Public Notice

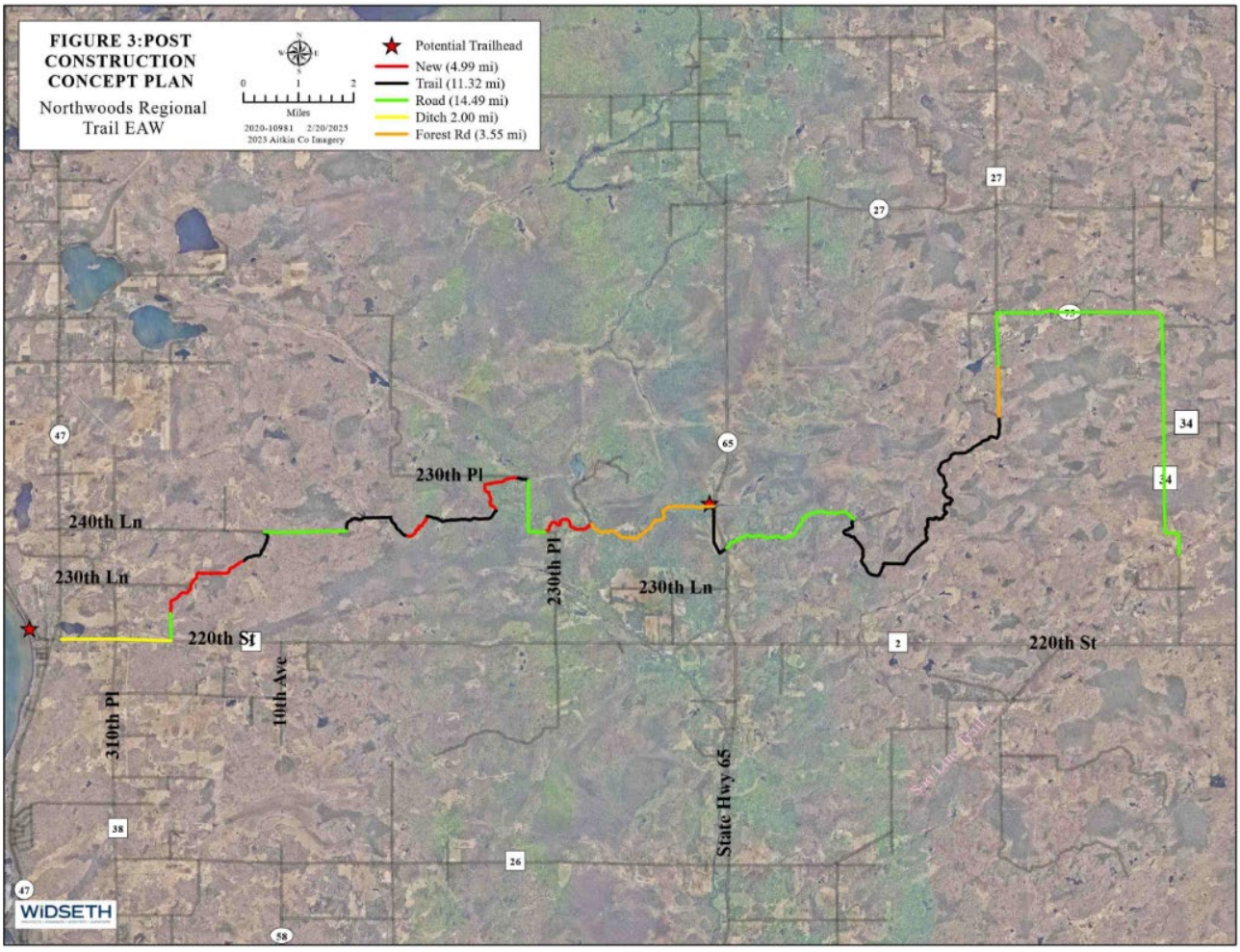
Environmental Assessment Worksheet (EAW) Available for Comment
Northwoods Regional Trail Phase 1A & 1B
Malmo, Jewett, White Pine and Millward Townships
Aitkin County, Minnesota

Project Description: Aitkin County proposes to construct an All-Terrain Vehicle (ATV) trail on 40.95 acres between Malmo and Millward Township in Aitkin County, MN. The project will be completed in two phases (1A and 1B), adding approximately 36.35 miles of trail to the existing Northwoods Regional ATV trail system. Phase 1A runs from 220th Street in Malmo to State Highway 65 and Phase 1B runs from State Highway 65 to the Soo Line ATV trail. The project proposes 4.99 miles of new trail construction, with the remainder of the proposed trail following along existing trails, roadways, and ditches within the highway right-of-way (ROW).

The EAW is posted for review on the Aitkin County website (https://www.co.aitkin.mn.us/). Hard copies are available upon request. The 30-day public comment period begins on March 25, 2025, and ends on April 25, 2025.

Written comments may be submitted by mail or email and should be addressed to:

Andrew Carlstrom, Environmental Services Director
Aitkin County
307 2nd St NW
Aitkin, MN 56431
andrew.carlstrom@aitkincountymn.gov



WiDSETH

Brainerd/Baxter
7804 Industrial Park Road
Baxter MN 56425

218.829.5117
Baxter@Widseth.com
Widseth.com

ENVIRONMENTAL ASSESSMENT WORKSHEET

FOR

NORTHWOODS REGIONAL ATV TRAIL
AITKIN COUNTY, MINNESOTA

Prepared for:

Aitkin County
(Attn: Dennis Thompson)
502 Minnesota Ave N
Aitkin, MN 56431

March 2025

Widseth Project No. 2020-10981

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December 2022 version

Environmental Assessment Worksheet

This most recent Environmental Assessment Worksheet (EAW) form and guidance documents are available at the Environmental Quality Board's website at**:** https://www.eqb.state.mn.us**/** The EAW form provides information about a project that may have the potential for significant environmental effects. Guidance documents provide additional detail and links to resources for completing the EAW form.

Cumulative potential effects can either be addressed under each applicable EAW Item or can be addressed collectively under EAW Item 21.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. **Project title:** Northwoods Regional Trail Phase 1A & 1B

2. **Proposer:** Aitkin County

Contact person: Dennis Thompson
Title: Land Commissioner
Address: 502 Minnesota Ave N
City, State, ZIP: Aitkin, MN
Phone: 218-0927-7364
Fax: N/A
Email: Dennis.Thompson@co.aitkin.mn.us

3. **RGU:** Aitkin County

Contact person: Andrew Carlstrom
Title: Environmental Services Director
Address: 307 2nd St. NW
City, State, ZIP: Aitkin, MN 56431
Phone: 218-927-7342
Fax: 218-927-4372
Email: andrew.carlstrom@aitkincountymn.gov

4. **Reason for EAW Preparation:** (check one)

Required:
☐ EIS Scoping
☒ Mandatory EAW

Discretionary:
☐ Citizen petition
☐ RGU discretion
☐ Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):
Minnesota Rule 4410.4300 Subpart 27(B) – Public Waters, Public Water wetlands, and wetlands

5. **Project Location:**
   - County: Aitkin
   - City/Township: Malmo Twp, Jewett (Unorganized Territory), White Pine Twp, Millward Twp
   - PLS Location for Phase 1A and 1B (¼, ¼, Section, Township, Range):

Phase 1A			
S ½	33	45N	25W
N ½	4	44N	25W
S ½	34	45N	25W

N ½	3	44N	25W
W ½	35	45N	25W
S ½	26	45N	25W
SW ¼ & NE ¼	25	45N	25W
SE ¼	24	45N	24W
S ½	19	45N	24W
N ½	30	45N	24W
NW ¼	29	45N	24W
S ½	20	45N	24W
S ½	21	45N	24W
NW ¼	28	45N	24W
S ½, NE ¼	22	45N	24W
W ½, S ½	23	45N	24W
S ½	24	45N	24W
S ½	19	45N	23W
NW ¼	30	45N	23W
N ½, SE 1/4	20	45N	23W
NE ¼	29	45N	23W

Phase 1B			
N ½	28	45N	23W
NW ¼	27	45N	23W
S ½	22	45N	23W
S ½	23	45N	23W
NW ¼, SE ¼	26	45N	23W
NW ¼	25	45N	23W
E ½	24	45N	23W
NW ¼	19	45N	23W
SE ¼	13	45N	23W
SW ¼, NE 1/4	18	45N	22W
NW ¼	17	45N	22W
E ½	07	45N	22W
W ½	08	45N	22W
E ½	06	45N	22W
W ½, N ½	05	45N	22W
S ½	32	46N	22W
S ½	33	46N	22W
N ½	04	45N	22W
N ½, E ½	03	45N	22W
S ½	34	46N	22W
W ½	02	45N	22W
W ½	11	45N	22W
E ½	10	45N	22W
E ½	15	45N	22W
W ½	14	45N	22W
W ½	23	45N	22W

E ½	22	45N	22W
NW ¼	26	45N	22W

- Watershed (81 major watershed scale): Rum River (07010207), Snake River (09020309) Mississippi River – Brainerd (07010104), Kettle River (07030003).
- GPS Coordinates (latitude, longitude): Phase 1A – East End: 46.357783, -93.262358
  West End: 46.333977, -93.514513
  Phase 1B – East End: 46.355847, -93.090640
  West End: 46.357803, -93.262109

- Tax Parcel Numbers:

Phase 1A	**Phase 1B**
*21-0-053400	*37-0-043900
*21-0-053401	*37-0-043800
*21-0-053800	*37-0-043700
*21-0-053900	*37-0-043400
*21-0-055002	*37-0-043300
*21-0-055001	*37-0-041700
*21-0-055100	*37-0-033700
*21-0-055400	37-0-041700
*21-0-056600	*37-0-035300
*21-0-055200	*37-0-040100
*21-0-056500	*37-0-038500
21-0-056000	*37-0-037700
21-0-042700	*37-0-037100
21-0-042800	41-0-030100
21-0-043100	*37-0-036900
21-0-043200	*37-0-019300
21-0-039900	*41-0-028800
*21-0-038300	*41-0-028700
*44-0-030000	*41-0-027900
*44-0-029800	*41-0-026300
*44-0-030200	*41-0-012700
*44-0-030600	*41-0-010300
*44-0-032200	*41-0-008601
*44-0-043500	*41-0-009800
44-0-033800	*41-0-008800
44-0-035800	*41-0-008500
*44-0-036102	*41-0-007400
*44-0-036101	*41-0-007300
*44-0-036200	*41-0-006900
*44-0-036800	*41-0-007200
*44-0-036801	*41-0-006800

*44-0-036600	*04-0-052303
*44-0-037800	*04-0-052302
*44-0-038300	*04-0-053400
*44-0-038200	*41-0-005500
*37-0-029900	*41-0-005800
*37-0-047100	*41-0-005400
*37-0-047000	*04-0-053500
*37-0-029700	*04-0-053800
*37-0-030100	*04-0-053900
37-0-030500	*04-0-055000
37-0-044900	*04-0-055100
	*04-0-055400
	*04-0-055500
	*41-0-003400
	*41-0-003600
	*41-0-004600
	*41-0-004900
	*41-0-015100
	*41-0-015300
	*41-0-016300
	*41-0-016600
	*41-0-023100
	*41-0-034300
	*41-0-034600
	*41-0-036800
	*41-0-036900
	*41-0-041400
	*41-0-041302
	*41-0-041301
	*41-0-041500
	*41-0-059102
	*41-0-059102

*Project area within parcel boundary follows along designated ROW, roadside ditch and/or existing roadway/trail.

At a minimum attach each of the following to the EAW:

- County map showing the general location of the project;
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and
- Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan.
- List of data sources, models, and other resources (from the Item-by-Item Guidance: *Climate Adaptation and Resilience* or other) used for information about current Minnesota climate

trends and how climate change is anticipated to affect the general location of the project during the life of the project (as detailed below in item 7. Climate Adaptation and Resilience).

Figures

Figure 1 – County Map
Figure 2 – Site Location
Figure 3 – Post-Construction Concept Plan
Figure 4 – Future Trail Expansion
Figure 5 – Proposed Trail Expansion
Figure 6 – Floodplain Hazards
Figure 7 – Land Use & Cover
Figure 8 – Wellhead Protection Areas & Drinking Water Supply Management Areas
Figure 9 – MPCA "What's in My Neighborhood?" Site

Appendices

Appendix A – Aitkin County Economic Development Plan
Appendix B – Project Area Soils
Appendix C– Wetland Delineation Report and Approved Notice of Decision
Appendix D – Well Logs
Appendix E – NHIS Review Letter and Conservation Planning Report
Appendix F – IPac Report
Appendix G – GHG Emissions Calculations
Appendix H – Northwoods Regional Trail System ATV Traffic Counts

6. Project Description:

a. Provide the brief project summary to be published in the *EQB Monitor*, (approximately 50 words).

Aitkin County proposes to construct an All-Terrain Vehicle (ATV) trail on 40.95 acres between Malmo and Millward Township in Aitkin County, MN. The project will be completed in two phases (1A and 1B), adding approximately 36.35 miles of trail to the existing Northwoods Regional ATV trail system.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.

The project proposes to construct an ATV trail from Malmo, MN to connect with the Soo Line ATV trail, which is approximately 18 miles to the east (Figure 1). The project is split into two phases (1A and 1B). Phase 1A is the trail to the west of State Highway 65 and Phase 1B is the trail to the east of State Highway 65. The proposed ATV trail will follow along existing trails, roadways, and right-of-way (ROW) as much as possible. Construction may include trail grading,

fill, puncheons, boardwalks, excavation, and tree removal. The project is split into Phase 1A and Phase 1B due to the complexity of the area to the east of State Highway 65. The project proposer would like to begin construction on Phase 1A as soon as possible. The area to the east of State Highway 65 can be constructed later, if needed. One of the main goals of the project is to connect the cities near Lake Mille Lacs with the Soo Line Trail.

Phase 1A follows along 220th Street for 2.0 miles until reaching 300th Place where it turns north. Along the 2.0 mile stretch of road, the project area is 30' wide (15' on each side of centerline) to account for potential changes to the alignment during final design. The trail follows 300th Place, until it begins to go through undeveloped forest. The trail winds north through the forest for 2.8 miles, until it reaches 240th Lane. The trail follows 240th Lane until the road ends, and the trail begins going northeast through the forest. The trail winds through the forest until it reaches 230th Place. It follows 230th Place to the south and turns to the east. The trail cuts northeast through the forest, until it reaches Solana Forest Road. The trail stays on Solana Forest Road for 2.5 miles. It leaves the road on the west side of State Highway 65 and heads south. The trail then turns to the east, and crosses over State Highway 65.

Phase 1B begins on the east side of State Highway 65 at the East White Pine Truck Trail. The Trail follows East White Pine Truck Trail, until the road ends and the trail enters the woods to the northeast. The trail then merges with 150th Place. It follows 150th Place and Kestrel Ave for approximately 8.6 miles, until it connects with the Soo Line ATV Trail.

The project proposes 4.99 miles of new trail construction (see Figure 3). The project area for the new trail alignment is 20' wide to account for the construction limits. However, the trail once completed will consist of a 12' wide trail. Disturbance anticipated in these areas includes tree and brush removal, grubbing of stumps, topsoil removal and grading to form the trail surface and clearance. In wetland areas, wooden puncheons will be utilized to minimize the footprint of the wetland impacts.

The anticipated extent of disturbance along existing trails and forest road will be 12'. The table below specifies the Project Corridor width assigned to each trail segment type. Disturbance in these areas may include tree and brush removal/trimming, fill, and shaping of existing trail/forest road base or in-slope/out-slope of highway ditch to construct the 12-foot-wide trail.

Trail Segment Classification	Project Corridor Length (miles)	Project Corridor Width (feet)
New trail	4.99	20
Existing trail	11.32	12
Forest road	3.55	12
Ditch along Highway 2	2.00	30
County Road	14.49	0*

*No disturbance or improvements are anticipated

Preconstruction conditions are shown in the Figures within Appendix C in relation to the wetland delineation that was completed.

c. Project magnitude:

Description	Number
Total project acreage	40.95
Linear project length (in miles)	36.35
Number and type of residential units	0.00
Residential building area (in square feet)	0.00
Commercial building area (in square feet)	0.00
Industrial building area (in square feet)	0.00
Institutional building area (in square feet)	0.00
Other uses – specify (in square feet)	0.00
Structure height(s)	0.00

d. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

The project is being carried out by Aitkin County, the local government unit. The project is needed to provide a safe and controlled environment for ATV use. Keeping riders on a specific path will minimize environmental impact, while adhering to path rules and regulations.

Local beneficiaries include Aitkin County, its residents, and local businesses. The project will also provide a regional benefit to the federally designated economic development district of Region Three, in Minnesota's Arrowhead region, which encompasses the counties of Aitkin, Carlton, Cook, Itasca, Koochiching, Lake, and St. Louis (all Census Tracts). Additionally, the project will benefit adjacent counties that are not part of Region Three, including Crow Wing, Pine, Kanabec, Mille Lacs, and Morrison counties. According to the Minnesota 2024 ATV Strategic Master Plan[1], recreational ATV use has a significant impact within the state of Minnesota. Spending associated with travel for the purposes of ATV recreation includes lodging, dining, gas, and groceries, which supports local economies, helps create jobs, and generates tax revenue. The surrounding area is already a popular destination for outdoor recreation, with several state parks, trails, and wildlife management areas. Lake Mille Lacs is Minnesota's second largest lake and attracts anglers interested in walleye fishing, as well as muskie, northern pike, and bass. The project will provide access to diverse terrain and scenery that would otherwise be inaccessible and increase recreational activity in the area by attracting tourists and generating revenue for local businesses in the area.

e. Are future stages of this development including development on any other property planned or likely to happen? ☒ Yes ☐ No

Two future phases (Phases 2 and 3) are included in the project concept plan (Figure 4) but have not advanced past preliminary planning. The alignment of those trail segments and the timing of construction have yet to be determined; therefore, the potential future phases are not included in this EAW. Environmental review for any future phases will be completed independently of this report.

f. Is this project a subsequent stage of an earlier project? ☒ Yes ☐ No
If yes, briefly describe the past development, timeline and any past environmental review.

[1] ATV Strategic Master Plan

Preliminary environmental review was completed in 2022 for a previously proposed trail segment (Northwoods Regional Trail Phase 1), located along the east side of Lake Mille Lacs and following State Highway 47, northward from the Mille Lacs County border to Malmo (Figure 5). Items addressed included cultural resources, rare and endangered species, and wetlands. However, that segment of the trail did not move forward due to the proposed use of private land. Fortunately, there is greater local support for phases 1A and 1B because the proposed alignment primarily utilizes public land.

7. Climate Adaptation and Resilience:

a. Describe the climate trends in the general location of the project (see guidance: *Climate Adaptation and Resilience*) and how climate change is anticipated to affect that location during the life of the project.

According to the Fifth National Climate Assessment (NCA5), the main impact of climate change in the Midwest is an increase in precipitation, which can lead to increased flood risk, soil erosion and loss of cropland[2]. The project area is primarily flat with little topographic change, so the soil erosion hazard is minimal. The project is also located near several large wetland complexes and Lake Mille Lacs, which are anticipated to help mitigate flood risks.

General projections in East Central Minnesota, which includes the counties of Aitkin, Crow Wing, Carlton, Pine, Mille Lacs, Kanabec, Isanti, Chisago, Anoka, Washington, Hennepin, and Ramsey, predict that the climate will be warmer and wetter at the end of the century as compared with the historical period of 1895 through 2023[3]. Between 1895 and 2023, the average annual temperature in East Central Minnesota has already increased by 3.5 ˚F. Most warming is concentrated during the winter months, with average winter temperatures increasing by 5.6 ˚F and average winter low temperatures increasing by 6.7 ˚F. Under an intermediate emissions scenario, there is expected to be an annual increase of 11 days that exceed 90˚F during the summer months (June – August) and decrease of 21 days with a minimum temperature below 32˚F during the winter months (December – February).

East Central Minnesota has experienced an average annual precipitation increase of 4.1 inches between 1895 and 2023. The region is expected to experience an average annual increase in temperature of 3.7-4.4 ˚F and annual average precipitation is projected to increase by up to 1.4 inches by mid-century (2040-2059). Precipitation is not expected to change uniformly throughout the year, but rather experience an increase in winter and spring, and a decrease in summertime precipitation averages.

The National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI) Climate at a Glance County Mapping tool lists the Aitkin County average temperature as 44.5˚F from January 2024 - December 2024 This is a 5.9˚F increase from the historic average of 38.6 ˚F from 1901-2000[4]. The average precipitation in Aitkin County was 27.17 inches from January 2024 – December 2024, which is an increase of

[2] Fifth National Climate Assessment

[3] Minnesota Climate Projections (CMIP5) | UMN Climate Adaptation Partnership

[4] Climate at a Glance | County Mapping | National Centers for Environmental Information (NCEI)

0.18 inches from the 1901-2000 mean of 26.99 inches. Since 1895, most of Minnesota's observed warming has been during the winter season (December – February), which has warmed 2-3 times faster than the summer season (June – August). From 1970 – 2021, average daily winter low temperatures have risen more than 15 times faster than average daily summer high temperatures.

This shows a trend of increasing temperatures that is likely to continue through the 21st century, bringing warmer winters, heavier rainfalls, increased likelihood of summer heat waves, and the potential for longer periods of drought. Other potential effects of climate change are increased risks of wildfires and severe weather. Severe weather includes high winds, hail, and tornados. However, no significant impacts to the project area are anticipated as a result of climate change.

b. For each Resource Category in the table below: Describe how the project's proposed activities and how the project's design will interact with those climate trends. Describe proposed adaptations to address the project effects identified.

Resource Category	**Climate Considerations**	**Project Information**	**Adaptations**
Project Design	The design of the project is not anticipated to impact climate.	Climate change risks and vulnerabilities identified include: • Minor greenhouse gas emissions associated with new construction and future ATV usage.	Emissions during construction will be temporary. The construction contractor will be encouraged to reduce emissions through practices such as limitations on idling equipment. Greenhouse gas emissions after construction is based on ATV usage. Aitkin County encourages trail etiquette, including proper maintenance of vehicle to maintain emission standards.
Land Use	According to the Floodplain Hazards map (Figure 6), the project area is in a zone of minimal flood risk. Although flood risk is anticipated to increase with greater amounts and intensity of precipitation, increased	Climate change risks and vulnerabilities identified include: • Impacts to wetlands and other low-lying areas reduces the ability of the land to retain and absorb stormwater, leading to more intense runoff,	Minimization would be required for any impacts to wetlands; any unavoidable impacts would be mitigated. Tree clearing should be completed during the winter season

	flooding associated with climate change is not anticipated to be a significant concern within the project area.	nutrient loading, and potential flooding. • The area is mostly undeveloped forest. Tree clearing is proposed for certain trail segments. • Increased ATV / vehicle use within the area may pose a threat to local wildlife and a possible fire risk.	(Nov – March). Signage for ATV usage regarding safety and speed will be posted along the trail.
Water Resources	Address in item 12.	Address in item 12.	Address in item 12.
Contamination/ Hazardous Materials/ Wastes	No hazardous waste is expected to be generated during construction and trail use.	No climate change risks and vulnerabilities identified.	N/A
Fish, wildlife, plant communities, and sensitive ecological resources (rare features)	Address in item 14.	Address in item 14.	Address in item 14.

8. Cover types: Estimate the acreage of the site with each of the following cover types before and after development:

Cover Types	Before (acres)	After* (acres)
Wetlands and shallow lakes (< 2 meters deep)	7.60	7.60
Deep lakes (> 2 meters deep)	0.00	0.00
Wooded/forest	19.67	18.67
Rivers/streams	0.06	0.06
Brush/Grassland	1.61	1.61
Cropland	0.00	0.00
Livestock rangeland/pastureland	0.92	0.92
Lawn/landscaping (including mowed ROW)	8.77	8.77
Green infrastructure TOTAL (from table below*)	0.00	0.00
Impervious surface	2.21	3.21
Stormwater Pond (wet sedimentation basin)	0.00	0.00
Other (wetland ditches)	0.11	0.11
TOTAL	40.95	40.95

*Numbers have been estimated and will be updated once civil plans are complete

Green Infrastructure*	Before (acres)	After (acres)
Constructed infiltration systems (infiltration basins/infiltration trenches/rainwater gardens/bioretention areas without underdrains/swales with impermeable check dams)	0.00	0.00
Constructed tree trenches and tree boxes	0.00	0.00
Constructed wetlands	0.00	0.00
Constructed green roofs	0.00	0.00
Constructed permeable pavements	0.00	0.00
Other (describe)	0.00	0.00
TOTAL*	0.00	0.00

Trees	**Percent**	**Number**
Percent tree canopy removed or number of mature trees removed during development	1.89%	139*[5]
Number of new trees planted	0	0

*Numbers have been estimated and will be updated once civil plans are complete

9. **Permits and approvals required:** List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

Unit of Government	Type of Application	Status
U.S Army Corps of Engineers (USACE)	Section 404 Permit	To be applied for
Minnesota Pollution Control Agency (MPCA)	National Pollutant Discharge Elimination System and State Disposal System (NPDES/SDS) Construction Stormwater Permit, including Stormwater Pollution Prevention Plan (SWPPP)	To be applied for
MPCA	Section 401 Water Quality Certification	To be obtained if needed

[5] https://www.fs.usda.gov/nrs/pubs/rb/rb_nrs104.pdf

Minnesota Department of Natural Resources (DNR)	Public Waters Work Permit	To be applied for
DNR	ATV Grant-in-Aid Trail Application	To be applied for
Minnesota Board of Water & Soil Resources (BWSR)	Wetland Conservation Act (WCA) Notice of Decision (NOD)	Received
BWSR	WCA Replacement Plan	In progress
MN Department of Transportation	Right-of-Way Permit	In progress
Cities and Townships	Zoning or other approvals	In progress

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 10-20, or the RGU can address all cumulative potential effects in response to EAW Item No.22. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 21.

10. Land use:

a. Describe:

i. Existing land use of the site as well as areas adjacent to and near the site, including parks and open space, cemeteries, trails, prime or unique farmlands.

The site and adjacent areas consist primarily of state land, including the Solana State Forest. No Wildlife Management Areas are within the project area. The nearest State Wildlife Management Areas are the Jewett Wildlife Management Area, located approximately 2.5 miles north of the proposed trail (Phase 1A), and the Pliny Wildlife Management Area, located approximately 1.7 miles southwest of the proposed trail (Phase 1B). Several roads run through the project area and are a mix of forest roads, county road and state highways. No parks, cemeteries, or prime or unique farmland is identified within the project area, or directly adjacent to the project area.

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

The project area is a mix of Shoreland, Farm Residential, and Public Land (see Figure 7). As stated in the current Aitkin County Comprehensive Land Use Plan[6], one of the County's principal goals is the "development and maintenance of a system of trails for diverse types of outdoor recreation." This project would help to accomplish that goal, furthering tourism and thus expanding an important revenue stream created by the County's public land.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

[6] Comprehensive-Land-Use-Plan.pdf

The Floodplain Hazards map (Figure 6) shows that the project area crosses into a 100-year floodplain in Phase 1B. This floodplain is associated with Split Rock River. The trail will follow along an existing roadway in this area. The remainder of the project area travels through areas with low flood risk.

The project will go through shoreland district which is defined by Aitkin County as "land located within the following distances from Public Water: 1,000 feet from ordinary high-water level of a lake, pond or flowage; and 300 feet from a river or stream, or the landward extent of a floodplain designated by ordinance on a river or stream, whichever is greater." Phase 1A of the project will permanently impact an estimated 1.58 acres of wetland within the shoreland zone. Phase 1B will require an onsite delineation to determine permanent impacts. These impacts will be minimized to the furthest extent possible to avoid unnecessary impacts to the aquatic resources. There are no wild and scenic rivers, critical areas, or agricultural preserves within Aitkin County.

iv. If any critical facilities (i.e. facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) are proposed in floodplain areas and other areas identified as at risk for localized flooding, describe the risk potential considering changing precipitation and event intensity.

No critical facilities are proposed as part of this project.

b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.

The project is consistent with the 2022-2027 Aitkin County Economic Development Plan (Appendix A) and nearby land uses. The land uses near the project area consist of undeveloped forest, grassland and wetland areas. One of the core values within the 2022-2027 Aitkin County Economic Development plan is to utilize the community resources within the county. Aitkin County is a rural county known for its outdoor recreational activities. The proposed ATV trail expands upon the availability of these rural areas and contributes to public involvement within these areas and recreation opportunities.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 10b above and any risk potential.

The project is compatible with nearby land use, zoning, and plans.

11. Geology, soils and topography/land forms:

a. Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

Surficial geology of the project area consists primarily of glacial sediments (outwash and Superior Lobe till), with some areas of recent alluvium. Minnesota Geological Survey publications indicate that bedrock consists of Paleoproterozoic metasedimentary and metavolcanic rocks, with depth to

bedrock ranging from approximately 55-130 feet. Well logs within 0.5 miles of the project area are listed in Table 1. They identify the Little Falls Formation, Denham Formation, McGrath Gneiss, and Mille Lacs Group as the first encountered bedrock units. These rock types are not prone to karst feature development. The Karst Feature Inventory developed by the DNR places the project area outside any karst zones. The project is not located in a Decorah Edge or Edge Support Area.

Table 1. Wells Within 0.5 Miles of the Project Area

Unique Well IDs			
131561	152711	154100	159086
171211	171235	177410	193409
328529	328536	340043	441223
453720	482343	482633	496312
517997	520670	523113	527025
552675	577898	587595	591054
594471	603470	607932	621661
623819	638811	638812	639884
647951	669623	686399	687961
690277	695007	702322	705062
710665	715499	716955	716969
716995	734225	738233	746344
751406	773600	775051	790942
836777			

b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 12.b.ii.

Soils within the project area are predominantly silt loam and fine sandy loam, often stony, with some areas of muck and peat (Appendix B). The Mora-Ronneby complex (soil unit C9B) accounts for 26.2% of the project area (10.7 acres). The Milaca-Mora complex, 1 to 7 percent slopes, stony (C71C) is the next largest unit at 7.2 acres. These soils are generally described as poorly to moderately drained, loamy and sandy soils that formed in moraines and drumlins.

Topography within the project area is gently undulating, with most of the land surface sloping towards large wetland complexes. Surface elevation ranges from approximately 1220 feet above sea level on the west side of the project area, near the town of Malmo, to highs of approximately 1417 feet above sea level located within the Solana State Forest near the center of the project area. Slopes generally range from 0-12 percent.

Soil ratings for unpaved local roads and streets (used as a proxy for ATV trails) are characterized as not limited (4.8 acres), somewhat limited (22.6 acres) and very limited (13.6 acres). These ratings are primarily based on frost action, low strength, ponding, tendency of dust and depth to the saturated

zone. The contractor will be responsible for addressing any soil limitations and providing sound mitigation factors, if required.

Erosion potential across the project area ranges from slight (27.7 acres) to moderate (13.2 acres) with slope being the dominant factor influencing erodibility. Erosion and sediment control requirements as part of the construction stormwater permit requirements will be addressed in the SWPPP that will be developed.

Farmland classifications within the project area include farmland of statewide importance (soil units 732B, C9B, C71C, C72D, C73C; 22.2 total acres), prime farmland if drained (soil unit 685; 0.4 acres), and not prime farmland (soil units 186, 188B, 188C, 218, 268C, 533, 543, 544, 1984, C4A, C28A, C75A, C101A, C158, C211; 18.4 total acres).

- NOTE: For silica sand projects, the EAW must include a hydrogeologic investigation assessing the potential groundwater and surface water effects and geologic conditions that could create an increased risk of potentially significant effects on groundwater and surface water. Descriptions of water resources and potential effects from the project in EAW Item 12 must be consistent with the geology, soils and topography/land forms and potential effects described in EAW Item 11.

This is not a silica sand project.

12. Water resources:

a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.

i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive species and the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

According to the DNR Public Waters Inventory and onsite wetland delineation, the public waters within Phase 1A consist of one unnamed stream (DNR Hydro ID: # 124455) and one unnamed waterbody (DNR Hydro ID: # 62119).

A wetland delineation was conducted for Phase 1A. Phase 1B was rerouted and a delineation is planned to be completed in spring of 2025. A total of 73 wetlands, 5 wetland ditches constructed through uplands and 6 streams were identified in Phase 1A. One of the streams and one wetland found onsite are public waters, as stated above. (DNR Hydro IDs: 124455 and 62119). The project area does not include trout streams, wildlife lakes, migratory waterfowl feeding/resting lakes or outstanding resource value waters. The majority of the runoff from the site currently flows into the streams, or to the onsite wetlands. A wetland delineation report and subsequent NOD and jurisdictional determination are included in Appendix C. Phase 1B within the wetland delineation report is no longer accurate. This section and Appendix C will be updated once the 2025 delineation of the Phase 1B reroute is complete.

