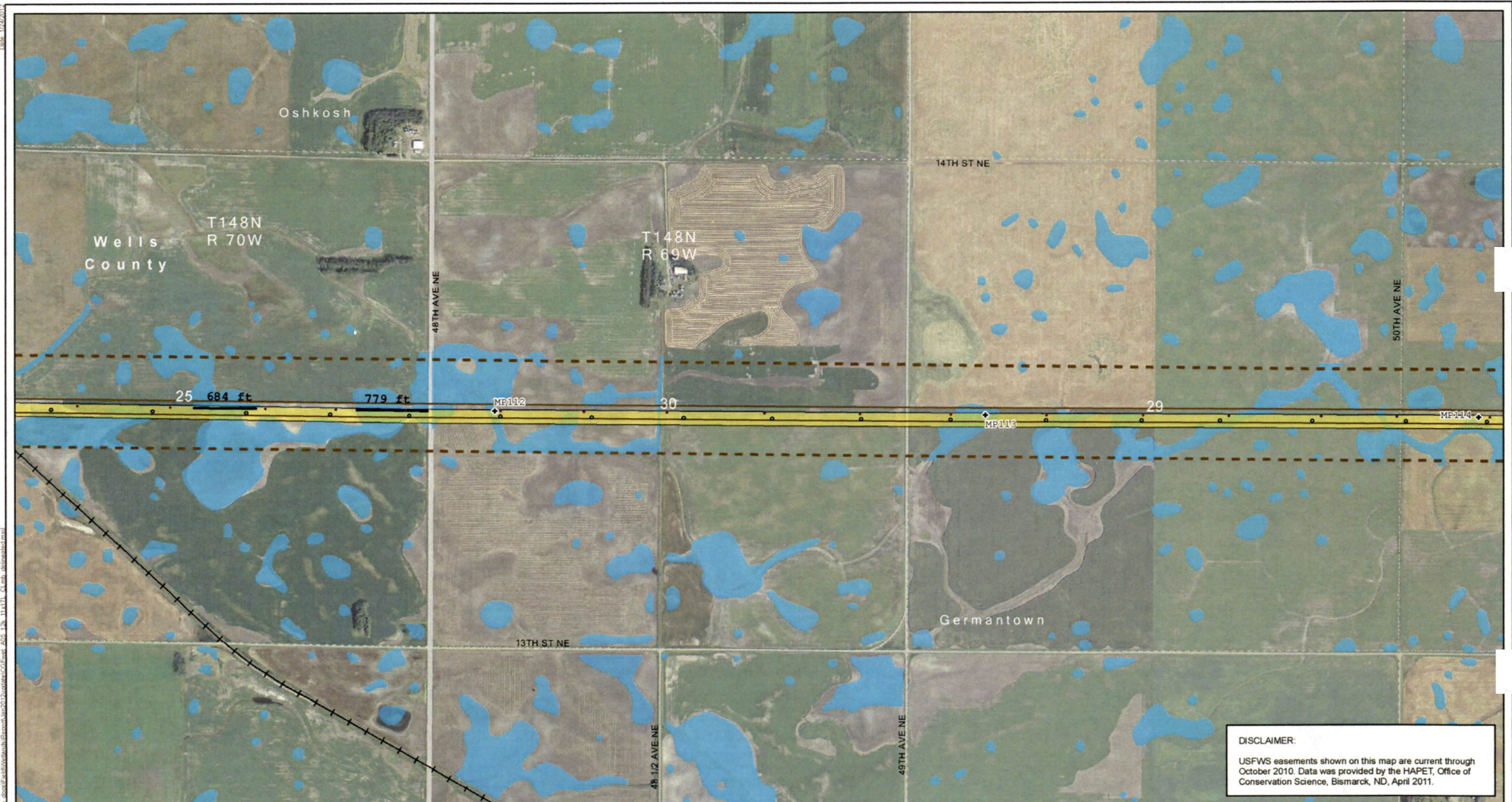


Figure A5.046
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

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| Project Structure - Nov. 11, 2011 | Wetland Crossing > 500 feet | | |
| Project Structure - Jan. 13, 2012 | | | |

