



Phase Ia Cultural Resources Literature Review

Elm Creek II Repowering Project Jackson and Martin Counties, MN

Prepared for
Elm Creek Wind II, LLC

September 2023

Executive Summary

In response to a request from Elm Creek Wind II, LLC (Elm Creek II), a subsidiary of Avangrid Renewables, LLC, Barr Engineering Co. (Barr) completed a Phase Ia Cultural Resources Literature Review prior to proposed upgrades to an existing 148.8-megawatt (MW) wind energy generation facility (the Project/undertaking), located in Jackson and Martin counties, Minnesota. The Minnesota Public Utilities Commission (PUC) issued Elm Creek II a Large Wind Energy Conversion System (LWECS) Site Permit (PUC Docket: IP6728/WS-09-553) on February 25, 2010 and amended it on March 14, 2011 (Site Permit). Elm Creek II is proposing to conduct facility upgrades to increase the efficiency, energy output and prolong the useful life of the Project. The proposed upgrades consist of retrofitting the Project's existing 62 wind turbines by replacing turbine equipment with new components. Ground-disturbing activities to complete these upgrades will mostly occur within areas previously disturbed during the original construction of the Project.

A literature review was completed for the Project in June 2023. The literature review found that the Project was investigated for archaeological resources as part of a Phase I archaeological survey completed for the original undertaking in 2010. One archaeological site was identified within the construction footprint as a result of this investigation. The site was recommended not eligible for the National Register of Historic Places and no additional work was recommended for the Project to proceed.

A review of the current Project construction footprint as compared to the Project's 2010 survey limits indicates that 98.5 percent of the construction footprint was surveyed in 2010. Approximately 12.5 acres of the construction footprint have not been investigated for cultural resources. No additional cultural resources work is recommended for any Project activity located within the original boundaries of the Project footprint surveyed in 2010.

If ground disturbing activities will occur within the 12.5 acres of the construction footprint not surveyed in 2010 and/or in areas outside of the construction footprint also not investigated in 2010, a Phase I archaeological reconnaissance of these locations is recommended.

Phase Ia Cultural Resources Literature Review

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Certification

Principal Investigator

A handwritten signature in blue ink that reads "Veronica Parsell". The signature is written in a cursive style with a horizontal line underneath it.

Veronica Parsell
RPA #: 3532690

September 6, 2023

Date

1 Introduction

Elm Creek Wind II, LLC (Elm Creek II), a subsidiary of Avangrid Renewables, is proposing to repower the existing Elm Creek II Wind Farm located in Jackson and Martin counties, Minnesota (Figure 1). The Minnesota Public Utilities Commission (PUC) issued Elm Creek II a Large Wind Energy Conversion System (LWECS) Site Permit (PUC Docket: IP6728/WS-09-553) on February 25, 2010 and amended it on March 14, 2011 (Site Permit). The wind farm includes 62, 2.4-megawatt (MW) Mitsubishi turbines and commenced commercial operation in late 2010 with a 148.8-MW nameplate capacity.

The proposed upgrades consist of retrofitting the existing 62 wind turbines by replacing turbine equipment with new components to increase the efficiency, energy output, and prolong the useful life of the facility. Ground-disturbing activities to complete these upgrades will mostly occur within the original construction footprint. Specifically, the repower upgrades will:

- replace the rotors (nose cone, hub, and blades) and increase the rotor diameter of existing turbines from 95 meters (m) up to 120 m;
- replace the nacelle and its interior elements (such as the gearbox, oil cooler, drive shaft, and pitch drive);
- refurbish generators;
- reinforce foundations; and
- upgrade buried collector lines.

In response to a request from Elm Creek II, Barr Engineering Co. (Barr) conducted a Phase Ia Cultural Resources Literature Review (Phase Ia) to support the proposed repower activities at the Elm Creek II Wind Farm. Key personnel committed to the Project includes archaeological Principal Investigator Ms. Veronica Parsell and Ms. Kelly Wild, GIS analyst, who created the report graphics.

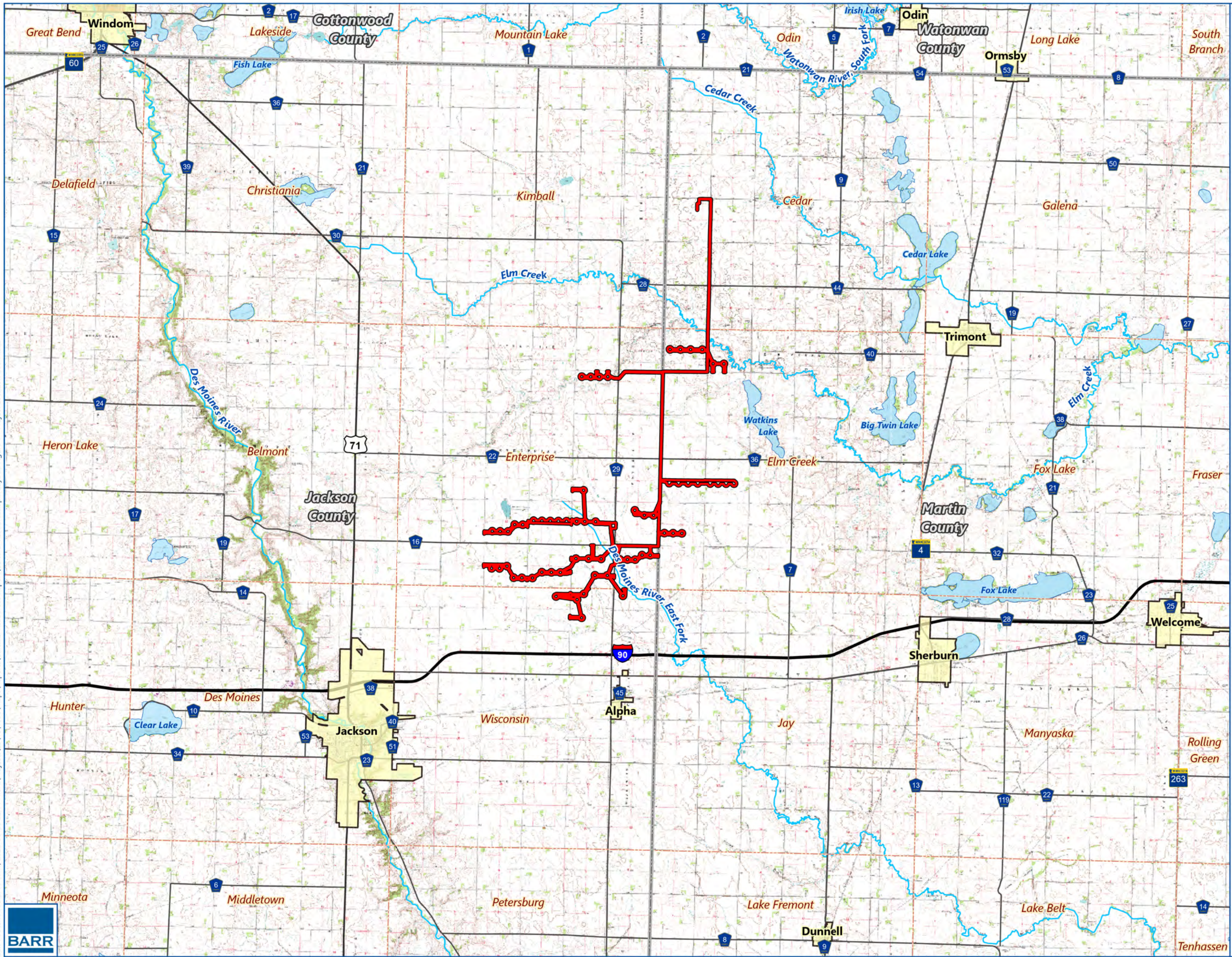
For the purposes of this document, the construction footprint refers to the area that will be subject to ground disturbance for repowering upgrades, as defined above. The construction footprint is depicted in Figure 2 and includes the following:

- A 300-foot (ft) radius area centered on each turbine (6 acres);
- Existing turbine access roads (which is assumed to capture any turning radii needs for the Project);
- A 50 ft buffer (100 ft-wide corridor) centered on existing underground collection lines;
- A 25 ft buffer (50 ft-wide corridor) centered on existing aboveground collection lines;
- A 100 ft buffer (200 ft-wide corridor) centered on existing access road alignments, except where the buffer crosses an established road and the other side of the road will not be subject to ground disturbance. In these instances, the buffer is clipped at the road.

This document also refers to a Project Study Area, which includes the construction footprint and no less than a one-mile buffer from these existing features, as shown on Figure 3 (**REDACTED**).

Background research was completed through a review of the Minnesota Office of the State Archaeologist (OSA) online Portal as well as a records request from the Minnesota State Historic Preservation Office (SHPO). The records review focused on the Project Study Area. Barr gathered information about previously documented cultural resources as well as the environmental and cultural context of the region to assess the potential for the Project to contain undocumented cultural resources.

Section 2.0 of this report presents the results of the background research. Section 3.0 outlines the applicable regulations and guidelines governing the Project, while the conclusions and recommendations are located in Section 4.0. The references cited in this report appear in Section 5.0. Appendix A includes historic maps of the construction footprint while Appendix B includes a detailed soil map of the construction footprint.



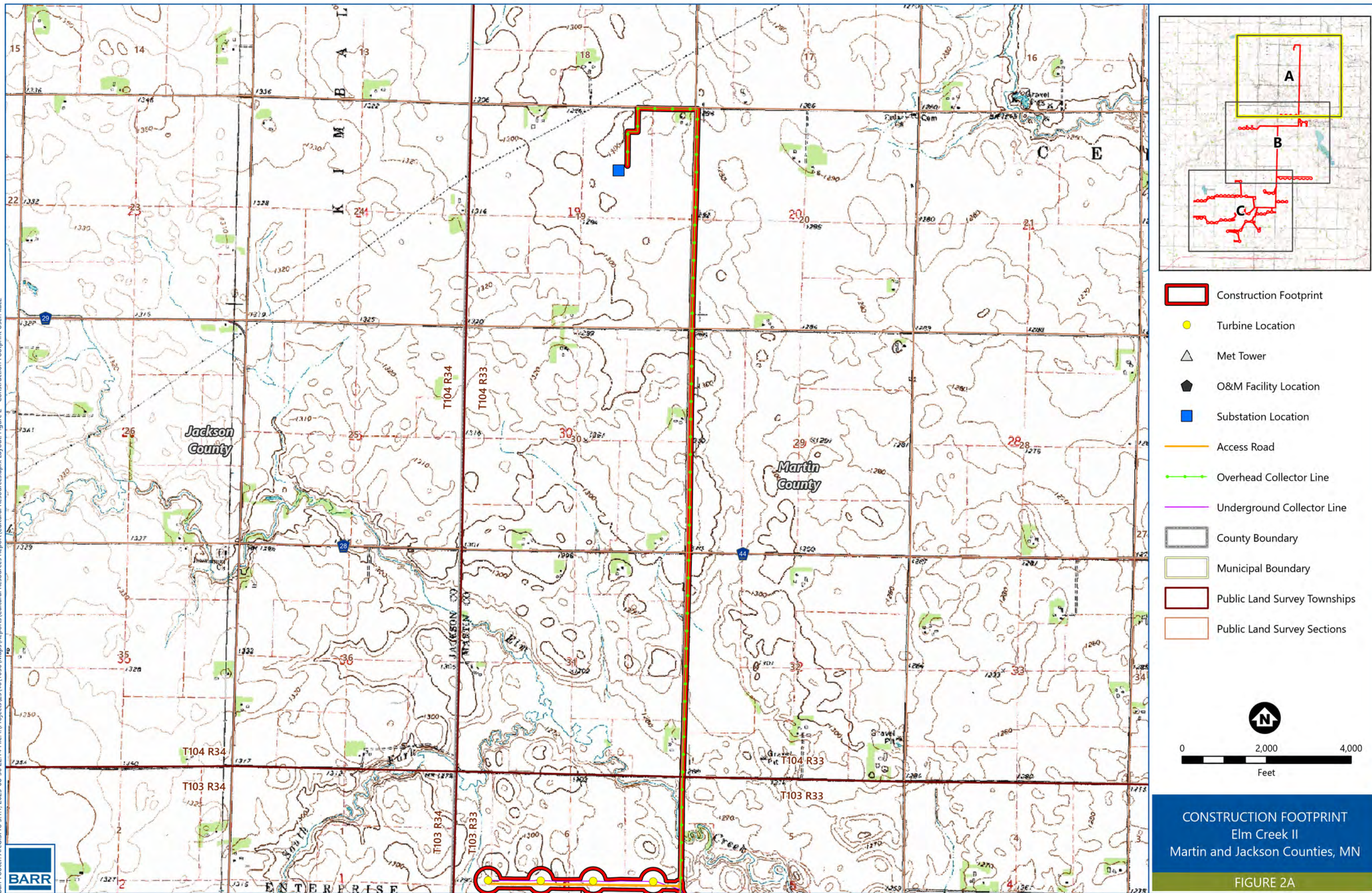
-  Construction Footprint
-  Watercourse
-  Waterbody
-  County Boundary
-  Municipal Boundary
-  Civil Township Boundary



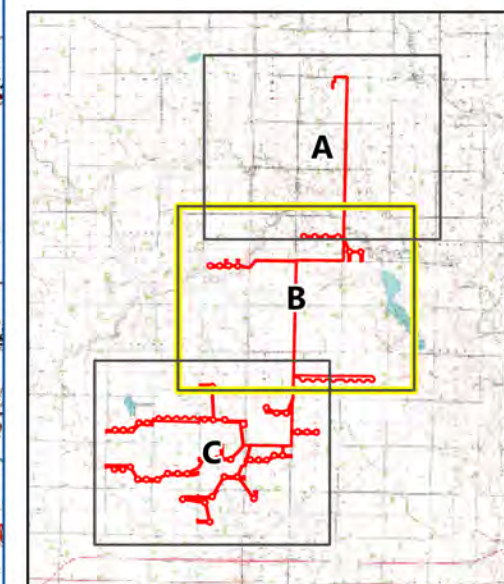
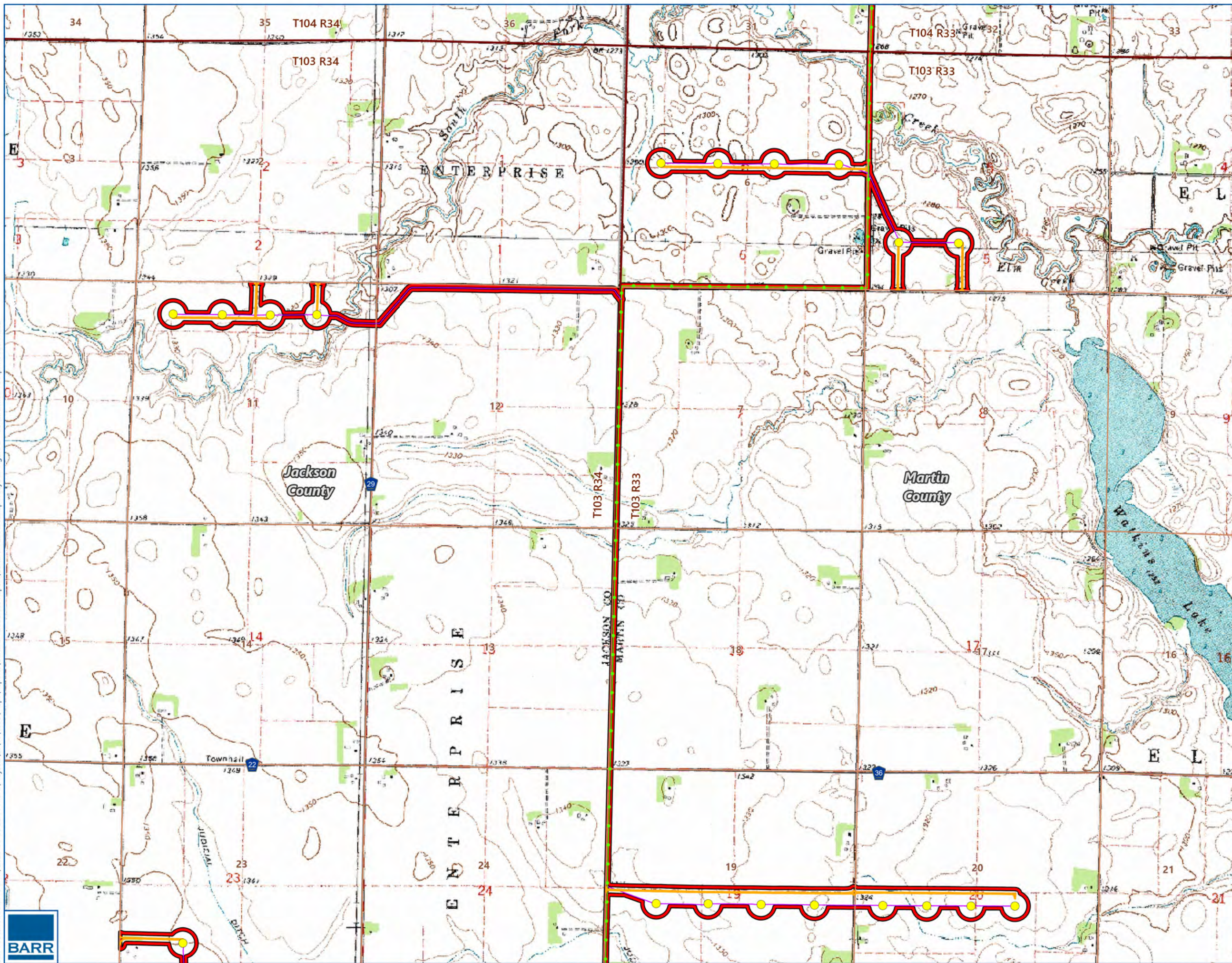
PROJECT LOCATION
Elm Creek II
Martin and Jackson Counties, MN

FIGURE 1





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- Construction Footprint
- Turbine Location
- Met Tower
- O&M Facility Location
- Substation Location
- Access Road
- Overhead Collector Line
- Underground Collector Line
- County Boundary
- Municipal Boundary
- Public Land Survey Townships
- Public Land Survey Sections

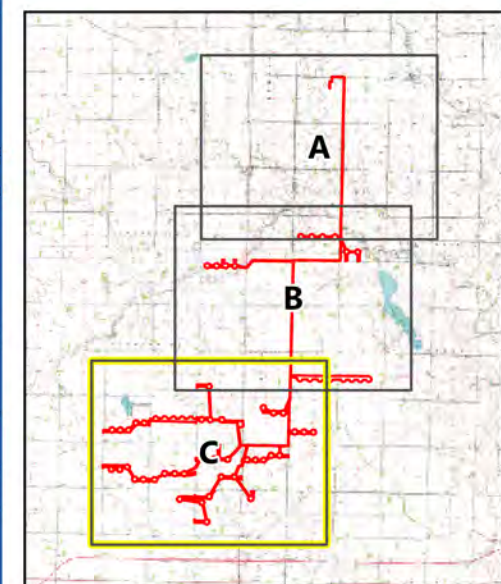
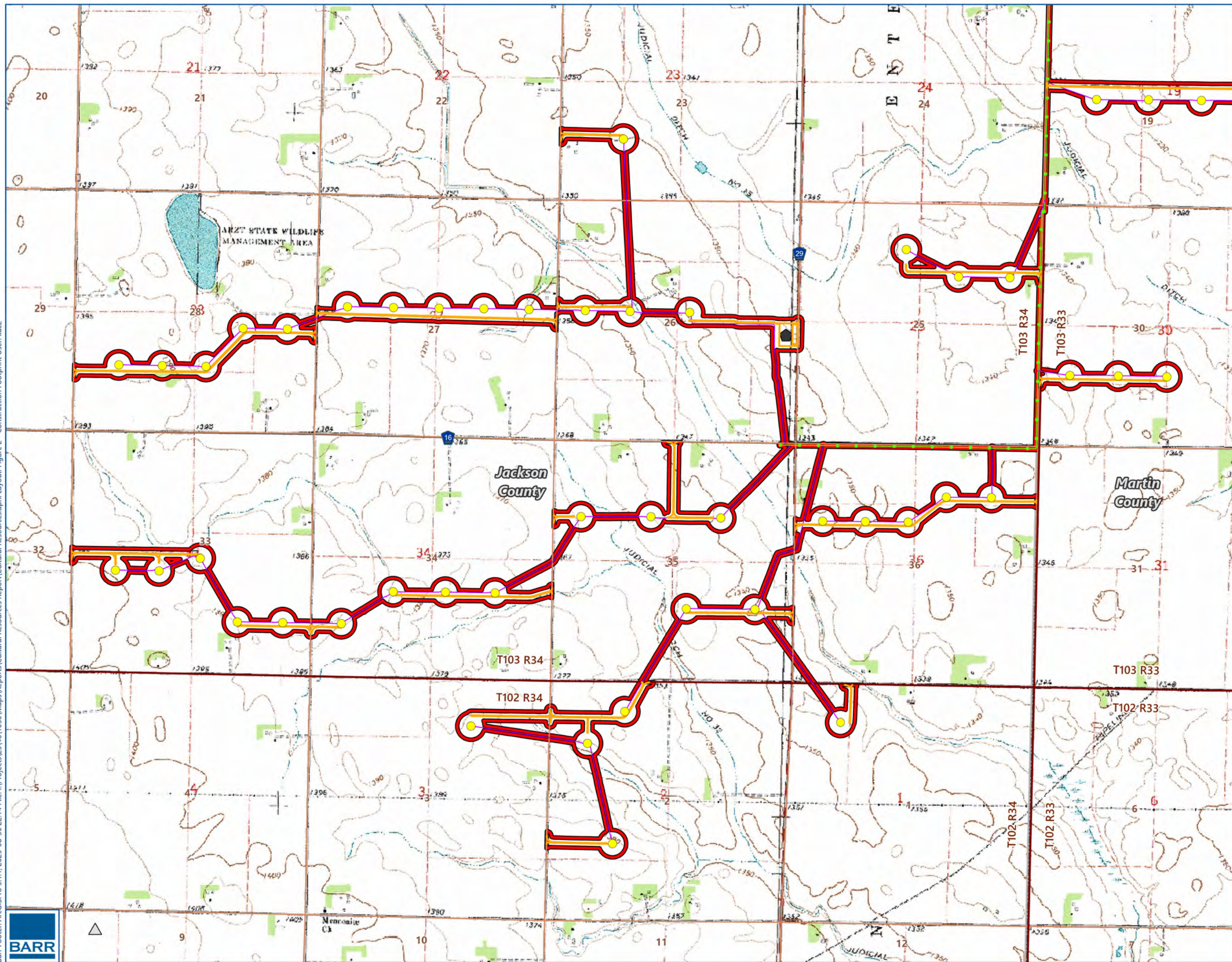


CONSTRUCTION FOOTPRINT
Elm Creek II
Martin and Jackson Counties, MN

FIGURE 2B



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- Construction Footprint
- Turbine Location
- Met Tower
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CONSTRUCTION FOOTPRINT
Elm Creek II
Martin and Jackson Counties, MN

FIGURE 2C



2 Background Research

The objective of the literature review is to identify any cultural resources present within the Project Study Area, as well as assess the effects of the Project on these resources, if identified.

Barr's cultural resources review focused on identifying archaeological and historic architectural resources. Archaeological resources are defined as any site location that contains material remains of past human life or activities, or other places and/or items that possess cultural importance to individuals or a group. Historic architectural resources include "buildings, bridges, tunnels, statues, and other structures that create tangible links to the American past, whether in relation to historical events and people, traditional ways of life, architectural design, or methods of construction"¹.

Once identified through documentary research and/or fieldwork, archaeological sites and historic architectural resources are evaluated for State/National Register of Historic Places (NRHP) eligibility based on the following criteria.

"The quality of significance in American history, architecture, archaeology, engineering and culture is present in the districts, sites, buildings, structures and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- a. *That are associated with the events that have made a significant contribution to the broad patterns of our history; or*
- b. *That are associated with the lives of persons significant in our past; or*
- c. *That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
- d. *That have yielded or may be likely to yield, information important in prehistory or history" (36 CFR 60.4)."*

The purpose of this section is to provide a basic context through which to evaluate the results of Barr's research. This section briefly outlines the environmental and cultural background of the region in and around Jackson and Martin counties, Minnesota.

2.1 Literature Review

The literature review was directed toward identifying previously recorded archaeological sites, historic structures, and other cultural resources. Barr requested data from the Minnesota SHPO on April 24, 2023 and completed an in-person records check on June 13, 2023 to identify previously recorded archaeological sites and historic structures located within the Project Study Area. The Minnesota OSA

¹ <https://www.nps.gov/orgs/1027/architecture.htm>

Portal for archaeological sites was also reviewed on June 13, 2023. For the literature review, Barr consulted the following resources:

- National Historic Landmark list;
- NRHP list;
- Archaeological Site Files;
- Historic Architectural Inventory;
- Unrecorded Historic Cemeteries (from Vermeer and Terrell 2011);
- Previous Cultural Resource Investigation Reports on file at the SHPO;
- Historic maps.

The data provided by SHPO and viewed through the OSA portal indicate that within the construction footprint, two archaeological sites have been documented. Within the Project Study Area, one additional archaeological site and 37 historic architectural resources have been documented (Figure 3 series - **REDACTED**).

2.1.1 National Historic Landmarks List

There are no National Historic Landmarks² located within the Project Study Area.

2.1.2 National Register of Historic Places (NRHP)

No properties listed in or eligible for the NRHP³ have been documented within the Project Study Area.

2.1.3 Archaeological Site Files

The data provided by SHPO and supplemented through a review of the OSA portal indicates that two archaeological sites have been identified within the construction footprint (21JK0042 and 21MRq) (Figure 3 series - **REDACTED**). A third archaeological site has also been recorded within the Project Study Area (21JK0034) (Figure 3 series - **REDACTED**).

- Site 21JK0042 is located within the construction footprint, in **REDACTED**. The site consists of a lithic isolate that was recommended not eligible for the NRHP (Florin 2010a).
- Site 21MRq is located partially within the construction footprint, in **REDACTED**. The site is an alpha site that documents the possible location of a historic trading post. Alpha sites have not been confirmed by formal archaeological survey, but generally represent locations where an archaeological site is anticipated based on some level of historic documentation.

² <https://mn.gov/admin/shpo/registration/nhl/>

³ <https://www.nps.gov/subjects/nationalregister/index.htm>

- Site 21JK0034 consists of a sparse lithic scatter recommended not eligible for the NRHP (Florin and Lindbeck 2008) that is located within the Project Study Area.

2.1.4 Historic Architectural Inventory

The data provided by SHPO indicate that 37 historic architectural resources have been identified within the Project Study Area. No historic architectural resources have been documented within the construction footprint (Figure 3 series - **REDACTED**).

2.1.5 Unrecorded Historic Cemeteries

The OSA Portal was reviewed for historic cemeteries, as documented in Vermeer and Terrell (2011). This dataset indicates that no cemeteries have been documented within the construction footprint. Within the Project Study Area, one cemetery has been documented. The Alpha Mennonite Cemetery (MN Cem ID 21303, JK-WIS-001) is reported as inactive, and the Minnesota Cemetery Project notes that interments were moved to Sunset Cemetery or Riverside Cemetery (Pope and Fee 1998). Alpha Mennonite Cemetery (JK-WIS-001) was located in **REDACTED**.