The nearest impaired waters are Borden Creek (located within the project area and identified during the wetland delineation as Stream 001), Rice River (0.6 miles northeast of the project area), Snake River (0.75 miles southeast of the project area), and Split Rock River (located within Phase 1B of the project area).

ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

Water supply wells within 0.5 miles of the project area (see Table 1) are predominantly completed in buried Quaternary and/or bedrock aquifers at depths ranging from 25 to 225 feet below ground surface (BGS). Copies of these well logs are included in Appendix D. The Minnesota Hydrogeology Atlas estimates the depth to the surficial groundwater table in the project area as 0-10 feet. A static water level of 3 feet BGS within the water table aquifer was recorded in the well log for MN Unique Well No. 715499. The site is not located within any Wellhead Protection Areas or Drinking Water Supply Management Areas (Figure 8). The proposed land use changes will likely have little to no impact on water quality. The Aitkin County Water Management Plan[7] is in place to reduce the risk from potential sources of contamination and other threats to the water supply.

The western portion of the project area is located within a sole source aquifer area[8]. However, there is not anticipated to be any groundwater disturbance or water usage; therefore, no impacts are expected.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

No sanitary, municipal/domestic, or industrial wastewater will be produced or treated by the project.

1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.

Not applicable.

2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system. If septic systems are part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the project. Consider the effects of current Minnesota

[7] Aitkin County Water Plan – Aitkin County Soil and Water Conservation District
[8] Sole Source Aquifers

climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion.

Not applicable.

3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.

Not applicable.

ii. Stormwater - Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post construction including how the project will affect runoff volume, discharge rate and change in pollutants. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion. For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the project and describe the SWPPP, including specific best management practices to address soil erosion and sedimentation during and after project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments or are classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.

The project area is primarily forested. The natural vegetation slows runoff and promotes infiltration. However, erosion and sediment mobilization may increase due to increased motorized activity on gravel trails, both during construction and once construction is complete. This may affect stormwater quality and prevention measures will be implemented. A construction SWPPP will be developed for temporary erosion control and will focus on minimizing impacts to the stream and wetlands on the site. Post-construction stormwater runoff will be typical for a natural area. No additional mitigation measures are anticipated to be required.

iii. Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation

events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should the appropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.

No water appropriation or well abandonments are proposed for this project. Dewatering is not anticipated.

iv. Surface Waters

a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed and identify those probable locations.

Wetland impacts are anticipated as part of trail construction within the project area; however, the wetland delineation for Phase 1B must be completed to determine extent of wetland impacts. A wetland replacement plan will be completed to address these impacts. The project will follow sequencing which includes avoiding and minimizing wetland impacts wherever feasible. Mitigation for any impacts that cannot be avoided/minimized will be from a wetland bank located as close as possible to the same minor and major watershed as the area impacted.

b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.

Six streams were delineated on site for Phase 1A and identified within the wetland delineation report as streams 1 through 6. They include approximately 0.06 acres within the project area. Temporary stream impacts are anticipated for this project. Civil plans will need to be completed to know the extent of temporary impacts. No stream

improvements within the development are required. During construction, the SWPPP must be followed and include protection for the streams.

No watercraft currently utilize these streams, and the project is not expected to impact projected watercraft usage.

13. Contamination/Hazardous Materials/Wastes:

a. Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

The Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Agriculture (MDA) "What's in My Neighborhood?" websites did not identify any spills, investigations, or clean-up sites within a one-mile radius of the project area (Figure 9). Two underground tank sites – Petry's by the Lake (TS0018988) and Malmo Market (TS0006279) – are located 0.20 miles and 0.11 miles, respectively, from the western end of the project area. Both of these tank sites are currently listed as active. There is an active Hazardous Waste site located at Westerlund Sawmill Inc. in Malmo (MND982646184) approximately 0.15 miles west of the project area.

Construction of the project is unlikely to exacerbate or cause any contamination hazards. No storage tanks, pipelines, or other bulk chemical use is planned as part of this project; therefore, a Contingency Plan or Response Action Plan is not necessary.

b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.

Solid waste produced during construction will be typical of trail construction and is likely to consist of materials such as gravel, wood, and minimal construction material packaging. The contractor will be responsible for removal and proper disposal of construction waste. Management of construction activities and waste will be discussed in the construction SWPPP.

Small amounts of solid waste (i.e., trash) could be left behind by trail users. Trail etiquette will be monitored and encouraged in the signage along the trail.

c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size and age of existing tanks on the property that the project will use. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and

recycling. Include development of a spill prevention plan.

No hazardous waste is expected to be generated during project construction or trail use. No above or below ground tanks are proposed for the project.

d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

No hazardous waste is expected to be generated during project construction or trail use.

14. Fish, wildlife, plant communities, and sensitive ecological resources (rare features):

a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

The project area is located within the Mille Lacs Uplands ecoregion. Rolling till plains and drumlin fields are the dominant landforms. The depressions between drumlin ridges contain peatlands with shallow organic material. The drainage network is young and undeveloped, with extensive wetland areas present, as indicated by the wetland delineation completed for the project. Lake Mille Lacs, located west of the project area, is the largest lake in the area.

The project area consists mainly of road right-of-way, roadside ditch, dense forest, wetland complexes, and undeveloped land. The project area contains many resources and habitat for wildlife. The forested portion of the project area provides habitats for various species, including deer, squirrels, foxes, rabbits, and woodland birds. The streams and wetland basins within the project area provide habitats for aquatic species and waterfowl, such as various fish types, mussels, turtles, frogs, ducks, and geese.

Common dominant plant species in the project area include, but are not limited to, American hazelnut (*Corylus americana*), alder buckthorn (*Frangula alnus*), balsam poplar (*Populus balsamifera*), Baltic rush (*Juncus balticus*), bay-leaved willow (*Salix pentandra*), Canada goldenrod (*Solidago canadensis*), hybrid cattail (*Typha x glauca*), Jewelweed (*Impatiens capensis*), lake sedge (*Carex lacustris*), pointed broom sedge (*Carex scoparia*), common milkweed (*Asclepias syriaca*), nannyberry (*Viburnum lentago*), pussy willow (*Salix discolor*), quaking aspen (*Populus tremuloides*), reed canary grass (*Phalaris arundinacea*), sensitive fern (*Onoclea sensibilis*), smooth brome (*Bromus inermis*), and timothy grass (*Phleum pratense*).

The construction of the proposed trail is expected to have minimal impact aquatic species, wildlife communities, habitats, or sensitive ecological resources due to its narrow corridor and construction mitigation requirements within these areas. The use of the proposed trail upon completion is also expected to have minimal impact to these resources. ATV users will be sporadic and confined to the constructed trail.

b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-____) and/or correspondence number (MCE_____) from which

the data were obtained and attach the Natural Heritage Review letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

Review of publicly available geospatial data from the Minnesota Conservation Explorer revealed that the project area is within or immediately adjacent to several rare features, including Minnesota Biological Survey (MBS) Sites of Biodiversity Significance, DNR Native Plant Communities, and Important Bird Areas. A review of the Natural Heritage Information System (NHIS) was requested on April 17, 2024, for the original project area. NHIS results for MBS Sites of Biodiversity Significance and DNR Native Plant Community areas within the original project area are described below (Appendix E). With the change of the project area in Phase 1B, a modified NHIS request was sent on March 6, 2025. Automated results under correspondence number MCE 2024-01049 indicate further review is needed. Once received, recommendations put forth by the DNR in the updated NHIS letter will be adhered to.

Sites of biodiversity Significance have varying levels of native biodiversity and are ranked based on the relative significance of this biodiversity at a statewide level. Sites ranked as High contain very good quality occurrence of the rarest species, high quality examples of the rare native plant communities, and/or important functional landscapes. Sites ranked as Moderate contain occurrences of rare species and/or moderately disturbed native plant communities, and or/landscapes that have a strong potential for recovery. The following MBS Sites of Biodiversity Significance are within the project area:

MBS Site Name	**Biodiversity Significance**	**Status**
Lee 31	Moderate	final
Malmo 1	High	final
Malmo 23	Moderate	final
Solana Northeast	Moderate	final

A comprehensive list of native plant communities in the project area are found in the Conservation Planning Report that is included in Appendix E.

The DNR recommends the following actions to avoid or minimize disturbance:

- Minimize width of trail.
- As much as possible, operate within already-disturbed areas.
- Avoid MBS Sites and native plant communities ranked S1, S2, or S3.
- Retain a buffer between proposed activities and the MBS Site.
- If working in an MBS Site:
    - Minimize vehicular disturbance in the MBS Site (allow only vehicles/equipment necessary for construction activities).
    - Do not park equipment or stockpile supplies in the MBS Site.
    - Do not place spoil in the MBS Site or other sensitive areas.
- If possible, conduct the work under frozen ground conditions.
- Do not route trails through wet swales or depressions, or sensitive rock outcrop areas.
- Bridge all stream and wetland crossings.

- Trail maintenance plans should address erodible soils, especially in areas of steep topography.
- Use signage to encourage visitors to stay on designated trails.
- Use effective erosion prevention and sediment control measures.
- Inspect and clean equipment prior to operation and follow recommendations to prevent the spread of invasive species.
- Revegetate disturbed soil with native species suitable to the local habitat as soon after construction as possible.
- Use only weed-free mulches, topsoils, and seed mixes. Of particular concern are birdsfoot trefoil (*Lotus corniculatus*) and crown vetch (*Coronilla caria*), two invasive species that are sold commercially and are problematic in prairies and disturbed open areas.

Blunt-lobed grapefern (*sceptridium oneidense*), goblin fern (*Botrychium mormo*), and narrow triangle moonwort (*Botrychium angustisegmentum*) are all state-listed threatened plants have been documented in the vicinity of the proposed project. Additionally, St. Lawrence grapefern (*Sceptridium rugulosum*), least moonwort (*Botrychium simplex*), and pale moonwort (*Botrychium pallidum*) all state-listed plant species of special concern, have also been documented in the vicinity of the proposed project. A rare plant survey will be required for this project. Recommendations from the DNR based on the survey will be considered and followed, to the extent practical.

A review of the United States Fish and Wildlife (USFWS) Information for Planning and Consultation (IPaC) database identified the following federally protected species (Appendix F):

Mammals
- Canada Lynx (*Lynx canadensis*) – Threatened
- Gray Wolf (*Canis Lupus*) – Threatened
- Northern Long-eared bat (*Myotis septentrionalis*) – Endangered

Insects
- Monarch butterfly (*Danaus plexippus*) – Proposed Threatened

Birds
- Whooping Crane (*Crus americana*) – Experimental Population, non-essential

The Minnesota DNR maintains a list of townships that contain documented Northern Long-eared Bat (NLEB) maternity roost trees and/or hibernacula (e.g., natural caves, mines)[9]. There are several identified NLEB roost trees or hibernacula located within Aitkin County; however, none have been identified within the project area. Tree removal can negatively impact bats, particularly immature pups that cannot yet fly, by destroying roosting habitat. To minimize potential impacts, the DNR recommends that tree removal be avoided during the pup rearing season (June and July). If tree removal is required, the project proposer will attempt to avoid removing trees during this time.

c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project including how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately

[9] https://files.dnr.state.mn.us/eco/ereview/minnesota_nleb_township_list_and_map.pdf

discuss effects to known threatened and endangered species.

The project is not anticipated to negatively impact any of the threatened/endangered species, rare features, or ecosystems identified above. Determinations of "may affect, not likely to adversely affect" for the Canada Lynx and Gray Wolf and "no effect" for the Monarch Butterfly and Whooping Crane were obtained through the IPaC system. Temporary impacts during construction, including noise and human activity, are not expected to adversely affect wildlife in the vicinity of the project area.

The 2019 Minnesota Board of Soil and Water Resources (BWSR) Invasive Species Plan[10] provides guidance for staff and contractors to prevent the spread of invasive species. Invasive species are defined as any species that are not native to Minnesota and cause economic or environmental harm or harm human health. Measures to prevent invasive species from entering into or spreading within a project site include cleaning equipment and clothing prior to arriving at the project site and when finished working in infested areas. Contractors should also work in areas without invasive species infestations before moving to infested areas. Any mulch, soil, gravel, etc. that is used should be invasive species-free or have a very low likelihood of having invasive species. Soil, dredge material, and raw wood that may harbor invasive species should not be moved from infested sites.

d. Identify measures that will be taken to avoid, minimize, or mitigate the adverse effects to fish, wildlife, plant communities, ecosystems, and sensitive ecological resources.

Tree removal will be avoided during the NLEB inactive season (November 15 – March 31). A wetland replacement plan will be completed for any unavoidable wetland impacts. Wetland credits will be purchased to replace impacted wetlands based on square footage and wetland type.

15. Historic properties:

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

A Phase 1 Archaeological Survey is required for this project and will be completed in 2025. The project proposer will follow the guidelines put forth by the SHPO, once the results have been submitted.

16. Visual:

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

A portion of the project site is within the Solana State Forest. Scenic views may be found along the trail; however, the proposed ATV trail is consistent with other established land uses in the area, and therefore will not create a significant change in visual aesthetics. Minimization of disturbance to the existing

[10] Invasive Species Plan

streams and wetlands will be utilized to maintain and improve the visual effects of the site. No additional mitigation measures are anticipated to be required.

17. Air:

a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

   No stationary source emissions are anticipated as part of this project.

b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g., traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

   A temporary increase in traffic, and therefore vehicle emissions, is anticipated to occur during construction of the project. Equipment necessary to complete construction is expected to include a grader, excavator, skid loader, compactor, and roller. Emissions from construction equipment can include nitrogen oxides (NO_x), hydrocarbons (HC), carbon monoxide (CO), and carbon dioxide (CO_2). There is also expected to be an increase in traffic from passenger vehicles traveling to and from the work site for construction and inspection purposes. However, the emissions resulting from these activities will cease upon conclusion of construction activities.

   No significant long-term traffic impacts due to ATV trail operations are anticipated. The proposed trail will intermittently follow existing roads, including 220th street, 300th Place, 230th Lane, 240th Lane, 230th Place, Solana State Forest Road, E White Pine Truck Trail, 150th Place and Kestrel Avenue. These roads experience low daily traffic and are primarily utilized by residents. The town of Malmo may experience minor increases in traffic as ATV trail users navigate to the area.

   During construction, the contractor will be encouraged to reduce emissions through practices such as limitations on idling equipment and efficient work management. After completion of construction, no further mitigation measures are proposed.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 17a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

   Minor dust generation during grading and construction activities is expected. Following construction, dust will be generated by ATVs driving along the trail. Without mitigation, the intensity of the dust before and after construction would be minor to moderate, depending on soil moisture, traffic amount, and wind conditions. Nearby sensitive receptors include

residential properties near the trail section along 220th Street and Kestrel Avenue. No hospitals, daycare facilities, elderly housing, or convalescent facilities were identified nearby. The surrounding area is mainly undeveloped aside from a few residential structures at the western end of the trail. Mitigation measures during construction to minimize the amount of dust will include wetting of roadways/gravel areas during construction. The SWPPP will address fugitive dust and soil protection issues. Driving speeds within the project area will be kept below 30 miles per hour during construction along new and existing ATV trails. Speed restrictions are not anticipated to be necessary in areas of the project that follow along existing paved roads where no construction related soil disturbance is expected. No significant odors are expected during or after construction. No additional mitigation measures are anticipated.

18. Greenhouse Gas (GHG) Emissions/Carbon Footprint

a. GHG Quantification: For all proposed projects, provide quantification and discussion of project GHG emissions. Include additional rows in the tables as necessary to provide project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to come to that conclusion and any GHG emission sources not included in the total calculation.

Construction Emissions:
Gas- and diesel-powered equipment will be used during the construction of the ATV trail and will generate GHG emissions. Gases emitted from these sources include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Construction is anticipated to begin in Spring of 2026 and last approximately six months. Gallons of fuel to be used during construction have been estimated for Table 2 found below. Table 1 includes a summary of the potential GHG emissions for the project, reported in CO_2-equivalents (CO_2e) by multiplying nominal estimated emissions of each GHG by its global warming potential (GWP) using the US EPA's Simplified GHG Emissions Calculator (SGEC). Supporting calculation tables are included in Appendix G.

The following assumptions were made in estimating the GHG emissions from the project:

- Traffic emissions are based on the anticipated number of average daily trips (see Section 20 below) for ATVs within the newly constructed trail.
- ATV users will travel an average of 20 miles per trip.
- The trail will be utilized by 2,100 ATVs per month or 70 riders per day (see section 20).
- The riding season is five months, from May to October.
- The average fuel economy for ATVs is 20 miles per gallon.
- Construction equipment will include 6 on-road vehicles (haul trucks, commuter vehicles) and 7 off-road earthmoving equipment (excavators, loaders, skid steers, etc.) driving approximately 10 miles per day over 1 construction season of 120 working days each.
- Emissions associated with land-use change from woodland and wetlands to ATV trail consist of on-site CO_2, CH_4, and N_2O emissions/removals from drained inland organic soils and off-site CO_2 emissions via waterborne carbon losses from the soil. Emissions are assumed to persist as long as the soil remains drained.
- Project lifetime is conservatively 50 years.

Currently, the project area is primarily woodland and unpaved trail, and therefore produces a

minimal amount of GHG emissions (0.0 tons/year assumed for baseline condition). Estimated GHG emissions during construction of the trail total 26.8 tons CO_2e per year. The estimated post-construction GHG emissions for the project total 97.1 tons CO_2e per year.

Table 2 – Greenhouse Gas Emissions Summary

Construction Emissions

Scope	Type of Emission	Emission Sub-type	Project-related CO_2e Emissions (tons/year)	Calculation method(s)
Scope 1	Combustion	Mobile Equipment (on-road & off-road)	26.8	SGEC Tool
TOTAL			**26.8**	

Operational Emissions

Scope	Type of Emission	Emission Sub-Type	Existing CO_2e Emissions (tons/year)	Project-related CO_2e Emissions (tons/year)	Total CO_2e Emissions (tons/year)	Calculation method(s)
Scope 1	Combustion	Mobile Equipment (ATV usage)	0	97.1	97.1	SGEC Tool
TOTAL			**0**	**97.1**	**97.1**	

b. GHG Assessment

i. Describe any mitigation considered to reduce the project's GHG emissions.

During construction, the contractor will be encouraged to reduce emissions through practices such as limitations on idling equipment and efficient work management. Trail etiquette and stewardship will be encouraged, including vehicle maintenance to maintain emission standards. No further mitigation is proposed for emissions.

ii. Describe and quantify reductions from selected mitigation, if proposed to reduce the project's GHG emissions. Explain why the selected mitigation was preferred.

N/A

iii. Quantify the proposed projects predicted net lifetime GHG emissions (total tons/#of years) and how those predicted emissions may affect achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.

Using the figures outlined above, total GHG emissions over the 50-year lifetime of the project are estimated at 4,881.8 tons CO_2e and are primarily attributed to ATV usage. As newer and more gas-efficient vehicles are introduced to trails, emissions may reduce over time. Current Next Generation Energy Act goals are to reduce GHG emissions statewide to 30% below 2005 levels by 2025 and 80% below 2005 levels by 2050. In 2023, the state Legislature updated these goals to reflect the state's Climate Action Framework. Minnesota's current goals are to reduce greenhouse gas emissions 50% by 2030 from a 2005 baseline and achieve net-zero emissions by 2050. As of January 2025, Minnesota is on

track to meet these goals. Overall, the project is not anticipated to negatively affect Minnesota's GHG reduction goals.

19. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

During construction, noise source would be typical of road or trail project construction. This would include skid steers, small excavators, or similar machinery. Construction noise would be temporary and limited to daytime hours.

After construction, noise generated by ATVs is regulated by MN Rule 6102.0040, Subp. 4.B, which restricts noise emission from ATVs "so that overall noise emission does not exceed a sound level limitation of not more than 99 decibels."

Nearby receptors include residential properties within and around the project area. According to the National Nuclear Data Center, examples of noise sensitive receptors include:

"footpaths and other walking routes; cycling routes including rural roads; bird watching areas; areas used for recreation/amenity; dog walking routes; holiday lets; shops and cafés; visitor attractions and public amenity space/play areas. Both temporary and permanent residential dwellings and gardens, as well as workplaces, schools and public buildings will also be sensitive receptor locations."

The nearest sensitive receptors are the residential properties located along 220th Street in the town of Malmo, MN, which is west of the project area. The majority of the project area falls under a higher noise area classification (NAC 4) due to being within undeveloped land, according to MPCA classifications obtained from A Guide to Noise Control in Minnesota[11]. There are no noise standards for NAC 4 areas. No additional mitigation measures should be required.

20. Transportation

a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.

   Currently the project area consists of 4.99 miles of undeveloped forest areas, 11.32 miles of existing ATV trails, 14.49 miles of roadway, 2.00 miles of road ditch, and 3.55 miles of forest roads. Little to no traffic is currently generated or uses most of the areas.

[11] A Guide to Noise Control in Minnesota

The project is estimated to be used by 2,100 ATVs per month (70 ATVs per day), based on the average historic use of other ATV trails within Aitkin County (Appendix H). To haul these ATVs, an estimated 25 to 30 cars per day will need to travel to the project area. Cars are anticipated to be dispersed between the proposed trailhead and surrounding towns. Peak traffic generated by this project is anticipated to be in the morning with citizens arriving at the trailhead and in the afternoon when they depart for the day.

No other transportation methods are available to bring citizens to the trailheads.

b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. *If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW.* Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 *(available at: http://www.dot.state.mn.us/accessmanagement/resources.html)* or a similar local guidance.

The completed project will have eight roadway connections and one trailhead.

c. Identify measures that will be taken to minimize or mitigate project related transportation effects.

Some project-related transportation effects are anticipated but are expected to be minimal. Mitigation practices will be utilized if required. The three trailhead connections are anticipated to disseminate the traffic flow and spread out the ATV traffic.

21. Cumulative potential effects: (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)

a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

The geographic scales of the environmental effects would remain in close proximity to the project area. The timeframe for these potential effects would be based on trail use over time. The trail is expected to be of use for the next 30 to 50 years, if utilized and maintained. Environmental effects related to construction would be limited to one construction season and periodic maintenance, as needed.

Potential environmental effects from this project that could combine with the environmental effects of other foreseeable projects include increased traffic, noise generation, erosion, and invasive species introduction. Routine use of the proposed trail, and the potential expansions to the trail, would increase traffic levels and noise generation around the general area. Invasive species may be introduced and spread with the expected ATV user increase as the trail becomes longer and more accessible to surrounding communities. This would also contribute to erosion as land use throughout the area changes and is developed.

b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

Future phases of the trail development (Phases 2 and 3) are likely to have similar environmental effects as the current project due to similar land uses, project goals, and construction methods. Effects may include, but are not limited to, wetland and stream impacts, further GHG emissions, tree clearing, traffic delays and effects of historical properties or rare ecological resources.

Phases 2 and 3 have no confirmed alignment but would build off the current project area and stay within southern Aitkin County. Construction details and timing for these phases have not been determined; therefore, cumulative effects cannot be quantified at this time. Environmental review for future phases will be completed independently of this report.

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

Traffic near the proposed project and other foreseeable projects may temporarily increase during construction. There may be temporary and localized parking demand where future segments share connection with towns, amenities, and points of interest. With trail development, these traffic effects would remain over the course of the project's lifetime due to growing use of the area and may increase with future trail segments or construction projects throughout the area. Seasonal peaks are expected and may pertain to summer holidays or organized ATV events.

Cumulative invasive species effects are possible during construction and post-construction trail use. Foreseeable trail expansions would add possible infestation sources similar to the proposed project. Any invasive species introduced or spread along the proposed trail could accumulate as the trail is expanded or ATV riders increase. Growing ATV use would lead to ongoing invasive species concern and would require routine monitoring and possible management. Trail managers should work with partners in the area such as the DNR Trail Ambassador program to monitor and reduce the spread of invasive species within the proposed project. MN DNR OHV Regulations (effective July 2024 – June 30, 2025) regulate the usage of Off-highway vehicles (OHV), all-terrain vehicles (ATV), off-highway motorcycles (OHM) and off-road vehicles (ORV). This document states several ways invasive species should be managed by riders of ATVs, OHMs, or ORVs, including starting the day with clean shoes, gear, and vehicles by using a handheld brush to ensure there aren't any seeds or plant parts left over from previous usage. Riders must stay on marked and/or designated trails to keep invasive species populations localized for easier management and to prevent spreading to new areas. Riders are also required to clean their clothes and gear by picking off seeds and burrs and brushing off soil as well as spray down OHVs with water or compressed air to remove mud and plant parts from tires and fenders. Measures to prevent the spread of invasive species during construction include working in non-infested areas first before moving to infested areas as well as inspecting and cleaning equipment after working in infested areas. Additional control methods will be applied as necessary as specific invasive species concerns are revealed. Terrestrial invasive species can be controlled through biological, chemical, and physical methods. Biological controls involve the use of living organisms, such as insects, to reduce invasive species populations. Chemical controls involve using herbicides to treat invasive plants. Physical/mechanical controls use fencing,

use. Future phases on the project, and thus additional land alteration, risks cumulative erosion over time. However, these phases would have separate geographic areas and timeframes. Construction-related erosion effects of these future phases would be limited to the construction corridor.

22. **Other potential environmental effects:** If the project may cause any additional environmental effects not addressed by items 1 to 21, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

    The project is not expected to cause any environmental effects that have not already been addressed.

RGU CERTIFICATION. *(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature _____ Date MARCH 17, 2025

ANDREW L. CARLSTROM

Title AITKIN COUNTY ENVIRONMENTAL SERVICES DIRECTOR

Figures

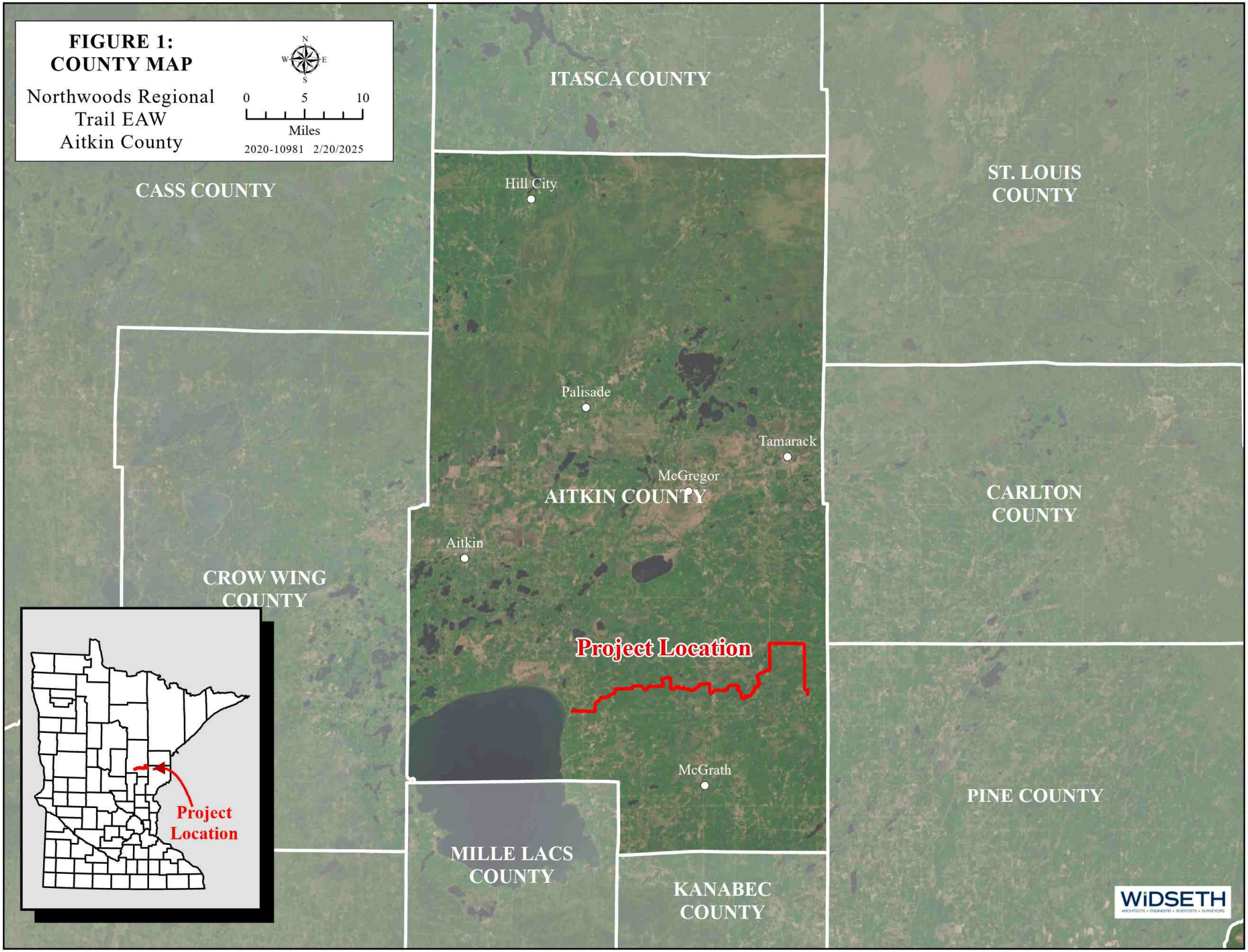
FIGURE 1:
COUNTY MAP
Northwoods Regional
Trail EAW
Aitkin County
N
W
E
S
0
5
10
Miles
2020-10981 2/20/2025
ITASCA COUNTY
CASS COUNTY
ST. LOUIS
COUNTY
Hill City
Palisade
Tamarack
McGregor
AITKIN COUNTY
CARLTON
COUNTY
Aitkin
CROW WING
COUNTY
Project Location
McGrath
PINE COUNTY
MILLE LACS
COUNTY
KANABEC
COUNTY
Project
Location
WIDSETH

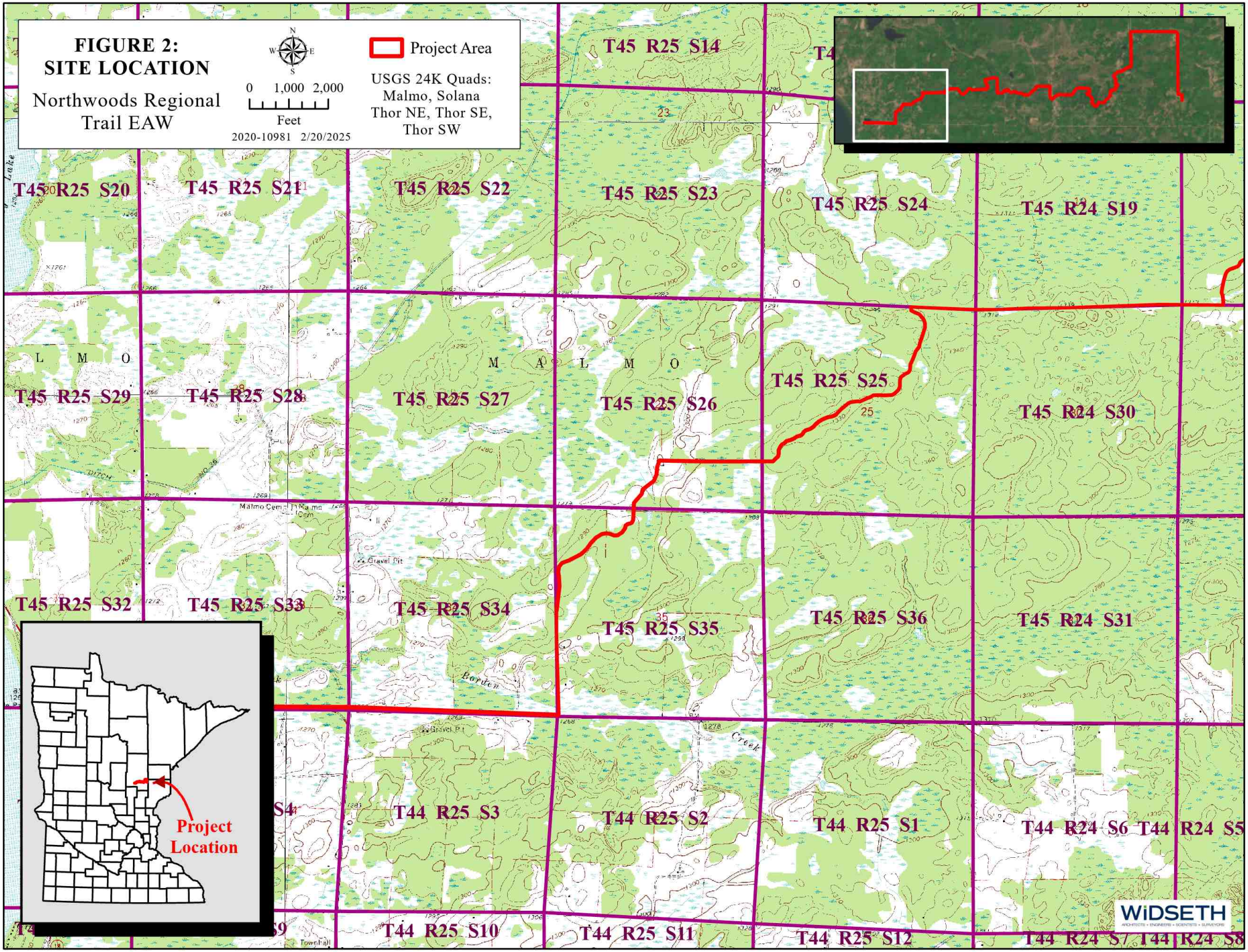
FIGURE 2:
SITE LOCATION
Northwoods Regional Trail EAW
N
W
E
S
0 1,000 2,000
Feet
2020-10981 2/20/2025
Project Area
USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW
T45 R25 S14
T45 R25 S20
T45 R25 S21
T45 R25 S22
T45 R25 S23
T45 R25 S24
T45 R24 S19
T45 R25 S29
T45 R25 S28
T45 R25 S27
T45 R25 S26
T45 R25 S25
T45 R24 S30
T45 R25 S32
T45 R25 S33
T45 R25 S34
T45 R25 S35
T45 R25 S36
T45 R24 S31
T44 R25 S3
T44 R25 S2
T44 R25 S1
T44 R24 S6
T44 R24 S5
T44 R25 S10
T44 R25 S11
T44 R25 S12
T44 R24 S7
T44 R24 S8
Project Location
WIDSETH