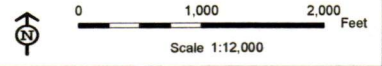
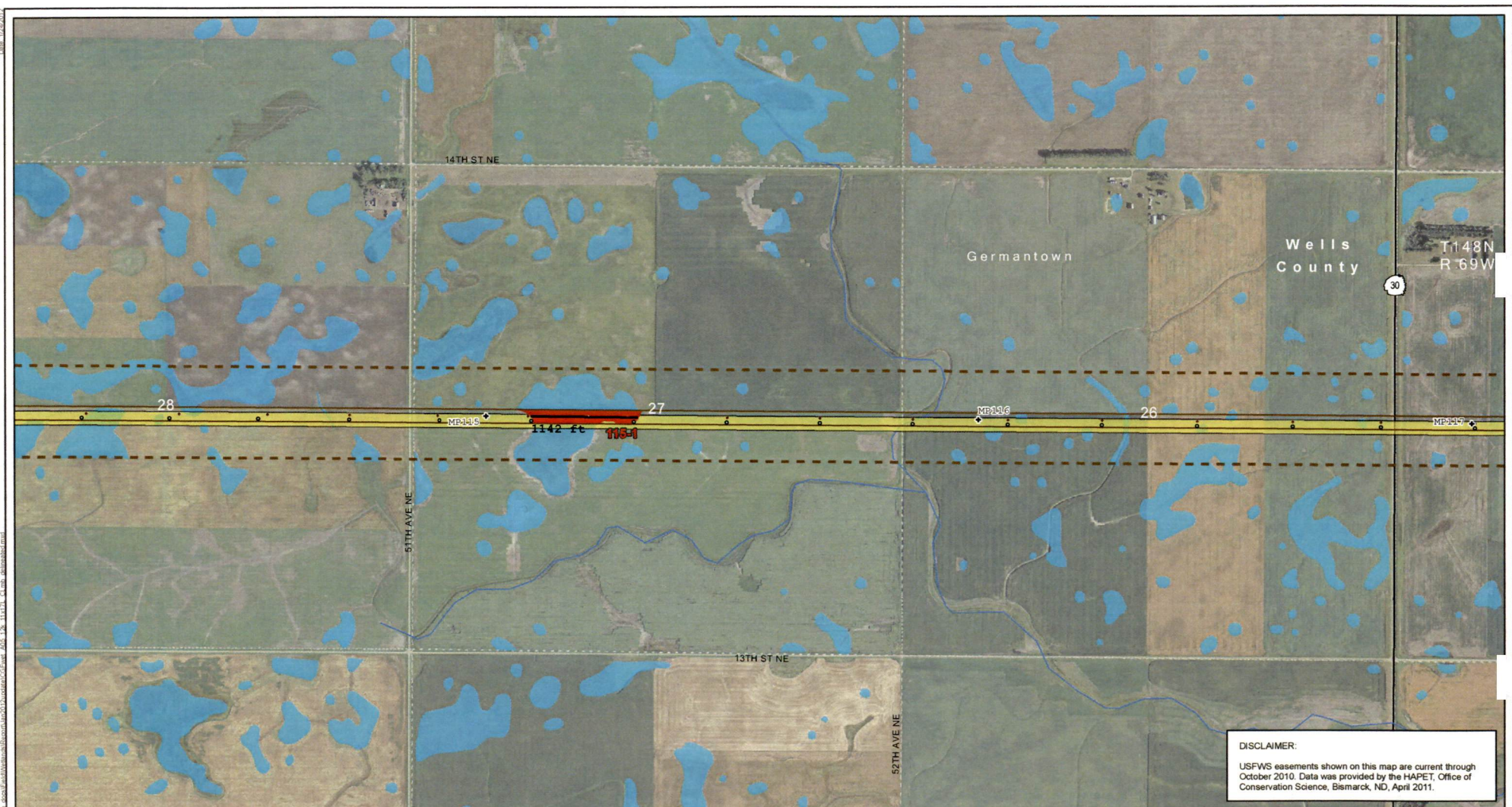
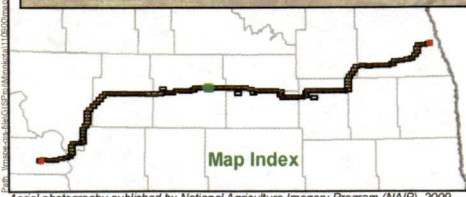


