APPENDIX J

Aquatic Resources Delineation Report

Aquatic Resources Delineation Report for the Benton Solar Project, Benton County, Minnesota

Minnesota Public Utilities Commission Docket Numbers: IP7115/GS-23-423 and IP7115/ESS-24-283

AUGUST 2024

PREPARED FOR

Benton Solar, LLC

PREPARED BY

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AQUATIC RESOURCES DELINEATION REPORT FOR THE BENTON SOLAR PROJECT, BENTON COUNTY, MINNESOTA

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Minnesota Public Utilities Commission Docket Numbers:
IP7115/GS-23-423 and IP7115/ESS-24-283

August 2024

EXECUTIVE SUMMARY

SWCA Environmental Consultants (SWCA) was contracted by NextEra Energy Resources, LLC, to conduct an aquatic resources delineation for the proposed Benton Solar Project (Project) in Benton County, Minnesota. The delineation was conducted within a 951.4-acre area (Site). The Project has a proposed nameplate capacity of approximately 100 megawatts near the city of St. Cloud, Minnesota. The Project layout would feature solar arrays and associated infrastructure, including access roads and an electrical collection system, and a battery energy storage system.

The purpose of the delineation was to determine whether any aquatic resources (wetlands or waterbodies with ordinary high-water marks) within the Site could potentially qualify as waters of the United States under Section 404 of the Clean Water Act and to delineate their boundaries to determine the need for permitting in coordination with the U.S. Army Corps of Engineers (USACE). SWCA completed the aquatic resources delineation in accordance with USACE methodologies.

SWCA delineated 13 wetlands and four waterbodies, including one named river, within the Site.

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1 INTRODUCTION

NextEra Energy Resources, LLC (NEER), contracted SWCA Environmental Consultants (SWCA) to conduct an aquatic resources delineation (delineation) for the Benton Solar Project (Project) in Benton County, Minnesota (Figure A-1 in Appendix A). The delineation was conducted within a 951.4-acre area (Site). The Project has a proposed nameplate capacity of approximately 100 megawatts near the city of St. Cloud, Minnesota. The Project layout would feature solar arrays and associated infrastructure, including access roads and an electrical collection system, and a battery energy storage system.

SWCA identified and delineated aquatic resources within the Site (see Figure A-1 in Appendix A) that could qualify as waters of the United States (WOTUS) and therefore be subject to permitting by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA) if Project-related impacts are expected.

The Site is located in Township 36 North, Range 30 West, Sections 13 and 23–26. The approximate center of the Site is located at 45.588434°N, 94.025562°W. The Project overview map is provided as Figure A-1 in Appendix A.

1.1 Environmental Setting

The Site is entirely within the Wisconsin and Minnesota Sandy Outwash major land resource area (MLRA) 91 (Natural Resources Conservation Service [NRCS] 2006). This area includes portions of northwestern Wisconsin, Nebraska, and central Minnesota. MLRA 91 consists of surficial deposits from the Wisconsin Glaciation including outwash plains, dunes, lakes, and wetlands. Elevations range from 800.0 to 1,500.0 feet. Local relief is minor, and landforms are generally nearly level.

The average annual precipitation in this area is 27.0 to 35.0 inches (689.0–884.0 millimeters). Most of the precipitation in MLRA 91 occurs as high-intensity, convective thunderstorms during the growing season. Precipitation in winter occurs as snow. The average annual temperature is 40 to 46 degrees Fahrenheit (4–8 degrees Celsius). The freeze-free period averages range from 120 to 180 days (NRCS 2006).

1.2 Regulatory Background

Pursuant to Section 404 of the CWA, the USACE regulates the discharge of dredge and/or fill material into WOTUS. Section 404 requires that any entity proposing an activity that would discharge such materials into a WOTUS must obtain a permit from the USACE.

Designation as a WOTUS applies to the jurisdictional limits of USACE authority under the CWA and typically includes traditional navigable waters, interstate waters, and wetlands adjacent to streams; impoundments, tributaries, and wetlands adjacent to those waters; and territorial seas. Most rivers, creeks, streams, arroyos, lakes, special aquatic sites, and their tributaries are typically designated as WOTUS. Wetlands are the most common special aquatic site and are defined as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (USACE 1987:9). To be classified as a wetland under federal definition, an area must meet the following three criteria under normal circumstances: 1) have a predominance of hydrophytic vegetation, 2) contain soils that are characteristic of frequent saturation (i.e., hydric soils), and 3) have the presence of hydrology showing regular inundation or saturation (USACE 1987). The ordinary high-water mark (OHWM) is a defining element for identifying the lateral limits of waterbodies lacking adjacent wetlands and typically represent the outer limits of potential USACE jurisdiction.

The Minnesota Wetland Conservation Act regulates impacts to wetlands. The Act is administered by the Board of Water and Soil Resources (BWSR) and a Local Governmental Unit. The state law uses federal methods for delineating wetland boundaries but has a different statutory definition of which wetlands are jurisdictionally regulated. The Minnesota Department of Natural Resources (MDNR) regulates certain wetlands and waterbodies as the Public Waters under the Waters of the State Act. The MDNR maintains a list and geographic database of waters on the Public Waters Inventory (PWI). Limits of these bodies are defined by the OHWM.

SWCA conducted the aquatic resources delineation to assist regulatory agencies in determining jurisdiction and to support permitting of unavoidable impacts within the Site. The USACE has final and legal authority in determining the presence of jurisdictional WOTUS and the extent of their boundaries under Section 404 of the CWA. This delineation report is a complete presentation of all aquatic resources present within the Site that could be potentially jurisdictional or exempt under federal and state statutes.

2 METHODS

SWCA identified and delineated wetlands and waterbodies within the Site using a combination of desktop review and field surveys. The *Wetland Delineation Review Checklist for Minnesota* (USACE and BWSR 2015) was used to ensure all pertinent information was included with this report.

2.1 Desktop Review

Before conducting the field surveys, SWCA completed a desktop review of data for the Site. The desktop review included examining existing data from the NRCS Web Soil Survey, the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI), the U.S. Geological Survey (USGS) National Hydrography Dataset (NHD), the MDNR PWI, USGS quadrangles, the USACE's Antecedent Precipitation Tool (APT), and historical and current aerial photographs of the Site. Through the desktop review, SWCA identified locations of potential aquatic resources for investigation and confirmation during the field surveys.

Multiple years of aerial imagery was used to help identify wetland hydrology as described by the USACE and BWSR (2016). Using aerial imagery to assess wetland hydrology is important in agricultural areas because it can help define crop stress and other aerial photo signatures that will be subsequently evaluated in the field.

2.1.1 National Wetlands Inventory

The NWI is a USFWS database that identifies and categorizes wetland areas based primarily on aerial imagery interpretation (USFWS 2024).

2.1.2 National Hydrography Dataset

Maintained by the USGS, the NHD identifies surface water systems in the United States, including lakes, streams, rivers, and canals (USGS 2022a).

2.1.3 Public Waters Inventory

The PWI maps identify the lakes, wetlands, and watercourses over which the MDNR has regulatory jurisdiction (MDNR 2024a).

2.1.4 U.S. Geological Survey Quadrangles

Maintained by the USGS, the 1:24,000-scale topographic maps display land surface elevation throughout the United States. The elevation data include both natural and human-made features (USGS 2022b).

2.1.5 Natural Resources Conservation Service Soil Survey

SWCA used the NRCS Soil Survey Geographic Database (SSURGO) (Soil Survey Staff 2024) to review the soil map units mapped for the area. SSURGO data contain spatial information on soil properties and characteristics. Some soil properties that can be useful for identifying aquatic resources include hydric soil components, drainage classifications, and taxonomic class.

2.1.6 Antecedent Precipitation Tool

SWCA used the USACE's APT (USACE 2021) to help determine whether the aquatic resources delineation occurred under normal climatic conditions. The APT calculates whether antecedent precipitation is normal by comparing rainfall data from the previous 3 months to the same 3-month period over a rolling 30-year period. A location near Becker, Minnesota, was used in the APT.

2.1.7 Off-site Hydrology and Wetland Determinations

Multiple years of aerial imagery was used to help identify indicators of wetland hydrology and wetland signatures as described by USACE and BWSR (2016). Using aerial imagery to assess wetland hydrology is important in agricultural areas because it can help define crop stress and other aerial photo signatures that will be subsequently evaluated in the field. Areas with enough wetland photo signatures that were identified in the off-site hydrology review were assessed during the field survey. Where visual indicators of wetlands were observed in the field, a pair of wetland delineation data points were documented, and the boundary was delineated.

2.2 Field Survey

SWCA wetland biologists conducted pedestrian delineations for aquatic resources on October 24 through 26, 2022, June 6 through 8, 2023, July 6 through 8, 2023, and May 7, 2024. The field delineations were conducted to verify the results of the desktop review and to delineate all aquatic resources within the Site that are potential WOTUS.

SWCA conducted the delineations in accordance with the *Corps of Engineers Wetland Delineation Manual* (the Manual) (USACE 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region,* (*Version 2.0)* (the Supplement) (USACE 2012), and the *Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and Wetland Conservation Act Local Governmental Units in Minnesota (Version 2.0)* (USACE and BWSR 2015). The biologists used *Regulatory Guidance Letter: Ordinary High Water Mark Identification* (USACE 2005) and the *Guidelines for Ordinary High Water Level (OHWL) Determinations* (Scherek and Yakel 1993) as a reference for delineating aquatic resources with OHWMs.

A global positioning system (GPS) unit with submeter accuracy was used in the field to map the spatial extent of features, geographically reference datapoints, and delineate boundaries during the field surveys. Geographic information systems (GIS) software was used in the office to analyze the delineated features, calculate areas, and generate report maps. All data recorded using the GPS unit and displayed in the maps

are for review purposes only and do not represent a professional civil survey; however, the recorded accuracy was less than 1 meter.

2.2.1 Wetlands

All potential wetlands encountered during the field surveys were investigated to determine whether a wetland (possessing all three characteristics; see Section 1.2) was present. If potential wetland characteristics were observed in an area, the wetland biologists recorded a datapoint(s) to determine the wetland status of the area. Additionally, the wetland biologists assessed all NWI polygons mapped for the Site to determine if any of them met USACE wetland criteria. Representative photographs and/or datapoints were also recorded in upland areas to document the presence or lack of wetland criteria and to further refine the wetland boundary.

In the areas surveyed, wetland boundaries were delineated where all three fundamental characteristics of hydrophytic vegetation, hydric soils, and wetland hydrology were present. Wetlands that satisfy all three criteria may be subject to regulation by the USACE under Section 404 of the CWA.

The plant species identified, their percent cover, and their indicator status according to the USACE (2020) were used to indicate the presence of hydrophytic vegetation. To determine whether hydric soils were present, SWCA's biologists extracted a soil profile to a sufficient depth (generally 24.0 inches) to document the presence or absence of all applicable hydric soil indicators. Inundation, saturation, and other physical indicators suggesting the presence of water were used to determine wetland hydrology at each location.

Wetlands are classified using the Circular 39 types (Shaw and Fredine 1956), Eggers and Reed system (Eggers and Reed 2015), and the Cowardin classification system (Cowardin et al. 1979). Circular 39 was originally developed to classify waterfowl habitat, but it has been adapted to classify wetlands into types. There are 20 different wetland types, but only eight occur in Minnesota (Shaw and Fredine 1956). The Eggers and Reed system is a classification system based on the *Wetland Plants and Plant Communities of Minnesota and Wisconsin* (Eggers and Reed 2015), whereby wetlands are categorized into 15 plant communities.

The Cowardin classification system consists of five principal systems: marine, estuarine, riverine, lacustrine, and palustrine. The Site features palustrine systems. The palustrine system includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and all such wetlands that exist in tidal areas where salinity resulting from ocean-derived salts is below 0.5% (Cowardin et al. 1979). The palustrine system also includes wetlands lacking such vegetation but exhibiting the following four characteristics: 1) area less than 8.0 hectares (20.0 acres); 2) a lack of active wave-formed or bedrock shoreline features; 3) water depth in the deepest part of the basin less than 2.0 meters at low water; and 4) salinity from ocean-derived salts of less than 0.05%.

In certain situations, normal seasonal or annual variation in environmental conditions can lead to the development of "problem areas" in which wetland vegetation, hydric soils, or wetland hydrology may not be readily identifiable. These problem areas may require additional investigation to determine the presence or absence of wetland indicators. In other situations, recent human activities or natural events can create "atypical situations" in which positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation are absent or unreliable. As with problem areas, these situations may require additional investigation to determine if a wetland is present.

SWCA recorded data on USACE Northcentral and Northeast regional wetland determination data forms to verify the presence and extent of wetlands (Appendix B). Details recorded at each datapoint consisted

of vegetation within prescribed sampling plots, soil characteristics, and hydrology information. The biologists took overview photographs of the sample area and detailed photographs of vegetation, soils, and hydrology at each datapoint (Appendix C). Datapoints that exhibited positive indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were classified as wetlands. Datapoints that did not contain wetland indicators for all three criteria were classified as uplands.

2.2.1.1 VEGETATION

At each datapoint, SWCA recorded the binomial scientific name and absolute percent ground cover of all vascular plants within prescribed plot sizes for each vegetative stratum. The Supplement (USACE 2012) defines the tree stratum as a woody-stemmed plant with a trunk diameter at breast height equal to or greater than 3.0 inches, regardless of height; the sapling and shrub stratum as consisting of woody-stemmed plants with a trunk diameter at breast height of less than 3.0 inches, regardless of height; the herbaceous stratum as including all non-woody-stemmed plants, regardless of height; and the woody vine stratum as including all woody-stemmed vines, regardless of diameter. Typical plot size is a 30.0-foot radius for the tree stratum, a 15.0-foot radius for the sapling and shrub stratum, a 5.0-foot radius for the herbaceous stratum, and a 30.0-foot radius for the woody vine stratum. However, in some instances, the biologists may have changed plot sizes to conform to the actual wetland size or shape. The wetland indicator status of each plant species was determined using the *2020 National Wetland Plant List* (USACE 2020), which divides plant species into five categories that reflect the range of estimated probabilities of a species existing in a wetland versus an upland. The five categories of wetland indicator statuses are as follows:

- Obligate (OBL): Almost always occurs in wetlands
- Facultative wetland (FACW): Usually occurs in wetlands, but may occur in non-wetlands
- Facultative (FAC): Occurs in wetlands or non-wetlands
- Facultative upland (FACU): Usually occurs in non-wetlands, but may occur in wetlands
- Upland (UPL): Almost never occurs in wetlands

Any plant community with a predominance of hydrophytes (OBL, FACW, and FAC) across all strata was determined to meet the USACE criteria of a hydrophytic community. In cases where disturbance had created problematic hydrophytic vegetation, visual observations of other hydrophytic vegetation indicators and site conditions, such as livestock grazing or presence of human-made features, were evaluated to clarify wetland boundaries.

2.2.1.2 SOILS

Hydric soil determinations were made according to criteria listed in the Manual (USACE 1987), the Supplement (USACE 2012), and *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.2* (U.S. Department of Agriculture 2018). The wetland biologists excavated soil pits to a depth of at least 24.0 inches and described each soil profile by horizon. Each horizon was evaluated for soil color; thickness; abundance; contrast of redoximorphic features (mottles); and soil texture. Munsell soil color charts were used to determine the color of the soil matrix and redoximorphic features. The "feel" or "ribbon" test was used to determine soil texture. The soil profile was studied for the hydric soil indicators listed in the Manual (USACE 1987) and the Supplement (USACE 2012). If the soil profile displayed at least one hydric soil indicators, a positive hydric soil determination was made.

Some soils that meet the hydric soil definition may not exhibit any indicators. These problematic hydric soils may lack indicators because of the color of the parent material from which the soils develop, because site conditions may inhibit the development of redoximorphic features, or because not enough time has passed to develop hydric soil indicators (USACE 2012). For areas with problematic soils, hydric soil conditions were assumed when there was a dominant hydrophytic plant community and the area exhibited wetland hydrology indicators, as listed in the Supplement (USACE 2012).

A map showing the soil types within the Site is provided as Figures A-3 through A-13 in Appendix A.

2.2.1.3 HYDROLOGY

Wetland hydrology was primarily determined in the field using the hydrology indicators detailed in the Manual (USACE 1987) and the Supplement (USACE 2012). To determine whether wetland hydrology was present at a datapoint, the SWCA biologists considered the frequency and duration of inundation; used visual observation of saturation in the upper 12.0 inches of the soil profile; and used the presence of other primary wetland hydrology indicators, such as oxidized root channels, water-stained leaves, surface soil cracks, water marks (nonriverine), sediment deposits (nonriverine), or the presence of biotic crusts. Secondary indicators used to determine wetland hydrology consisted of drainage patterns, the presence of a dry-season water table, or saturation visible on aerial imagery. If the area contained one or more primary hydrology indicator or two or more secondary hydrology indicators, a positive hydrology determination was made.

Additionally, the determination of normal climatic/hydrological conditions was analyzed with the antecedent precipitation methodology described by the BWSR (2015) and the MDNR (2024b).

2.2.2 Waterbodies

The lateral extent of jurisdictional waterbodies (i.e., ponds, creeks, streams, lakes) was identified by the presence of an OHWM, if present. Common identifiable indicators of an OHWM include physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas. The OHWM typically represents the potential limits of USACE jurisdiction, unless there is a wetland adjacent to the waterbody (Lichvar and McColley 2008). Please note that the USACE has full discretion in determining the jurisdictional status of referenced wetlands and waterbodies.

The NHD is a digital vector dataset referred to by SWCA biologists in the field to confirm or disprove the existence of features such as lakes, ponds, streams, rivers, canals, dams, and stream gages. NHD flowlines are features that contain flow direction and form a network (USGS 2022a). In the field, SWCA can confirm or disprove NHD flowlines based on the presence of streams, OHWMs, hydrophytic vegetation, wetland hydrology, and hydric soils.

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 streambed. Groundwater is the primary water source for stream flow, while precipitation runoff is supplemental. Additionally, the USGS 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.

3 RESULTS

Sections 3.1 and 3.2 present results of the desktop review and field surveys.

3.1 Desktop Review

The results of the desktop review identified locations of potential wetlands and streams within the Site. SWCA biologists referenced these results during field surveys.

3.1.1 National Hydrography Dataset and National Wetlands Inventory

According to review of existing data, several NHD-mapped waterbodies (USGS 2022a) and NWI-mapped wetlands overlap the Site (USFWS 2024) (Table 1; Figure A-2 in Appendix A).

Table 1. National Hydrography Dataset and National Wetlands Inventory Features Mapped within the Site

Aquatic Resource	Length (miles) within Site	Area (acres) within Site
NHD Flowline		
Intermittent stream/river	1.3	–
Perennial stream/river	0.1	–
NWI Wetlands		
Freshwater emergent wetland	–	12.9
Freshwater forested/shrub wetland	–	8.1
Freshwater pond	–	1.8
Riverine	–	1.8

Sources: USFWS (2024); USGS (2022a).

3.1.2 Public Waters Inventory

The PWI mapping identifies two public waters, totaling 0.9 mile, within the Site. These public waters are identified as the Elk River (DNR ID: M-065) and an unnamed stream (DNR ID: M-065-020) (see Figure A-2 in Appendix A) (MDNR 2024a).

3.1.3 U.S. Geological Survey Quadrangles

Topography within the Site is generally flat. Elevation ranges between 1,003 feet to 1,100 feet above sea level (USGS 2022b).

3.1.4 Natural Resources Conservation Service Soil Survey

A total of 34 soil units are mapped within the Site (Table 2). Of those, nine soil units were identified by the NRCS (Soil Survey Staff 2024) as having predominately hydric components. The soil texture within the Site ranged from loamy sand to clay loam.

Maps showing the soil types within the Site are provided as Figures A-3 through A-8 in Appendix A.

Table 2. Soil Units in the Site

Soil Mapping Unit	Soil Name	Hydric Status
1011A	Fordum-Winterfield complex, 0 to 2 percent slopes, frequently flooded	**Hydric**
1023A	Seelyeville and Markey soils, ponded, 0 to 1 percent slopes	**Hydric**
C126B	Balmlake-Rosy complex, 1 to 6 percent slopes	Non-Hydric
C26A	Foglake silt loam, 0 to 2 percent slopes	Non-Hydric
C36A	Nokasippi loamy fine sand, depressional, 0 to 1 percent slopes	**Hydric**
C51D	Emmert-St. Francis complex, 6 to 25 percent slopes	Non-Hydric
C53C	Pomroy loamy fine sand, 6 to 12 percent slopes	Non-Hydric
C56A	Langola loamy fine sand, 0 to 2 percent slopes	**Hydric**
C58A	Ogilvie loam, 0 to 2 percent slopes	Non-Hydric
C60A	Bushville fine sand, 0 to 2 percent slopes	**Hydric**
C65A	Parent loam, 0 to 2 percent slopes, stony	Non-Hydric
C66A	St. Francis fine sandy loam, 0 to 2 percent slopes	Non-Hydric
C67B	Bushville complex, 1 to 6 percent slopes	Non-Hydric
C68B	Milaca fine sandy loam, 3 to 6 percent slopes, stony	Non-Hydric
C69B	Milaca, stony-St. Francis complex, 3 to 8 percent slopes	Non-Hydric
C70B	St. Francis-Mahtomedi complex, 2 to 6 percent slopes	Non-Hydric
C70C	St. Francis-Mahtomedi complex, 6 to 12 percent slopes	Non-Hydric
C71C	Milaca-Mora complex, 1 to 7 percent slopes, stony	Non-Hydric
C72B	Langola complex, 1 to 6 percent slopes	Non-Hydric
C73A	Mora loam, 1 to 3 percent slopes, stony	**Hydric**
C73C	Milaca loam, 1 to 7 percent slopes, stony	**Hydric**
C9B	Mora-Ronneby complex, 1 to 4 percent slopes, stony	Non-Hydric
D17A	Duelm loamy sand, 0 to 2 percent slopes	**Hydric**
D1B	Anoka and Zimmerman soils, terrace, 2 to 6 percent slopes	Non-Hydric
D1C	Anoka and Zimmerman soils, terrace, 6 to 12 percent slopes	Non-Hydric
D21A	Isan sandy loam, depressional, 0 to 1 percent slopes	Non-Hydric
D30A	Seelyeville and Markey soils, depressional, 0 to 1 percent slopes	**Hydric**
D61A	Glendorado loamy sand, 0 to 2 percent slopes	Non-Hydric
D6A	Verndale sandy loam, acid substratum, 0 to 2 percent slopes	Non-Hydric
D7A	Hubbard loamy sand, 0 to 2 percent slopes	Non-Hydric
D7B	Hubbard loamy sand, 2 to 6 percent slopes	Non-Hydric

Soil Mapping Unit	Soil Name	Hydric Status
D7C	Hubbard loamy sand, 6 to 12 percent slopes	Non-Hydric
D7E	Hubbard loamy sand, 18 to 35 percent slopes	Non-Hydric
W	Water	N/A

Source: Soil Survey Staff (2024).

3.1.5 Antecedent Precipitation Tool

The APT (USACE 2021) displays precipitation data for monthly periods. The associated report (Appendix D) shows that the October 2022 field survey dates occurred in drier than normal field conditions. The June 2023 field survey dates occurred in normal field conditions; the July 2023 field survey dates occurred in drier than normal field conditions; and the APT score for the final May 2024 field survey indicated that field conditions were wetter than normal (see Appendix D).

3.1.6 Off-site Hydrology and Wetland Determination

Eighteen potential wetland areas were identified during the off-site hydrology and wetland determination using USACE and BWSR methods (Appendix E). These areas showed signs of soil saturation or crop stress in aerial photograph review. Each of these areas was evaluated during the field delineation. If evidence of wetland hydrology, vegetation, or soils was found, the area was delineated as wetland following typical methods.

3.2 Field Survey

3.2.1 Wetlands

During the field surveys on October 24 through 26, 2022, June 6 through 8, 2023, July 6 through 8, 2023, and May 7, 2024, SWCA delineated 13 wetlands (Table 3) totaling 23.5 acres (Table 4) within the Site. SWCA recorded one upland datapoint and one wetland datapoint for each wetland. The USACE has full discretion in determining the jurisdictional status of referenced wetlands and waterbodies. The aquatic resources and datapoints are illustrated in Figures A-11 through A-26, and wetland determination datasheets are provided in Appendix B. Photographs for each wetland and waterbody are provided in Appendix C.

3.2.1.1 VEGETATION

Dominant wetland vegetation includes green ash (*Fraxinus pennsylvanica*), silver maple (*Acer saccharinum*), river birch (*Betula nigra*), broadleaf cattail (*Typha latifolia*), common spikerush (*Eleocharis palustris*), common threesquare (*Schoenoplectus pungens*), reed canarygrass (*Phalaris arundinacea*), wildrye (*Elymus virginicus*), and barnyard grass (*Echinochloa crus-galli*). Softstem bulrush (*Schoenoplectus tabernaemontani*), narrowleaf cattail (*Typha angustifolia*), sensitive fern (*Onoclea sensibilis*), switchgrass (*Panicum virgatum*), prairie cordgrass (*Spartina pectinata*), and broadleaf arrowhead (*Sagittaria latifolia*) are also present within wetlands. Cultivated corn (*Zea mays*) and soybeans (*Glycine max*) are also commonly found in the farmed wetlands.

The surrounding upland areas support vegetation communities dominated by common hackberry (*Celtis occidentalis*), white oak (*Quercus alba*), bur oak (*Quercus macrocarpa*), silver maple, reed canarygrass, ground ivy (*Glechoma hederacea*), goldenrod (*Solidago altissima*), green bristlegrass (*Setaria viridis*),

yellow foxtail (*Setaria pumila*), and smooth brome (*Bromus inermis*). American elm (*Ulmus americana*), Canada thistle (*Cirsium arvense*), and stinging nettle (*Urtica dioica*) are also present in upland areas.

Plant species recorded in the field are detailed in Sections 3.2.1.4 through 3.2.1.16 and in the wetland determination datasheets provided in Appendix B.

3.2.1.2 SOILS

The primary soil textures within the wetlands are sandy clay loam and clay. The hydric soil indicators include thick dark surface and redox dark surface. Soil profiles recorded in the field are detailed on the wetland determination datasheets in Appendix B.

3.2.1.3 HYDROLOGY

The primary wetland hydrology indicators observed include high water table, saturation, iron deposits, sparsely vegetated concave surface, and oxidized rhizospheres on living roots. The secondary wetland hydrology indicators observed include geomorphic position, FAC-Neutral Test, and drainage patterns. The wetland hydrology indicators recorded in the field are detailed on the wetland datapoint datasheets in Appendix B.