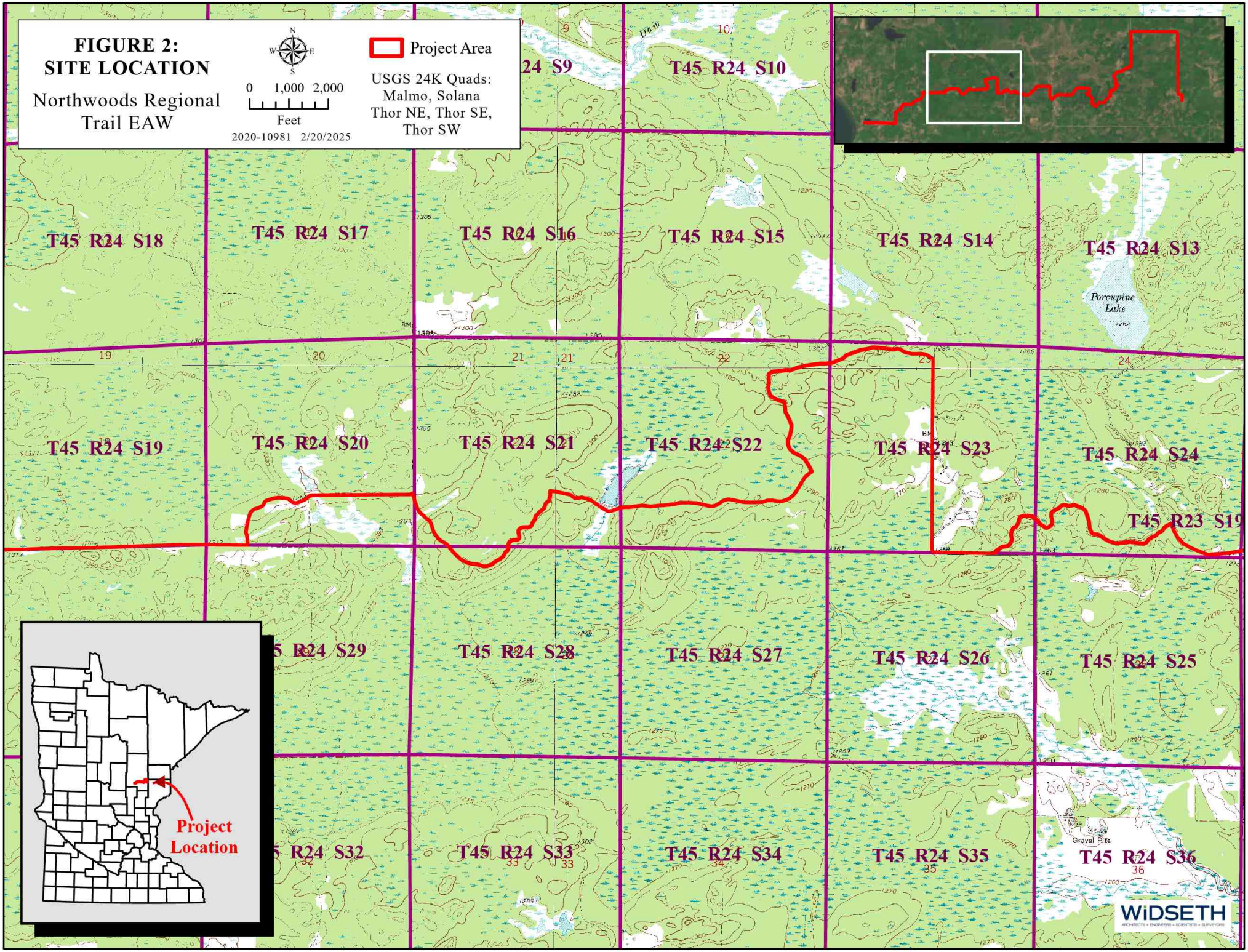
FIGURE 2:
SITE LOCATION
Northwoods Regional Trail EAW
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E
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0 1,000 2,000
Feet
2020-10981 2/20/2025
Project Area
USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW
T45 R24 S9
T45 R24 S10
T45 R24 S18
T45 R24 S17
T45 R24 S16
T45 R24 S15
T45 R24 S14
T45 R24 S13
Porcupine Lake
T45 R24 S19
T45 R24 S20
T45 R24 S21
T45 R24 S22
T45 R24 S23
T45 R24 S24
T45 R23 S19
T45 R24 S29
T45 R24 S28
T45 R24 S27
T45 R24 S26
T45 R24 S25
T45 R24 S32
T45 R24 S33
T45 R24 S34
T45 R24 S35
T45 R24 S36
Gravel Pits
Project Location
WIDSETH

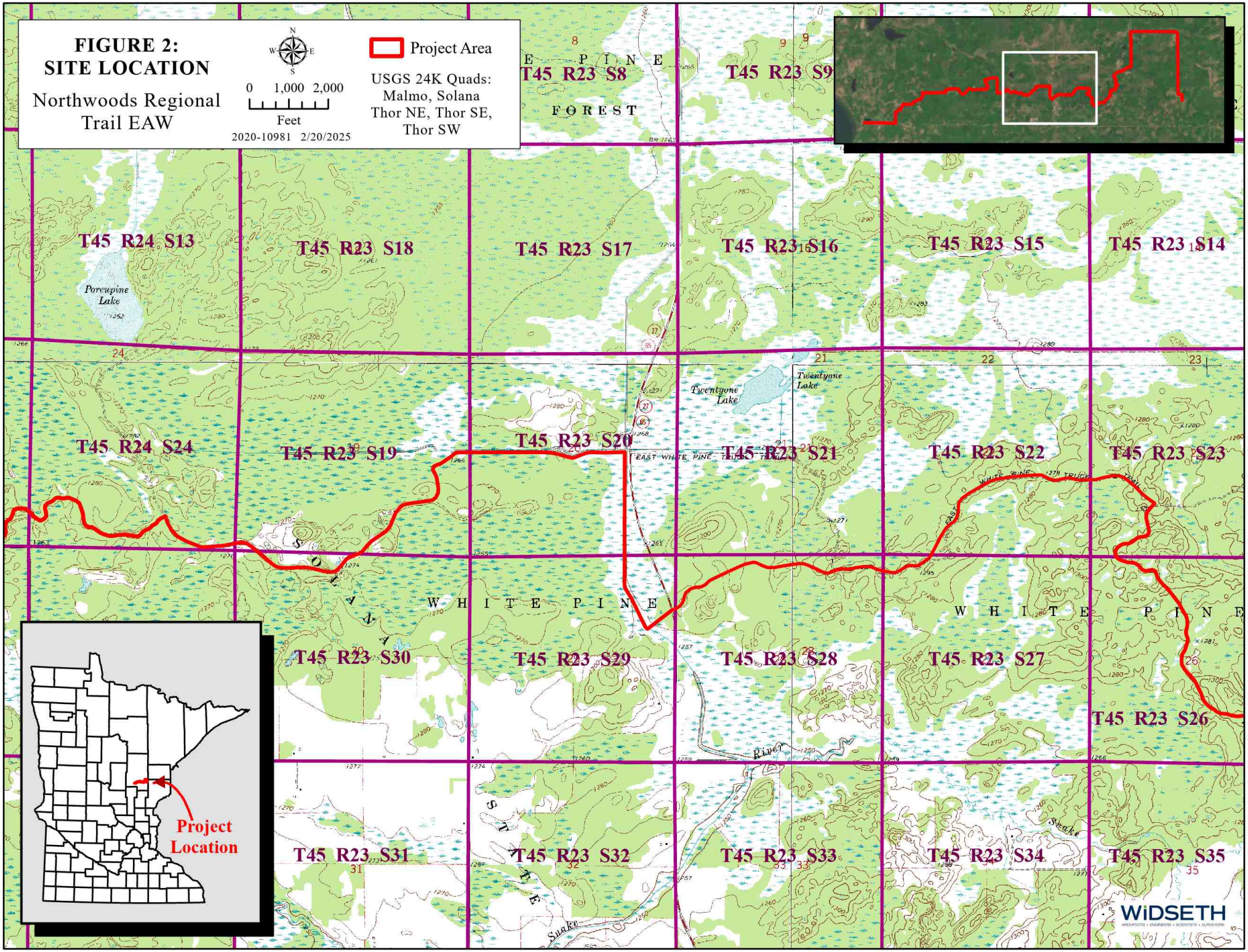
FIGURE 2:
SITE LOCATION
Northwoods Regional Trail EAW
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Feet
2020-10981 2/20/2025
Project Area
USGS 24K Quads:
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Thor SW
T45 R24 S13
T45 R23 S18
T45 R23 S17
T45 R23 S16
T45 R23 S15
T45 R23 S14
T45 R24 S24
T45 R23 S19
T45 R23 S20
T45 R23 S21
T45 R23 S22
T45 R23 S23
T45 R23 S30
T45 R23 S29
T45 R23 S28
T45 R23 S27
T45 R23 S26
T45 R23 S31
T45 R23 S32
T45 R23 S33
T45 R23 S34
T45 R23 S35
T45 R23 S8
T45 R23 S9
E P I N E
F O R E S T
Porcupine Lake
Twentyone Lake
Twentyone Lake
EAST WHITE PINE
WHITE PINE
W H I T E P I N E
W H I T E P I N E
Project Location
WiDSETH

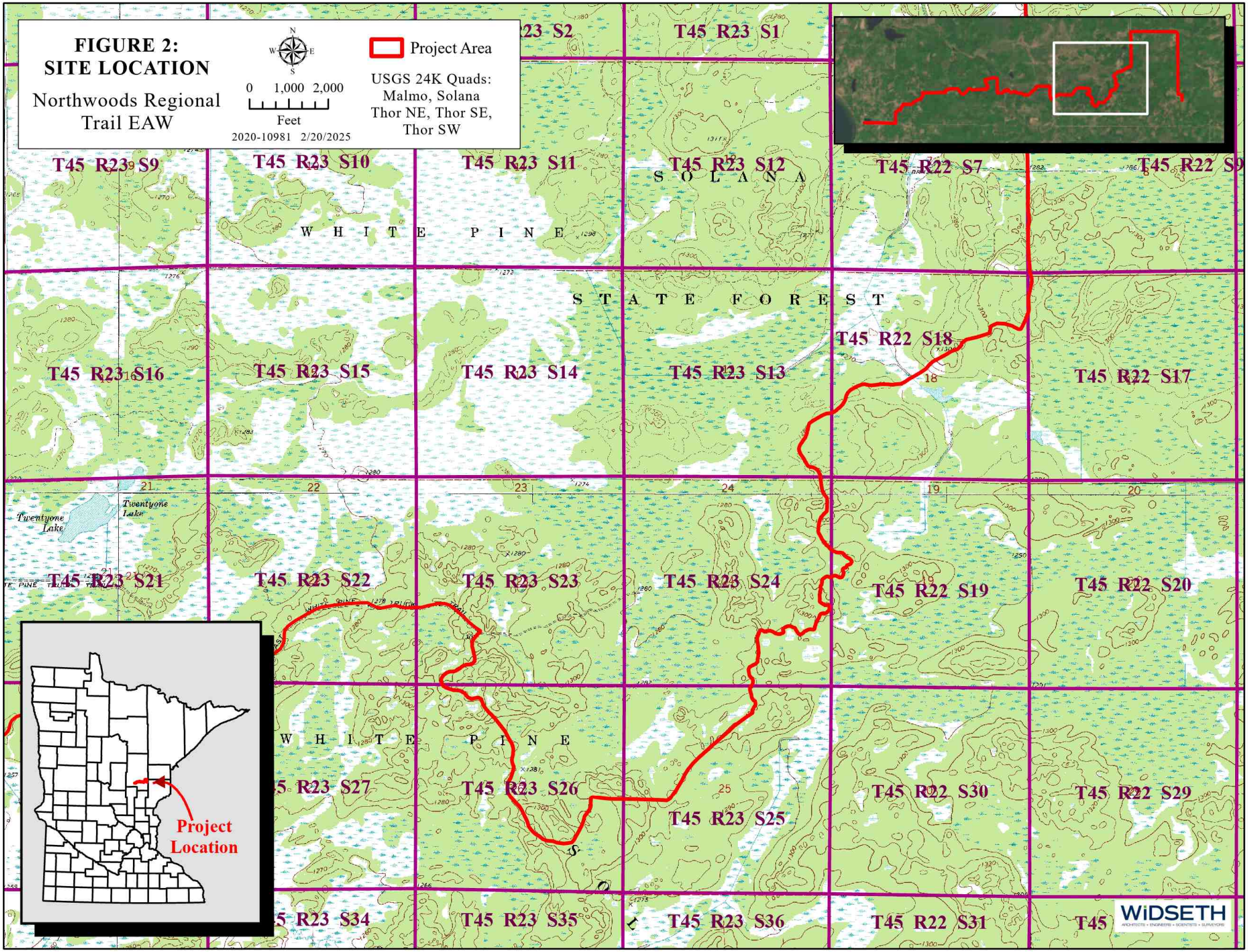
FIGURE 2:
SITE LOCATION
Northwoods Regional Trail EAW
N
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0 1,000 2,000
Feet
2020-10981 2/20/2025
Project Area
USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW
T45 R23 S9
T45 R23 S10
T45 R23 S11
T45 R23 S12
T45 R23 S1
T45 R22 S7
T45 R22 S8
T45 R23 S16
T45 R23 S15
T45 R23 S14
T45 R23 S13
T45 R22 S18
T45 R22 S17
T45 R23 S21
T45 R23 S22
T45 R23 S23
T45 R23 S24
T45 R22 S19
T45 R22 S20
T45 R23 S27
T45 R23 S26
T45 R23 S25
T45 R22 S30
T45 R22 S29
T45 R23 S34
T45 R23 S35
T45 R23 S36
T45 R22 S31
T45
SOLANA
WHITE PINE
STATE FOREST
Twentyone Lake
Project Location
WiDSETH

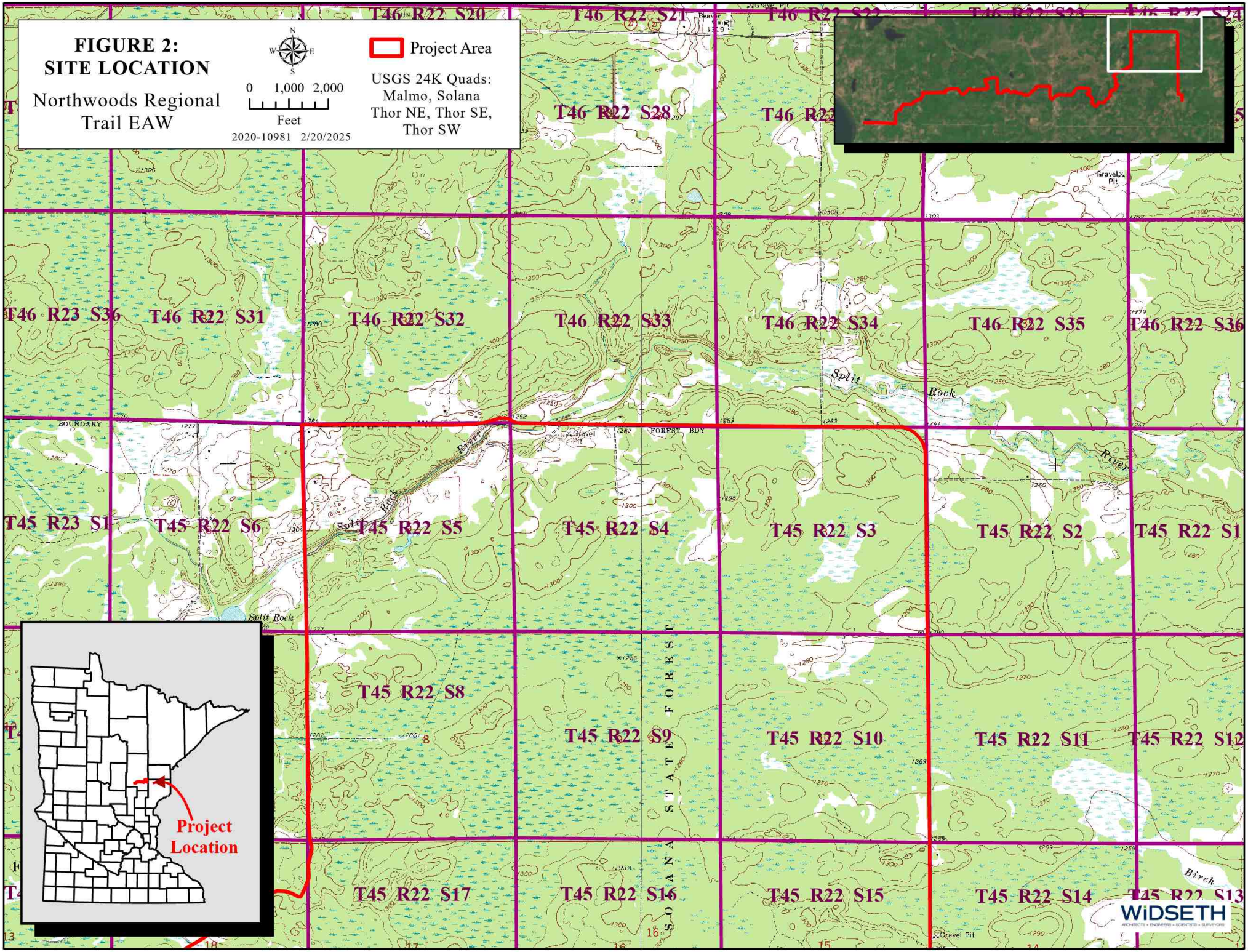
FIGURE 2:
SITE LOCATION
Northwoods Regional Trail EAW
N
W
E
S
0 1,000 2,000
Feet
2020-10981 2/20/2025
Project Area
USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW
T46 R22 S20
T46 R22 S21
T46 R22 S28
T46 R23 S36
T46 R22 S31
T46 R22 S32
T46 R22 S33
T46 R22 S34
T46 R22 S35
T46 R22 S36
T45 R23 S1
T45 R22 S6
T45 R22 S5
T45 R22 S4
T45 R22 S3
T45 R22 S2
T45 R22 S1
T45 R22 S8
T45 R22 S9
T45 R22 S10
T45 R22 S11
T45 R22 S12
T45 R22 S17
T45 R22 S16
T45 R22 S15
T45 R22 S14
T45 R22 S13
SOLANA STATE FOREST
Split Rock
Beaver
Birch
Gravel Pit
BOUNDARY
FOREST BDY
Project Location
WIDSETH

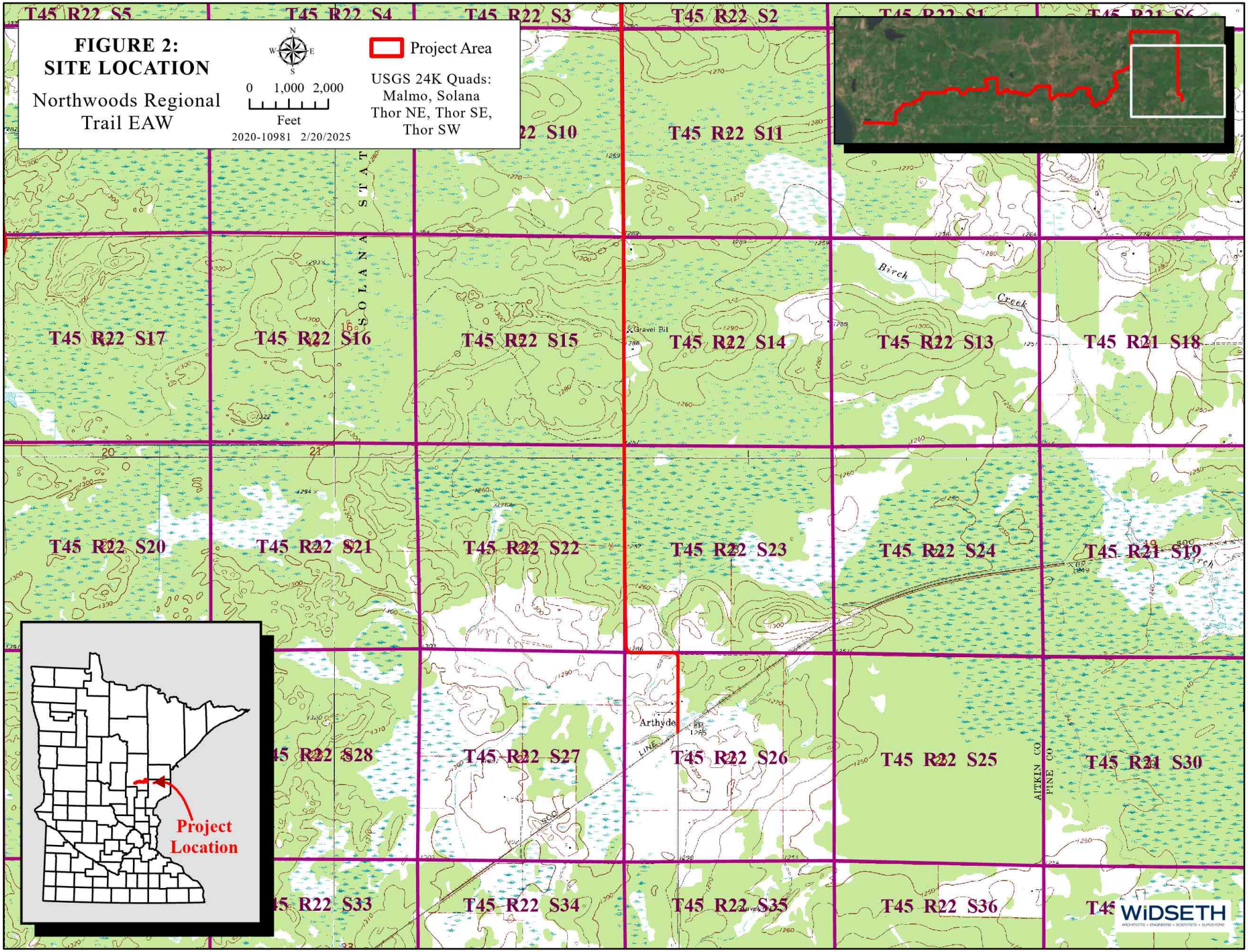
FIGURE 2:
SITE LOCATION
Northwoods Regional Trail EAW
N
W
E
S
0 1,000 2,000
Feet
2020-10981 2/20/2025
Project Area
USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW
T45 R22 S5
T45 R22 S4
T45 R22 S3
T45 R22 S2
T45 R22 S1
T45 R21 S6
T45 R22 S10
T45 R22 S11
SOLANA STA
T45 R22 S17
T45 R22 S16
T45 R22 S15
T45 R22 S14
T45 R22 S13
T45 R21 S18
Gravel Pit
Birch
Creek
T45 R22 S20
T45 R22 S21
T45 R22 S22
T45 R22 S23
T45 R22 S24
T45 R21 S19
T45 R22 S28
T45 R22 S27
T45 R22 S26
T45 R22 S25
T45 R21 S30
Arthyde
LINE
ATKIN CO
PINE CO
T45 R22 S33
T45 R22 S34
T45 R22 S35
T45 R22 S36
Project Location
WIDSETH

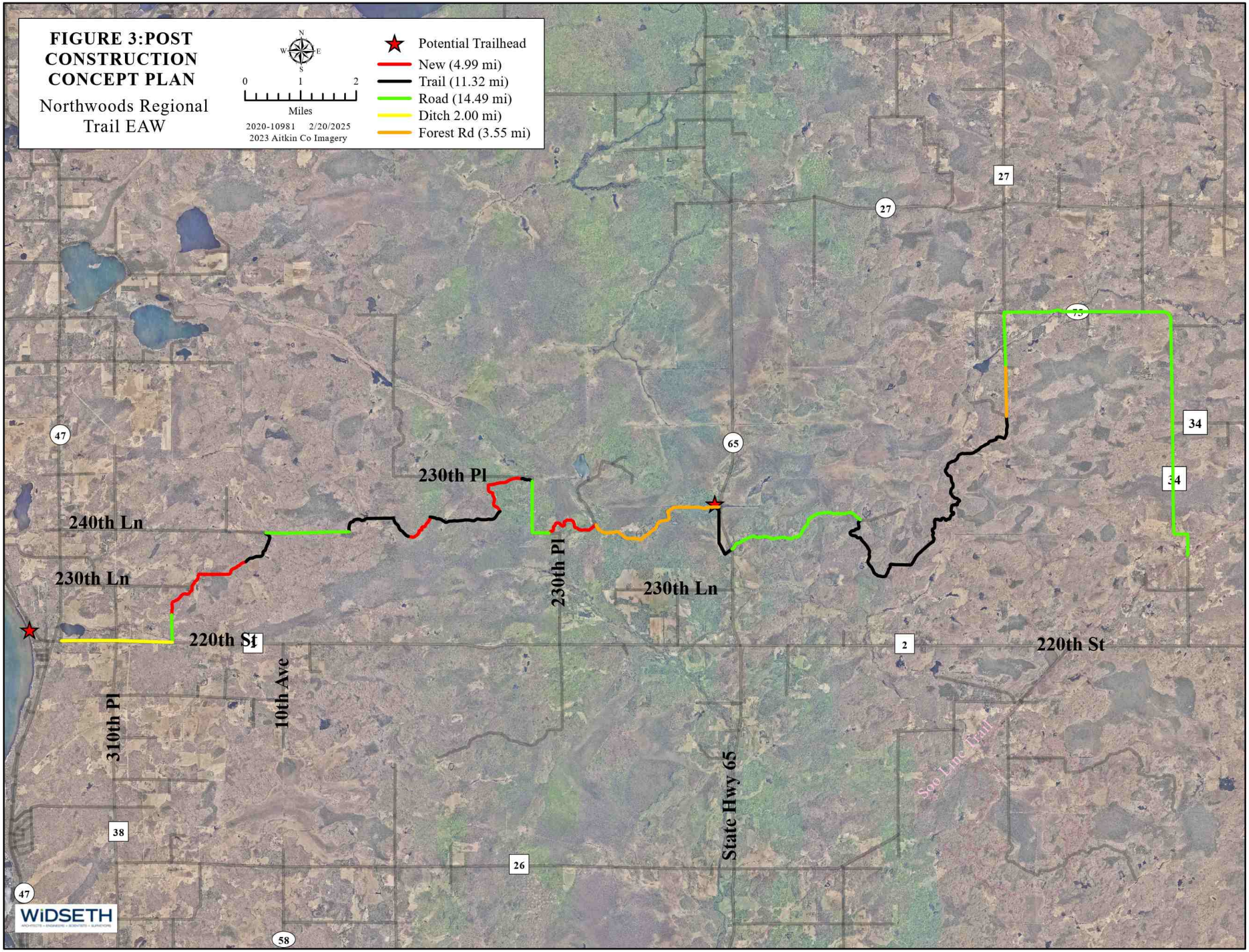
FIGURE 3:POST CONSTRUCTION CONCEPT PLAN
Northwoods Regional Trail EAW
N
W
E
S
0
1
2
Miles
2020-10981 2/20/2025
2023 Aitkin Co Imagery
Potential Trailhead
New (4.99 mi)
Trail (11.32 mi)
Road (14.49 mi)
Ditch 2.00 mi)
Forest Rd (3.55 mi)
27
27
47
65
34
34
230th Pl
240th Ln
230th Ln
230th Pl
230th Ln
220th St
2
220th St
310th Pl
10th Ave
State Hwy 65
Soo Line Trail
38
26
47
58
WiDSETH

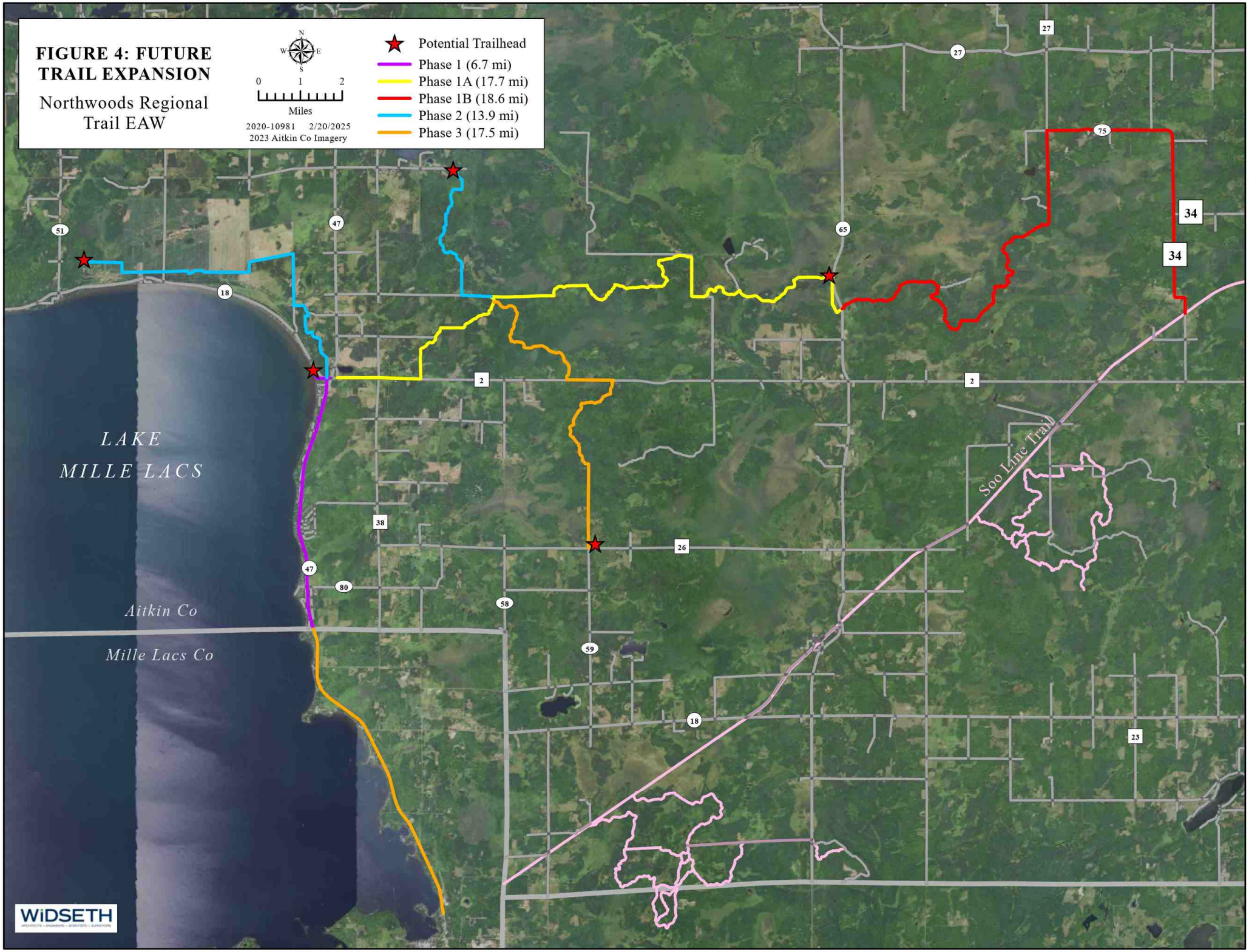
FIGURE 4: FUTURE TRAIL EXPANSION
Northwoods Regional Trail EAW
N
W
E
S
0
1
2
Miles
2020-10981 2/20/2025
2023 Aitkin Co Imagery
Potential Trailhead
Phase 1 (6.7 mi)
Phase 1A (17.7 mi)
Phase 1B (18.6 mi)
Phase 2 (13.9 mi)
Phase 3 (17.5 mi)
LAKE MILLE LACS
Aitkin Co
Mille Lacs Co
Soo Line Trail
WIDSETH