Figure A5.047
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

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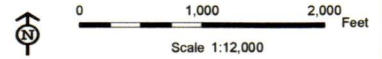
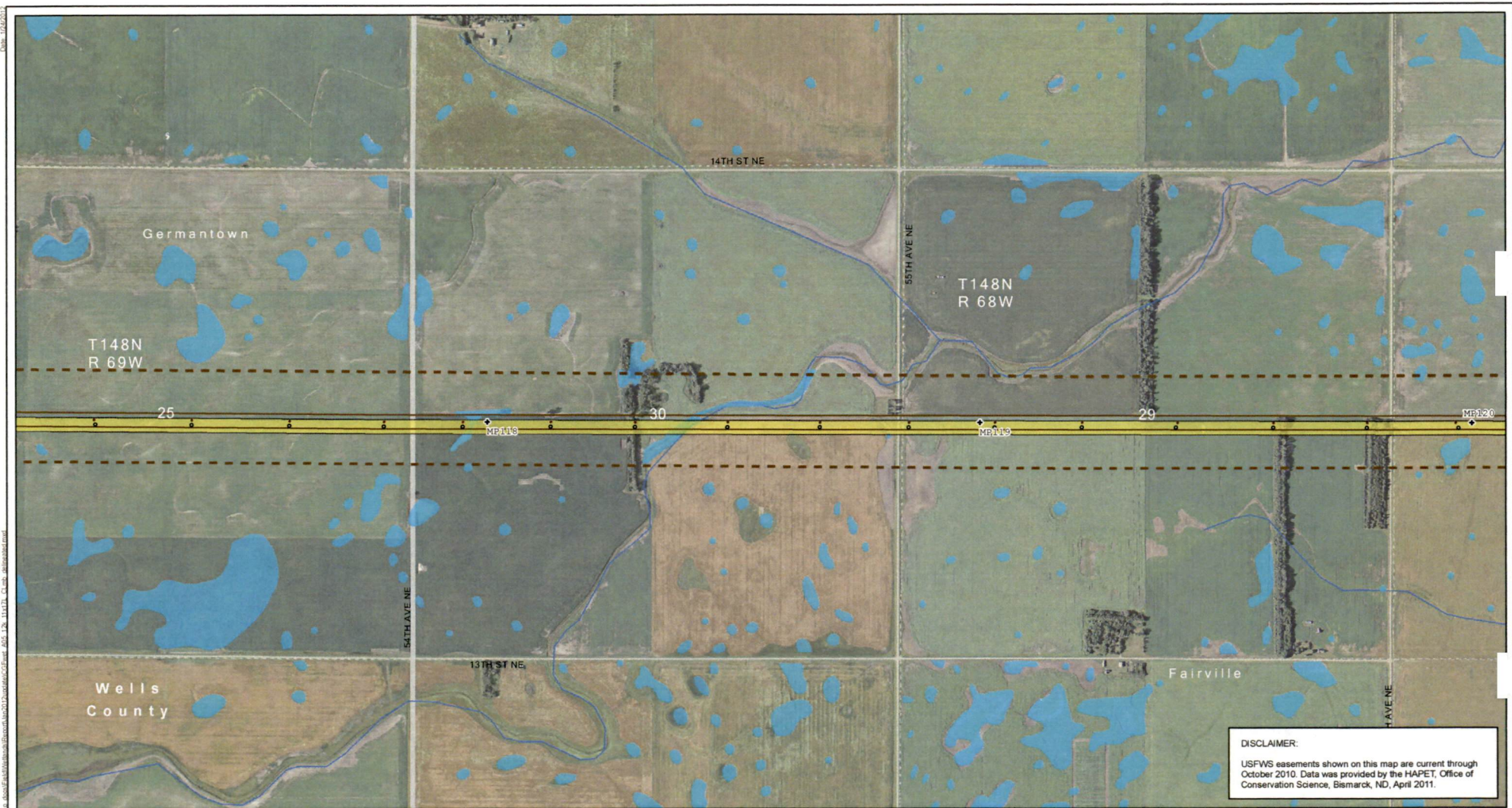


Figure A5.048
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.



