APPENDIX E

WETLAND AND OTHER WATERS DELINEATION REPORT

Forks-Rost 161 kV Transmission Substation

Jackson County, Minnesota

Wetland Delineation Report

Prepared by:

May 2024

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1.0 INTRODUCTION

Merjent, Inc. (Merjent) performed a field survey to determine the presence and extent of wetlands and other surface water features for ITC Midwest, LLC's Forks-Rost 161 kV Transmission Substation project (Project) located in Jackson County, Minnesota (see Figure 1). Other surface water features can include, but are not limited to, streams, ponds, and lakes. This wetland delineation report will be used to support permitting associated with the Project.

This report outlines the field survey methodology and findings, as completed by Merjent. This report has been compiled by the following staff who are trained and experienced in wetland delineation methodologies and applicable regulations:

Kallie Koon, MS (Field Lead) is an Environmental Technician experienced in wetland delineations and vegetation monitoring. She received a BS in Biology from Arkansas Tech University, as well as a MS in Botany from Miami University. She has worked in multiple herbaria and has taught Field Botany at Miami University. She has performed wetland delineations and habitat evaluations throughout the Upper Midwest and has received a certificate in wetland delineation from the Wetland Training Institute.

Brennan Hilzendeger, MS (Report Author) is an Environmental Consultant with over seven years of technical experience in the environmental field working for public and private clientele throughout the Midwest and Great Plains. His expertise includes conducting and coordinating environmental field surveys, field and desktop reviews for wetland delineations, floristic quality assessments, stream assessments, air quality monitoring, and threatened and endangered species habitat assessments. Mr. Hilzendeger has worked across a variety of market industries including oil and gas, departments of transportation, and state and federal agencies.

Jameson Loesch (GIS Analyst) is Senior Analyst with over 10 years of experience conducting environmental review, permitting, compliance, and project management in the energy and utility industry throughout the Midwestern United States. His expertise focuses on utilizing GIS and other geospatial tools to make environmental review and decision making more efficient and effective during the planning, permitting, construction, and post-construction phases of his projects. Mr. Loesch has extensive experience through all phases of the environmental permitting process having worked as a field lead coordinating and conducting wetland delineations, botanical surveys, rare species surveys, and construction site compliance monitoring; as a GIS project manager developing site, access, and stormwater plans, while also conducting in depth desktop reviews and managing geospatial data in support of routing, planning, and permitting needs; and as a lead in the development of permit applications and enforcement at the local, state, and federal levels. Mr. Loesch is also experienced in conducting threatened/endangered species reviews, having completed a mix of desktop reviews, field surveys, agency consultations, and coordination with clients to ensure proper planning and compliance on over 1,000 projects to date.

2.0 METHODS

ITC Midwest, LLC (ITC) provided Merjent with a 11.85-acre survey area (Survey Area; see Figure 1) to complete the field surveys. At a minimum, the Survey Area represents the anticipated extent of Project disturbances and full site use. In many cases, the Survey Area extends even further to allow for minor adjustments to Project design, both for avoidance and minimization of impacts to resources and for constructability. Unless otherwise noted below (see Results section), the entire Survey Area is surveyed in-field by qualified biologists. The entire Survey Area may or may not be used for Project-related permitting and/or on-site construction activity.

Wetlands are defined by the presence of hydrophytic vegetation and wetland hydrology and soil indicators, as observed under normal circumstances and as described in the *United States Army Corps of Engineers* (USACE) *Wetland Delineation Manual* (Environmental Laboratory, 1987).

Streams are defined as any linear waterway otherwise referred to as, but not limited to, streams, creeks, rivers, or other local designations. Streams are characterized by a continuous bed and bank, bounded by observed and defined field indicators. For these features, the Ordinary High Water Mark (OHWM) width, substrate, and flow are recorded, along with the OHWM indicators and analysis found within the data sheets. The OHWM is not a direct in-field observation, but an assemblage of evidence used to determine the shape of the channel of a linear feature that reflects the magnitudes and variety of flows necessary to define it based on indirect observations and indicators. The OHWM width is the result of the weight of evidence observed in-field (David et. al., 2022).

Open waterbodies are defined as non-linear features that permanently hold water deeper than approximately 6 feet and for enough duration to preclude most aquatic vegetation or other wetland characteristics. These features include those commonly referred to as, but not limited to, ponds, lakes, or reservoirs. These features commonly have wetland fringe, which is assessed independently. A national field delineation manual for open waterbodies is not available at this time; however, some indicators used for linear streams can be used for open water features with caution.