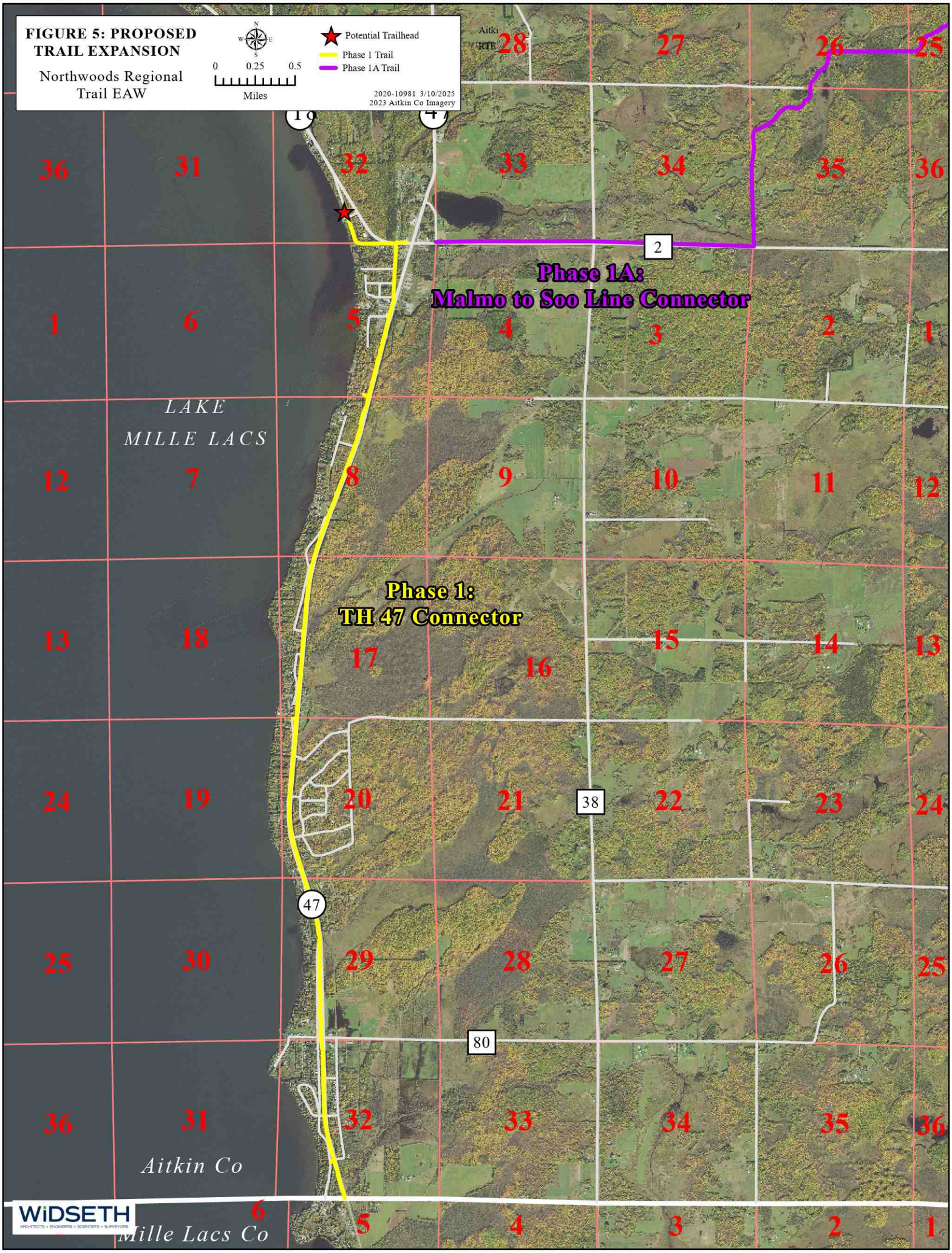
FIGURE 5: PROPOSED TRAIL EXPANSION
Northwoods Regional Trail EAW
N
W
E
S
0
0.25
0.5
Miles
Potential Trailhead
Phase 1 Trail
Phase 1A Trail
2020-10981 3/10/2025
2023 Aitkin Co Imagery
Aitki
RTE
Phase 1A:
Malmo to Soo Line Connector
Phase 1:
TH 47 Connector
LAKE
MILLE LACS
Aitkin Co
Mille Lacs Co
2
38
47
80
WiDSETH
ARCHITECTS • ENGINEERS • SCIENTISTS • SURVEYORS

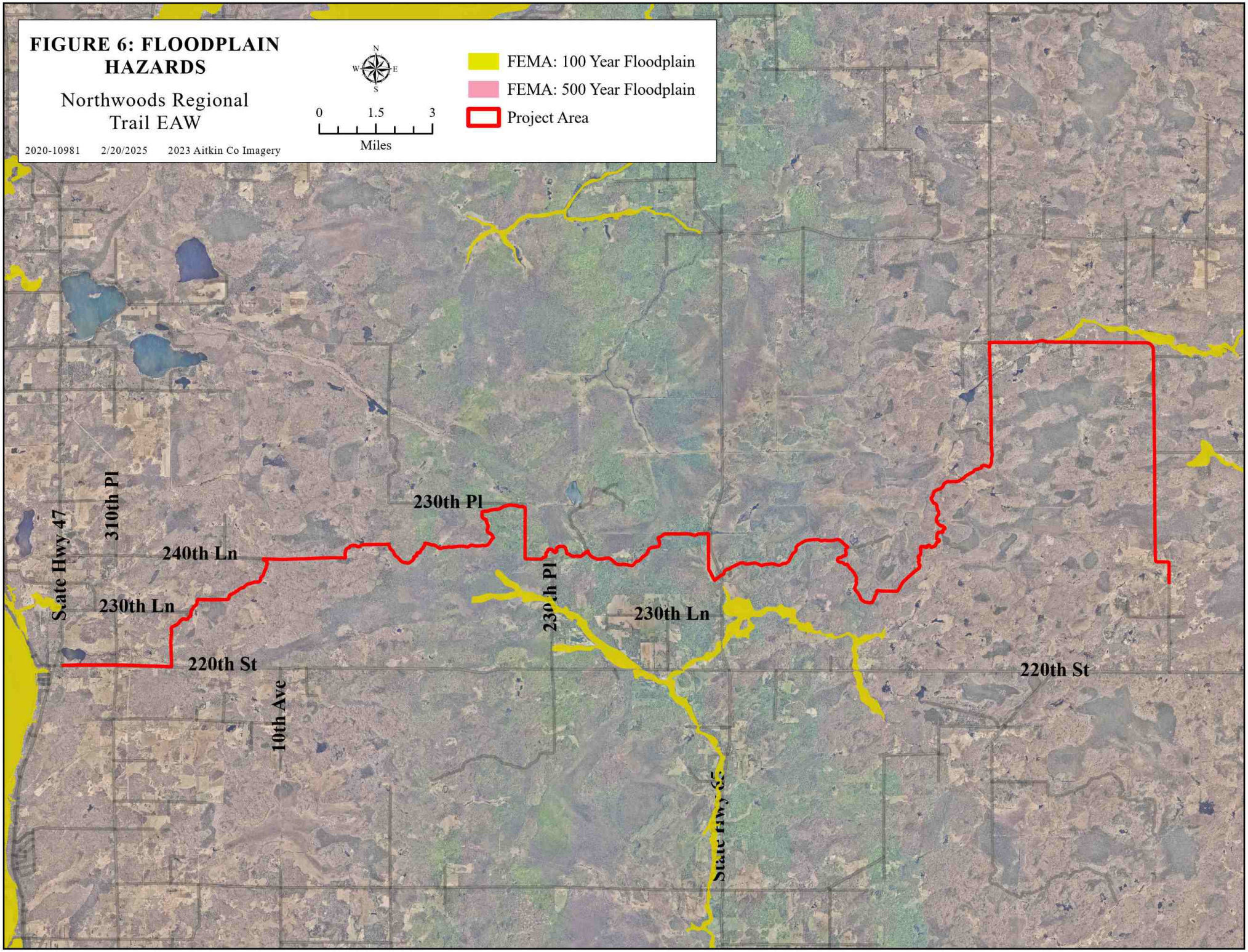
FIGURE 6: FLOODPLAIN HAZARDS
Northwoods Regional Trail EAW
2020-10981 2/20/2025 2023 Aitkin Co Imagery
N
W E
S
0 1.5 3
Miles
FEMA: 100 Year Floodplain
FEMA: 500 Year Floodplain
Project Area
State Hwy 47
310th Pl
240th Ln
230th Ln
220th St
10th Ave
230th Pl
230th Pl
230th Ln
220th St
State Hwy 65

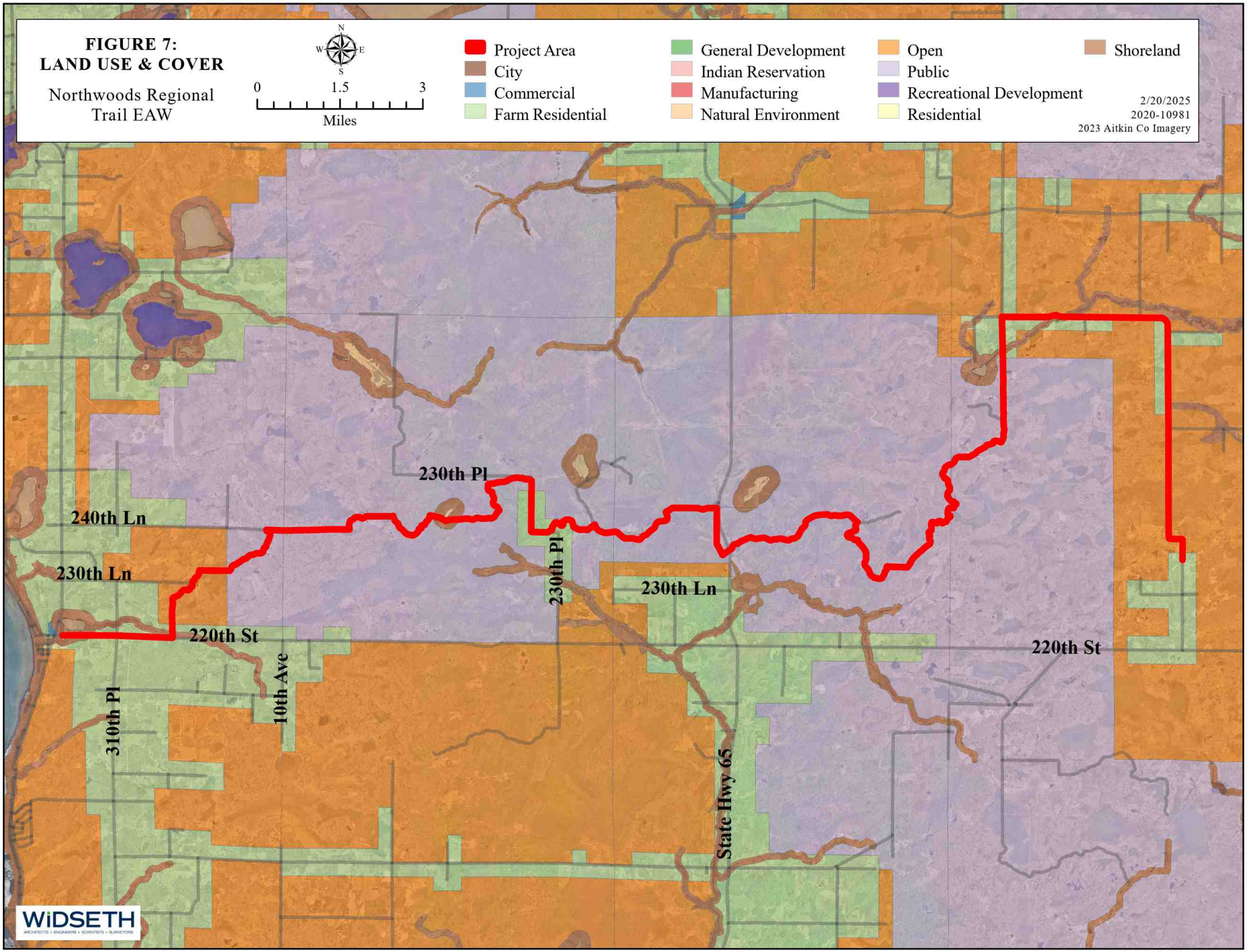
FIGURE 7:
LAND USE & COVER
Northwoods Regional
Trail EAW
N
W
E
S
0
1.5
3
Miles
Project Area
City
Commercial
Farm Residential
General Development
Indian Reservation
Manufacturing
Natural Environment
Open
Public
Recreational Development
Residential
Shoreland
2/20/2025
2020-10981
2023 Aitkin Co Imagery
230th Pl
240th Ln
230th Ln
230th Pl
230th Ln
220th St
220th St
10th Ave
310th Pl
State Hwy 65
WiDSETH
ARCHITECTS • ENGINEERS • SCIENTISTS • SURVEYORS

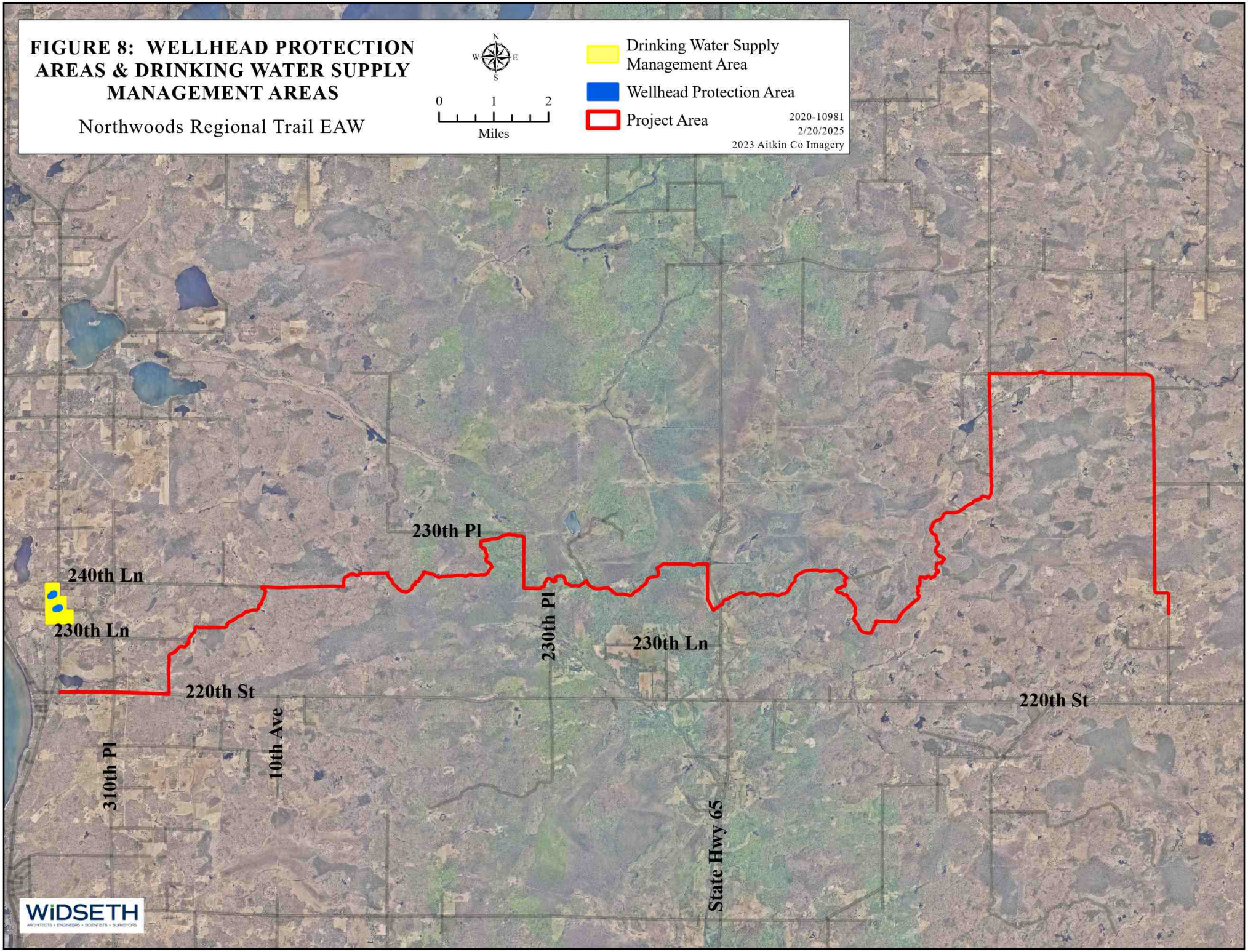
FIGURE 8: WELLHEAD PROTECTION AREAS & DRINKING WATER SUPPLY MANAGEMENT AREAS
Northwoods Regional Trail EAW
N
W
E
S
0
1
2
Miles
Drinking Water Supply Management Area
Wellhead Protection Area
Project Area
2020-10981
2/20/2025
2023 Aitkin Co Imagery
230th Pl
240th Ln
230th Ln
230th Pl
230th Ln
220th St
220th St
310th Pl
10th Ave
State Hwy 65
WIDSETH
ARCHITECTS • ENGINEERS • SCIENTISTS • SURVEYORS

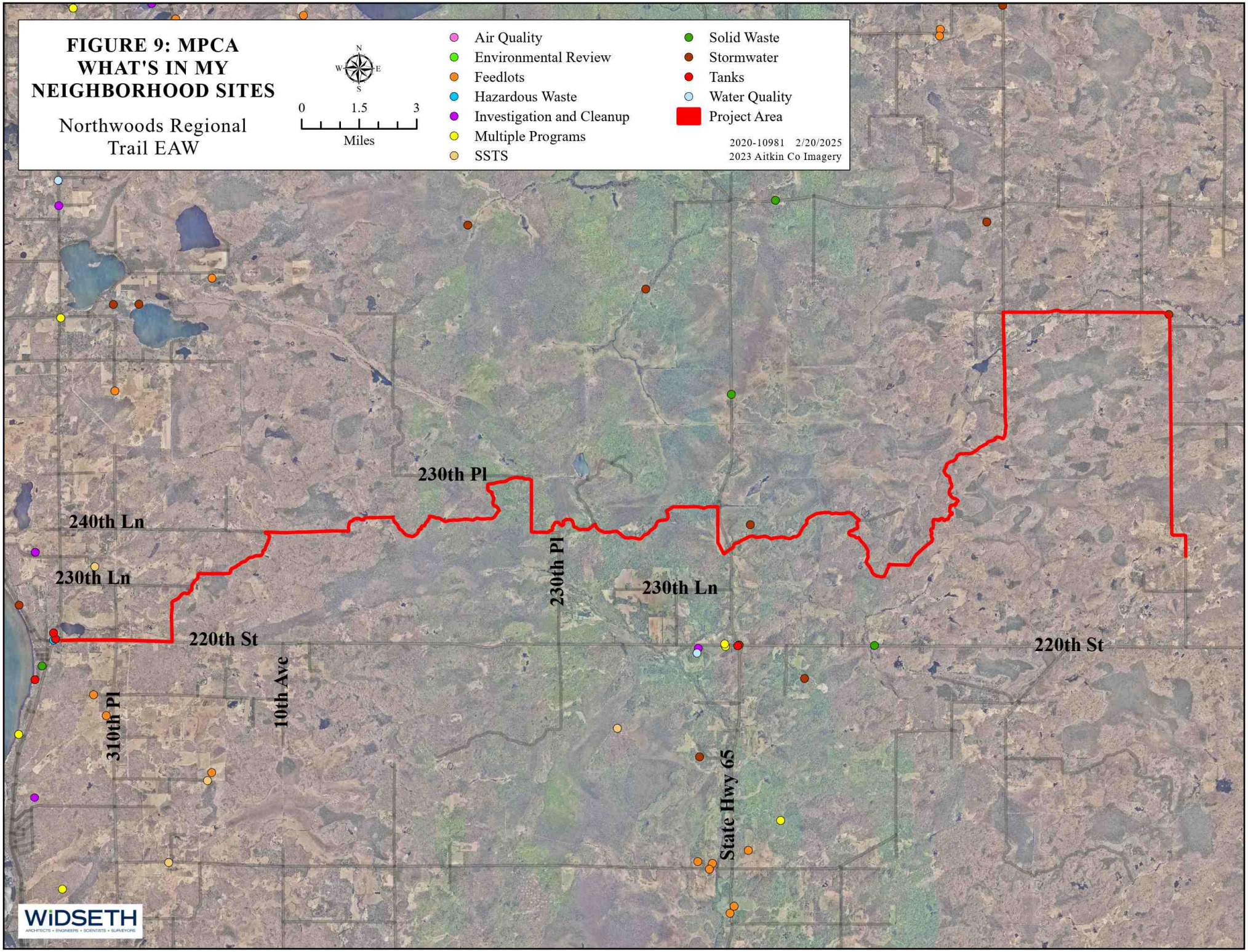
FIGURE 9: MPCA WHAT'S IN MY NEIGHBORHOOD SITES
Northwoods Regional Trail EAW
N
W
E
S
0
1.5
3
Miles
Air Quality
Environmental Review
Feedlots
Hazardous Waste
Investigation and Cleanup
Multiple Programs
SSTS
Solid Waste
Stormwater
Tanks
Water Quality
Project Area
2020-10981 2/20/2025
2023 Aitkin Co Imagery
230th Pl
240th Ln
230th Ln
220th St
230th Pl
230th Ln
220th St
310th Pl
10th Ave
State Hwy 65
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APPENDIX A

Economic Development Plan

AITKIN COUNTY ECONOMIC DEVELOPMENT STRATEGIC PLAN 2022-2027

AITKIN COUNTY
EST 1857

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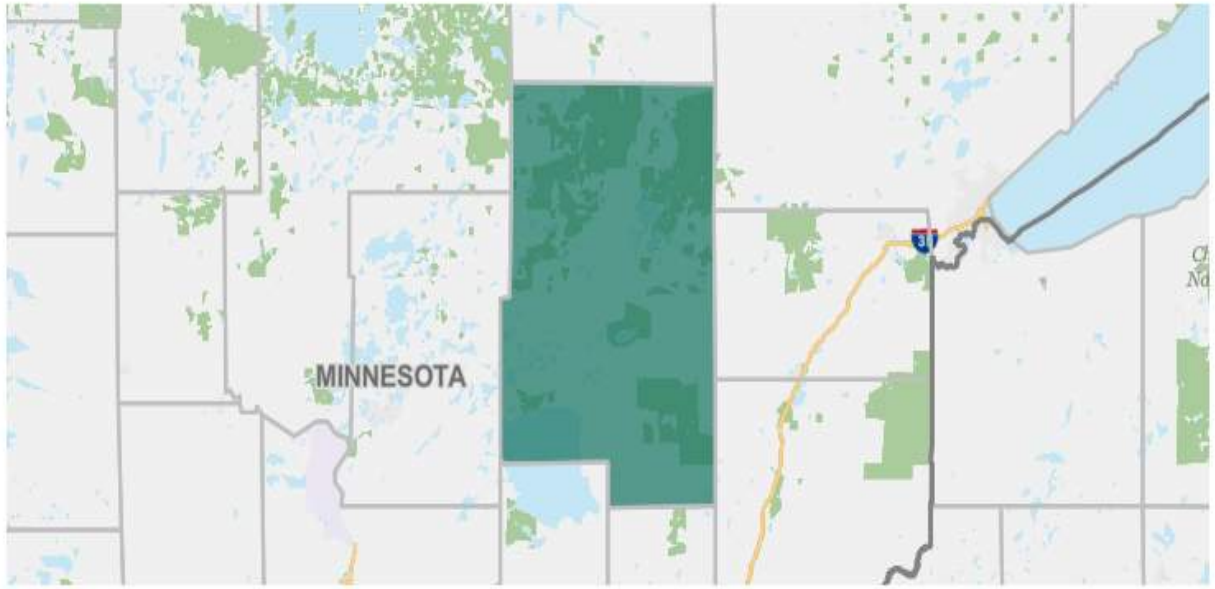
AITKIN COUNTY EST 1857

Aitkin County, Minnesota

County, or equivalent in Minnesota



Aitkin County, Minnesota has 1,821.3 square miles of land area and is the 9th largest county in Minnesota by total area. Aitkin County, Minnesota is bordered by Pine County, Minnesota, Itasca County, Minnesota, St. Louis County, Minnesota, Carlton County, Minnesota, Crow Wing County, Minnesota, Cass County, Minnesota, Kanabec County, Minnesota, and Mille Lacs County, Minnesota.

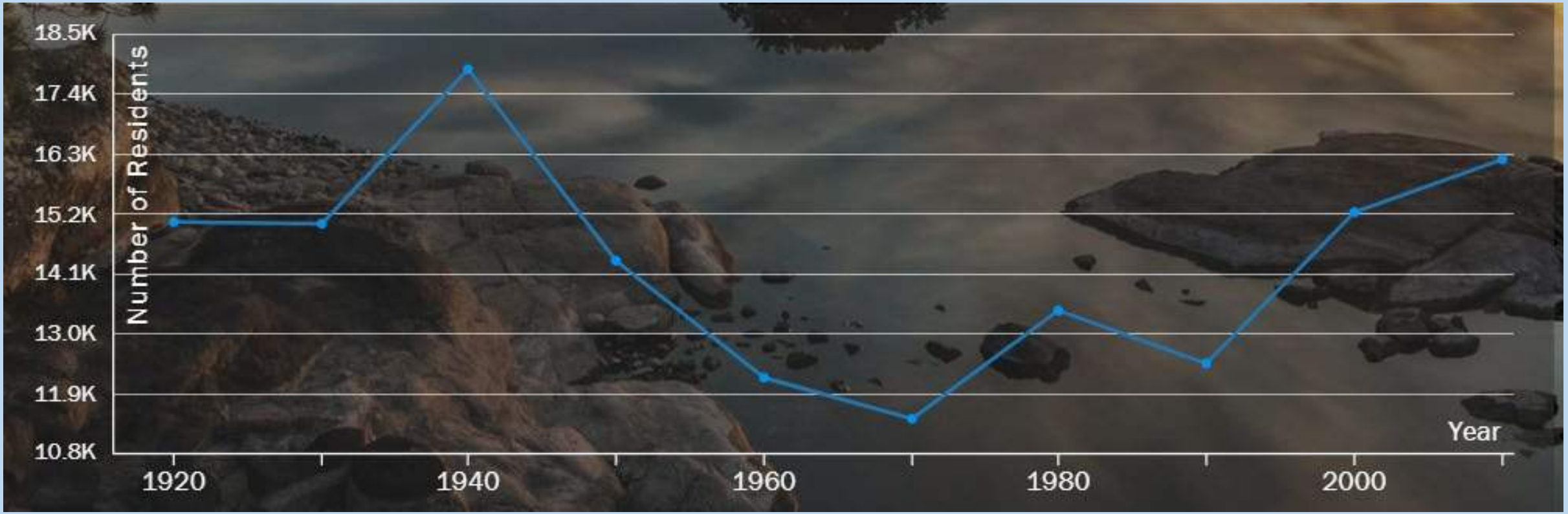
- **Minnesota's statewide median age was 38.4 years**
- **Aitkin County has the highest median age in Minnesota, 55.5.**
- **Neighboring Counties median age: Kanabec 45.0, Pine 45.0, Itasca 46.3 and Crow Wing 46.3**

Total Population	Median Household Income	Bachelor's Degree or Higher	Employment Rate	Total Housing Units	Without Health Care Coverage	Total Employer Establishments	Total Households
15,697	$49,351	18.1%	46.3%	13,944	4.1%	400	7,681

Hispanic or Latino (of any race)
220

AITKIN COUNTY
EST 1857

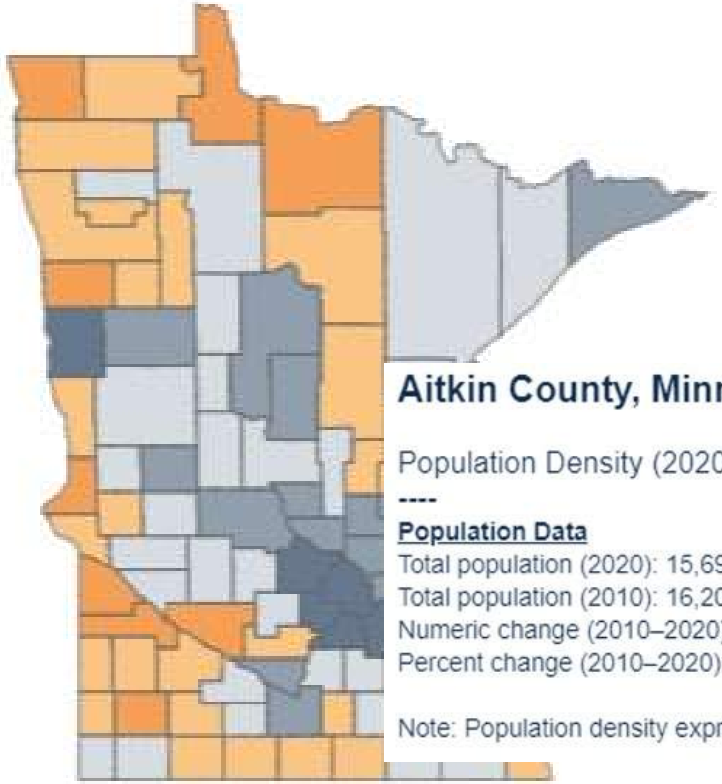
AITKIN COUNTY HISTORICAL POPULATION



AITKIN COUNTY
EST 1857

MN COUNTIES 2020 POPULATION +/-

Percent Change in Population for Minnesota Counties: 2010–2020



Aitkin County, Minnesota

Population Density (2020): 8.6 people per square mile

Population Data

Total population (2020): 15,697
Total population (2010): 16,202
Numeric change (2010–2020): -505
Percent change (2010–2020): -3.1

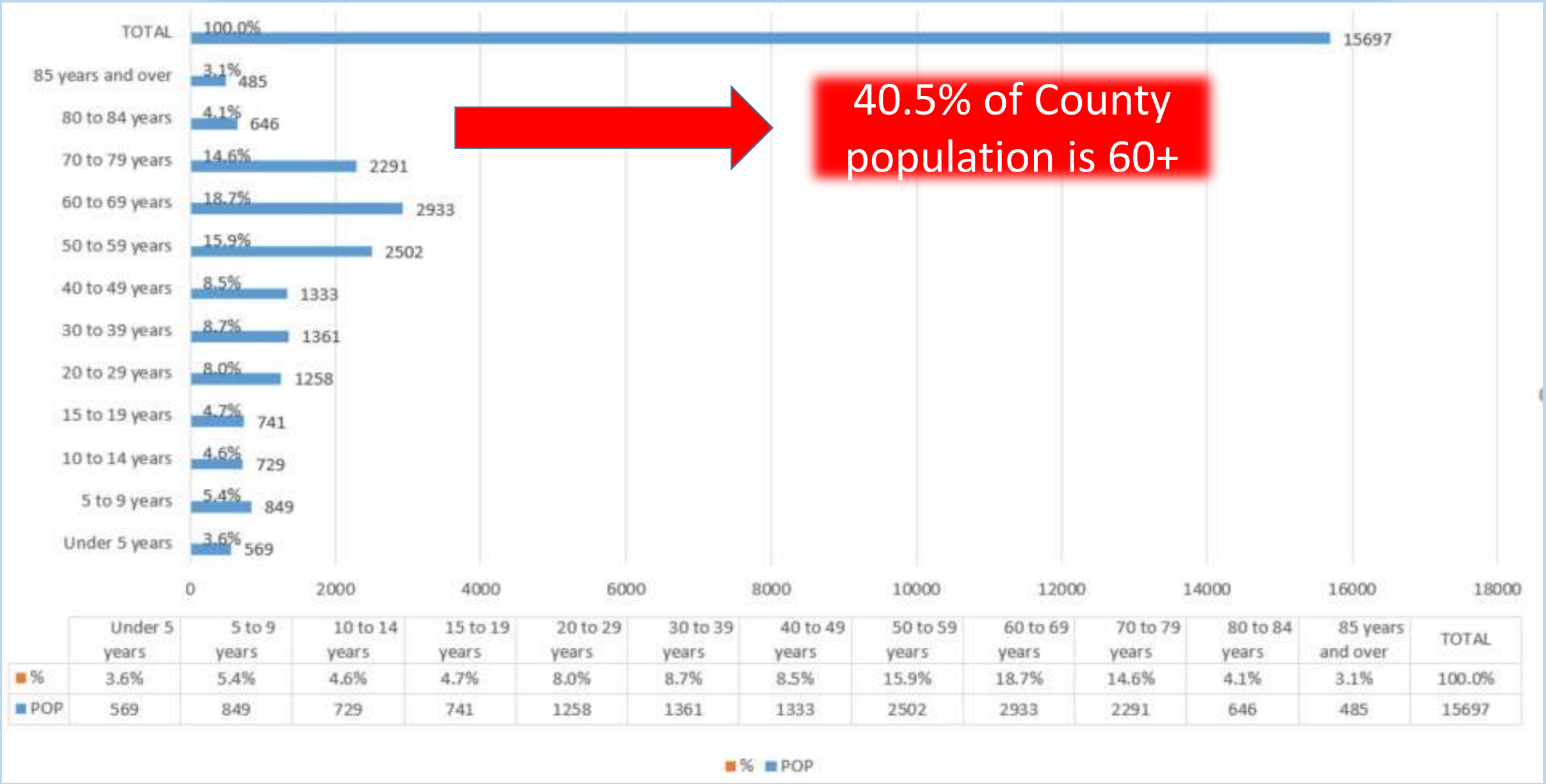
Note: Population density expressed as average number of people per square mile of land area.