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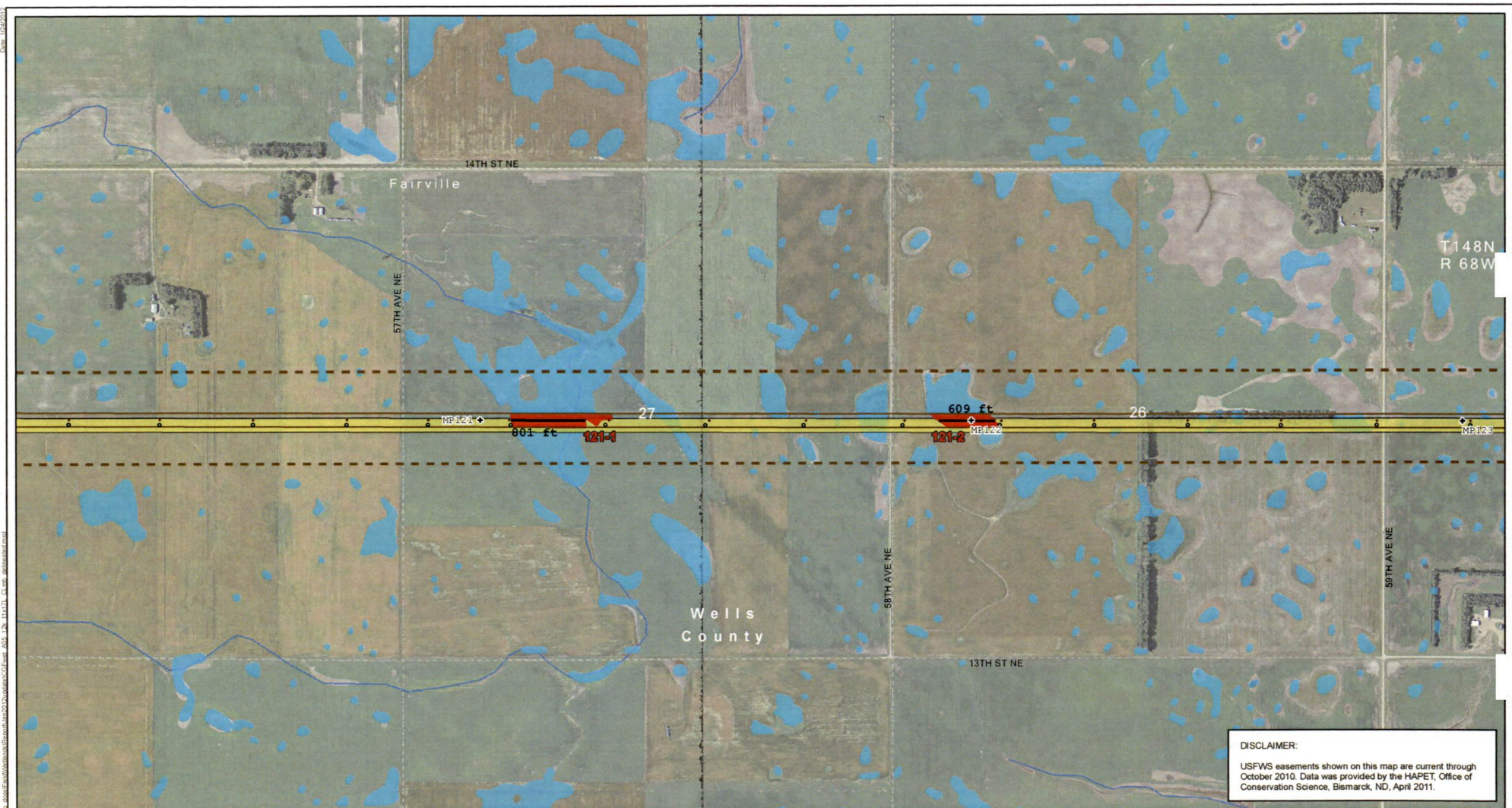


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Figure A5.049
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

0 1,000 2,000 Feet
 Scale 1:12,000

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.



