

**APPENDIX D**  
**Natural Resources Report**

**SWCA**<sup>®</sup>

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# **Natural Resources and Wetland Determination Report for the Laurel Interconnect Pipeline, Cass County, North Dakota**

Prepared for

**NuStar Energy L.P.**

Prepared by

**SWCA Environmental Consultants**

August 2015

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for the Laurel Interconnect Pipeline,  
Cass County, North Dakota**

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## **1.0 INTRODUCTION**

### **1.1 BACKGROUND**

NuStar Energy L.P. (NuStar) proposes to construct a pipeline that would transport refined petroleum products (e.g., gasoline and diesel fuel) from an existing pipeline near Mapleton, North Dakota, to an existing pipeline near Prosper, North Dakota. The approximately 6-mile-long, 8-inch-diameter Laurel Interconnect pipeline will be located entirely within Cass County, North Dakota, with the anticipated construction start date of March/April 2016. SWCA Environmental Consultants (SWCA) conducted natural resources field surveys to identify exclusion and avoidance areas as specified in North Dakota Administrative Code 69-06-08-02 for the proposed Laurel Interconnect pipeline project.

As proposed, the Laurel Interconnect pipeline is approximately 6 miles long, spanning private lands in North Dakota (Appendix A). The project falls under the jurisdiction of the North Dakota Public Service Commission (NDPSC).

SWCA conducted field surveys of a 200-foot-wide survey corridor (100-foot-wide construction right-of-way [ROW]) on May 14 and 15; July 16 and 23, 2015, to determine the potential presence and extent of wetlands and waterbodies, including potentially jurisdictional waters of the U.S., within the proposed survey area. Concurrently with the wetland/waterbody determinations, SWCA conducted a cursory wildlife survey, including threatened and endangered species, and habitat assessment; a tree, sapling, and shrub enumeration survey; and a noxious weed survey. Site layout maps of the survey area and natural resource features identified during the field surveys are provided in Appendix A.

This report presents the methodology used by SWCA's ecologists to complete each of the aforementioned surveys. Additionally, this report presents the results of the completed field surveys and regulatory recommendations to facilitate compliance with the NDPSC and the U.S. Army Corps of Engineers (USACE) Nationwide Permit 12.

### **1.2 REGULATORY BACKGROUND**

#### **1.2.1 Clean Water Act, Section 404**

Section 404 of the Clean Water Act prohibits the discharge of dredge and fill material into waters of the U.S., including certain wetlands, also known as jurisdictional waters, without a permit from the USACE.

#### **1.2.2 USACE Nationwide Permit 12**

The USACE Nationwide Permit 12 authorizes the placement of fill material for the construction of utility lines and associated facilities in waters of the U.S., provided that the activity does not result in the permanent loss of greater than 0.5 acre of waters of the U.S., including wetlands, and meets the Nationwide Permit General Conditions.

Nationwide Permit 12 requires that the permittee submit a pre-construction notification prior to commencing construction if any of the following criteria are met.

- The activity involves mechanized land clearing in a forested wetland.
- A Section 10 permit is required to cross a navigable waterbody (Rivers and Harbors Act).
- The utility line exceeds 500 feet in length through any single crossing of a water of the U.S.
- The utility line is placed within a jurisdictional area (i.e., water of the U.S.) and it runs parallel to a stream bed that is within that jurisdictional area.
- Discharges result in the permanent loss of greater than 0.1 acre of waters of the U.S.
- Permanent access roads are constructed above grade in waters of the U.S. for a distance of more than 500 feet.
- Permanent access roads are constructed in waters of the U.S. with impervious materials.

### **1.2.3 U.S. Army Corps of Engineers Regional Conditions**

The USACE has published several regional conditions for projects operating under Nationwide Permits in North Dakota (USACE 2013). The regional conditions apply to wetlands classified as “fens,” waters adjacent to natural springs, the Missouri River, historic properties, and fish spawning areas.

## **2.0 METHODS**

### **2.1 SURVEY AREA**

Overall, eastern North Dakota is characterized by a moderate to cool climate, with cold, dry winters and mild to warm summers. Mean annual precipitation for the area is 14 to 16 inches (Bryce et al. 1998).

The proposed project is located in the Great Plains (level I) ecoregion. Further, the proposed project is located in the Lake Agassiz Plain (level III) ecoregion. The Lake Agassiz Plain ecoregion was created approximately 10,000 years ago when the great continental glaciers of North America started to recede to the north. Blocked by large ice sheets, the melting ice formed many large glacial lakes. The last proglacial lake to fill the modern-day Red River Valley was Glacial Lake Agassiz. The primary land use within the project area is large-scale agriculture (Bryce et al. 1998). Figures 1 and 2 are overviews of the project area.

The inventoried area discussed herein is situated on the U.S. Geological Survey Rawson (1976) and Bear Butte (1976), North Dakota, quadrangles. The proposed project corridor that was surveyed on May 14 and 15; July 16 and 23, 2015, encompasses portions of 12 sections within two townships and ranges.

- Sections 9, 10, 15, 21, 22,28, 29, 32, 33, and 34, Township (T) 140 North (N), Range (R) 50 West (W)
- Sections 4 and 9, T139N, R50W



**Figure 1. Project area overview depicting general topography toward the southern end of pipeline corridor, facing north (photo taken May 15, 2015).**



**Figure 2. Project area overview depicting general topography toward north end of pipeline corridor, facing south (photo taken May 14, 2015).**

## **2.2 WETLANDS**

National Wetlands Inventory (NWI) mapping for the region indicates the presence of wetlands within the project area (U.S. Fish and Wildlife Service [USFWS] 2012). SWCA ecologists conducted wetland determinations within the survey area based on the principles and guidelines provided in the 1987 *Corps of Engineers Wetlands Delineation Manual* (Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Determination Manual: Great Plains Region Version 2.0* (Supplement) (USACE 2010). As requested, SWCA ecologists delineated wetland boundaries by recording indicators of hydrology and hydrophytic vegetation. The Supplement suggests that soils also be taken into account. Therefore, soil data would be collected at a later date if project permitting requirements dictate. All wetlands and waterbodies geographically referenced within the survey area during field survey are depicted on the site layout maps in Appendix A.

### **2.2.1 Hydrophytic Vegetation**

Ecologists recorded all plants within the vegetative community based on the respective stratum each species occupied. A tree is defined by the Supplement to be a woody-stemmed plant with a trunk diameter at breast height (DBH) of equal to or greater than 3 inches, regardless of height. The sapling and shrub stratum is defined by the Supplement to be composed of woody-stemmed plants with a trunk DBH of less than 3 inches, regardless of height. The herbaceous stratum includes all non-woody-stemmed plants, regardless of height. Finally, the woody vine stratum includes all woody-stemmed vines, regardless of diameter.

SWCA recorded the binomial scientific name and percent cover of all plants within a 30-foot radius for the tree stratum, a 15-foot radius for the sapling/shrub stratum, a 5-foot radius for the herbaceous stratum, and a 30-foot radius for the woody vine stratum. SWCA ecologists noted each plant species' respective USFWS indicator status (i.e., upland [UPL], facultative upland [FACU], facultative [FAC], facultative wetland [FACW], and obligate [OBL]). In some instances the size and shape of the vegetative sampling plot was manipulated to better encompass each wetland or upland area, though the overall area assessed remained unchanged. Vegetation communities met the hydrophytic vegetation criterion for wetlands if more than 50% of dominant species had an indicator status of FAC, FACW, or OBL. SWCA also noted and geospatially referenced all populations of North Dakota state- or county-listed noxious weeds identified within the survey area.

### **2.2.2 Wetland Hydrology**

A wetland was determined to contain wetland hydrology if at least one primary indicator or at least two secondary indicators of wetland hydrology were present, as defined by the Manual and Supplement. Common hydrologic indicators include the presence of surface water, high water table, soil saturation, water marks on trees or other objects, sediment deposits, water-stained leaves, and oxidized rhizospheres on living roots.

## **2.3 WATERBODIES**

Waterbodies (i.e., ponds, creeks, streams, rivers) were identified by the presence of an ordinary high water mark (OHWM). Common identifiable indicators of an OHWM include

open water or evidence of a clear, natural line visible on the bank; shelving; changes in soil characteristics; the destruction of terrestrial vegetation; the presence of litter and debris; and water marks on structures that are inundated during normal high water conditions. The OHWM typically represents the potential limits of the USACE jurisdiction. The USACE has full discretion in determining the jurisdictional status of referenced wetlands and waterbodies.

SWCA classified streams as perennial, intermittent, or ephemeral based on field observations. During a typical year, a perennial stream contains flowing water year-round and the water table is located above the stream bed. Groundwater is the primary water source for stream flow, whereas precipitation runoff is supplemental. Ecologists classified streams that showed significant flow during the field survey as perennial. Additionally, the U.S. Geological Survey topographic maps were used as reference.