Percent change

- 10.0 to 19.9
- 5.0 to 9.9
- 0.0 to 4.9
- -4.9 to -0.1
- -5.0 or less

AITKIN COUNTY
EST 1857

AITKIN COUNTY POP BY AGE RANGE



40.5% of County population is 60+

	Under 5 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 29 years	30 to 39 years	40 to 49 years	50 to 59 years	60 to 69 years	70 to 79 years	80 to 84 years	85 years and over	TOTAL
%	3.6%	5.4%	4.6%	4.7%	8.0%	8.7%	8.5%	15.9%	18.7%	14.6%	4.1%	3.1%	100.0%
POP	569	849	729	741	1258	1361	1333	2502	2933	2291	646	485	15697

BUSINESS & ECONOMY

Income and Earnings

$49,351 +/- $1,960

Median Household Income in Aitkin County, Minnesota

$74,593 +/- $826

Median Household Income in Minnesota

Table:
S1901

Table Survey/Program:
2019 American Community Survey 5-Year Estimates

Median Income by Types of Families in Aitkin County, Minnesota

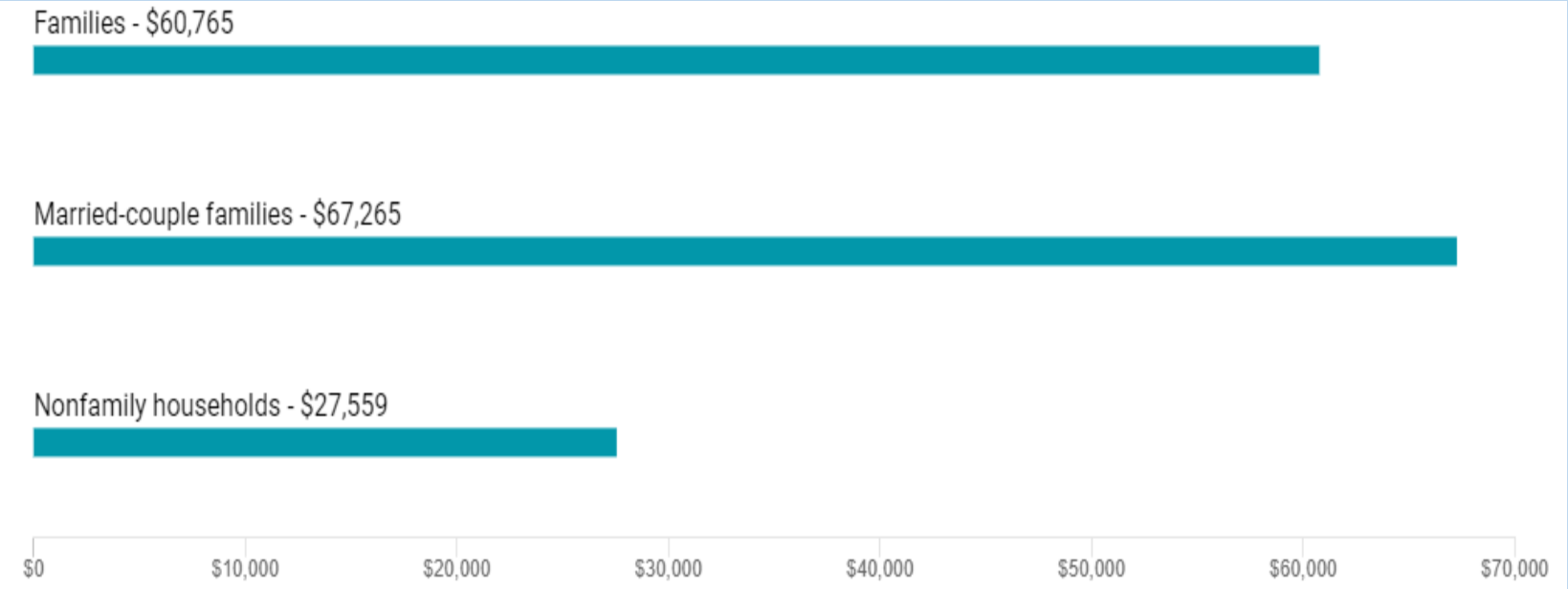


Chart Survey/Program: 2019 ACS 5-Year Estimates Subject Tables

AITKIN COUNTY
EST 1857

BUSINESS & ECONOMY

Class of Worker

16.4% +/- 1.8%

Local, State, & Federal Government Workers in Aitkin County, Minnesota

12.6% +/- 0.3%

Local, State, & Federal Government Workers in Minnesota

Table:
S2406

Table Survey/Program:
2019 American Community Survey 5-Year Estimates

Class of Worker in Aitkin County, Minnesota

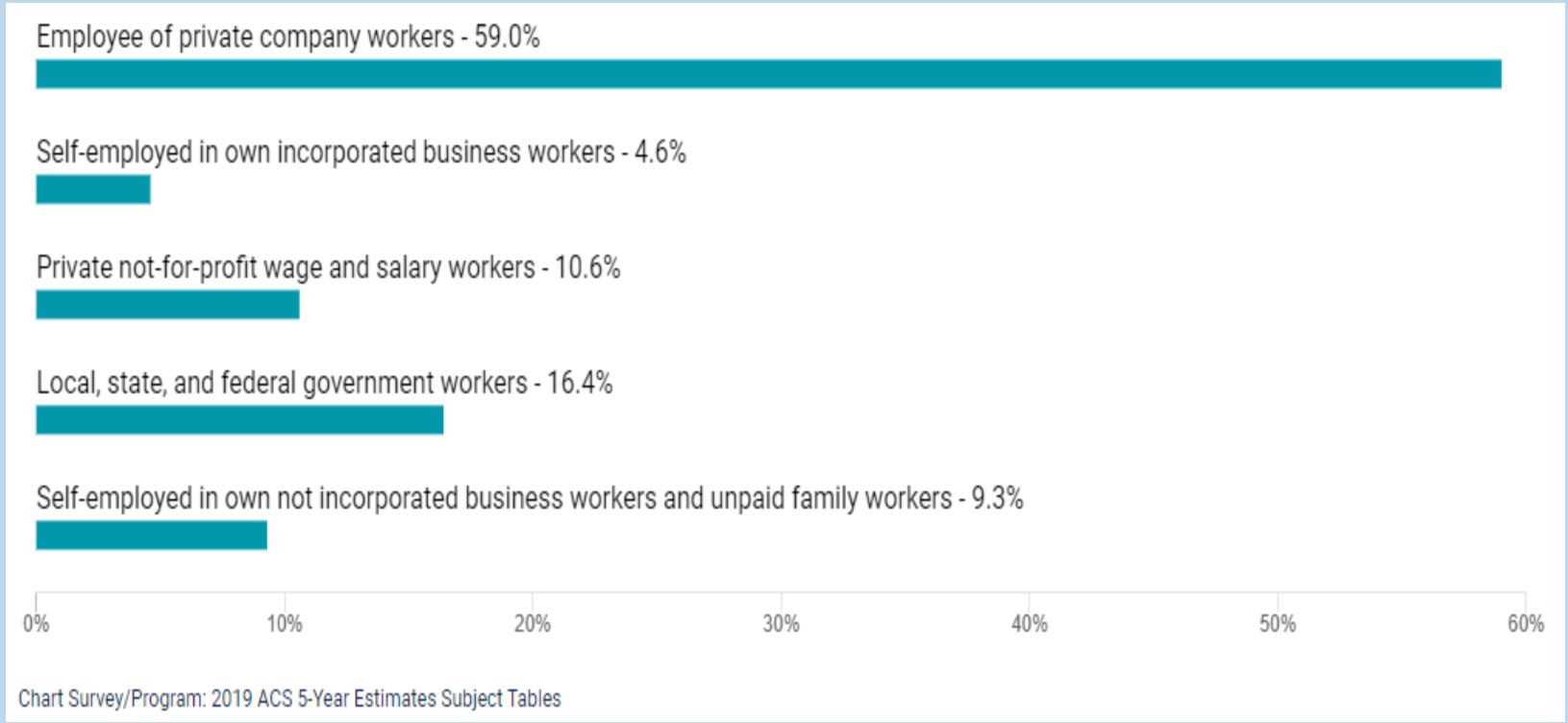
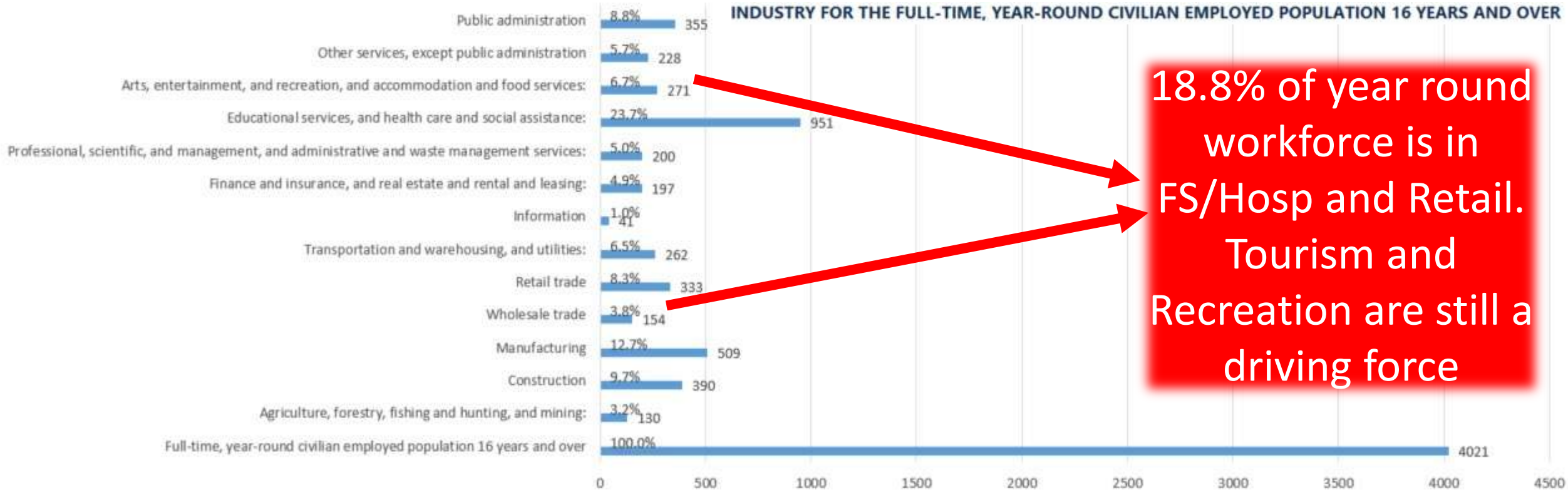


Chart Survey/Program: 2019 ACS 5-Year Estimates Subject Tables

AITKIN COUNTY
EST 1857

BUSINESS & ECONOMY



18.8% of year round workforce is in FS/Hosp and Retail. Tourism and Recreation are still a driving force

	Full-time, year-round civilian employed population 16 years and over	Agriculture, forestry, fishing and hunting, and mining:	Construction	Manufacturing	Wholesale trade	Retail trade	Transportation and warehousing, and utilities:	Information	Finance and insurance, and real estate and rental and leasing:	Professional, scientific, and management, and administrative and waste management services:	Educational services, and health care and social assistance:	Arts, entertainment, and recreation, and accommodation and food services:	Other services, except public administration	Public administration
%	100.0%	3.2%	9.7%	12.7%	3.8%	8.3%	6.5%	1.0%	4.9%	5.0%	23.7%	6.7%	5.7%	8.8%
#	4021	130	390	509	154	333	262	41	197	200	951	271	228	355

HOUSING

Housing Units

13,944

Total Housing Units in Aitkin County, Minnesota

2,485,558

Total Housing Units in Minnesota

Table:
H1

Table Survey/Program:
2020 Decennial Census

Homeownership

82.2% +/- 1.3%

Homeownership rate in Aitkin County, Minnesota

64.0% +/- 0.2%

Homeownership rate in United States

Table:
DP04

Table Survey/Program:
2019 American Community Survey 5-Year Estimates

Renter Costs

$768 +/- $66

Median gross rent in Aitkin County, Minnesota

$1,062 +/- $1

Median gross rent in United States

Table:
DP04

Table Survey/Program:
2019 American Community Survey 5-Year Estimates

Housing Value

$183,200 +/- $6,353

Median housing value in Aitkin County, Minnesota

$217,500 +/- $180

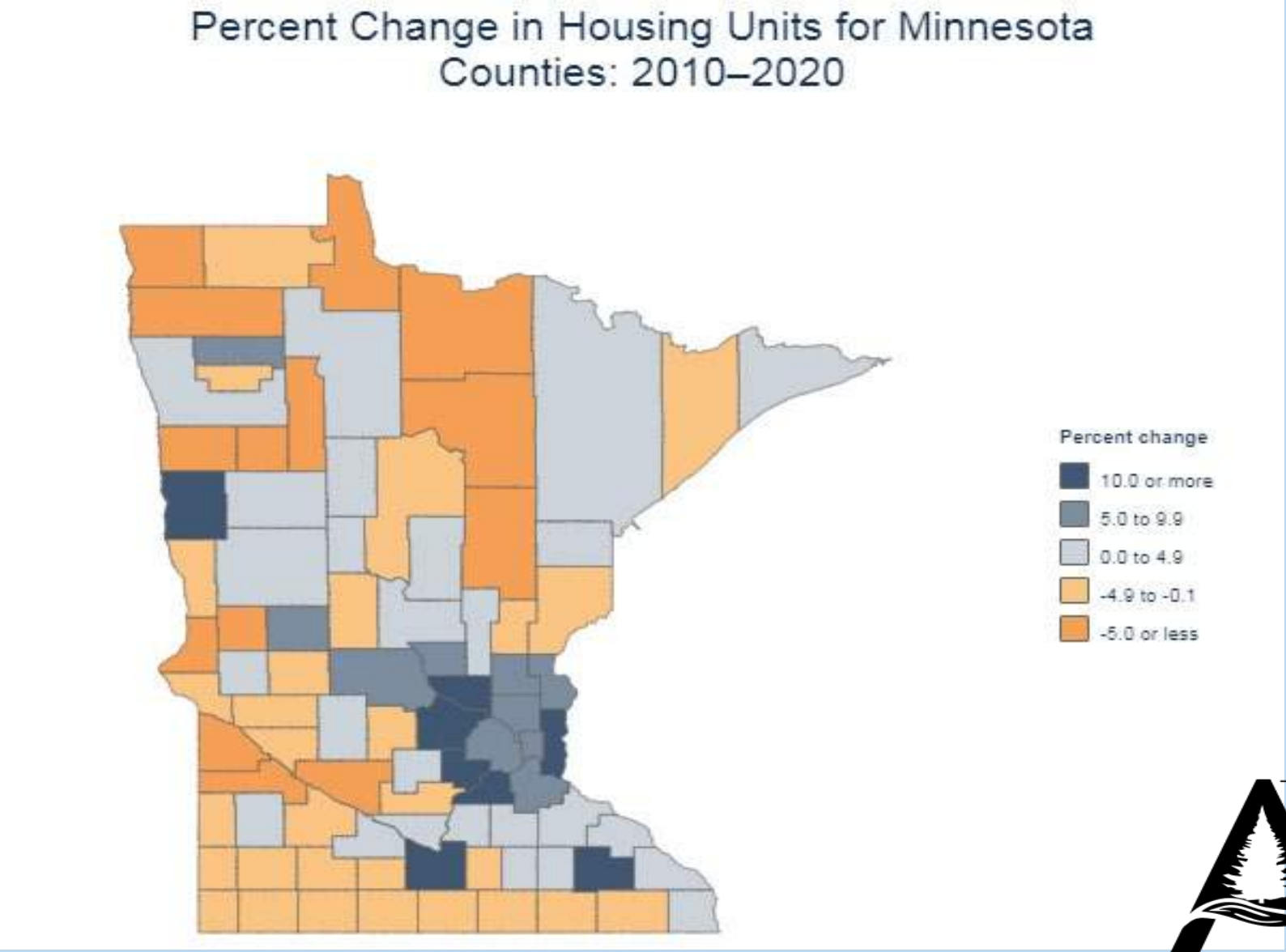
Median housing value in United States

Table:
DP04

Table Survey/Program:
2019 American Community Survey 5-Year Estimates

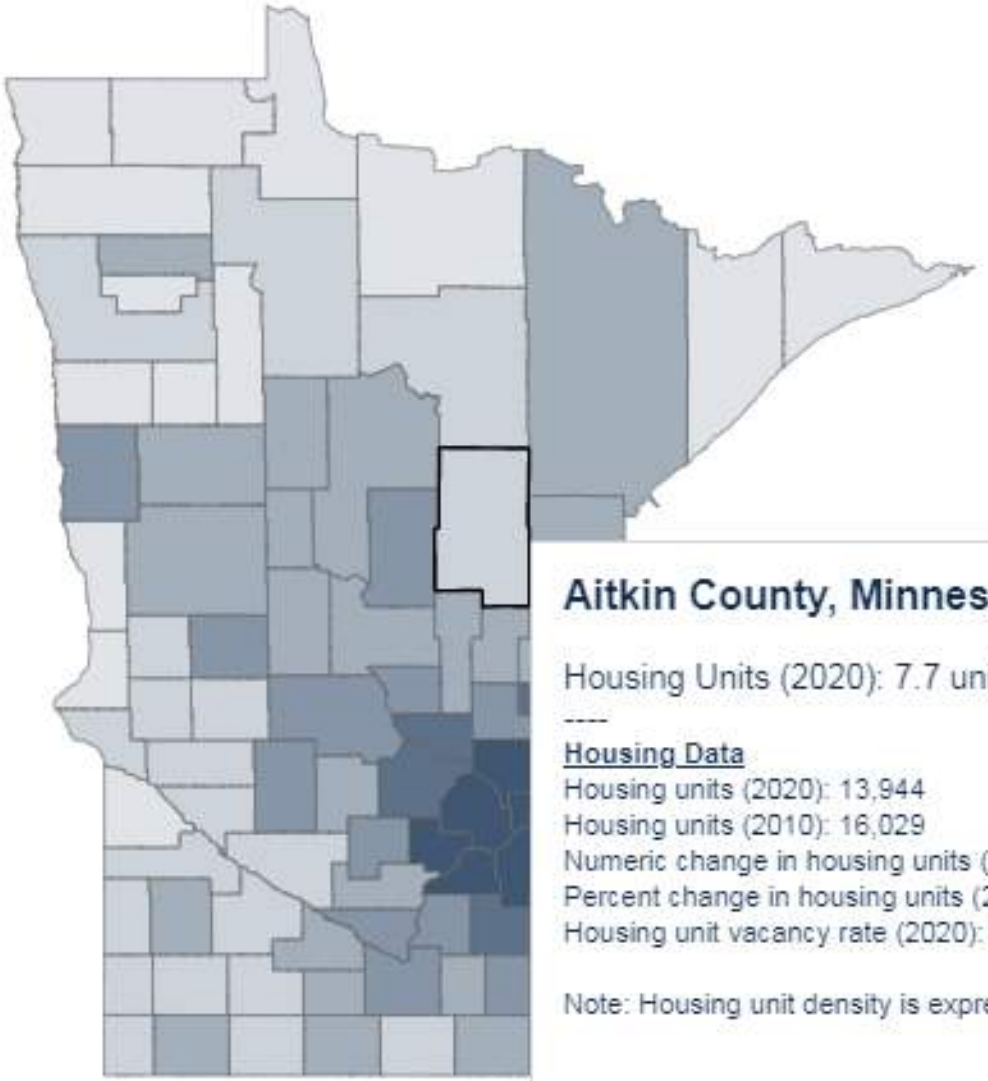
AITKIN COUNTY
EST 1857

MN COUNTIES 2020 HOUSING UNITS % CHANGE +/-



AITKIN COUNTY 2020 HOUSING UNIT DENSITY CHANGE +/-

Housing Unit Density in Minnesota Counties: 2020



Aitkin County, Minnesota

Housing Units (2020): 7.7 units per square mile

Housing Data

Housing units (2020): 13,944
Housing units (2010): 16,029
Numeric change in housing units (2010–2020): -2,085
Percent change in housing units (2010–2020): -13.0
Housing unit vacancy rate (2020): 48.4

Note: Housing unit density is expressed as the average number of housing units per square mi[illegible] of land ar[illegible]

Minnesota Counties

(Ranked by number of housing units in 2020)

38.	Aitkin County	13,944
39.	Nicollet County	13,371
40.	Le Sueur County	12,811
41.	Mille Lacs County	12,786
42.	Todd County	12,770
43.	Brown County	11,780
44.	Lyon County	11,180
		10,576
		10,158
		9,748
		9,583
		9,731
		8,354
		8,294

AITKIN COUNTY
EST. 1857

SWOT

STRENGTH

- Recreational Resources
- Tourism
- Quality of rural life
- World Class Healthcare
- School Districts
- Regional ED Organizations
- Funding access
- Internal & external collaboration
- Attitude

WEAKNESS

- Broadband Services
- Workforce Housing
- Resistance to rapid change
- Population Demographics
- Youth retention
- Technical and Trade Education

OPPORTUNITY

- Broadband-RDOF
- E Commerce
- Housing Advancement
- Gen Z & Millennial attraction
- Culture Change to remote worker
- Technical and Trade Education
- Innovative marketing
- Wood Industry
- Population demographics
- Counterurbanization

THREAT

- Aggressive neighboring communities
- Brick and Mortar decline
- Population decline
- No “local” higher education
- Rapidly changing world

AITKIN COUNTY
EST 1857

MISSION

To provide outstanding service in a fiscally responsible manner through innovation and collaboration with respect for all.

VISION

We strive to be a county of safe, vibrant communities that place value on good stewardship of local resources.

CORE VALUES

We achieve outstanding customer service through these core values:

- Collaboration
- Innovation
- Integrity
- People-Focused
- Professionalism

ECONOMIC DEVELOPMENT MISSION

To develop and promote resources for Economic Growth in our community. Establish, implement and administer programs to stimulate economic and retail development in Aitkin County.

PRIMARY OBJECTIVES:

- Provide a single point of contact for existing business owners, new business owners and Entrepreneurs, that identifies all resources available for their business success.
- Spotlight quality of life in Aitkin County by highlighting our extensive outdoor recreational resources.
- Improve Broadband access to all Aitkin County residents and visitors to support vibrant communities.
- Attract businesses located outside of Aitkin County.
- Listen to the needs of the community to drive the economic engine.

AITKIN COUNTY EST 1857

FOUNDATION FOR GROWTH

WORKFORCE ATTRACTION

AGGRESSIVE ECONOMIC DEVELOPMENT

COMMUNITY RESOURCES

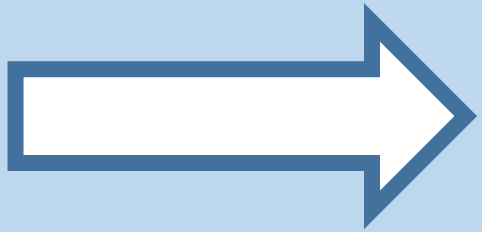
FOUNDATIONAL ASSETS

AITKIN COUNTY
EST 1857

WORKFORCE ATTRACTION

PRIORITIES FOR WORK FORCE GROWTH:

1. Support Career Development
2. Market Community Resources
3. Support Housing Initiatives
4. Support Health and Wellness Initiatives (Child Care)
5. Foundational Asset Improvement



We Must Highlight the Benefits of Aitkin County

COMMUNITY RESOURCES:

- Recreation
- Arts & Entertainment
- Leisure
- Faith

QUALITY OF LIFE:

- Education
  - High Schools
  - Vocational Training
- Healthcare
- Natural Resources

FOUNDATIONAL ASSETS:

- Housing
- Broadband

AITKIN COUNTY EST 1857

AGGRESSIVE ECONOMIC DEVELOPMENT

PRIORITIES FOR BUSINESS GROWTH:

1. Business Retention and Expansion
2. Attract Non-Resident Business Prospects
3. Engage Unique and Innovative Businesses
4. Market Community Resources
5. Foundational Asset Improvement

We Must Highlight the Benefits of Aitkin County

COMMUNITY RESOURCES:

- Recreation
- Arts & Entertainment
- Leisure
- Faith

QUALITY OF LIFE:

- Education
  - High Schools
  - Vocational Training
- Healthcare
- Natural Resources

FOUNDATIONAL ASSETS:

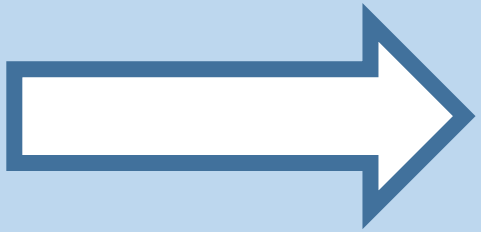
- Housing
- Broadband

AITKIN COUNTY EST 1857

COMMUNITY RESOURCES

PRIORITIES FOR COMMUNITY RESOURCE GROWTH:

1. Promote Recreation, Leisure and Tourism
2. Support Health and Wellness Initiatives
3. Promote Educational Institutions
4. Invoke Change



We Must Highlight the Benefits of Aitkin County

COMMUNITY RESOURCES:

- Recreation
- Arts & Entertainment
- Leisure
- Faith

QUALITY OF LIFE:

- Education
  - High Schools
  - Vocational Training
- Healthcare
- Natural Resources

FOUNDATIONAL ASSETS:

- Housing
- Broadband

AITKIN COUNTY EST 1857

FOUNDATIONAL ASSETS

PRIORITIES FOR FOUNDATIONAL GROWTH:

1. Improve Broadband Access
2. Support Housing Initiatives
3. Transportation
4. Water and Wastewater

BUILD AND IMPROVE OUR INFRASTRUCTURE

PRIORITY-PLAN-GOAL: WORKFORCE ATTRACTION

WORKFORCE ATTRACTION

PRIORITY	PLAN	GOAL
Support Career Development	Develop Vocational Work and Training Programs	Identify a Vocational Training program for each School District by 2024
	Develop business/workforce roundtable	2023
Market Community Resources	Create marketing plan for Aitkin County Identity	2022
	Aitkin County Website Development	2022
	Develop a focused marketing program for recreation and tourism	2022
	Develop Community Welcome Packet/website link	2022-2023
	Promote all trail systems	2022-2027
Support Housing Initiatives	Collaborate with HRA and highlight their housing progress initiatives	2022-2027
	Develop housing search program for new work force	Complete and functioning program by 2024
Support Health and Wellness Initiatives	Support Riverwood Healthcare intiatives and focus for Telemedicine	2022-2027
	Support local intiatives and focus on mental health	2022-2027
	Increase Child Care availability	Establish the Child Care Start- Up Grant in 2022
Foundational Asset Improvement	Improve broadband access to all County residents	Broadband available to +80% residents by 2027

PRIORITY-PLAN-GOAL: ECONOMIC DEVELOPMENT

AGGRESSIVE ECONOMIC DEVELOPMENT

PRIORITY	PLAN	GOAL
Focus on Business Retention & Expansion	Establish a consistent BRE routine for current businesses	Implemented Immediately
	Modify the Business Development and Recreation Grant	Implement in 2022
Attract Non-Resident Business Prospects	Develop and Implement Small Business Aid Grant	Implement in 2022
	Develop and implement start up incentive program	Implement in 2022
	Develop relocation incentives program	Implement in 2022
	Develop land availability program and incentive for relocation	coincide with workforce housing search program in 2024
	Aggressive hunt for Entrepreneurs and Producers	2022-2027
Engage Unique and Innovative Businesses	Identify and develop E Commerce opportunity	2022-2027
	Develop state wide entrepreneurial talent search contest	2022
	Engage in all organizations supporting entrepreneurs- Innovate 218	Implemented Immediately
Market Community Resources	Create marketing plan for Aitkin County Identity	2022
	Aitkin County Website Development	2022
	Develop a focused marketing program for recreation and tourism	2022
	Promote all trail systems	2022-2027
Foundational Asset Improvement	Improve broadband access to all County residents	Broadband available to +80% residents by 2027

PRIORITY-PLAN-GOAL: COMMUNITY RESOURCES

COMMUNITY RESOURCES

PRIORITY	PLAN	GOAL
Promote Recreation, Leisure & Tourism	Create marketing plan for Aitkin County Identity	2022
	Aitkin County Website Development	2022
	Develop a focused marketing program for recreation and tourism	2022
	Promote all trail systems	2022-2027
	Modify the Business Development and Recreation Grant	Implement in 2022
Support Health and Wellness Initiatives	Support Riverwood Healthcare intiatives and focus for Telemedicine	2022-2027
	Support local intiatives and focus on mental health	2022-2027
	Increase Child Care availability	2022
Promote Educational Institutions	Support County high schools and higher learning institutions with their initiatives	2022
Foundational Asset Improvement	Improve broadband access to all County residents	Broadband available to +80% residents by 2027

PRIORITY-PLAN-GOAL: FOUNDATIONAL ASSETS

FOUNDATIONAL ASSETS

PRIORITY	PLAN	GOAL
Improve Broadband Access	Establish full collaboration with all local providers	2022
	Establish routine for holding providers accountable	2022
	Pressure State and Federal Legislatures to clear path for RDOF	2022-2026
	Improve broadband access to all County residents	Broadband available to +80% residents by 2027
Support Housing Initiatives	Collaborate with HRA and highlight their housing progress initiatives	2022
	Develop housing search program for new work force	Complete and functioning program in 2022
	Collaborate with local developers to build workforce housing in all Aitkin County	2022-2027

APPENDIX

https://data.census.gov/cedsci/profile?g=0500000US27001

Kanabec County, Minnesota

County, or equivalent in Minnesota

Covering 521.5 square miles, Kanabec County, Minnesota is the 66th-largest county in Minnesota by area. Kanabec County, Minnesota is bordered by Pine County, Minnesota, Chisago County, Minnesota, Aitkin County, Minnesota, Mille Lacs County, Minnesota, and Isanti County, Minnesota.

POPULATION	MEDIAN HOUSEHOLD INCOME	POVERTY RATE	BACHELOR'S DEGREE OR HIGHER	EMPLOYMENT RATE	TOTAL HOUSING UNITS
16,089	$57,163	10.0%	14.7%	59.9%	7,931

People and Population

Age and Sex

45.0 +/- 0.3

Median age in Kanabec County, Minnesota

Population by Age Range in Kanabec County, Minnesota

Under 5 years - 5.1%

Pine County, Minnesota

County, or equivalent in Minnesota

Covering 1,410.9 square miles, Pine County, Minnesota is the 13th-largest county in Minnesota by area. Pine County, Minnesota is bordered by Kanabec County, Minnesota, Douglas County, Wisconsin, Burnett County, Wisconsin, Chisago County, Minnesota, Aitkin County, Minnesota, Isanti County, Minnesota, and Carlton County, Minnesota.