Under non-normal circumstances, indicators for a feature may be obscured, fully or in-part. In those cases, additional data and context may be needed in using professional judgement to define the most appropriate extents and attributes for these features.

2.1 DESKTOP REVIEW METHODS

The following processes and procedures were followed to determine the potential presence of wetlands or other surface water features within the Survey Area prior to the site visit.

2.1.1 Previous Site Review

Previous site review can give biologists direct insight for current site conditions, providing them with an expectation of what features may be present and what site factors may influence how the site is assessed. In cases where previous field survey data are available, Merjent investigates and independently documents each previously identified feature. Where boundary data originating from a previous field survey do not match or corroborate Merjent's findings, the biologists collect additional data and photos, and they provide sufficient notes and detail to explain discrepancies.

2.1.2 Background Data Review

Prior to the survey, biologists reviewed all available desktop resources to identify suspected surface water features, and an in-office desktop review of available information was performed using these data, which advised the development and execution of the field investigation.

2.1.2.1 Topography

Merjent reviewed Minnesota Department of Natural Resources (MNDNR) two-foot contours based on Light Detection and Ranging (LiDAR) (Minnesota Geospatial Information Office, 2023). The review of topographical data aids in determining general locations of large surface water features and surface water flow across a landscape within and surrounding the Survey Area.

2.1.2.2 Soil Survey

The Natural Resources Conservation Service (NRCS) - U.S. Department of Agriculture (USDA) Soil Survey Geographic Database (SSURGO; Soil Survey Staff, NRCS, USDA, 2019) soils inventory describes the soils series for the Survey Area and surrounding landscape. Attributes within each soil series can provide evidence of potential for wetlands, most commonly the Hydric Soils classification attribute. While historical land use and common drainage practices have led to many of these areas no longer supporting any remaining indication of wetland conditions, hydric soils series are still useful in determining areas with which to focus survey effort.

2.1.2.3 Mapped Surface Water Features

A desktop review was completed using the following water resources datasets ahead of field survey.

The MNDNR update (MNDNR, 2015) to the National Wetlands Inventory (NWI) is a Minnesota-specific update to the nation-wide NWI data set (USFWS, 2021) that was developed to remotely identify potential wetland areas.

The MNDNR Public Waters Inventory (PWI) data set (MNDNR, 2011) is a database maintained by the State of Minnesota. It identifies and provides additional regulatory protection for features meeting selected criteria as described in Minnesota Statute Section 103G.005, subd. 15, identified on the maps authorized by Section 103G.201.

The MNDNR Hydrography Dataset (MNDNR, 2012), which is the authoritative version of statewide hydrography. The MNDNR Hydrography Dataset is a collection of the "best available" MNDNR spatial features representing Minnesota surficial hydrology. These features originate from multiple sources representing a range of scales and accuracies. All feature classes are topologically related and will function as an integrated set of statewide features.

The USGS National Hydrography Dataset (NHD; USGS, 2004) is the most up-to-date and comprehensive nationwide dataset for rivers, streams, canals, lakes, ponds, coastline, dams, and stream gages. While originally developed by the U.S. Environmental Protection Agency (USEPA) and USGS, it is now maintained and updated by multiple regulatory bodies.

2.1.3 Off-site Aerial Review

An Off-site Aerial Review (OAR) of historic aerial imagery was conducted to determine the presence or absence of farmed wetlands within the agricultural fields of the Survey Areas in accordance with USACE and Minnesota Board of Water and Soil Resources (BWSR) Guidance for Off Site Hydrology/Wetland Determinations (USACE & BWSR, 2016). The method provides an objective, step-by-step evaluation of aerial imagery, which is cross-referenced with the above-referenced background data. Associated data entry forms are populated, which calculate the probability of wetland presence for each feature reviewed.

The dates of the aerial imagery are used to determine if the images exhibit normal precipitation climate conditions. A wet year aerial image is used to mark potential features, and a minimum of five normal-precipitation aerial images are reviewed for making determinations. Suspected wetland areas are analyzed for common wetland hydrology signatures including crop stress, areas that were not cropped or planted but drowned out, areas of avoidance in agricultural areas, and signatures of soil wetness (darker tones of soil often surrounding standing water or prominent wetland features). Wetland signatures can also be determined by observing standing water or by distinct differences in vegetative cover. For example, common wetland species such as cattails (*Typha* spp.) and reed canary grass (*Phalaris arundinacea*) can be readily identifiable on high-resolution aerial imagery (BWSR, 2010). Observations are recorded in a decision matrix to determine if a field investigation is required, and a wetland determination is made for each area (USACE & BWSR, 2016).