Figure 3 series has been redacted

2.1.6 Previous Cultural Resource Investigations

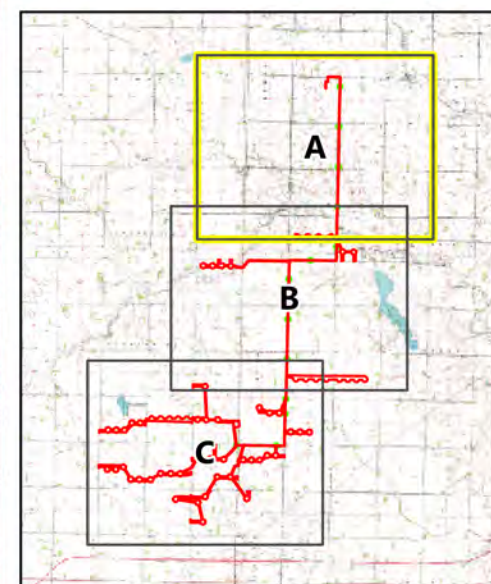
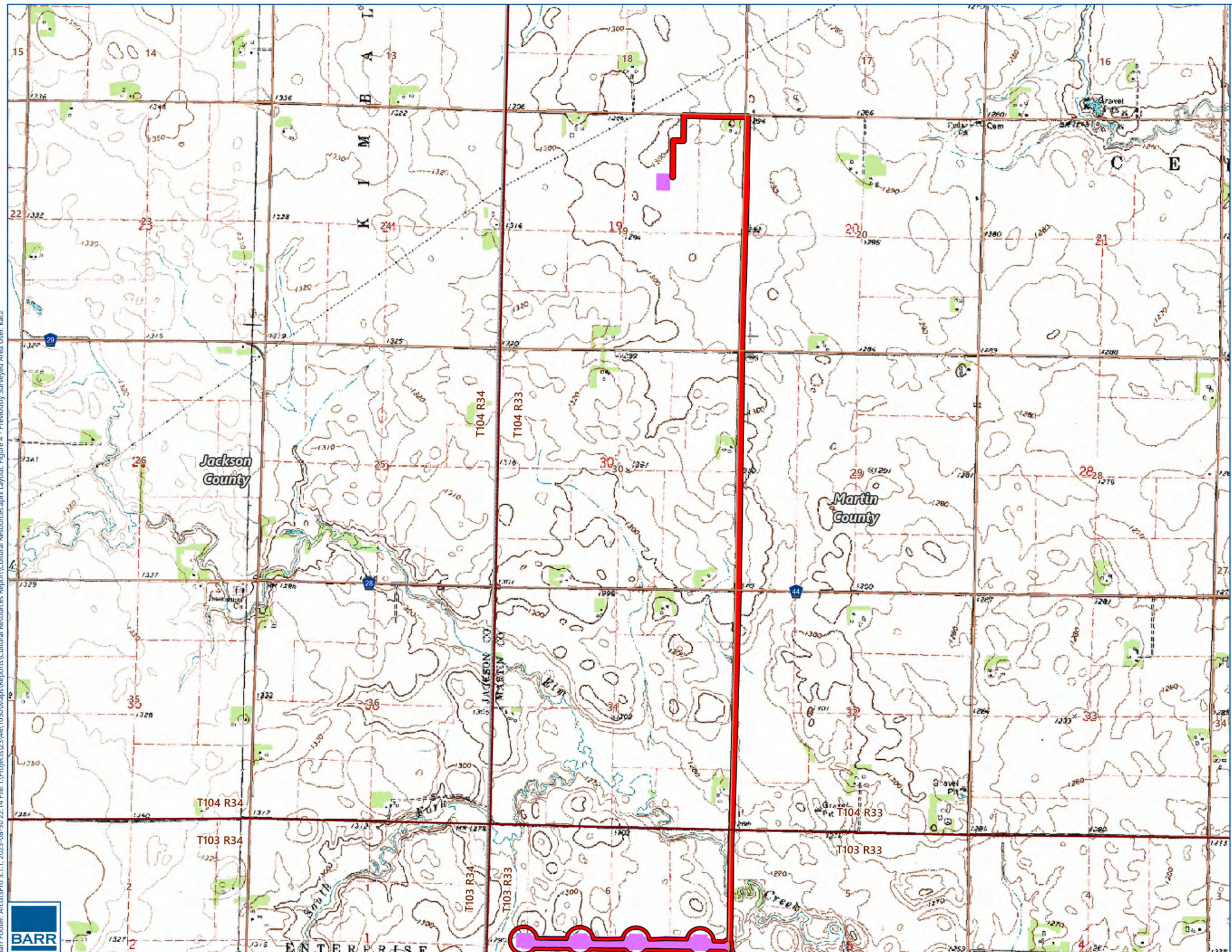
Barr completed a records check at the Minnesota SHPO on June 13, 2023 to identify previously completed cultural resource investigations in the construction footprint and Project Study Area. The majority of the construction footprint was previously surveyed for cultural resources as part of the original construction of the Elm Creek II Wind Project in 2010 (Florin and Lindbeck 2010; Florin 2010a, 2010b) (Figure 4). In addition to the investigations for Elm Creek II, five additional cultural resource surveys have occurred within portions of the Project Study Area. A brief summary of these investigations is provided below.

2.1.6.1 Previous Investigations, Elm Creek II

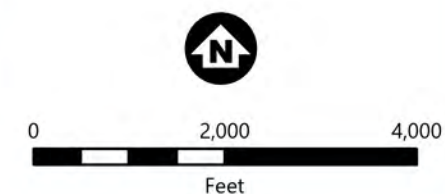
In February 2010, Florin Cultural Resource Services completed a Phase I archaeological survey for the Elm Creek II Wind Project (Florin and Lindbeck 2010). The initial survey covered 61 wind turbine pads, two meteorological towers, two laydown areas, one operations and maintenance laydown area, one operations and maintenance substation, approximately 26.3 miles of associated access roads and underground electric collection system, and 6.3 miles of overhead electrical collection system. No archaeological resources were identified within these investigated areas (Florin and Lindbeck 2010).

Sixteen turbine pads, approximately 14.6 miles of access road and underground electrical collection system, approximately 4.6 miles of overhead electrical collection system, one meteorological tower pad, and an operations and maintenance laydown area could not be surveyed during the first mobilization. As a result, an Addendum Phase I report was completed in April 2010 (Florin 2010a). As a result of this investigation, one archaeological site was identified. Site 21JK0042 consists of a single, precontact lithic isolate identified at **REDACTED**. The site was recommended not eligible for the NRHP, and no additional work was recommended for the Project to proceed (Florin 2010a). A small portion of underground collector line was not surveyed due to a lack of ground surface visibility. Florin Cultural Resource Services determined that this portion of the Project was located in an area with low probability for cultural resources; therefore, survey was not recommended (Florin 2010a). In June 2010, Florin Cultural Resource Services completed a letter report for an access road survey at Elm Creek II (Florin 2010b). No archaeological sites were identified, and no additional work was recommended (Florin 2010b).

A review of the construction footprint as compared to the survey completed in 2010 for the Project indicates that 98.5 percent of the construction footprint was previously surveyed for the original Elm Creek II Wind Project in 2010 (Figure 5).

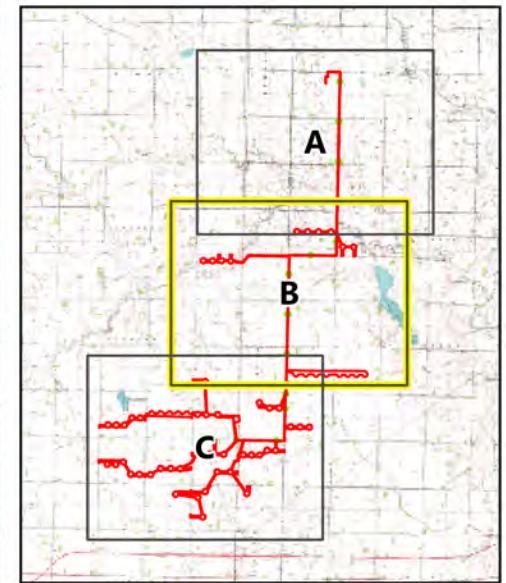
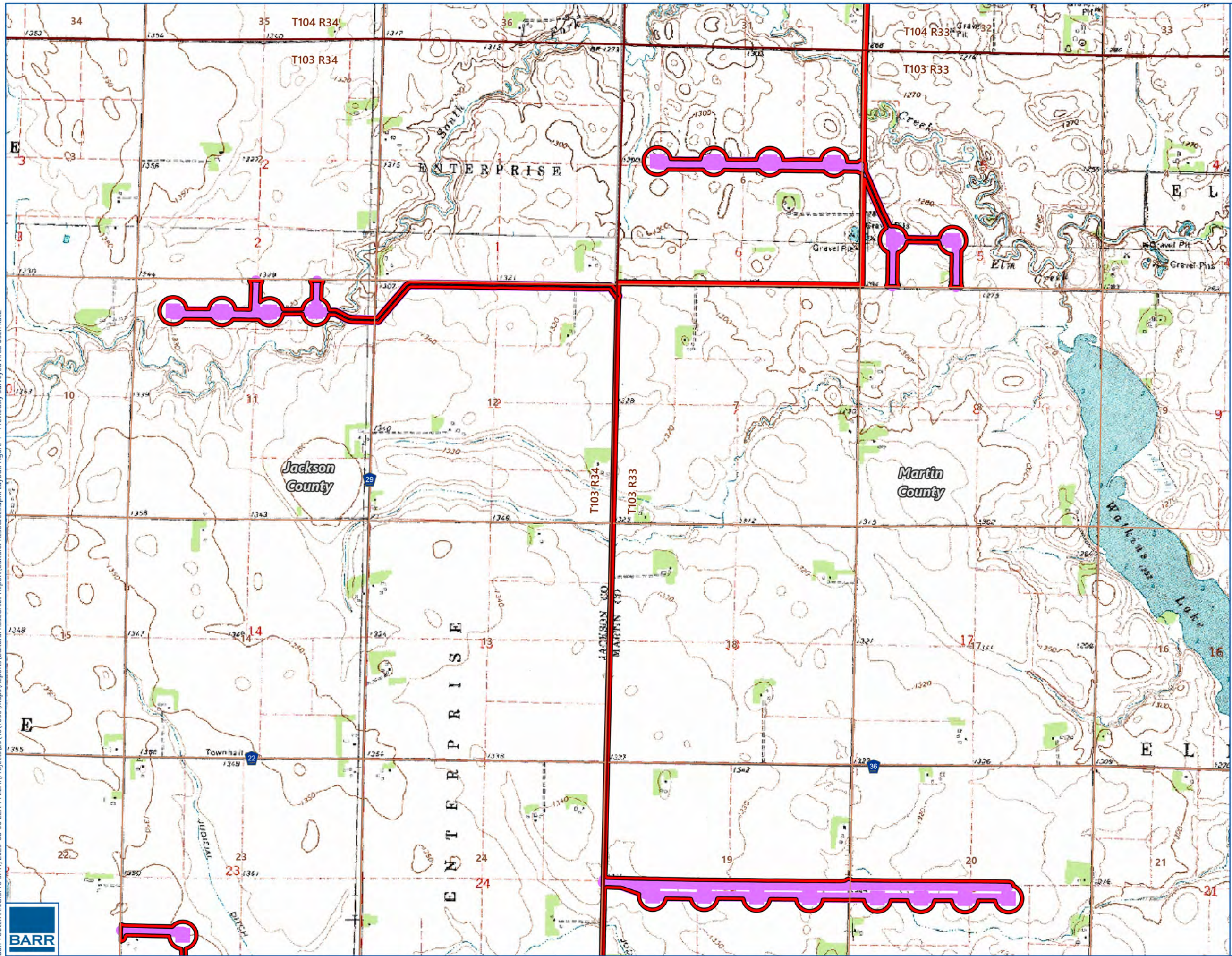


- Construction Footprint
- County Boundary
- Municipal Boundary
- Public Land Survey Townships
- Public Land Survey Sections
- Previously Surveyed

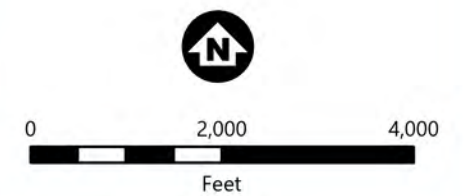


PREVIOUSLY SURVEYED AREA
Elm Creek II
Martin and Jackson Counties, MN

FIGURE 4A



- Construction Footprint
- County Boundary
- Municipal Boundary
- Public Land Survey Townships
- Public Land Survey Sections
- Previously Surveyed

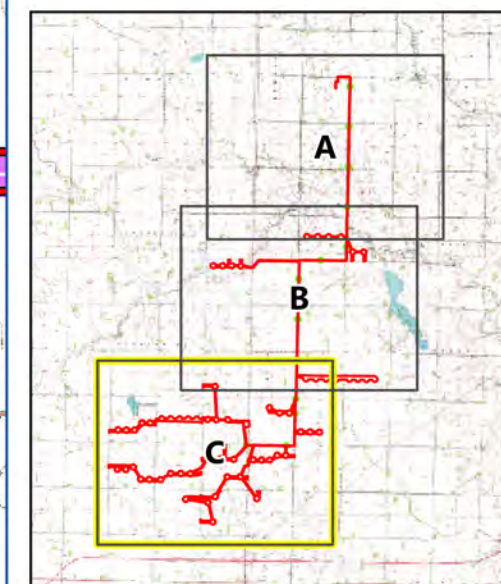
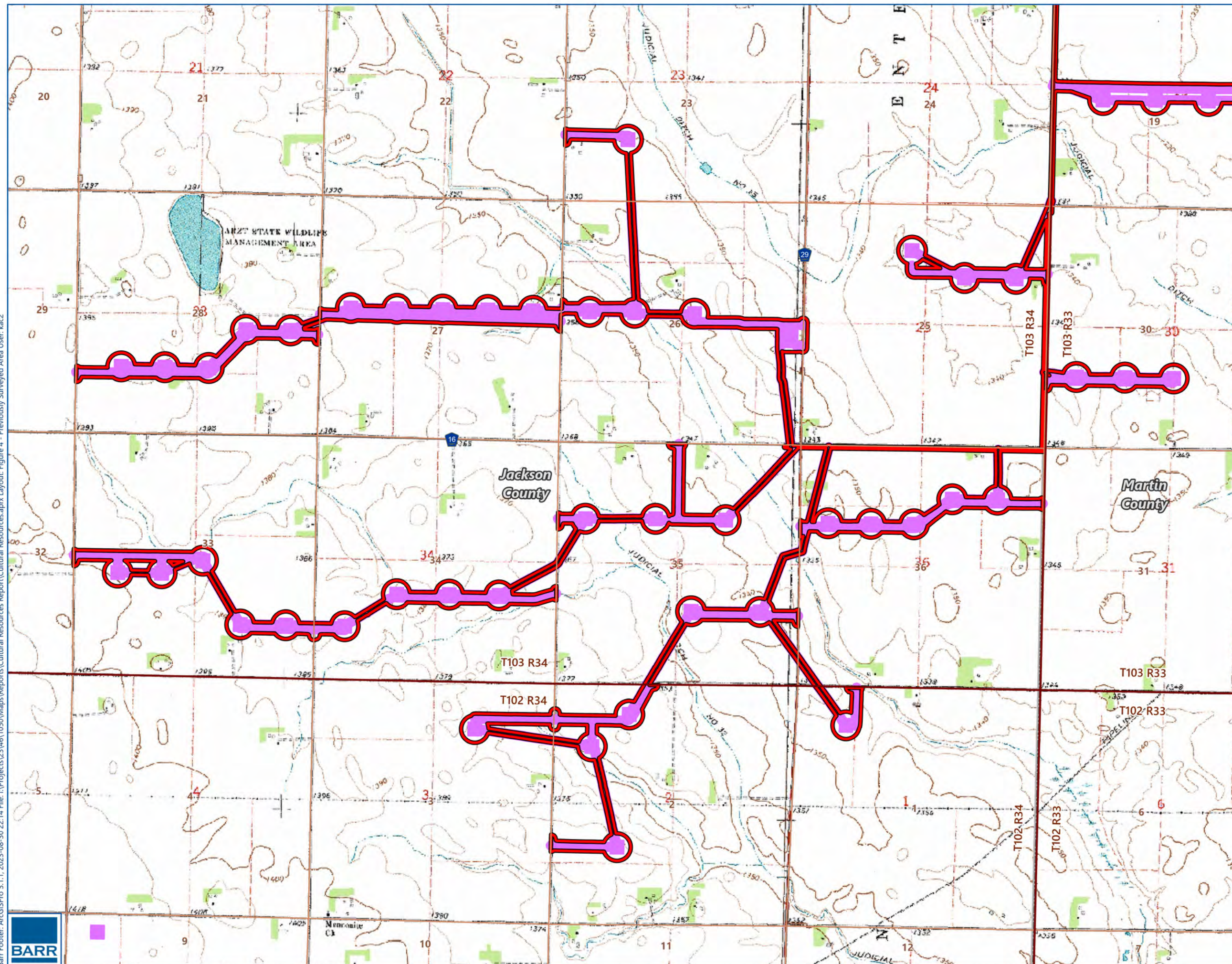


PREVIOUSLY SURVEYED AREA
Elm Creek II
Martin and Jackson Counties, MN

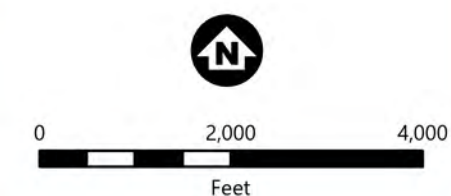
FIGURE 4B



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- Construction Footprint
- County Boundary
- Municipal Boundary
- Public Land Survey Townships
- Public Land Survey Sections
- Previously Surveyed

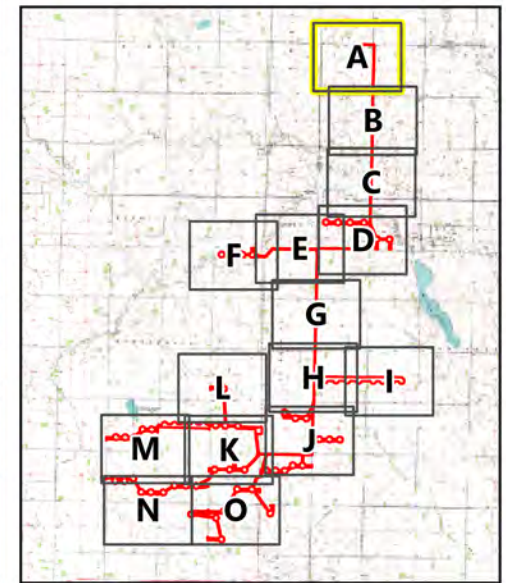
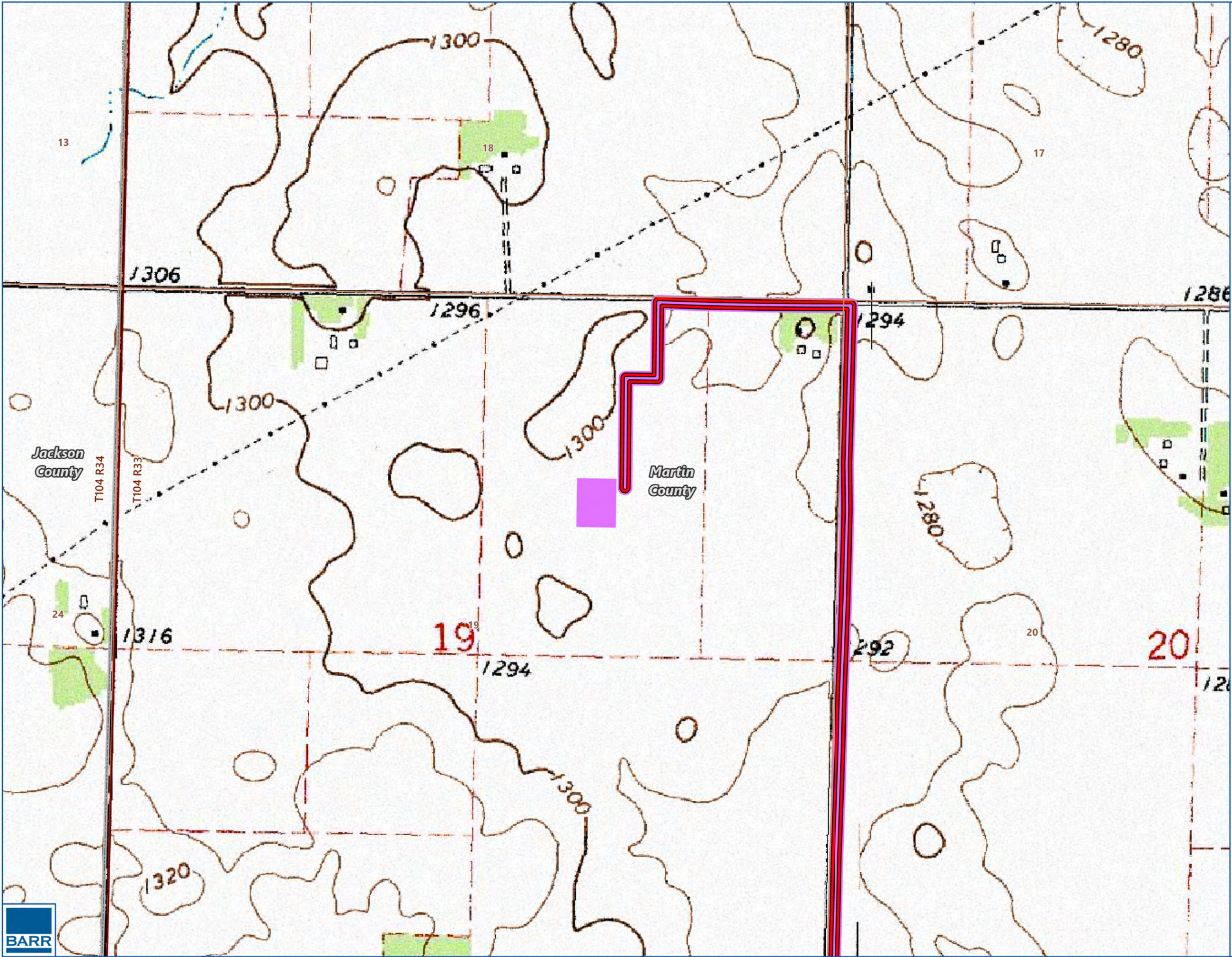


PREVIOUSLY SURVEYED AREA
Elm Creek II
Martin and Jackson Counties, MN

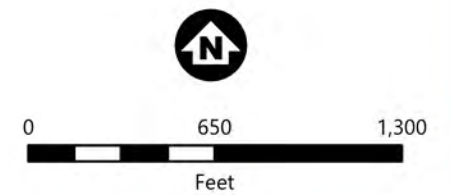
FIGURE 4C



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- Construction Footprint
- County Boundary
- Municipal Boundary
- Public Land Survey Townships
- Public Land Survey Sections
- Previously Surveyed

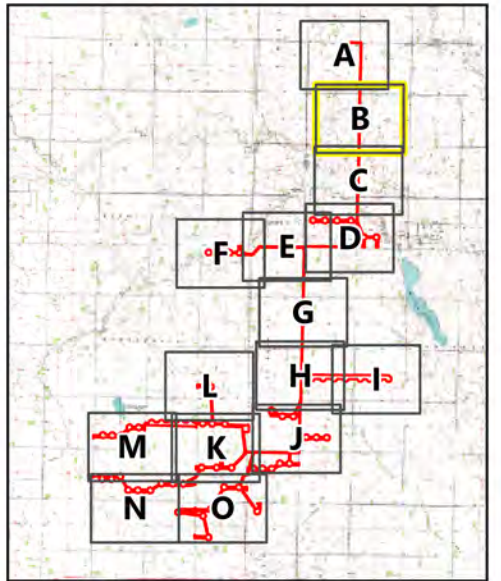
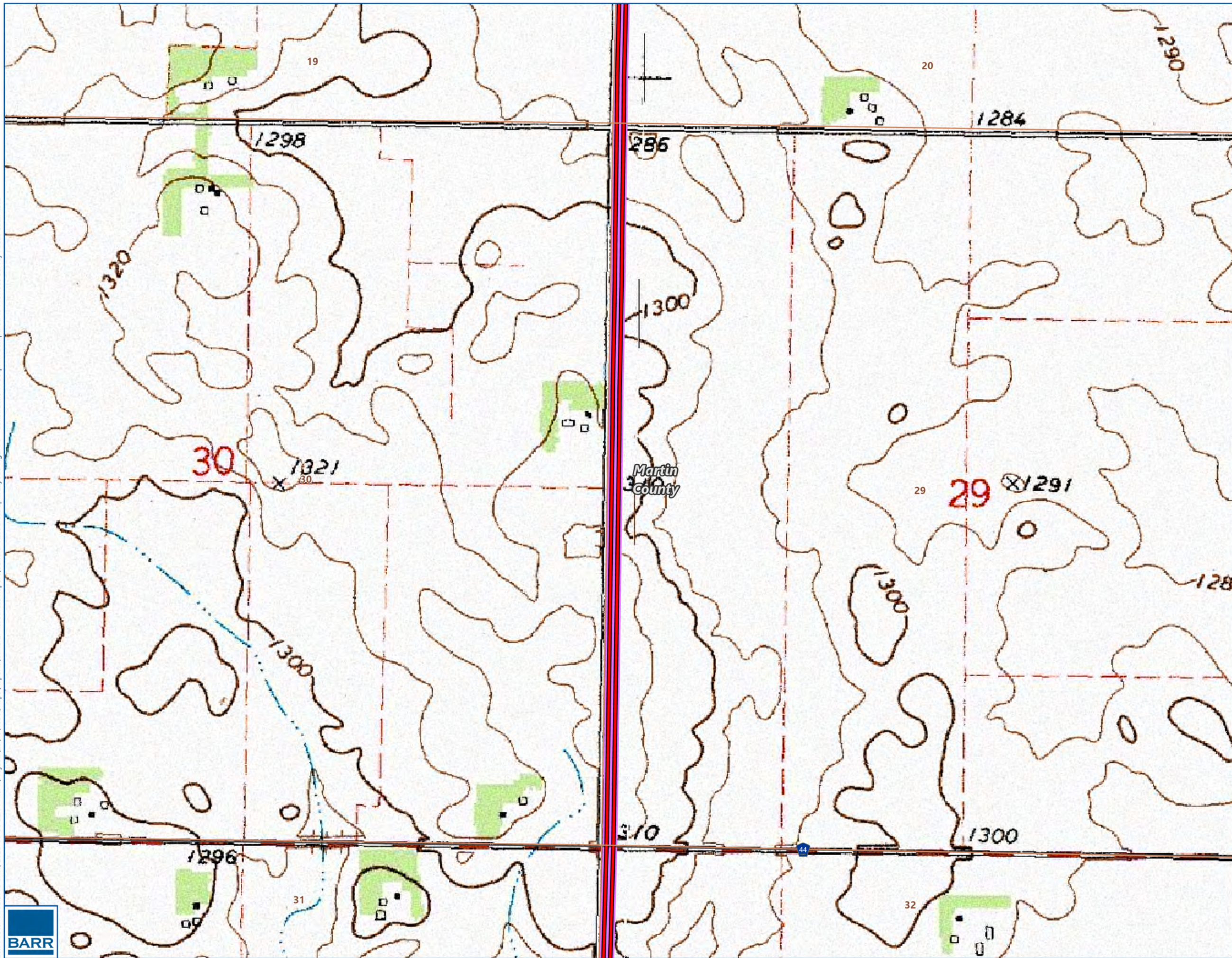