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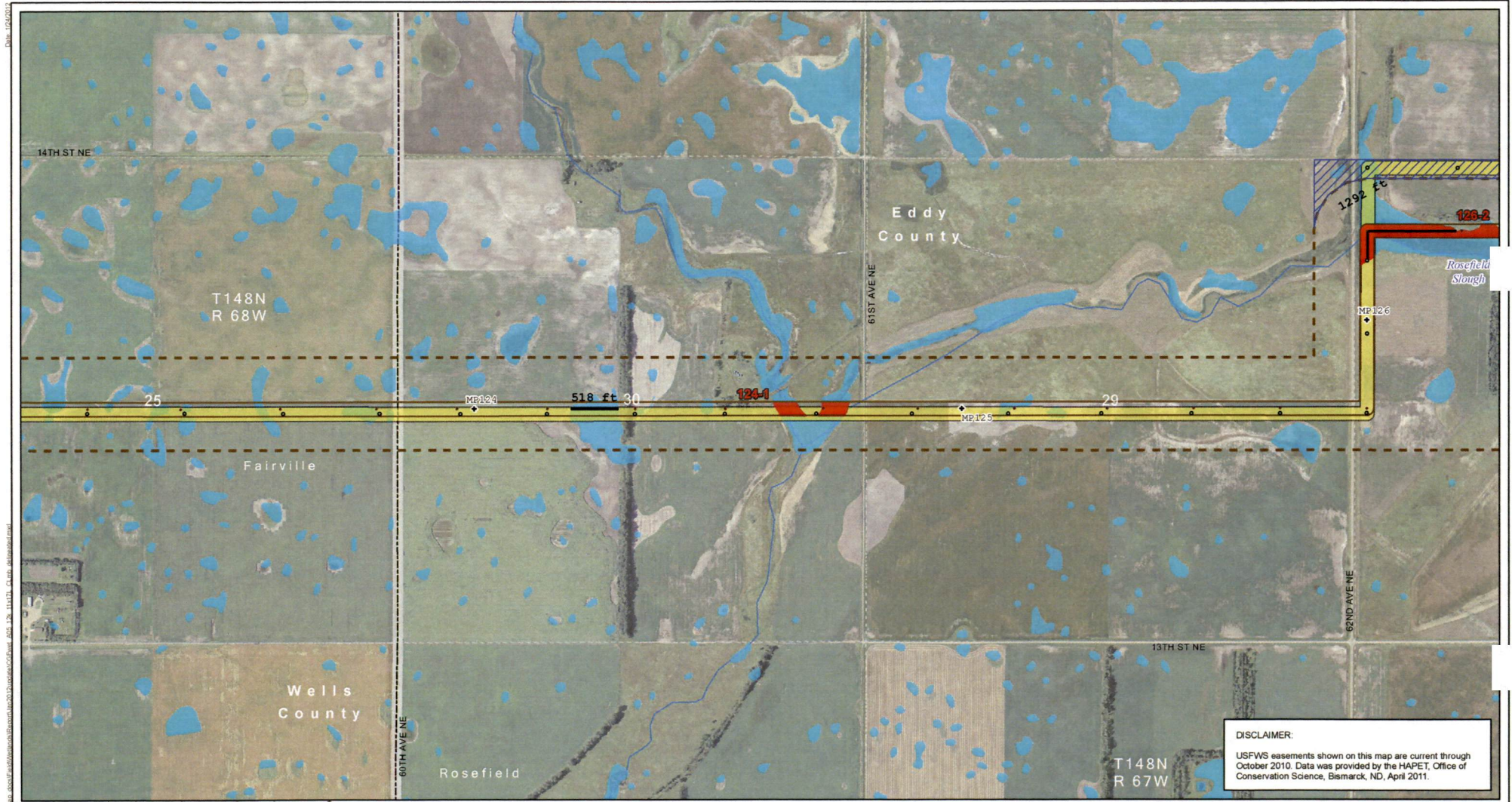


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Figure A5.050
 Detailed Wetland Delineation
 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