Table 3. Wetlands Delineated in the Site

Wetland ID∞	Acreage	Circular 39/Cowardin Classification	Formation*	Surficial Connectivity*	Associated Datapoints	Mapbook Figure Number
WET01	1.56	Type 1/PEM	Natural	Yes	DP01, DP02	A-10, A-21, A-22
WET04	<0.01	Type 1/PEM	Natural	Yes	DP07, DP08	A-10, A-21
WET11	0.30	Type 1/PEM	Natural	Yes	DP21, DP22	A-10, A-20
WET13	0.07	Type 1/Pf	Incidental	Yes	DP25, DP26	A-10, A-19
WET14	1.05	Type 7/PFO	Natural	Yes	DP27, DP28	A-10, A-20, A-23
WET15	3.24	Type 3/PEM	Natural	Yes	DP29, DP30	A-10, A-13, A-14, A-15
WET17	2.23	Type 3/PEM	Natural	No	DP36, DP37	A-10, A-11
WET18	2.32	Type 7/PFO/PEM	Natural	No	DP40, DP41, DP44	A-10, A-24, A-25
WET19	0.40	Type 7/PFO	Natural	No	DP42, DP43	A-10, A-24
WET20	0.05	Type 3/PEM	Natural	Yes	DP45, DP48	A-10, A-20, A-23
WET21	0.12	Type 3/PEM	Natural	Yes	DP46, DP47	A-10, A-18
WET22	0.68	Type 1/Pf	Natural	No	DP38, DP39	A-10, A-26
WET23	11.52	Type 3/PEM	Natural	Yes	DP34, DP35	A-10, A-12, A-15, A-16, A-17

∞ Wetland ID labels are not sequential.
* This determination is SWCA's professional opinion.
Note: PEM = palustrine emergent wetland; Pf = palustrine farmed wetland; PFO = palustrine forested wetland.

3.2.1.4 WET01 – TEMPORARILY FLOODED BASIN (TYPE 1; PEM)

WET01 is a palustrine emergent wetland located within the floodplain of the Elk River. It is classified as a temporarily flooded basin (Type 1; PEM). The vegetation within the wetland is dominated by reed canarygrass with scattered softstem bulrush. Dominant vegetation within the wetland satisfies hydrophytic vegetation criteria.

The first 16.0 inches of soil below the surface consist of 10YR 2/1 clay loam. From 16.0 to 24.0 inches below the surface, there is a layer of 10YR 5/2 sandy clay loam with 5.0% 10YR 4/6 redoximorphic concentrations. The soils meet the Thick Dark Surface hydric soil indicator.

The Geomorphic Position and FAC-Neutral Test secondary indicators satisfy wetland hydrology criteria.

Upland vegetation is composed of reed canarygrass and Canada thistle. From the surface to 20.0 inches below, the soil consists of 10YR 2/2 loamy sand. No primary or secondary indicators of hydrology were observed at the upland sample point.

Supporting information for WET01 is provided in Figures A-10, A-21, and A-22 in Appendix A, Appendix B, and Appendix C.

3.2.1.5 WET04 – TEMPORARILY FLOODED BASIN (TYPE 1; PEM)

WET04 is a palustrine emergent wetland located within the floodplain of the Elk River. It is classified as a temporarily flooded basin (Type 1; PEM). The vegetation within the wetland is dominated by stinging nettle. The dominant vegetation with the wetland is considered problematic hydrophytic vegetation due to the location of the wetland in the Elk River floodplain and natural disturbance occurring periodically. However, the vegetation present satisfies the hydrophytic vegetation criteria.

From the surface to 20.0 inches below, the soil consists of 10YR 2/1 clay loam with 10.0% 10YR 5/6 redoximorphic concentrations. The soils meet the Redox Dark Surface hydric soil indicator.

The Sparsely Vegetative Concave Surface primary indicator and Geomorphic Position secondary indicator satisfy wetland hydrology criteria.

Upland vegetation is composed of silver maple, ground ivy, stinging nettle, and goldenrod. From the surface to 20.0 inches below, the soil consists of 10YR 2/2 loamy sand. No primary or secondary indicators of hydrology were observed at the upland sample point.

Supporting information for WET04 is provided in Figures A-10 and A-21 in Appendix A, Appendix B, and Appendix C.

3.2.1.6 WET11 – TEMPORARILY FLOODED BASIN (TYPE 1; PEM)

WET11 is a palustrine emergent wetland located within the floodplain of the Elk River. It is classified as a temporarily flooded basin (Type 1; PEM). The vegetation within the wetland is dominated by barnyard grass, broadleaf cattail, and common spikerush. Dominant vegetation within the wetland satisfies hydrophytic vegetation criteria.

The first 16.0 inches of soil below the surface consist of 10YR 2/1 clay. From 16.0 to 24.0 inches below the surface, there is a layer of 10YR 4/2 loamy sand with 2.0% 10YR 4/6 redoximorphic concentrations. The soils meet the Thick Dark Surface hydric soil indicator.

Saturation and a water table were present at the surface and iron deposits were also observed within the soil pit. The wetland satisfies the High Water Table, Saturation, and Iron Deposits primary indicators and the Drainage Patterns, Geomorphic Position, and FAC-Neutral Test secondary indicators of wetland hydrology.

Upland vegetation is composed of green bristlegrass. From the surface to 20.0 inches below, the soil consists of 10YR 2/2 loam. No primary or secondary indicators of hydrology were observed at the upland sample point.

Supporting information for WET11 is provided in Figures A-10 and A-20 in Appendix A, Appendix B, and Appendix C.

3.2.1.7 WET13 – SEASONALLY FLOODED BASIN (TYPE 1; PF)

WET13 is a farmed wetland located in the central portion of the Site on the edge of a planted field. It is classified as a seasonally flooded basin (Type 1; Pf). Vegetation is significantly disturbed as most native vegetation has been removed and replaced with cultivated soybeans. The Problematic Hydrophytic Vegetation indicator satisfies hydrophytic vegetation criteria.

From the surface to 20.0 inches below, the soil consists of 10YR 2/1 sandy clay loam with 2.0% 10YR 4/6 redoximorphic concentrations in the matrix and pore lining. The soils meet the Redox Dark Surface hydric soil indicator.

The Geomorphic Position and FAC-Neutral Test secondary indicators satisfy wetland hydrology criteria.

Upland vegetation is composed of cultivated soybeans. From the surface to 20.0 inches below, the soil consists of 10YR 2/2 loamy sand. No primary or secondary indicators of hydrology were observed at the upland sample point.

Supporting information for WET13 is provided in Figures A-10 and A-19 in Appendix A, Appendix B, and Appendix C.

3.2.1.8 WET14 – TEMPORARILY FLOODED BASIN (TYPE 7; PFO)

WET14 is a palustrine forested wetland located within the floodplain of the Elk River. It is classified as a temporarily flooded basin (Type 7; PFO). The vegetation within the wetland is dominated by silver maple, river birch, and reed canarygrass with scattered sensitive fern. Dominant vegetation within the wetland satisfies hydrophytic vegetation criteria.

From the surface to 20.0 inches below, the soil consists of 10YR 2/1 clay loam with 10.0% 10YR 5/6 redoximorphic concentrations in the matrix and pore lining. The soils meet the Redox Dark Surface hydric soil indicator.

Saturation and a water table were present at the surface, and a hydrogen sulfide odor was also observed within the soil pit. The wetland satisfies the High Water Table, Saturation, and Hydrogen Sulfide Odor primary indicators and the Geomorphic Position and FAC-Neutral Test secondary indicators of wetland hydrology.

Upland vegetation is composed of silver maple, white oak, bur oak, ground ivy, stinging nettle, and goldenrod. From the surface to 20.0 inches below, the soil consists of 10YR 2/2 loamy sand. No primary or secondary indicators of hydrology were observed at the upland sample point.

Supporting information for WET14 is provided in Figures A-10, A-20, and A-23 in Appendix A, Appendix B, and Appendix C.

3.2.1.9 WET15 – SEASONALLY FLOODED BASIN (TYPE 3; PEM)

WET15 is a palustrine emergent wetland located in the northern portion of the Site. It is classified as a seasonally flooded basin (Type 3; PEM). The vegetation within the wetland is dominated by reed canarygrass with scattered softstem bulrush. Dominant vegetation within the wetland satisfies hydrophytic vegetation criteria.

The first 1.06 inches of soil below the surface consist of 10YR 2/1 clay loam. From 16.0 to 24.0 inches below the surface, there is a layer of 10YR 5/2 loamy clay sand with 5.0% 10YR 4/6 redoximorphic concentrations. The soils meet the Thick Dark Surface hydric soil indicator.

The Geomorphic Position and FAC-Neutral Test secondary indicators satisfy wetland hydrology criteria.

Upland vegetation is composed of smooth brome and green bristlegrass. From the surface to 20.0 inches below, the soil consists of 10YR 2/2 loamy sand. No primary or secondary indicators of hydrology were observed at the upland sample point.

Supporting information for WET15 is provided in Figures A-10, A-13, A-14, and A-15 in Appendix A, Appendix B, and Appendix C.

3.2.1.10 WET17 – SEASONALLY FLOODED BASIN (TYPE 3; PEM)

WET17 is a palustrine emergent wetland located in the northern portion of the Site. It is classified as a seasonally flooded basin (Type 3; PEM). The vegetation within the wetland is dominated by common threesquare and reed canarygrass. Dominant vegetation within the wetland satisfies hydrophytic vegetation criteria.

From the surface to 20.0 inches below, the soil consists of 10YR 2/1 clay loam with 10.0% 10YR 5/6 redoximorphic concentrations in the matrix and pore lining. The soils meet the Redox Dark Surface hydric soil indicator.

Saturation was present at a depth of 12.0 inches, and oxidized rhizospheres were observed on living roots. The wetland satisfies the Saturation and Oxidized Rhizospheres on Living Roots primary indicators and the Geomorphic Position and FAC-Neutral Test secondary indicators of wetland hydrology.

Upland vegetation is composed of smooth brome, goldenrod, and yellow foxtail. From the surface to 20.0 inches below, the soil consists of 10YR 2/2 loamy sand. No primary or secondary indicators of hydrology were observed at the upland sample point.

Supporting information for WET17 is provided in Figures A-10 and A-11 in Appendix A, Appendix B, and Appendix C.

3.2.1.11 WET18 – SEASONALLY FLOODED BASIN (TYPE 7; PFO/PEM)

WET18 is a palustrine emergent wetland located in the central portion of the Site. It is classified as a seasonally flooded basin (Type 7; PFO/PEM). The vegetation within the wetland is dominated by silver maple, green ash, and reed canarygrass. Dominant vegetation within the wetland satisfies hydrophytic vegetation criteria.

Two soil pits were dug within the wetland. At DP40, the first 16.0 inches of soil below the surface consist of 10YR 2/1 clay loam. From 16.0 to 24.0 inches below the surface, there is a layer of 10YR 5/2 sandy clay loam with 5.0% 10YR 4/6 redoximorphic concentrations. The soils meet the Thick Dark Surface hydric soil indicator. At DP44, from the surface to 20.0 inches below, the soil consists of 10YR 2/1 clay loam with 10.0% 10YR 5/6 redoximorphic concentrations in the matrix and pore lining. The soils meet the Redox Dark Surface hydric soil indicator.

Within the DP40 soil pit, oxidized rhizospheres were observed on living roots. The wetland satisfies the Oxidized Rhizospheres on Living Roots primary indicator and the Geomorphic Position and FAC-Neutral

Test secondary indicators of wetland hydrology. At DP44, saturation was also observed at a depth of 12.0 inches, which satisfies the Saturation primary wetland hydrology indicator.

Upland vegetation is composed of smooth brome, goldenrod, and yellow foxtail. From the surface to 20.0 inches below, the soil consists of 10YR 2/2 loamy sand. No primary or secondary indicators of hydrology were observed at the upland sample point.

Supporting information for WET18 is provided in Figures A-10, A-24, and A-25 in Appendix A, Appendix B, and Appendix C.

3.2.1.12 WET19 – TEMPORARILY FLOODED BASIN (TYPE 7; PFO)

WET19 is a palustrine forested wetland located in the southern portion of the Site. It is classified as a temporarily flooded basin (Type 7; PFO). The vegetation within the wetland is dominated by silver maple, green ash, river birch, and reed canarygrass. Dominant vegetation within the wetland satisfies hydrophytic vegetation criteria.

From the surface to 20.0 inches below, the soil consists of 10YR 2/1 clay loam with 10.0% 10YR 5/6 redoximorphic concentrations in the matrix and pore lining. The soils meet the Redox Dark Surface hydric soil indicator.

Saturation was present at a depth of 10.0 inches. The wetland satisfies the Saturation primary indicator and the Geomorphic Position and FAC-Neutral Test secondary indicators of wetland hydrology.

Upland vegetation is composed of silver maple, white oak, bur oak, American elm, stinging nettle, and goldenrod. From the surface to 20.0 inches below, the soil consists of 10YR 2/2 loamy sand. No primary or secondary indicators of hydrology were observed at the upland sample point.

Supporting information for WET19 is provided in Figures A-10 and A-24 in Appendix A, Appendix B, and Appendix C.

3.2.1.13 WET20 – SEASONALLY FLOODED BASIN (TYPE 3; PEM)

WET20 is a palustrine emergent wetland located within the floodplain of the Elk River. It is classified as a seasonally flooded basin (Type 3; PEM). The vegetation within the wetland is dominated by reed canarygrass with scattered narrowleaf cattail. Dominant vegetation within the wetland satisfies hydrophytic vegetation criteria.

From the surface to 20.0 inches below, the soil consists of 10YR 2/1 clay loam with 10.0% 10YR 5/6 redoximorphic concentrations in the matrix and pore lining. The soils meet the Redox Dark Surface hydric soil indicator.

Saturation and a water table were present at the surface with 2.0 inches of standing surface water also present. The wetland satisfies the Saturation, High Water Table, and Surface Water primary indicators and the Geomorphic Position and FAC-Neutral Test secondary indicators of wetland hydrology.

Upland vegetation is composed of bur oak, common hackberry, silver maple, American elm, ground ivy, stinging nettle, and goldenrod. From the surface to 20.0 inches below, the soil consists of 10YR 2/2 loamy sand. No primary or secondary indicators of hydrology were observed at the upland sample point.

Supporting information for WET20 is provided in Figures A-10, A-20, and A-23 in Appendix A, Appendix B, and Appendix C.

3.2.1.14 WET21 – SEASONALLY FLOODED BASIN (TYPE 3; PEM)

WET21 is a palustrine emergent wetland associated with a recreational pond. It is classified as a seasonally flooded basin (Type 3; PEM). The vegetation within the wetland is dominated by reed canarygrass and narrowleaf cattail with scattered softstem bulrush. Dominant vegetation within the wetland satisfies hydrophytic vegetation criteria.

The first 4.0 inches of soil below the surface consist of 10YR 2/1 clay loam. From 4.0 to 24.0 inches below the surface, there is a layer of 10YR 4/2 sandy clay loam with 2.0% 10YR 4/6 redoximorphic concentrations present within the pore lining. The soil meets the Depleted Below Dark Surface and Depleted Matrix hydric soil indicators.

Saturation and a water table were present at the surface. The wetland satisfies the Saturation and High Water Table primary indicators and the Geomorphic Position and FAC-Neutral Test secondary indicators of wetland hydrology.

Upland vegetation is composed of smooth brome and green bristlegrass. From the surface to 20.0 inches below, the soil consists of 10YR 2/2 loamy sand. No primary or secondary indicators of hydrology were observed at the upland sample point.

Supporting information for WET21 is provided in Figures A-10 and A-18 in Appendix A, Appendix B, and Appendix C.

3.2.1.15 WET22 – TEMPORARILY FLOODED BASIN (TYPE 1; PF)

WET22 is a farmed wetland located in the southeastern portion of the Site on the edge of a planted field. It is classified as a temporarily flooded basin (Type 1; Pf). Vegetation is significantly disturbed as native vegetation has been removed and replaced with cultivated corn and soybeans. The natural vegetation of the wetland is problematic; however, yellow nutsedge (*Cyperus esculentus*) is present in the wetland and satisfies hydrophytic vegetation criteria.

From the surface to 20.0 inches below, the soil consists of 10YR 2/1 sandy clay loam with 2.0% 10YR 4/6 redoximorphic concentrations. The soils meet the Redox Dark Surface hydric soil indicator.

The wetland satisfies the Geomorphic Position and FAC-Neutral Test secondary indicators of wetland hydrology.

Upland vegetation is composed of cultivated corn. From the surface to 20.0 inches below, the soil consists of 10YR 2/2 loamy sand. No primary or secondary indicators of hydrology were observed at the upland sample point.

Supporting information for WET22 is provided in Figures A-10 and A-26 in Appendix A, Appendix B, and Appendix C.

3.2.1.16 WET23 – SEASONALLY FLOODED BASIN (TYPE 3; PEM)

WET23 is a palustrine emergent wetland located in the northern portion of the Site. It is classified as a seasonally flooded basin (Type 3; PEM). The vegetation within the wetland is dominated by reed canarygrass with scattered switchgrass, prairie cordgrass, and broadleaf arrowhead. Dominant vegetation within the wetland satisfies hydrophytic vegetation criteria.

The first 16.0 inches of soil below the surface consist of 10YR 2/1 clay loam. From 16.0 to 24.0 inches below the surface, there is a layer of 10YR 5/2 sandy clay loam with 5.0% 10YR 4/6 redoximorphic concentrations present within the matrix. The soils meet the Thick Dark Surface hydric soil indicators.

Saturation and a water table were present at the surface and there was approximately 4 inches of standing water in the wetland; iron deposits were also observed on the surface. The wetland satisfies the Surface Water, High Water Table, Saturation, and Iron Deposits primary indicators and the Geomorphic Position and FAC-Neutral Test secondary indicators of wetland hydrology.

Upland vegetation is composed of smooth brome and green bristlegrass. The first 6.0 inches of soil below the surface consist of 10YR 2/2 loamy sand. From 6.0 to 24.0 inches below the surface, there is a layer of 10YR 4/4 sandy loam. No primary or secondary indicators of hydrology were observed at the upland sample point.

Supporting information for WET23 is provided in Figures A-10, A-12, A-15, A-16, and A-17 in Appendix A, Appendix B, and Appendix C.

3.2.2 Waterbodies

SWCA delineated four waterbodies within the Site. The total length of waterbodies within the Site is 0.2 mile (see Table 4). This includes one named river (WB01) and three unnamed waterbodies.

Table 4. Waterbodies Delineated in the Site

Waterbody ID	Acreage	Linear Feet	Hydrologic Regime	Waterbody Name	Mapbook Figure Number
WB01	0.5	400.1	Perennial river	Elk River	A-9
WB02	0.0	104.3	Ephemeral drainage	Unnamed	A-9
WB03	0.1	520.5	Intermittent stream	Unnamed	A-9
WB04	1.1	-	Perennially flooded pond	Unnamed	A-9

4 SUMMARY

In 2022, 2023, and 2024, SWCA delineated 13 wetlands and four waterbodies within the Site.

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APPENDIX A

Maps

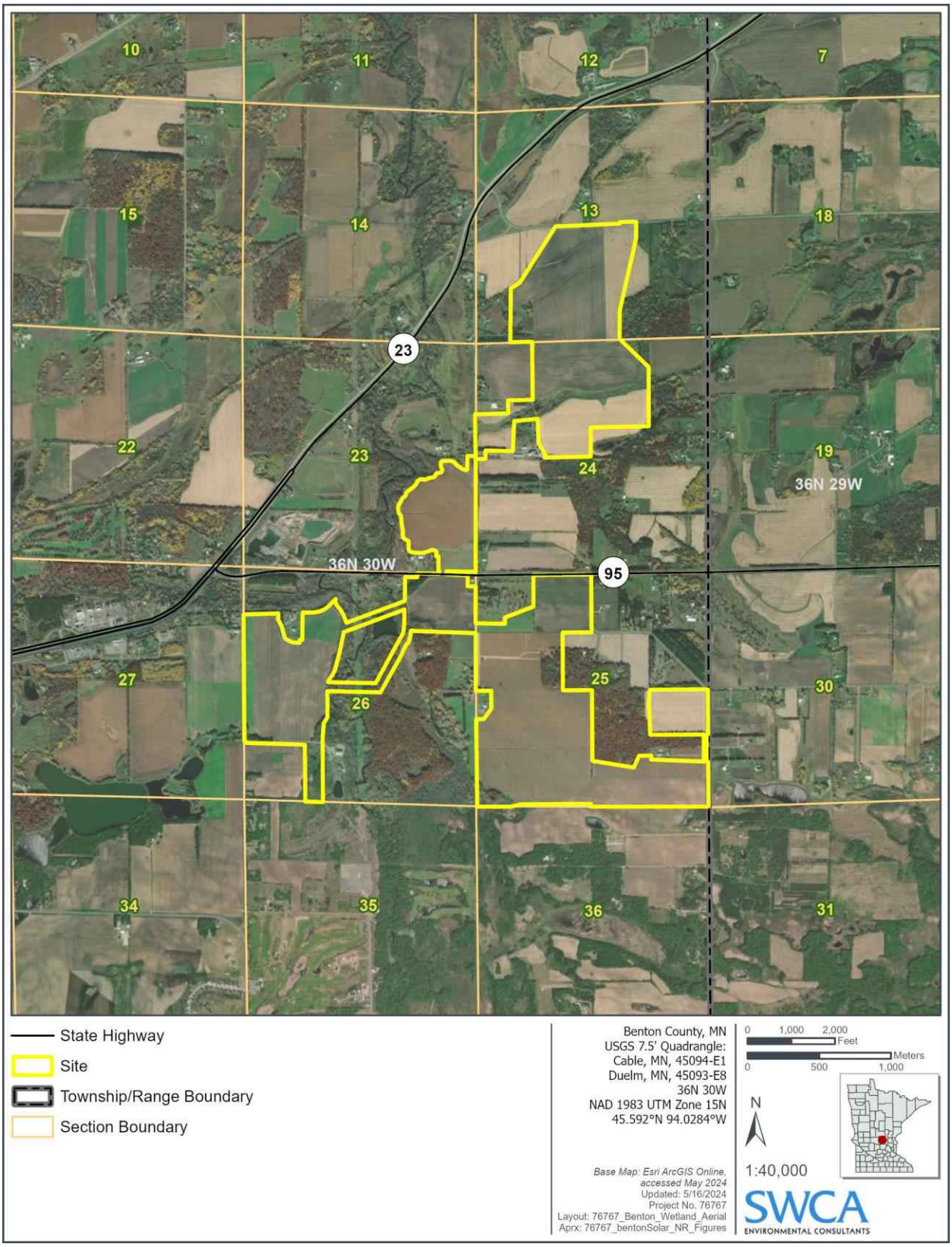

Figure A-1. Project location.

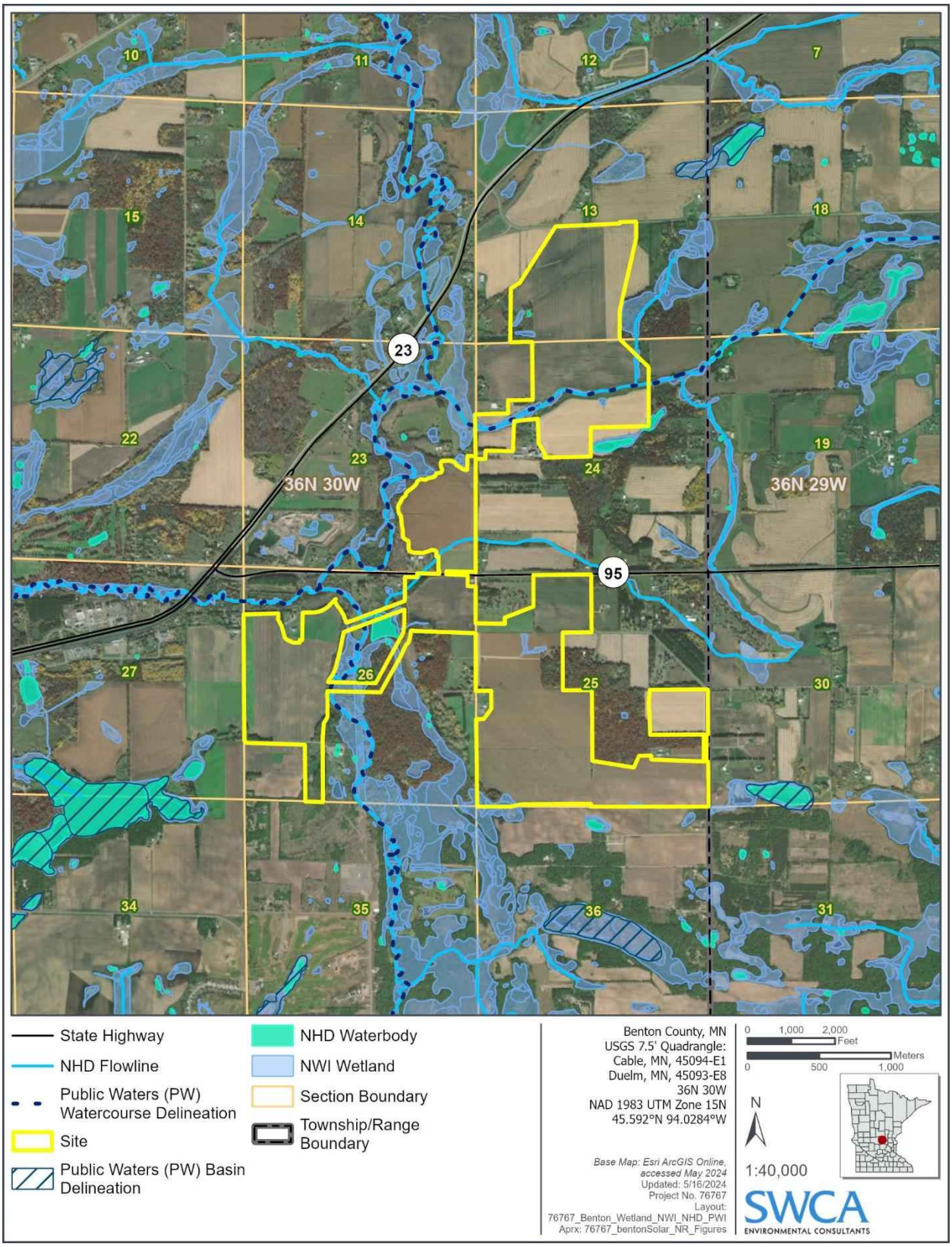

Figure A-2. National Hydrography Dataset, National Wetlands Inventory, and Public Waters Inventory data for the Site.