An intermittent stream has flowing water for only portions of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

## **2.4 NOXIOUS WEED SURVEYS**

SWCA conducted a noxious weed survey of all populations of North Dakota state- or county-listed noxious weeds within the project area.

## **2.5 TREE, SAPLING, AND SHRUB COUNT**

SWCA ecologists determined the total number of trees, saplings, and shrubs present within the survey area using several different techniques, depending on the type of woody vegetation habitat (i.e., forested upland, shrubland, or shelterbelt) encountered and the overall extent of each habitat within the ROW. The boundary of all forested upland, shrubland, and shelterbelt habitat was geographically referenced using a Trimble GeoXT series handheld global positioning system (GPS) unit. In forested upland and shrubland habitat, SWCA counted or estimated the number of all woody-stemmed vegetation with a DBH of  $\geq 1$  inch. In shelterbelt areas, all woody-stemmed vegetation, regardless of DBH, was inventoried via direct count. Ecologists taxonomically identified all recorded individuals to the species level within each habitat type.

## **2.6 WILDLIFE, INCLUDING THREATENED AND ENDANGERED SPECIES**

Prior to conducting field surveys, SWCA reviewed information obtained from the USFWS list of threatened and endangered species by North Dakota county (USFWS 2015) regarding the presence of threatened or endangered species that may occur within the survey area. This document does not represent a comprehensive survey, but rather acknowledges the past and/or current presence of listed species. The lack of discovery of threatened or endangered species

does not signify their non-existence within the area, but only that no primary or secondary indications of these species were recorded. SWCA completed a survey for all listed species and suitable habitat.

A line-of-sight binocular survey for raptor species was also conducted for a distance of approximately 0.5 mile. SWCA ecologists noted all wildlife observed during the field survey. Wildlife sightings can involve primary observations (i.e., actual sighting of an animal) or secondary observations (i.e., observation of scat, tracks, or fur deposits).

## **2.7 MAPPING**

The boundaries of each wetland, waterbody, woody vegetation habitat, and noxious weed assemblage were geographically recorded using a Trimble GeoXT GPS unit. The aforementioned GPS unit is capable of recording geographic data with sub-meter accuracy. SWCA used Universal Transverse Mercator Zone 13 North as the projected coordinate system and North American Datum 1983 as the datum. ArcGIS v10.0 (ESRI Redlands, California) was used to analyze recorded features, calculate areas, and generate the maps provided in Appendix A and Appendix B. All data collected using the GPS unit, and displayed on the attached maps, are for review purposes only and do not represent a professional civil survey.

## **3.0 RESULTS**

### **3.1 VEGETATION**

During the field survey, SWCA ecologists identified four general types of vegetative communities within the survey area. These vegetative communities were classified as herbaceous upland, upland woody vegetation, cropland, and palustrine emergent (PEM) wetland. PEM wetlands are characterized by the presence of herbaceous hydrophytic or submergent aquatic macrophytes. Photographs of the survey area are provided in Appendix C.

Vegetation communities met the hydrophytic vegetation criterion for wetlands if more than 50% of dominant species had an indicator status of FAC, FACW, or OBL. The upland communities failed to meet at least one of the three assessed wetland criteria.

#### **3.1.1 Herbaceous Upland**

The herbaceous upland community consists of areas dominated by non-woody vegetation such as grasses and forbs. Herbaceous uplands observed commonly consisted of smooth brome (*Bromus inermis*) and crested wheatgrass (*Agropyron cristatum*).

#### **3.1.2 Woody Vegetation**

Forested upland vegetation consisted of green ash (*Fraxinus pennsylvanica*), eastern cottonwood (*Populus deltoides*), and chokecherry (*Prunus virginiana*).

#### **3.1.3 Cropland**

Cropland was confirmed in the survey area. The crops were primarily corn and sunflower.

### 3.1.4 Hydrophytic Vegetation

Aquatic vegetation species confirmed during the survey included prairie cordgrass (*Spartina pectinata*), reed canarygrass (*Phalaris arundinacea*), broad-leaf cattail (*Typha latifolia*), sedges (*Carex* spp.), curly dock (*Rumex crispus*), hardstem bulrush (*Scirpus acutus*), quackgrass (*Elymus repens*) and water or longroot smartweed (*Polygonum amphibium*).

### 3.2 HYDROLOGY

Wetland communities observed during the determination effort displayed at least one primary or two secondary indicators of wetland hydrology, as defined by the Manual and Supplement. Upland communities either failed to display hydrologic indicators or failed to meet the hydrophytic vegetation criterion, as defined by the Manual and Supplement. Common indicators of wetland hydrology observed during field surveys include Surface Water (A1), Drift Deposits (B3), Inundation Visible on Aerial Imagery (B7), Drainage Patterns (B10) Saturation Visible on Aerial Imagery (C9), and Geomorphic Position (D2).

According to National Weather Service preliminary climatological data for Jamestown, North Dakota (approximately 85 miles west from the project area), 17.37 inches of precipitation were recorded from May 1 through July 31, 2015 (Table 1). This amount is 8.17 inches above normal for this time period.

**Table 1. Monthly Recorded Rainfall at National Weather Service Station in Jamestown, North Dakota**

Month	Recorded Precipitation (inches)	Normal Precipitation (inches)	Difference (inches)
May 2015	8.75	2.66	6.09
June 2015	5.66	3.19	2.47
July 2015	2.96	3.35	-0.39
<b>Total</b>	<b>17.37</b>	<b>9.20</b>	<b>8.17</b>

Source: National Oceanic and Atmospheric Administration (2015).

### 3.3 WETLANDS

SWCA recorded nine PEM wetlands within the survey area, totaling approximately 1.38 acres. Approximately 0.66 acre of PEM wetlands is proposed to be temporarily impacted in the 100-foot-wide construction ROW (Table 2). These wetlands are likely isolated due to a lack of connectivity to a larger waterbody. However, the USACE has the final authority to determine jurisdictional status.

**Table 2. PEM Wetland Acreage within the Survey Area**

<b>Feature ID</b>	<b>Wetland Type</b>	<b>USACE Jurisdiction *</b>	<b>Total PEM Size (acres)</b>	<b>Temporarily Impacted Area within 100-foot-wide ROW (acres)</b>	<b>Length of Required Crossing (feet)</b>
BWET1	Semipermanent	Isolated	0.11	.05	25
BWET2	Semipermanent	Isolated	1.02	0.46	229
BWET3	Semipermanent	Isolated	0.09	0.05	43
BWET4 and 5	Semipermanent	Isolated	0.04	0.01	76
BWET6	Semipermanent	Isolated	0.02	0.02	46
BWET7	Semipermanent	Isolated	0.04	0.03	31
CWET 1	Semipermanent	Isolated	0.07	.04	18
CWET2	Seasonal	Isolated	0.005	0.00	0
<b>Total</b>			<b>1.38</b>	<b>0.66</b>	<b>468</b>

\* The USACE has the final authority on the jurisdictional status of a waterbody.

PEM = palustrine emergent

ROW = right-of-way

USACE = U.S. Army Corps of Engineers

### 3.4 WATERBODIES

SWCA identified two waterbodies during the field survey. The Lower Branch of the Rush River (STR2), an intermittent stream, flows to the east through the survey area and joins the Sheyenne River approximately 6.69 river-miles to the east. The Maple River (STR1), a perennial stream, also flows to the east through the survey area and joins the Sheyenne River approximately 5.43 river-miles to the east. Direct impacts to these features will be avoided by project design and horizontal directional drilling techniques.

**Table 3. Waterbody Acreage within the Survey Area**

<b>Feature ID</b>	<b>Waterbody Type</b>	<b>USACE Jurisdiction*</b>	<b>Total Size (acres)</b>	<b>Temporarily Impacted Area within 100-foot-wide ROW (acres)</b>	<b>Length of Required Crossing (feet)</b>
STR1	Permanent (Maple River)	Likely Jurisdictional	0.60	0	116
STR2	Permanent (Lower Branch Rush River)	Likely Jurisdictional	0.37	0.18	80
<b>Total</b>			<b>0.97</b>	<b>.18</b>	<b>196</b>

\* The USACE has the final authority on the jurisdictional status of a waterbody.

ROW = right-of-way

USACE = U.S. Army Corps of Engineers

### 3.5 SOILS

Based on Natural Resources Conservation Service (NRCS) mapping (NRCS 2014), 10 soil types are present in the project construction corridor (Appendix B). The project area analyzed for soils covers the 100-foot-wide construction corridor. Table 4 lists all soil units within the project area. The following soil component descriptions represent the most prevalent soil series found within the survey area (NRCS 2014).