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 Scale 1:12,000

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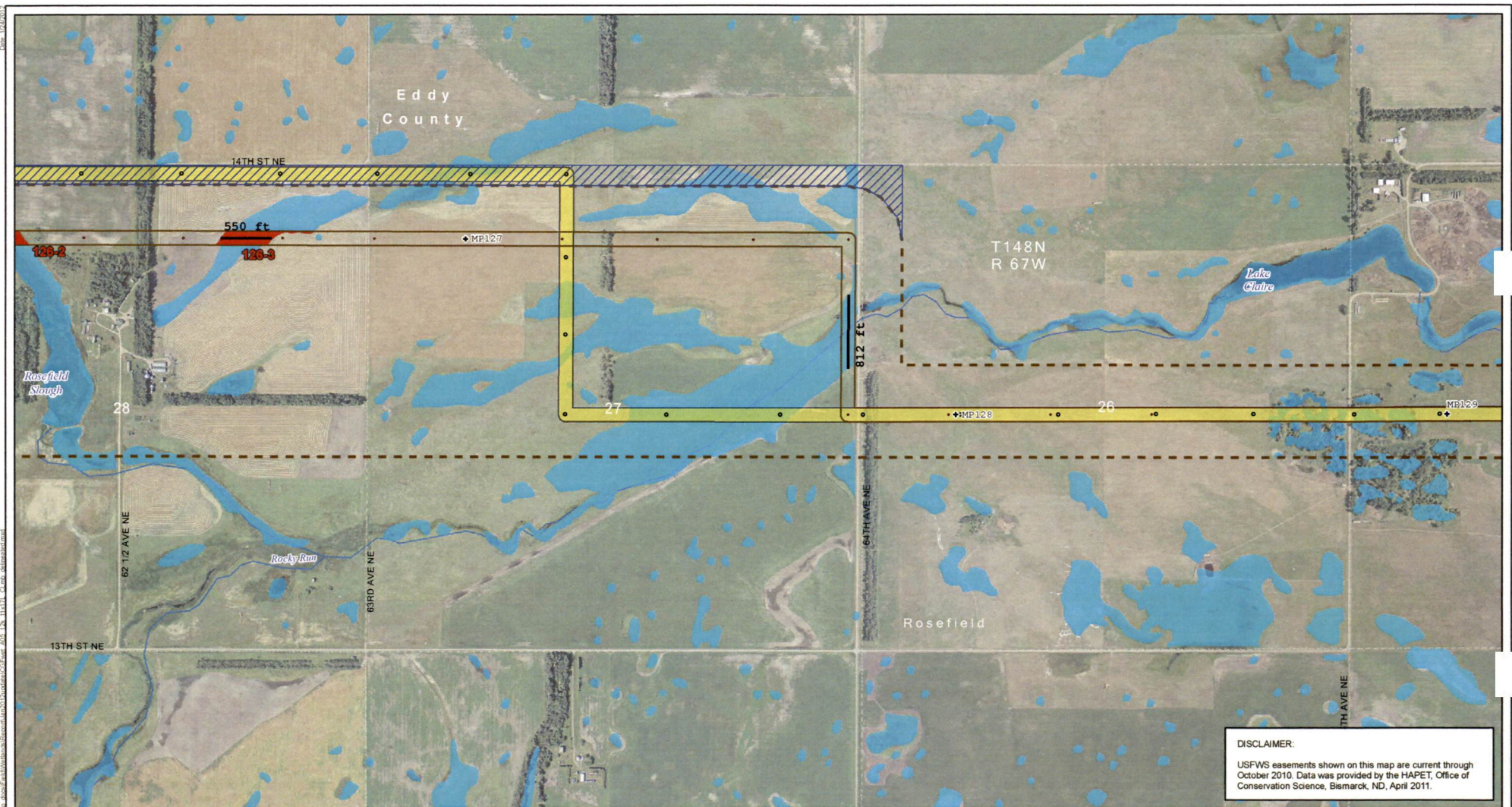


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Figure A5.051
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 Center to Grand Forks Project
 Minnkota Power Cooperative, Inc.