2.1.4 Current, Historic, and High-Resolution Aerial Imagery

Aerial imagery provides site-wide observations within the context of the surrounding landscape. It is useful in estimating locations and extents of surface water features, especially in non-forested areas. Historic and recent imagery can be used to observe a site during different conditions, such as spring, summer, and fall, or wet, normal, and dry circumstances. A comparison of imagery is also useful in determining impacts or disturbances to a site over time that may affect the current locations and extents of surface water features. Merjent uses aerial imagery available on a variety of sources including Esri (2019), Google Earth™ (2023), and the National Agriculture Imagery Program (NAIP; USDA, 2022).

2.1.5 Recent Climatic Conditions and Precipitation Data

The Antecedent Precipitation Tool (APT) is a desktop tool developed by the USACE. The APT is commonly used by the USACE and USEPA to support decisions as to whether field data collection and other site-specific observations occurred under normal climatic conditions. This tool was originally developed by the USACE to streamline the review of climate data, which supports decision-making related to wetland delineations. The APT facilitates the comparison of antecedent, or recent, rainfall conditions for a given location to the range of normal rainfall conditions that occurred during the preceding 30 years. In addition to providing a standardized methodology to evaluate normal precipitation conditions, the APT can also be used to assess the presence of drought conditions, as well as the approximate dates of the wet and dry seasons for a given location (USEPA, 2021).

2.2 FIELD SURVEY METHODS

Merjent delineated wetlands based on the methods described in the USACE Wetland Delineation Manual (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of*

Engineers Wetland Delineation Manual: Midwest Region (USACE, 2010). Merjent delineated streams in accordance with the *USACE National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams* (David et. al., 2022). Biologists completed data forms at data points during the field survey within or near the wetland and stream areas to document indicators, or lack thereof, for each suspected feature Biologists identified vegetative wetland communities according to the *Eggers & Reed Classification System* (Eggers & Reed, 2015).

Field documentation is recorded during survey for desktop-mapped resources that are determined to be absent. In areas of upland associated with hydric soils or linear stream features, representative photos are taken of upland conditions. In areas of upland conditions within NWI-mapped features, a data point, Wetland Determination Data Form, and photos are taken to document upland conditions, unless the area is significantly sloped or otherwise obviously upland; in those circumstances, representative photos may be deemed sufficient.

2.2.1 Feature Naming

Features identified in associated figures and appendices are named in the following manner:

- Wetlands (w01, w02, etc.)
- Streams (s01, s02, etc.)
- Open waters (o01, o02, etc.)
- Wetland determination data points (dp01, dp02, etc.)
- Stream data points (sp01, sp02, etc.)
- Photo points (pp01, pp02, etc.)
- Wet signatures (ws01, ws02, etc.)

Features are named consecutively, as encountered in the field, and may not follow a geographical spatial order.

2.2.2 Site Photographs

Photographs provided in Appendix A give a visual representation of wetlands and other surface water features, as well as general site conditions, at the time of inspection. Photos are geospatially referenced by their associated photo point location and presented with direction taken (e.g., “pp01 view West,” “pp02 view Northeast”). Photo point locations are depicted on the wetland delineation figure (see Figure 5).

Representative photos are collected for each wetland community and open waterbody identified. Photos are taken up, down, and across each linear stream feature. Site photos are collected throughout the Survey Area to demonstrate upland and transitional conditions. Additional photos, not provided in Appendix A, may be available upon request.

2.2.3 Wetland Determination Data Forms

Wetland Determination Data Forms are the written documentation of how representative data point locations meet or do not meet each of the wetland criteria (see Appendix B). Plant species nomenclature follows the *Regional Wetland Plant List* (USACE, 2022). Hydric soils were identified using the methods outlined in *Field Indicators of Hydric Soils in the United States, Version 8.2* (USDA-NRCS, 2018).

2.2.4 Rapid Ordinary High Water Mark Field Identification Data Sheets

The Rapid OHWM Field Identification Data Sheets (David et. al., 2022) are the written documentation of what indicators of the potential OHWM were observed, and how they are applied in determining the OHWM.

This data sheet was developed for the sole purpose of identifying the OHWM of linear features, and it does not apply to open waterbodies such as lakes or ponds.