CONSTRUCTION FOOTPRINT
COMPARED TO PREVIOUS SURVEY
AREAS
Elm Creek II
Martin and Jackson Counties, MN

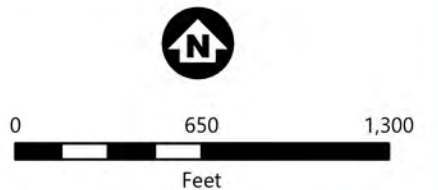
FIGURE 5A



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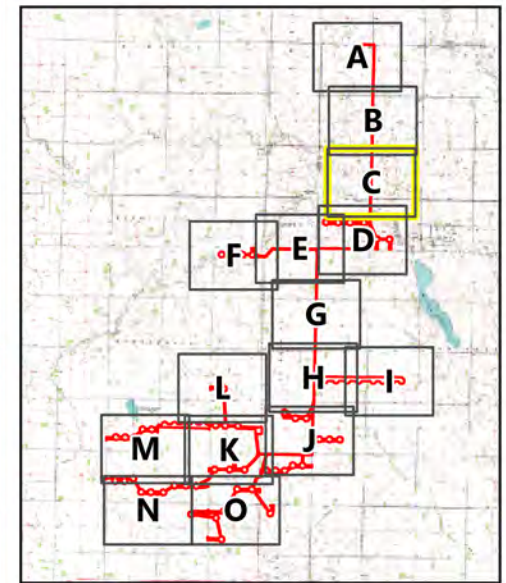
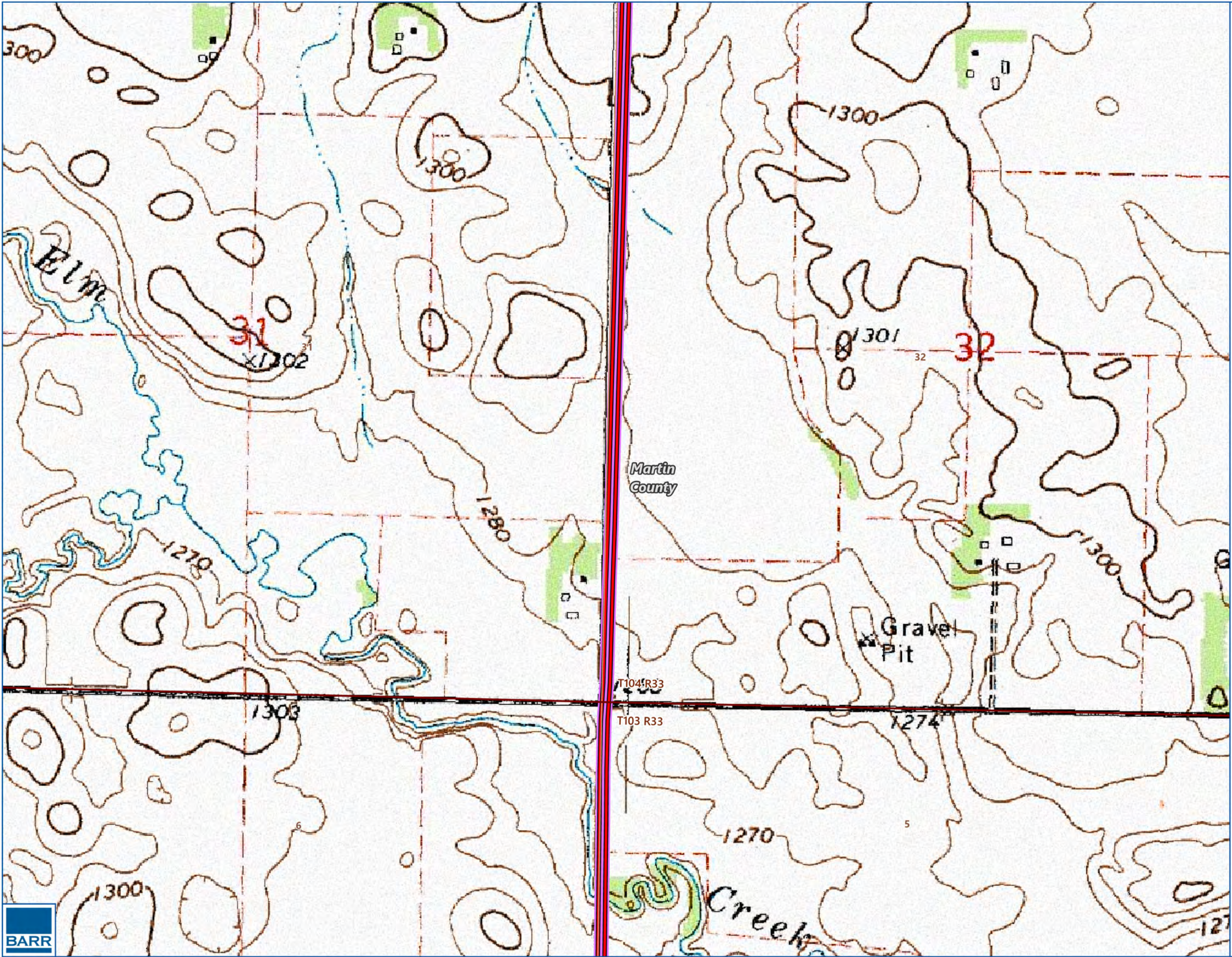
- Construction Footprint
- County Boundary
- Municipal Boundary
- Public Land Survey Townships
- Public Land Survey Sections
- Previously Surveyed



CONSTRUCTION FOOTPRINT
COMPARED TO PREVIOUS SURVEY
AREAS
Elm Creek II
Martin and Jackson Counties, MN

FIGURE 5B





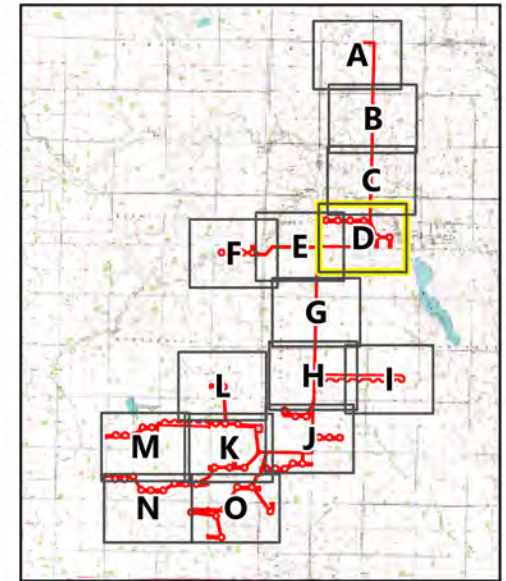
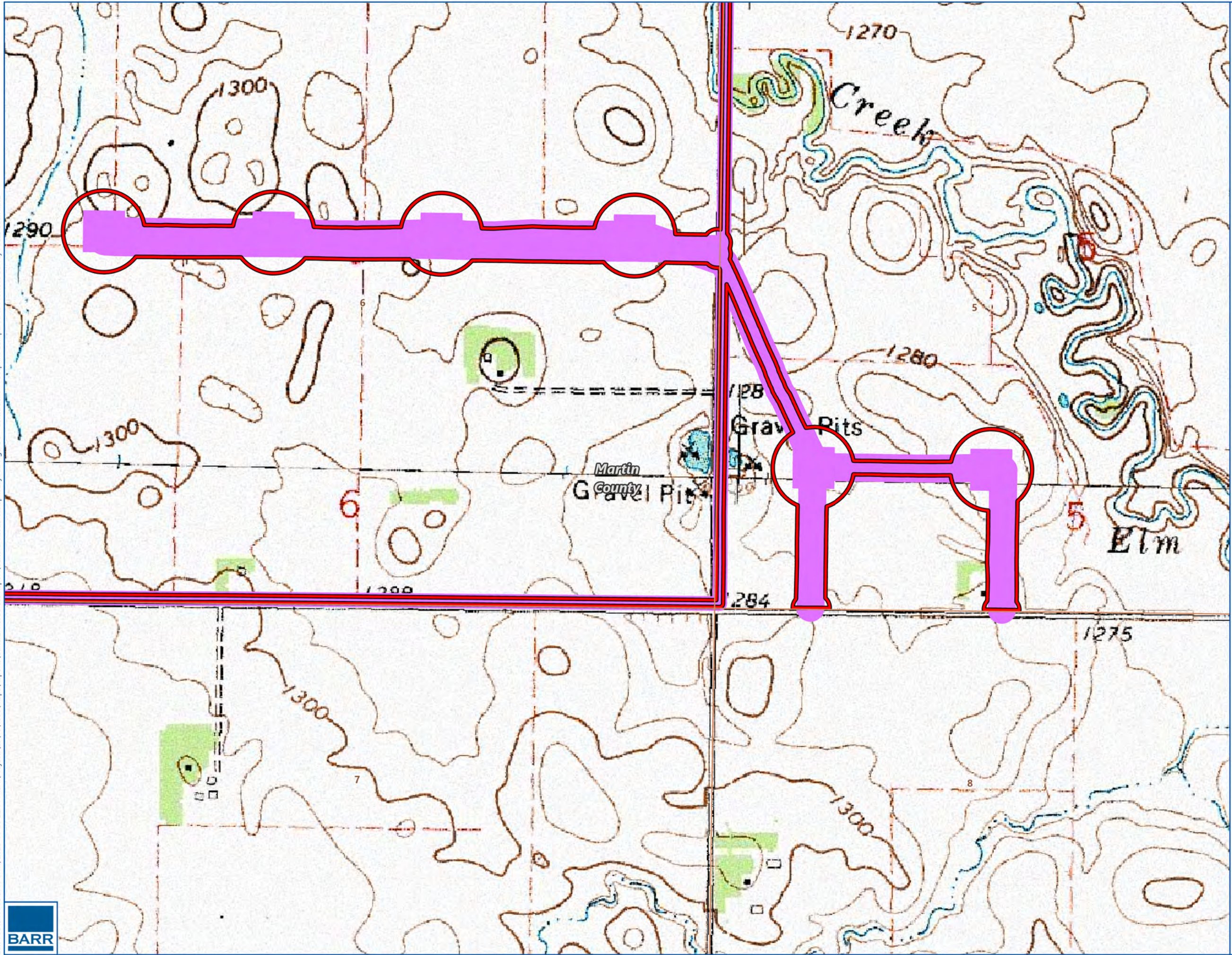
- Construction Footprint
- County Boundary
- Municipal Boundary
- Public Land Survey Townships
- Public Land Survey Sections
- Previously Surveyed



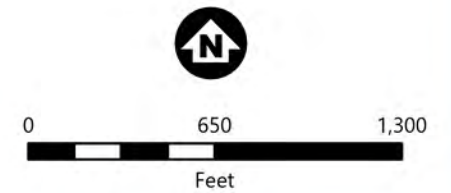
CONSTRUCTION FOOTPRINT
COMPARED TO PREVIOUS SURVEY
AREAS
Elm Creek II
Martin and Jackson Counties, MN

FIGURE 5C





- Construction Footprint
- County Boundary
- Municipal Boundary
- Public Land Survey Townships
- Public Land Survey Sections
- Previously Surveyed

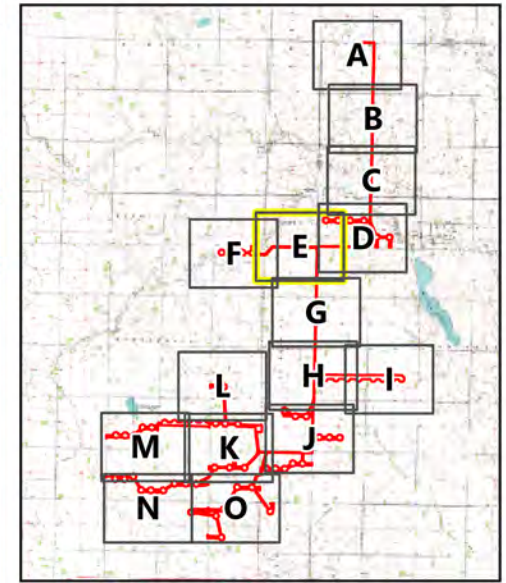
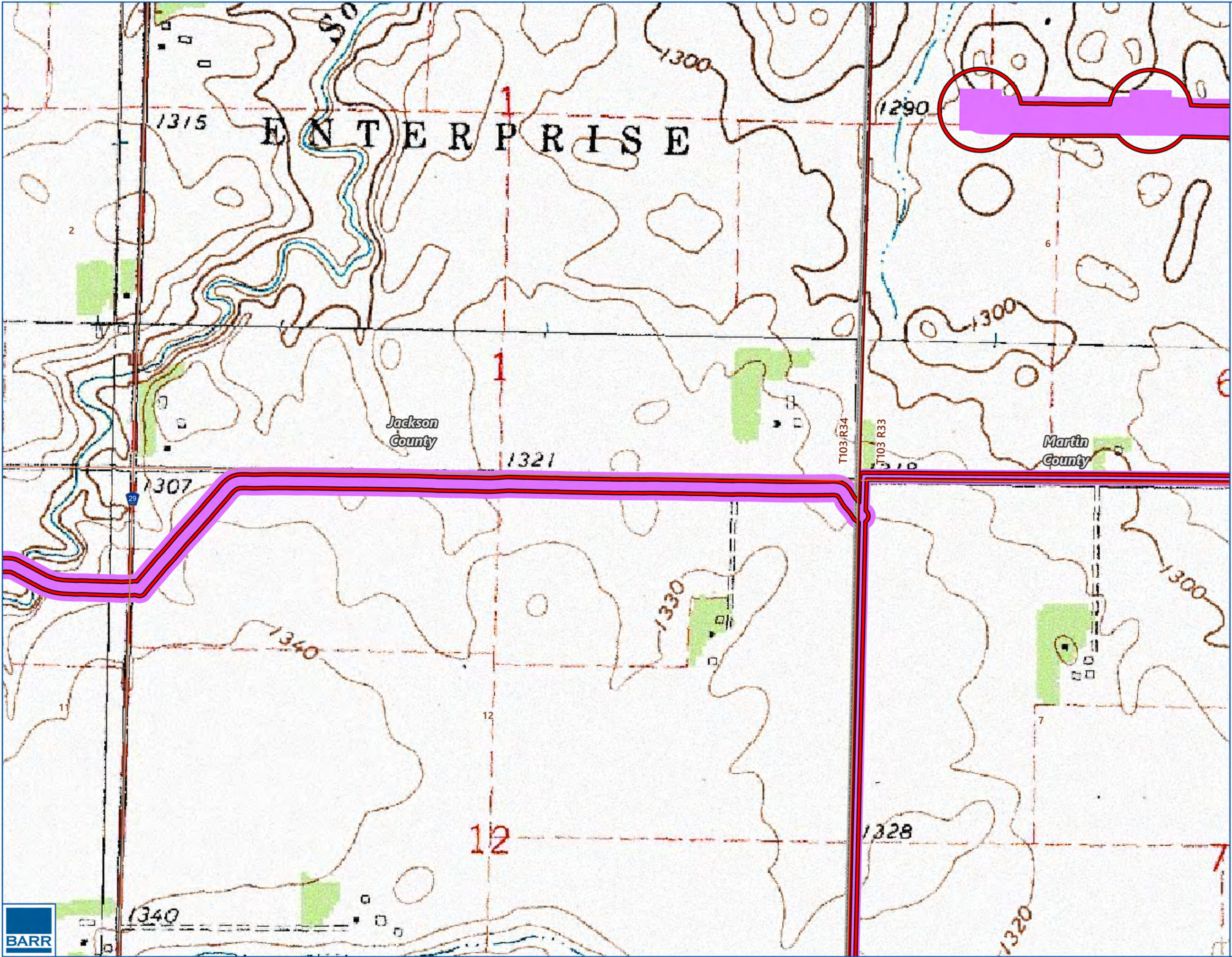


CONSTRUCTION FOOTPRINT
COMPARED TO PREVIOUS SURVEY
AREAS
Elm Creek II
Martin and Jackson Counties, MN

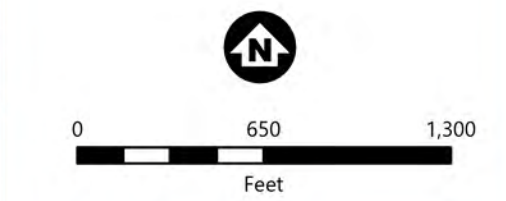
FIGURE 5D



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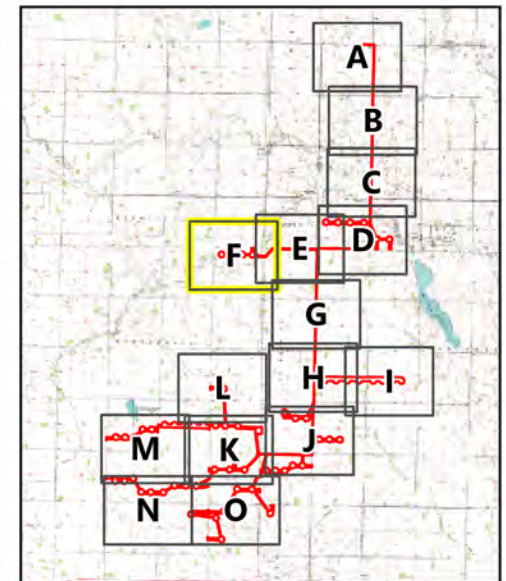
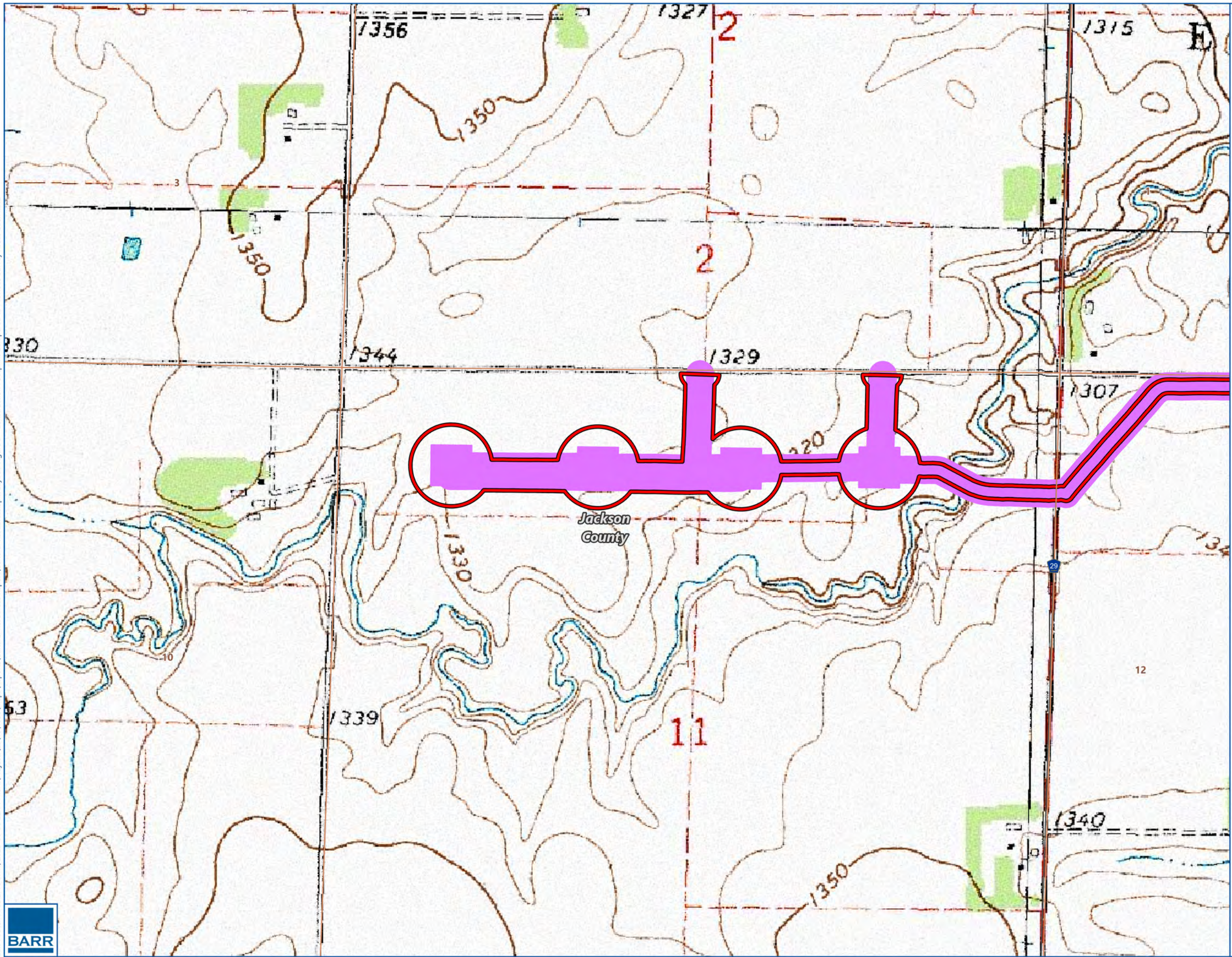
- Construction Footprint
- County Boundary
- Municipal Boundary
- Public Land Survey Townships
- Public Land Survey Sections
- Previously Surveyed



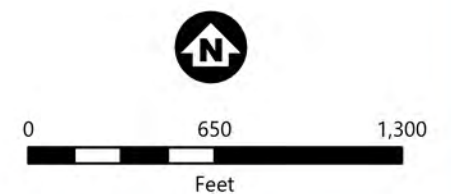
CONSTRUCTION FOOTPRINT
COMPARED TO PREVIOUS SURVEY
AREAS
Elm Creek II
Martin and Jackson Counties, MN

FIGURE 5E





-  Construction Footprint
-  County Boundary
-  Municipal Boundary
-  Public Land Survey Townships
-  Public Land Survey Sections
-  Previously Surveyed

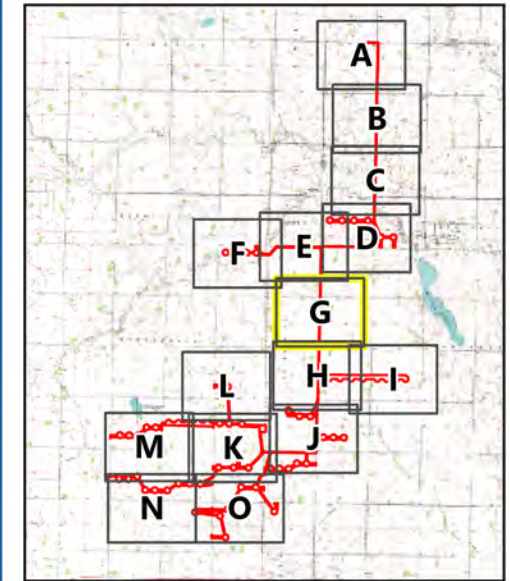
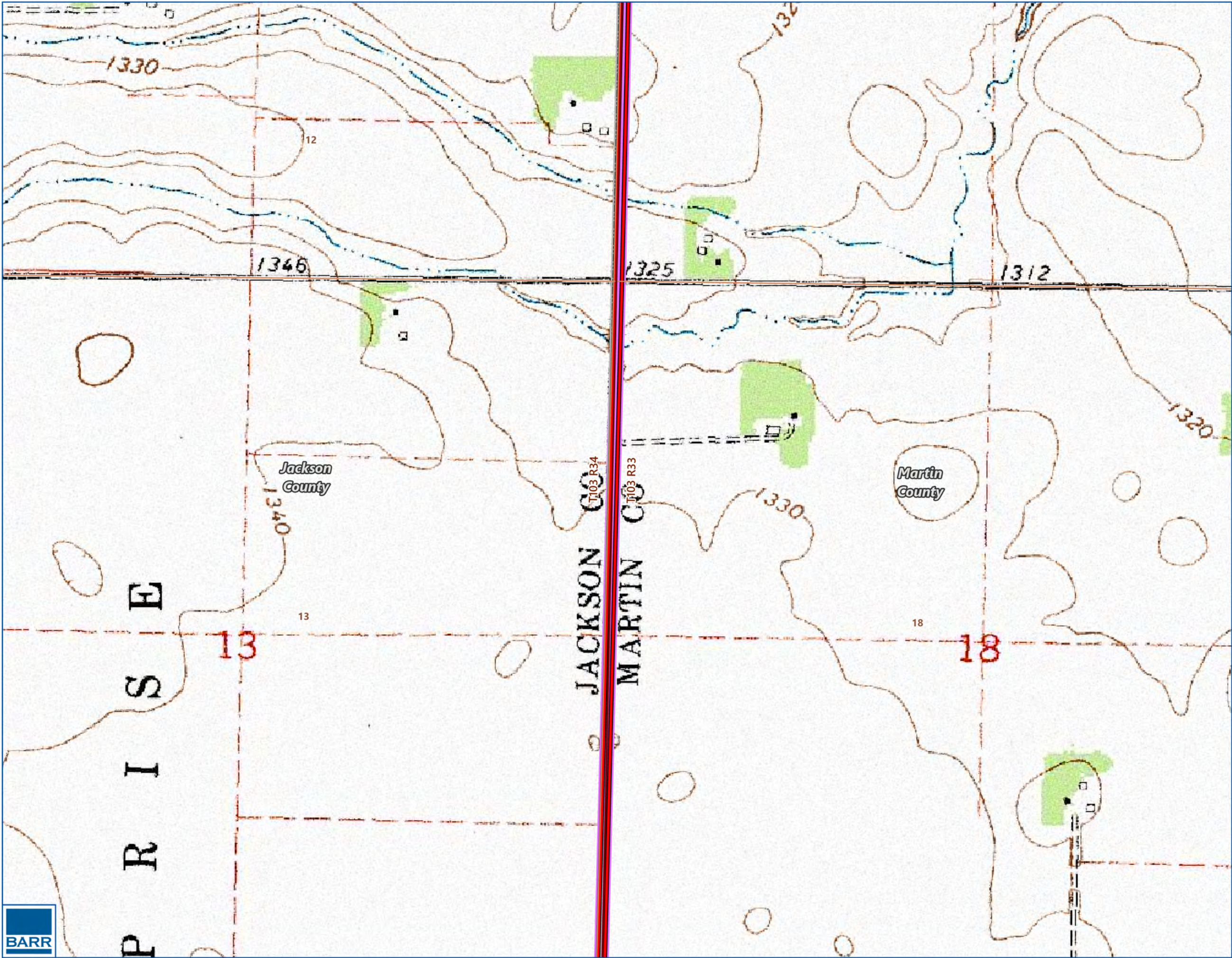