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 Scale 1:12,000

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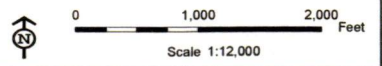
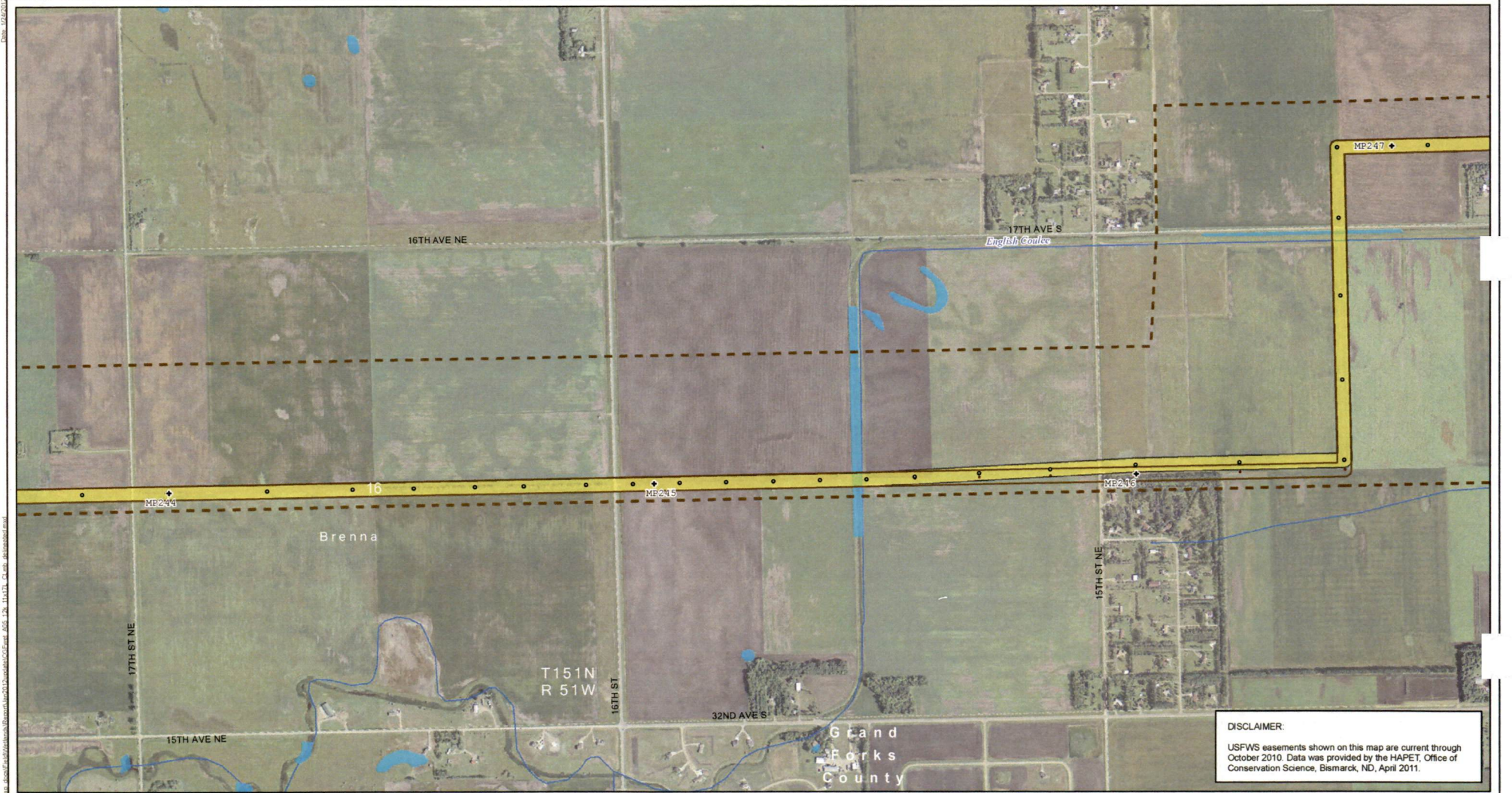