POPULATION	MEDIAN HOUSEHOLD INCOME	POVERTY RATE	BACHELOR'S DEGREE OR HIGHER	EMPLOYMENT RATE	TOTAL HOUSING UNITS
29,223	$53,422	11.0%	14.9%	53.1%	17,596

People and Population

Age and Sex

45.0 +/- 0.3

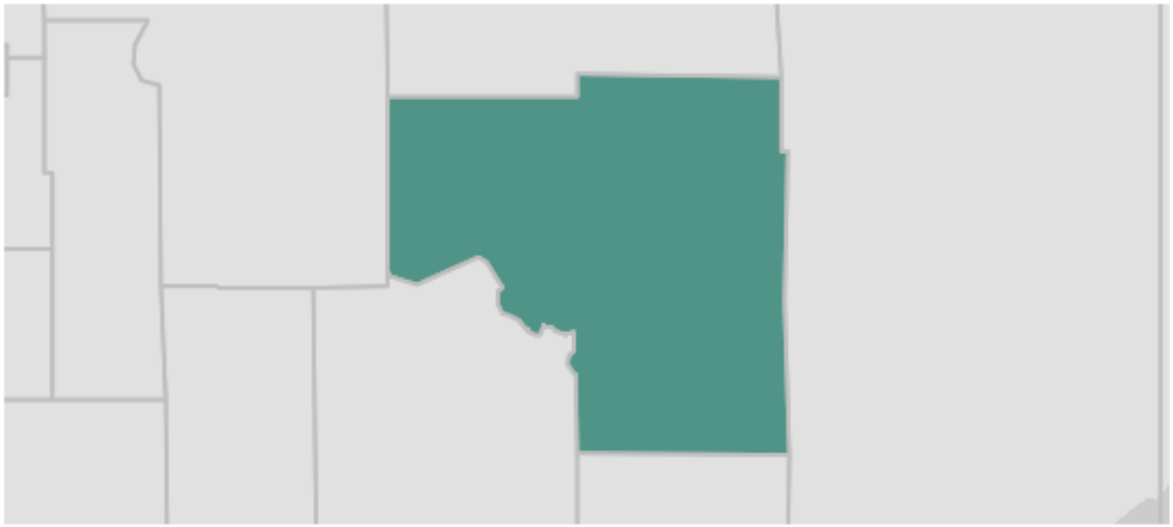
Median age in Pine County, Minnesota

Population by Age Range in Pine County, Minnesota

Under 5 years - 4.7%

Itasca County, Minnesota

County, or equivalent in Minnesota



Covering 2,666.5 square miles, Itasca County, Minnesota is the 3rd-largest county in Minnesota by area. Itasca County, Minnesota is bordered by St. Louis County, Minnesota, Cass County, Minnesota, Aitkin County, Minnesota, Beltrami County, Minnesota, and Koochiching County, Minnesota.

POPULATION	MEDIAN HOUSEHOLD INCOME	POVERTY RATE	BACHELOR'S DEGREE OR HIGHER	EMPLOYMENT RATE	TOTAL HOUSING UNITS
45,141	$55,139	12.2%	23.1%	54.0%	27,667

People and Population

Age and Sex

46.3 +/- 0.2

Median age in Itasca County, Minnesota

Population by Age Range in Itasca County, Minnesota

Under 5 years - 5.3%

Crow Wing County, Minnesota

County, or equivalent in Minnesota

Covering 998.1 square miles, Crow Wing County, Minnesota is the 21st-largest county in Minnesota by area. Crow Wing County, Minnesota is bordered by Cass County, Minnesota, Aitkin County, Minnesota, Morrison County, Minnesota, and Mille Lacs County, Minnesota.

POPULATION	MEDIAN HOUSEHOLD INCOME	POVERTY RATE	BACHELOR'S DEGREE OR HIGHER	EMPLOYMENT RATE	TOTAL HOUSING UNITS
64,217	$56,549	10.8%	24.7%	59.5%	41,916

People and Population

Age and Sex

44.5 +/- 0.3

Median age in Crow Wing County, Minnesota

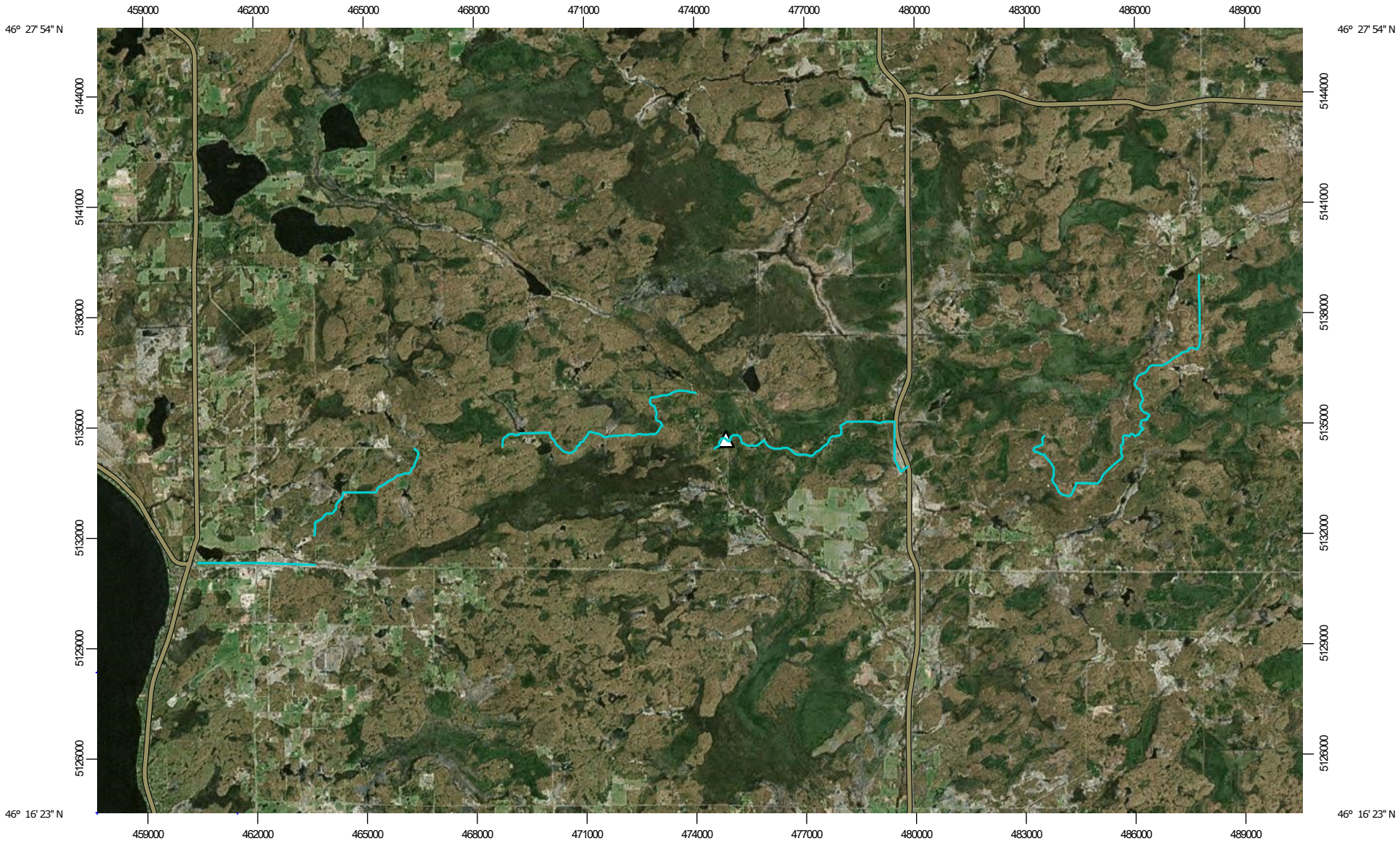
Population by Age Range in Crow Wing County, Minnesota

Under 5 years - 5.5%

APPENDIX B

Project Area Soils

Soil Map—Aitkin County, Minnesota
(Phase1A_1B_Variable_Corridor_250122)



Map Scale: 1:150,000 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 2000 4000 8000 12000

Feet
0 5000 10000 20000 30000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Aitkin County, Minnesota
Survey Area Data: Version 25, Sep 7, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
186	Nemadji loamy fine sand	0.5	1.1%
188B	Omega loamy fine sand, 2 to 6 percent slopes	1.0	2.4%
188C	Omega loamy fine sand, 6 to 12 percent slopes	2.2	5.3%
218	Watab fine sand	1.5	3.6%
268C	Cromwell sandy loam, 6 to 12 percent slopes	1.6	4.0%
533	Loxley peat	0.0	0.0%
543	Markey muck	2.0	4.9%
544	Cathro muck	0.0	0.1%
685	Oesterle fine sandy loam	0.4	1.0%
732B	Bushville loamy fine sand, 1 to 6 percent slopes	1.3	3.2%
1984	Leafriver muck	0.1	0.4%
C4A	Cebana-Giese, frequently ponded-Ronneby complex, 0 to 3 percent slopes, stony	4.8	11.6%
C9B	Mora-Ronneby complex, 1 to 4 percent slopes, stony	10.7	26.2%
C28A	Cathro-Twig, stony complex, 0 to 1 percent slopes, frequently ponded	1.9	4.7%
C71C	Milaca-Mora complex, 1 to 7 percent slopes, stony	7.2	17.5%
C72D	Milaca-Millward complex, 2 to 20 percent slopes, stony	1.0	2.3%
C73C	Milaca loam, 1 to 7 percent slopes, stony	2.0	4.8%
C75A	Seelyeville, occasionally ponded-Cathro, frequently ponded, complex, 0 to 1 percent slopes	1.6	4.0%
C101A	Greenwood mucky peat, 0 to 1 percent slopes	0.6	1.5%
C158	Rifle mucky peat, 0 to 1 percent slopes, occasionally ponded	0.2	0.4%
C211	Bowstring and Fluvaquents, loamy, 0 to 2 percent slopes, frequently flooded	0.4	1.0%
Totals for Area of Interest		**40.9**	**100.0%**

APPENDIX C

Wetland Delineation Report and Approved Notice of Decision

WIDSETH

Brainerd/Baxter
7804 Industrial Park Road
Baxter MN 56425

218.829.5117
Baxter@Widseth.com
Widseth.com

WETLAND DELINEATION REPORT

FOR

NORTHWOODS REGIONAL TRAIL
PHASE 1A
AITKIN COUNTY, MINNESOTA

Prepared for:

Aitkin County
307 2nd Street NW, #316
Aitkin, MN 56431

September 2024

Widseth No. 2020-10981

WETLAND DELINEATION REPORT
NORTHWOOD REGIONAL TRAIL - PHASE 1A
AITKIN COUNTY, MINNESOTA

TABLES

FIGURES

APPENDICES

I. Introduction

Widseth has completed a delineation of aquatic resources within a 112.4-acre Project Area for a proposed ATV trail (Figure 1 and 2). The Project Area is 35' wide for most of the corridor and is narrower along the existing roads. The Project Area is north of 220th St, from 320th Ave to 300th Pl. The Project area goes north on 300th Pl, and travels through the woods onto 240th Ln. It leaves 240th Ln and travels through the woods over to 320th Pl. It proceeds east on an ATV trail until it reaches Solana State Forest Road. It follows Solana State Forest Road before going south near State Highway 65. It begins going east again on White Pine Truck Trail until the road ends. It continues going east before going south until it reaches 220th St. There is a second area that goes east which connects to the Soo Line ATV Trail.

The delineation was completed to identify aquatic resources within the Project Area located in Sections 2, 3, 4, and 5, Township 44, Range 25, Section 6, Township 44, Range 22, Sections 28, 29, 30, 31, 32, and 33, Township 45, Range 22, Sections 19, 20, 22, 23, 24, 25, 27, 28, 29, and 30, Township 45, Range 23, Sections 13, 14, 19, 20, 21, 22, 23, 24, 28, 29, and 30, Township 45, Range 24, and Sections 24, 25, 26, 32, 33, 34, and 35, Township 45, Range 25, Aitkin County, MN.

This report describes the methodology and results of the field delineation performed by Joey Goeden, Danny Perrault, and Duncan Widman of Widseth on June 24 through June 28 and July 10, 2024. Aquatic resources identified within this report will be used for planning purposes and to determine potential impacts.

II. Methodology

The United States Army Corps of Engineers (USACE) defines jurisdictional wetlands as: "Those 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. Wetlands generally include swamps, marshes, bogs, and similar areas."

Available maps, aerial photography, and climatological data were reviewed prior to the on-site delineation for assistance in the identification of wetland areas. The Federal Clean Water Act and the Minnesota Wetland Conservation Act (WCA) require that the United States Army Corps of Engineers 1987 Manual (1987 Manual) along with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region be used as guidance for wetland determinations. The boundaries of jurisdictional wetlands are to be determined using vegetation, hydrology, and soils as wetland indicator criteria. The wetland edge is considered to be the uppermost extent of the wetland basin (i.e., the area above the boundary did not meet all three wetland indicator criteria and the area below the boundary did meet all three criteria).

The wetland boundary locations were determined by establishing sample transects. Transects were generally comprised of sample locations on a line roughly perpendicular to the wetland edge. Sample points were located just above and below what was defined as the wetland edge. Northcentral and Northeast Region Wetland Determination Data Forms were completed that detailed vegetation, hydrology, and soils at each sample location. The wetland boundary was located just above the sampling points where all three wetland criteria were met. Dominant plant species, soils characteristics, and hydrology indicators have been documented on the Wetland Determination Data Forms for each transect and are included in Appendix A.

Wetland boundaries were marked with wetland delineation stake-flags and ribbon. The wetland boundaries were then surveyed with a sub-meter GPS and included on site maps.

III. Offsite Examination

National Wetlands Inventory (NWI). NWI maps typically provide useful information and are a good starting point for creating a wetlands base map. However, NWI maps sometimes contain inaccuracies because they are created from interpretation of aerial photographs and are usually not verified by ground truthing. As a result, wetland boundaries are sometimes mapped inaccurately, and smaller wetlands may be missed entirely or misidentified by type. The NWI identified 24 wetland basins and 5 riverine habitats within Project Area (Figure 3). The wetland types within the Project Area are PEM1A, PEM1Cb, PEM1Cd, PEM1D, PEM1Db, PEM1Dd, PFO1/4D, PFO1D, PFO1/EM1D, PFO1/SS1D, PFO2Dg, PFO2/SS3Dg, PFO2/4Dg, PFO4Dg, PSS1C, PSS1D, PSS1/EM1D, PSS1/EM1Ad, PSS2/EM1Dg, and PUBHb. The riverine types within the Project Area are R2UBFx, R2UBH, and R4SBC.

Aerial Photography. Aerial photography indicates that the Project Area begins on the east side of Malmo, MN and ends approximately 6.50 miles east of Dads Corner, MN. The Project Area is a mix of roadway, trail, wetland, grassland, and wooded areas. The properties located near the Project Area are a mix of roadway, trail, wooded areas, grassland, wetland, and homesteads.

Public Waters Inventory. Minnesota Department of Natural Resources (MNDNR) Public Waters Inventory identifies three public waters within the Project Area (Figure 4). Unnamed stream (DNR hydro ID: #124455), Unnamed Waterbody (DNR Hydro ID: #62119), and Unnamed Stream (DNR Hydro ID: #123944) are located within the Project Area.

Soils. According to the Natural Resources Conservation Service (NRCS) Web Soil Survey, 21 soil types are mapped within the Project Area (Figure 5). Table 1 below depicts the Soil Map Unit Symbol, Soil Map Unit Name, and Hydric Soil Rating located within the Project Area.

Precipitation. The USACE Antecedent Precipitation Tool indicates that the multi-month precipitation score was considered to be within the wet range when using the three

months prior to the field work being completed (April through June 2024). The antecedent precipitation information is included in Appendix B.

IV. Delineation Results

A total of 108 wetland basins and 5 wetlands in ditches constructed through uplands were identified and delineated within the Project Area. The Project Area was divided into three areas because of its size. The western portion of the Project area began numbering at Wetland 1, the middle portion of the Project Area began numbering at Wetland 100, and the eastern portion of the Project area began numbering at Wetland 200. The basins are identified as Wetland 1 through Wetland 67, Wetland 100 through Wetland 105, and Wetland 200 through Wetland 234 for the purpose of this report (Figure 6). The wetlands in ditches, constructed through uplands, are identified as Wetland Ditch 1 through Wetland Ditch 5, for the purpose of this report. Three perennial streams and four intermittent streams were identified and delineated within the Project Area. The streams are identified as Stream 1 through Stream 7 for the purpose of this Report. The delineation was not completed beyond the existing roadways because the roadways do not need to be improved. The photos of the wetlands, wetland ditches, streams, and sample points are found in Appendix C.

Thirty-four sample points were completed to assist with delineating the wetland boundaries. The sample points were completed in all wetland types, except the Type 8, Coniferous Bog. The Type 8, Coniferous Bog wetland was dominated by black spruce (*Picea mariana*), the topsoil is peat, and the water table is located near the surface.

Sample Points 1, 2, and 3 were completed in areas identified by the NWI. These sample points did not meet the wetland criteria, so these NWI areas are upland within the Project Area.

There are isolated wet areas located on the existing trail that were created in upland because of the previous trail construction. The location of these wet areas will be provided if requested.

Tables listing each wetland, wetland ditch, and waterway as identified on Figure 6 with the associated size and type can be found on Table 2, Table 3, and Table 4 in the attached Tables section.

V. Discussion and Conclusions

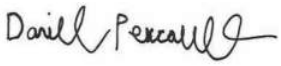
Widseth conducted an aquatic resources delineation of a 112.4-acre Project Area located in Aitkin County, Minnesota. The objective of the wetland delineation survey was to identify the extent and spatial arrangement of aquatic resources located within the Project Area.

108 wetland basins totaling 18.84 acres, five wetland ditches constructed through uplands totaling 0.11 acres (1,498 linear feet), and seven streams totaling 0.08 acres (309 linear feet) were identified and delineated within the Project Area.

All the wetlands and waterways identified may be subject to the jurisdiction of the WCA, the MNDNR, and the USACE.

VI. Standard of Care

This wetland delineation was completed in accordance with the 1987 Manual along with the Regional Supplement for the Region. The Standard of Care follows the manual and conforms to the criteria and methods utilized by professionals in this area of practice at this time. This report was prepared by and reviewed by a Widseth professional with a background in the environmental and/or natural sciences.



9-23-2024

Danny Perrault — Date
Certified Minnesota Wetland Professional In-Training #: 5495

Reviewed by:

9-23-2024

Joey Goeden — Date
Certified Minnesota Wetland Professional #: 1311

TABLES

Table 1. Summary of Soils within the Project Area

Soil Map Unit Symbol	Soil Map Unit Name	Hydric Soil Rating
186	Nemadji loamy fine sand	10
188B	Omega loamy fine sand, 2 to 6 percent slopes	3
188C	Omega loamy fine sand, 6 to 12 percent slopes	3
218	Watab fine sand	90
268C	Cromwell sandy loam, 6 to 12 percent slopes	7
454B	Mahtomedi loamy coarse sand, 2 to 6 percent slopes	4
533	Loxley peat	97
543	Markey muck	97
685	Oesterle fine sandy loam	3
732B	Bushville loamy fine sand, 1 to 6 percent slopes	10
1984	Leafriver muck	97
C4A	Cebana-Giese, frequently ponded-Ronneby complex, 0 to 3 percent slopes, stony	85
C9B	Mora-Ronneby complex, 1 to 4 percent slopes, stony	10
C28A	Cathro-Twig, stony complex, 0 to 1 percent slopes, frequently ponded	100
C71C	Milaca-Mora complex, 1 to 7 percent slopes, stony	5
C72D	Milaca-Millward complex, 2 to 20 percent slopes, stony	5
C73C	Milaca loam, 1 to 7 percent slopes, stony	1
C75A	Seelyeville, occasionally ponded-Cathro, frequently ponded, complex, 0 to 1 percent slopes	100

C101A	Greenwood mucky peat, 0 to 1 percent slopes	100
C158	Rifle mucky peat, 0 to 1 percent slopes, occasionally ponded	100
C211	Bowstring and Fluvaquents, loamy, 0 to 2 percent slopes, frequently flooded	100

Table 2. Summary of Wetlands within the Project Area

Wetland ID	Wetland Sq Ft (Ac)	Wetland Type
Wetland 1	2,936 (0.07)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 2	3,682 (0.08)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 3	14,078 (0.32)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 4	46,006 (1.06)	Type 3, Shallow Marsh (Eggers and Reed Community 12B)
Wetland 5	30,611 (0.70)	Type 2, Sedge Meadow (Eggers and Reed Community 17B) &Type 3, Shallow Marsh (Eggers and Reed Community 12B)
Wetland 6	15,074 (0.35)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B) & Type 3, Shallow Marsh (Eggers and Reed Community 12B)
Wetland 7	25,408 (0.58)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B) & Type 3, Shallow Marsh (Eggers and Reed Community 12B) & Type 6, Shrub-Carr (Eggers and Reed Community 9B) & Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 8	8,153 (0.19)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B) & Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 9	4,229 (0.10)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 10	100,445 (2.31)	Type 2, Sedge Meadow (Eggers and Reed Community 17B) & Type 6, Shrub-Carr (Eggers and Reed Community 9B) & Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 11	18,973 (0.44)	Type 2, Sedge Meadow (Eggers and Reed Community 17B)
Wetland 12	2,617 (0.06)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)

Wetland 13	231 (0.01)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 14	2,733 (0.06)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 15	1,038 (0.02)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 16	2,507 (0.06)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 17	5,463 (0.13)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 18	9,260 (0.21)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 19	10,532 (0.24)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 20	15,547 (0.36)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B) & Type 6, Alder Thicket (Eggers and Reed Community 9A) & Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 21	1,662 (0.04)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 22	77,522 (1.78)	Type 6, Alder Thicket (Eggers and Reed Community 9A) & Type 7, Hardwood Swamp (Eggers and Reed Community 4A) & Type 8 Coniferous Bog (Eggers and Reed Community 5A)
Wetland 23	1,838 (0.04)	Type 2, Sedge Meadow (Eggers and Reed Community 17B)
Wetland 24	2,396 (0.06)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 25	1,404 (0.03)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 26	1,047 (0.02)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 27	6,511 (0.15)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 28	742 (0.02)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 29	267 (0.01)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 30	3,915 (0.09)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 31	7,039 (0.16)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 32	95 (0.01)	Type 2, Sedge Meadow (Eggers and Reed Community 17B),
Wetland 33	1,452 (0.03)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 34	1,112 (0.03)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)

Wetland 35	1,040 (0.02)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 36	204 (0.01)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 37	212 (0.01)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 38	1,124 (0.03)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 39	302 (0.01)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 40	1,800 (0.04)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 41	519 (0.01)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 42	2,239 (0.05)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 43	1,154 (0.03)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 44	5,027 (0.12)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B) & Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 45	297 (0.01)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 46	223 (0.01)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 47	3,541 (0.08)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 48	14,669 (0.34)	Type 2, Sedge Meadow (Eggers and Reed Community 17B) & Type 6, Scrub-Carr (Eggers and Reed Community 9B)
Wetland 49	524 (0.01)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 50	1,358 (0.03)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 51	569 (0.01)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 52	58 (0.01)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 53	717 (0.02)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 54	1,118 (0.03)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 55	172 (0.01)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 56	717 (0.02)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 57	521 (0.01)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 58	1,763 (0.04)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 59	2,015 (0.05)	Type 6, Shrub-Carr

		(Eggers and Reed Community 9B)
Wetland 60	8,975 (0.21)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 61	4,961 (0.11)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 62	1,404 (0.03)	Type 3, Shallow Marsh (Eggers and Reed Community 12B)
Wetland 63	4,328 (0.10)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 64	1,571 (0.04)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 65	628 (0.01)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 66	86 (0.01)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 67	1,166 (0.03)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 100	4,113 (0.09)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 101	83,623 (1.92)	Type 2, Sedge Meadow (Eggers and Reed Community 17B) & Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 102	5,588 (0.13)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 103	9,646 (0.22)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 104	4,623 (0.11)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 105	897 (0.02)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 200	55,827 (1.28)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B) & Type 3, Shallow Marsh (Eggers and Reed Community 12B) & Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 201	10,717 (0.25)	Type 3, Shallow Marsh (Eggers and Reed Community 12B)
Wetland 202	622 (0.01)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 203	39,222 (0.90)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B) & Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 204	370 (0.01)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 205	8,564 (0.20)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 206	929 (0.02)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 207	1,296 (0.03)	Type 2, Fresh (Wet) Meadow

		(Eggers and Reed Community 19B)
Wetland 208	716 (0.02)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 209	2,153 (0.05)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 210	1,548 (0.04)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 211	10,394 (0.24)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B) & Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 212	2,493 (0.06)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B) & Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 213	15,245 (0.35)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B) & Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 214	238 (0.01)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 215	955 (0.02)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 216	23,527 (0.54)	Type 2, Sedge Meadow (Eggers and Reed Community 17B) & Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 217	5,910 (0.14)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 218	3,295 (0.08)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 219	937 (0.02)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 220	2,818 (0.06)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 221	3,696 (0.08)	Type 6, Shrub-Carr (Eggers and Reed Community 9B)
Wetland 222	429 (0.01)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 223	1,323 (0.03)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland 224	1,152 (0.03)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 225	657 (0.02)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 226	134 (0.01)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 227	1,670 (0.04)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 228	129 (0.01)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 229	469 (0.01)	Type 2, Sedge Meadow (Eggers and Reed Community 17B)

Wetland 230	3,104 (0.07)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 231	7,557 (0.17)	Type 2, Sedge Meadow (Eggers and Reed Community 17B) & Type 7 Hardwood Swamp (Egger and Reed Community 4A)
Wetland 232	1,474 (0.03)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Wetland 233	7,770 (0.18)	Type 2, Sedge Meadow (Eggers and Reed Community 17B) & Type 6 Shrub-Carr (Eggers and Reed Community 9B)
Wetland 234	3,451 (0.08)	Type 7, Hardwood Swamp (Eggers and Reed Community 4A)
Total	820,808 (18.84)*	N/A

*Square feet and acreage may vary slightly due to rounding

Table 3. Summary of Wetland Ditches within the Project Area

Wetland Ditch ID	**Wetland Sq Ft (Ac) (Linear Ft)**	**Wetland Type**
Wetland Ditch 1	1,213 (0.03) (408)	Type 2, Fresh (Wet) Meadow) (Eggers and Reed Community 19B)
Wetland Ditch 2	2,471 (0.06) (819)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland Ditch 3	711 (0.02) (168)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland Ditch 4	68 (0.01) (34)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Wetland Ditch 5	207 (0.01) (69)	Type 2, Fresh (Wet) Meadow (Eggers and Reed Community 19B)
Total	4,670 (0.11) (1,498)*	N/A

*Square feet and acreage may vary slightly due to rounding

Table 4. Summary of Waterways within the Project Area

Wetland Ditch ID	**Stream Sq. Ft. (Ac) (Lin Ft)**	**Waterway Type**
Stream 1	1,322 (0.03) (53)	Perennial
Stream 2	119 (0.01) (35)	Intermittent
Stream 3	122 (0.01) (34)	Intermittent
Stream 4	291 (0.01) (82)	Intermittent
Stream 5	306 (0.01) (34)	Intermittent
Stream 6	433 (0.01) (36)	Perennial
Stream 7	682 (0.02) (35)	Perennial
Total	3,275 (0.08) (309)*	N/A

*Square feet and acreage may vary slightly due to rounding

FIGURES

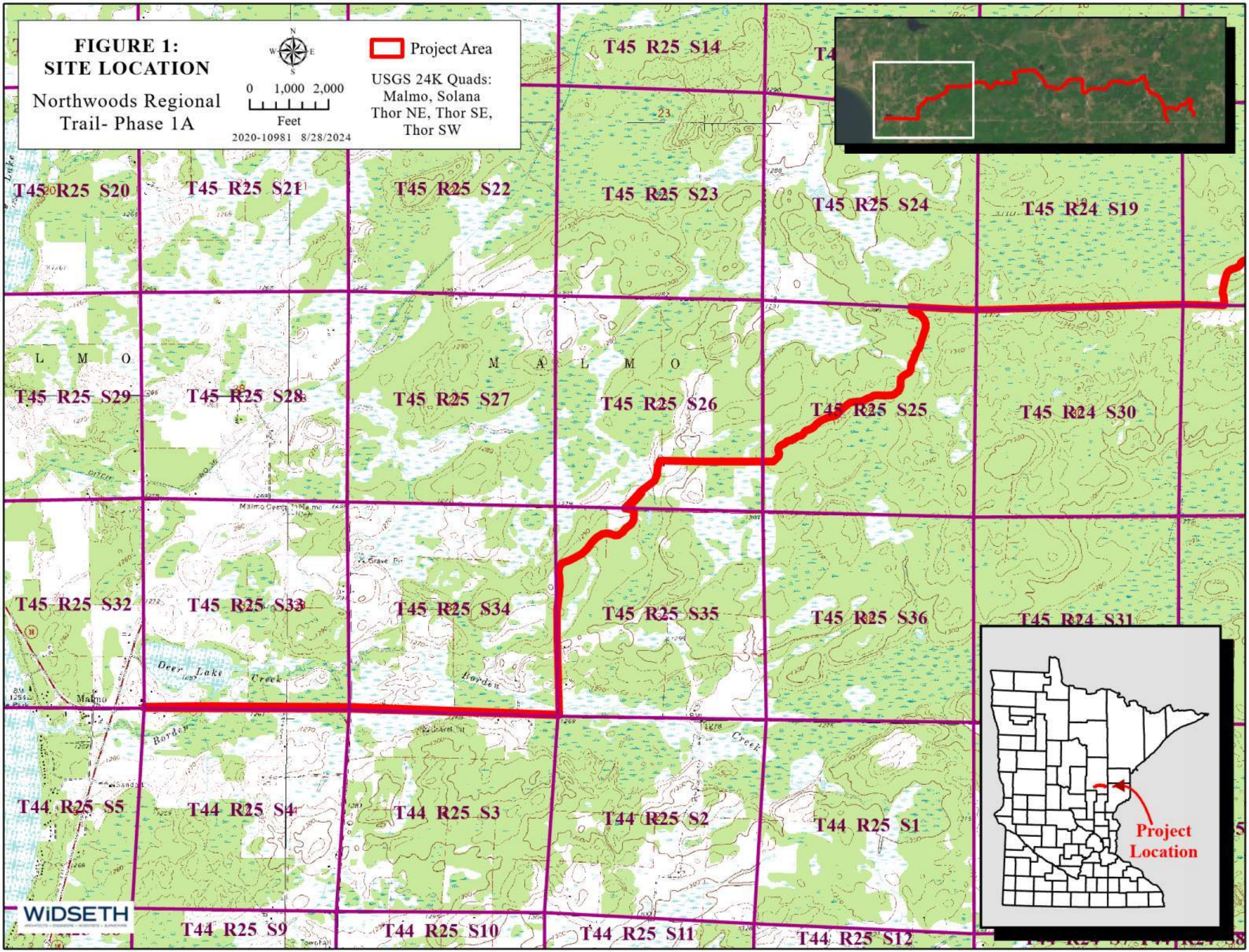


FIGURE 1:
SITE LOCATION
Northwoods Regional Trail- Phase 1A
N
W
E
S
0 1,000 2,000
Feet
2020-10981 8/28/2024
Project Area
USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW
T45 R25 S14
T45 R25 S20
T45 R25 S21
T45 R25 S22
T45 R25 S23
T45 R25 S24
T45 R24 S19
T45 R25 S29
T45 R25 S28
T45 R25 S27
T45 R25 S26
T45 R25 S25
T45 R24 S30
T45 R25 S32
T45 R25 S33
T45 R25 S34
T45 R25 S35
T45 R25 S36
T45 R24 S31
T44 R25 S5
T44 R25 S4
T44 R25 S3
T44 R25 S2
T44 R25 S1
T44 R25 S9
T44 R25 S10
T44 R25 S11
T44 R25 S12
L M O
M A L M O
Deer Lake Creek
Malmo
Project Location
WiDSETH