2.2.5 Other Surface Water Connections

While often not considered as regulated features, surface water connections such as culverts, upland swales or drainages, and upland road ditches may at times connect to, drain, or drain into regulated features within the Survey Area, particularly during extreme flow events. To the extent practicable and relevant, Merjent maps these surface water connections to aid in explaining surface water connectivity across the Survey Area.

2.2.6 Limitations of Survey Data

Merjent surveys all data point locations and boundaries of wetlands, streams, and open waterbodies using Global Positioning System (GPS) technology capable of sub-meter accuracy. While these surveys provide reasonably accurate and industry-standard spatial data, they do not provide the same level of accuracy as a professional land survey.

For linear features narrower than twice the accuracy of GPS (i.e., 2 meters), the centerline is mapped, and the feature is widened using GIS. A center line may be taken for forested features where GPS accuracy can be reduced. Lateral extents for anomalies such as impoundments or culvert washes are collected in-field to accurately map the variability along entire feature.

Feature boundaries were not flagged during the field survey.

3.0 RESULTS

3.1 DESKTOP REVIEW RESULTS

3.1.1 Previous Site Review

Merjent is unaware of previous wetland delineation mapping at this site or associated regulatory review; as such, previous site review was not completed.

3.1.2 Background Data Review

3.1.2.1 Topography

LiDAR was acquired from MNDNR for review of the Survey Area (see Figure 2; Minnesota Geospatial Information Office, 2023). The topographic map for this Project shows a relatively flat landscape with gentle sloping from the west to the east.

3.1.2.2 Soil Survey

The SSURGO soil map (see Figure 3) identifies three soil types within the Survey Area, one of which is classified as hydric (see Table 3.1.2-1 below; Soil Survey Staff; NRCS, USDA, 2019). The hydric soil is located in the central portion of the Survey Area.

TABLE 3.1.2-1

Mapped Soil Units

Symbol	Description	Hydric Soil Unit?	Acres
229	Waldorf silty clay loam, 0 to 2 percent slopes	Yes	6.31
102B	Clarion loam, 2 to 6 percent slopes	No	1.98
96	Collinwood silty clay loam, 1 to 3 percent slopes	No	3.56
		TOTAL	**11.85**

Note: Source: Soil Survey Staff, NRCS, USDA, 2019

3.1.2.3 Mapped Surface Water Features

The hydrology map (see Figure 4) shows no NWI-, NHD-, or PWI-mapped surface water features within the Survey Area (USFWS, 2021; USGS, 2004; MNDNR, 2011).

3.1.3 Off-site Aerial Review

An OAR was conducted for the Survey Area. Two wet signatures (ws01 and ws02) were identified within the Survey Area. Wet signatures ws01 and ws02 are located in the northwestern and southeastern portions of the Survey Area, respectively. Both wet signatures are located in a low points within the agricultural field.

The full OAR of historical aerial imagery, APT analysis, and the decision matrices are located in Appendix C.

3.1.4 Recent Climatic Conditions and Precipitation Data

Merjent compared recent precipitation data with historic precipitation data from a 30-year dataset using the Antecedent Precipitation Tool (APT) to determine if normal hydrologic and climatic conditions were present on-site during field surveys. When compared, the observed precipitation data from three months prior to the field delineation indicated normal conditions at the time of the field survey (see Appendix D; USEPA, 2021).

3.2 FIELD SURVEY RESULTS

On April 24, 2024, Merjent wetland ecologist Kallie Koon conducted a general reconnaissance of the entire Survey Area to evaluate site conditions and determine boundaries of wetlands and other surface water features.

Dominant land use within the Survey Area includes harvested agricultural fields, and field edges. Field edges are located on the southern and western edges of the Survey Area.

Weather conditions at the time of survey were favorable and did not impair observations. All portions of the Survey Area were accessible during the field survey.

3.2.1 Uplands

Harvested agricultural fields make up the majority of the Survey Area. The harvested fields were planted with corn (*Zea mays*) during the 2023 growing season. The remaining upland area consists of field edges.

The field edges are dominated by smooth brome (*Bromus inermis*), common dandelion (*Taraxacum officinale*) and Canada thistle (*Cirsium arvense*)

3.2.1.1 Upland Verification of Wet Signature Features

Data points were collected in the two wet signatures (ws01 and ws02) identified in Section 3.1.3.