CONSTRUCTION FOOTPRINT
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AREAS
Elm Creek II
Martin and Jackson Counties, MN

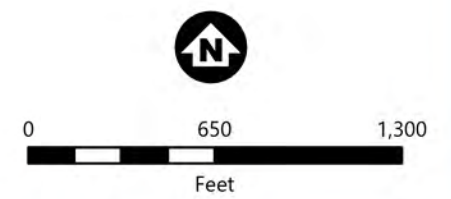
FIGURE 5F



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-  Construction Footprint
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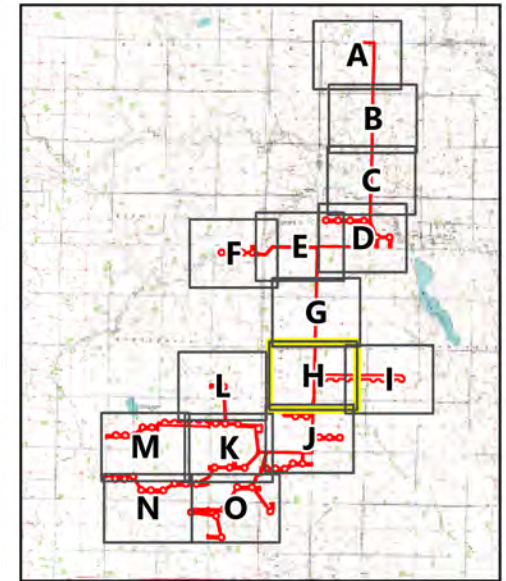
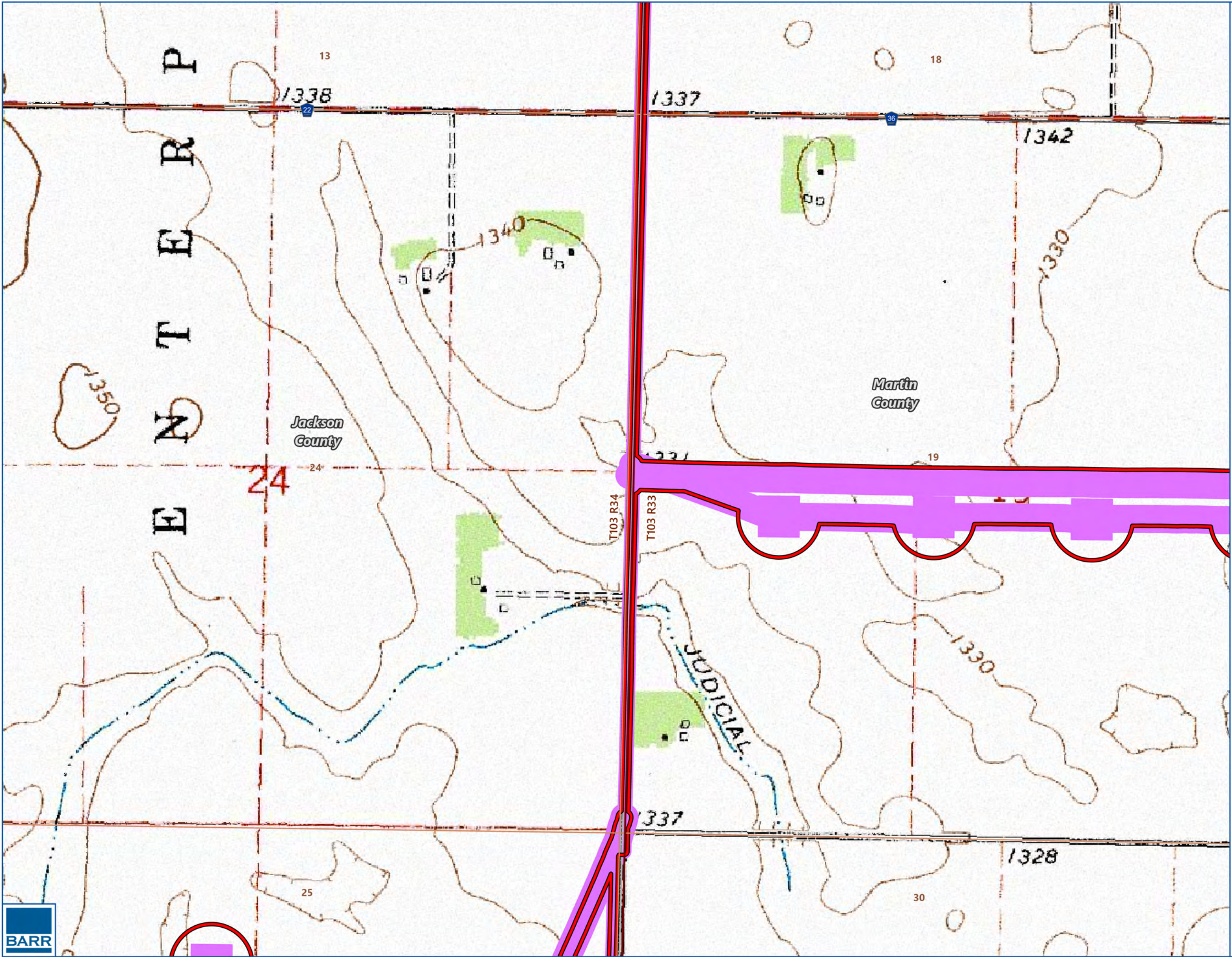


CONSTRUCTION FOOTPRINT
COMPARED TO PREVIOUS SURVEY
AREAS
Elm Creek II
Martin and Jackson Counties, MN

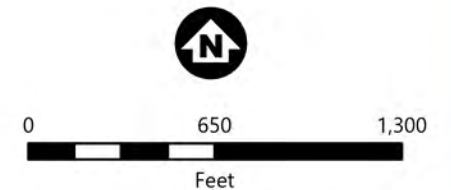
FIGURE 5G



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-  Construction Footprint
-  County Boundary
-  Municipal Boundary
-  Public Land Survey Townships
-  Public Land Survey Sections
-  Previously Surveyed

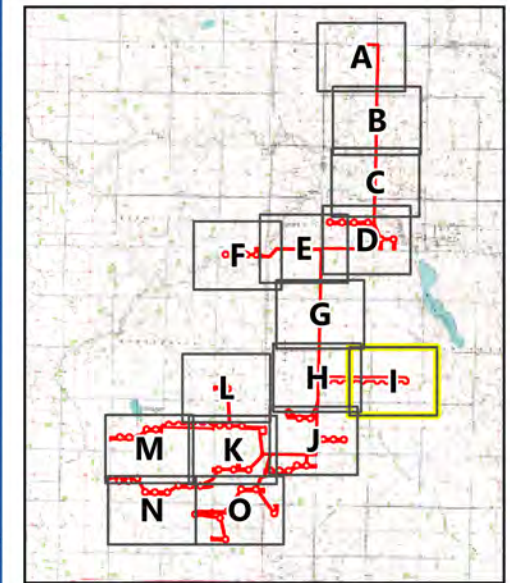
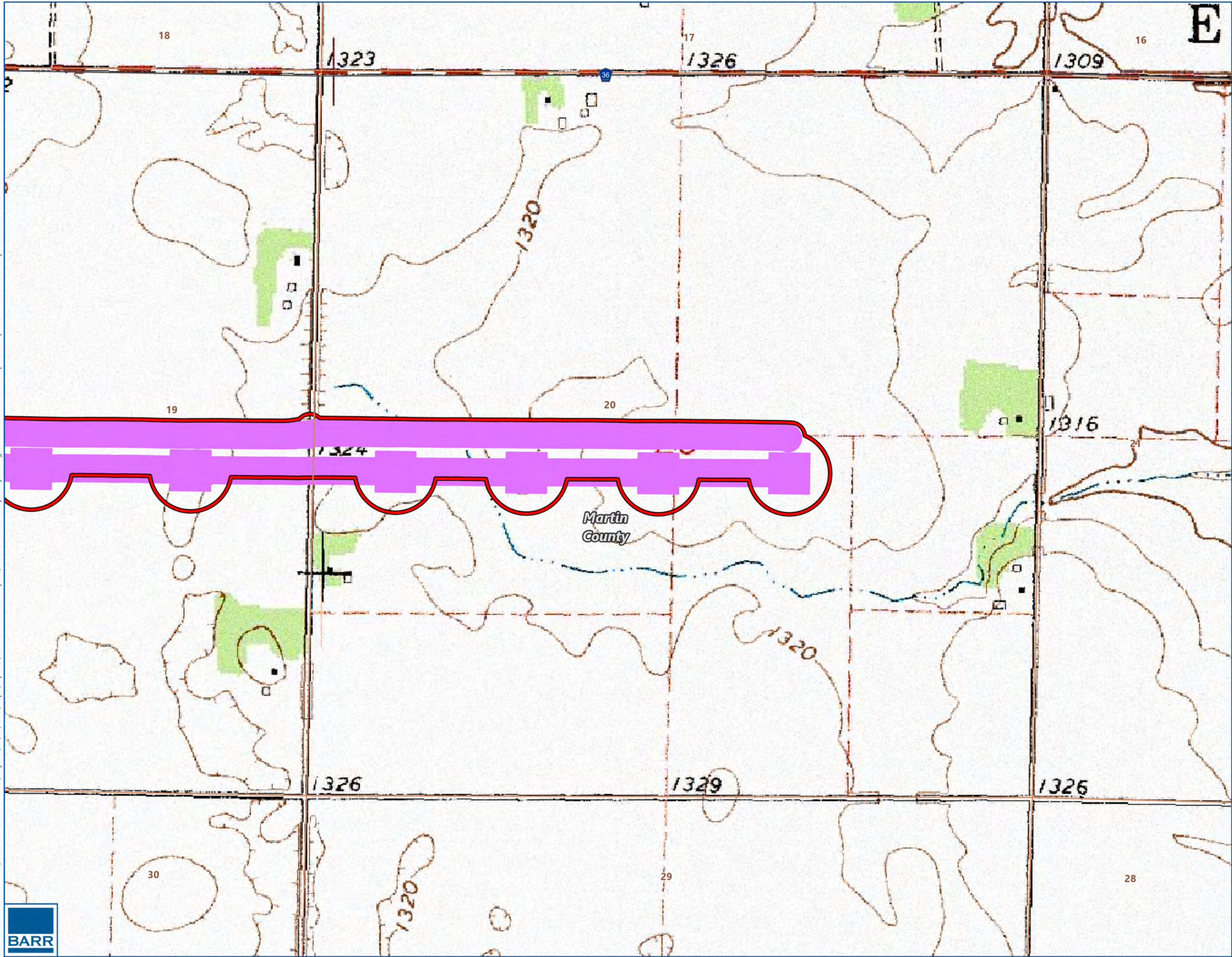


CONSTRUCTION FOOTPRINT
COMPARED TO PREVIOUS SURVEY
AREAS
Elm Creek II
Martin and Jackson Counties, MN

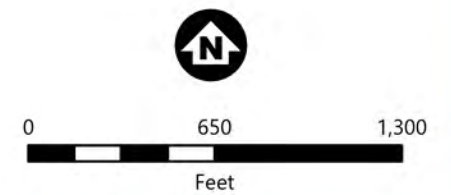
FIGURE 5H



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- Construction Footprint
- County Boundary
- Municipal Boundary
- Public Land Survey Townships
- Public Land Survey Sections
- Previously Surveyed

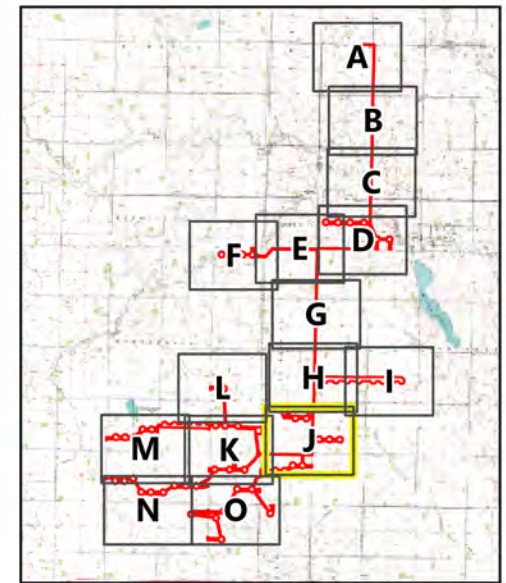
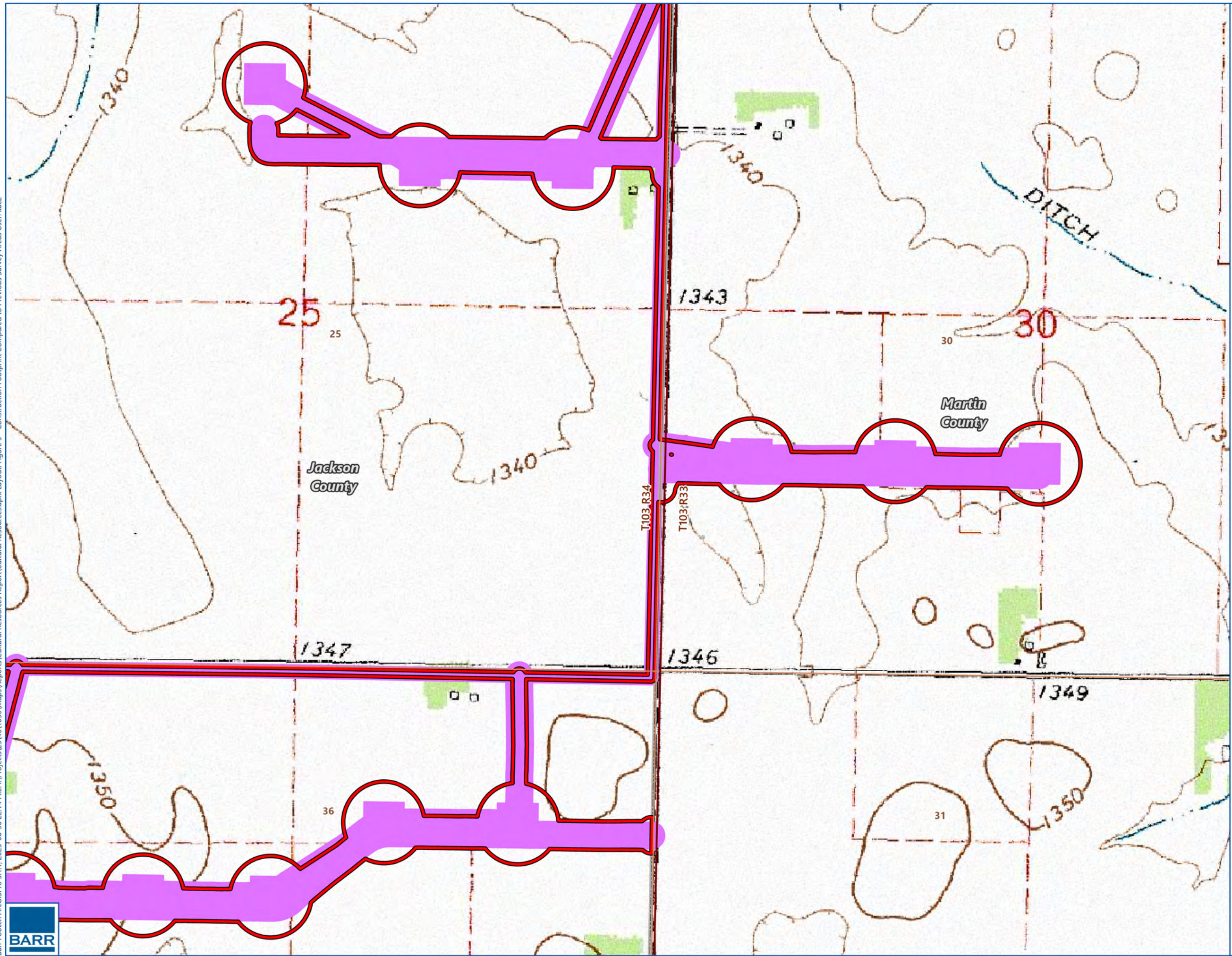


CONSTRUCTION FOOTPRINT
COMPARED TO PREVIOUS SURVEY
AREAS
Elm Creek II
Martin and Jackson Counties, MN

FIGURE 5I



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- Construction Footprint
- County Boundary
- Municipal Boundary
- Public Land Survey Townships
- Public Land Survey Sections
- Previously Surveyed

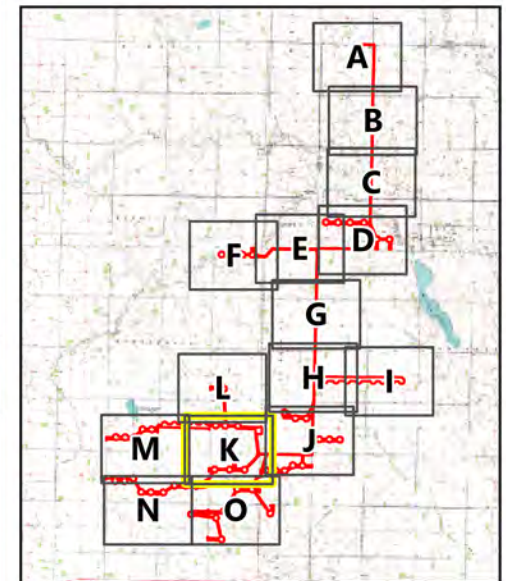
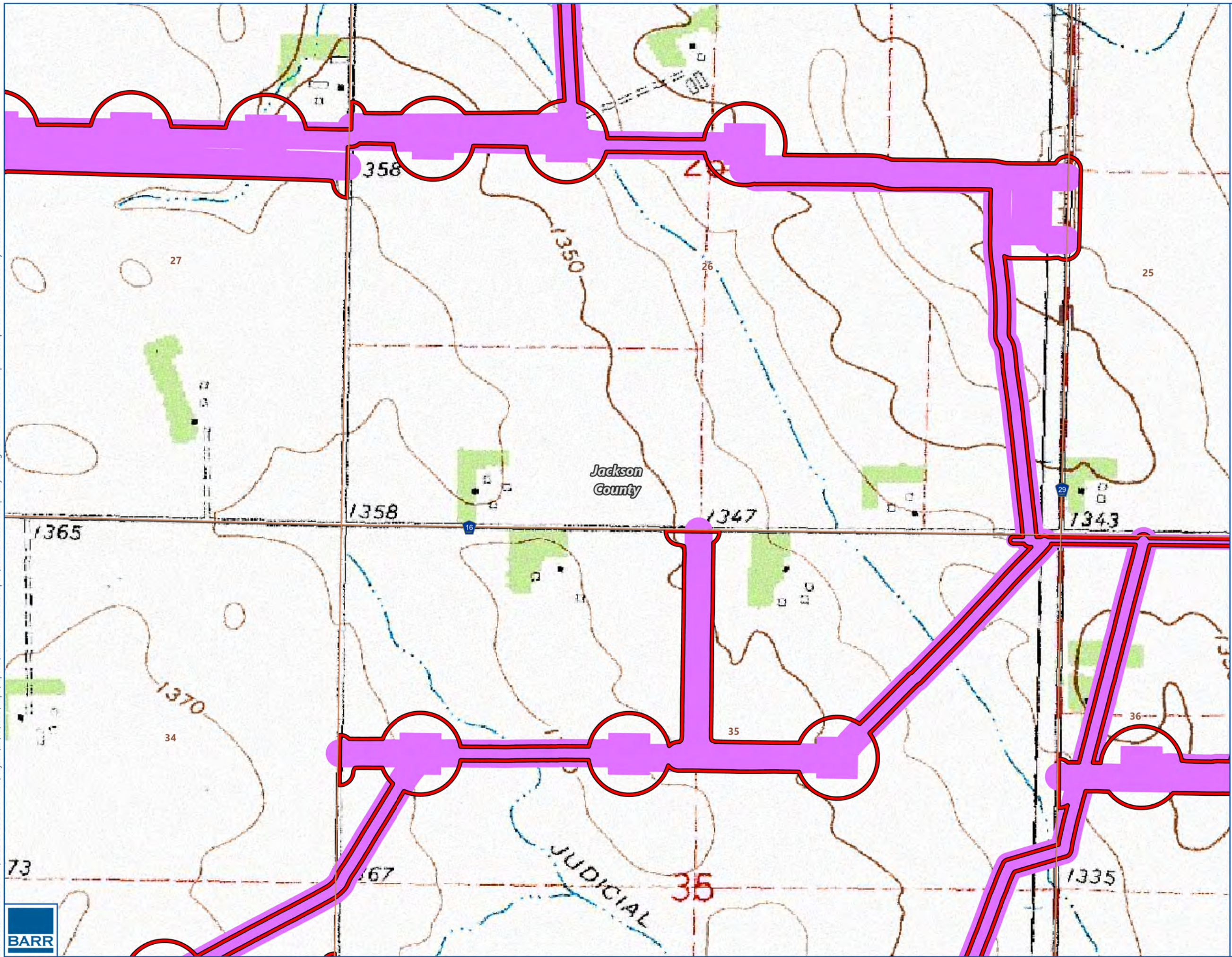


CONSTRUCTION FOOTPRINT
COMPARED TO PREVIOUS SURVEY
AREAS
Elm Creek II
Martin and Jackson Counties, MN

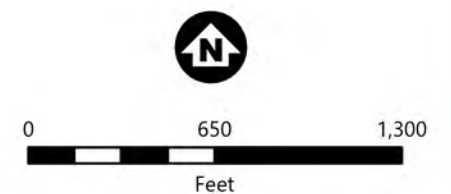
FIGURE 5J



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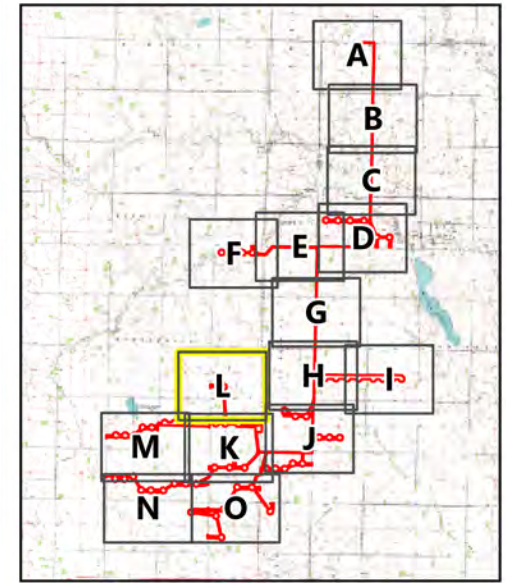
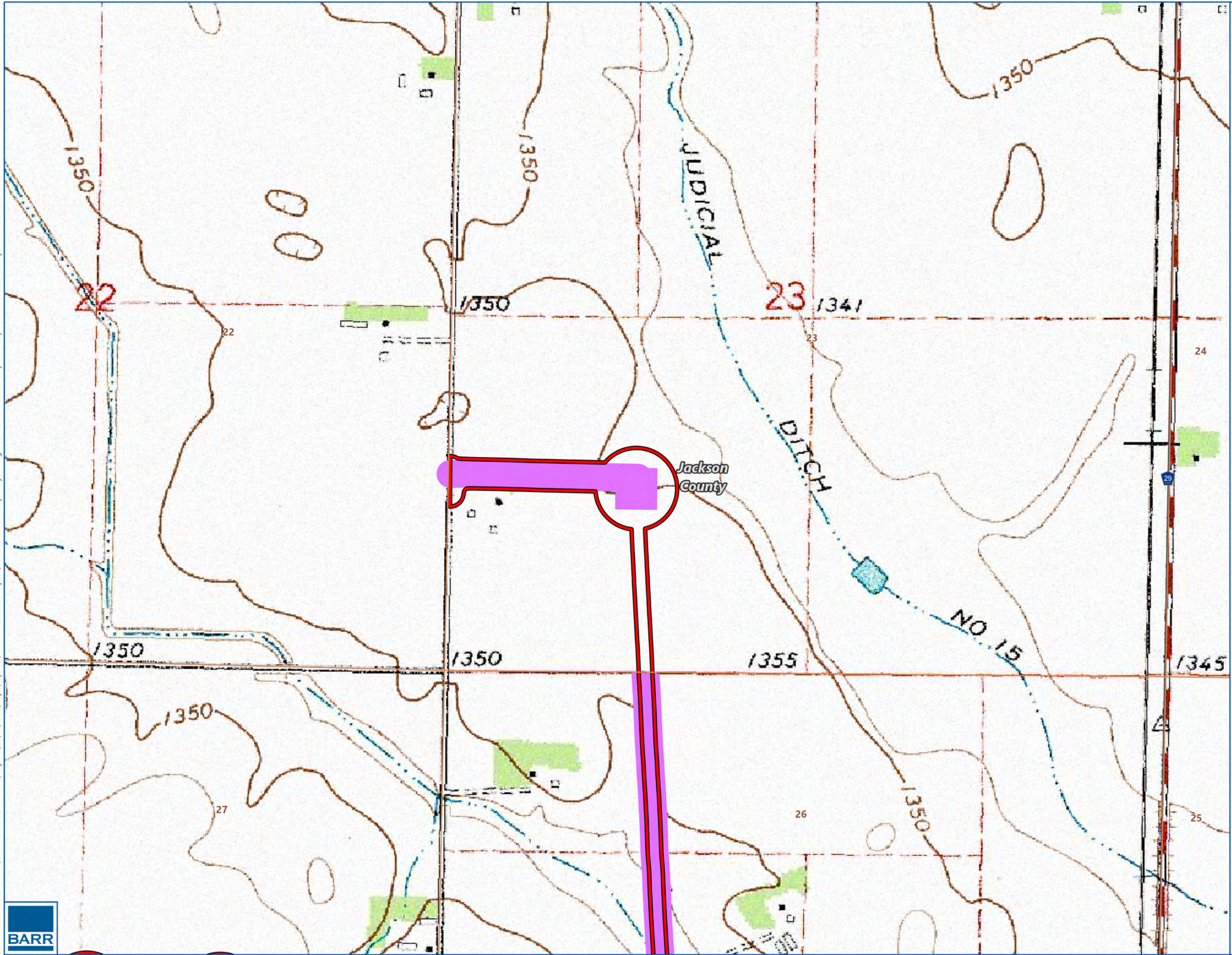
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-  County Boundary
-  Municipal Boundary
-  Public Land Survey Townships
-  Public Land Survey Sections
-  Previously Surveyed



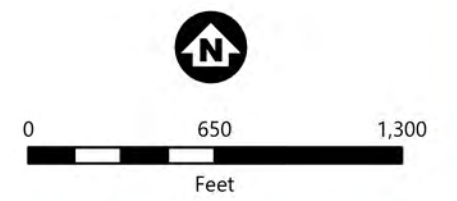
CONSTRUCTION FOOTPRINT
COMPARED TO PREVIOUS SURVEY
AREAS
Elm Creek II
Martin and Jackson Counties, MN