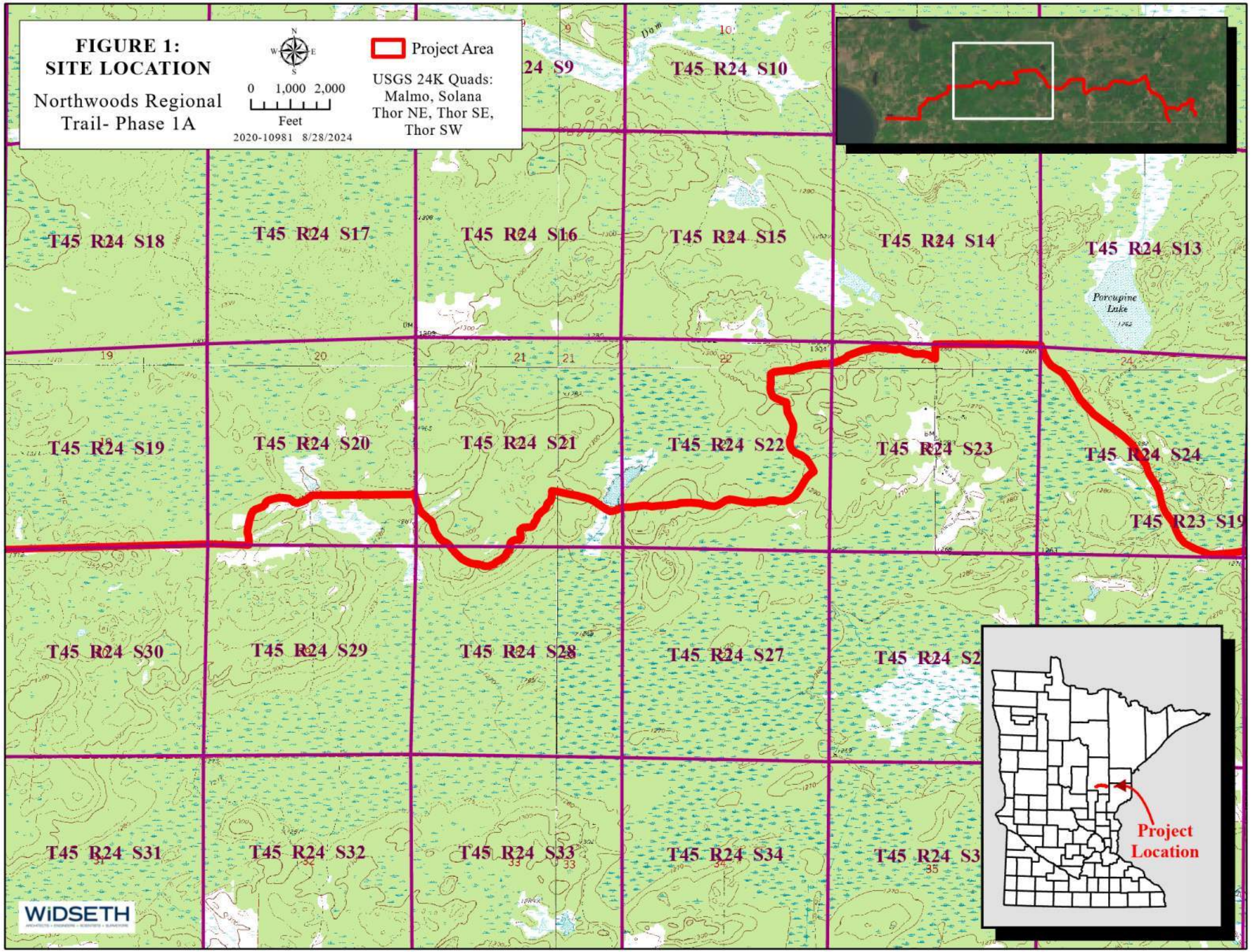


FIGURE 1:
SITE LOCATION
Northwoods Regional Trail- Phase 1A
N
W
E
S
0 1,000 2,000
Feet
2020-10981 8/28/2024
Project Area
USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW
T45 R24 S9
T45 R24 S10
T45 R24 S18
T45 R24 S17
T45 R24 S16
T45 R24 S15
T45 R24 S14
T45 R24 S13
Porcupine Lake
T45 R24 S19
T45 R24 S20
T45 R24 S21
T45 R24 S22
T45 R24 S23
T45 R24 S24
T45 R23 S19
T45 R24 S30
T45 R24 S29
T45 R24 S28
T45 R24 S27
T45 R24 S2
T45 R24 S31
T45 R24 S32
T45 R24 S33
T45 R24 S34
T45 R24 S3
Project Location
WiDSETH

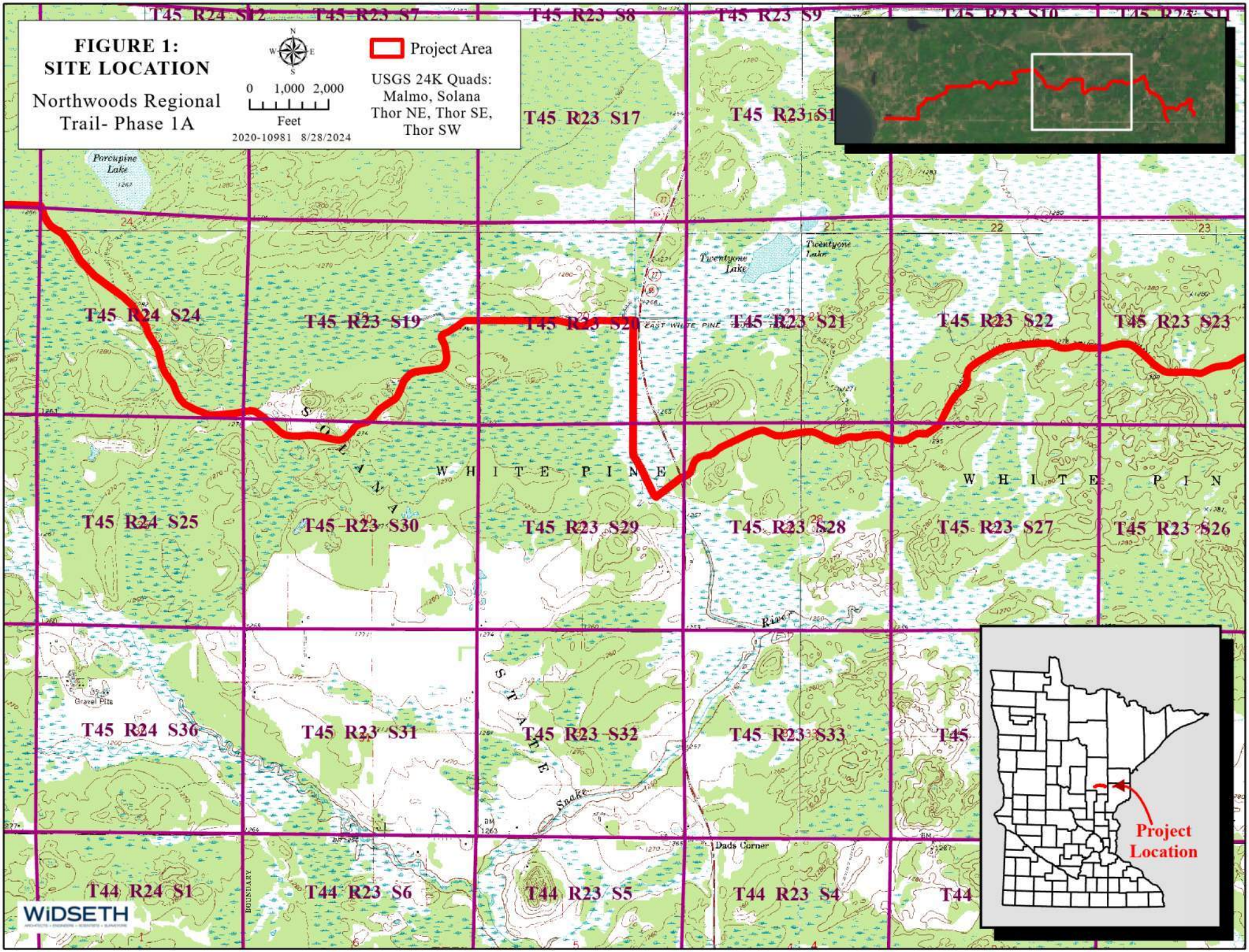


FIGURE 1:
SITE LOCATION
Northwoods Regional Trail- Phase 1A
N
W
E
S
0 1,000 2,000
Feet
2020-10981 8/28/2024
Project Area
USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW
T45 R24 S24
T45 R23 S19
T45 R23 S20
T45 R23 S21
T45 R23 S22
T45 R23 S23
T45 R24 S25
T45 R23 S30
T45 R23 S29
T45 R23 S28
T45 R23 S27
T45 R23 S26
T45 R24 S36
T45 R23 S31
T45 R23 S32
T45 R23 S33
T44 R24 S1
T44 R23 S6
T44 R23 S5
T44 R23 S4
Porcupine Lake
Twentyone Lake
EAST WHITE PINE
Gravel Pits
Dads Corner
Project Location
WIDSETH

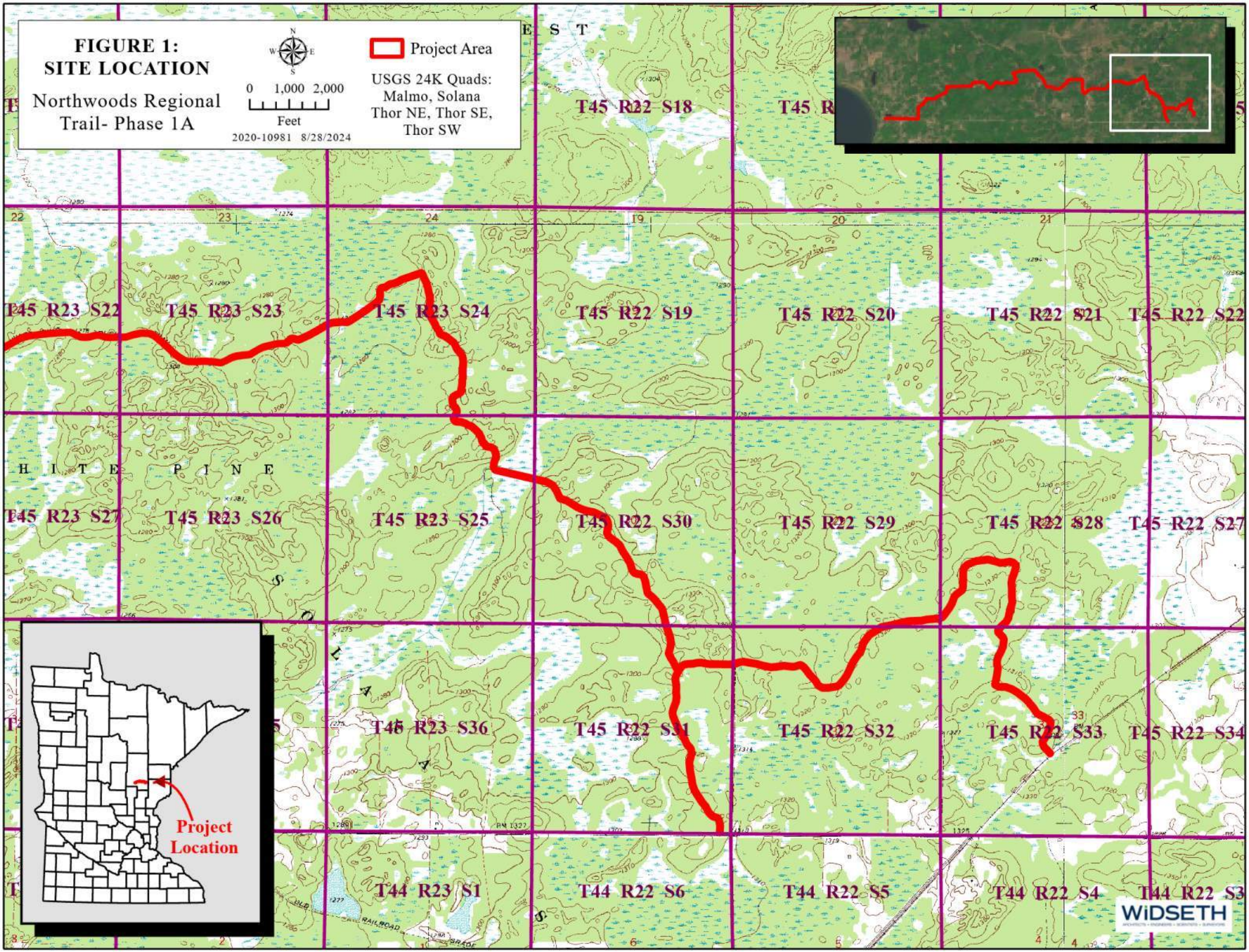


FIGURE 1:
SITE LOCATION
Northwoods Regional Trail- Phase 1A
N
W
E
S
0 1,000 2,000
Feet
2020-10981 8/28/2024
Project Area
USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW
T45 R23 S22
T45 R23 S23
T45 R23 S24
T45 R22 S19
T45 R22 S20
T45 R22 S21
T45 R22 S22
T45 R23 S27
T45 R23 S26
T45 R23 S25
T45 R22 S30
T45 R22 S29
T45 R22 S28
T45 R22 S27
T45 R23 S36
T45 R22 S31
T45 R22 S32
T45 R22 S33
T45 R22 S34
T44 R23 S1
T44 R22 S6
T44 R22 S5
T44 R22 S4
T44 R22 S3
HITE PINE
Project Location
WiDSETH

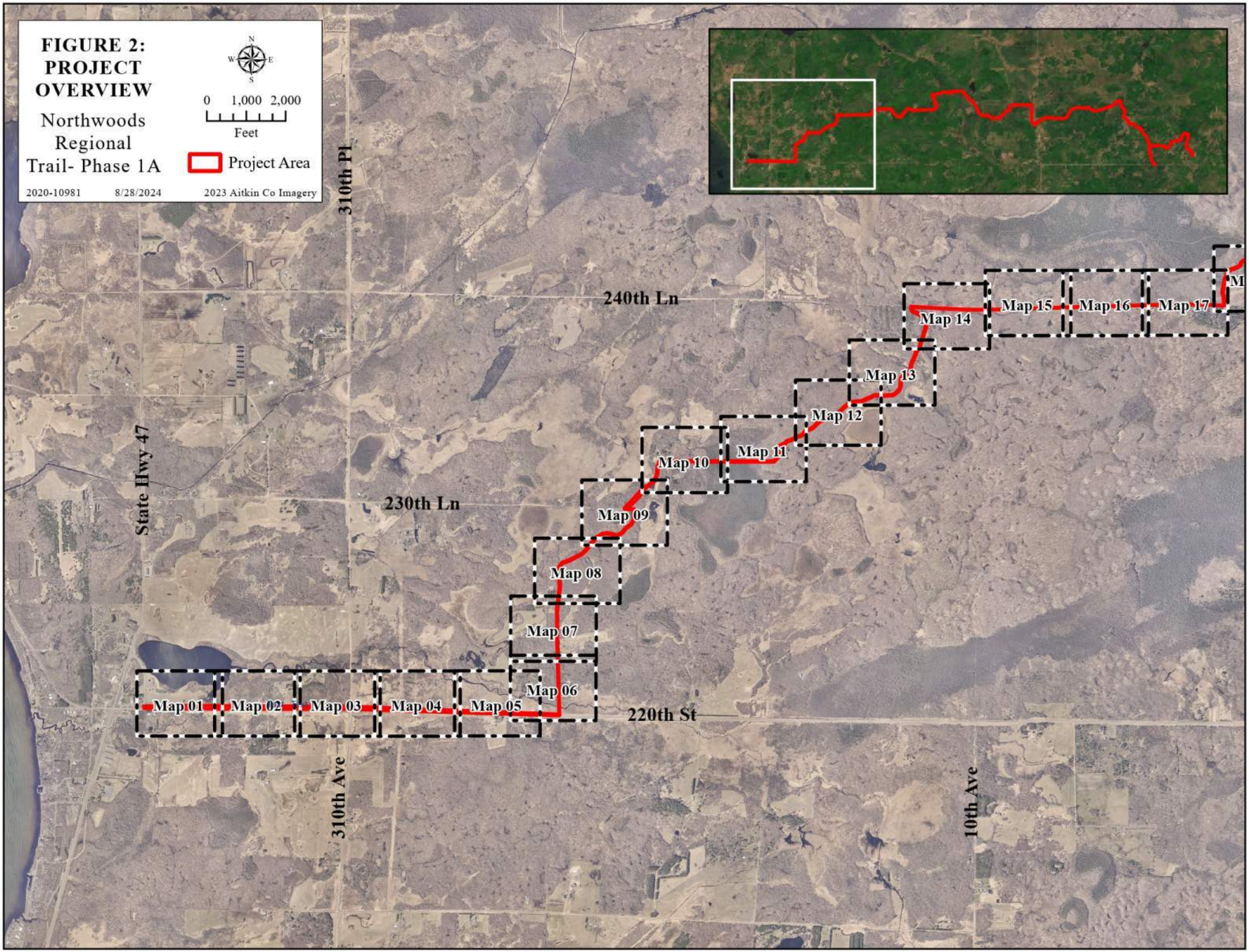


FIGURE 2:
PROJECT
OVERVIEW
Northwoods
Regional
Trail- Phase 1A
2020-10981
8/28/2024
N
W
E
S
0 1,000 2,000
Feet
Project Area
2023 Aitkin Co Imagery
310th Pl
240th Ln
State Hwy 47
230th Ln
220th St
310th Ave
10th Ave
Map 01
Map 02
Map 03
Map 04
Map 05
Map 06
Map 07
Map 08
Map 09
Map 10
Map 11
Map 12
Map 13
Map 14
Map 15
Map 16
Map 17

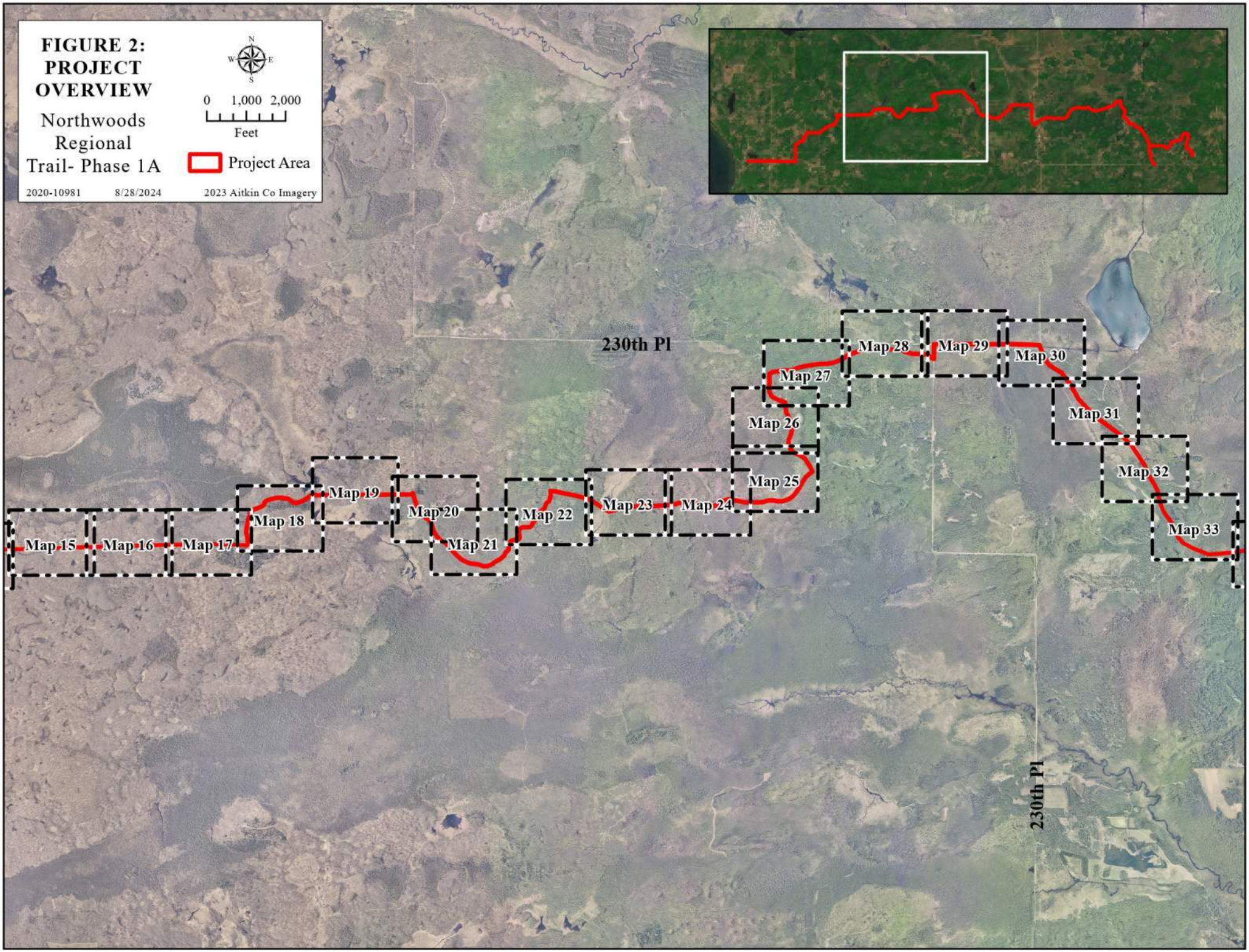


FIGURE 2:
PROJECT
OVERVIEW
Northwoods
Regional
Trail- Phase 1A
2020-10981
8/28/2024
N
W
E
S
0 1,000 2,000
Feet
Project Area
2023 Aitkin Co Imagery
230th Pl
230th Pl
Map 15
Map 16
Map 17
Map 18
Map 19
Map 20
Map 21
Map 22
Map 23
Map 24
Map 25
Map 26
Map 27
Map 28
Map 29
Map 30
Map 31
Map 32
Map 33

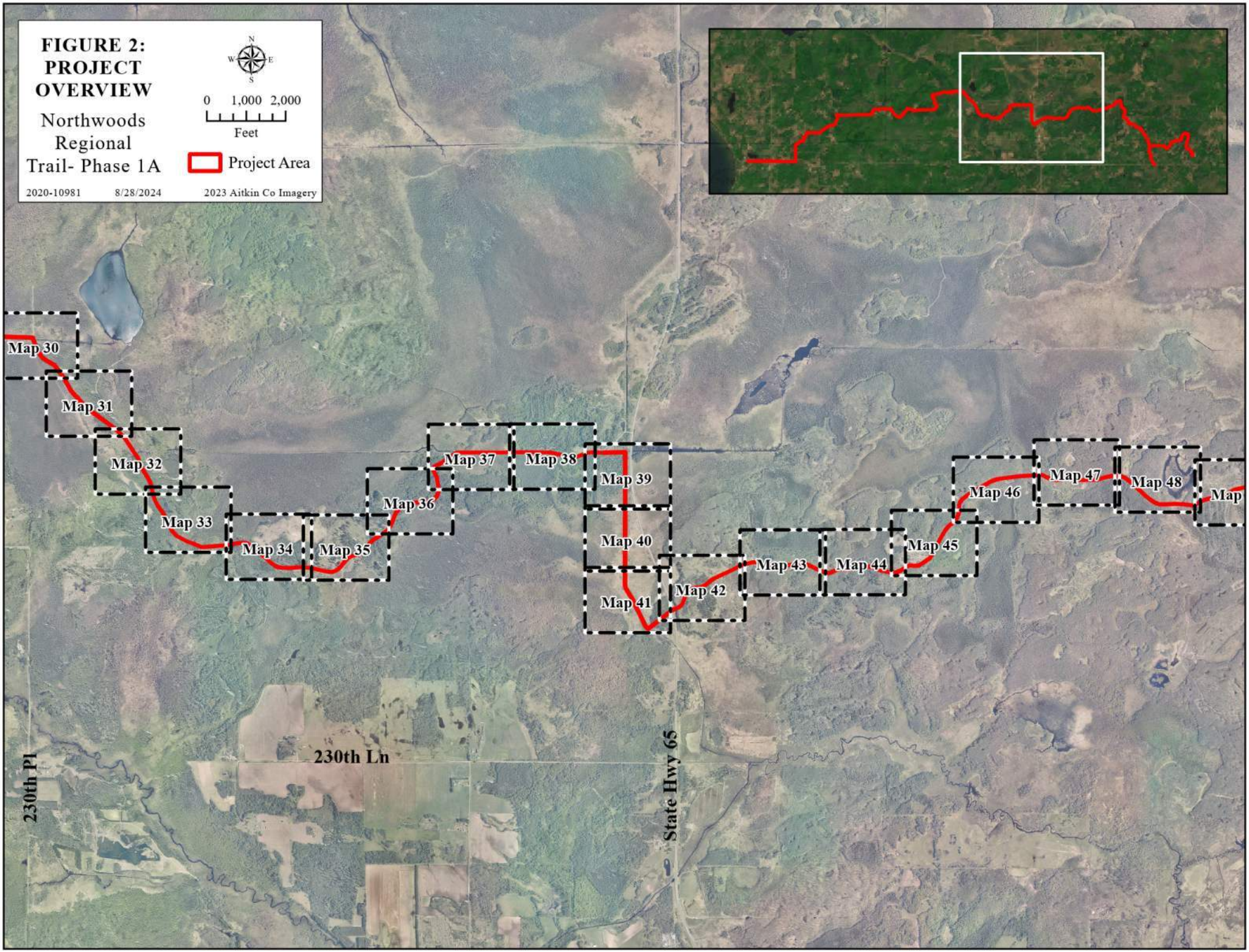


FIGURE 2:
PROJECT
OVERVIEW
Northwoods
Regional
Trail- Phase 1A
2020-10981
8/28/2024
N
W
E
S
0 1,000 2,000
Feet
Project Area
2023 Aitkin Co Imagery
Map 30
Map 31
Map 32
Map 33
Map 34
Map 35
Map 36
Map 37
Map 38
Map 39
Map 40
Map 41
Map 42
Map 43
Map 44
Map 45
Map 46
Map 47
Map 48
Map
230th Ln
230th Pl
State Hwy 65

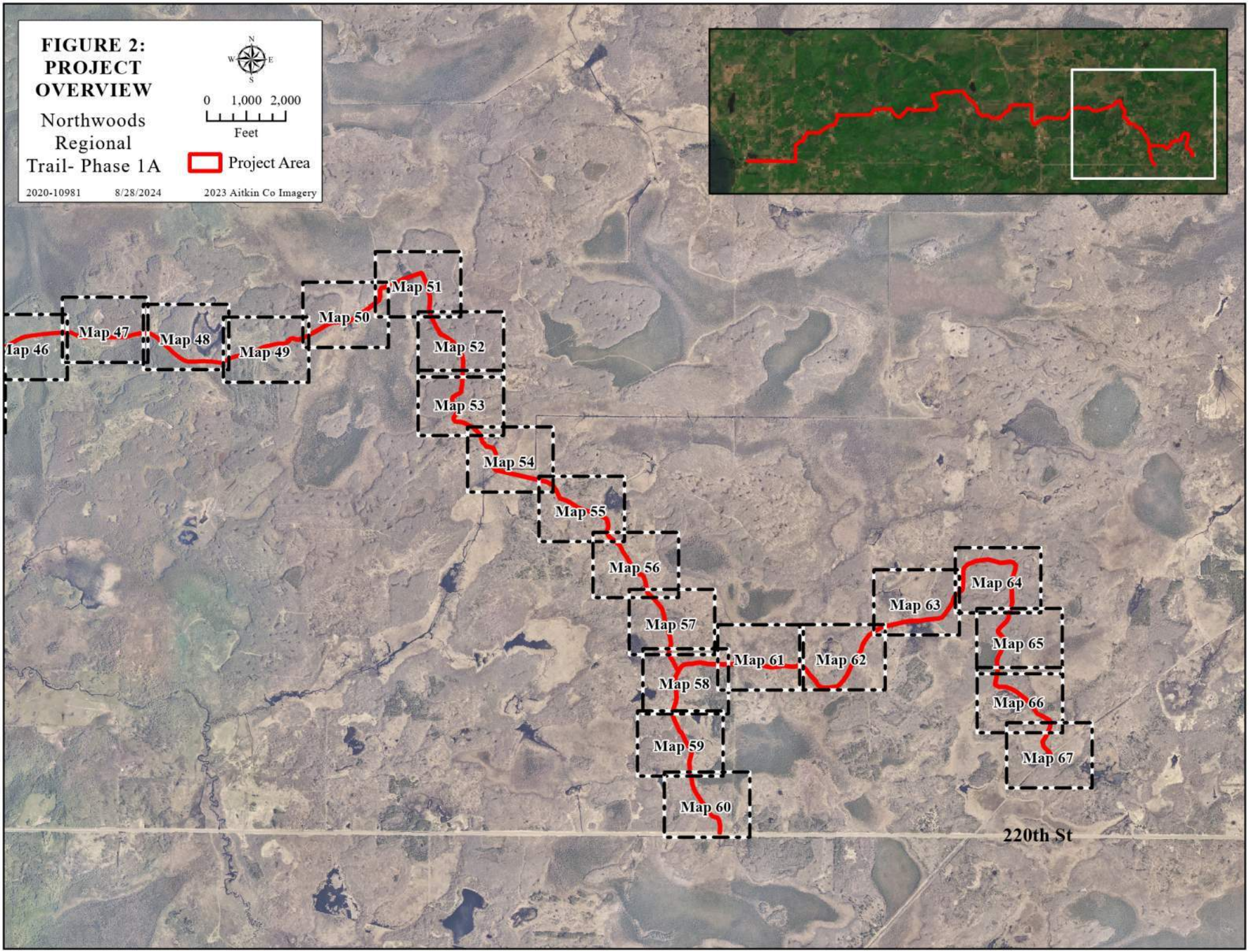


FIGURE 2:
PROJECT
OVERVIEW
Northwoods
Regional
Trail- Phase 1A
2020-10981
8/28/2024
N
W
E
S
0 1,000 2,000
Feet
Project Area
2023 Aitkin Co Imagery
Map 46
Map 47
Map 48
Map 49
Map 50
Map 51
Map 52
Map 53
Map 54
Map 55
Map 56
Map 57
Map 58
Map 59
Map 60
Map 61
Map 62
Map 63
Map 64
Map 65
Map 66
Map 67
220th St

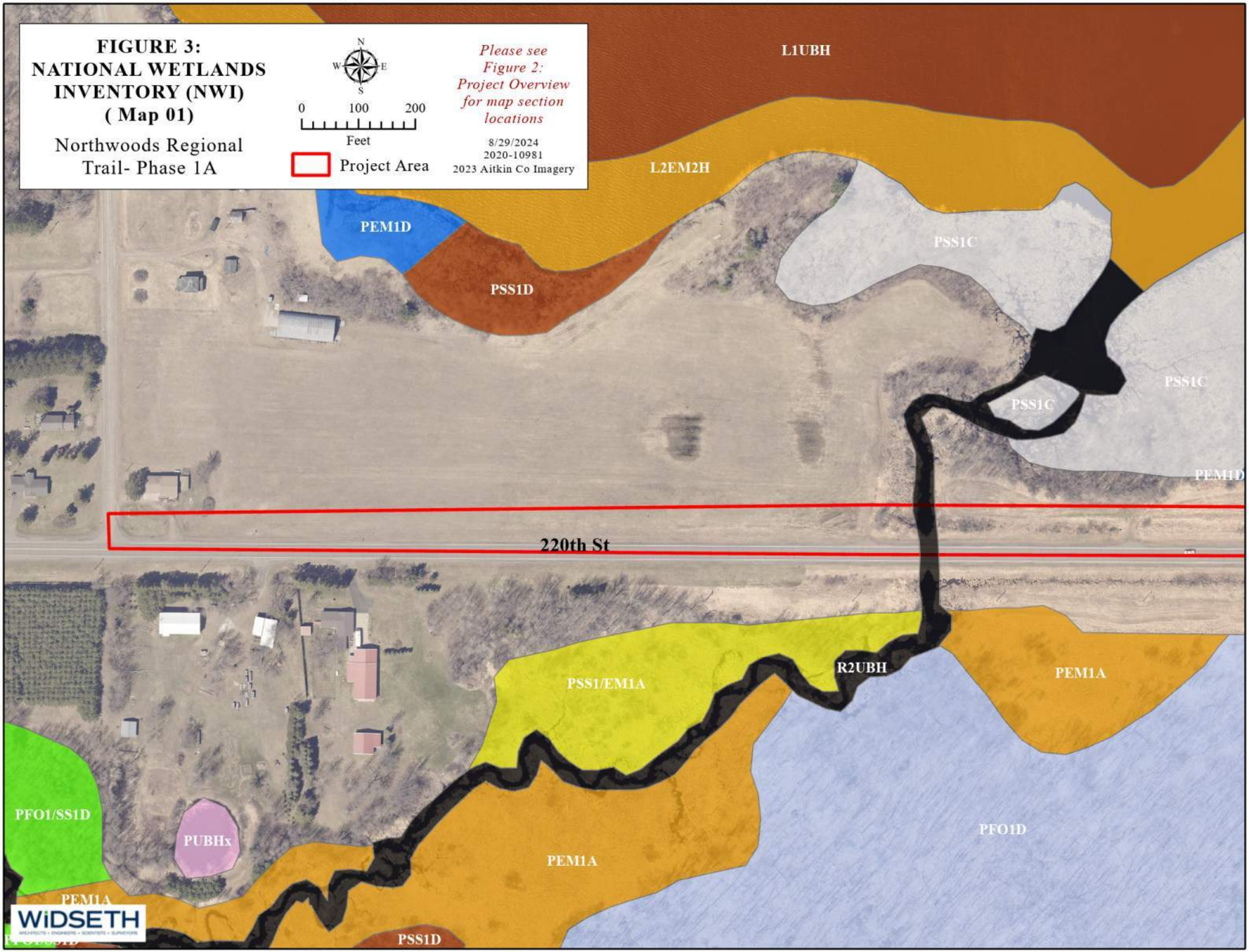


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 01)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
L1UBH
L2EM2H
PEM1D
PSS1D
PSS1C
PSS1C
PSS1C
PEM1D
220th St
PSS1/EM1A
R2UBH
PEM1A
PFO1/SS1D
PUBHx
PEM1A
PFO1D
PEM1A
PSS1D
WiDSETH