**Table 4. NRCS Derived Soil Series Present within the 100-foot-wide ROW**

Soil Types	Slopes (%)	Acres within 100-foot-wide ROW	Percent (%) within Map Unit
Fargo-Hegne silty clays	0 to 1	21.71	25.52
Fargo silty clay loam	0 to 1	13.61	16.00
Bearden-Lindaas silty clay loams	0 to 2	11.05	12.99
Fargo silty clay	0 to 1	9.97	11.72
Bearden silty clay loam	0 to 1	9.34	10.98
Fargo silty clay, depressional	0 to 1	7.72	9.08
Bearden-Kindred silty clay loams	0 to 2	6.88	8.08
Fargo-Nutley silty clays	0 to 3	2.11	2.48
Dovray silty clay	0 to 1	1.26	1.48
Orthents-Aquents-Urban Land, highway complex	0 to 35	0.86	1.01
<b>Total</b>		<b>88.36</b>	<b>100.00</b>

Source: Natural Resources Conservation Service (2014).

ROW = right-of-way

#### 3.5.1 Fargo

The Fargo series consists of very deep, poorly drained, slowly permeable soils found on glacial lake plains, floodplains, and gently sloping side slopes of streams within glacial lake plains. The soil slopes range between 0 and 2 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 16 inches and mean annual air temperature is approximately 41°F. Soils are cropped to corn, small grains, soybeans (*Glycine max*), and sugar beets (*Beta vulgaris*). The most common native vegetation species found on this soil type are western wheatgrass, Kentucky bluegrass (*Poa pratensis*), and a variety of forbs (NRCS 2014).

#### 3.5.2 Bearden

The Bearden soil series consists of very deep, somewhat poorly drained soils found in glacial lake plains. These soils are moderately to slowly permeable. The slope ranges from 0 to 3 percent. The mean annual precipitation found throughout the spatial extent of this soil type is 18 inches and the mean annual air temperature is 39°F. Soils are cropped to small grains and row crops such as sugar beets. The native vegetation is principally big bluestem (*Andropogon*

*gerardii*), switchgrass (*Panicum virgatum*), western wheatgrass, and a variety of forbs (NRCS 2014).

### 3.6 TREE, SAPLING, AND SHRUB COUNT

During SWCA’s field survey, one upland tree areas were geographically referenced within the survey area. SWCA recorded all trees with a DBH of greater than 1 inch. Table 5 summarizes the number of trees estimated to be impacted by the project as currently proposed. The NDPSC requires a 2:1 post- to pre-construction mitigation for all trees, saplings, and shrubs impacted during the construction of the proposed pipeline. Therefore, SWCA estimates that approximately 0 2-year-old sapling individuals would need to be replanted in order to fulfill the 2:1 mitigation requirement.

**Table 5. Tree, Sapling, and Shrub Count**

Feature ID	Species	Type	Number of Trees		Estimated Mitigation Commitment
			Survey Corridor	100-foot-wide Construction ROW*	
WV1	Green ash	Planted	10	0	0
	Chokecherry ( <i>Prunus virginiana</i> )	Planted	25	0	0
	Eastern cottonwood	Planted	10	0	0
<b>Total</b>			<b>45</b>	<b>0</b>	<b>0</b>

\* Estimated value based off of the observed density of trees.

ROW = right-of-way

### 3.7 NOXIOUS WEEDS

“Noxious weeds” is a general term used to describe plant species that are not native to a given area, spread rapidly, and have adverse ecological and economic impacts. These species may have high reproduction rates and are usually adapted to occupy a diverse range of habitats otherwise occupied by native species. These species may subsequently out-compete native plant species for resources, causing a reduction in native plant populations.

Noxious weeds have the potential to detrimentally affect public health, ecological stability, and agricultural practices. North Dakota Century Code (Chapter 63-01.1) and the North Dakota Department of Agriculture recognize 11 species as noxious, as shown in Table 6 (North Dakota Department of Agriculture 2013). Each county has the authority to add additional species to their list of noxious weeds. Cass County has listed black henbane (*Hyoscyamus niger*), common burdock (*Arctium minus*), houndstongue (*Cynoglossum officinale*), halogeton (*Halogeton glomeratus*), and baby’s breath (*Gypsophila paniculata*) in addition to the 11 state-listed noxious weeds. In 2012, six state noxious weed species were found on 11,051 acres in Cass County.

**Table 6. Documented Noxious Weed Occupied Area in Cass County, North Dakota**

Common Name	Scientific Name	Cass County (acres)
Absinth wormwood	<i>Artemisia absinthium</i>	271
Canada thistle	<i>Cirsium arvense</i>	5,363
Diffuse knapweed	<i>Centaurea diffusa</i>	0
Leafy spurge	<i>Euphorbia esula</i>	5,408
Musk thistle	<i>Carduus nutans</i>	0
Purple loosestrife	<i>Lythrum salicaria</i>	2
Russian knapweed	<i>Acroptilon repens</i>	0
Spotted knapweed	<i>Centaurea stoebe</i>	5
Yellow toadflax	<i>Linaria vulgaris</i>	2
Dalmatian toadflax	<i>Linaria dalmatica</i>	0
Salt cedar	<i>Tamarix ramosissima</i>	0

Source: North Dakota Department of Agriculture (2013).

No noxious weeds were noted during the survey for the proposed Laurel Interconnect pipeline.

### **3.8 WILDLIFE**

Several wildlife species that may exist in Cass County are listed as threatened or endangered under the Endangered Species Act (ESA) (16 United States Code 1531 et seq.). According to the USFWS, listed species in Cass County, North Dakota, include the northern long-eared bat (*Myotis septentrionalis*), gray wolf (*Canis lupus*), and whooping crane (*Grus americana*). SWCA conducted a cursory threatened and endangered species survey concurrently with the wetland determination. Ecologists did not observe any primary (i.e., actual sighting) or secondary (i.e., tracks, scat, fur) indication of the presence of threatened or endangered species.

Due to a lack of suitable habitat, the proposed project is not expected to result in take of the gray wolf. The whooping crane has the potential to occur within the project area as a migrant. However, due to the low probability of occurrence, and only temporary disturbance during construction, there is not expectation of take of the endangered whooping crane from the project area. The northern long-eared bat has the potential to occur within the project area, due to possible suitable habitat. However, due to the relatively minor impact to the area's woody vegetation, there is expected to be no take of the northern long-eared bat. Also, under an ESA Section 4(d) interim rule, incidental take of this species is exempt in North Dakota.

#### **3.8.1 Gray Wolf**

**Federal Status:** Endangered

**Effects Determination:** No unauthorized take anticipated

The gray wolf, listed as endangered in the United States in 1978, was believed extirpated from North Dakota in the 1920s and 1930s, with only sporadic reports from the 1930s to present (Licht and Huffman 1996; USFWS 1978). The presence of wolves in most of North Dakota

consists of occasional dispersing animals from Minnesota and Manitoba (Licht and Fritts 1994; Licht and Huffman 1996). Most documented gray wolf sightings within western North Dakota are believed to be young males seeking to establish territory (Hagen et al. 2005). The Turtle Mountain region of north-central North Dakota provides marginal habitat that may be able to support a very small population of wolves. The closest known pack of wolves is the Minnesota population located approximately 17 miles (28 kilometers [km]) from the northeast corner of North Dakota.

The gray wolf uses a variety of habitats that support a large prey base, including montane and low-elevation forests, grasslands, and desert scrub (USFWS 2013a). Due to a lack of forested habitat and distance from Minnesota and Manitoba populations, as well as the troubled relationship between humans and wolves and their vulnerability to being shot in open habitats (Licht and Huffman 1996), the re-establishment of gray wolf populations in North Dakota is unlikely. Additionally, habitat fragmentation may further act as a barrier against wolf recolonization in western North Dakota. Therefore, **no unauthorized take is anticipated.**

### **3.8.2 Whooping Crane**

**Federal Status:** Endangered

**Effects Determination:** No unauthorized take anticipated

The whooping crane was listed as endangered in 1970 in the United States by the USFWS and in 1978 in Canada. Historically, population declines were caused by shooting and destruction of nesting habitat in the prairies from agricultural development. Current threats to the species include habitat destruction, especially suitable wetland habitats that support breeding and nesting, as well as feeding and roosting during their fall and spring migration (Canadian Wildlife Service and USFWS 2007).

The July 2010 total wild population was estimated at 383 (USFWS 2013b). There is only one self-sustaining wild population, the Aransas-Wood Buffalo National Park population, which nests in Wood Buffalo National Park and adjacent areas in Canada, where approximately 83% of the wild nesting sites occur (Canadian Wildlife Service and USFWS 2007; USFWS 2013b). Cass County, including the project area, is outside the primary migratory flyway of whooping cranes.