Data point dp01 was recorded to verify upland conditions within ws01. The tree and sapling/shrub stratum are bare. The herb stratum is sparse and consists of Canada thistle. The soil profile does not meet any hydric soil indicator criteria. It is important to note that the soil profile does not meet the Thick Dark Surface (A12) indicator due to lack of geomorphic position because of functional drain tile present within the agricultural field. The only wetland hydrology indicator identified is Saturation Visible on Aerial Imagery (C9). Data point dp01 was determined to be upland.

Data point dp02 was recorded to verify upland conditions within ws02. The tree, sapling/shrub, and herb stratum are bare. The soil profile does not meet any hydric soil indicator criteria It is important to note that the soil profile does not meet the Thick Dark Surface (A12) indicator due to lack of geomorphic position because of functional drain tile present within the agricultural field. The only wetland hydrology indicator identified is Saturation Visible on Aerial Imagery (C9). Data point dp02 was also determined to be upland.

3.2.2 Wetlands

No wetlands were identified within the Survey Area.

3.2.3 Streams

No streams were identified within the Survey Area.

3.2.4 Open Waterbodies

No open waterbodies were identified within the Survey Area.

3.2.5 Other Surface Water Resources Identified

No other surface water resources were identified within the Survey Area.

4.0 SUMMARY AND CONCLUSION

Merjent performed a delineation of wetlands and other surface water features for the Forks-Rost 161 kV Transmission Substation Project in Jackson County, Minnesota.

Based on the field survey and review of desktop resources, it is our professional opinion that no wetlands, streams, open waterbodies, or other surface water resources exist within the 11.85-acre Survey Area. This report represents our best professional judgment based on our local knowledge and experience.

5.0 DISCLAIMER

The wetlands, streams, and other natural resources identified in this report may be subject to regulation by federal, state, and/or local jurisdiction. These authorities may require a professional land survey of the delineated boundaries to verify impacts for regulatory purposes.

The field survey results presented herein apply to the existing site conditions at the time of the survey. They do not apply to site changes of which Merjent is unaware and has not had the opportunity to review. Changes in the condition of a property may occur with time due to the natural processes or human impacts at the Project site or on adjacent properties. Changes in applicable standards may also occur as a result of legislation or the expansion of knowledge over time. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond the control of Merjent.

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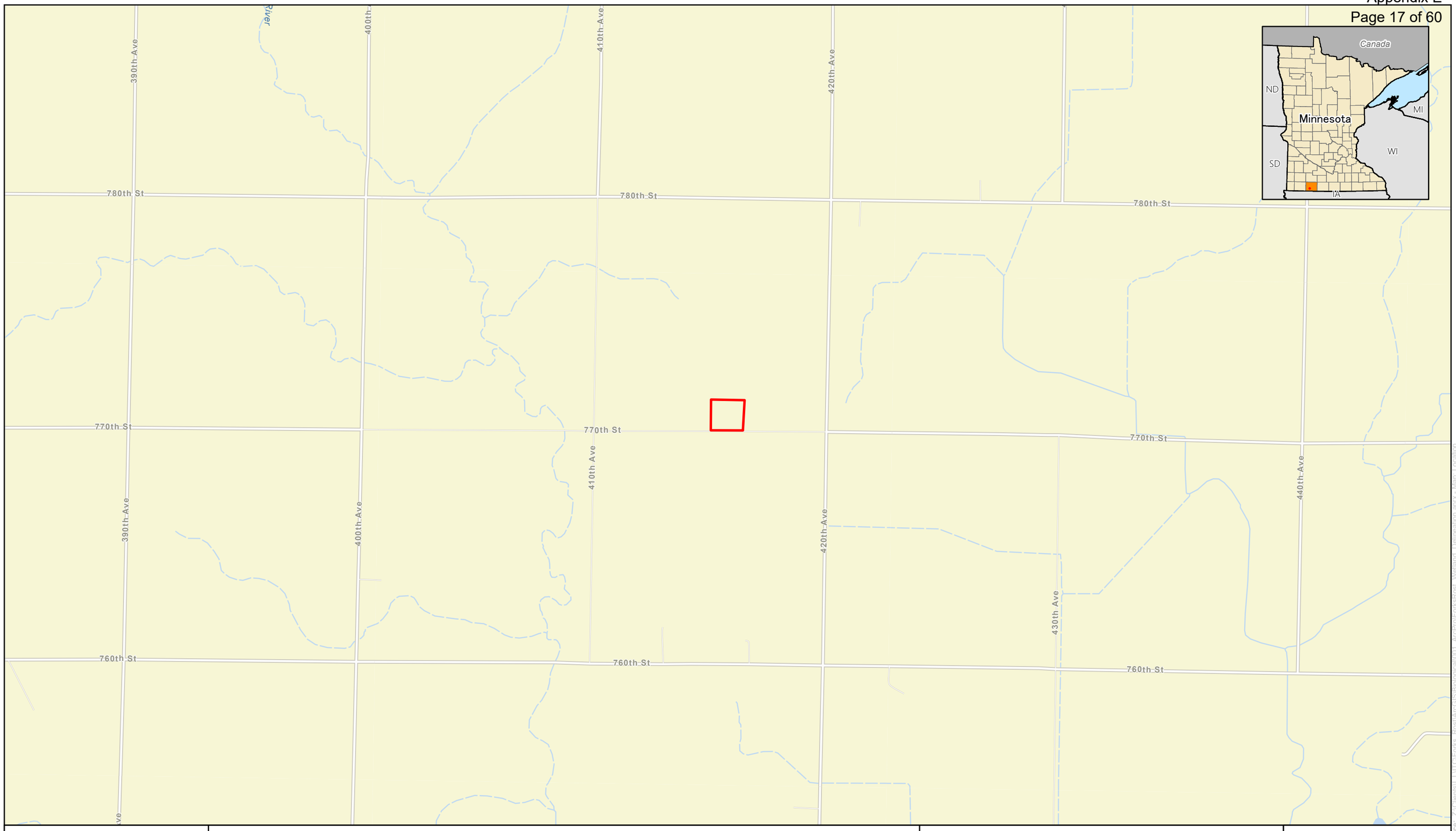
Figure 1