FIGURE 5K





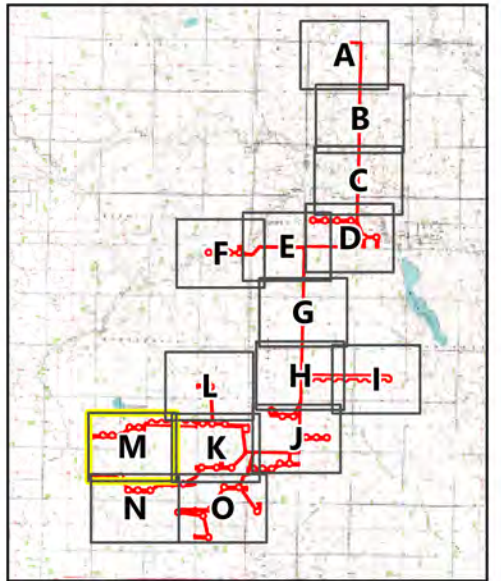
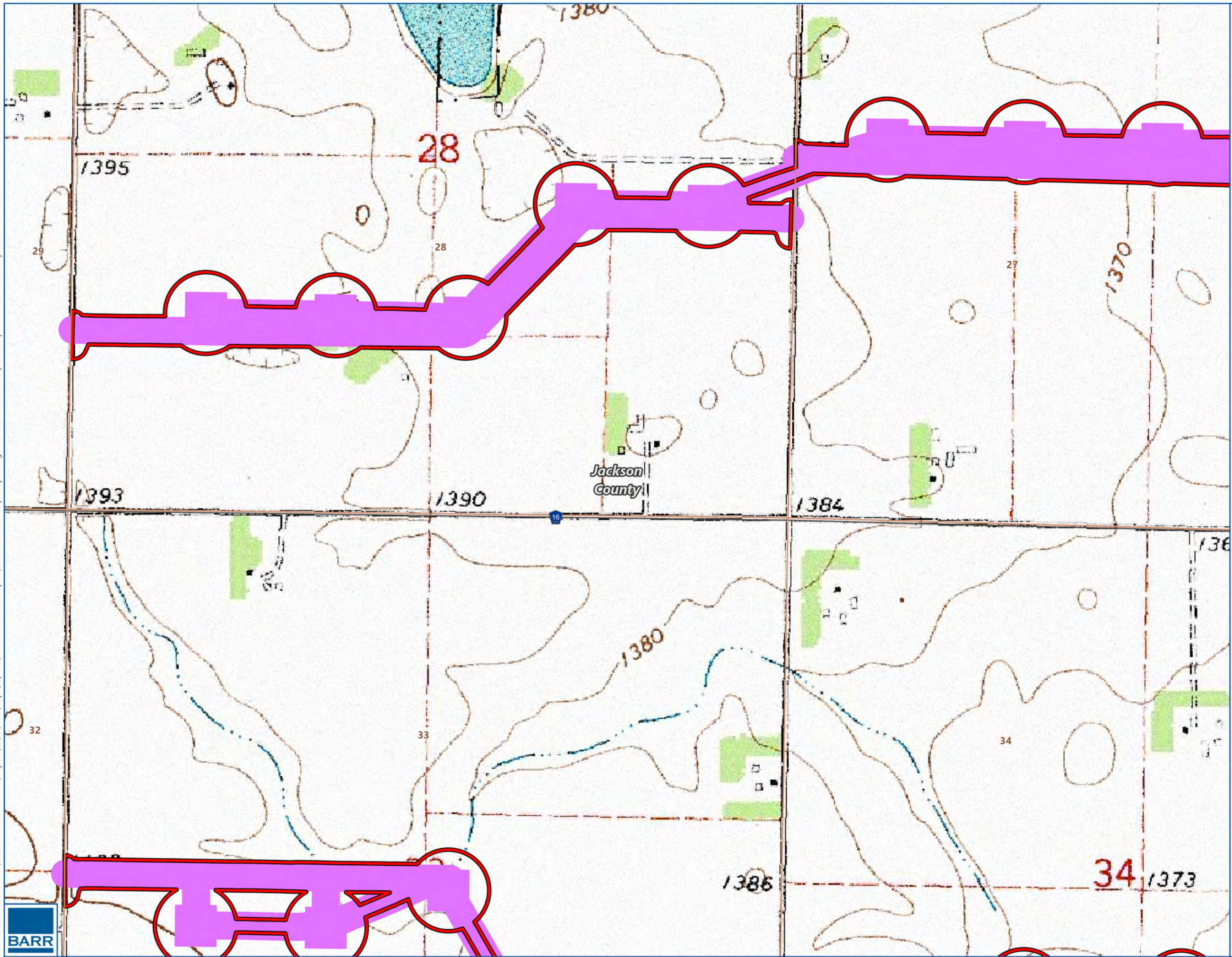
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-  County Boundary
-  Municipal Boundary
-  Public Land Survey Townships
-  Public Land Survey Sections
-  Previously Surveyed



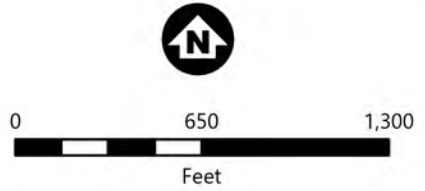
CONSTRUCTION FOOTPRINT
COMPARED TO PREVIOUS SURVEY
AREAS
Elm Creek II
Martin and Jackson Counties, MN

FIGURE 5L





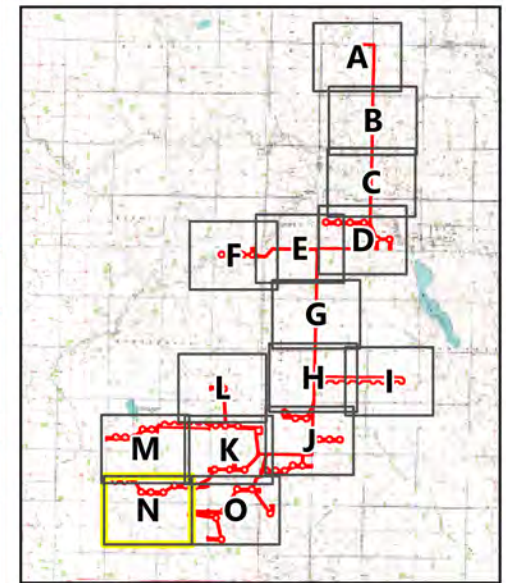
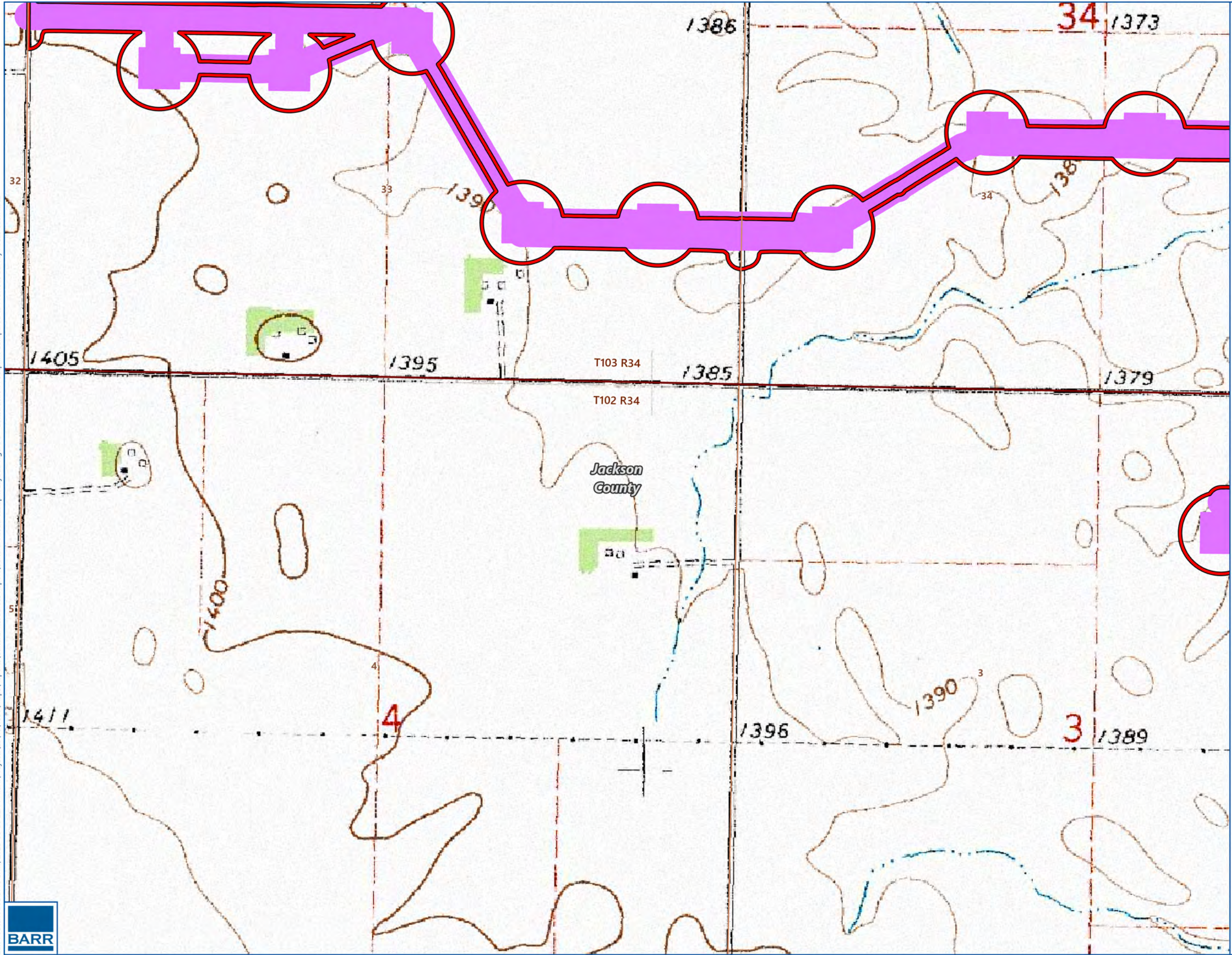
-  Construction Footprint
-  County Boundary
-  Municipal Boundary
-  Public Land Survey Townships
-  Public Land Survey Sections
-  Previously Surveyed



CONSTRUCTION FOOTPRINT
COMPARED TO PREVIOUS SURVEY
AREAS
Elm Creek II
Martin and Jackson Counties, MN

FIGURE 5M





-  Construction Footprint
-  County Boundary
-  Municipal Boundary
-  Public Land Survey Townships
-  Public Land Survey Sections
-  Previously Surveyed

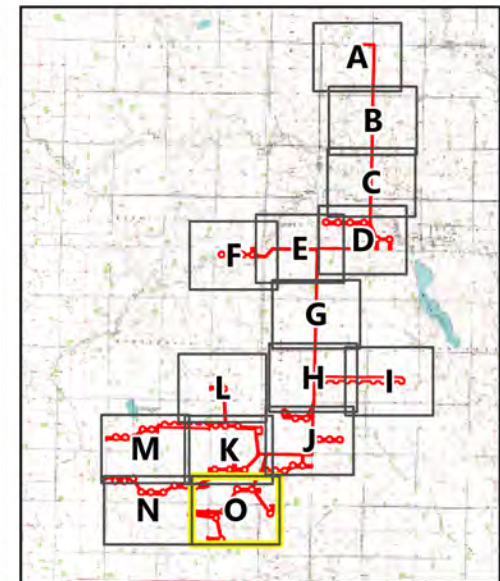
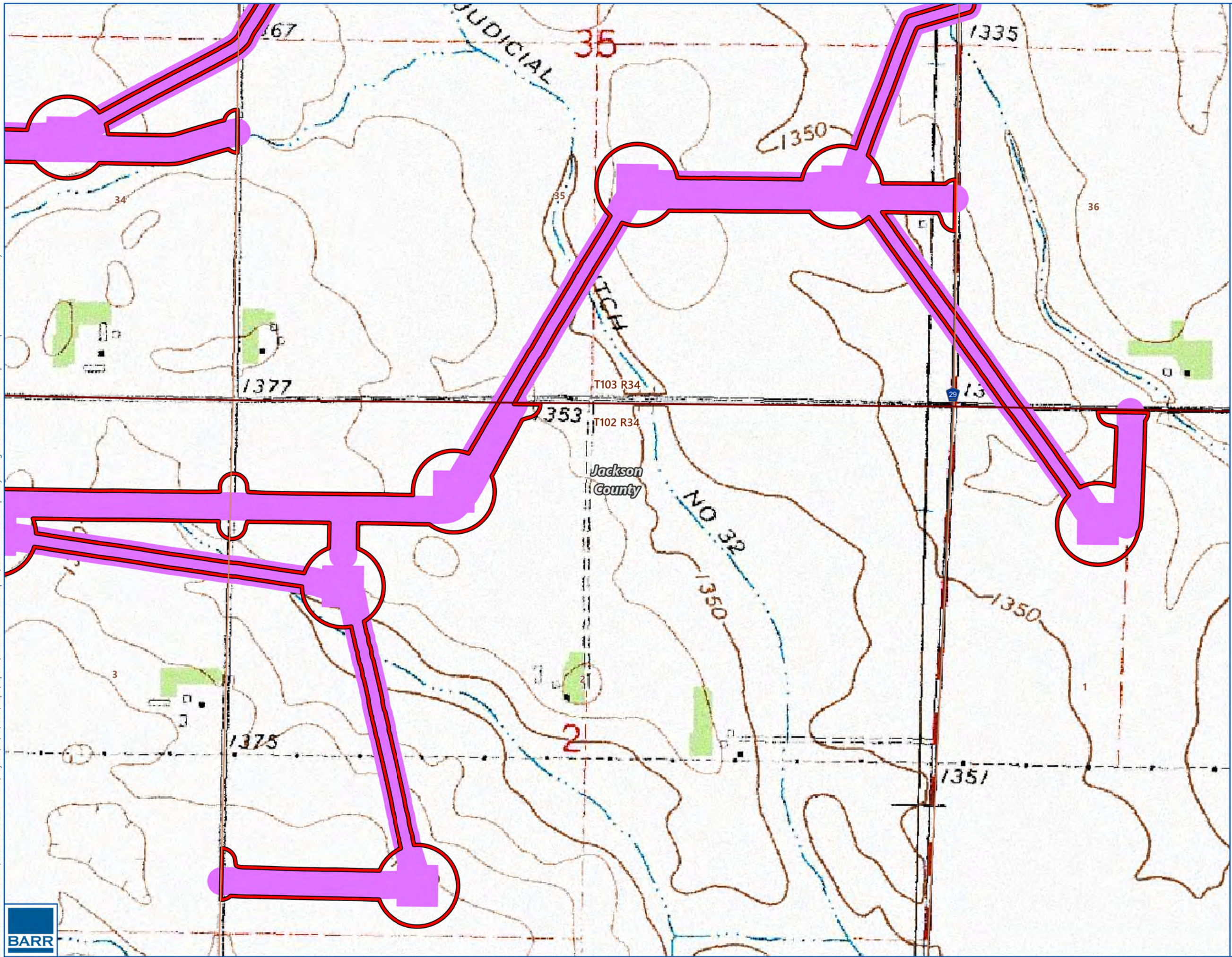


CONSTRUCTION FOOTPRINT
COMPARED TO PREVIOUS SURVEY
AREAS
Elm Creek II
Martin and Jackson Counties, MN

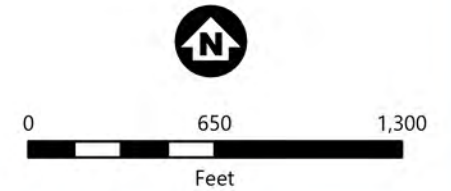
FIGURE 5N



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-  Construction Footprint
-  County Boundary
-  Municipal Boundary
-  Public Land Survey Townships
-  Public Land Survey Sections
-  Previously Surveyed



CONSTRUCTION FOOTPRINT
COMPARED TO PREVIOUS SURVEY
AREAS
Elm Creek II
Martin and Jackson Counties, MN

FIGURE 50



2.1.6.2 Additional Investigations Completed in Proximity to the Project

In 2000, a Phase I archaeological survey was conducted for the reconstruction of County State Aid Highway (CSAH) 44 in northwestern Martin County (Harrison 2000). The survey began at the boundary of Sections 30 and 31, Township 104N, Range 33W and extended seven miles east along CSAH 44 to the town of Trimont. Three precontact lithic scatters were identified near Cedar Lake, which is approximately five miles east of the construction footprint.

In 2001, Florin Cultural Resource Services completed a Phase I archaeological survey for the Elm Creek I Wind Project (Florin and Lindbeck 2008). Approximately 844 acres were surveyed for the Elm Creek I project, which borders the current Project on the west and north. Four precontact archaeological sites were identified during the 2007 survey. One of these sites, 21JK34, is located in **REDACTED**. The site is a lithic scatter that was recommended not eligible for listing on the NRHP (Florin and Lindbeck 2008).

The Trimont Wind Project overlaps the northern portion of the construction footprint in Jackson and Martin counties. In 2004, HDR conducted a Phase I archaeological survey and a Phase I/II historic architectural survey for the Trimont Wind Project (Pratt et al. 2004). The project included 67 wind turbine pads and associated project infrastructure. No archaeological sites were identified.

In 2011, Stemper & Associates completed a Phase I archaeological survey over parts of Cottonwood, Watonwan, and Martin counties for approximately 190 miles of new powerline in southwestern Minnesota (Stemper 2011). No archeological sites were identified as a result of the investigation, and no additional work was recommended for the project to proceed (Stemper 2011). Nine of the 45 areas investigated for this survey overlap the Project Study Area.

In 2013, Stemper & Associates completed a Phase I archaeological survey for 75 miles of rural waterline corridors in parts of Jackson County, Minnesota (Stemper 2013). No archeological sites were identified as a result of the investigation, and no additional work was recommended for the project to proceed (Stemper 2013). Eight of the 26 areas investigated for this survey overlap the Project Study Area.

2.1.7 Historic Maps

Available historic maps were referenced for information pertaining to the historic use of the construction footprint between 1857 and 1970 (Appendix A).

The 1857 to 1859 General Land Office (GLO) maps of the construction footprint indicate that that the Project is located on undeveloped land dotted with lakes and small pockets of wet prairie (BLM 1857a, 1857b, 1858a, 1858b, 1858c, 1859) (Appendix A, Figure A1). South Fork Elm Creek is depicted meandering near the northern end of the construction footprint and the land is described as "gently rolling prairie soil" (BLM 1857b). A road "from Mankato to Springfield" is shown running through a portion of the western end of the construction footprint (BLM 1858b) (Appendix A, Figure A1).

The 1916 maps of Jackson and Martin Counties from the Minnesota State Atlas (W. W. Hixson 1916) indicate that the construction footprint is located in a predominantly rural area, with parcel ownership

largely divided into 160-acre lots and some landowners owning entire sections (640 acres) (W.W. Hixson 1916) (Appendix A, Figure A2). Numerous structures are mapped within the parcel boundaries, indicating the presence of farmsteads throughout the area (Appendix A, Figure A2).

The only other available map identified for reference consists of the 1970, 7.5' USGS topographic maps of Alpha, Bergen, Jackson NW, and Mountain Lake SE, Minnesota. These maps show that the Project's setting has remained rural through time (Appendix A, Figure A3).

2.2 Environmental Context

Barr reviewed Chapters 3 and 8 of the *MnModel Phase 3*, prepared by the Minnesota Department of Transportation (MnDOT), for information pertaining to the Project Study Area's physiography, climate, and flora and fauna (Gibbon et al. 2002; Hobbs et al. 2002). The *MnModel Phase 3* indicates that the Project is located in the Prairie Lakes Region (Region 2) (Gibbon et al. 2002). Following the Ecological Classification System utilized in *MnModel Phase 3*, the Project is further located within the Minnesota River Prairie subsection of the North Central Glaciated Plains Section of the Eastern Broadleaf Forest Province (Gibbon et al. 2002; Hobbs et al. 2002).

The Minnesota River Prairie subsection is characterized by large till plains that are bisected by the broad valley of the Minnesota River (MN DNR 2022). The Minnesota River was formed by Glacial River Warren, which drained Glacial Lake Agassiz. Topography is steepest along the Minnesota River and the Big Stone Moraine, which has steep kames and broad slopes, while topography outside of the river valley consists of level to gently rolling ground moraine. Wetlands were common within this subsection prior to Euro-American settlement, and most have been drained to establish usable cropland (MN DNR 2022). Poorly drained soils are extensive throughout this subsection (Gibbon et al. 2002). Presettlement vegetation consisted mainly of tallgrass prairie with islands of wet prairie (MN DNR 2022). Silver maple, elm, cottonwood, and willow forests would have been present on floodplains along the rivers and streams throughout this subsection (MN DNR 2022).

The climate of this region ranges from the upper-70s Fahrenheit in the summer to the mid- to low-teens in the winter (Gibbon et al. 2002). The growing season is approximately 147 to 152 days. Annual precipitation ranges from 25 inches in the west to 30 inches in the east, with 11 to 13 inches of growing-season precipitation (MN DNR 2022). This contributes to the prairie grass dominance in this region (MN DNR 2022).

Bison dominated the upland fauna in this region through the Late Holocene period, with large elk herds also present (Gibbon et al. 2002). White-tailed deer could be found along the Minnesota River valley. Fish, waterfowl, and aquatic mammals would have been abundant in the many shallow lakes located throughout the subsection. Edible plants would have included water lilies and cattails in the water and upland plants such as prairie turnip, ground plum, and acorns (Gibbon et al. 2002).

2.2.1 Precontact Site Suitability

A review of the *MnModel Phase 4*, prepared by the MnDOT and available for reference through the OSA portal, indicates that approximately 80 percent of the construction footprint has a low probability for containing precontact archaeological sites, and the landform consists predominantly of plains.

2.2.2 Soils

Soils within the portion of the Project located in Jackson County are primarily part of the Canisteo-Glencoe-Nicollet soil association, which consists of "nearly level, poorly drained, very poorly drained, and moderately well drained, loamy soils that formed in glacial till and loamy sediments in uplands" (USDA,

SCS 1986a). Soils within the portion of the Project located in Martin County are primarily mapped as part of the Canisteo-Glencoe soil association, which consists of "nearly level, poorly drained and well drained, loamy soils on till plains" (USDA, SCS 1986b). Individual soil units within the construction footprint are depicted as a map series in Appendix B.

Soil data for the Project was obtained from the Natural Resource Conservation Service (NRCS) Web Soil Survey (USDA 2023). There are 22 mapped soils located within the construction footprint (Appendix B). Approximately 41 percent of the construction footprint is mapped with soils classified as non-hydric or predominantly non-hydric, while 59 percent of the soils are classified as hydric or predominantly hydric.

2.3 Cultural Contexts

The following summaries provide a context through which to examine the cultural history of the construction footprint. These contexts are based on information found in *Archaeology of Minnesota: The Prehistory of the Upper Mississippi River Region* (Gibbon 2012), a series of statewide historic contexts developed by the Minnesota SHPO (Dobbs 1990a; Dobbs 1990b; SHPO 1993), as well as available Euroamerican county and state histories (e.g., Blegen 1963; Brunt 1921; Budd 1897). Archaeological sites are not well documented in Jackson or Martin Counties. In Jackson County, only 87 resources have been recorded (MDA State Archaeologist 2022a). In Martin County, 124 archaeological resources have been documented (MDA State Archaeologist 2022a).

2.3.1 Precontact Cultural Setting

The precontact occupation of southern Minnesota has been divided into four periods based on the material culture present at a site and the subsistence patterns interpreted from the artifact assemblage (Gibbon 2012). These include Paleoindian, Archaic, Woodland, and Late Precontact. While sites identified in Jackson and Martin Counties represent some of these occupational periods, the majority of the documented precontact sites do not contain diagnostic artifacts and therefore cannot be attributed to specific cultural occupations (MDA State Archaeologist 2022a).

The Paleoindian period encompasses the cultural remains of the earliest recorded occupations in the region. Paleoindian sites date to early postglacial times, after 12,000 BP (years Before Present). Paleoindian sites are generally identified through the presence of fluted projectile points, a characteristic artifact type for the Paleoindian period. Although Paleoindian projectile points are some of the most widely distributed types across North America, they are underrepresented in Minnesota (Gibbon 2012).

The Archaic period is identified by archaeologists as the timespan when more localized seasonal settlement and subsistence patterns replaced the broad seasonal migration patterns of the Paleoindian period. In Minnesota, the beginning of the Archaic period coincides with a warmer, drier postglacial environment. Spruce forests retreated north with the glaciers, and melting glacial ice formed large lakes and rivers. As a result, Archaic period subsistence included more aquatic resources, such as fish and shellfish, as well as smaller game and the foraging of wild plants (Gibbon et al. 2002).

The innovation of ceramic technology, construction of earthen mounds, and the emergence of cultigens generally define the transition to the Woodland time period. Woodland period sites are often identifiable through recovered pottery sherds, in addition to stylistic projectile points. Earthen mounds are also a significant feature from the Woodland period.

Influences from three cultural traditions define the Late Precontact period in southern Minnesota: Mississippian, Plains Village, and Oneota (Fleming et al. 2018). Sites from each of these cultural traditions have been sparsely identified in Jackson and Martin counties.

2.3.2 Native American Cultural Setting

The Project is located within the Dakota homeland (<https://native-land.ca/>). Prior to Euroamerican settlement, the Dakota were plentiful and prosperous in Minnesota. As Euroamerican settlers expanded into these states, the Dakota were subjected to war and disease. Following the Dakota War in 1862, the Dakota underwent forced removal (MDA State Archaeologist 2022b).

The Project is located within the boundaries of the 1851 Dakota Land Cession Treaties, also referred to as the 1851 Treaties with the Dakota at Traverse des Sioux and Mendota (Minnesota Historical Society nd; Minnesota Indian Affairs Council et al. nd). These two treaties represented the near-complete loss of Dakota land in Minnesota to the United States. Over 35 million acres were lost through these treaties, with the Dakota maintaining only a strip of land 20 miles wide on the north and south sides of the Minnesota River (Minnesota Indian Affairs Council et al. nd).

The U.S. was to pay \$3,750,000 (roughly 12 cents per acre) to the Dakota over decades; however, the Dakota saw little of this money. Debt payments, inflated by traders in the area, were subtracted first. Then another \$60,000 was paid to white tradesmen who were to help prepare the Dakota for a transition to farming. The remainder was then placed in trust with 5 percent to be paid to the Dakota annually. Of these yearly payments, half was then used to buy goods and services from the traders (Minnesota Indian Affairs Council et al. nd).

While the following narrative focuses on historic Euroamerican activities within present-day Minnesota, it is important to acknowledge that Native American nations played a vital role in Minnesota's history and continue to influence its culture today. Dakota peoples have demonstrated resilience and resistance in the face of concerted efforts to remove them from their land and culture. Despite these attempts at removal, many native peoples continued to return to their homeland.

2.3.3 Historic Cultural Setting

At the end of the American Revolution, the U.S. acquired all of the land east of the Mississippi River in the Second Treaty of Paris (Blegen 1963). This acquisition included the north-central, northeast, and east-central portions of Minnesota. In 1803, the United States acquired the majority of what was to become Minnesota from France as part of the Louisiana Purchase (Blegen 1963). After spending most of the first half of the nineteenth century changing hands between Spain, France, and the U.S., the region was formed into the Minnesota Territory in 1849. Nine years later it became the thirty-second state (Blegen 1963).