Figure A5.052
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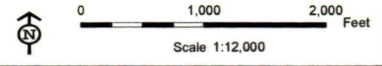
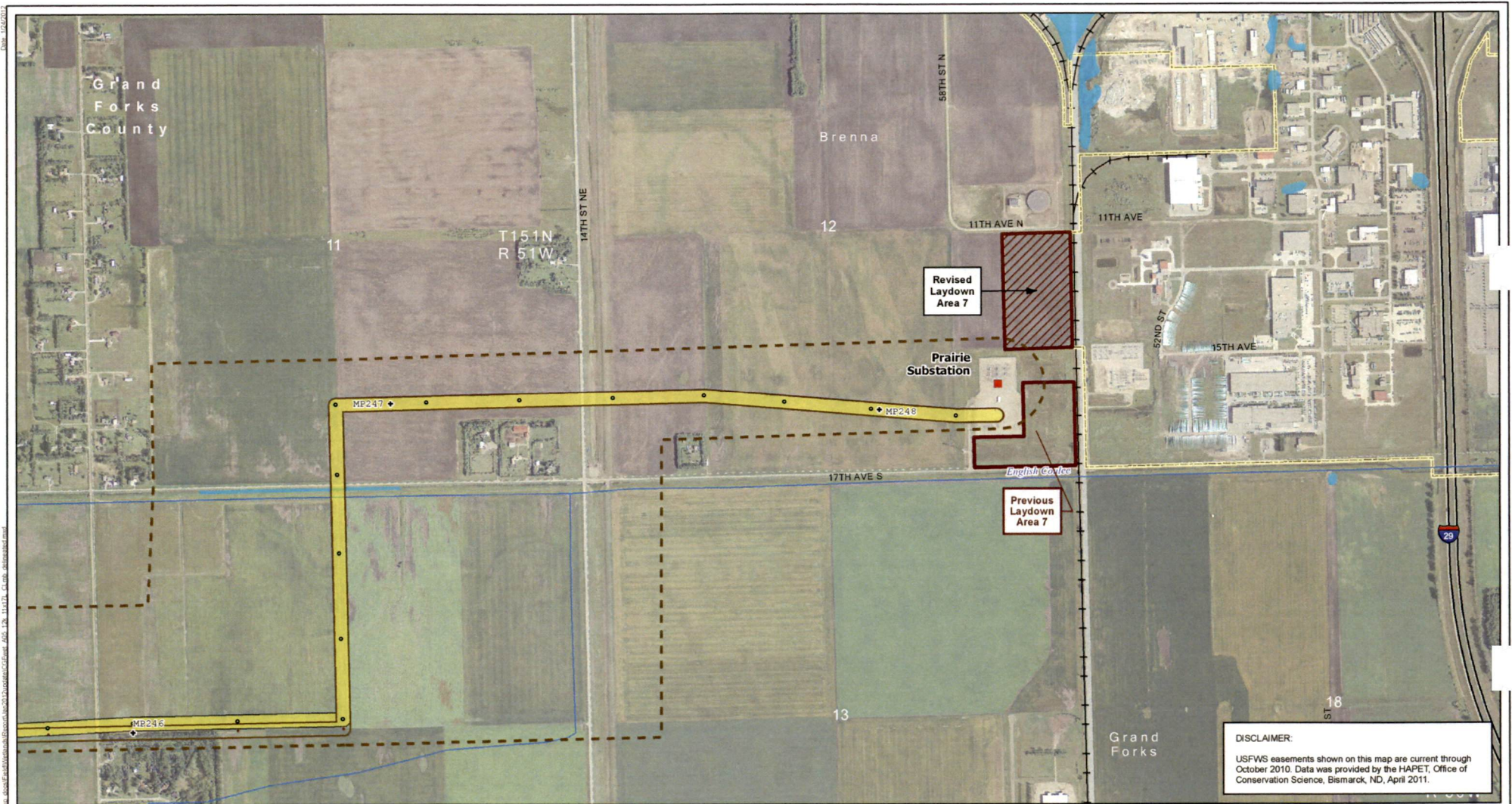


Figure A5.100
 Detailed Wetland Delineation
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 Minnkota Power Cooperative, Inc.



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 Minnkota Power Cooperative, Inc.

0 1,000 2,000 Feet
 Scale 1:12,000

Aerial photography published by National Agriculture Imagery Program (NAIP), 2009.