Whooping cranes probe the soil subsurface with their bills for foods on the soil or vegetation substrate (Canadian Wildlife Service and USFWS 2007). Whooping cranes are omnivores, and foods typically include agricultural grains, as well as insects, frogs, rodents, small birds, minnows, berries, and plant tubers. The largest amount of time during migration is spent feeding in harvested grain fields (Canadian Wildlife Service and USFWS 2007). Studies indicate that whooping cranes use a variety of habitats during migration, in addition to cultivated croplands, and generally roost in small palustrine (marshy) wetlands within 0.6 mile (1 km) of suitable feeding areas (Howe 1987, 1989). Whooping cranes have been recorded in riverine habitats during their migration, with eight sightings along the Missouri River in North Dakota (Canadian Wildlife Service and USFWS 2007:18). In these cases, they roost on submerged sandbars in wide, unobstructed channels that are isolated from human disturbance (Armbruster 1990).

Suitable whooping crane foraging habitat (i.e., cultivated cropland and wetlands >0.04 hectare) was observed within the survey area. In addition, the project area is located outside the delineated 95% migration corridor for the whooping crane, making the possibility of cranes using the area less than 5%. The nearest verified sighting occurred approximately 23 miles southwest of the proposed alignment (unpublished data, M. Tacha, USFWS); thus, it is unlikely that the species would occur in the project area. SWCA recommends that if whooping crane(s) are sited within 1.0 mile of the project area NuStar will stop construction and contact the USFWS. Therefore, **no unauthorized take is anticipated.**

### **3.8.3 Northern Long-eared Bat**

**Federal Status:** Threatened

**Effects Determination:** No unauthorized take anticipated

On May 4, 2015, the USFWS listed the northern-long eared bat as threatened under the ESA (USFWS 2015). USFWS also issued an interim rule pursuant to Section 4(d) of the Act in conjunction with the final rule to list the species as threatened, which also takes effect on May 4, 2015. For areas of the country not affected by whitenose syndrome (i.e., areas outside the 150-mile white-nose syndrome buffer zone), including all of North Dakota, the interim 4(d) rule exempts incidental take from certain activities. This medium-sized bat ranges across the eastern and north-central United States and all of the Canadian provinces (USFWS 2013c). Throughout most of this species' range, populations are patchily distributed. They emerge at dusk to fly through the understory of forested hillsides and ridges, feeding on moths, flies, leafhoppers, caddisflies, and beetles.

Most records of northern long-eared bats are from winter hibernacula surveys, with more than 780 hibernacula identified within the United States. No known hibernacula are located in North Dakota, due either to a lack of suitable hibernacula present or to a lack of survey efforts (USFWS 2013d). This bat species occupies a wide range of rocky and forested habitats. Suitable winter habitat contains large caves and mines (USFWS 2013c). Summer day roosts include abandoned buildings, bridges, hollow trees, stumps, under loose bark, and rock fissures (Jones and Choate 1978).

Northern long-eared bats are not known to occur in the project area, although species-specific surveys have not been conducted. Suitable winter habitat for northern long-eared bats does not occur within the action area. Nearby trees can act as suitable summer day roosts. The project construction plans include the minimal removal of woody vegetation. SWCA identified 0 trees and shrubs with a DBH of over 1 inch within the 100-foot construction corridor. The project is located outside the 150-mile whitenose syndrome buffer zone. Incidental take of northern long-eared bats is exempt throughout North Dakota. **No unauthorized take is anticipated.**

### **3.8.4 Migratory Birds**

**Status:** Protected under the Migratory Bird Treaty Act

**Effects of Project:** No take anticipated

Suitable habitat for migratory birds exists in the entire project area. Specifically, grassland nesting birds have the potential to occur and nest in the project area, especially during the

migratory bird breeding season. Suitable woodland nesting habitat also occurs in the project area. Options for NuStar to avoid all incidental take during construction of the project include one of the following options.

- Complete all construction outside of the migratory bird breeding season, which occurs generally between February 1 and July 15.
- Clear and grub or mow the project alignment prior to the bird breeding season and maintain vegetation in a degraded state within the project construction area during the breeding season to deter migratory birds from nesting in the project area until construction is completed.
- If project construction commences during the bird breeding season, have a qualified avian biologist conduct a survey of breeding birds in the project area no more than 5 days before construction begins, and if active nests are discovered, notify the USFWS for further direction.
- If nests are identified in the construction area, they will be taxonomically identified by a qualified avian biologist to determine if the species are considered migratory. If the species are migratory, the construction ROW will be marked by placing wooden laths on each side of the construction ROW, then string caution tape across the ROW between laths. A 100-foot set back from active nests will be maintained. Per the recommendation of the USFWS, no ground clearing may commence within an avoidance area, including mowing, until the identified nest ceases to be active.

With one of the proposed options listed above followed by NuStar, the proposed project is **unlikely to cause unauthorized take of any migratory birds or active nests.**

### 3.8.5 Bald Eagle

**Federal Status:** Delisted in 2007; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

**Effects of Project:** No unauthorized take anticipated

The bald eagle (*Haliaeetus leucocephalus*) feeds on fish and carrion and typically roosts in large trees near a water source. Bald eagle nesting habitat typically consists of any mature stands of conifer or cottonwood trees in association with rivers, streams, reservoirs, lakes, or any significant body of water. Bald eagles in eastern North Dakota are usually observed along the Red River and Sheyenne River. The nearest known bald eagle nest is located approximately 4.2 miles to the southeast (North Dakota Game and Fish Department 2015). Bald eagles frequently migrate through the grassland habitats; however, no bald eagles or nests were observed during the field surveys. Therefore, **no unauthorized take is anticipated** for the bald eagle.

### 3.8.6 Golden Eagle

**Federal Status:** Unlisted; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

**Effects of Project:** No unauthorized take anticipated

The golden eagle (*Aquila chrysaetos*) prefers habitat characterized by open prairie, plains, and forested areas. Usually, golden eagles in North Dakota can be found in proximity to badland cliffs, which provide suitable nesting habitat. Golden eagles are unlikely to occur within or near the survey area due to the survey area being located outside the primary nesting range. The closest known golden eagle nest is approximately 249.1 miles from the project area. Therefore, **no unauthorized take is anticipated** for the golden eagle.

**3.8.7 Wildlife Observed**

During the field survey, SWCA ecologists observed various wildlife species that use wetlands and other habitats within the survey area (Table 7). Common wildlife species may be affected both directly through incidents with construction equipment or indirectly through the temporary fragmentation of habitat as a result of construction activities.

**Table 7. Wildlife Observed during Field Surveys of the Proposed Pipeline Route**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Observation Type</b>
American robin	<i>Turdus migratorius</i>	Primary
Frogs	<i>Anura spp.</i>	Secondary
Mallard	<i>Anas platyrhynchos</i>	Primary
Red-winged blackbird	<i>Agelaius phoeniceus</i>	Primary
Brown-headed cowbird	<i>Molothrus ater</i>	Primary
House wren	<i>Troglodytes aedon</i>	Primary
Great blue heron	<i>Ardea herodias</i>	Secondary
Northern pintail	<i>Anas acuta</i>	Primary

## **4.0 CONCLUSIONS AND RECOMMENDATIONS**

1. SWCA ecologists recorded approximately 1.39 acres of wetlands within the survey area.
2. In total, approximately 0.66 acre of PEM wetland *may* be temporarily impacted by construction activities.
3. SWCA ecologists recorded two waterbodies totaling approximately 0.97 acres within the survey area. The Maple River and the Lower Branch of the Rush River are likely jurisdictional waterbodies due to their connection to the Sheyenne River.
4. The USACE makes any final determination on the jurisdiction of a waterbody. Boring underneath the waterbodies identified should not require a permit from the USACE. If fill is to be placed, including the side-casting of excavated material and/or backfilling, a USACE permit under Section 404 of the Clean Water Act may be needed. SWCA recommends requesting an official Jurisdictional Determination be completed by the USACE, if project plans include any placement of dredged or fill material into wetlands or waterbodies.
5. SWCA estimates that no trees, saplings, and shrubs may be impacted. Therefore, no 2-year-old saplings should need to be replanted to fulfill the PSC 2:1 mitigation requirement.

According to the recommendations of the North Dakota Forest Service, tree species selection for replacement should be accomplished through collaboration with a reputable area nursery. This will allow for species to be selected based on various factors, including species hardiness and area soil type.

6. No threatened or endangered species were observed during the field survey. The project area is outside the delineated 95% migration corridor for the whooping crane. SWCA recommends that if construction is to occur within whooping crane spring and fall migration periods, and a whooping crane is observed within 0.5 mile of the project, to stop construction and notify the USFWS at 701-250-4481.
7. The project construction plans include the minimal removal of woody vegetation. SWCA identified 0 trees and shrubs of DBH over 1 inch within the 100-foot construction corridor. These trees were determined to likely be too small to be suitable roost sites.
8. Migratory birds and habitat were observed throughout the entire project area. A 0.5-mile line-of-sight survey for raptor nests was conducted throughout the survey area. No raptor nests were observed during the survey.