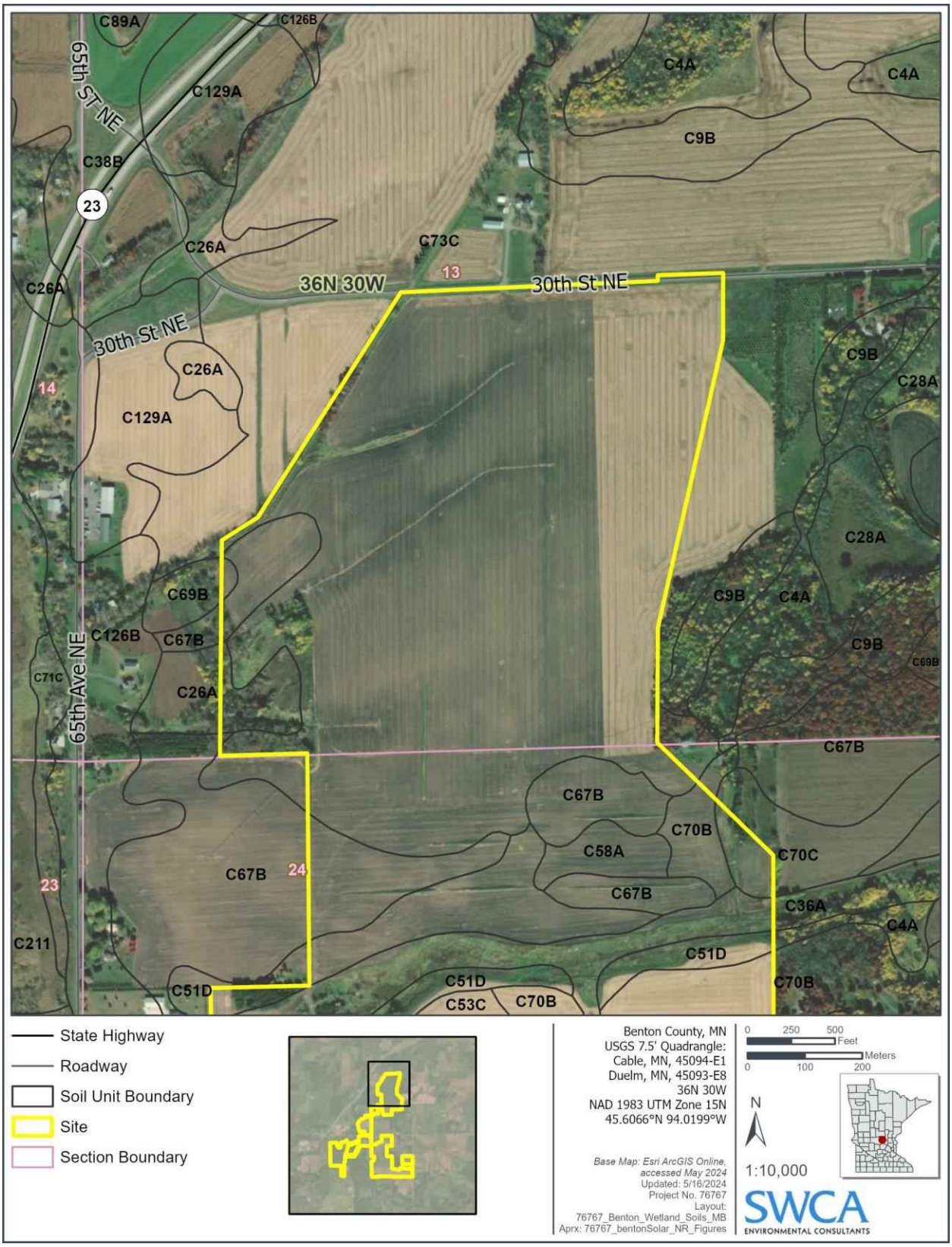

Figure A-3. Soil survey map of the Site (map 1 of 6).

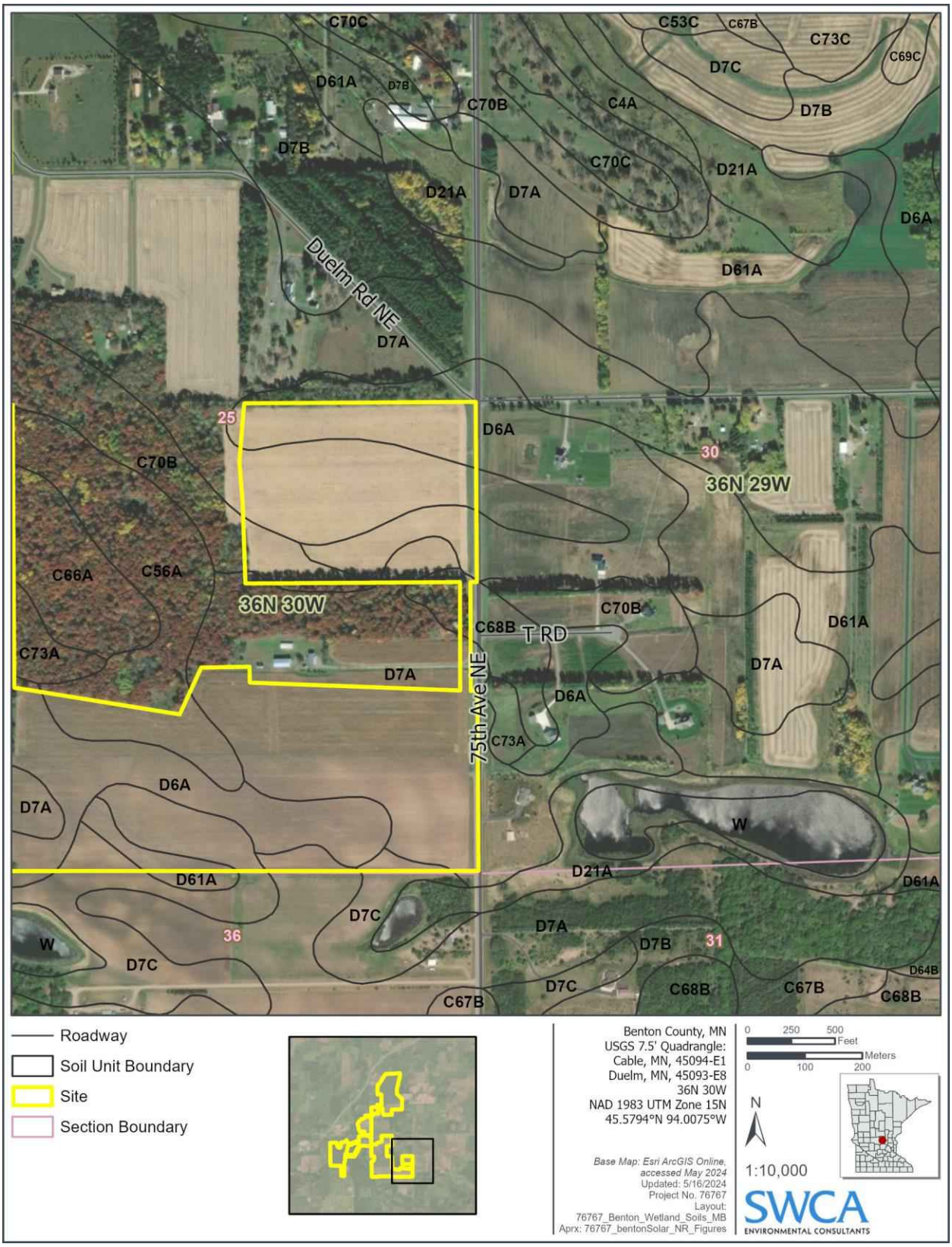

Figure A-4. Soil survey map of the Site (map 2 of 6).

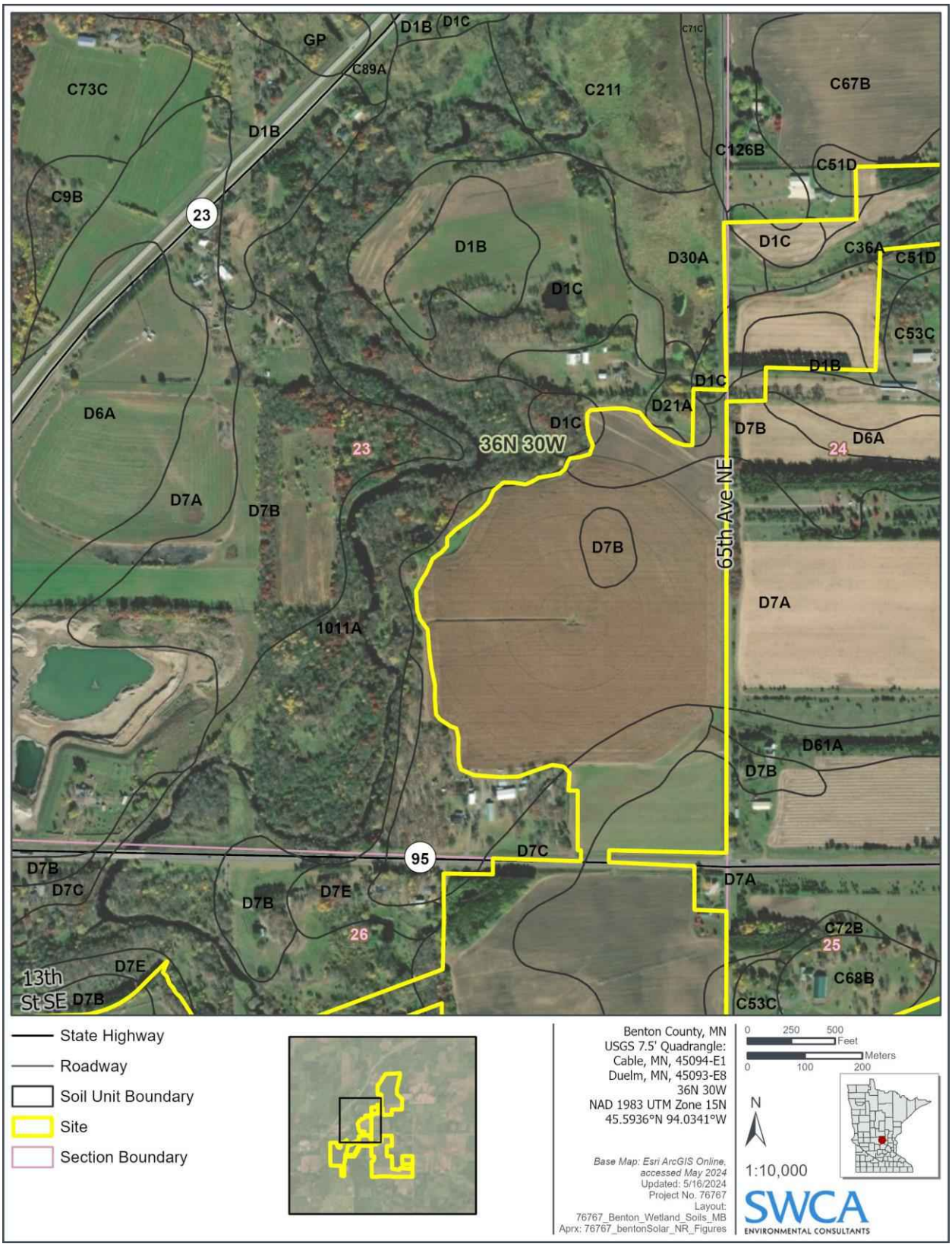

Figure A-5. Soil survey map of the Site (map 3 of 6).

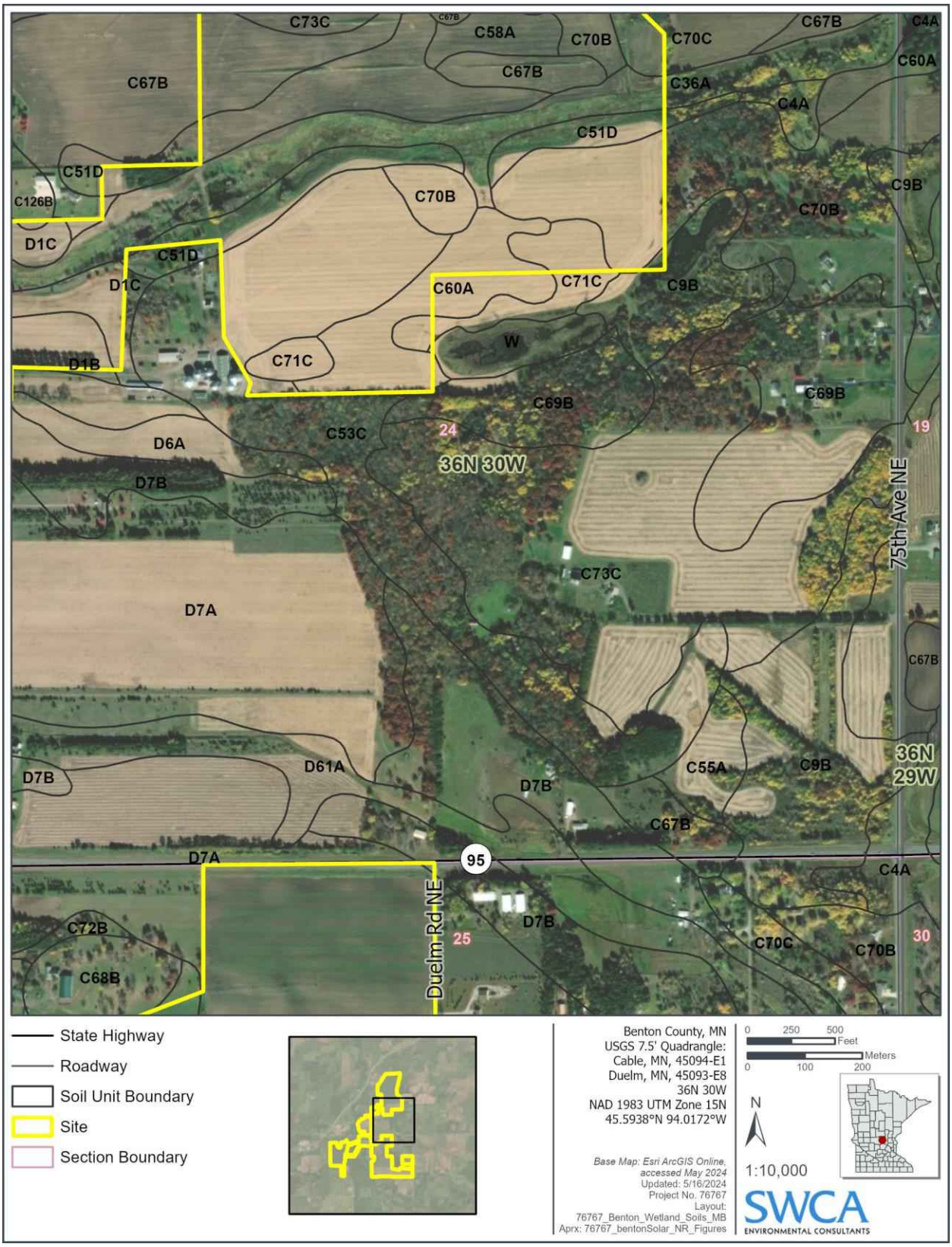

Figure A-6. Soil survey map of the Site (map 4 of 6).

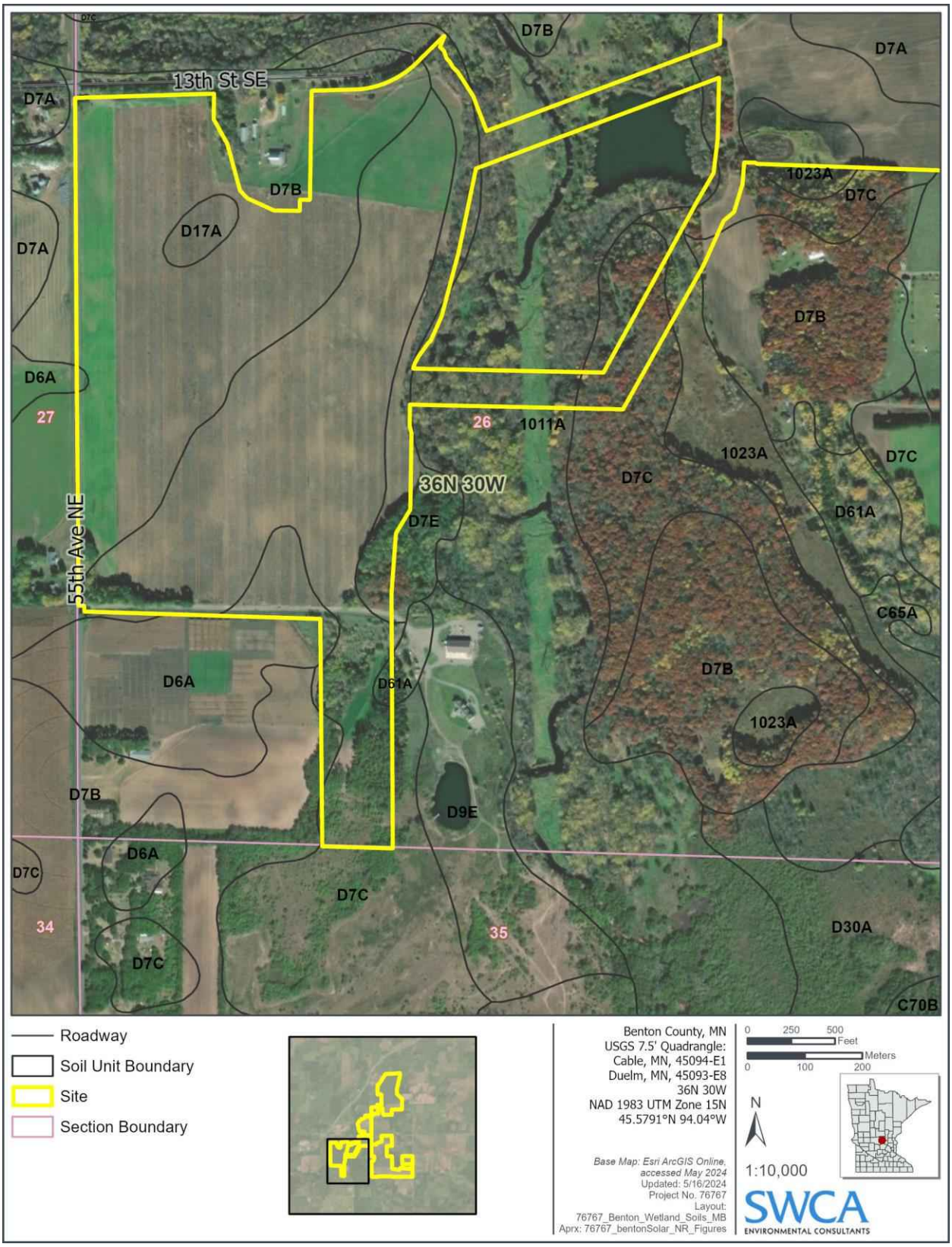

Figure A-7. Soil survey map of the Site (map 5 of 6).

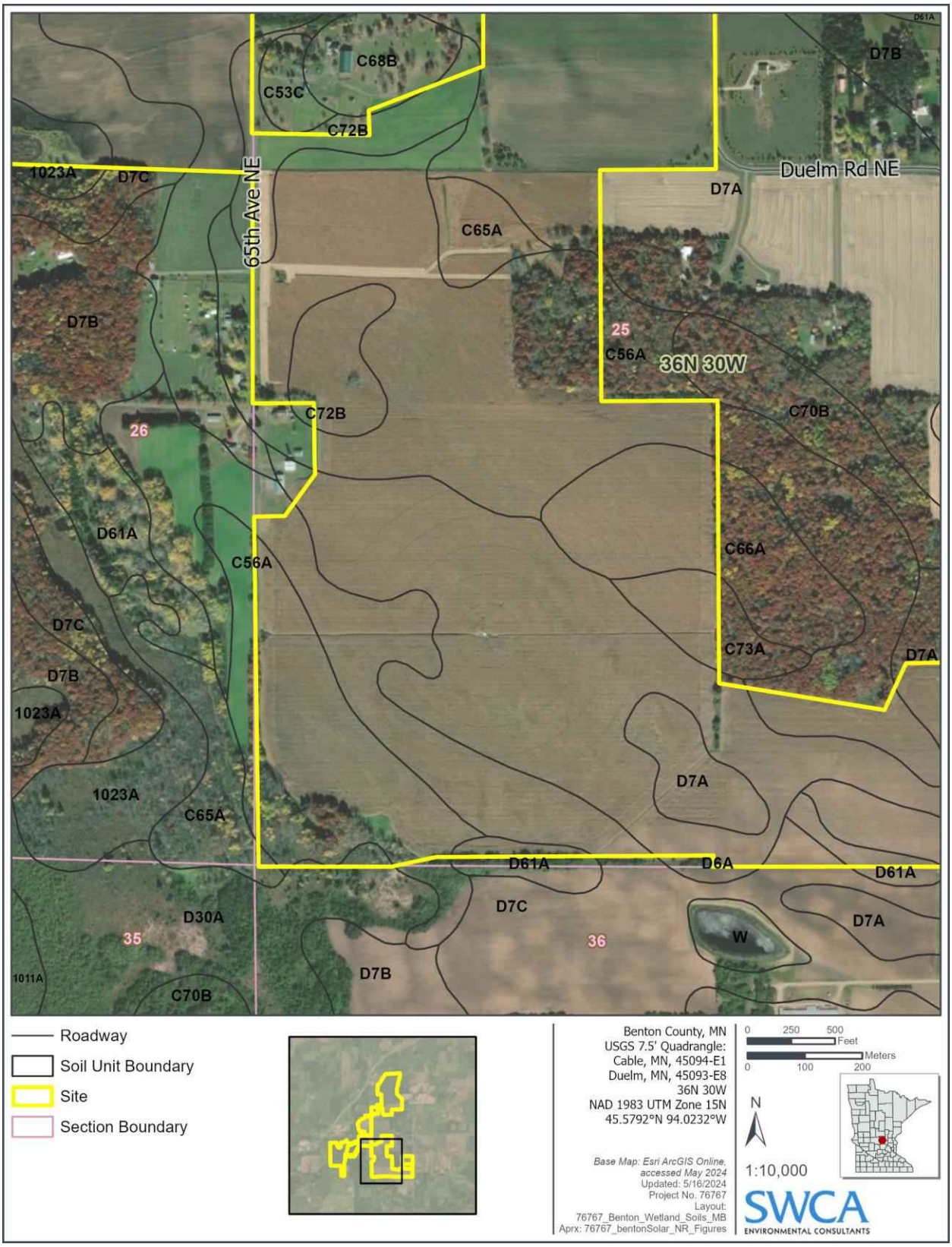

Figure A-8. Soil survey map of the Site (map 6 of 6).

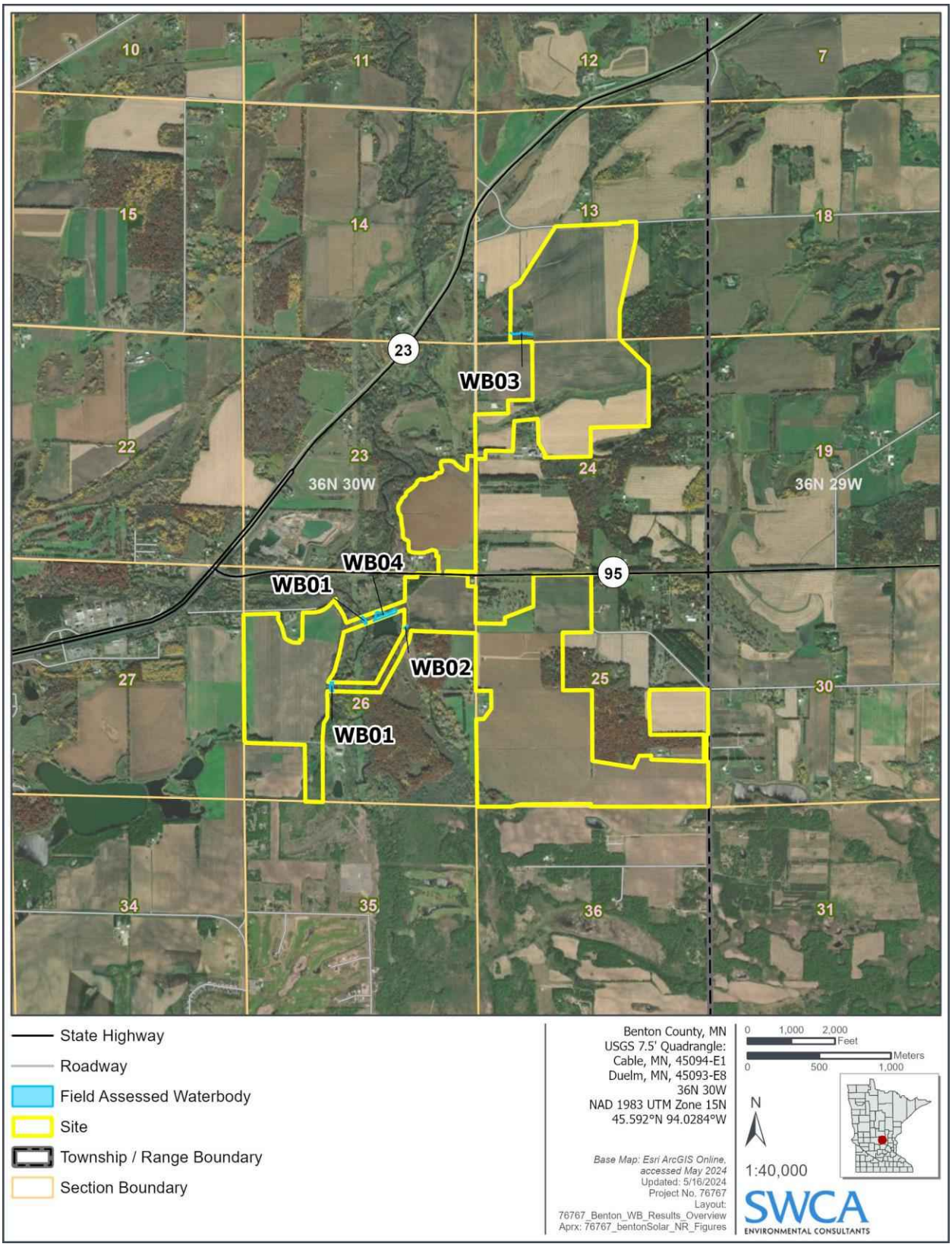

Figure A-9. Waterbodies delineated within the Site.