Project Location



0 1,000 2,000
Feet

1 inch = 2,000 feet

N
W E
S

For Environmental Review Purposes Only

Figure 1 - Project Location
Forks – Rost 161 kV Transmission Substation
ITC Midwest LLC
Jackson County, Minnesota

Survey Area

merjent

Source: Z:\Clients_LITC\Forks_Rost\ArcGIS\Biological\00_ArcPro\Forks\Rost_Wetland_Delineation.aprx - Map: Location
Date: (5/21/2024)

Figure 2

Topography

0 75 150
Feet

1 inch = 150 feet

N W E S

For Environmental Review Purposes Only

Figure 2 - Topography
Forks – Rost 161 kV Transmission Substation
ITC Midwest LLC
Jackson County, Minnesota

Survey Area

2-foot Contour

merjent®

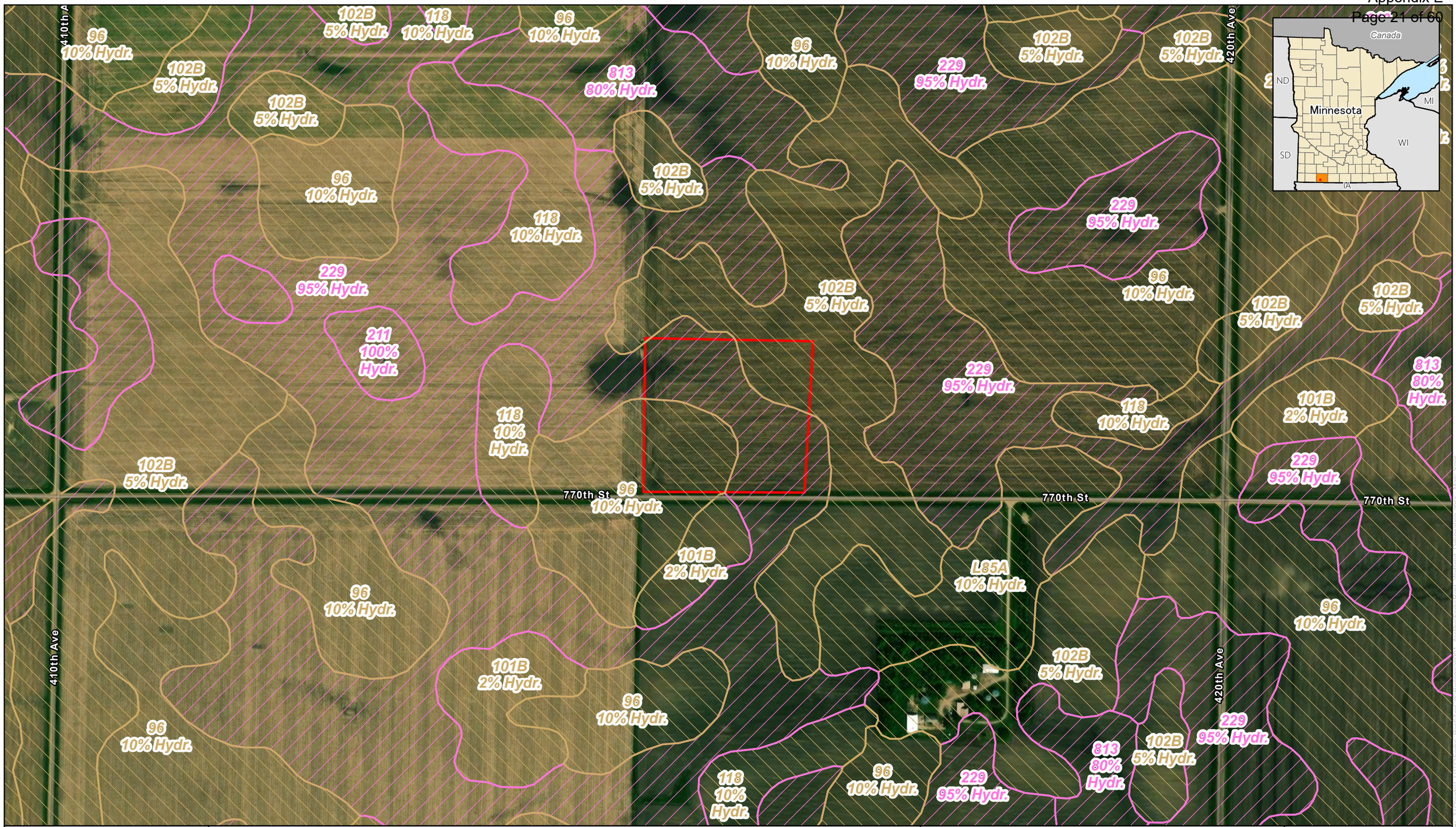
Source: Z:\Clients_ITC\Forks_Rost\ArcGIS\Biological\01_ArcPro\Forks\Rost_Wetland_Delineation.aprx - Map: Topo

Date: (5/21/2024)

USGS 1:24,000 scale topographic maps (7.5- by 7.5-minute quadrangles): Lakefield SW (1972)

Figure 3

SSURGO Soil Type



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Feet
1 inch = 400 feet

N W E S

For Environmental Review Purposes Only

Figure 3 – SSURGO Soil Type
Forks – Rost 161 kV Transmission Substation
ITC Midwest LLC
Jackson County, Minnesota