In order to avoid unauthorized take of migratory birds, SWCA recommends conducting all construction outside the migratory bird breeding season. If construction occurs during the bird breeding season, SWCA recommends to either mow, maintain in a degraded state, or completely remove vegetation within the project construction area, or conduct an avian survey of the project area no more than 5 days before construction begins. If active nests are discovered, either notify the USFWS for further direction or the nests will be taxonomically identified by a qualified avian biologist to

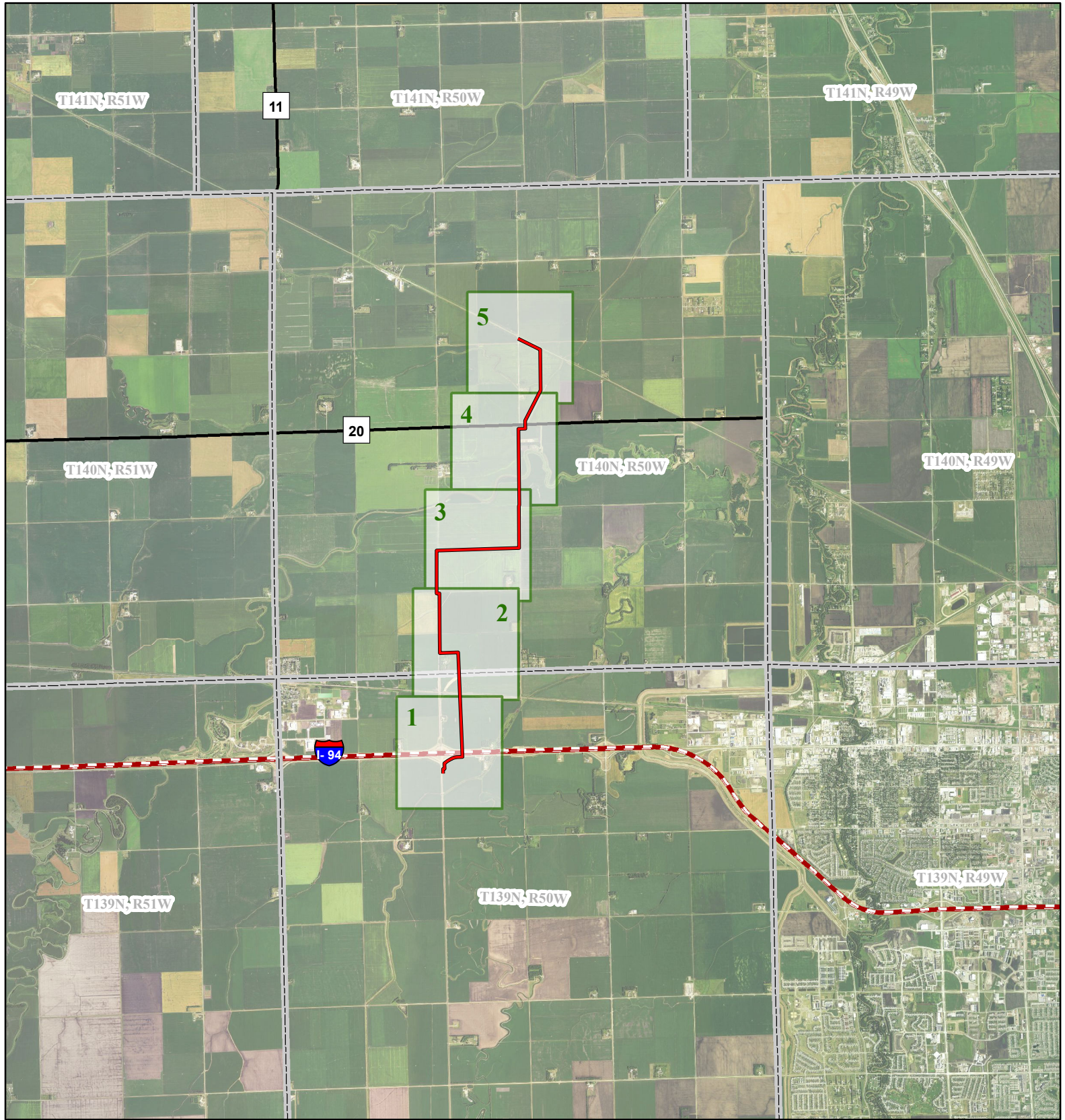
determine if the species are considered migratory. If the species are migratory, the construction ROW will be marked by placing wooden laths on each side of the construction ROW, then string caution tape across the ROW between laths. A 100-foot set back from active nests will be maintained. Per the recommendation of the USFWS, no ground clearing may commence within an avoidance area, including mowing, until the identified nest ceases to be active.

9. No areas of noxious weeds were identified in the survey area. If noxious weeds are confirmed during construction activities, actions should be taken to reduce the potential to spread any state listed noxious weed species, especially to native areas.






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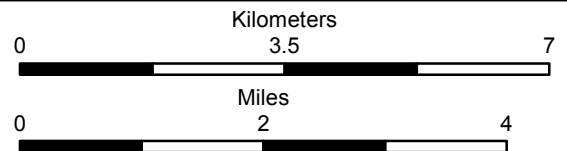
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-  Interstate Highway
-  County Highway
-  Map Layout
-  Township/Range Boundary



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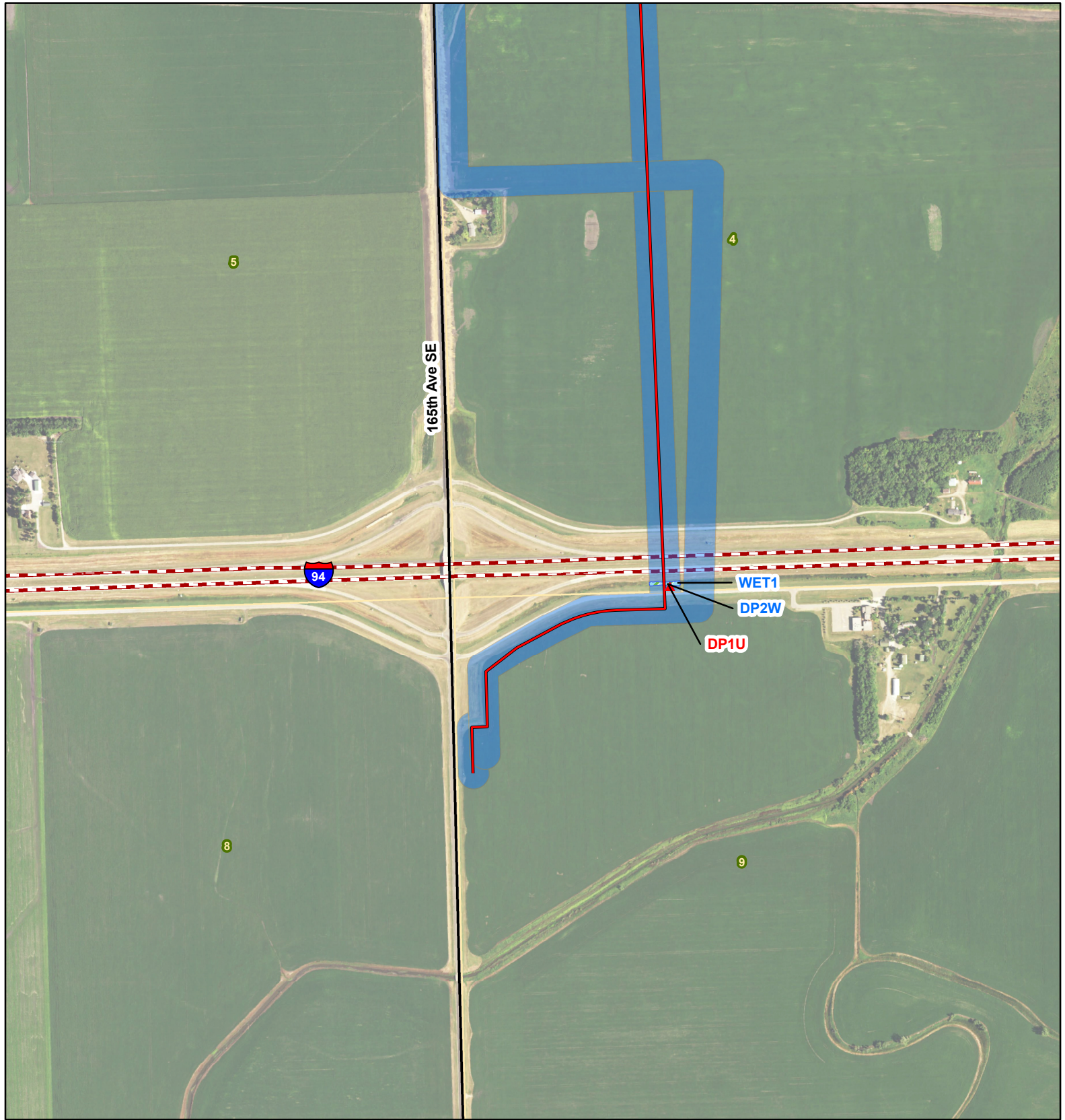
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Cass County, North Dakota