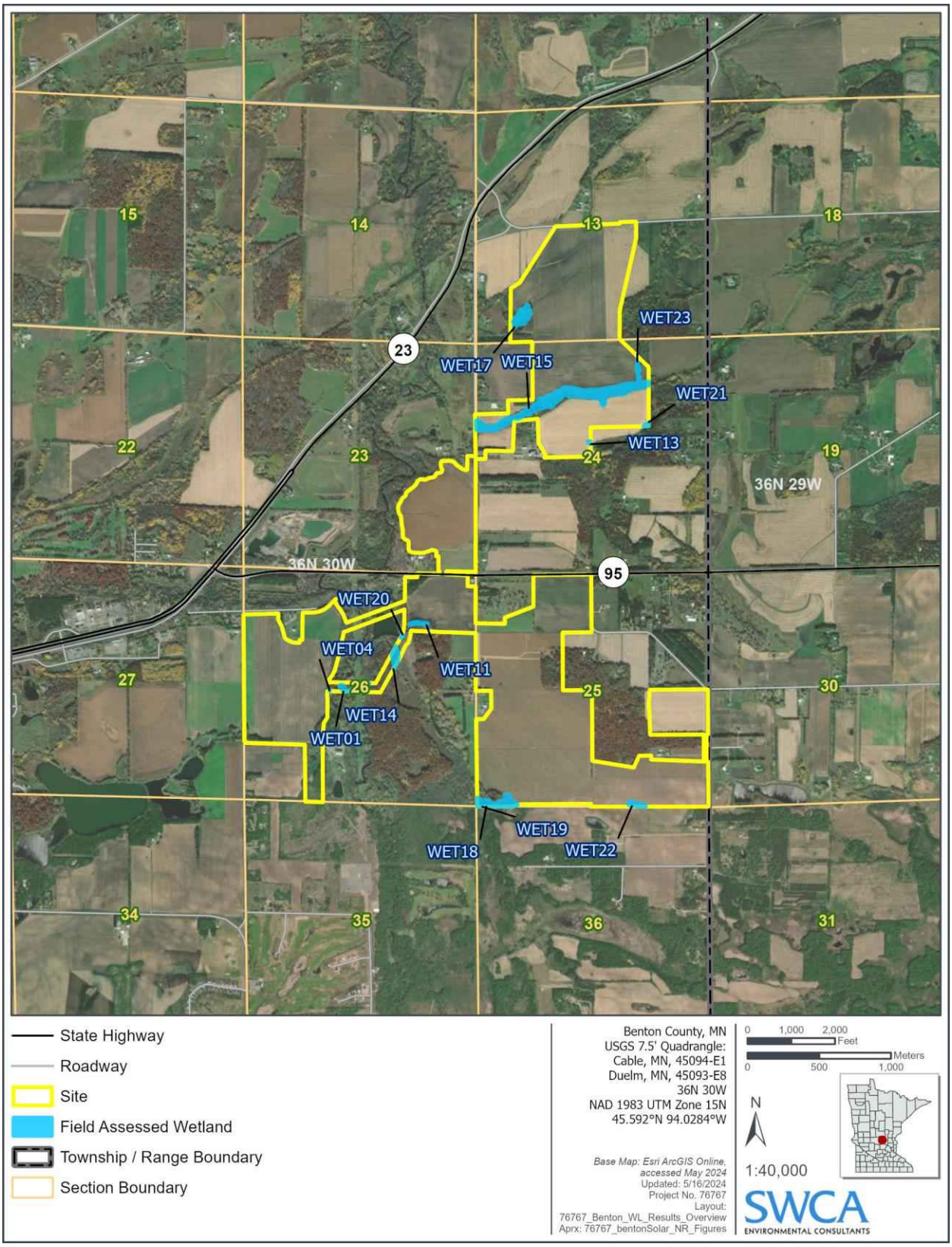

Figure A-10. Wetlands delineated within the Site.

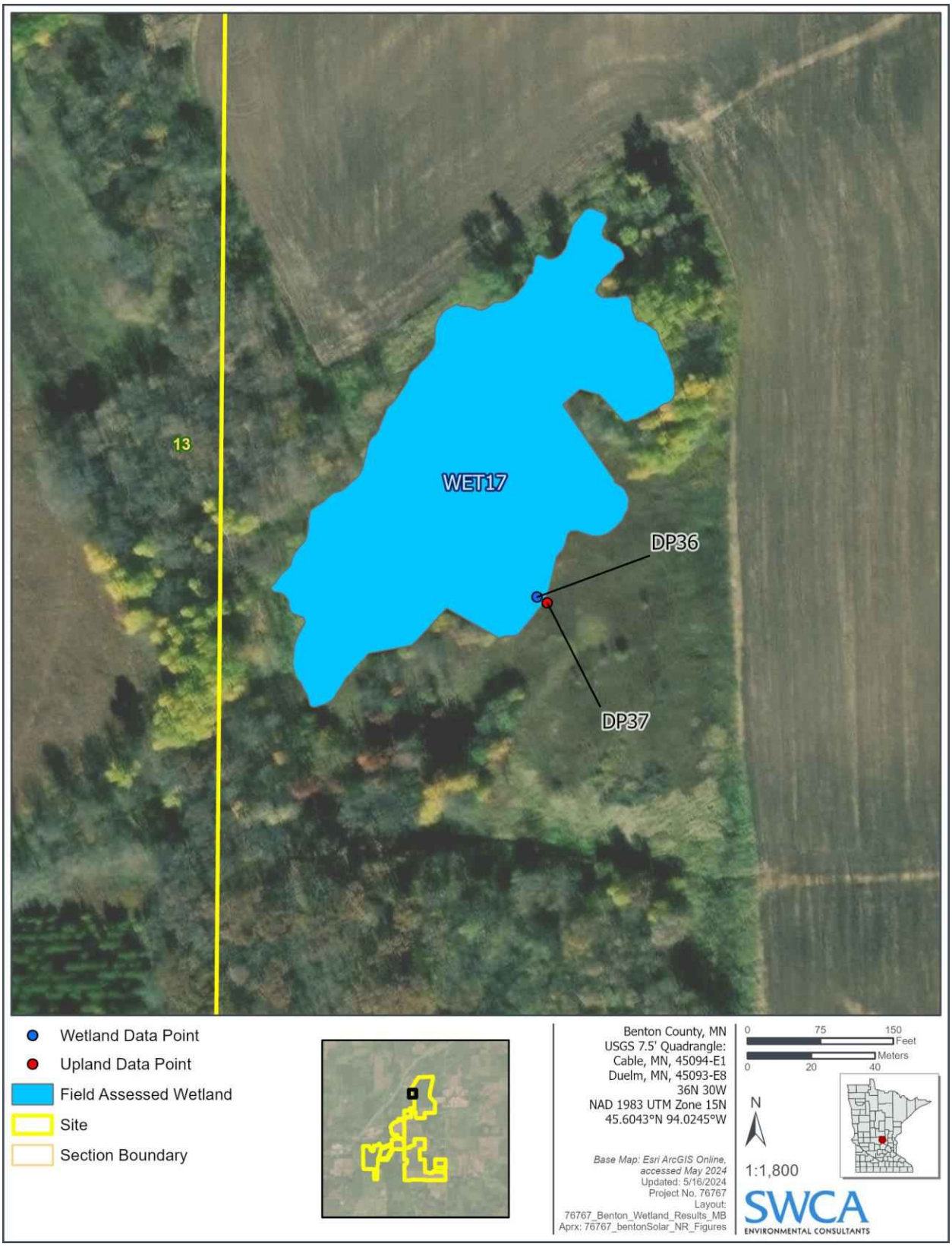

Figure A-11. Overview of delineated wetlands (map 1 of 16).

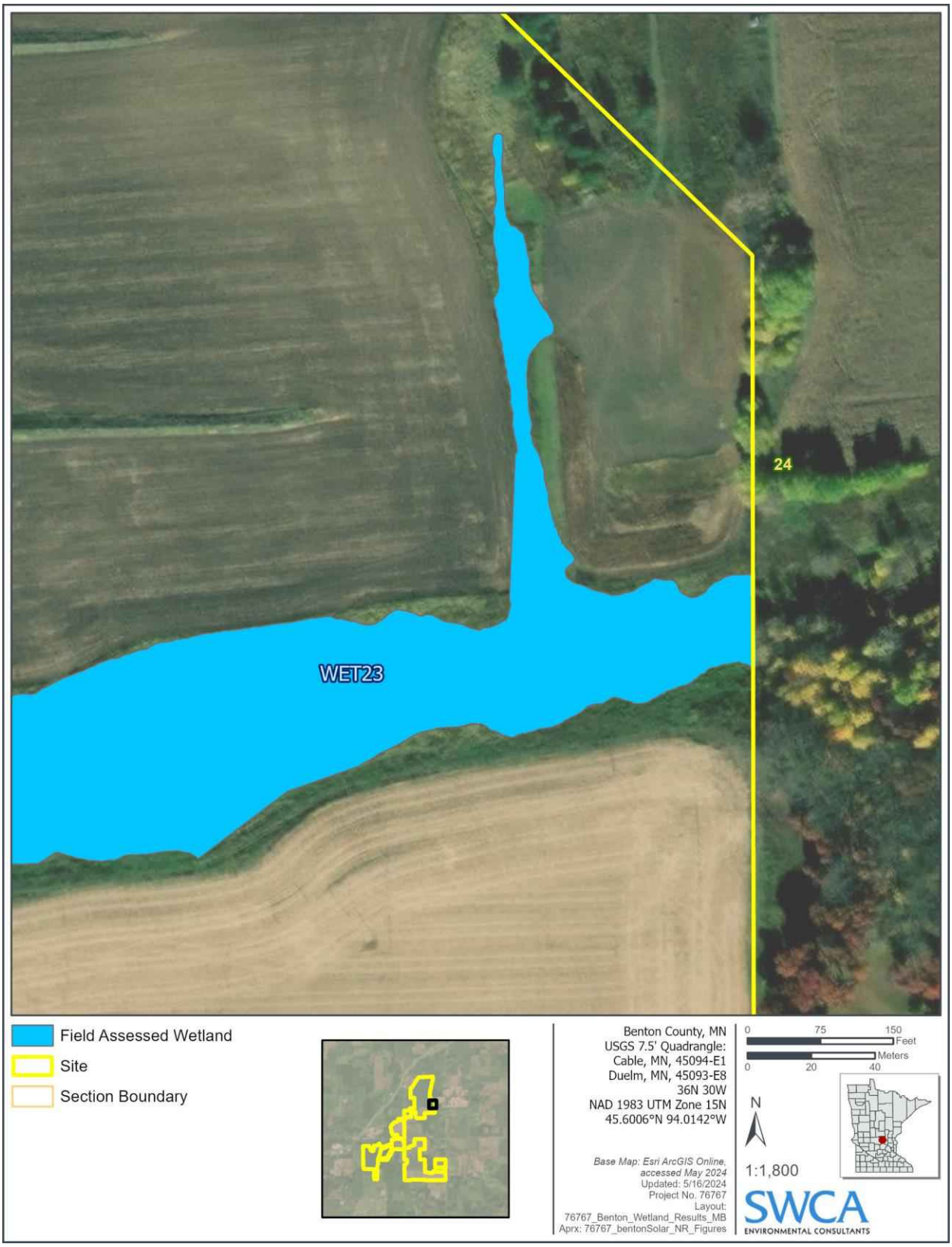

Figure A-12. Overview of delineated wetlands (map 2 of 16).

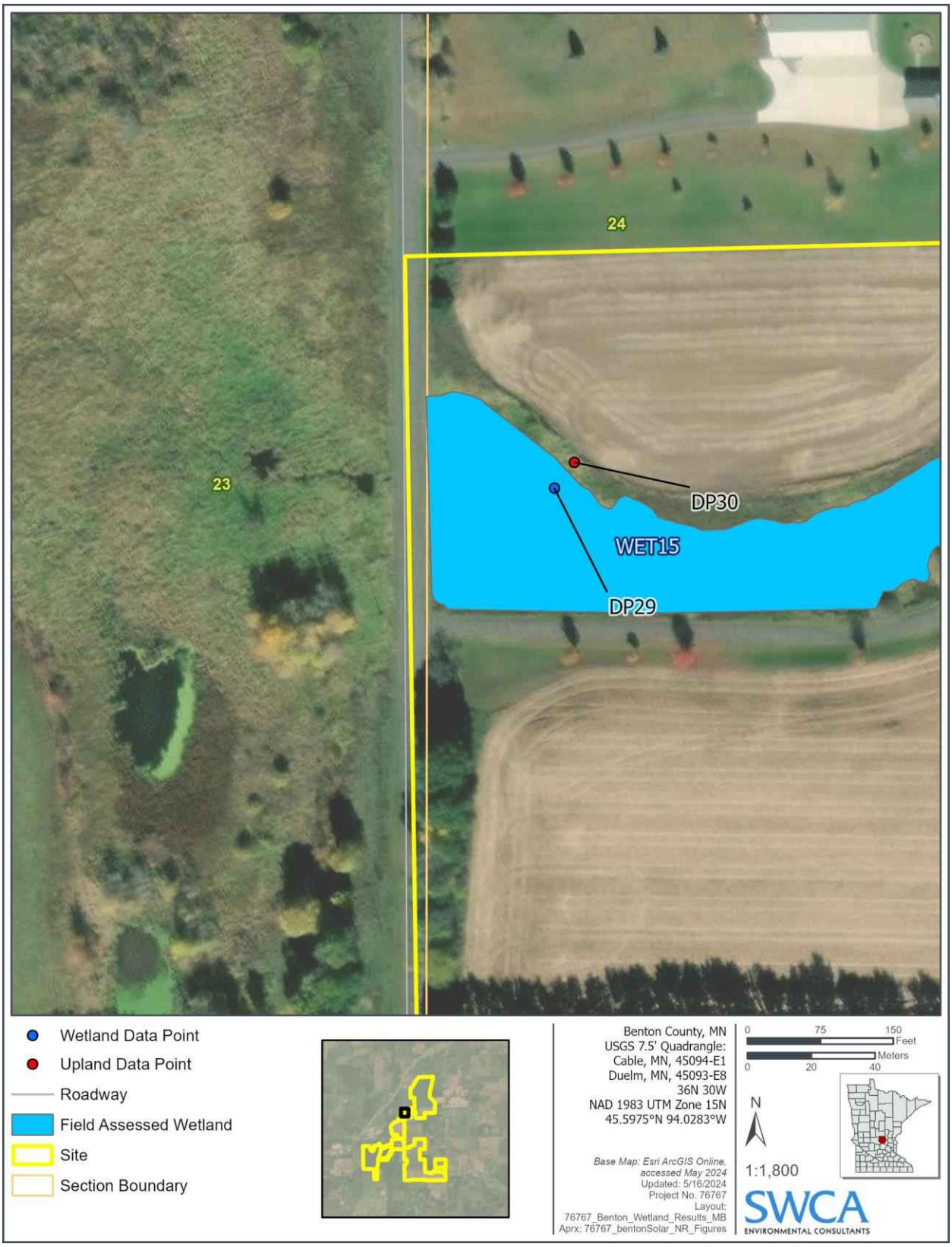

Figure A-13. Overview of delineated wetlands (map 3 of 16).

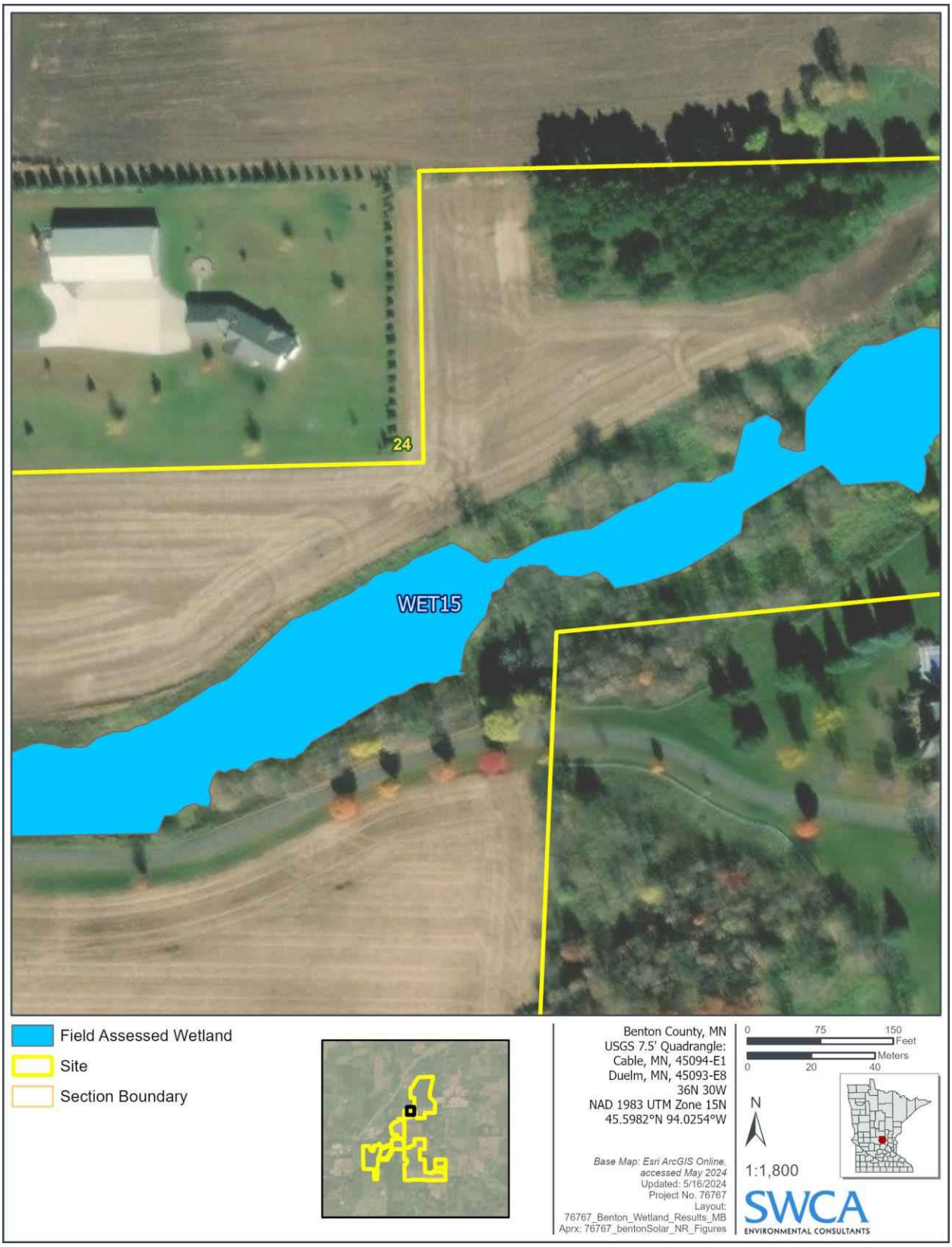

Figure A-14. Overview of delineated wetlands (map 4 of 16).

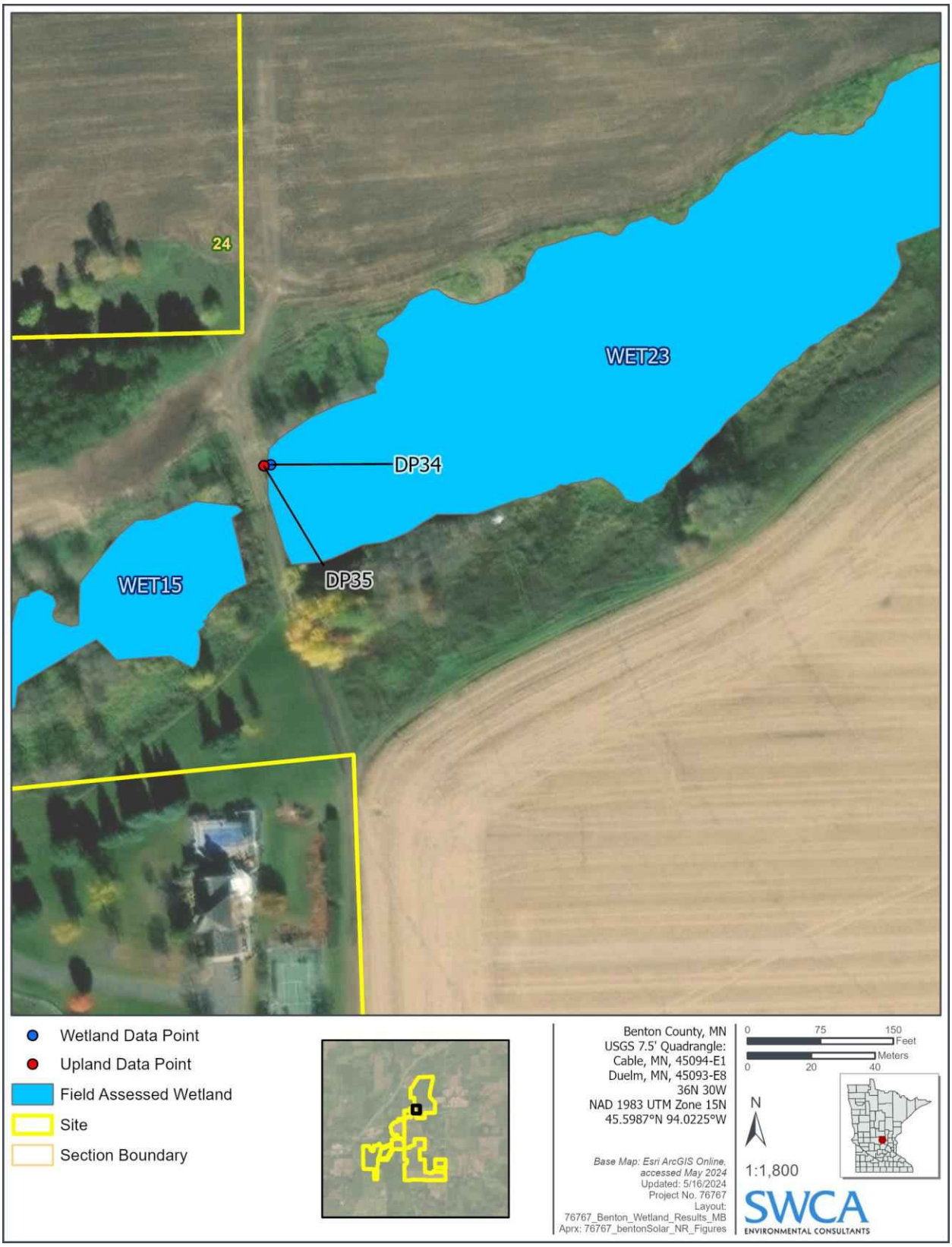

Figure A-15. Overview of delineated wetlands (map 5 of 16).

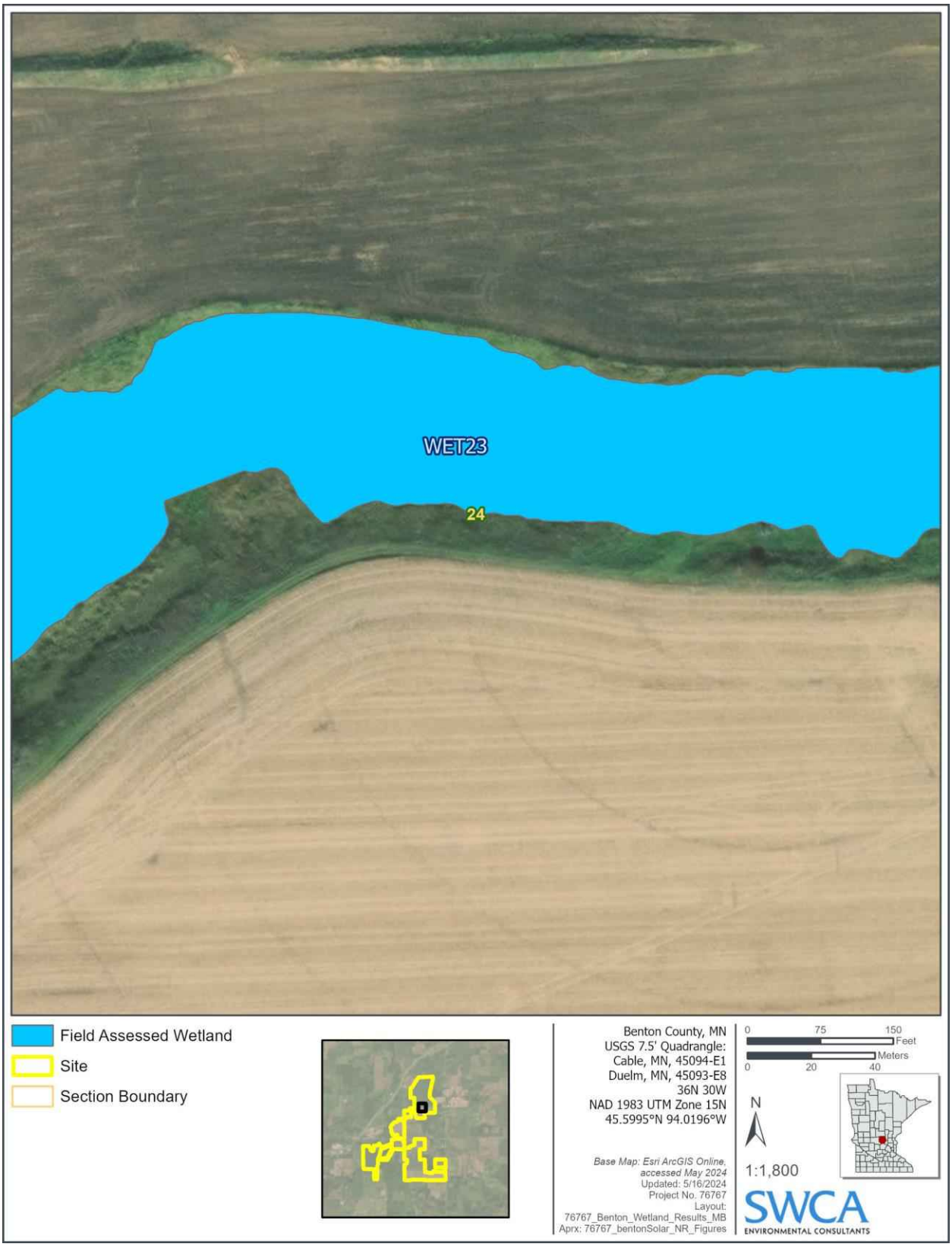

Figure A-16. Overview of delineated wetlands (map 6 of 16).