2.3.3.1 Statehood

As Minnesota entered the Union in 1858, tensions between the North and South were coming to a head over the issue of slavery. When the Civil War started in 1861, Minnesota largely supported the Union, and provided approximately 22,000 troops to the war effort (Blegen 1963). By the second year of the war, Minnesota was facing its own war: the Dakota War (Blegen 1963). The war was a result of growing tensions between the Dakota and the U.S. government over violations of the Treaty of Traverse des Sioux and the Treaty of Mendota, as well as unacceptable payments by Indian agents. Due to an impasse over negotiations, a Dakota hunting party attacked and killed five white settlers, leading to the attack of settlements throughout the Minnesota River valley (Blegen 1963). These battles continued for several

months, until most of the Dakota were captured. Eventually, 38 Dakota were hanged, the largest one-day execution in U.S. history (Blegen 1963). By April of 1863, the remaining Dakota in the region were expelled to South Dakota and Nebraska (Blegen 1963).

After the Civil War, thousands of Americans came to Minnesota to take advantage of the state's cheap and fertile land (Brunt 1921). Largely due to advertisements by the railroad industry, the state's population quickly tripled (Brunt 1921). Many of these new settlers came to the area to farm and cut timber, becoming the backbone of the state's early economy (Brunt 1921). To further economic success, local Grange chapters were established (Brunt 1921). The organization had great political influence on important farming matters, and also provided education on new farming methods.

By the end of the nineteenth century, Minnesota's industrial development began to take shape (Clark 1989). The state became one of the first to develop hydroelectric power with the building of a hydroelectric power plant in Saint Anthony Falls. The discovery of iron in the Mesabi Range and the Vermilion Range near Lake Superior in the 1880s established Minnesota's iron mining industry (Clark 1989).

2.3.3.2 Jackson County

Euroamerican settlers first arrived in the area that was to become Jackson County in 1856, when a trading post was established on the Des Moines River. The town of Springfield was founded soon after (Jackson Area Chamber of Commerce 2023). Tensions between early settlers and the Dakota ensued, culminating in the Spirit Lake Massacre in March 1857. Two months later, the Minnesota State Legislature organized Jackson County. It was named after Henry Jackson, recognized as the first merchant in St. Paul (Jackson County, MN 2022). Settlement in the area was slow, due in part to continued hostilities between settlers and the Dakota. On August 24, 1862, Jackson County found itself part of the Dakota War, when a small Norwegian community in Belmont Township was raided by the Dakota and thirteen settlers were killed (Jackson Area Chamber of Commerce 2023). Settlers fled the area, and it was not until after the Civil War that resettlement of Jackson County occurred again in earnest (Jackson Area Chamber of Commerce 2023). Today, Jackson County is primarily an agricultural and industrial community (Jackson Area Chamber of Commerce 2023).

2.3.3.3 Martin County

Euroamerican settlement in Martin County began in 1826, when a fort was established at the present-day location of the Martin County Courthouse (City of Fairmont 2008). Permanent settlement did not occur until 1857, when E. Banks Hall and William H. Budd settled at two different lakes in the present-day county. Martin County was incorporated in 1857 and created from portions of Brown and Faribault counties (Budd 1897). Martin County was most likely named for a Henry Martin of Wallingford, Connecticut, who owned several businesses in Mankato and frequented the area that became Martin County (Martin County, MN 2022). Others believe Martin County was named for Morgan Lewis Martin, a US congressional delegate who introduced the act to organize the Minnesota Territory (Martin County, MN 2022).

Fairmont was named the county seat when Martin County was incorporated. In 1862, Fort Fairmont was established in response to the hostilities between the Dakota Indians and settlers of the area (Fairmont

Area Chamber of Commerce 2023). Fort Fairmont was abandoned following the end of the Civil War and the subsiding conflicts with Native Americans. The “Grasshopper Plague” affected Martin County from 1873 to 1877, at which time many farmers were forced to abandon Martin County (Fairmont Area Chamber of Commerce 2023). Eventually, English colonists arrived and revived the economy (Fairmont Area Chamber of Commerce 2023).

3 Applicable Regulations and Guidelines

This section describes the regulations and guidelines that require consideration of project-related effects to cultural resources.

3.1 Federal Regulations

Section 106 of the National Historic Preservation Act (NHPA) requires that federal agencies assess the effects of their projects on cultural resources eligible for or listed in the NRHP. Section 106 of the NHPA applies to any federal agency undertaking that has the potential to affect NRHP-eligible or listed cultural resources, should they be present. This federal agency action may include permitting funding, or other approval of project activities. The current Project is not anticipated to have federal involvement and is therefore not considered an undertaking subject to Section 106 of the NHPA.

3.2 State Regulations

State laws governing cultural resources include the Minnesota Historic Sites Act (Minnesota Statutes, sections 138.661 to 138.669) and the Field Archaeology Act (Minnesota Statutes, sections 138.31 to 138.42). The Minnesota Historic Sites Act (Minnesota Statutes, sections 138.661 to 138.669) requires that state agencies consult with the SHPO before undertaking or licensing projects that may affect properties listed on the State or National Registers of Historic Places. The Minnesota Field Archaeology Act (Minnesota Statutes, sections 138.31 to 138.42) establishes the position of State Archaeologist and requires State Archaeologist approval and licensing for any archaeological work that takes place on non-federal public property.

Under the Minnesota Private Cemeteries Act (MS 307.08), if human remains are encountered during construction, construction at that location must be halted immediately and local law enforcement and the OSA must be contacted. Construction cannot proceed at that location until authorized by local law enforcement and the OSA.

The Minnesota PUC issued Elm Creek II a LWECS Site Permit on February 25, 2010 and amended it on March 14, 2011. Conditions of the LWECS Site Permit require consideration of Project-related impacts to cultural resources. Because Elm Creek II is proposing to conduct facility upgrades, the Project will be reviewed again by the PUC as part of the LWECS amendment process.

4 Conclusions and Recommendations

Elm Creek II is proposing upgrades to an existing 148.8 MW wind energy generation facility in Jackson and Martin counties, Minnesota. The Project consists of retrofitting the Facility's existing 62 wind turbines by replacing turbine equipment with new components. Barr, at the request of Elm Creek II, conducted a cultural resources literature review for the Project, to determine the potential for the Project to impact cultural resources.

Background research conducted in June and July 2023 identified two previously recorded archaeological site within the construction footprint. These consist of an alpha site (21MRq) and a precontact lithic isolate (21JK0042). The literature review also found that the 98.5 percent of the construction footprint was investigated for archaeological resources as part of a Phase I archaeological survey completed for the original undertaking in 2010, which resulted in the identification of the lithic isolate (21JK0042) within the construction footprint. The site was recommended not eligible for the NRHP, and no additional work was recommended for the Project to proceed. Alpha site 21MRq documents the possible location of a historic trading post. Alpha sites have not been confirmed by formal archaeological survey, but generally represent locations where an archaeological site is anticipated based on some level of historic documentation.

A review of the construction footprint as compared to the survey completed in 2010 for the Project indicates that 12.5 acres of the construction footprint were not surveyed in 2010. No additional cultural resources work is recommended for any Project activity located within the original boundaries of the Project footprint surveyed in 2010.

If ground disturbing activities will occur within the 12.5 acres of the construction footprint not surveyed in 2010 and/or in areas outside of the construction footprint also not investigated in 2010, a Phase I archaeological reconnaissance of these locations is recommended.

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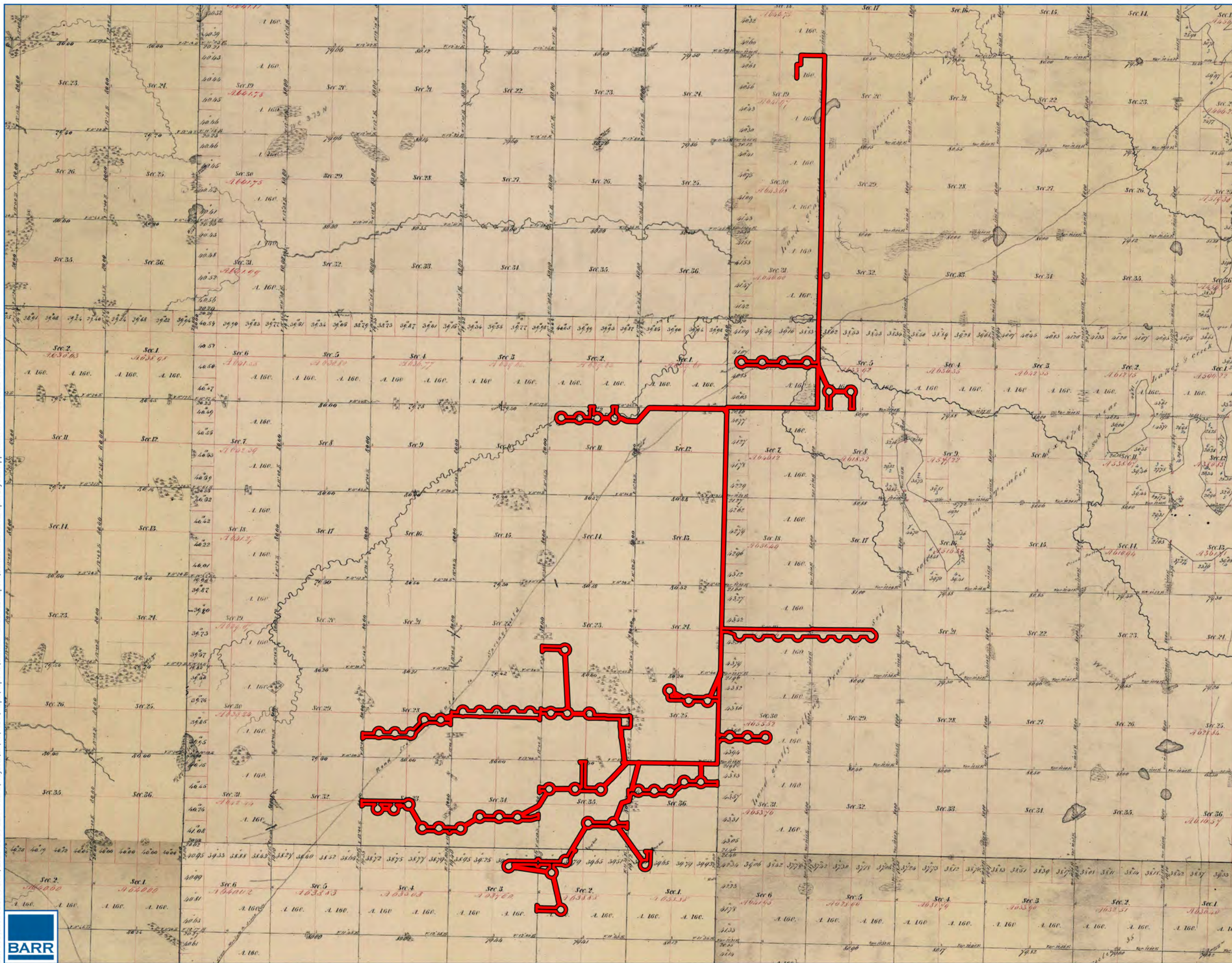
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Appendix A

Historic Maps



 Construction Footprint

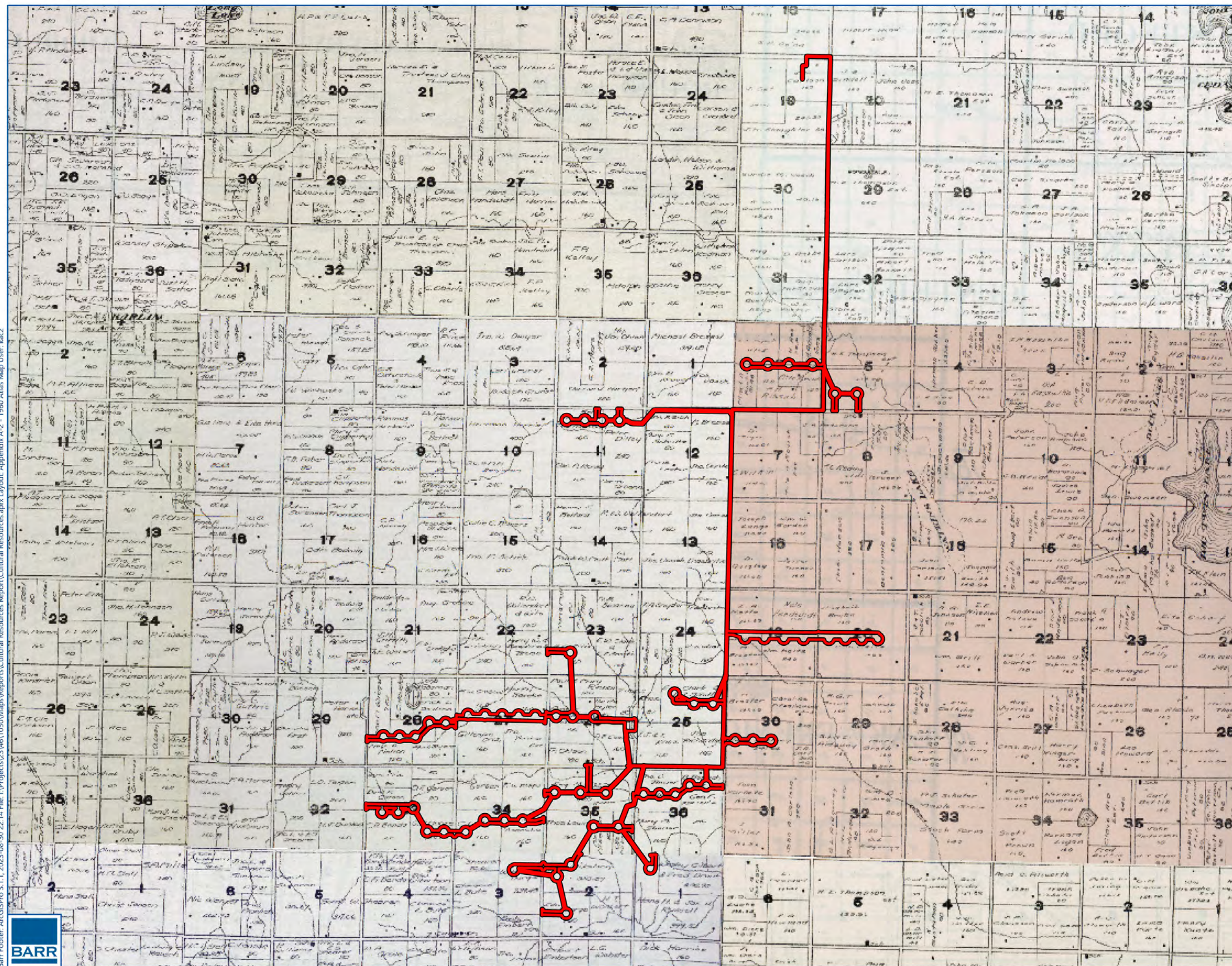


0 1 2
Miles

GLO 1858-1859
Elm Creek II
Martin and Jackson Counties, MN

FIGURE A-1





Construction Footprint

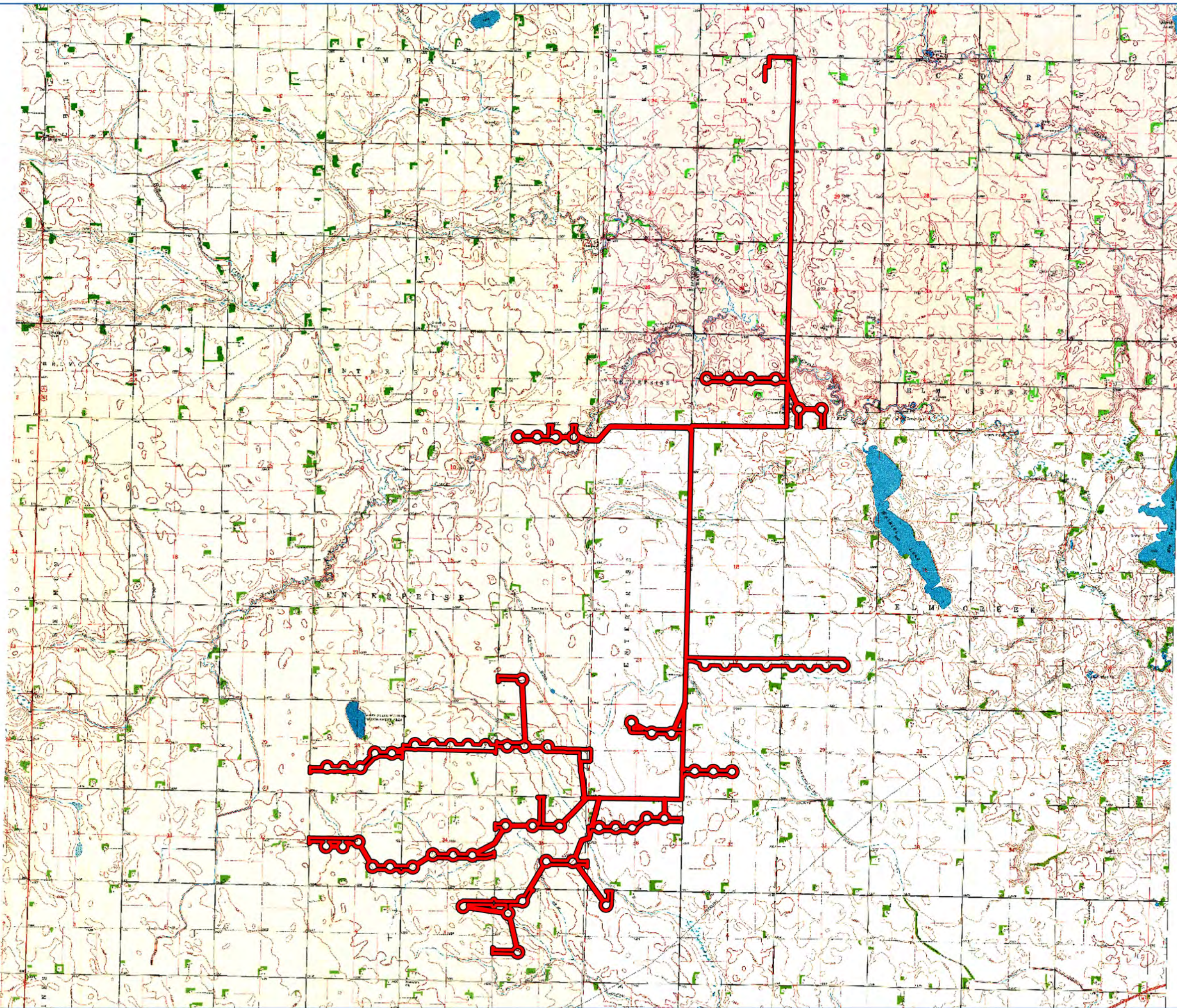


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Miles

1916 ATLAS MAP
Elm Creek II
Martin and Jackson Counties, MN

FIGURE A-2





 Construction Footprint

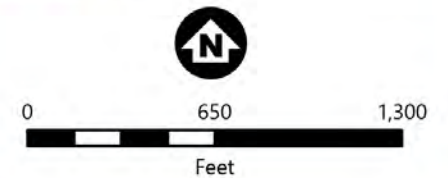
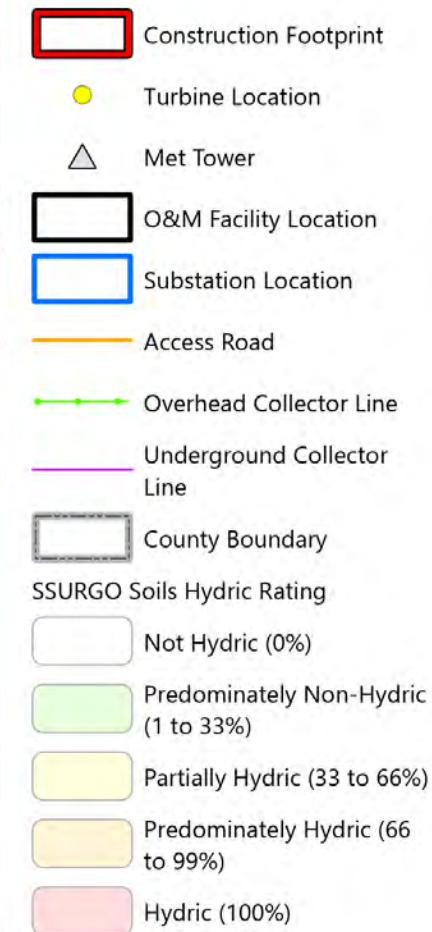
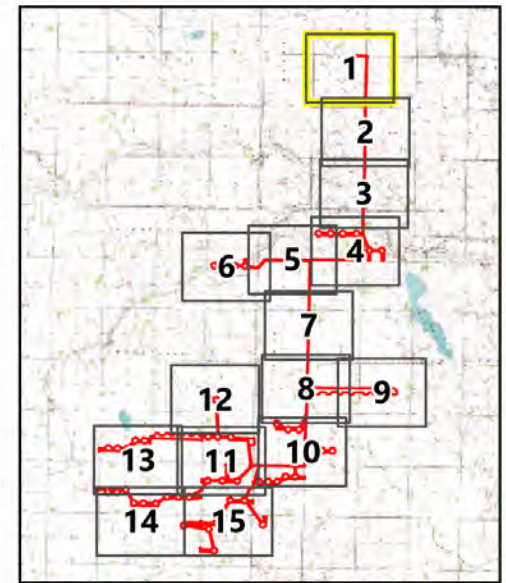
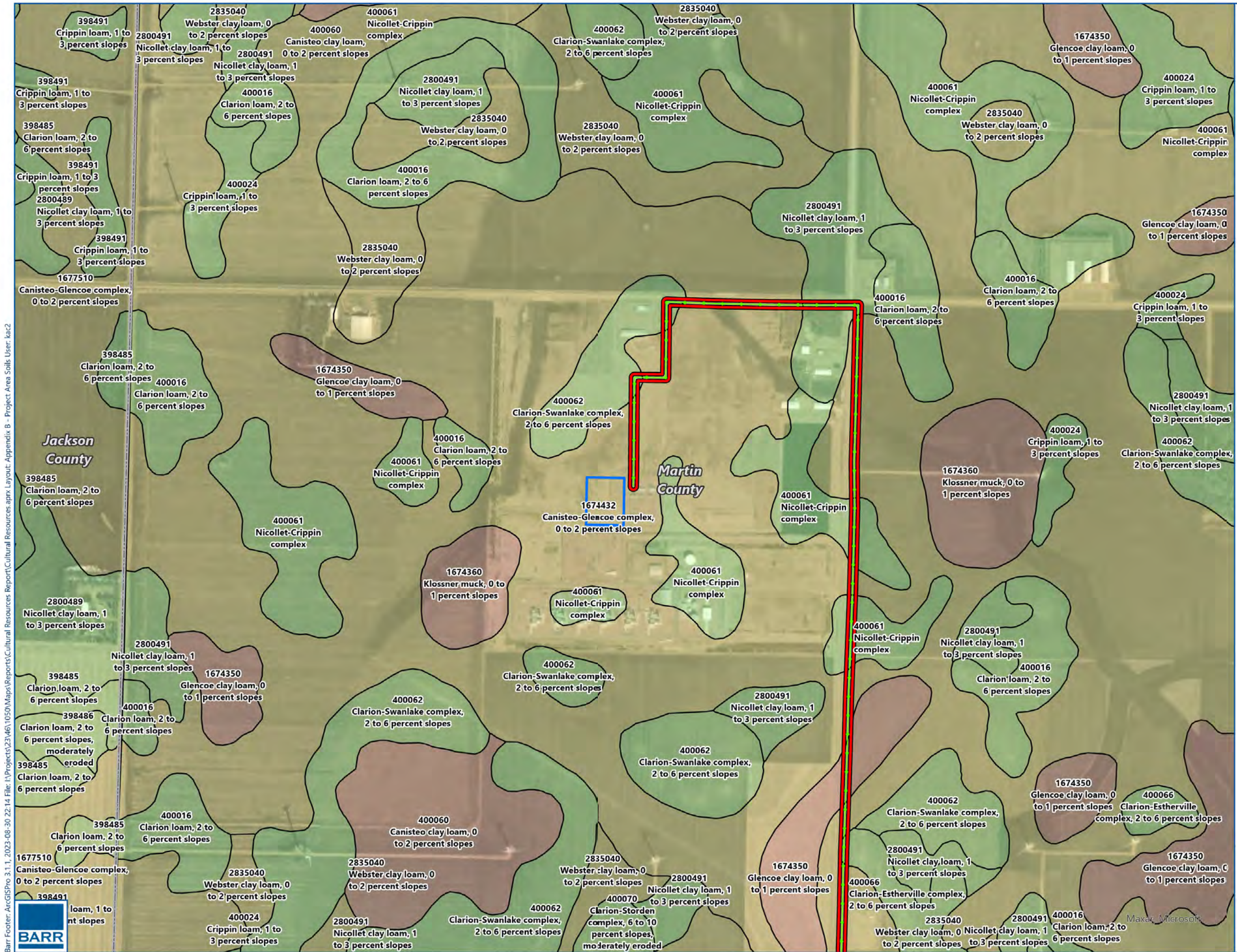