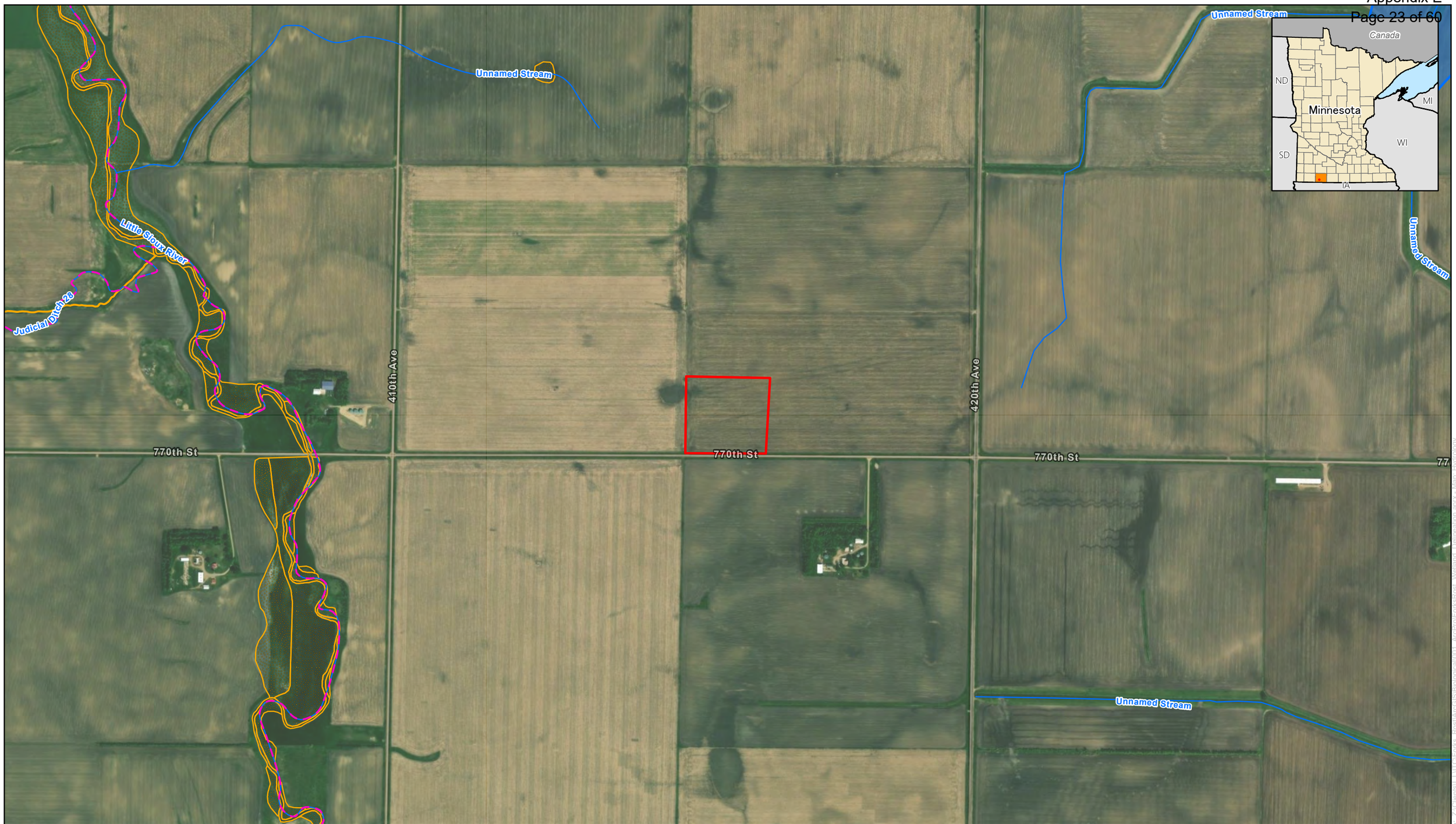
Survey Area
Hydric Soil
Non-Hydric Soil

merjent

Source: Z:\Clients_LMT\Forks_Rost\ArcGIS\Biological\007_ArcPro\Forks\Rost_Wetland_Delineation.aprx - Map: Soils
Date: [5/21/2024]

Figure 4

Hydrology



0 400 800
Feet
1 inch = 800 feet

N
W E
S

For Environmental Review Purposes Only

Figure 4 - Hydrology
Forks – Rost 161 kV Transmission Substation
ITC Midwest LLC
Jackson County, Minnesota

- Survey Area
- MDNR Public Waters Watercourse
- Mapped Waterway (MDNR)
- Mapped Waterbody (MDNR)
- Mapped Wetland (NWI)

merjent

Source: Z:\Clients\ITC\Forks_Rost\Arc\GIS\Biological\001_Arc\Forks\skost_Wetland_Delineation.aprx - Map: Hydrology
Date: (5/21/2024)

Figure 5

Wetland Delineation

0 100 200
Feet
1 inch = 200 feet

N
W E
S

For Environmental Review Purposes Only

Figure 5 – Wetland Delineation
Forks – Rost 161 kV Transmission Substation
ITC Midwest LLC
Jackson County, Minnesota

Survey Area
Photo Point
Wetland Data Point

merjent

Source: Z:\Clients\ITC\Forks_Rost\ArcGIS\Biological\001_ArcPro\Forks_Rost_Wetland_Delineation.aprx - Map: Delineation
Date: (5/21/2024)

Appendix A

Survey Photographs

Photograph pp01 view East

Photograph pp01 view North

Photograph pp01 view South

Photograph pp01 view West

Photograph pp02 view East

Photograph pp02 view North

Photograph pp02 view South

Photograph pp02 view West

Photograph pp03 view East

Photograph pp03 view North

Photograph pp03 view South

Photograph pp03 view West

Photograph pp04 view East

Photograph pp04 view North

Photograph pp04 view South

Photograph pp04 view West

Photograph pp05 view East

Photograph pp05 view North

Photograph pp05 view South

Photograph pp05 view West

Photograph pp06 view East

Photograph pp06 view North

Photograph pp06 view South

Photograph pp06 view West

Photograph pp07 view East

Photograph pp07 view North

Photograph pp07 view South

Photograph pp07 view West

Photograph pp08 view East

Photograph pp08 view North

Photograph pp08 view South

Photograph pp08 view West