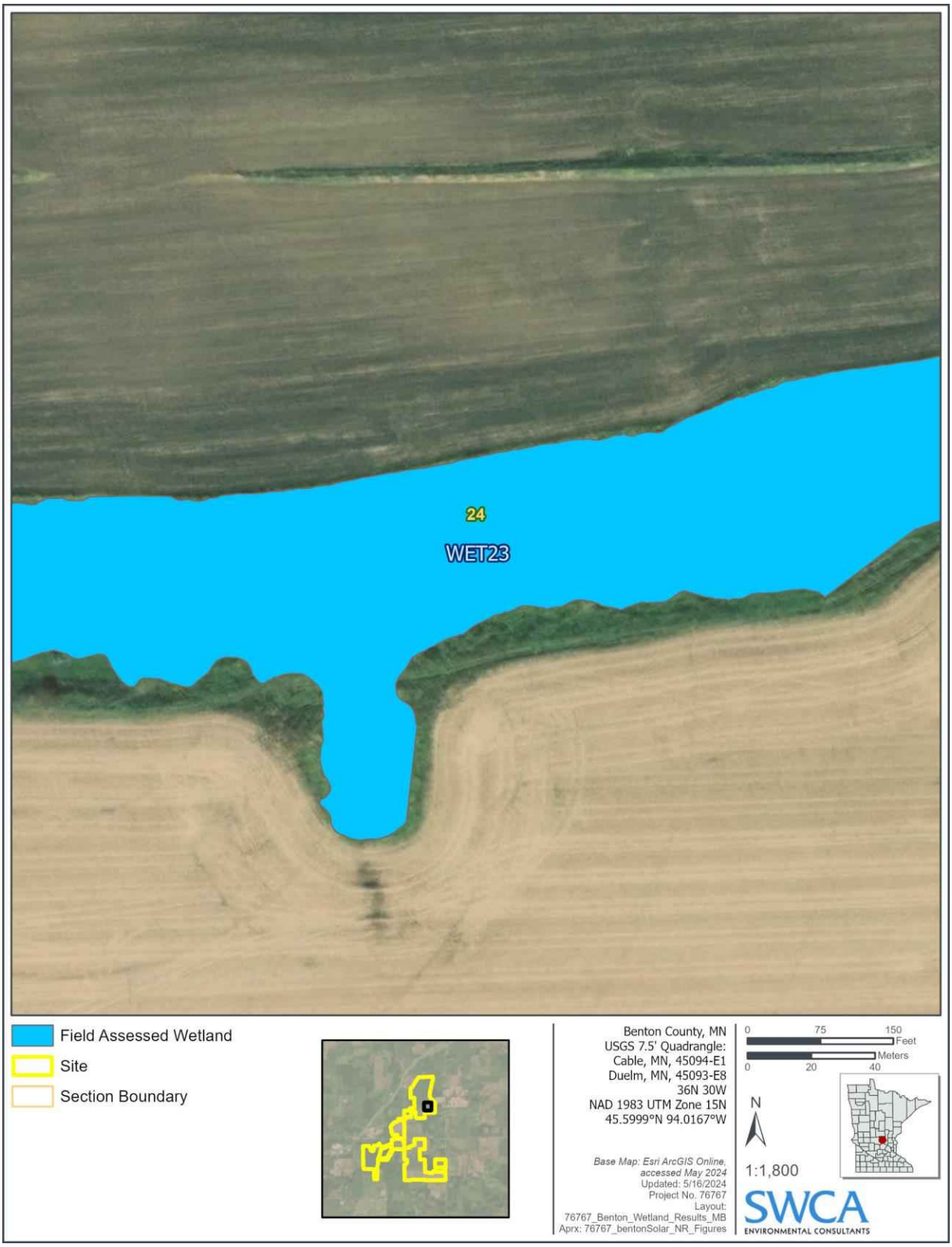

Figure A-17. Overview of delineated wetlands (map 7 of 16).

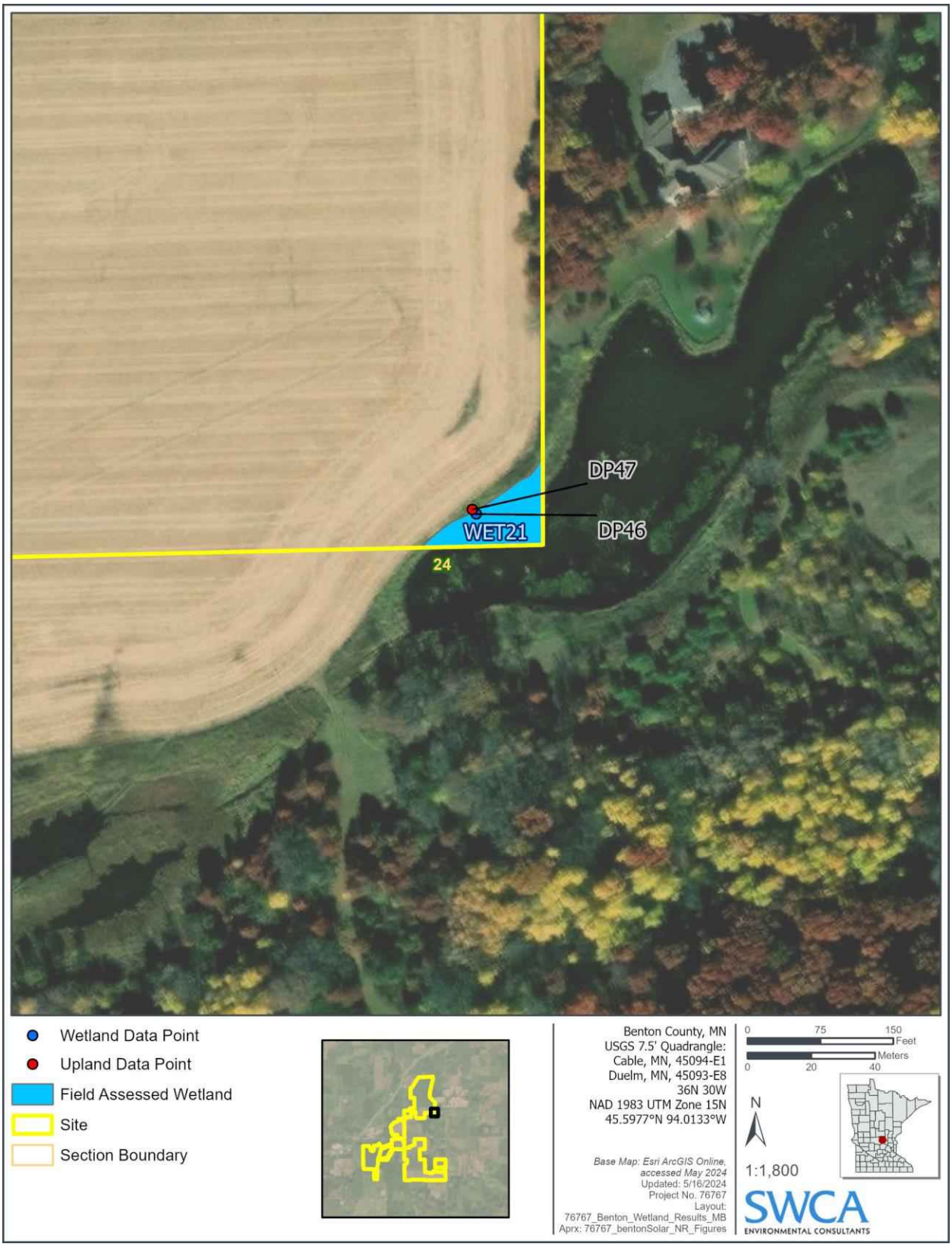

Figure A-18. Overview of delineated wetlands (map 8 of 16).

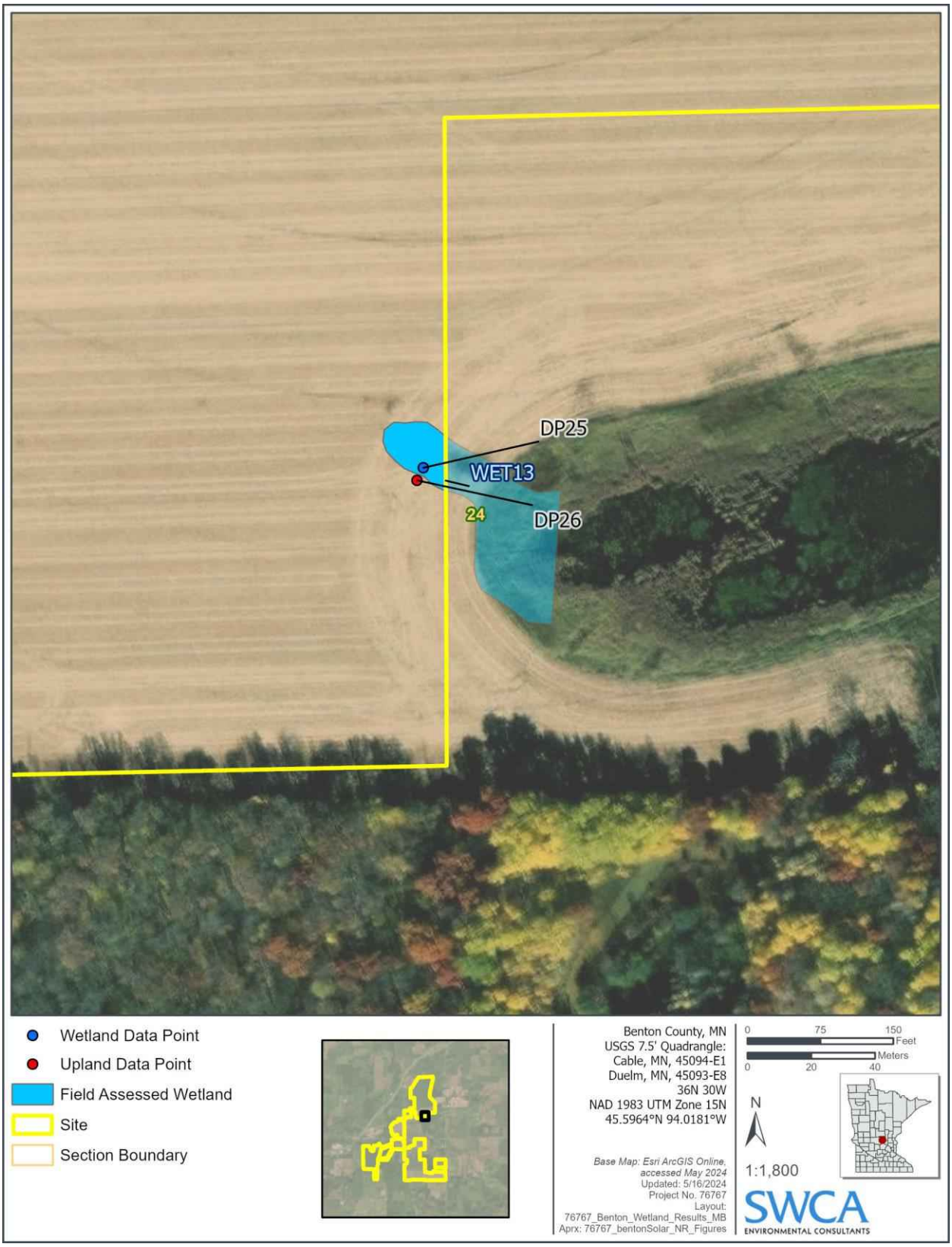

Figure A-19. Overview of delineated wetlands (map 9 of 16).

Figure A-20. Overview of delineated wetlands (map 10 of 16).

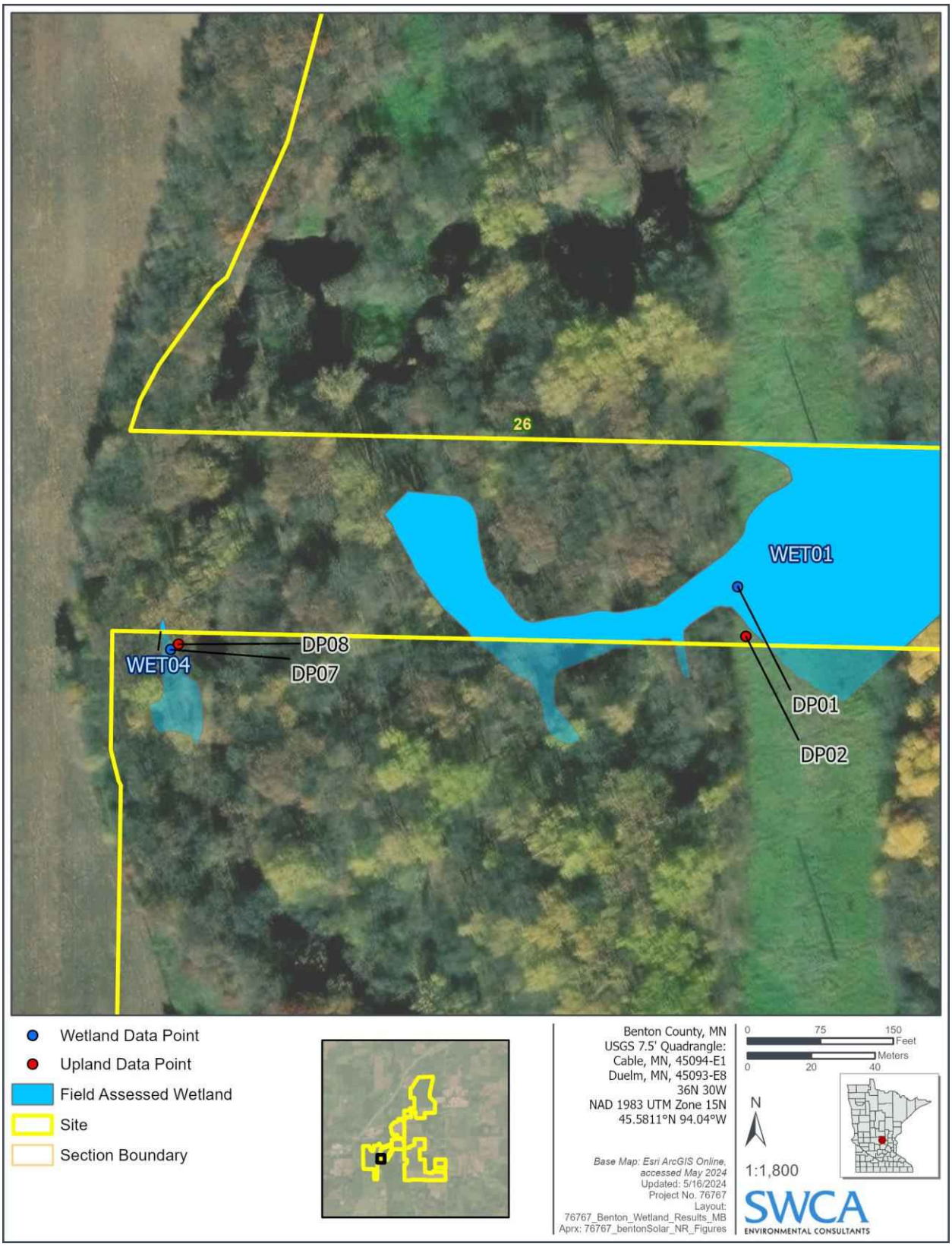

Figure A-21. Overview of delineated wetlands (map 11 of 16).

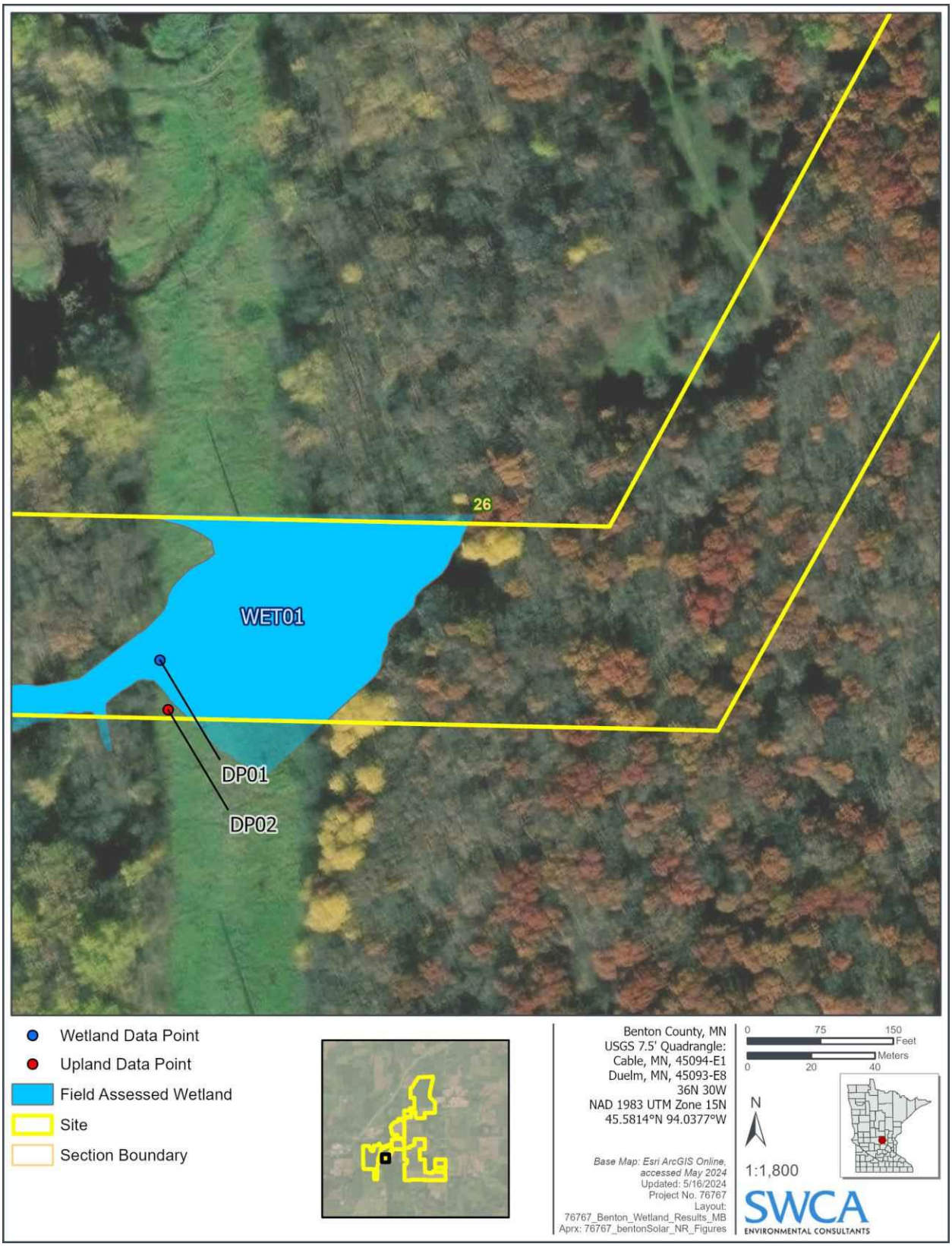

Figure A-22. Overview of delineated wetlands (map 12 of 16).

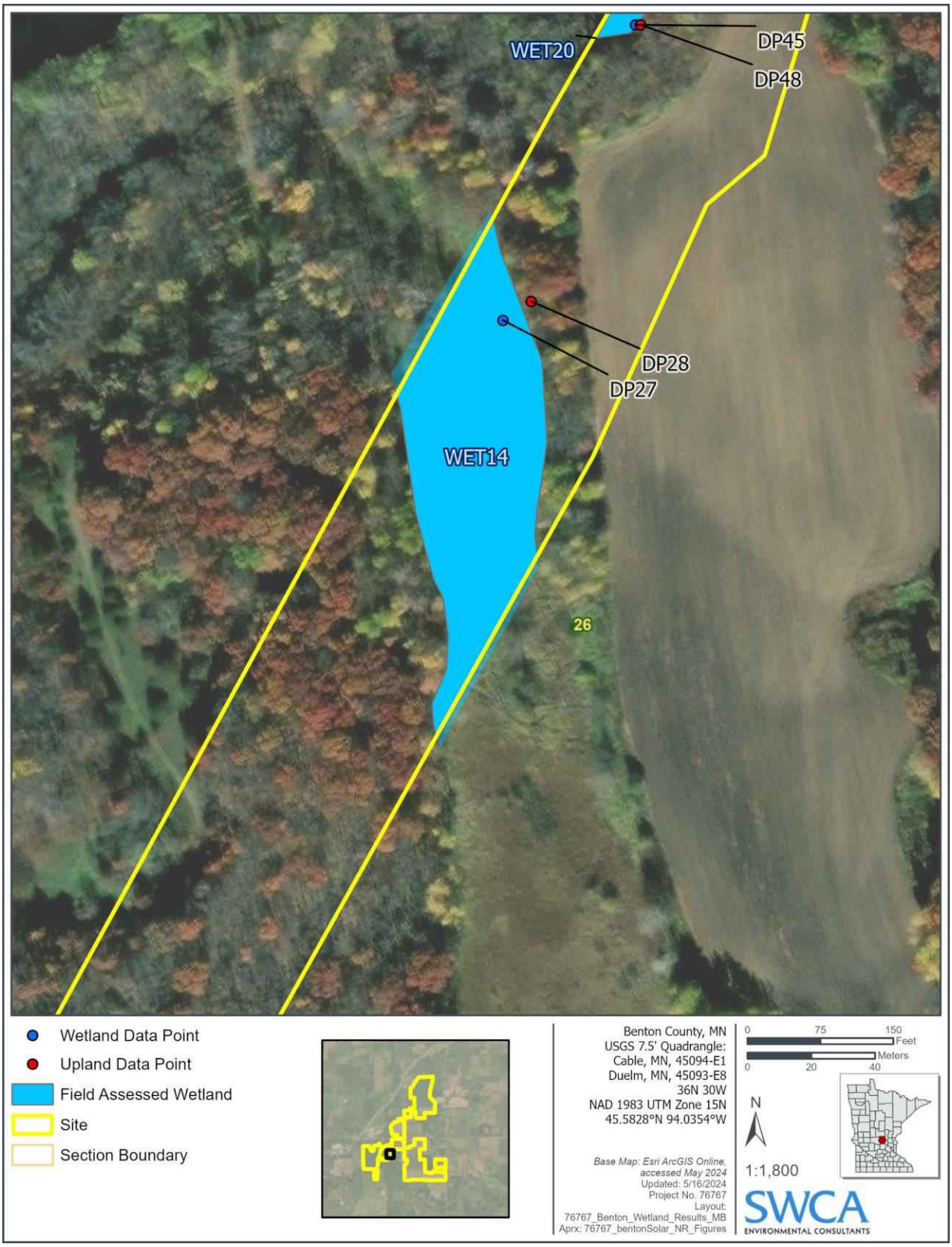

Figure A-23. Overview of delineated wetlands (map 13 of 16).

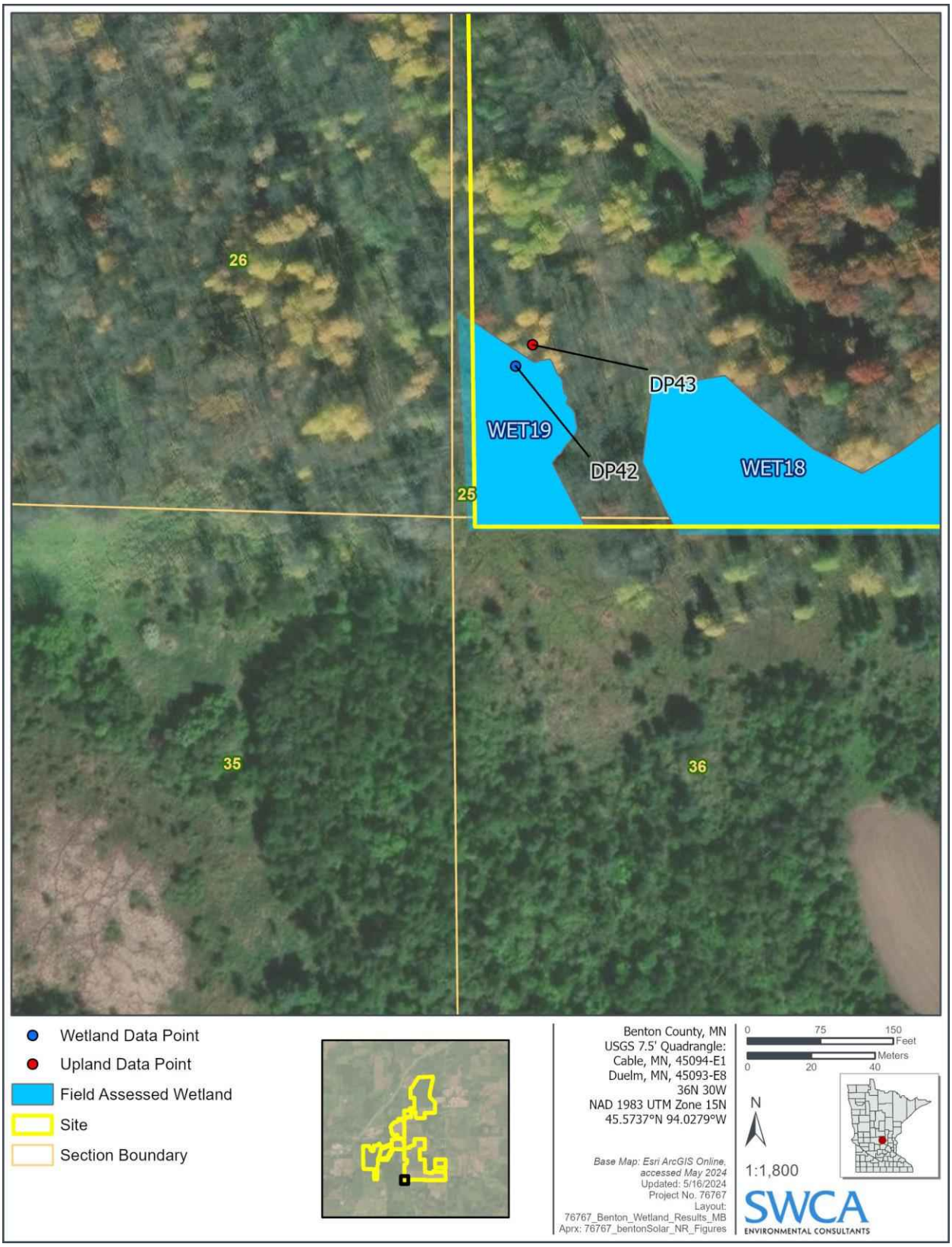

Figure A-24. Overview of delineated wetlands (map 14 of 16).