USGS 1970
Elm Creek II
Martin and Jackson Counties, MN

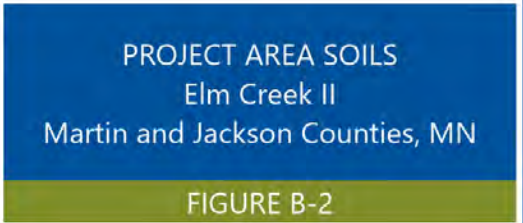
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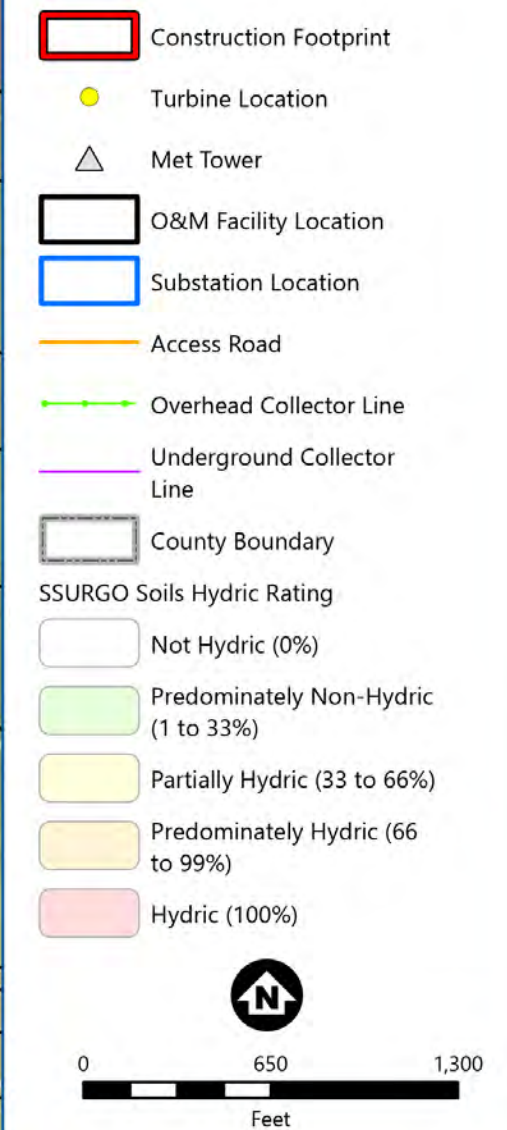
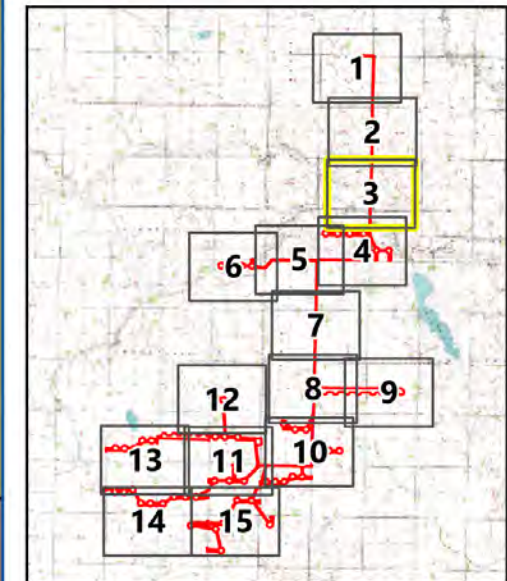
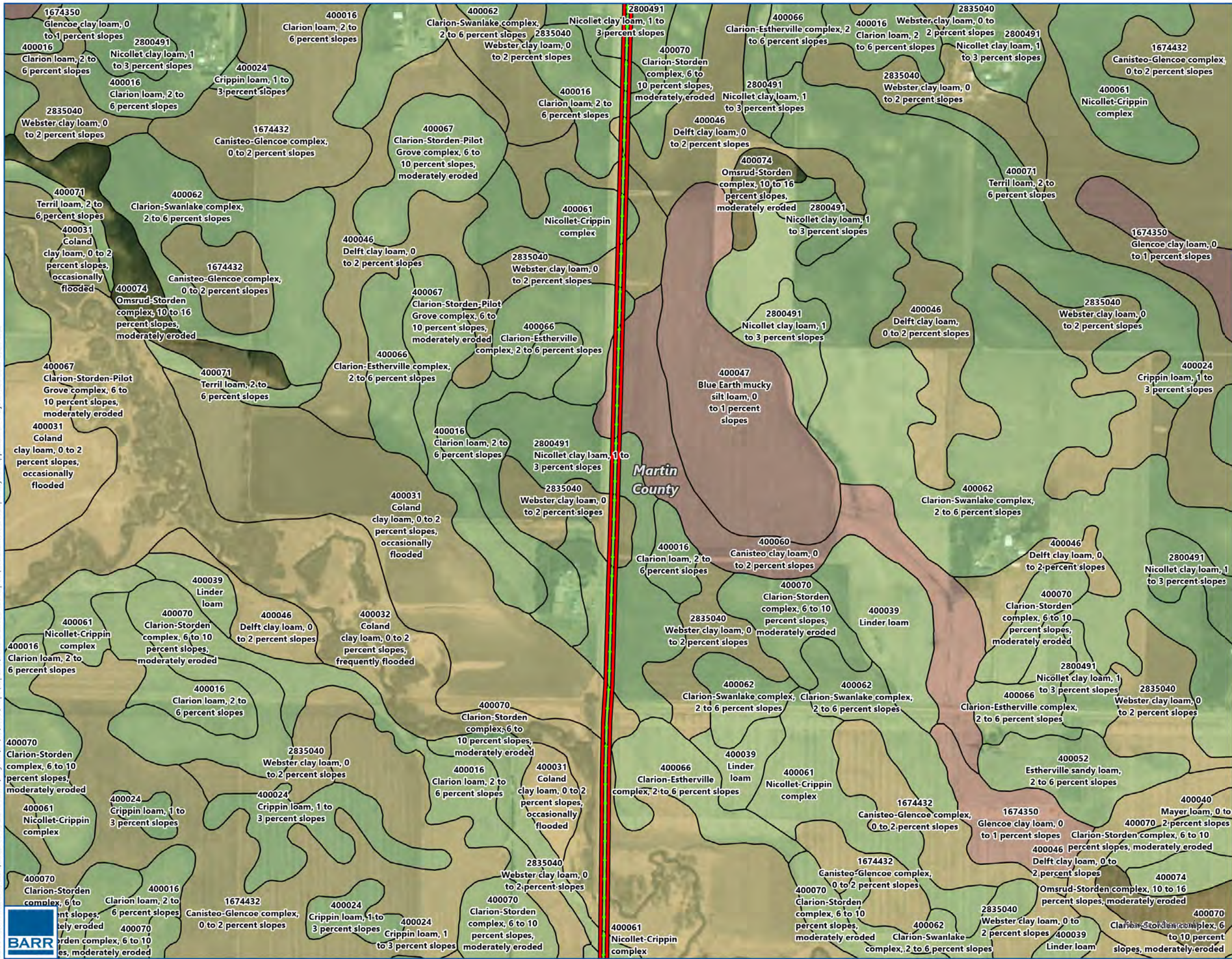
Appendix B

Soils Map

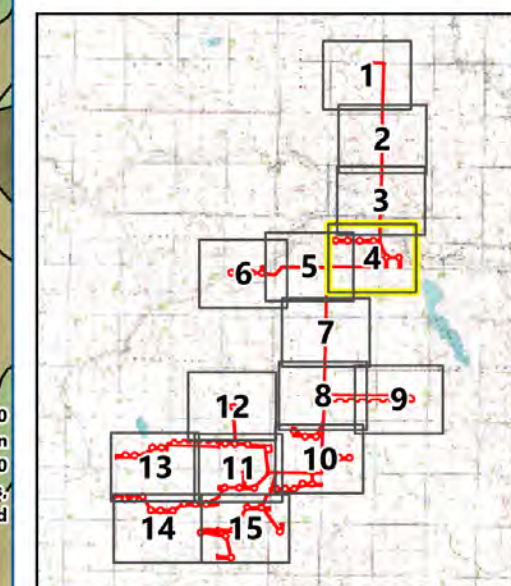


PROJECT AREA SOILS
Elm Creek II
Martin and Jackson Counties, MN
FIGURE B-1





PROJECT AREA SOILS
Elm Creek II
Martin and Jackson Counties, MN
FIGURE B-3



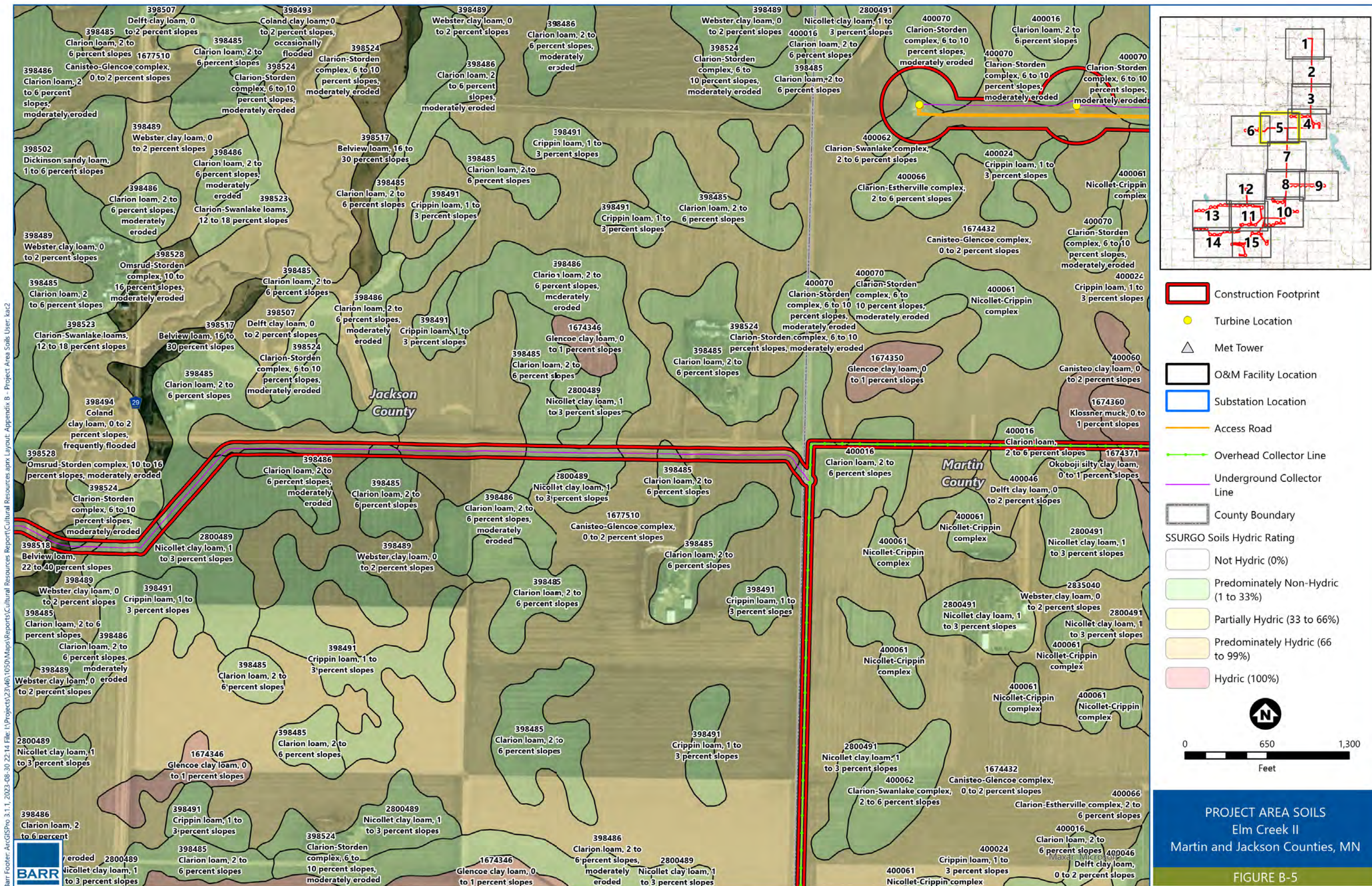
-  Overhead Collector Line
 Underground Collector Line
 County Boundary

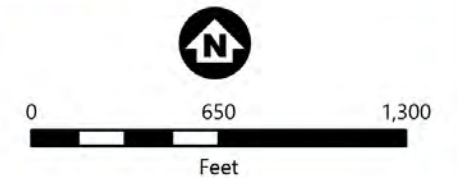
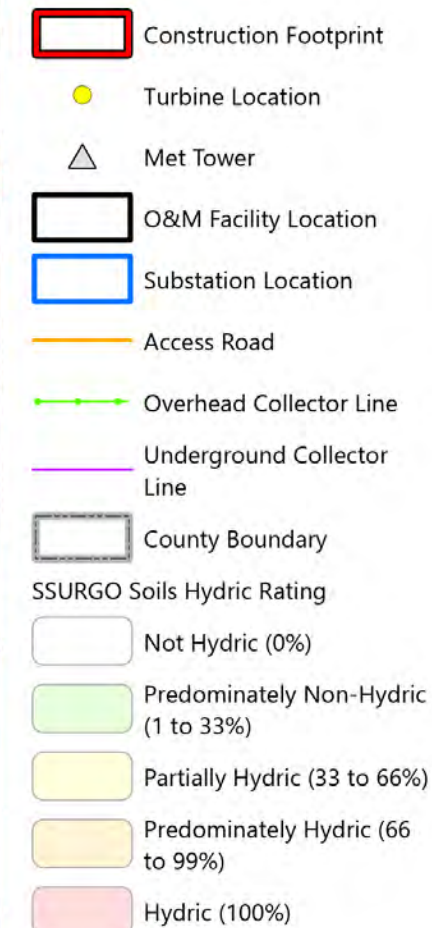
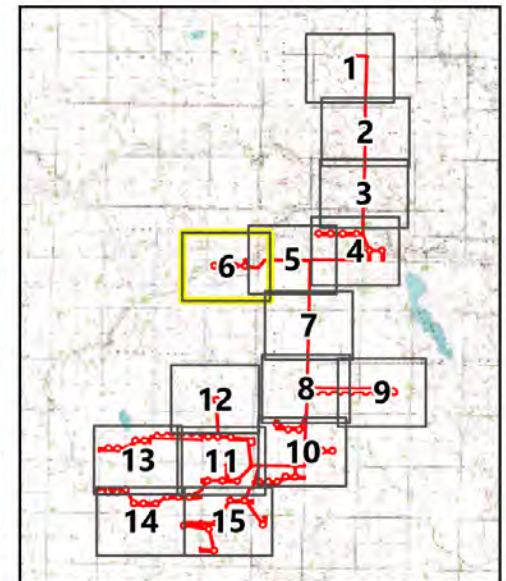
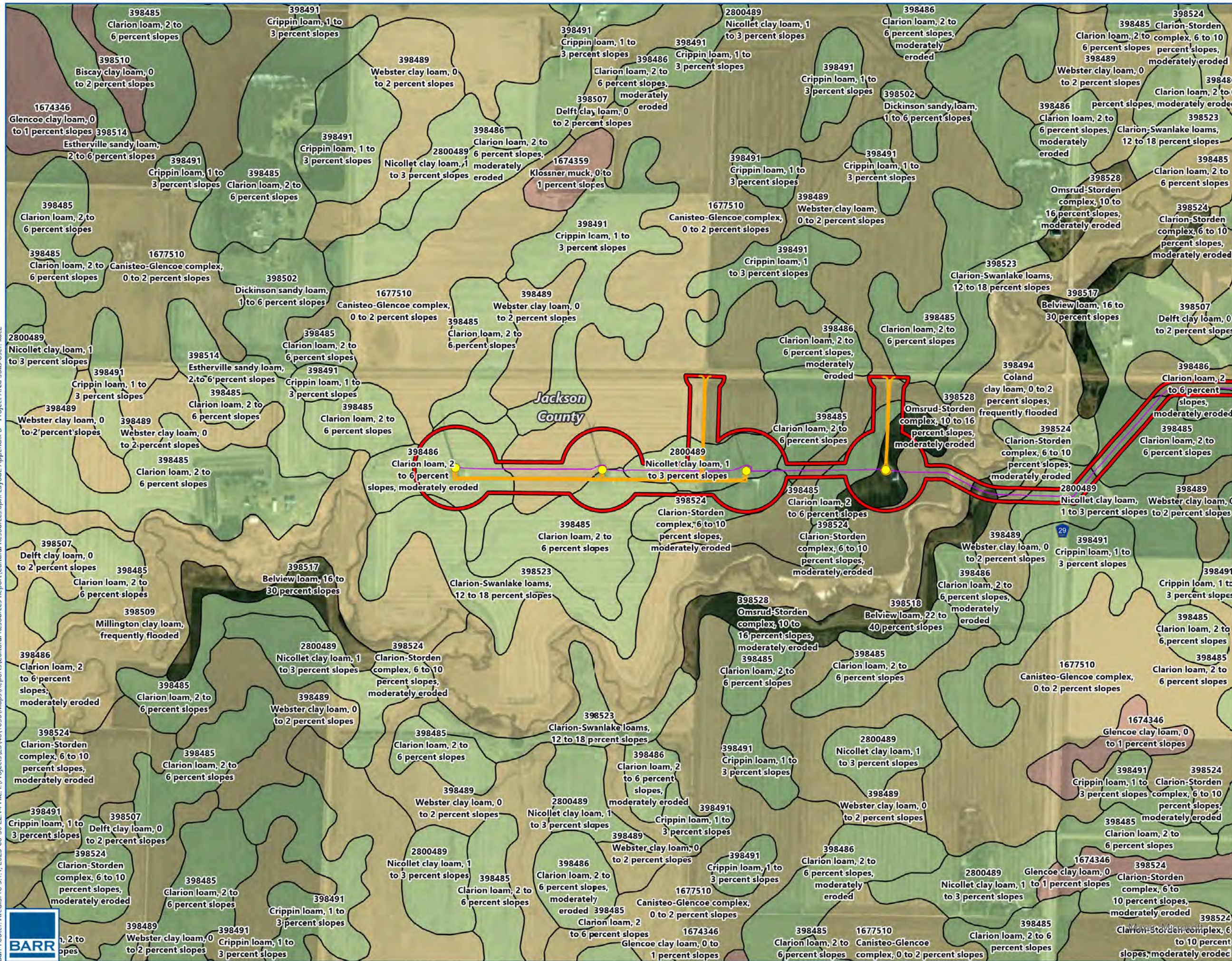
SSURGO Soils Hydric Rating

-

PROJECT AREA SOILS
Elm Creek II
Martin and Jackson Counties, MN

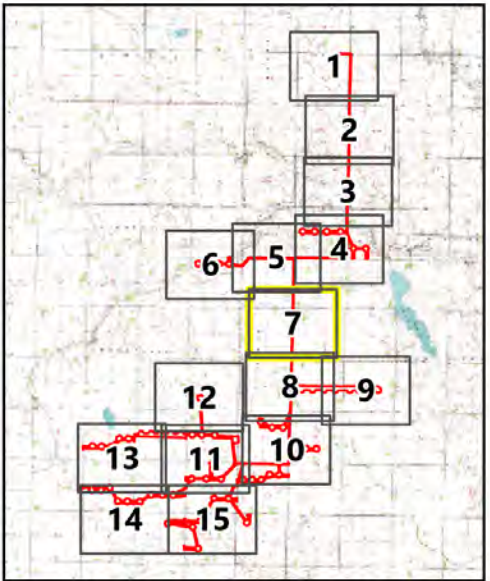
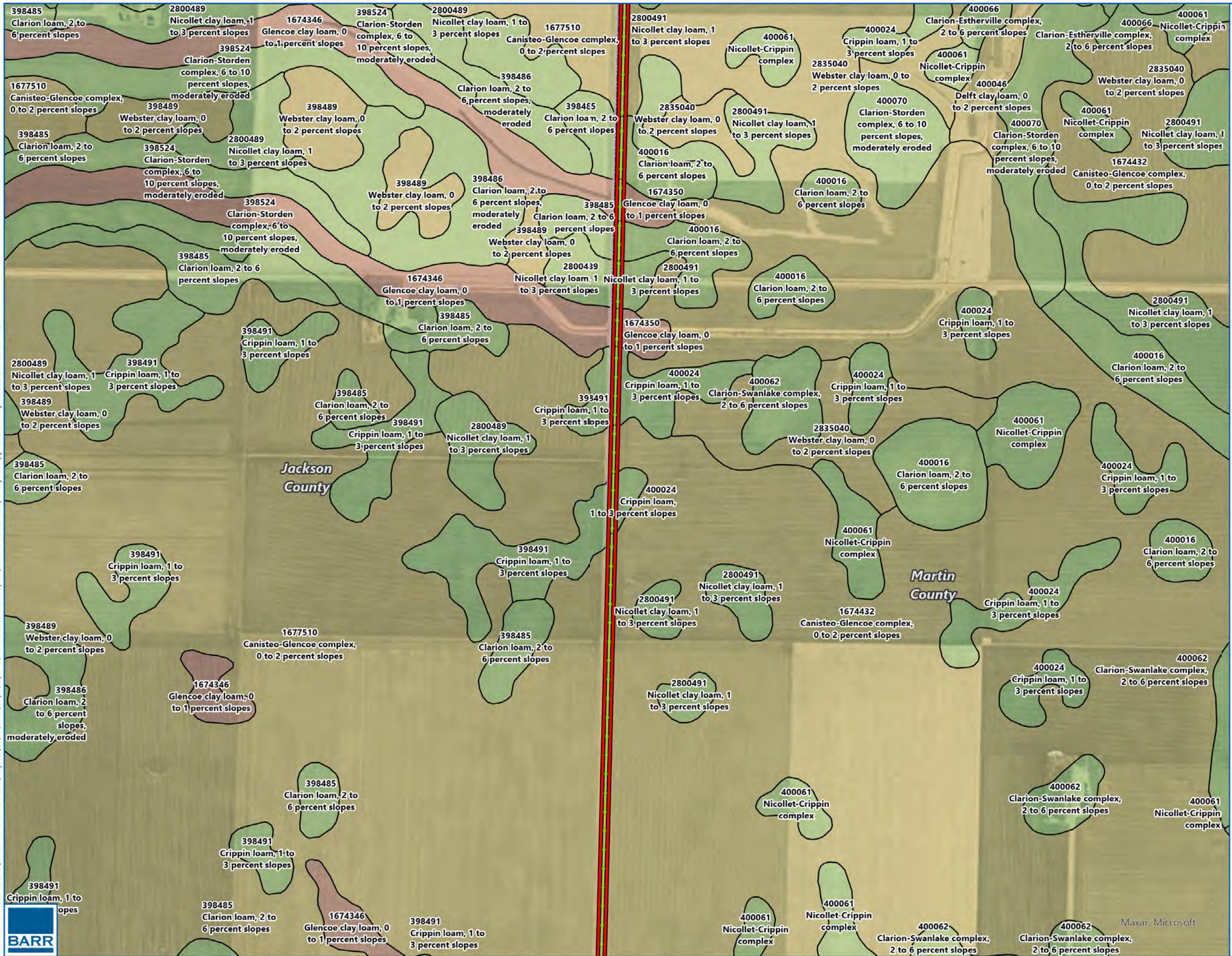
FIGURE B-4



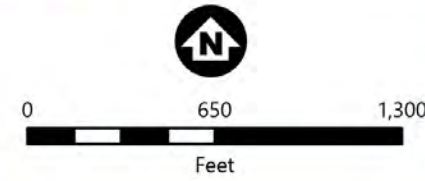


PROJECT AREA SOILS
Elm Creek II
Martin and Jackson Counties, MN

FIGURE B-6



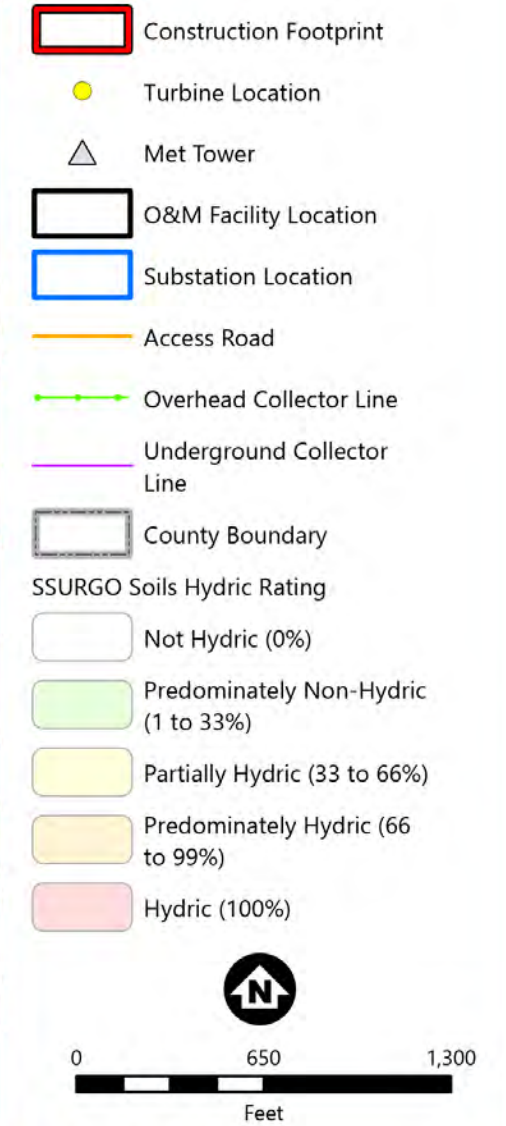
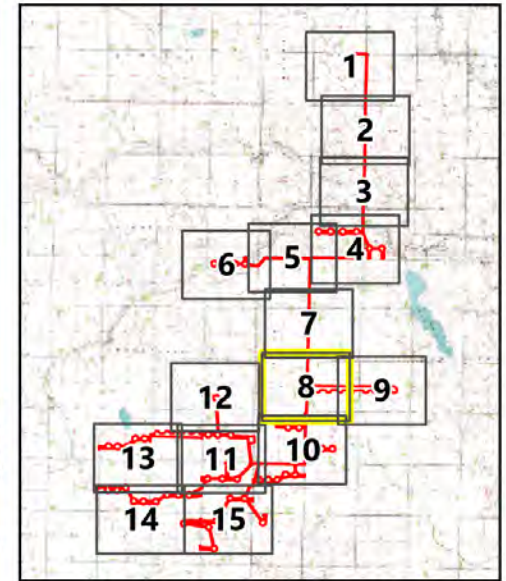
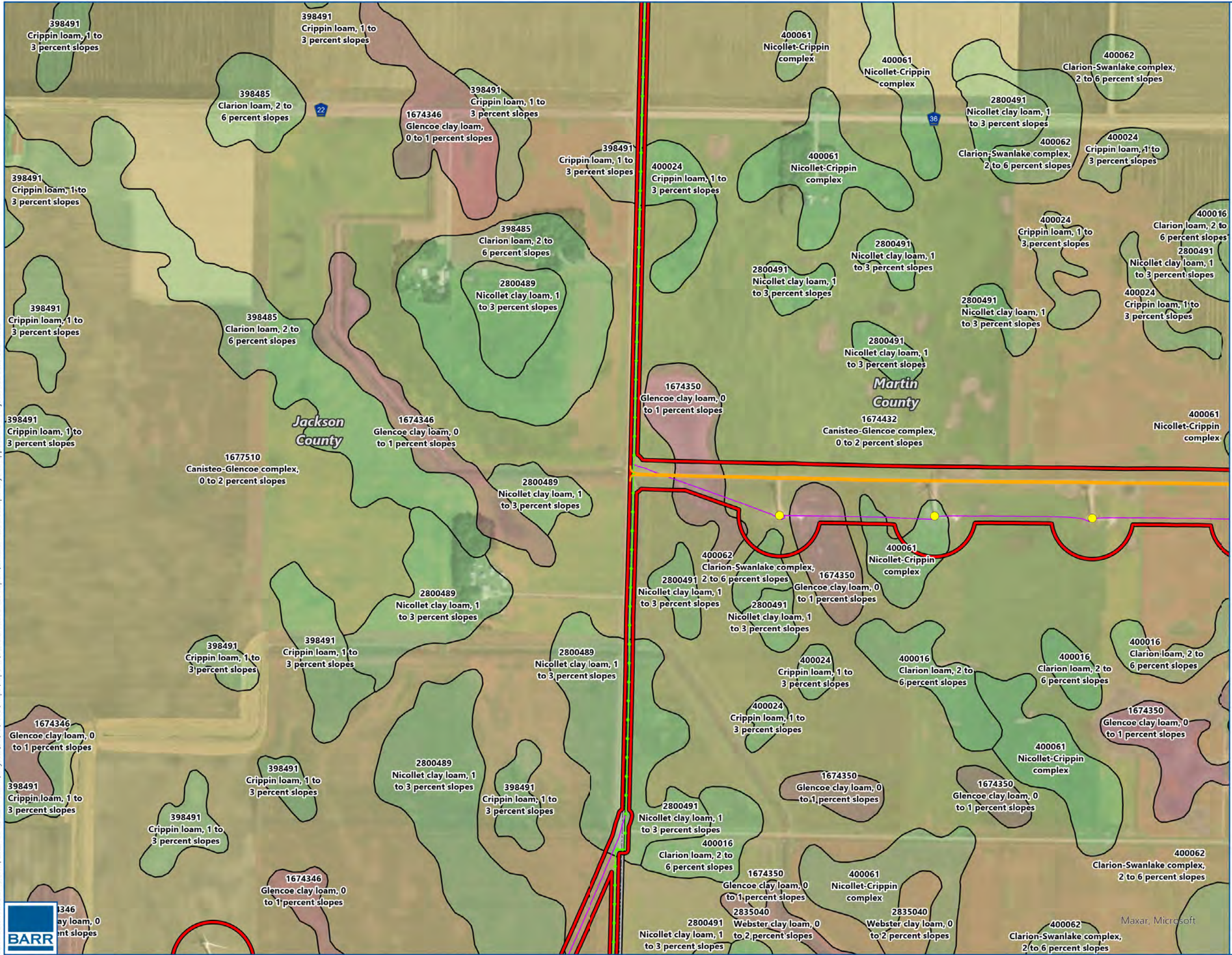
- Construction Footprint
 - Turbine Location
 - Met Tower
 - O&M Facility Location
 - Substation Location
 - Access Road
 - Overhead Collector Line
 - Underground Collector Line
 - County Boundary
- SSURGO Soils Hydric Rating
- Not Hydric (0%)
 - Predominately Non-Hydric (1 to 33%)
 - Partially Hydric (33 to 66%)
 - Predominately Hydric (66 to 99%)
 - Hydric (100%)