Projection: NAD 1983 UTM Zone 14N





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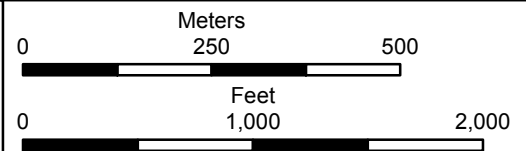
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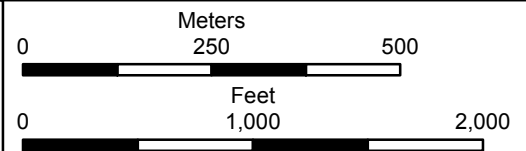
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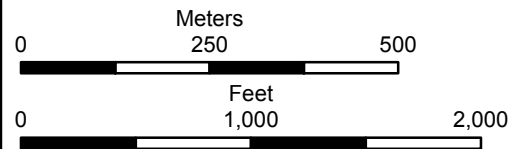
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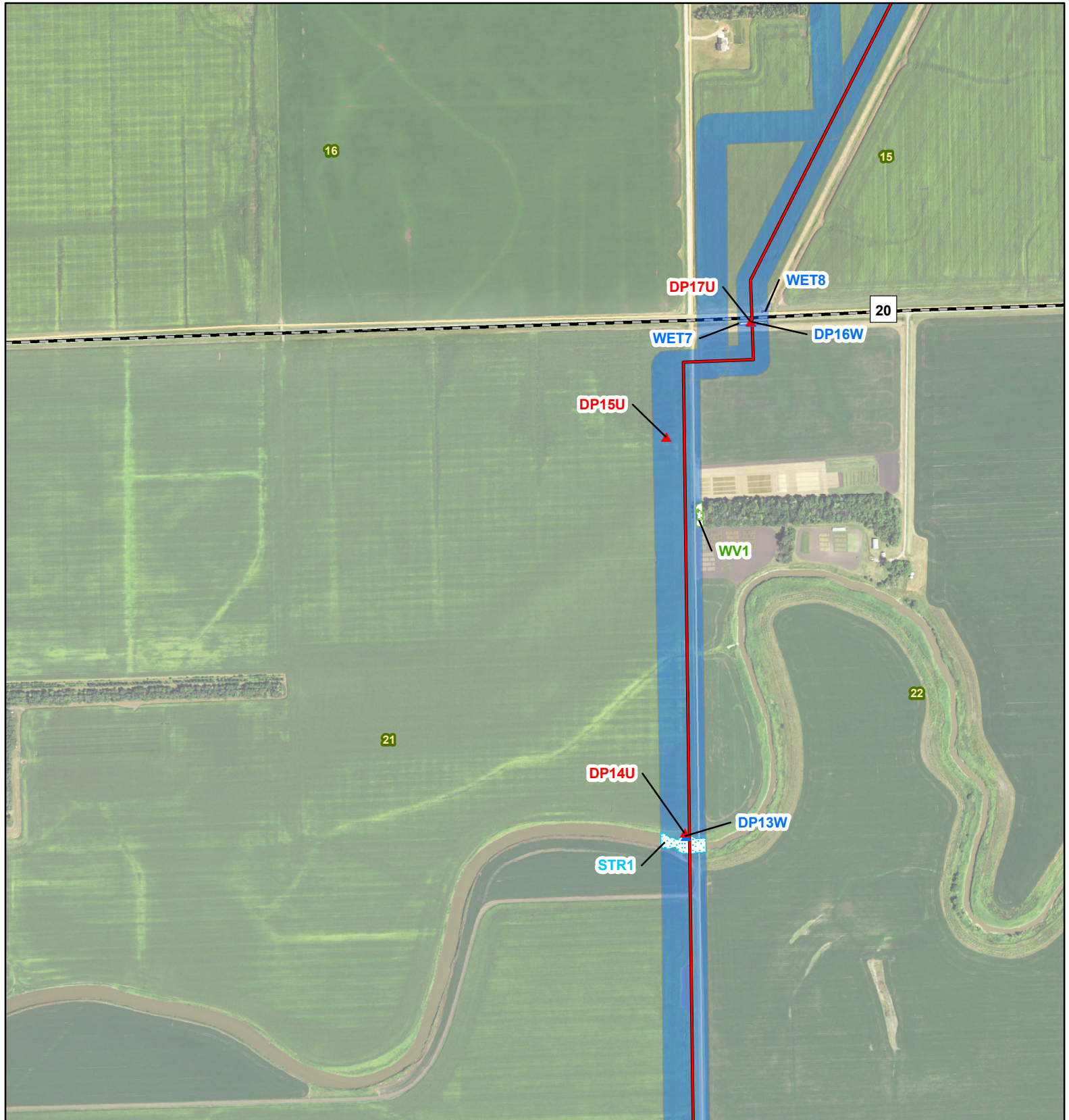
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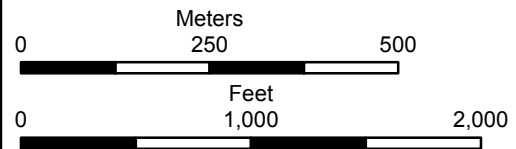
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










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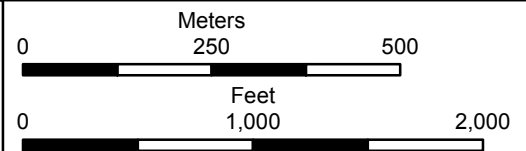
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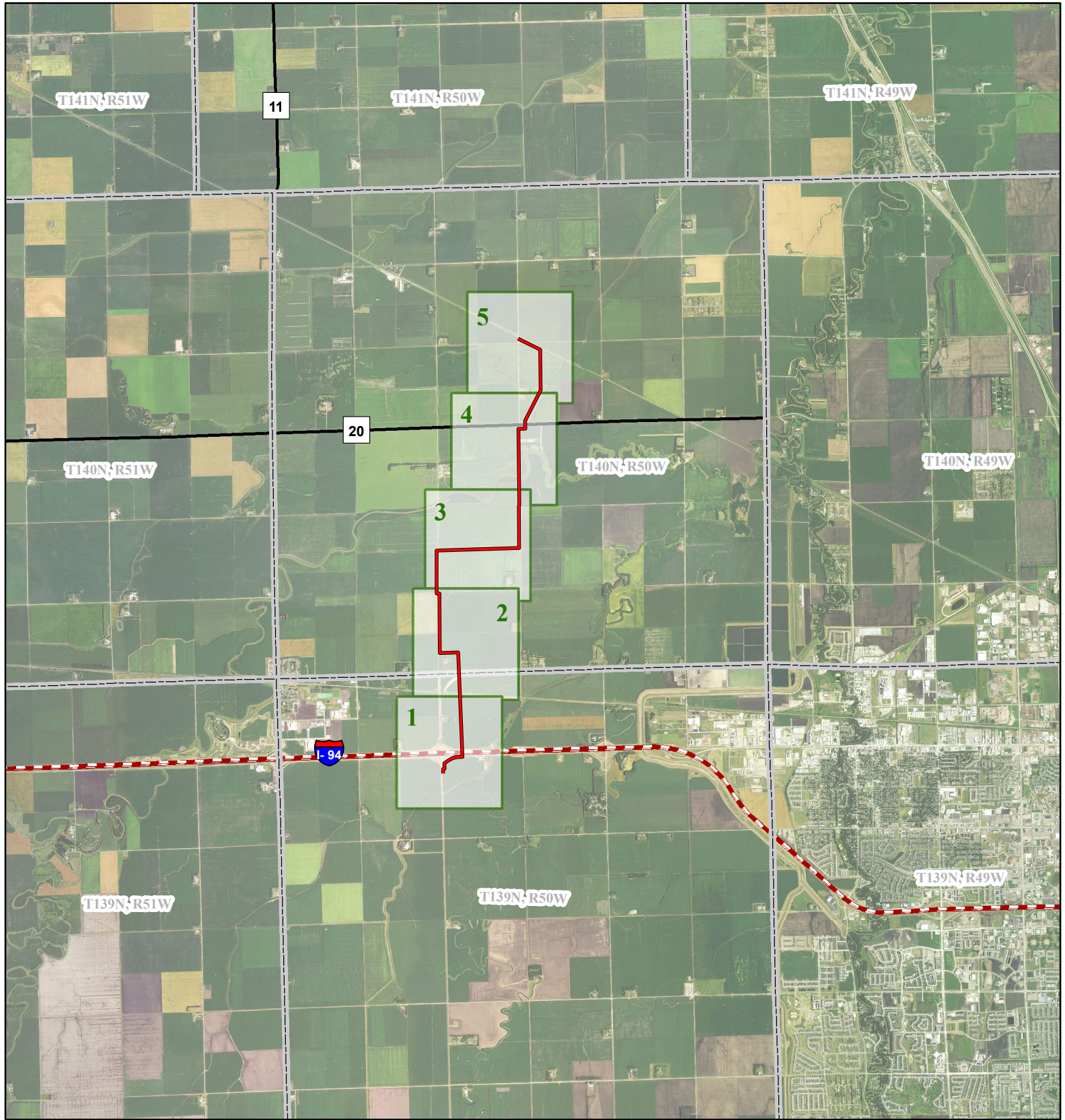
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Cass County, North Dakota  
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**APPENDIX B**  
**Survey Area Soil Series Map**