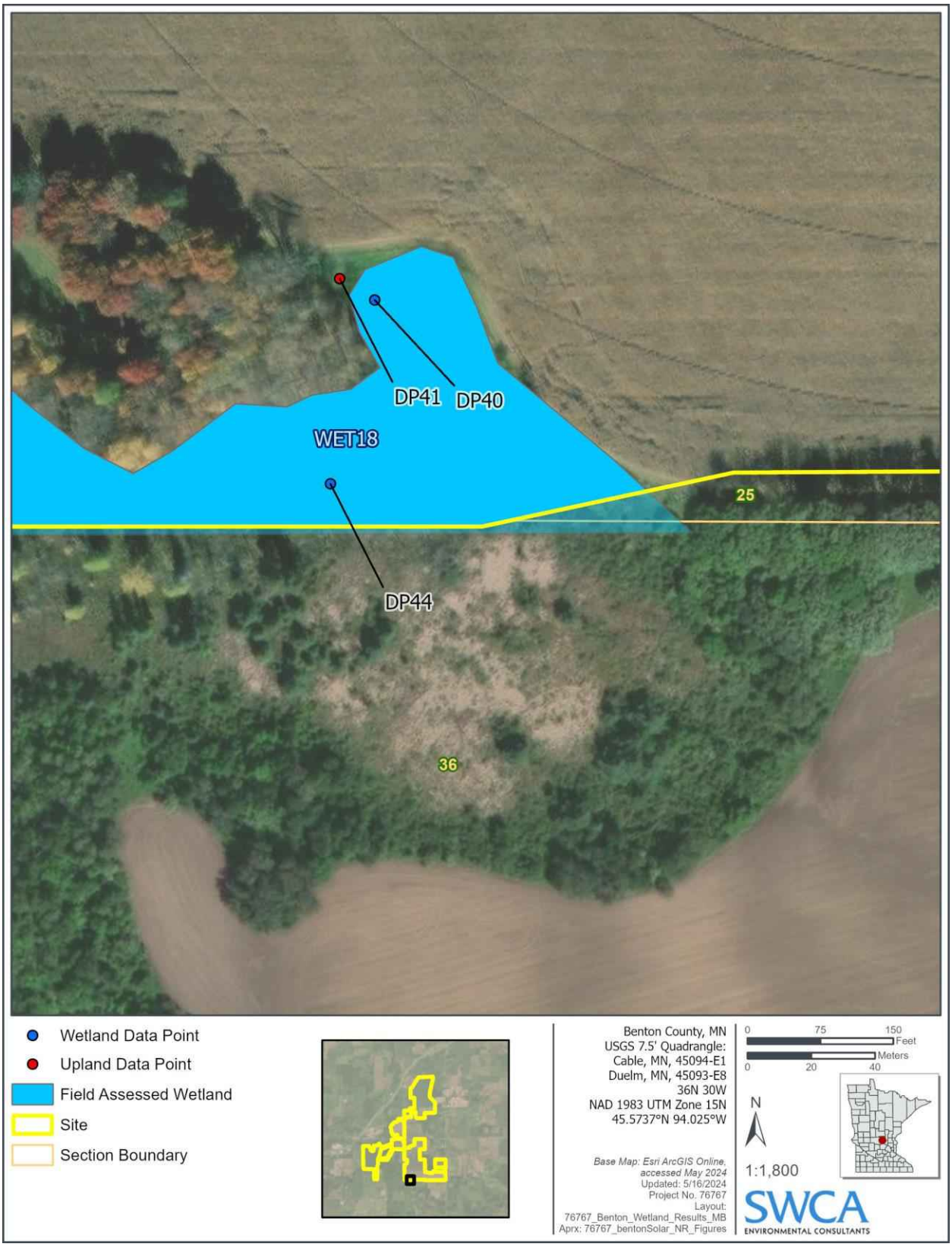

Figure A-25. Overview of delineated wetlands (map 15 of 16).

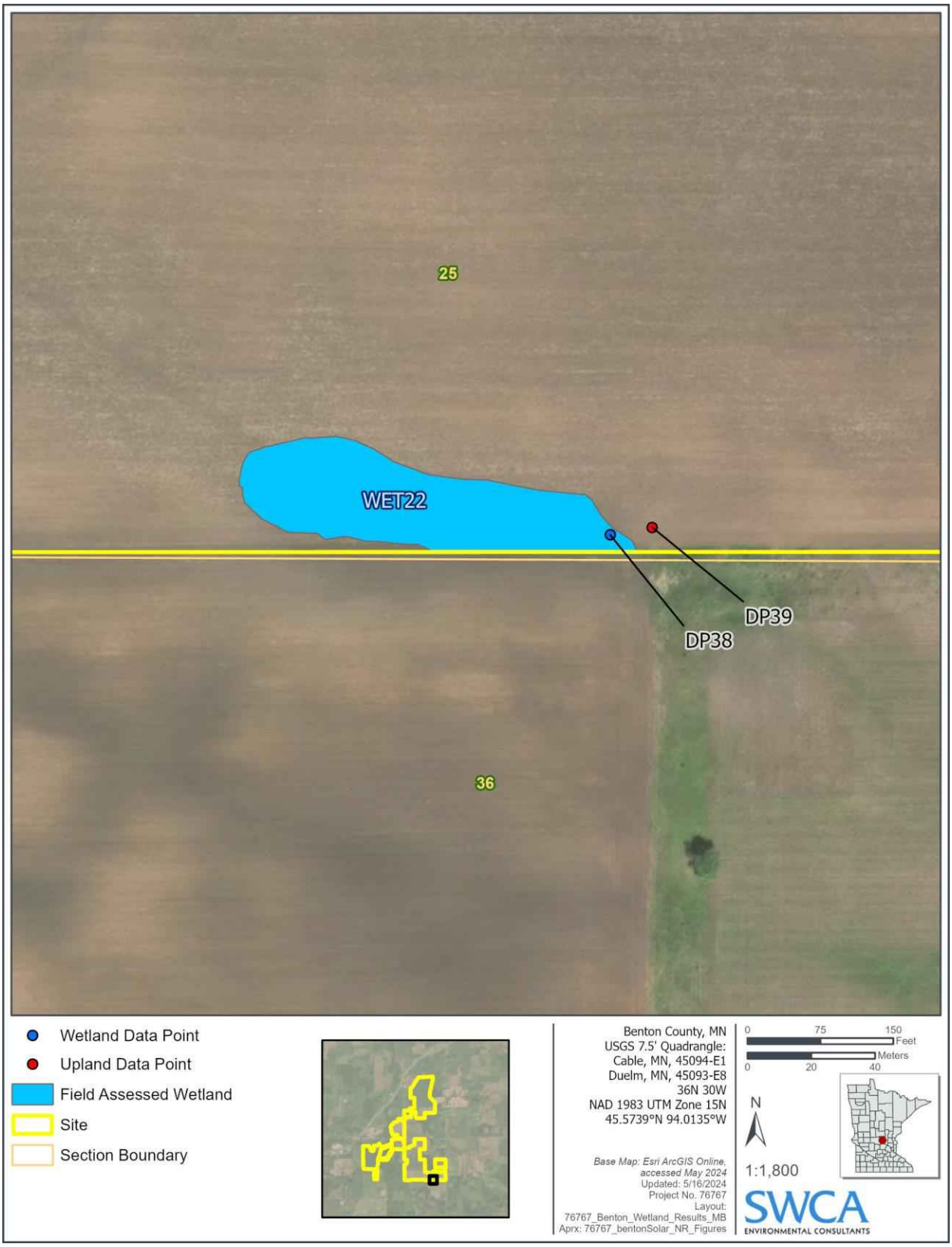

Figure A-26. Overview of delineated wetlands (map 16 of 16).

APPENDIX B

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 10/24/2022

Applicant/Owner: NextEra State: MN Sampling Point: DP01

Investigator(s): Cole Reagan Section, Township, Range: Sec. 26 T36N R30W

Landform (hillslope, terrace, etc.): Flood Plain Local relief (concave, convex, none): None Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.5796 Long: -94.0389 Datum:

Soil Map Unit Name: 1011A - Fordum-Winterfield complex, 0 to 2 percent slopes, frequently flooded NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes:	X	No:		
Wetland Hydrology Present?	Yes:	X	No:	If yes, optional Wetland Site ID:	WET01

Remarks: (Explain alternative procedures here or in a separate report.) PEMA wetland within floodplain of Elk River.

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP01

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Phalaris arundinacea	95	Y	FACW
2. Schoenoplectus tabernaemontani	2	N	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	97	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	2	x 1 =	2	
FACW species	95	x 2 =	190	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	97	(A)	192	(B)

Prevalence Index = B/A= 1.98

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-16	10YR 2/1	100		0			Clay Loam	
16-24	10YR 5/2	95	10YR 4/6	5	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
X Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 10/24/2022

Applicant/Owner: NextEra State: MN Sampling Point: DP02

Investigator(s): Cole Reagan Section, Township, Range: Sec. 26 T36N R30W

Landform (hillslope, terrace, etc.): Flood Plain Local relief (concave, convex, none): None Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.5796 Long: -94.039 Datum:

Soil Map Unit Name: 1011A - Fordum-Winterfield complex, 0 to 2 percent slopes, frequently flooded NWI classification: No

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:		**Is the Sampled Area within a Wetland?** **Yes** ____ **No** **X**
Hydric Soil Present?	Yes:		No:	X	
Wetland Hydrology Present?	Yes:		No:	X	If yes, optional Wetland Site ID: WET01

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP02

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Phalaris arundinacea	95	Y	FACW
2. Cirsium arvense	5	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	95	x 2 =	190	
FAC species	0	x 3 =	0	
FACU species	5	x 4 =	20	
UPL species	0	x 5 =	0	
Column Totals:	100	(A)	210	(B)
Prevalence Index = B/A=			2.10	

Hydrophytic Vegetation Indicators:

___ 1 - Rapid test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/2	100		0			Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 10/24/2022

Applicant/Owner: NextEra State: MN Sampling Point: DP07

Investigator(s): Cole Reagan Section, Township, Range: Sec. 26 T36N R30W

Landform (hillslope, terrace, etc.): Flood Plain Local relief (concave, convex, none): None Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.5807 Long: -94.0412 Datum:

Soil Map Unit Name: 1011A - Fordum-Winterfield complex, 0 to 2 percent slopes, frequently flooded NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes:	X	No:		
Wetland Hydrology Present?	Yes:	X	No:	If yes, optional Wetland Site ID:	WET04

Remarks: (Explain alternative procedures here or in a separate report.) PEMA wetland within floodplain of Elk River.

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP07

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Urtica dioica	2	N	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	2	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	2	x 3 =	6
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	2 (A)		6 (B)

Prevalence Index = B/A= 3.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.) Sparsely vegetated concave surface within floodplain

SOIL

Sampling Point: DP07

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/1	90	10YR 5/6	10	C	MP	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 10/24/2022

Applicant/Owner: NextEra State: MN Sampling Point: DP08

Investigator(s): Cole Reagan Section, Township, Range: Sec. 26 T36N R30W

Landform (hillslope, terrace, etc.): Flood Plain Local relief (concave, convex, none): None Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.5808 Long: -94.0413 Datum:

Soil Map Unit Name: 1011A - Fordum-Winterfield complex, 0 to 2 percent slopes, frequently flooded NWI classification: No

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:		No:	X
Hydric Soil Present?	Yes:		No:	X
Wetland Hydrology Present?	Yes:		No:	X

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

If yes, optional Wetland Site ID: WET04

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):	
Water Table Present?	Yes ____	No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches):	

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP08

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharinum	40	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	40	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Glechoma hederacea	40	Y	FACU
2. Urtica dioica	20	Y	FAC
3. Solidago altissima	20	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	40	x 2 =	80	
FAC species	20	x 3 =	60	
FACU species	60	x 4 =	240	
UPL species	0	x 5 =	0	
Column Totals:	120	(A)	380	(B)
Prevalence Index = B/A=			3.17	

Hydrophytic Vegetation Indicators:

___ 1 - Rapid test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP08

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/2	100		0			Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 10/24/2022

Applicant/Owner: NextEra State: MN Sampling Point: DP21

Investigator(s): Cole Reagan Section, Township, Range: Sec. 26 T36N R30W

Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.5852 Long: -94.0335 Datum:

Soil Map Unit Name: 1023A - Seelyeville and Markey soils, ponded, 0 to 1 percent slopes NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes:	X	No:		
Wetland Hydrology Present?	Yes:	X	No:	If yes, optional Wetland Site ID:	WET11

Remarks: (Explain alternative procedures here or in a separate report.) PEMA drainage wetland next to cabbage field

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):		
Water Table Present?	Yes ____	No X	Depth (inches):	0	
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches):	0	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP21

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Echinochloa crus-galli	10	Y	FAC
2. Typha latifolia	10	Y	OBL
3. Eleocharis palustris	10	Y	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	30 (A)		50 (B)

Prevalence Index = B/A= 1.67

Hydrophytic Vegetation Indicators:

___ 1 - Rapid test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP21

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-16	10YR 2/1	100		0			Clay	
16-24	10YR 4/2	98	10YR 4/6	2	C	M	Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
_X_ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _X_ **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 10/24/2022

Applicant/Owner: NextEra State: MN Sampling Point: DP22

Investigator(s): Cole Reagan Section, Township, Range: Sec. 26 T36N R30W

Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): Convex Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.5852 Long: -94.0336 Datum:

Soil Map Unit Name: 1023A - Seelyeville and Markey soils, ponded, 0 to 1 percent slopes NWI classification: No

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:		No:	X
Hydric Soil Present?	Yes:		No:	X
Wetland Hydrology Present?	Yes:		No:	X

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

If yes, optional Wetland Site ID: WET11

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):	
Water Table Present?	Yes ____	No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches):	

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP22

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Setaria viridis	90	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	90	x 5 =	450	
Column Totals:	90	(A)	450	(B)
Prevalence Index = B/A=			5.00	

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP22

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/2	100		0			Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 10/25/2022

Applicant/Owner: NextEra State: MN Sampling Point: DP25

Investigator(s): Cole Reagan Section, Township, Range: Sec. 24 T36N R30W

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): None Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.5965 Long: -94.0182 Datum:

Soil Map Unit Name: C71C - Milaca-Mora complex, 1 to 7 percent slopes, stony NWI classification: Pf

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No X

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes:	X	No:		
Wetland Hydrology Present?	Yes:	X	No:	If yes, optional Wetland Site ID:	WET13

Remarks: (Explain alternative procedures here or in a separate report.) Pf (palustrine farmed) wetland. Absence of native vegetation and cultivate crops dominate.

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No	X	Depth (inches):	
Water Table Present?	Yes	No	X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	No	X	Depth (inches):	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP25

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Glycine max	80	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	80	x 5 =	400	
Column Totals:	80	(A)	400	(B)
Prevalence Index = B/A=			5.00	

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.) Agricultural wetland. Vegetation is planted

SOIL

Sampling Point: DP25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/1	98	10YR 4/6	2	C	MP	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 10/25/2022

Applicant/Owner: NextEra State: MN Sampling Point: DP26

Investigator(s): Cole Reagan Section, Township, Range: Sec. 24 T36N R30W

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.5965 Long: -94.0183 Datum: _____

Soil Map Unit Name: C71C - Milaca-Mora complex, 1 to 7 percent slopes, stony NWI classification: No

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes: _____	No: X	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** **X**
Hydric Soil Present?	Yes: _____	No: X		
Wetland Hydrology Present?	Yes: _____	No: X	If yes, optional Wetland Site ID:	WET13

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):	_____
Water Table Present?	Yes ____	No X	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches):	_____

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP26

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Glycine max	80	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	80	x 5 =	400	
Column Totals:	80	(A)	400	(B)
Prevalence Index = B/A=			5.00	

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP26

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/2	100		0			Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 06/06/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP27

Investigator(s): Cole Reagan Section, Township, Range: Sec. 26 T36N R30W

Landform (hillslope, terrace, etc.): Flood Plain Local relief (concave, convex, none): None Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.583393 Long: -94.035347 Datum:

Soil Map Unit Name: D7B - Hubbard loamy sand, 2 to 6 percent slopes NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation X, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes:	X	No:		
Wetland Hydrology Present?	Yes:	X	No:	If yes, optional Wetland Site ID:	WET14

Remarks: (Explain alternative procedures here or in a separate report.) PFOA wetland within floodplain of Elk River. Vegetation is naturally problematic due to the proximity to the floodplain and resulting sparse vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches):
Water Table Present?	Yes	X	No	___	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP27

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharinum	40	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	40	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1. Betula nigra	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	5	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Phalaris arundinacea	90	Y	FACW
2. Onoclea sensibilis	10	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	145	x 2 =	290
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	145 (A)		290 (B)

Prevalence Index = B/A= 2.00

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)
- X Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.) Sparsely vegetated concave surface within floodplain

SOIL

Sampling Point: DP27

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/1	90	10YR 5/6	10	C	MP	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 06/06/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP28

Investigator(s): Cole Reagan Section, Township, Range: Sec. 26 T36N R30W

Landform (hillslope, terrace, etc.): Flood Plain Local relief (concave, convex, none): None Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.583456 Long: -94.035232 Datum:

Soil Map Unit Name: D7B - Hubbard loamy sand, 2 to 6 percent slopes NWI classification: No

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:		No:	X
Hydric Soil Present?	Yes:		No:	X
Wetland Hydrology Present?	Yes:		No:	X

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

If yes, optional Wetland Site ID: WET14

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):	
Water Table Present?	Yes ____	No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches):	

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP28

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharinum	40	Y	FACW
2. Quercus alba	20	Y	FACU
3. Quercus macrocarpa	20	Y	FACU
4.			
5.			
6.			
7.			
	80	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Glechoma hederacea	40	Y	FACU
2. Urtica dioica	20	Y	FAC
3. Solidago altissima	20	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	40	x 2 =	80	
FAC species	20	x 3 =	60	
FACU species	100	x 4 =	400	
UPL species	0	x 5 =	0	
Column Totals:	160	(A)	540	(B)
Prevalence Index = B/A=			3.38	

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP28

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/2	100		0			Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 06/06/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP29

Investigator(s): Cole Reagan Section, Township, Range: Sec. 24 T36N R30W

Landform (hillslope, terrace, etc.): Flood Plain Local relief (concave, convex, none): None Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.597592 Long: -94.028008 Datum:

Soil Map Unit Name: D30A - Seelyeville and Markey soils, depressional, 0 to 1 percent slopes NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes:	X	No:		
Wetland Hydrology Present?	Yes:	X	No:	If yes, optional Wetland Site ID:	WET15

Remarks: (Explain alternative procedures here or in a separate report.) PEMC wetland

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	
Water Table Present?	Yes ___	No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP29

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Phalaris arundinacea	95	Y	FACW
2. Schoenoplectus tabernaemontani	2	N	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	97	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	2	x 1 =	2	
FACW species	95	x 2 =	190	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	97	(A)	192	(B)

Prevalence Index = B/A= 1.98

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP29

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-16	10YR 2/1	100		0			Clay Loam	
16-24	10YR 5/2	95	10YR 4/6	5	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
X Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 06/06/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP30

Investigator(s): Cole Reagan Section, Township, Range: Sec. 24 T36N R30W

Landform (hillslope, terrace, etc.): Flood Plain Local relief (concave, convex, none): None Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.597695 Long: -94.02791 Datum:

Soil Map Unit Name: D30A - Seelyeville and Markey soils, depressional, 0 to 1 percent slopes NWI classification: No

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:		No:	X
Hydric Soil Present?	Yes:		No:	X
Wetland Hydrology Present?	Yes:		No:	X

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

If yes, optional Wetland Site ID: WET15

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP30

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	
Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	
Herb Stratum: (Plot size: 5)			
1. Bromus inermis	70	Y	UPL
2. Setaria viridis	30	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	
Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	100	x 5 =	500	
Column Totals:	100	(A)	500	(B)

Prevalence Index = B/A= 5.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP30

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/2	100		0			Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/06/2023
Applicant/Owner: NextEra State: MN Sampling Point: DP34
Investigator(s): Cole Reagan Section, Township, Range: Sec. 24 T36N R30W
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.598855 Long: -94.023347 Datum:
Soil Map Unit Name: C36A - Nokasippi loamy fine sand, depressional, 0 to 1 percent slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes:	X	No:		
Wetland Hydrology Present?	Yes:	X	No:	If yes, optional Wetland Site ID:	WET23

Remarks: (Explain alternative procedures here or in a separate report.) PEMC wetland

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 4
Water Table Present? Yes X No ___ Depth (inches): 0
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP34

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Phalaris arundinacea	70	Y	FACW
2. Panicum virgatum	10	N	FAC
3. Spartina pectinata	10	N	FACW
4. Sagittaria latifolia	2	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	92	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	80	x 2 =	160
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	92 (A)		192 (B)

Prevalence Index = B/A= 2.09

Hydrophytic Vegetation Indicators:

___ 1 - Rapid test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP34

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-16	10YR 2/1	100		0			Clay Loam	
16-24	10YR 5/2	95	10YR 4/6	5	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
X Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/06/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP35

Investigator(s): Cole Reagan Section, Township, Range: Sec. 24 T36N R30W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Linear Slope Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.598853 Long: -94.023374 Datum:

Soil Map Unit Name: C36A - Nokasippi loamy fine sand, depressional, 0 to 1 percent slopes NWI classification: No

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:		No:	X
Hydric Soil Present?	Yes:		No:	X
Wetland Hydrology Present?	Yes:		No:	X

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

If yes, optional Wetland Site ID: WET23

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP35

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	
Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	
Herb Stratum: (Plot size: 5)			
1. Bromus inermis	70	Y	UPL
2. Setaria viridis	30	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	
Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	100	x 5 =	500	
Column Totals:	100	(A)	500	(B)

Prevalence Index = B/A= 5.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP35

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-6	10YR 2/2	100		0	NA	NA	Loamy Sand	
6-24	10YR 4/4	100		0	NA	NA	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/06/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP36

Investigator(s): Cole Reagan Section, Township, Range: Sec. 13 T36N R30W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.604081 Long: -94.024269 Datum:

Soil Map Unit Name: C26A - Foglake silt loam, 0 to 2 percent slopes NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation X, Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes:	X	No:		
Wetland Hydrology Present?	Yes:	X	No:	If yes, optional Wetland Site ID:	WET17

Remarks: (Explain alternative procedures here or in a separate report.) PEMC wetland. Vegetation is naturally problematic due to the proximity to the floodplain and resulting sparse vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No	X	Depth (inches):	
Water Table Present?	Yes	No	X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	X	No	Depth (inches):	12

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP36

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Phalaris arundinacea	70	Y	FACW
2. Schoenoplectus pungens	30	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	30	x 1 =	30	
FACW species	70	x 2 =	140	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	100	(A)	170	(B)

Prevalence Index = B/A= 1.70

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)
- X Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.) Sparsely vegetated concave surface within floodplain

SOIL

Sampling Point: DP36

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/1	90	10YR 5/6	10	C	MP	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/06/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP37

Investigator(s): Cole Reagan Section, Township, Range: Sec. 13 T36N R30W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Linear Slope Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.604064 Long: -94.0242255 Datum:

Soil Map Unit Name: C26A - Foglake silt loam, 0 to 2 percent slopes NWI classification: No

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:		No:	X
Hydric Soil Present?	Yes:		No:	X
Wetland Hydrology Present?	Yes:		No:	X

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

If yes, optional Wetland Site ID: WET17

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP37

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Solidago altissima	50	Y	FACU
2. Setaria pumila	35	Y	FAC
3. Bromus inermis	5	N	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	35	x 3 =	105	
FACU species	50	x 4 =	200	
UPL species	5	x 5 =	25	
Column Totals:	90	(A)	330	(B)
Prevalence Index = B/A=			3.67	

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP37

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/2	100		0			Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/07/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP38

Investigator(s): Cole Reagan Section, Township, Range: Sec. 25 T36N R30W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.573848 Long: -94.012996 Datum:

Soil Map Unit Name: D61A - Glendorado loamy sand, 0 to 2 percent slopes NWI classification: Pf

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No X

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes:	X	No:		
Wetland Hydrology Present?	Yes:	X	No:	If yes, optional Wetland Site ID:	WET22

Remarks: (Explain alternative procedures here or in a separate report.) Pf wetland within cornfield. Lack of native vegetation and cultivated crops dominate.