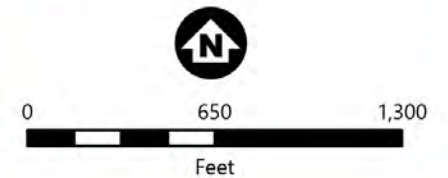
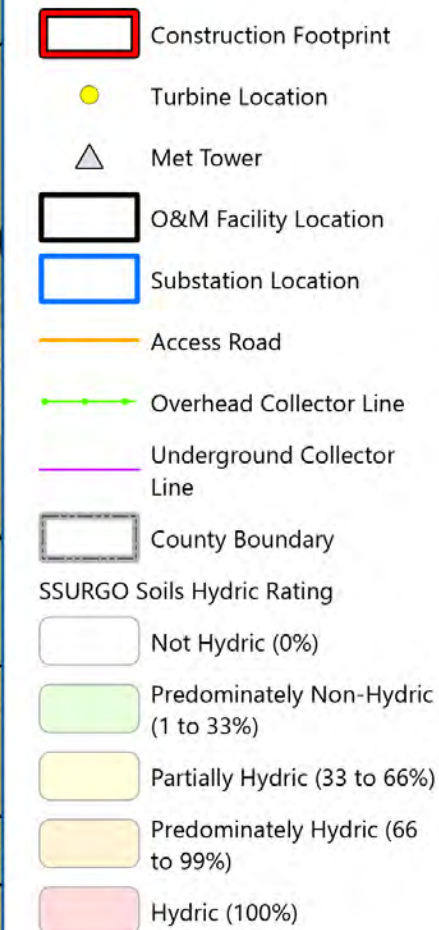
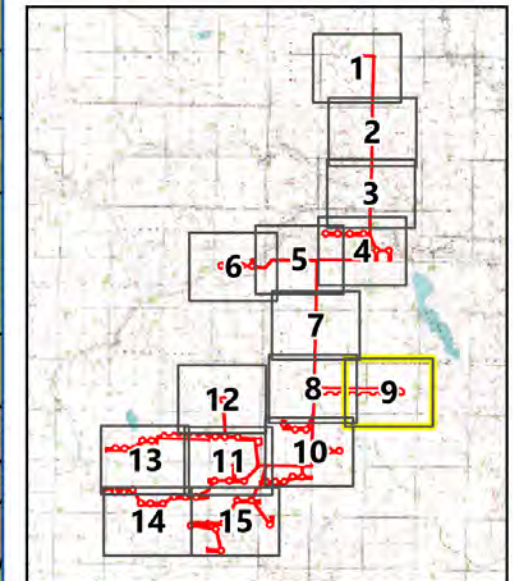
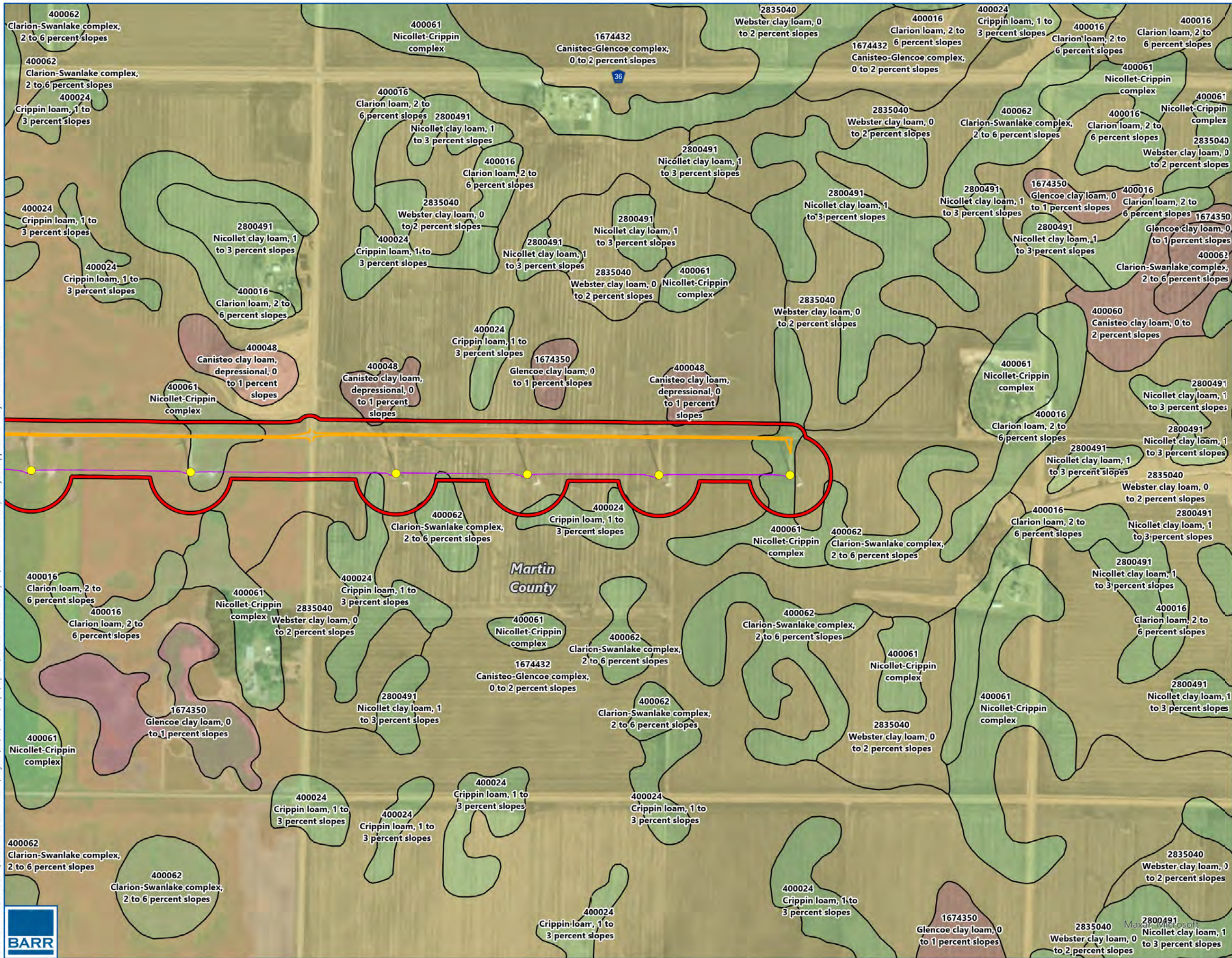
PROJECT AREA SOILS
Elm Creek II
Martin and Jackson Counties, MN

FIGURE B-7

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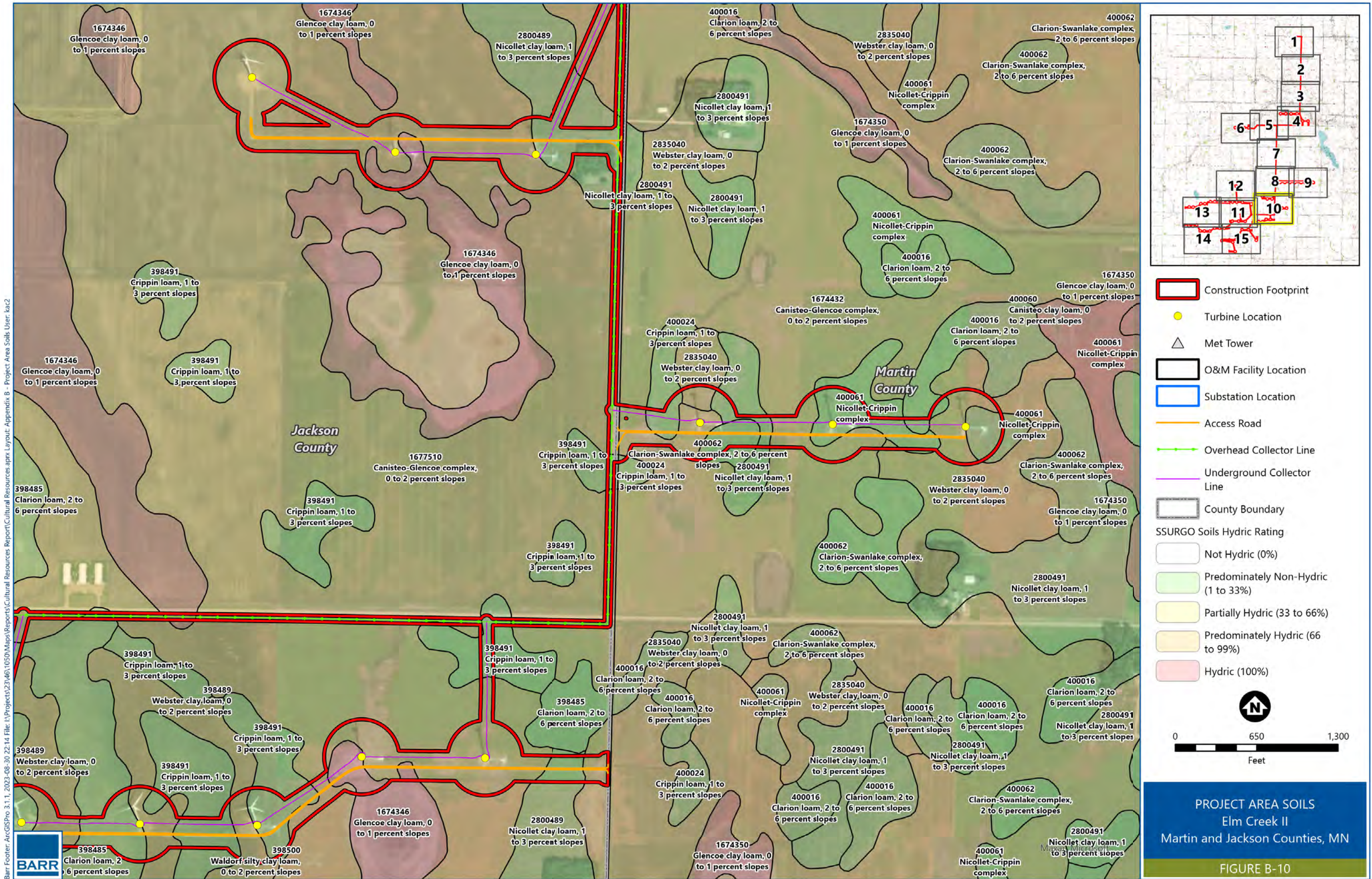


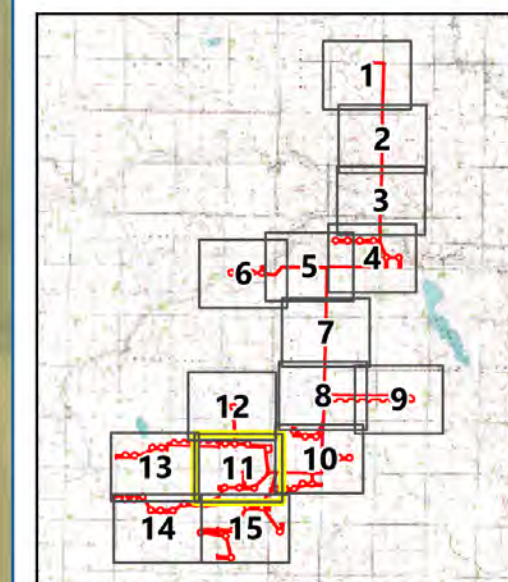
PROJECT AREA SOILS
Elm Creek II
Martin and Jackson Counties, MN
FIGURE B-8



PROJECT AREA SOILS
Elm Creek II
Martin and Jackson Counties, MN
FIGURE B-9





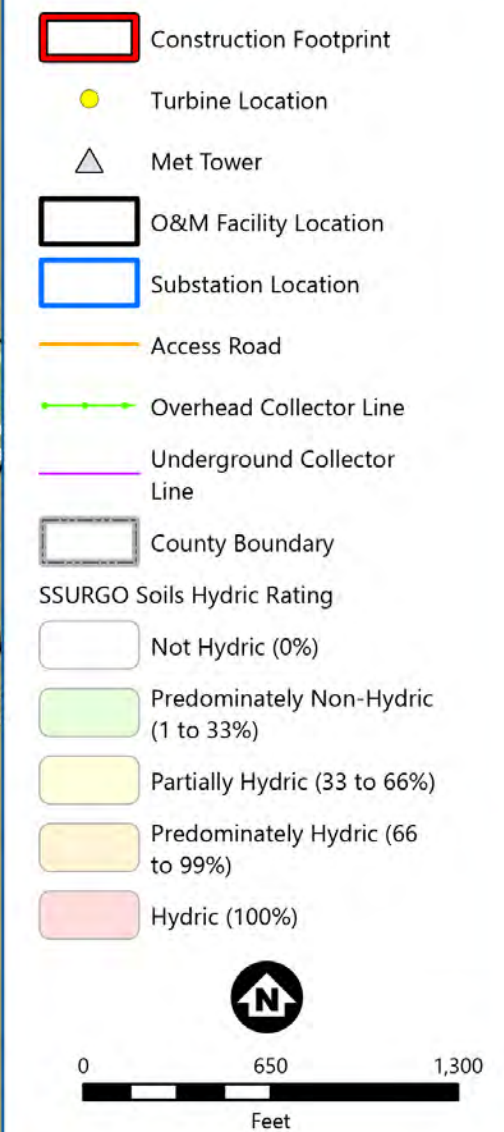
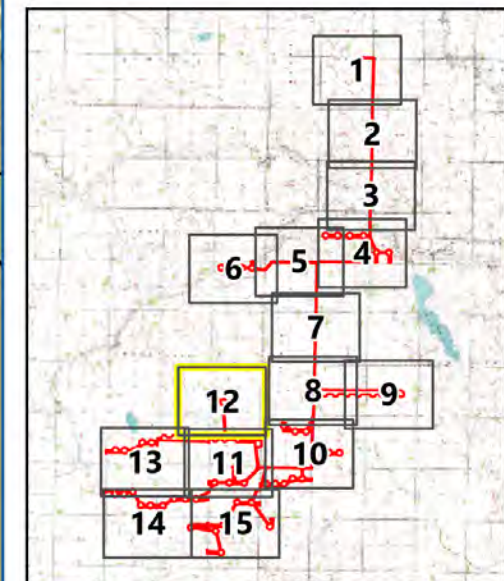
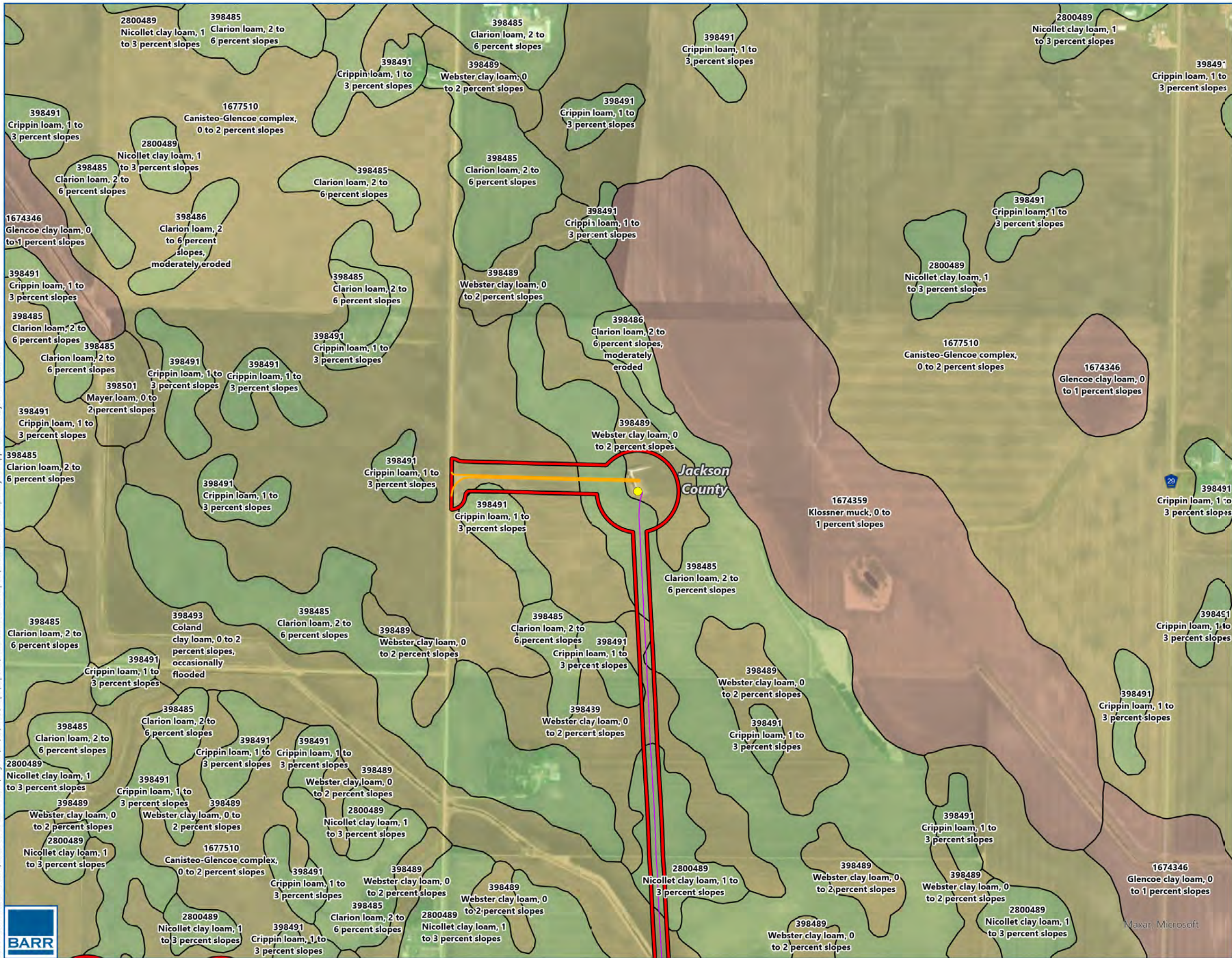


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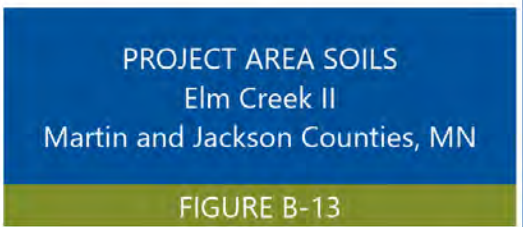
PROJECT AREA SOILS
Elm Creek II
Martin and Jackson Counties, MN

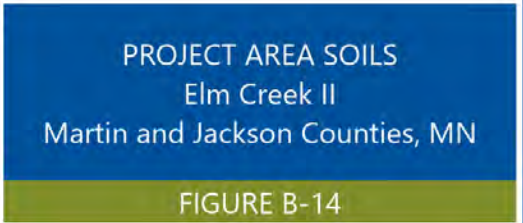
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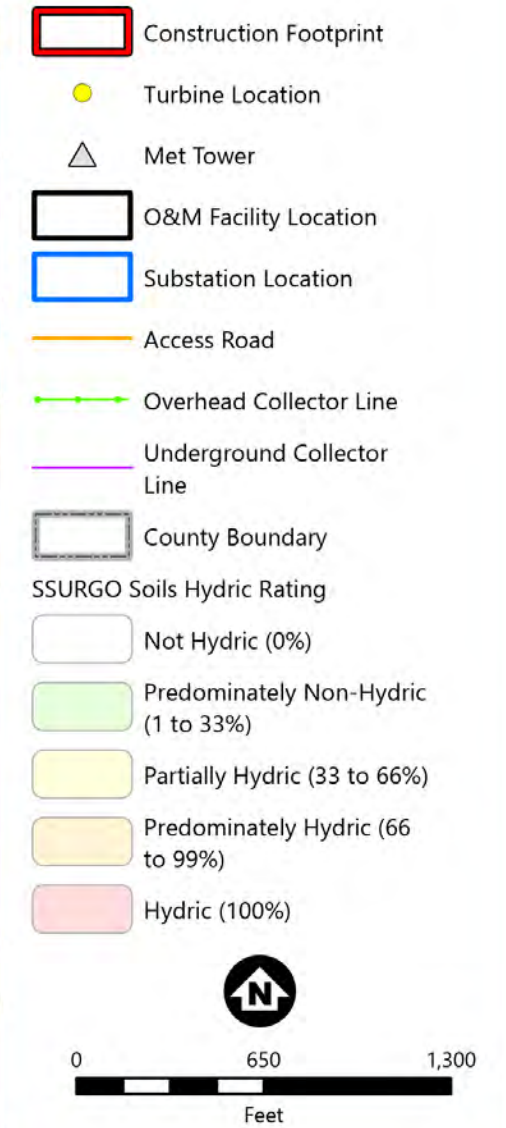
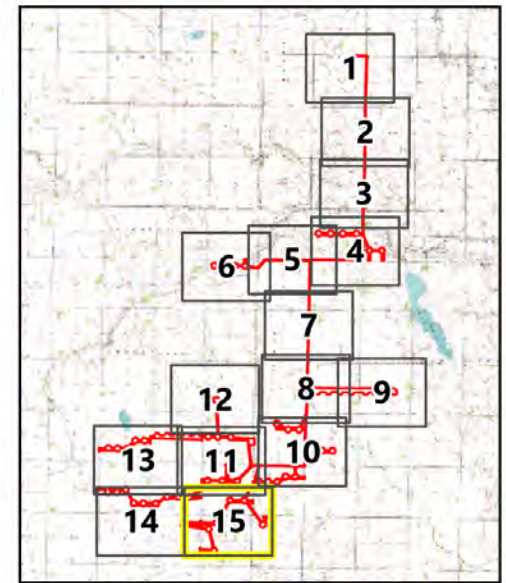
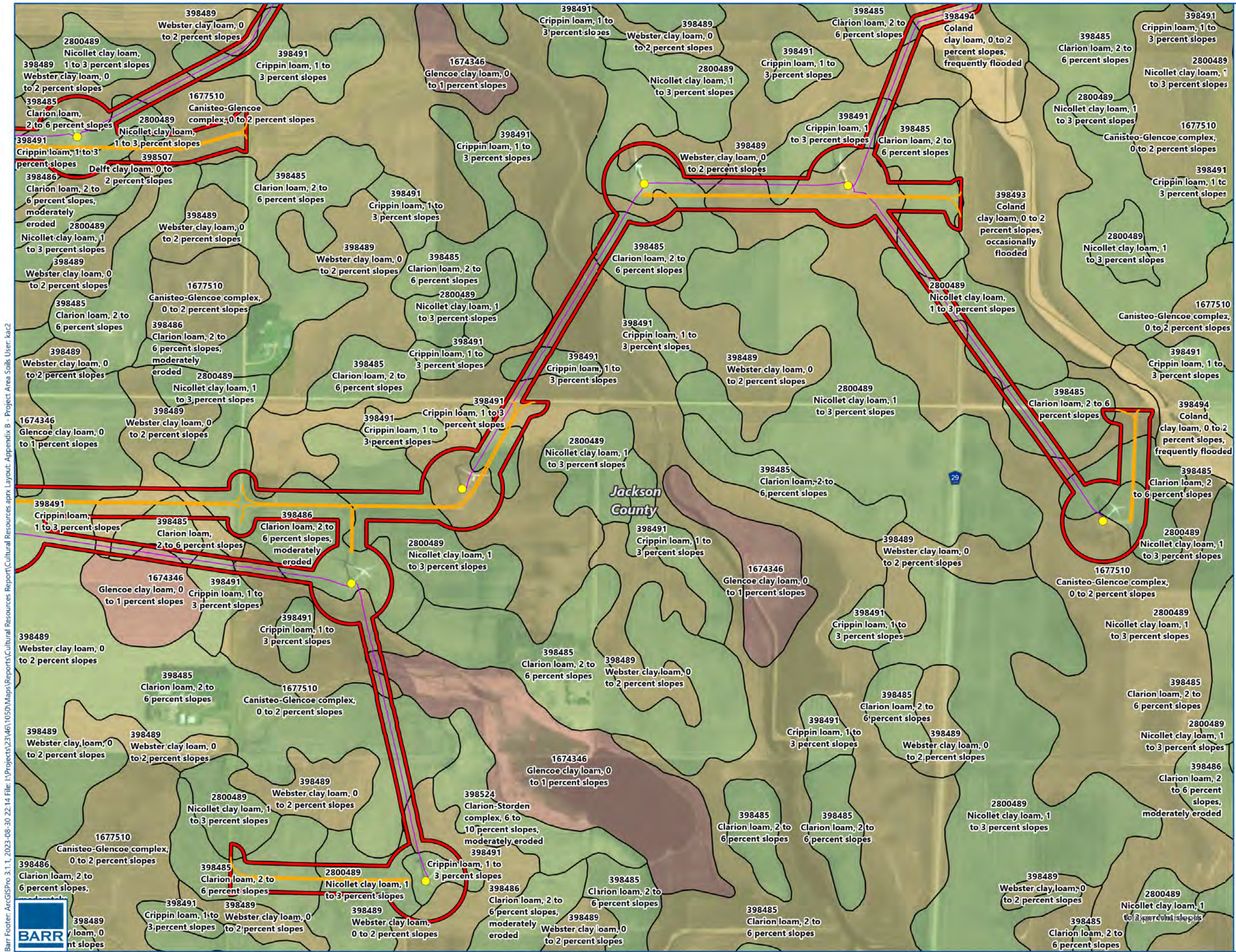
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PROJECT AREA SOILS
Elm Creek II
Martin and Jackson Counties, MN
FIGURE B-12







PROJECT AREA SOILS
Elm Creek II
Martin and Jackson Counties, MN
FIGURE B-15