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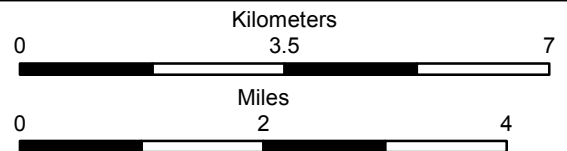
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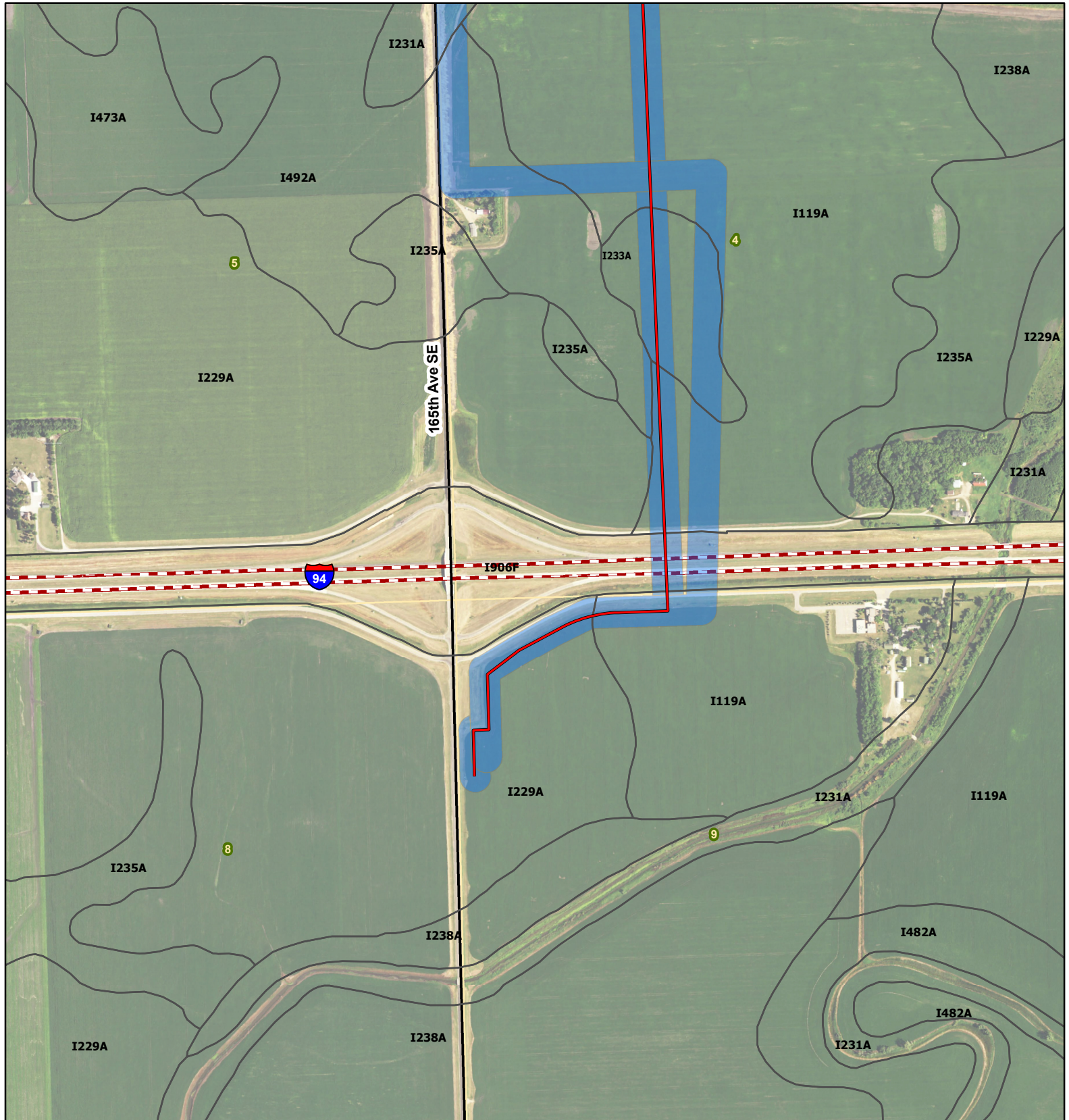
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




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Projection: NAD 1983 UTM Zone 14N





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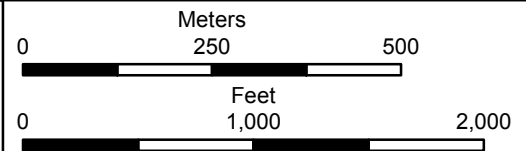
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-  Existing Road
-  Survey Area
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-  Township/Range Boundary
-  Section Boundary



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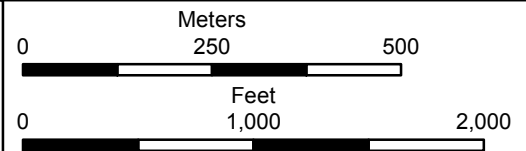
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Bismarck, ND 58501

Phone: 701.258.6622  
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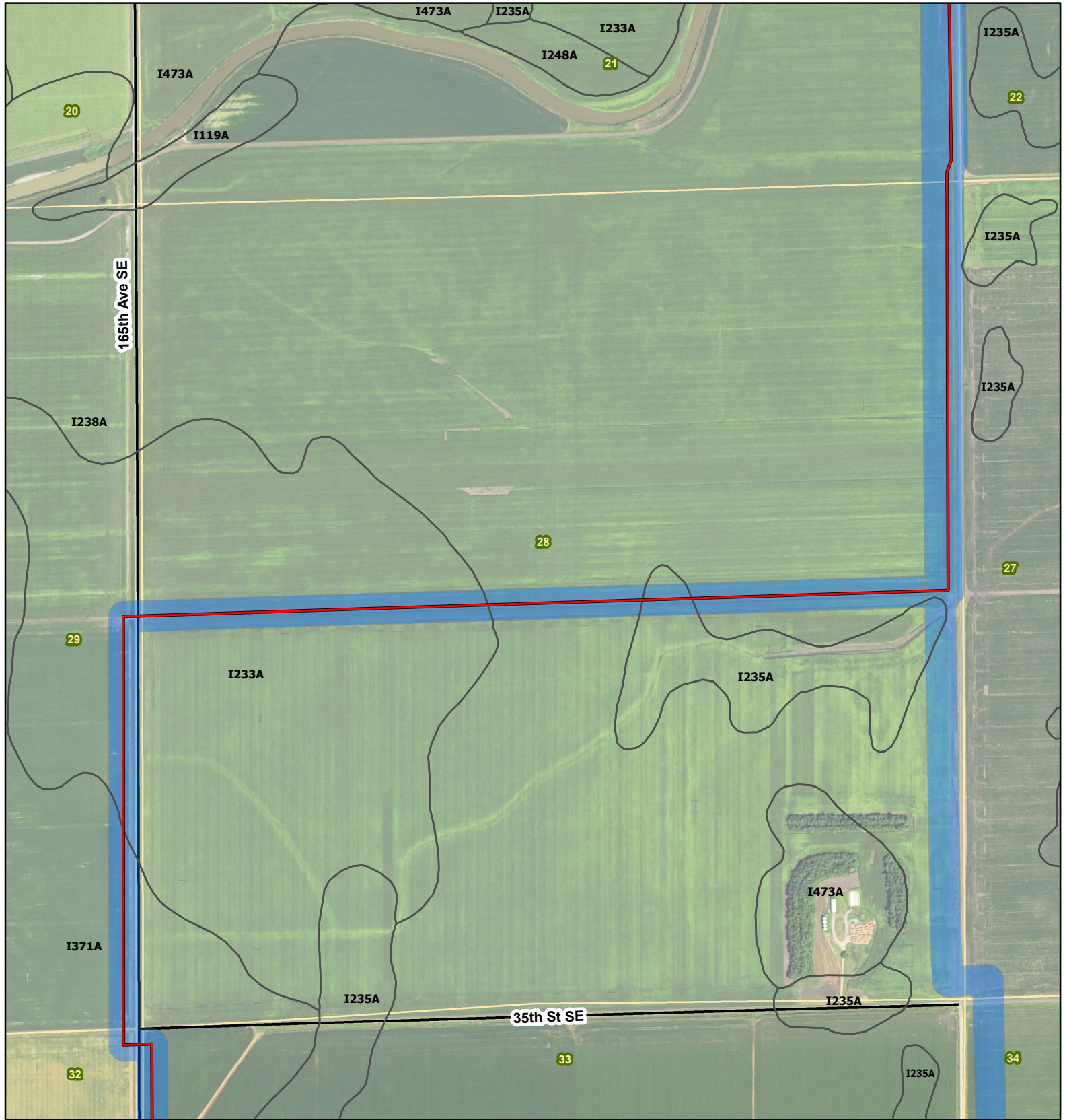
[www.swca.com](http://www.swca.com)