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No	X	Depth (inches):	
Water Table Present?	Yes	No	X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	No	X	Depth (inches):	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP38

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Zea mays	70	Y	UPL
2. Cyperus esculentus	5	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	5	x 2 =	10	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	70	x 5 =	350	
Column Totals:	75	(A)	360	(B)
Prevalence Index = B/A=			4.80	

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.) Agricultural wetland. Vegetation is planted

SOIL

Sampling Point: DP38

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/1	98	10YR 4/6	2	C	MP	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/07/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP39

Investigator(s): Cole Reagan Section, Township, Range: Sec. 25 T36N R30W

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.573863 Long: -94.012814 Datum:

Soil Map Unit Name: D7C - Hubbard loamy sand, 6 to 12 percent slopes NWI classification: No

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:		No:	X
Hydric Soil Present?	Yes:		No:	X
Wetland Hydrology Present?	Yes:		No:	X

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

If yes, optional Wetland Site ID: WET22

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP39

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Zea mays	80	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	80	x 5 =	400	
Column Totals:	80	(A)	400	(B)
Prevalence Index = B/A=			5.00	

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP39

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/2	100		0			Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/07/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP40

Investigator(s): Cole Reagan Section, Township, Range: Sec. 25 T36N R30W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.574325 Long: -94.025448 Datum:

Soil Map Unit Name: C56A - Langola loamy fine sand, 0 to 2 percent slopes NWI classification: PFO/PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes:	X	No:		
Wetland Hydrology Present?	Yes:	X	No:	If yes, optional Wetland Site ID:	WET18

Remarks: (Explain alternative procedures here or in a separate report.) PEMC wetland

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP40

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Phalaris arundinacea	100	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A= 2.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP40

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-16	10YR 2/1	100		0			Clay Loam	
16-24	10YR 5/2	95	10YR 4/6	5	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
X Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/07/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP41

Investigator(s): Cole Reagan Section, Township, Range: Sec. 25 T36N R30W

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.574381 Long: -94.025585 Datum:

Soil Map Unit Name: C56A - Langola loamy fine sand, 0 to 2 percent slopes NWI classification: No

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:		No:	X
Hydric Soil Present?	Yes:		No:	X
Wetland Hydrology Present?	Yes:		No:	X

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

If yes, optional Wetland Site ID: WET18

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):	
Water Table Present?	Yes ____	No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches):	

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP41

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Bromus inermis	50	Y	UPL
2. Setaria pumila	40	Y	FAC
3. Solidago altissima	10	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	40	x 3 =	120	
FACU species	10	x 4 =	40	
UPL species	50	x 5 =	250	
Column Totals:	100	(A)	410	(B)
Prevalence Index = B/A=			4.10	

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP41

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/2	100		0			Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/07/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP42

Investigator(s): Cole Reagan Section, Township, Range: Sec. 25 T36N R30W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.574116 Long: -94.0278 Datum:

Soil Map Unit Name: C56A - Langola loamy fine sand, 0 to 2 percent slopes NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation X, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes:	X	No:		
Wetland Hydrology Present?	Yes:	X	No:	If yes, optional Wetland Site ID:	WET19

Remarks: (Explain alternative procedures here or in a separate report.) Vegetation is naturally problematic due to the proximity to the floodplain and resulting sparse vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 10

Wetland Hydrology Present? **Yes X No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP42

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharinum	40	Y	FACW
2. Fraxinus pennsylvanica	40	Y	FACW
3.			
4.			
5.			
6.			
7.			
	80	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1. Betula nigra	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	5	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Phalaris arundinacea	50	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	135	x 2 =	270
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	135 (A)		270 (B)

Prevalence Index = B/A= 2.00

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)
- X Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.) Sparsely vegetated concave surface within floodplain

SOIL

Sampling Point: DP42

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/1	90	10YR 5/6	10	C	MP	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/07/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP43

Investigator(s): Cole Reagan Section, Township, Range: Sec. 25 T36N R30W

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Linear Slope Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.574181 Long: -94.027736 Datum:

Soil Map Unit Name: C56A - Langola loamy fine sand, 0 to 2 percent slopes NWI classification: No

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:		No:	X
Hydric Soil Present?	Yes:		No:	X
Wetland Hydrology Present?	Yes:		No:	X

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

If yes, optional Wetland Site ID: WET19

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):	
Water Table Present?	Yes ____	No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches):	

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP43

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharinum	30	Y	FACW
2. Quercus alba	20	Y	FACU
3. Quercus macrocarpa	20	Y	FACU
4. Ulmus americana	10	N	FACW
5.			
6.			
7.			
	80	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Urtica dioica	20	Y	FAC
2. Solidago altissima	20	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	40	x 2 =	80	
FAC species	20	x 3 =	60	
FACU species	60	x 4 =	240	
UPL species	0	x 5 =	0	
Column Totals:	120	(A)	380	(B)

Prevalence Index = B/A= 3.17

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP43

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/2	100		0			Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/07/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP44

Investigator(s): Cole Reagan Section, Township, Range: Sec. 25 T36N R30W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.573805 Long: -94.025607 Datum:

Soil Map Unit Name: D30A - Seelyeville and Markey soils, depressional, 0 to 1 percent slopes NWI classification: PFO/PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation X, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:		
Hydric Soil Present?	Yes:	X	No:		
Wetland Hydrology Present?	Yes:	X	No:		

Is the Sampled Area within a Wetland? **Yes X No** ____

If yes, optional Wetland Site ID: WET18

Remarks: (Explain alternative procedures here or in a separate report.) Vegetation is naturally problematic due to the proximity to the floodplain and resulting sparse vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	____	No	X	Depth (inches): ____
Water Table Present?	Yes	____	No	X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): 12

Wetland Hydrology Present? **Yes X No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP44

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharinum	40	Y	FACW
2. Fraxinus pennsylvanica	40	Y	FACW
3.			
4.			
5.			
6.			
7.			
	80	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Phalaris arundinacea	90	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	170	x 2 =	340
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	170 (A)		340 (B)

Prevalence Index = B/A= 2.00

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)
- X Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP44

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/1	90	10YR 5/6	10	C	MP	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/07/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP45

Investigator(s): Cole Reagan Section, Township, Range: Sec. 26 T36N R30W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: Long: Datum:

Soil Map Unit Name: D7B - Hubbard loamy sand, 2 to 6 percent slopes NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation X, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:		
Hydric Soil Present?	Yes:	X	No:		
Wetland Hydrology Present?	Yes:	X	No:		

Is the Sampled Area within a Wetland? **Yes X No**

If yes, optional Wetland Site ID: WET20

Remarks: (Explain alternative procedures here or in a separate report.) Vegetation is naturally problematic due to the proximity to the floodplain and resulting sparse vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 2

Water Table Present? Yes X No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0

Wetland Hydrology Present? **Yes X No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP45

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Phalaris arundinacea	90	Y	FACW
2. Typha angustifolia	10	N	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	10	x 1 =	10	
FACW species	90	x 2 =	180	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	100	(A)	190	(B)
Prevalence Index = B/A=			1.90	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)
- X Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP45

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/1	90	10YR 5/6	10	C	MP	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/07/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP46

Investigator(s): Cole Reagan Section, Township, Range: Sec. 24 T36N R30W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.5977482 Long: -94.013335 Datum:

Soil Map Unit Name: C9B - Mora-Ronneby complex, 1 to 4 percent slopes, stony NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:	X	No:		
Hydric Soil Present?	Yes:	X	No:		
Wetland Hydrology Present?	Yes:	X	No:		

Is the Sampled Area within a Wetland? **Yes X No**

If yes, optional Wetland Site ID: WET21

Remarks: (Explain alternative procedures here or in a separate report.) PEMC wetland associated with a recreational pond

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches):	
Water Table Present?	Yes	X	No	___	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	0

Wetland Hydrology Present? **Yes X No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP46

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Phalaris arundinacea	30	Y	FACW
2. Typha angustifolia	15	Y	OBL
3. Schoenoplectus tabernaemontani	2	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	47	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	17	x 1 =	17
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	47 (A)		77 (B)

Prevalence Index = B/A= 1.64

Hydrophytic Vegetation Indicators:

___ 1 - Rapid test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP46

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-4	10YR 2/1	100		0	NA	NA	Clay Loam	
4-24	10YR 4/2	98	10YR 4/6	2	C	PL	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
X Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/07/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP47

Investigator(s): Cole Reagan Section, Township, Range: Sec. 24 T36N R30W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Linear Slope Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.5977618 Long: -94.0133531 Datum:

Soil Map Unit Name: C9B - Mora-Ronneby complex, 1 to 4 percent slopes, stony NWI classification: No

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:		No:	X
Hydric Soil Present?	Yes:		No:	X
Wetland Hydrology Present?	Yes:		No:	X

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

If yes, optional Wetland Site ID: WET21

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):	
Water Table Present?	Yes ____	No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches):	

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP47

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	
Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	
Herb Stratum: (Plot size: 5)			
1. Bromus inermis	70	Y	UPL
2. Setaria viridis	30	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	
Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	100	x 5 =	500	
Column Totals:	100	(A)	500	(B)

Prevalence Index = B/A= 5.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP47

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/2	100		0			Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM — Northcentral and Northeast Region

Project/Site: Benton Solar City/County: Benton County Sampling Date: 07/07/2023

Applicant/Owner: NextEra State: MN Sampling Point: DP48

Investigator(s): Cole Reagan Section, Township, Range: Sec. 26 T36N R30W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Linear Slope Slope (%): <5%

Subregion (LRR or MLRA): MLRA 90B , LRR K Lat: 45.5842379 Long: -94.0348122 Datum:

Soil Map Unit Name: 1011A - Fordum-Winterfield complex, 0 to 2 percent slopes, frequently flooded NWI classification: No

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:		No:	X
Hydric Soil Present?	Yes:		No:	X
Wetland Hydrology Present?	Yes:		No:	X

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

If yes, optional Wetland Site ID: WET20

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: DP48

Tree Stratum: (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus macrocarpa	20	Y	FACU
2. Celtis occidentalis	15	Y	FAC
3. Acer saccharinum	10	N	FACW
4. Ulmus americana	10	N	FACW
5.			
6.			
7.			
	55	=Total Cover	

Sapling/Shrub Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	=Total Cover	

Herb Stratum: (Plot size: 5)			
1. Glechoma hederacea	40	Y	FACU
2. Urtica dioica	20	Y	FAC
3. Solidago altissima	20	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80	=Total Cover	

Woody Vine Stratum: (Plot size: 30)			
1.			
2.			
3.			
4.			
	0	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	20	x 2 =	40	
FAC species	35	x 3 =	105	
FACU species	80	x 4 =	320	
UPL species	0	x 5 =	0	
Column Totals:	135	(A)	465	(B)
Prevalence Index = B/A=			3.44	

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

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Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP48

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0-20	10YR 2/2	100		0			Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

APPENDIX C

Photograph Log

Figure C-1. Overview of the palustrine emergent wetland WET01 at DP01. Photograph taken by C. Reagan on October 24, 2022.

Figure C-2. Overview of the palustrine emergent wetland WET04 at DP07. Photograph taken by C. Reagan on October 26, 2022.

Figure C-3. Overview of the palustrine emergent wetland WET11 at DP21. Photograph taken by C. Reagan on October 24, 2022.

Figure C-4. Overview of the palustrine farmed wetland WET13 at DP25. Photograph taken by C. Reagan on October 25, 2022.

Figure C-5. Overview of the palustrine forested wetland WET14 at DP27. Photograph taken by C. Reagan on June 6, 2023.

Figure C-6. Overview of the palustrine emergent wetland WET15 at DP29. Photograph taken by C. Reagan on June 6, 2023.

Figure C-7. Overview of the palustrine emergent wetland WET17 at DP36. Photograph taken by C. Reagan on July 6, 2023.

Figure C-8. Overview of the palustrine emergent wetland WET18 at DP40. Photograph taken by C. Reagan on July 7, 2023.

Figure C-9. Overview of the palustrine forested wetland WET19 at DP42. Photograph taken by C. Reagan on July 7, 2023.

Figure C-10. Overview of the palustrine emergent wetland WET20 at DP45. Photograph taken by C. Reagan on July 7, 2023.

Figure C-11. Overview of the palustrine emergent wetland WET21 at DP46. Photograph taken by C. Reagan on July 7, 2023.

Figure C-12. Overview of the farmed wetland WET22 at DP38. Photograph taken by C. Reagan on July 7, 2023.

Figure C-13. Overview of the palustrine emergent wetland WET23 at DP34. Photograph taken by C. Reagan on June 6, 2023.

Figure C-14. Overview of the perennial waterbody WB01 (Elk River) downstream. Photograph taken by C. Reagan on June 6, 2023.

Figure C-15. Overview of the perennial waterbody WB01 (Elk River) upstream. Photograph taken by C. Reagan on June 6, 2023.

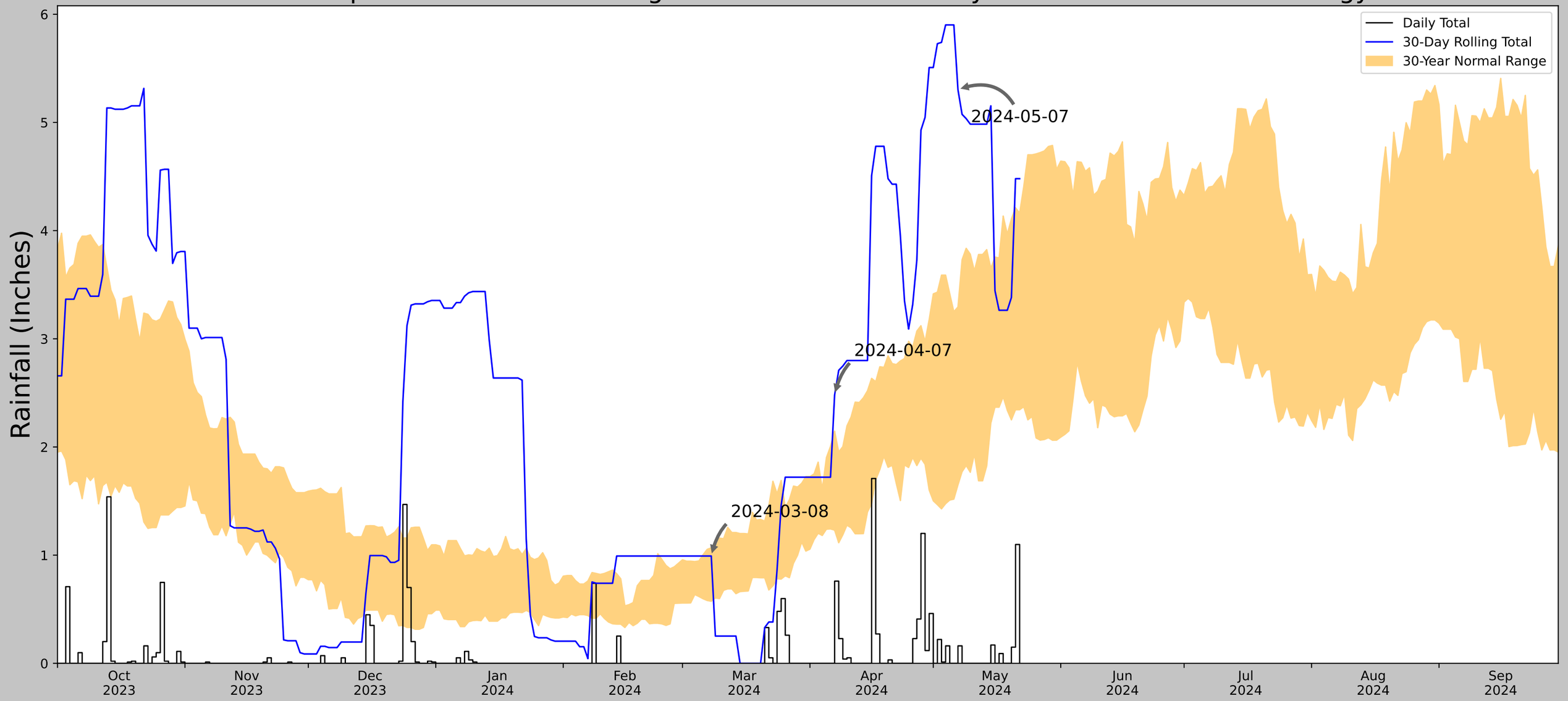
Figure C-16. Overview of the unnamed intermittent stream WB02 downstream. Photograph taken by C. Reagan on June 6, 2023.

Figure C-17. Overview of the ephemeral waterbody WB03 downstream. Photograph taken by C. Reagan on July 7, 2023.

Figure C-18. Overview of the perennially flooded waterbody WB03 east. Photograph taken by C. Reagan on May 7, 2024.

APPENDIX D

Antecedent Precipitation



Coordinates	45.591845, -94.025181
Observation Date	2024-05-07
Elevation (ft)	1044.047
Drought Index (PDSI)	Moderate drought (2024-04)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-05-07	1.648819	3.294488	5.30315	Wet	3	3	9
2024-04-07	1.231102	2.14685	2.480315	Wet	3	2	6
2024-03-08	0.573622	1.067717	0.992126	Normal	2	1	2
Result							Wetter than Normal - 17

US Army Corps of Engineers

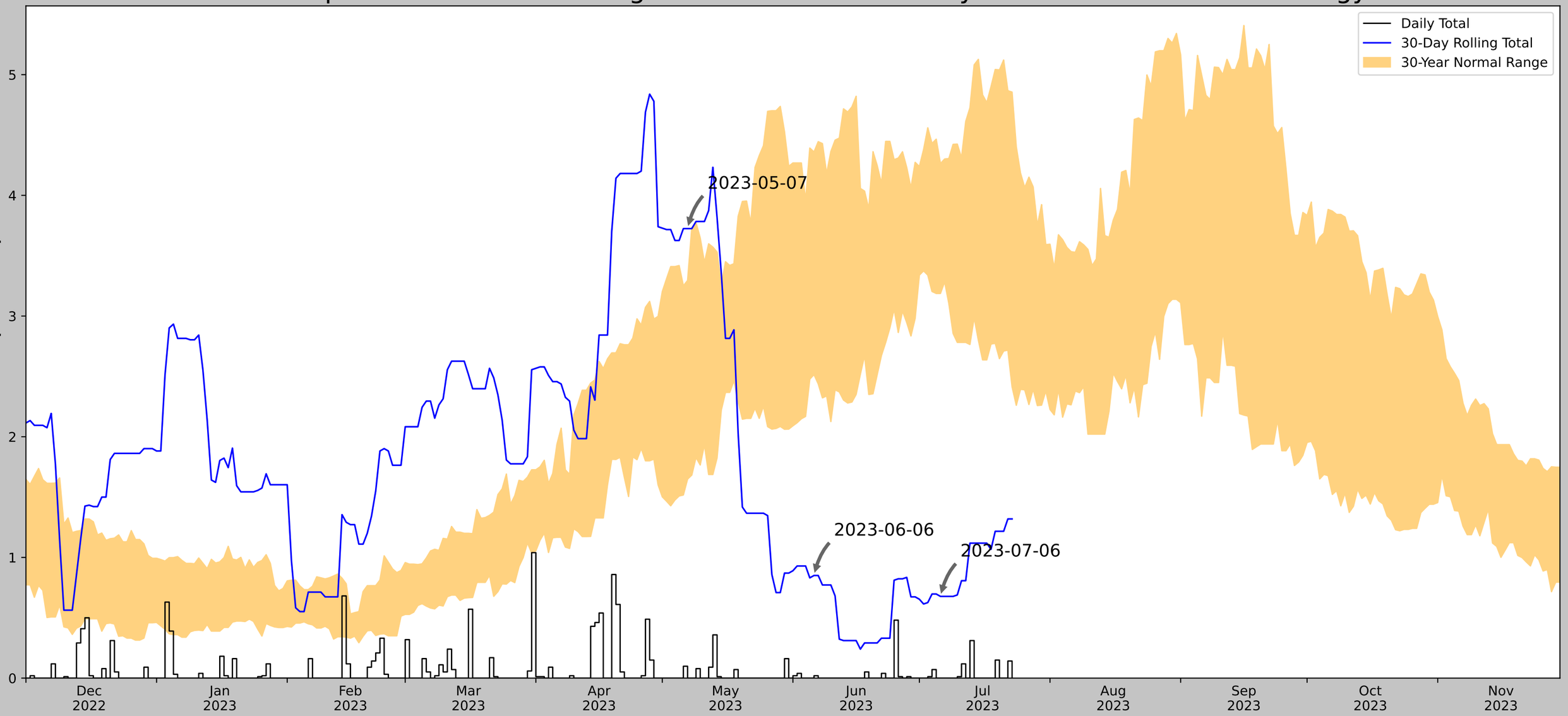
ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ST CLOUD RGNL AP	45.5442, -94.0517	1018.045	3.533	26.002	1.682	11352	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	45.591845, -94.025181
Observation Date	2023-07-06
Elevation (ft)	1044.047
Drought Index (PDSI)	Moderate drought (2023-06)
WebWIMP H_2O Balance	Dry Season

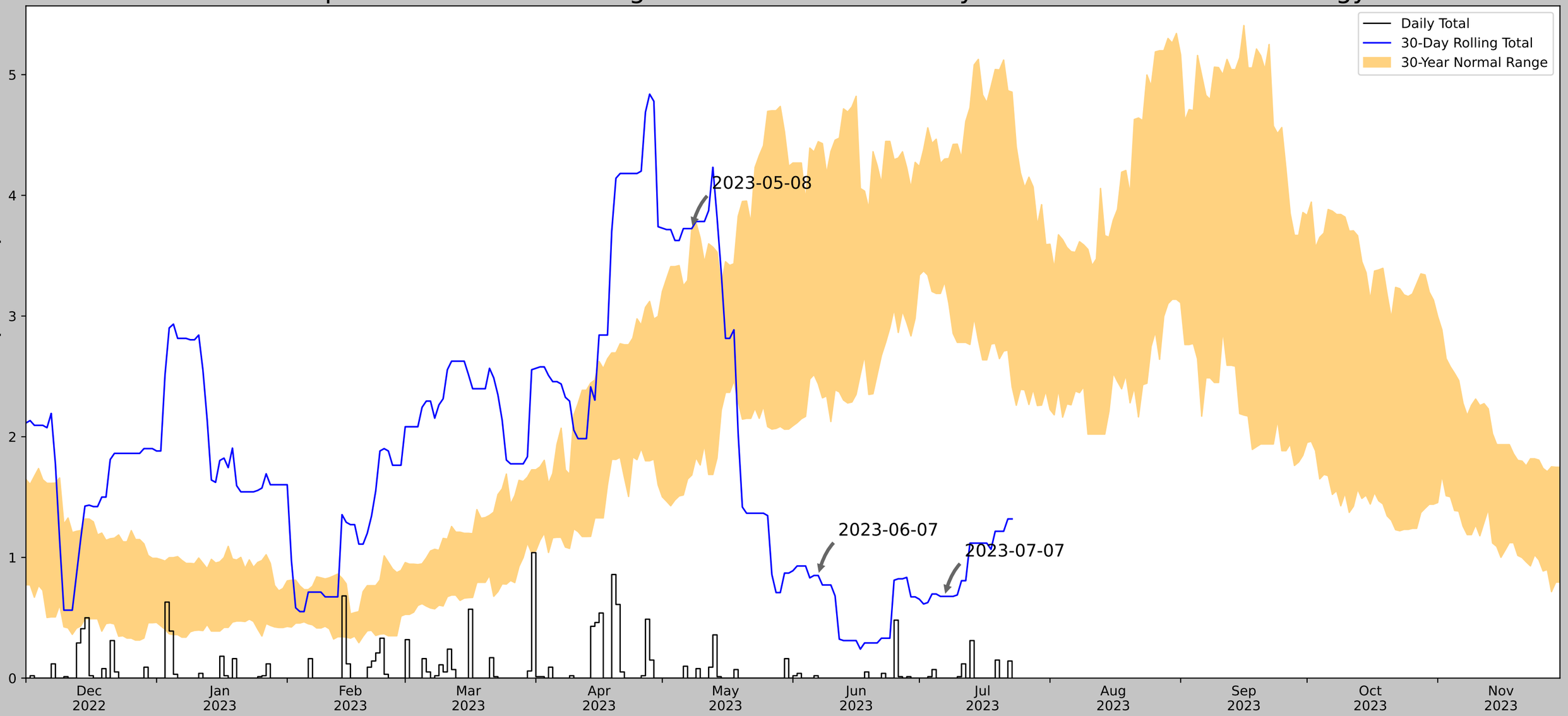
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-07-06	3.187008	4.26378	0.677165	Dry	1	3	3
2023-06-06	2.514961	4.359449	0.850394	Dry	1	2	2
2023-05-07	1.648819	3.294488	3.72441	Wet	3	1	3
Result							Drier than Normal - 8

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ST CLOUD RGNL AP	45.5442, -94.0517	1018.045	3.533	26.002	1.682	11353	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	45.591845, -94.025181
Observation Date	2023-07-07
Elevation (ft)	1044.047
Drought Index (PDSI)	Moderate drought (2023-06)
WebWIMP H_2O Balance	Dry Season

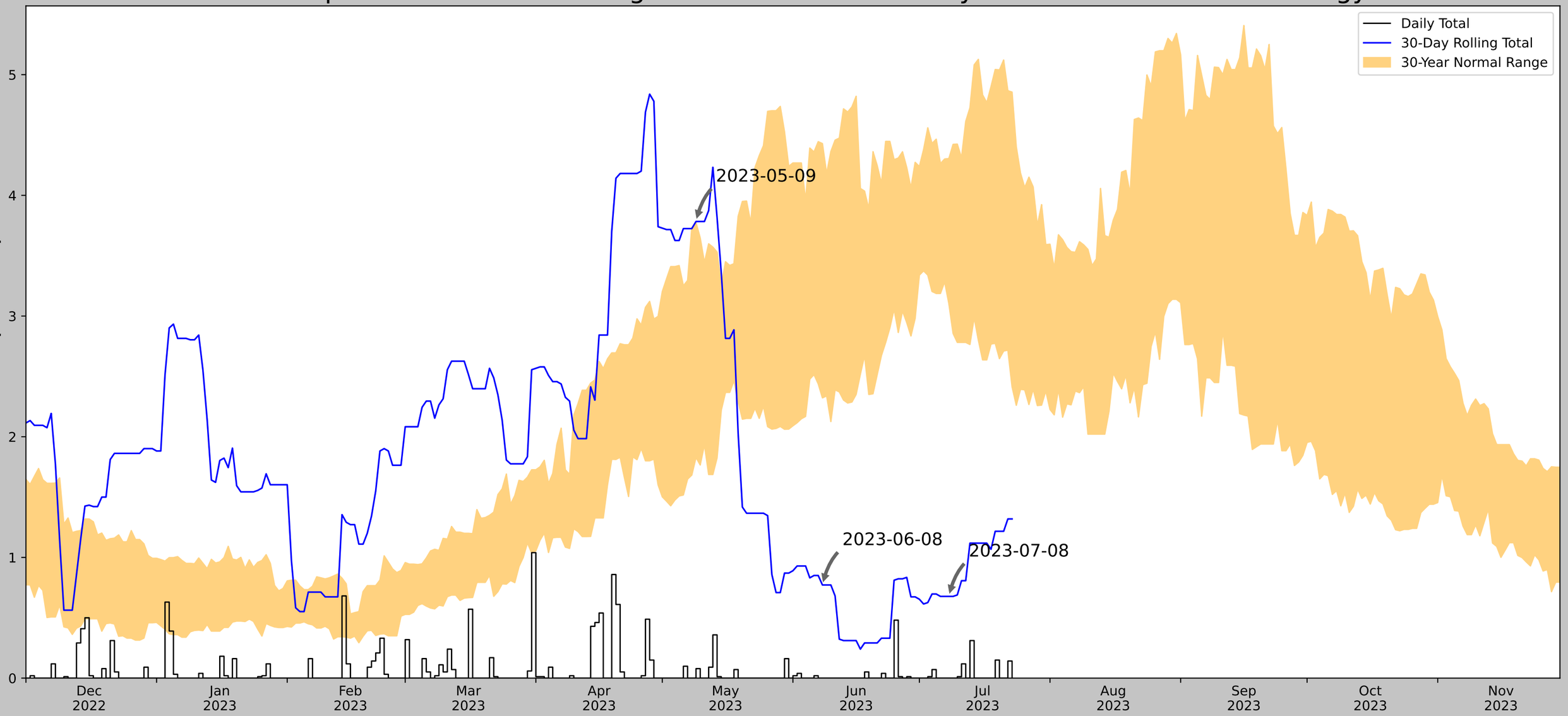
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-07-07	3.283465	4.301181	0.677165	Dry	1	3	3
2023-06-07	2.437795	4.444882	0.850394	Dry	1	2	2
2023-05-08	1.682284	3.731496	3.72441	Normal	2	1	2
Result							Drier than Normal - 7

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ST CLOUD RGNL AP	45.5442, -94.0517	1018.045	3.533	26.002	1.682	11353	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	45.591845, -94.025181
Observation Date	2023-07-08
Elevation (ft)	1044.047
Drought Index (PDSI)	Moderate drought (2023-06)
WebWIMP H_2O Balance	Dry Season

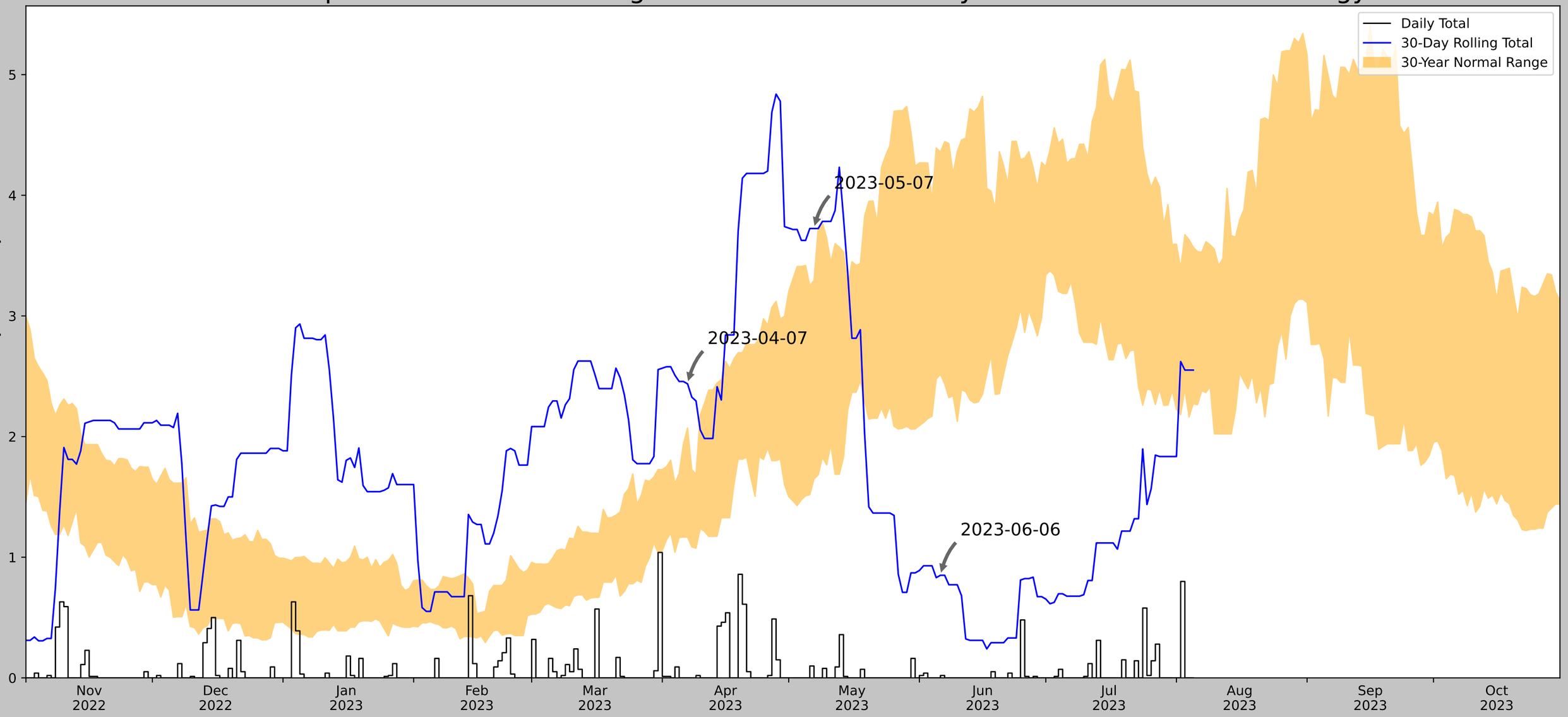
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-07-08	3.102362	4.304725	0.677165	Dry	1	3	3
2023-06-08	2.321654	4.429134	0.771654	Dry	1	2	2
2023-05-09	1.828347	3.774016	3.783465	Wet	3	1	3
Result							Drier than Normal - 8

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ST CLOUD RGNL AP	45.5442, -94.0517	1018.045	3.533	26.002	1.682	11353	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



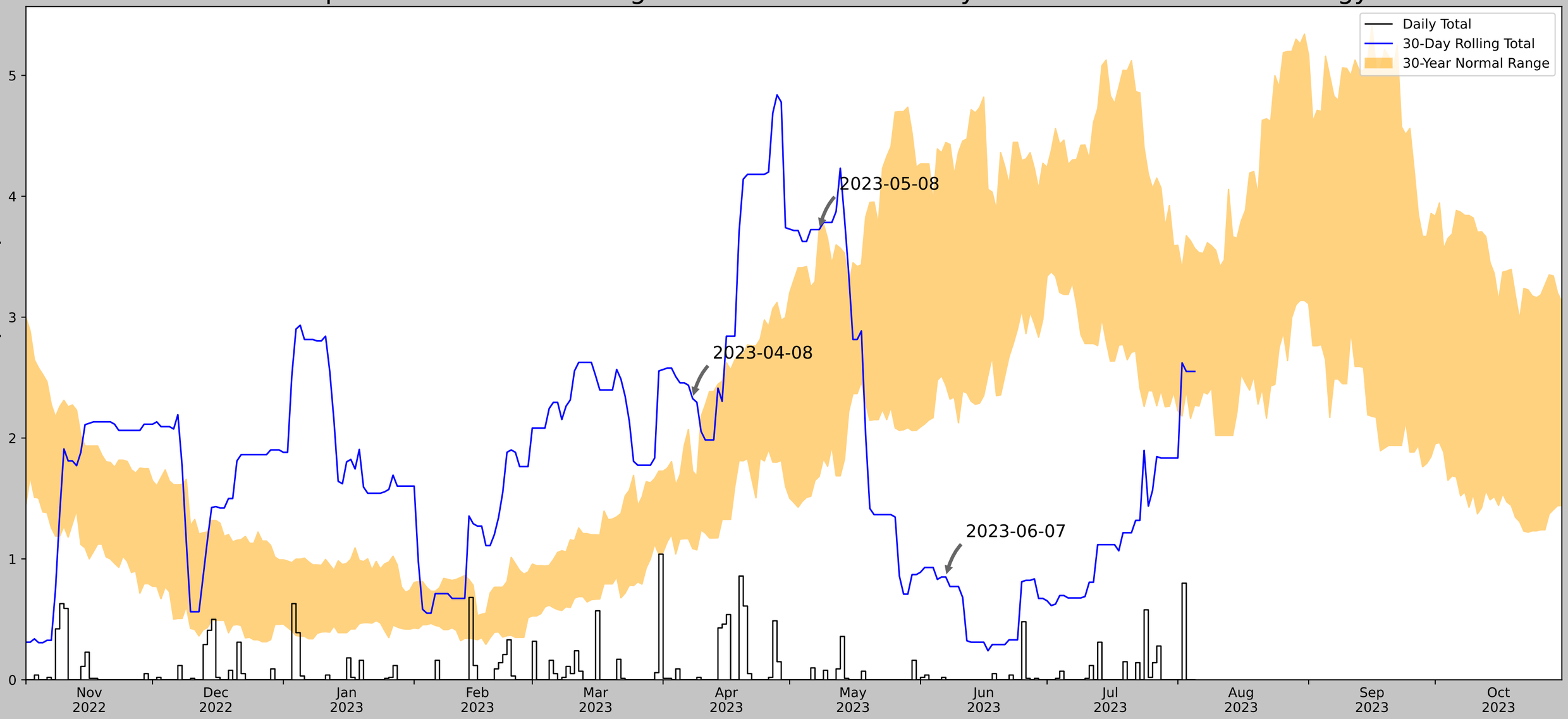
Coordinates	45.591845, -94.025181
Observation Date	2023-06-06
Elevation (ft)	1044.047
Drought Index (PDSI)	Moderate drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-06-06	2.514961	4.359449	0.850394	Dry	1	3	3
2023-05-07	1.648819	3.294488	3.72441	Wet	3	2	6
2023-04-07	1.166535	2.07126	2.437008	Wet	3	1	3
Result							Normal Conditions - 12

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ST CLOUD RGNL AP	45.5442, -94.0517	1018.045	3.533	26.002	1.682	11353	90



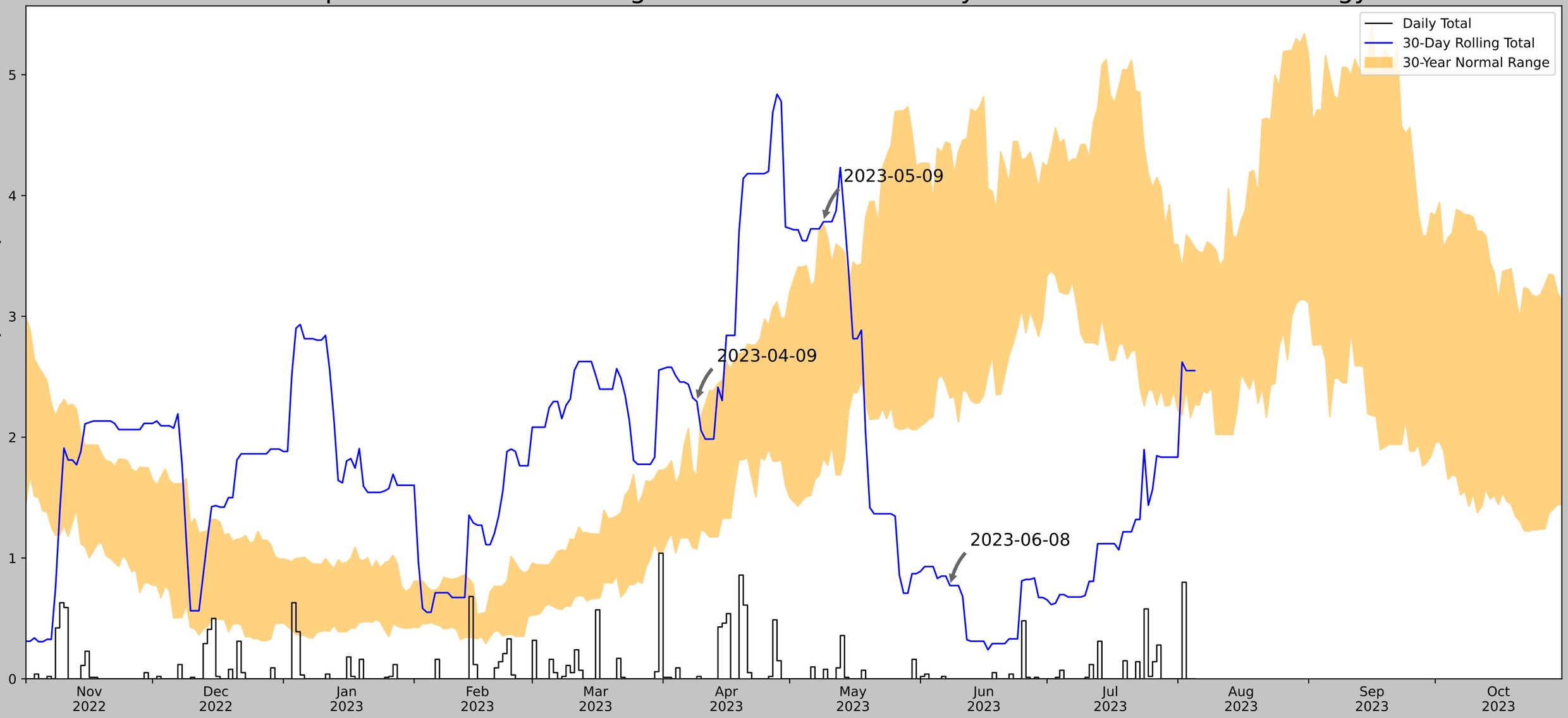
Coordinates	45.591845, -94.025181
Observation Date	2023-06-07
Elevation (ft)	1044.047
Drought Index (PDSI)	Moderate drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-06-07	2.437795	4.444882	0.850394	Dry	1	3	3
2023-05-08	1.682284	3.731496	3.72441	Normal	2	2	4
2023-04-08	1.085433	1.725984	2.326772	Wet	3	1	3
Result							Normal Conditions - 10

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ST CLOUD RGNL AP	45.5442, -94.0517	1018.045	3.533	26.002	1.682	11353	90



Coordinates	45.591845, -94.025181
Observation Date	2023-06-08
Elevation (ft)	1044.047
Drought Index (PDSI)	Moderate drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-06-08	2.321654	4.429134	0.771654	Dry	1	3	3
2023-05-09	1.828347	3.774016	3.783465	Wet	3	2	6
2023-04-09	1.074409	1.687402	2.295276	Wet	3	1	3
Result							Normal Conditions - 12

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ST CLOUD RGNL AP	45.5442, -94.0517	1018.045	3.533	26.002	1.682	11353	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network

Coordinates	45.591845, -94.025181
Observation Date	2022-10-24
Elevation (ft)	1044.047
Drought Index (PDSI)	Severe drought
WebWIMP H_2O Balance	Wet Season

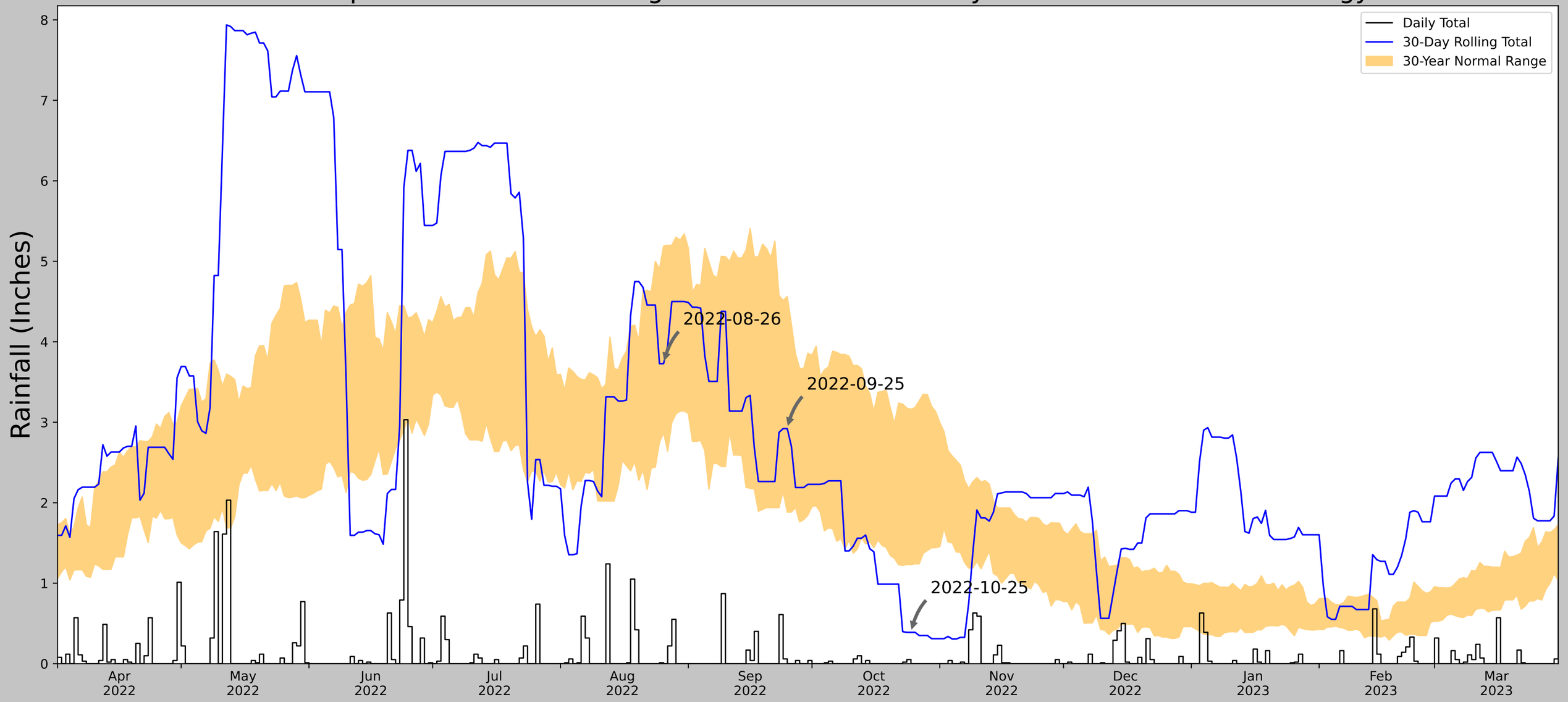
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-10-24	1.23189	3.175591	0.389764	Dry	1	3	3
2022-09-24	2.137795	4.511811	2.92126	Normal	2	2	4
2022-08-25	2.748425	4.904725	3.728347	Normal	2	1	2
Result							Drier than Normal - 9

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ST CLOUD RGNL AP	45.5442, -94.0517	1018.045	3.533	26.002	1.682	11353	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	45.591845, -94.025181
Observation Date	2022-10-25
Elevation (ft)	1044.047
Drought Index (PDSI)	Severe drought
WebWIMP H_2O Balance	Wet Season

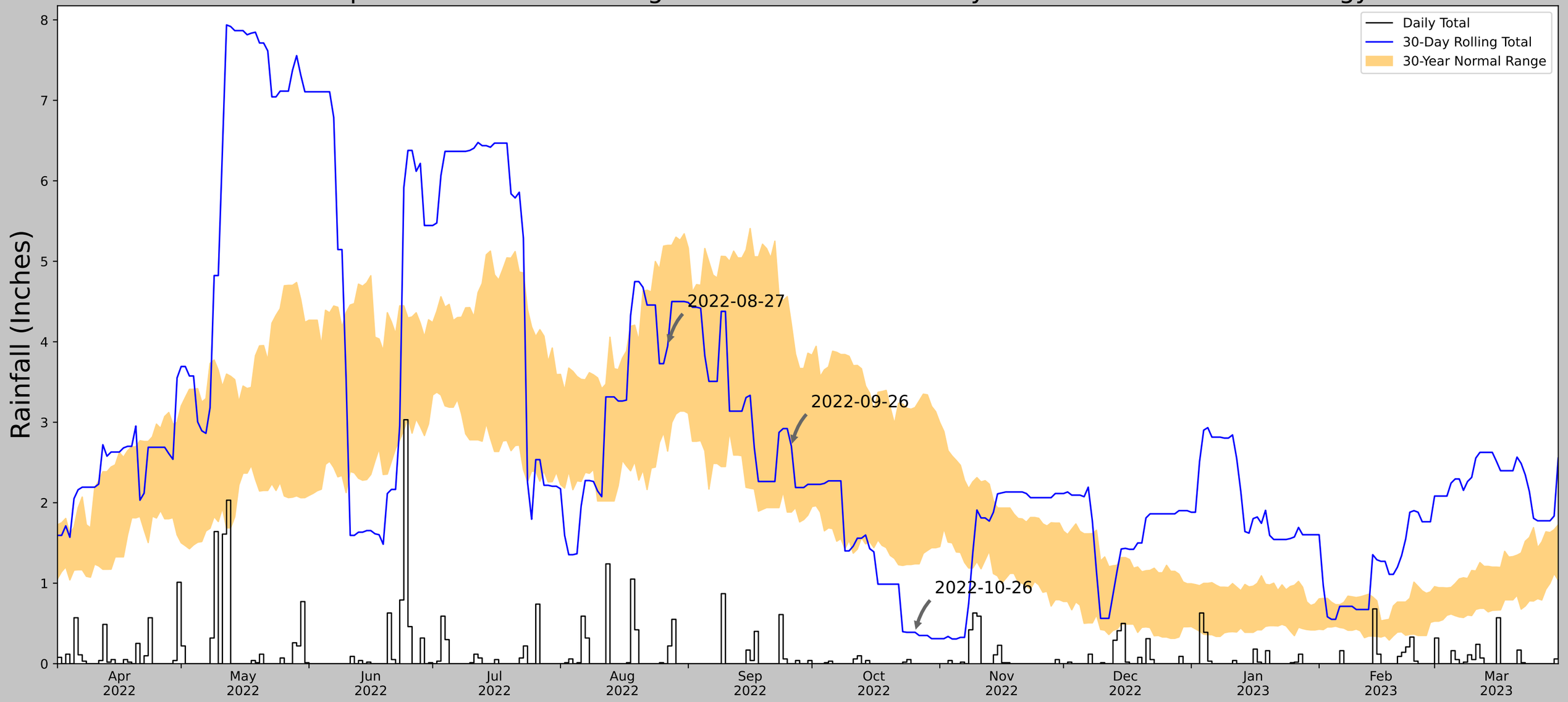
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-10-25	1.23189	3.161811	0.389764	Dry	1	3	3
2022-09-25	1.883858	4.562205	2.92126	Normal	2	2	4
2022-08-26	2.870473	5.188977	3.728347	Normal	2	1	2
Result							Drier than Normal - 9

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ST CLOUD RGNL AP	45.5442, -94.0517	1018.045	3.533	26.002	1.682	11353	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	45.591845, -94.025181
Observation Date	2022-10-26
Elevation (ft)	1044.047
Drought Index (PDSI)	Severe drought
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-10-26	1.240551	3.183071	0.389764	Dry	1	3	3
2022-09-26	1.883858	4.219291	2.700787	Normal	2	2	4
2022-08-27	2.640945	5.198425	3.948819	Normal	2	1	2
Result							Drier than Normal - 9

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ST CLOUD RGNL AP	45.5442, -94.0517	1018.045	3.533	26.002	1.682	11353	90

APPENDIX E

Off-site Determination Results

Table 1. Imagery Source and Climate Conditions

Date Taken	Image Source	Web WIMP Season[1]	Antecedent Precipitation Condition[1]
8/1/2021	USDA NAIP	Dry Season	Drier than Normal
8/1/2019	USDA NAIP	Dry Season	Wetter than Normal
8/1/2017	USDA NAIP	Dry Season	Normal Conditions
8/1/2015	USDA NAIP	Dry Season	Wetter than Normal
8/1/2013	USDA NAIP	Dry Season	Normal Conditions
8/1/2010	USDA NAIP	Dry Season	Normal Conditions
8/1/2009	USDA NAIP	Dry Season	Normal Conditions
8/1/2008	USDA NAIP	Dry Season	Drier than Normal
8/1/2003	USGS	Dry Season	Normal Conditions
8/1/1991	USDA NAIP	Dry Season	Wetter than Normal

[1] Values were generated by using the Antecedent Precipitation Tool developed by the U.S Army Corps of Engineers (2020). Available at: https://www.epa.gov/wotus/antecedent-precipitation-tool-apt
USDA NAIP- U.S Department of Agriculture National Agriculture Imagery Program,

Table 2. Aerial Imagery Wetland Determination Evaluation

Date Taken	Image Interpretation Areas																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
8/1/2021	SS	WS	AP	WS	AP	NSS	NSS	NV	CS	NV	CS	WS	NV	WS	CS	NV	NV	CS
8/1/2019	DO/AP	WS	CS	WS	AP	SS/CS	DO	DO	DO	DO/CS	DO	WS	SS	WS	DO	SW	SW	SW
8/1/2017	AP	DIS	CS	NSS	CS	CS	DO	CS	CS	CS	NV	WS	NV	WS	CS	NV	NV	NV
8/1/2015	AP/SS	DIS	CS	NSS	CS	CS	NV	CS	CS	CS	CS	WS	NV	WS	CS	NV	NV	WS
8/1/2013	CS	DIS	CS	NSS	SS	NSS	CS	CS	CS	CS	CS	WS	SS	WS	CS	CS	CS	WS
8/1/2010	CS	DIS	CS	NSS	NSS	NSS	NV	NV	CS	CS	NV	WS	NV	WS	NV	CS	CS	NV
8/1/2009	AP	DIS	SS	NSS	NSS	NSS	NV	NV	CS	CS	NV	WS	SS	WS	CS	NV	NV	CS

8/1/2008	AP	DIS	CS	NSS	SS	NSS	NV	CS	CS	DO/CS	SS	WS	SS	WS	CS	NV	NV	CS
8/1/2003	AP	DIS	CS	NSS	SS	DO	AP	AP	CS	AP	SW	SW	SS	SS	DO	CS	CS	WS
8/1/1991	SS	WS	CS	NSS	SS	CS	SS	CS	SS	SS/DO	NV	NV	SS	SS	NV	NV	NV	SW

CS - crop stress, AP - altered pattern, NSS – No soil wetness signature, NV - normal vegetative cover, DO - drowned out, DIS – Disturbed, SS – Soil wetness signature, SW – Standing Water, WS – Wetland signature.

Table 3. Aerial Imagery Wetland Determination Results

Area	Images Available	Percent of Images with Wet Signatures	Hydric Soil Present?	Identified by NWI?	Other Hydrology Indicators Present	Wetland?
1	10	100%	Yes	Yes	No	Yes
2	10	0%	Yes	No	No	N/A
3	10	100%	Yes	No	No	N/A
4	10	0%	Yes	No	No	N/A
5	10	60%	Yes	No	No	N/A
6	10	20%	Yes	No	No	N/A
7	10	40%	Yes	No	No	N/A
8	10	60%	Yes	No	No	N/A
9	10	100%	Yes	No	No	N/A
10	10	100%	Yes	No	No	N/A
11	10	40%	Yes	No	No	N/A
12	10	100%	Yes	No	No	N/A
13	10	60%	Yes	No	No	N/A
14	10	100%	Yes	No	No	N/A
15	10	80%	Yes	No	No	N/A
16	10	40%	Yes	No	No	N/A
17	10	40%	Yes	No	No	N/A
18	10	80%	Yes	Yes	No	N/A