Base Map: 2014 Aerial Imagery  
Source: USDA/FSA -  
Aerial Photography Field Office  
Quadrangle: Mapleton (1976)



Township/Range: T. 139N, R. 50W  
and T. 140N, R. 50W  
Cass County, North Dakota  
Projection: NAD 1983 UTM Zone 14N





### Laurel Pipeline

-  Proposed Gathering Pipeline
-  Interstate Highway
-  County Highway
-  Existing Road
-  Survey Area
-  Soil Unit Boundary

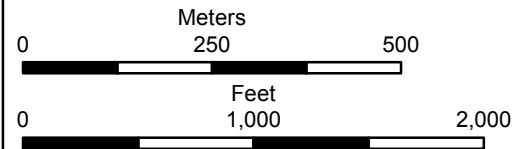
-  Township/Range Boundary
-  Section Boundary



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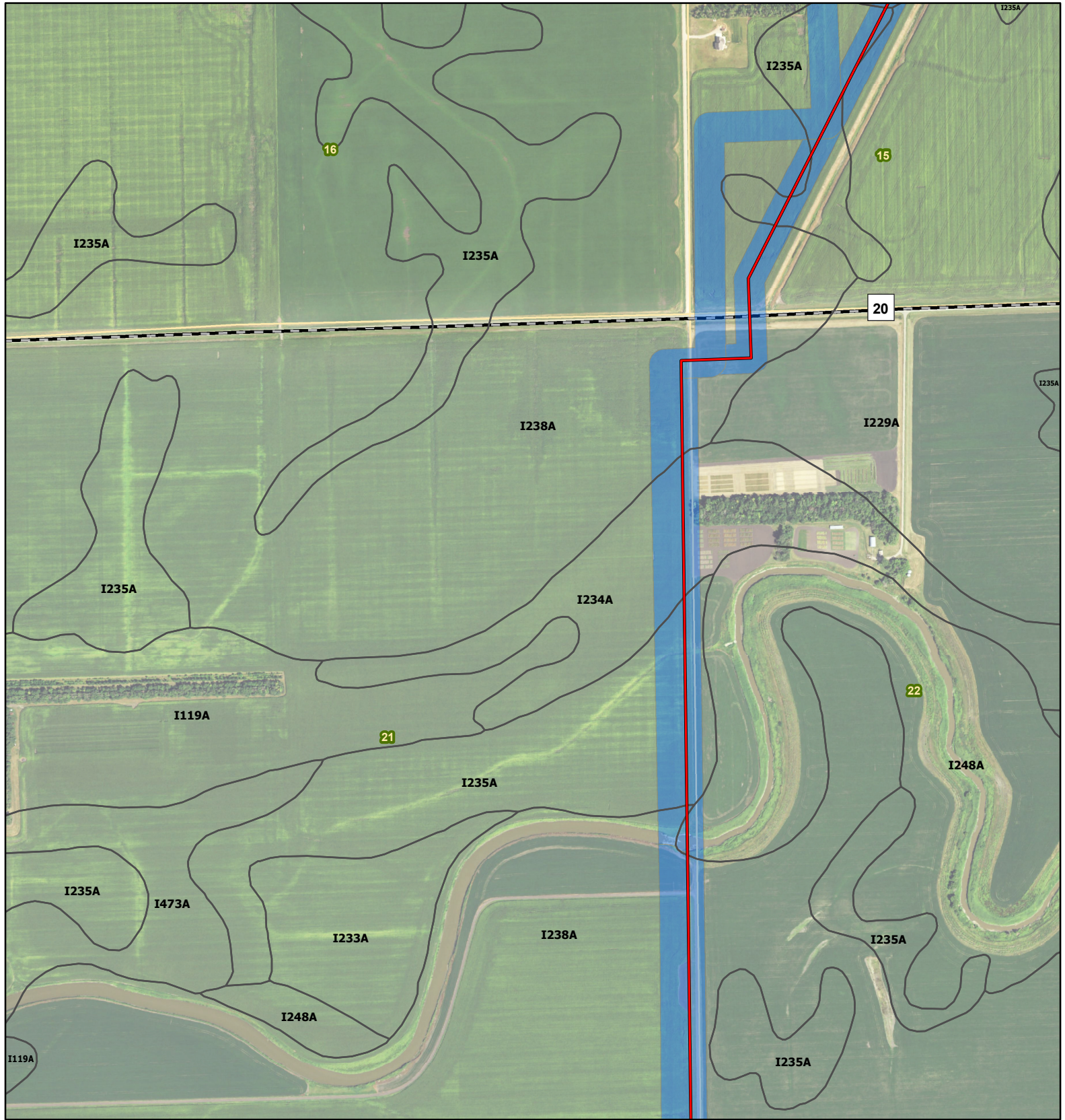
[www.swca.com](http://www.swca.com)









Base Map: 2014 Aerial Imagery  
Source: USDA/FSA -  
Aerial Photography Field Office  
Quadrangle: Mapleton (1976)  
and West Fargo North (1976)  
Township/Range: T. 140N, R. 50W



Cass County, North Dakota  
Projection: NAD 1983 UTM Zone 14N





### Laurel Pipeline

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-  Survey Area
-  Soil Unit Boundary

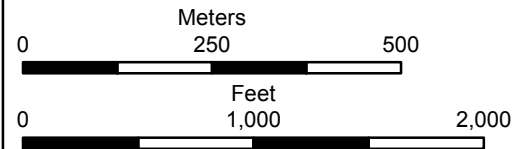
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Base Map: 2014 Aerial Imagery  
Source: USDA/FSA -  
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Quadrangle: West Fargo North (1976)









Township/Range: T. 140N, R. 50W

Cass County, North Dakota  
Projection: NAD 1983 UTM Zone 14N





### Laurel Pipeline

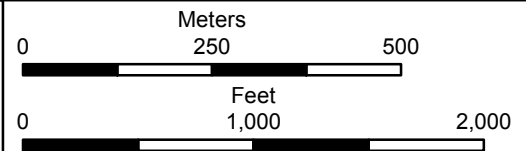
-  Proposed Gathering Pipeline
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Quadrangle: West Fargo North (1976)

Township/Range: T. 140N, R. 50W

Cass County, North Dakota

Projection: NAD 1983 UTM Zone 14N



**APPENDIX C**  
**Photographs of Project Area**

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**Figure C.1. Semipermanent wetland (BWET1), facing south (photo taken July 16, 2015).**



**Figure C.2. Semipermanent wetland (BWET2), facing northeast (photo taken July 16, 2015).**



**Figure C.3. Semipermanent wetland (BWET3), facing west (photo taken July 16, 2015).**



**Figure C.4. Semiermanent wetland (BWET4), facing northwest (photo taken July 16, 2015).**



**Figure C.5. Seasonal wetland (WET7), facing northwest (photo taken May 15, 2015).**



**Figure C.6. Seasonal wetland (WET7), facing south (photo taken May 15, 2015).**



**Figure C.7. Maple River (STRM1), facing west (photo taken May 15, 2015).**



**Figure C.8. Shelterbelt example (WV1), facing southeast (photo taken May 14, 2015).**



**Figure C.9. Siberian elm (*Ulmus pumila*) (WV2), facing southeast (photo taken May 14, 2015).**



**Figure C.10. Russian olive (*Elaeagnus angustifolia*) (WV3), facing southeast (photo taken May 14, 2015).**



**Figure C.11. Cottonwood (*Populus deltoides*) (WV5), facing east (photo taken May 14, 2015).**



**Figure C.12. Woody vegetation (WV6), facing northeast (photo taken May 15, 2015).**

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