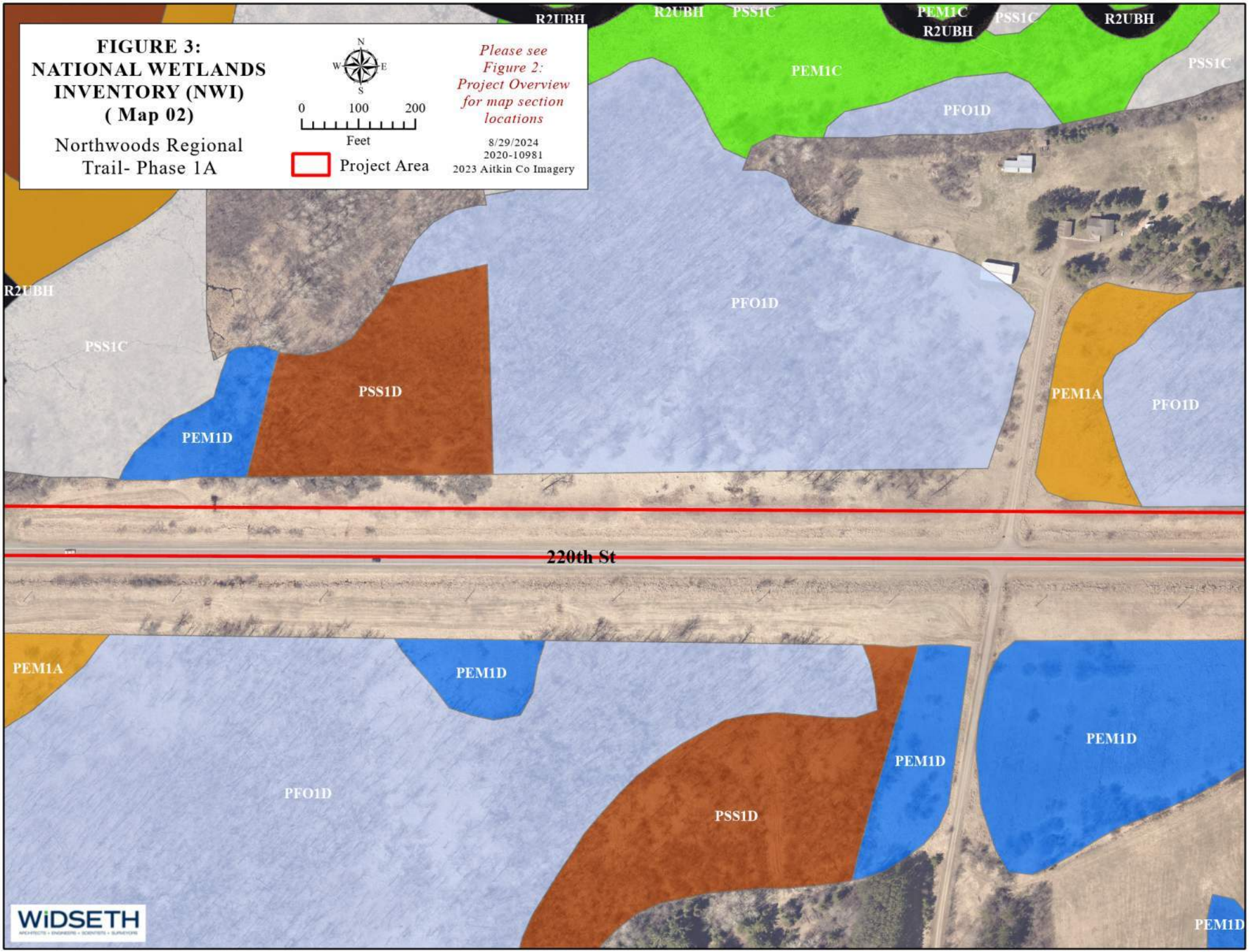


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 02)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
R2UBH
PSS1C
PEM1C
R2UBH
PEM1C
PSS1C
R2UBH
PSS1C
PFO1D
R2UBH
PSS1C
PFO1D
PSS1D
PEM1D
PEM1A
PFO1D
220th St
PEM1A
PEM1D
PEM1D
PEM1D
PFO1D
PSS1D
PEM1D
WIDSETH

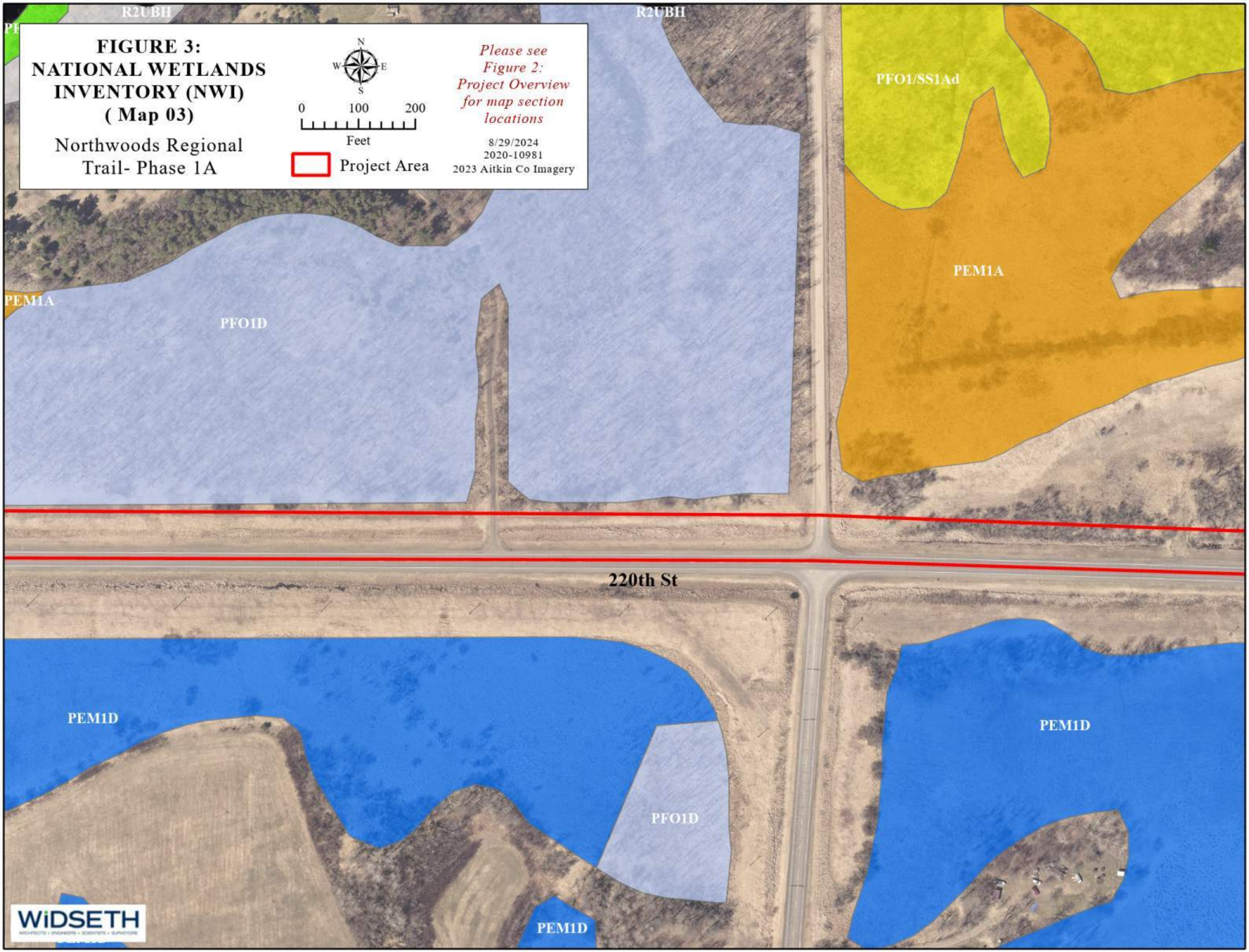


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 03)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
R2UBH
R2UBH
PFO1/SS1Ad
PEM1A
PEM1A
PFO1D
220th St
PEM1D
PFO1D
PEM1D
PEM1D
WIDSETH

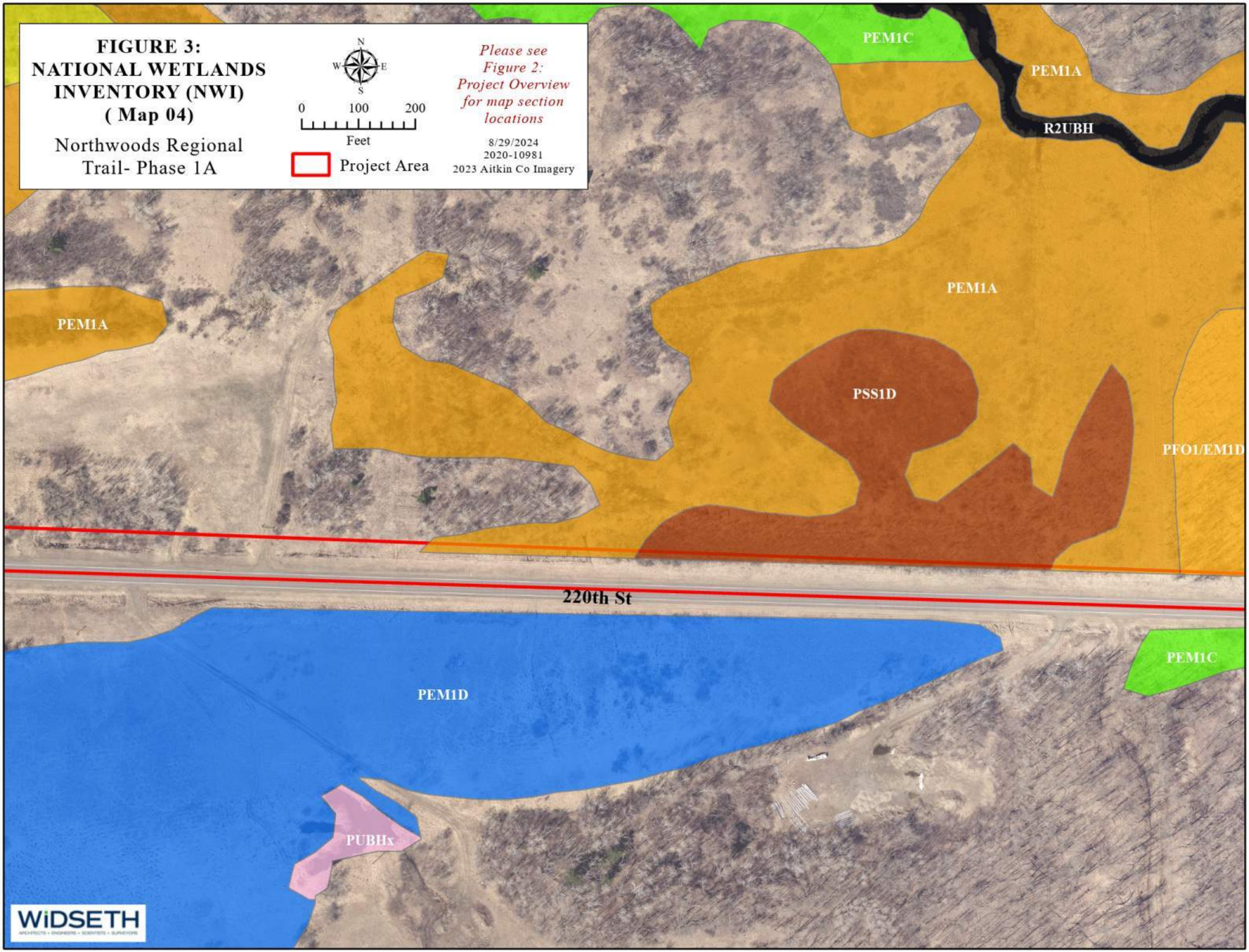


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 04)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PEM1C
PEM1A
R2UBH
PEM1A
PEM1A
PSS1D
PFO1/EM1D
220th St
PEM1C
PEM1D
PUBHx
WiDSETH

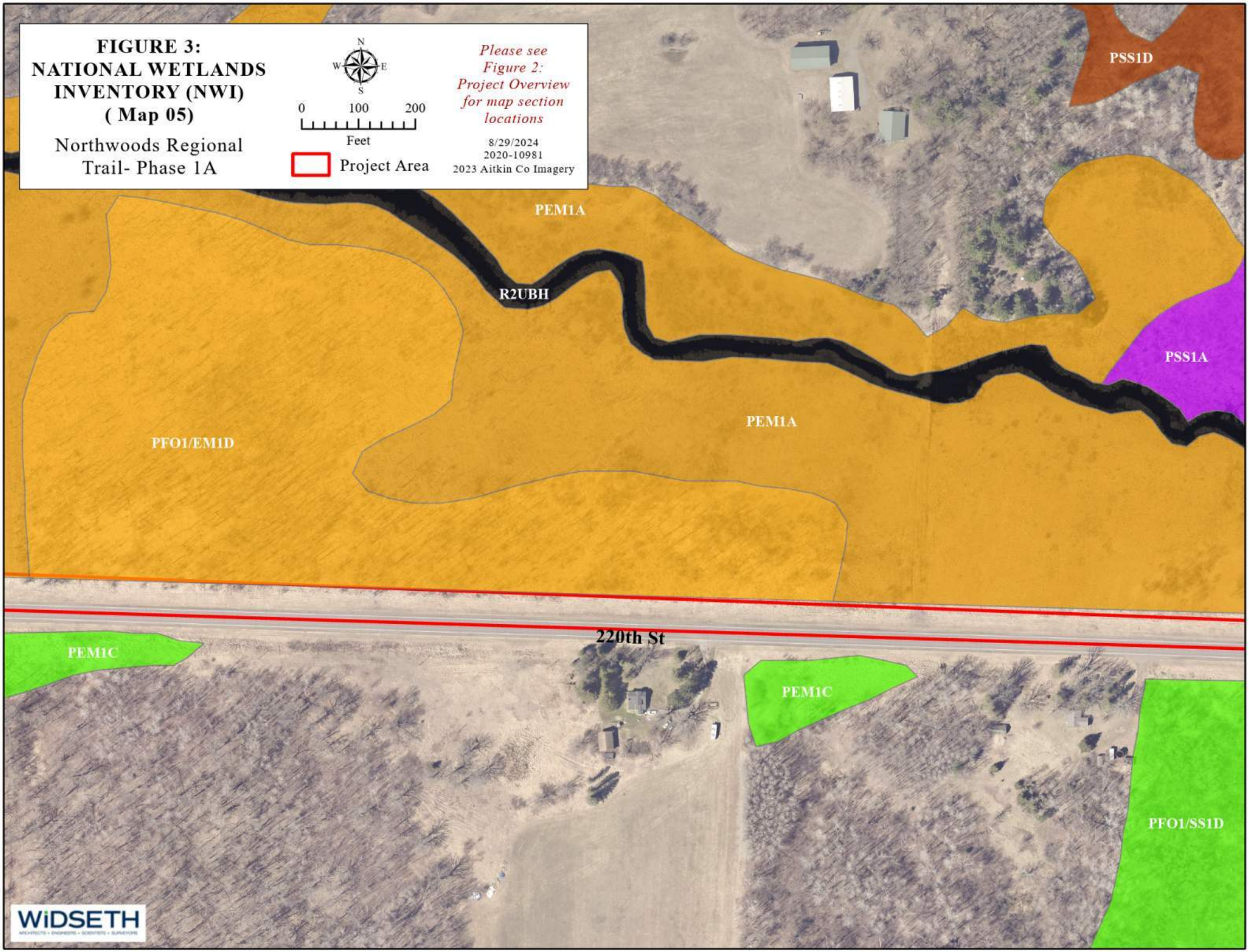


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 05)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1D
PEM1A
R2UBH
PSS1A
PEM1A
PFO1/EM1D
220th St
PEM1C
PEM1C
PFO1/SS1D
WIDSETH

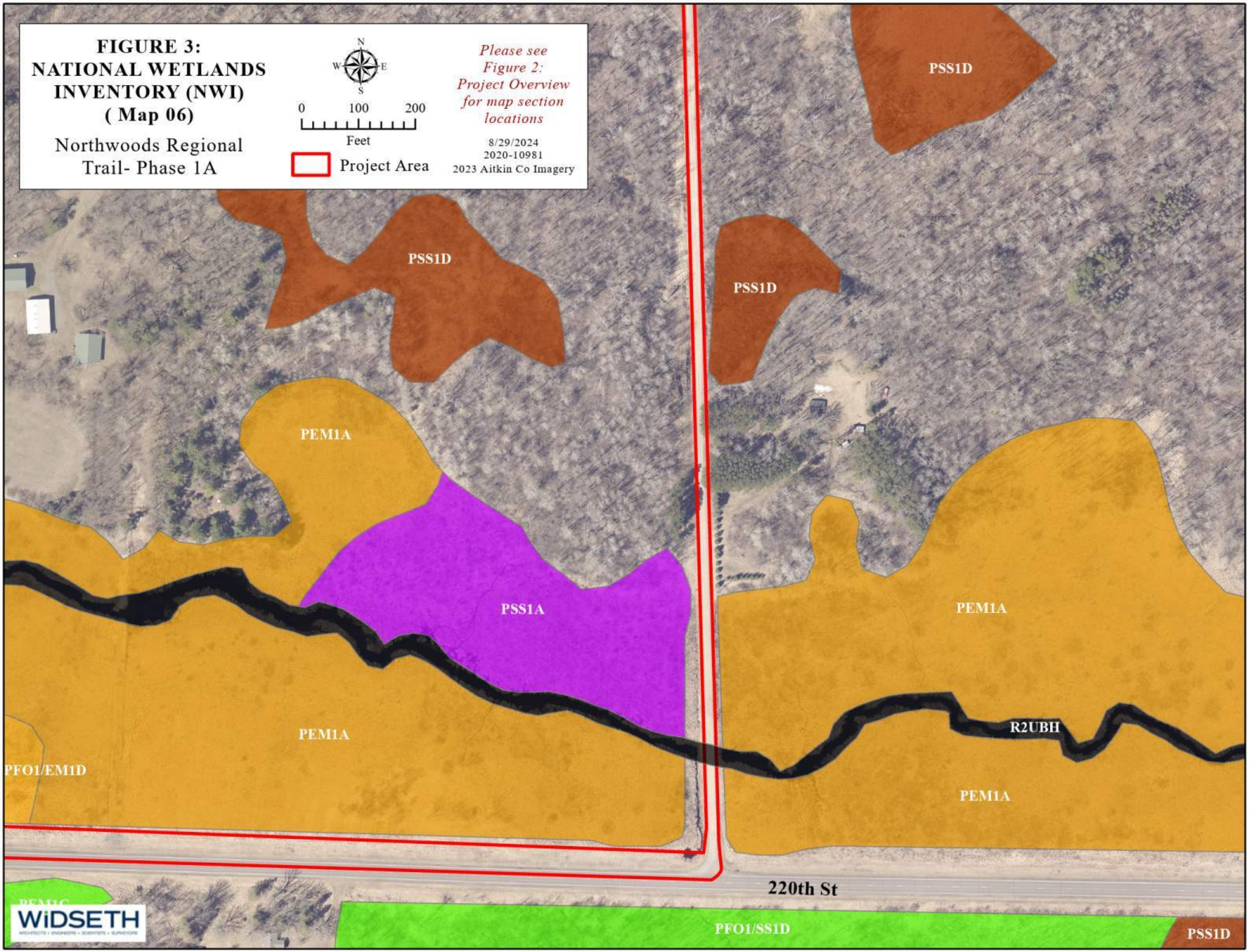


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 06)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1D
PSS1D
PSS1D
PEM1A
PSS1A
PEM1A
PEM1A
R2UBH
PEM1A
PFO1/EM1D
220th St
PFO1/SS1D
PSS1D
WIDSETH

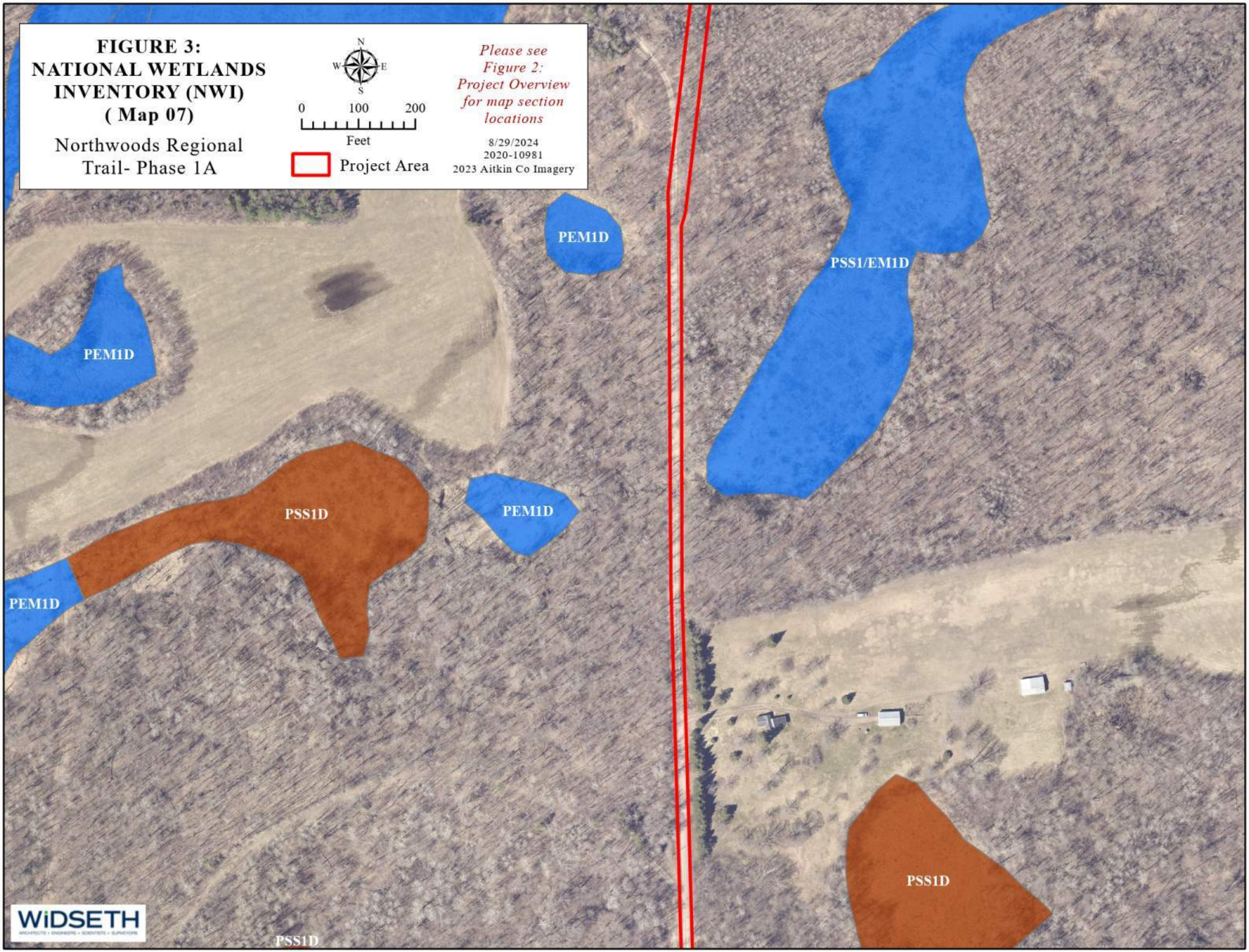


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 07)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PEM1D
PEM1D
PSS1D
PEM1D
PEM1D
PSS1/EM1D
PSS1D
PSS1D
WiDSETH

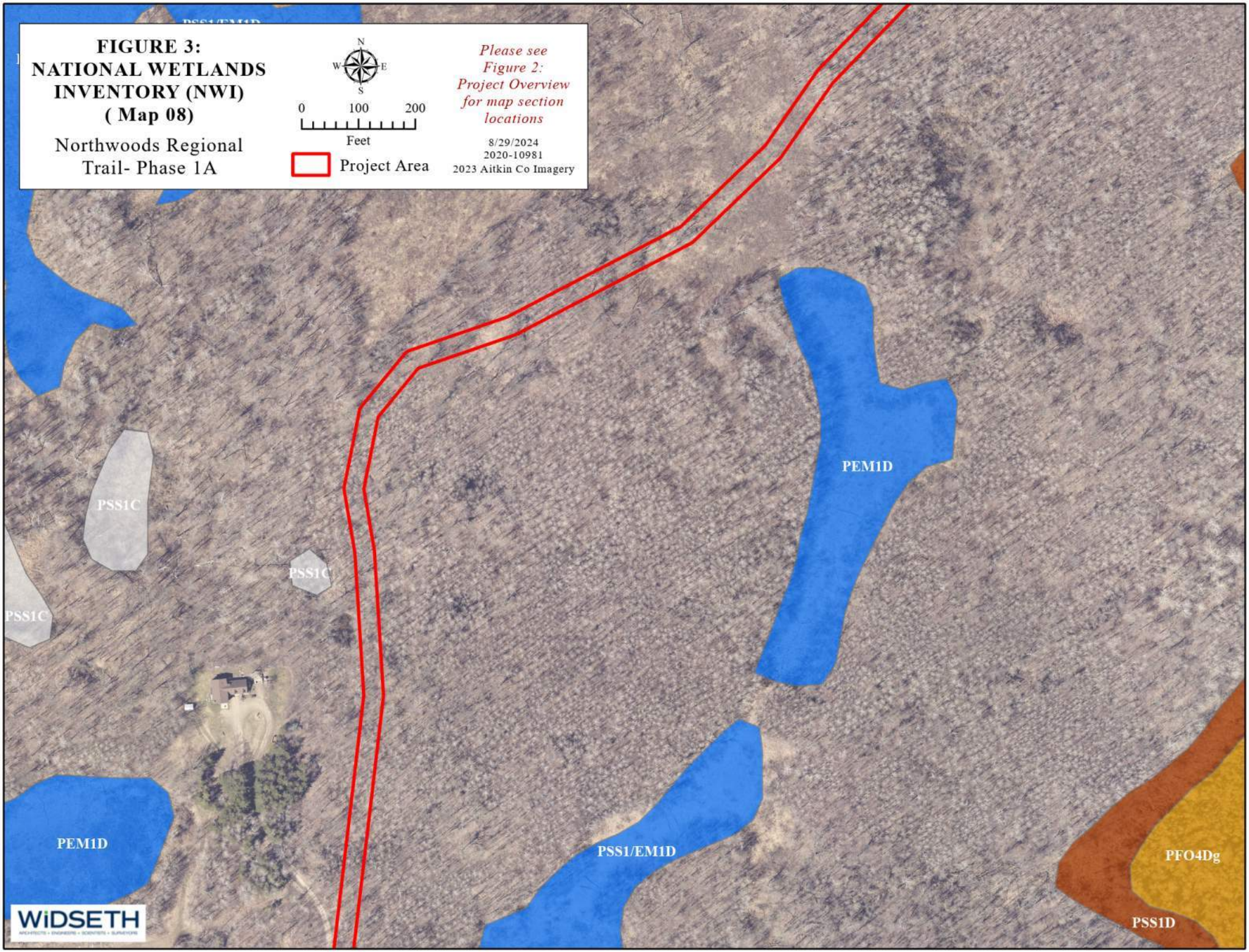


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 08)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1C
PSS1C
PSS1C
PEM1D
PEM1D
PSS1/EM1D
PFO4Dg
PSS1D
WiDSETH

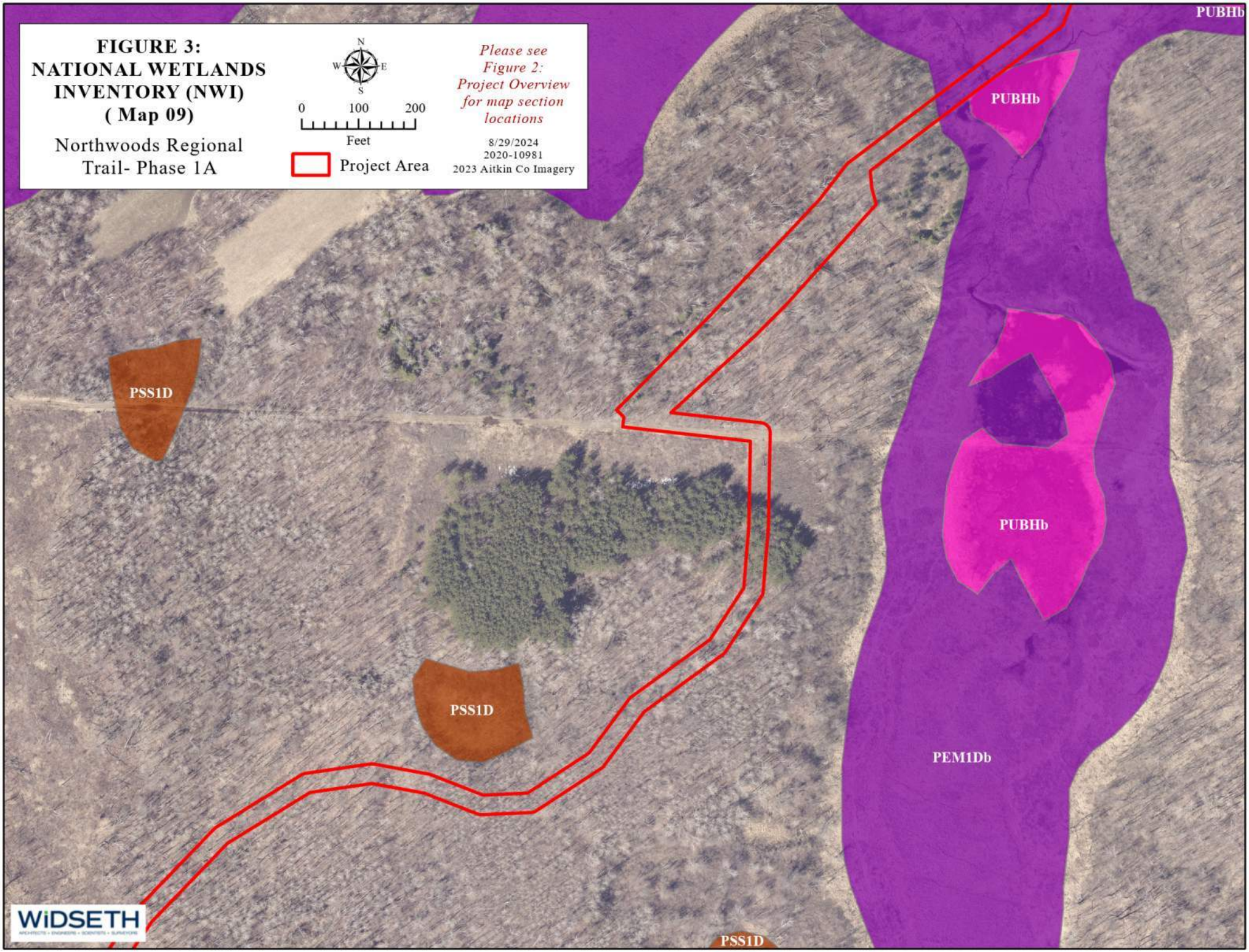


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 09)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PUBHb
PUBHb
PUBHb
PSS1D
PSS1D
PEM1Db
PSS1D
WIDSETH

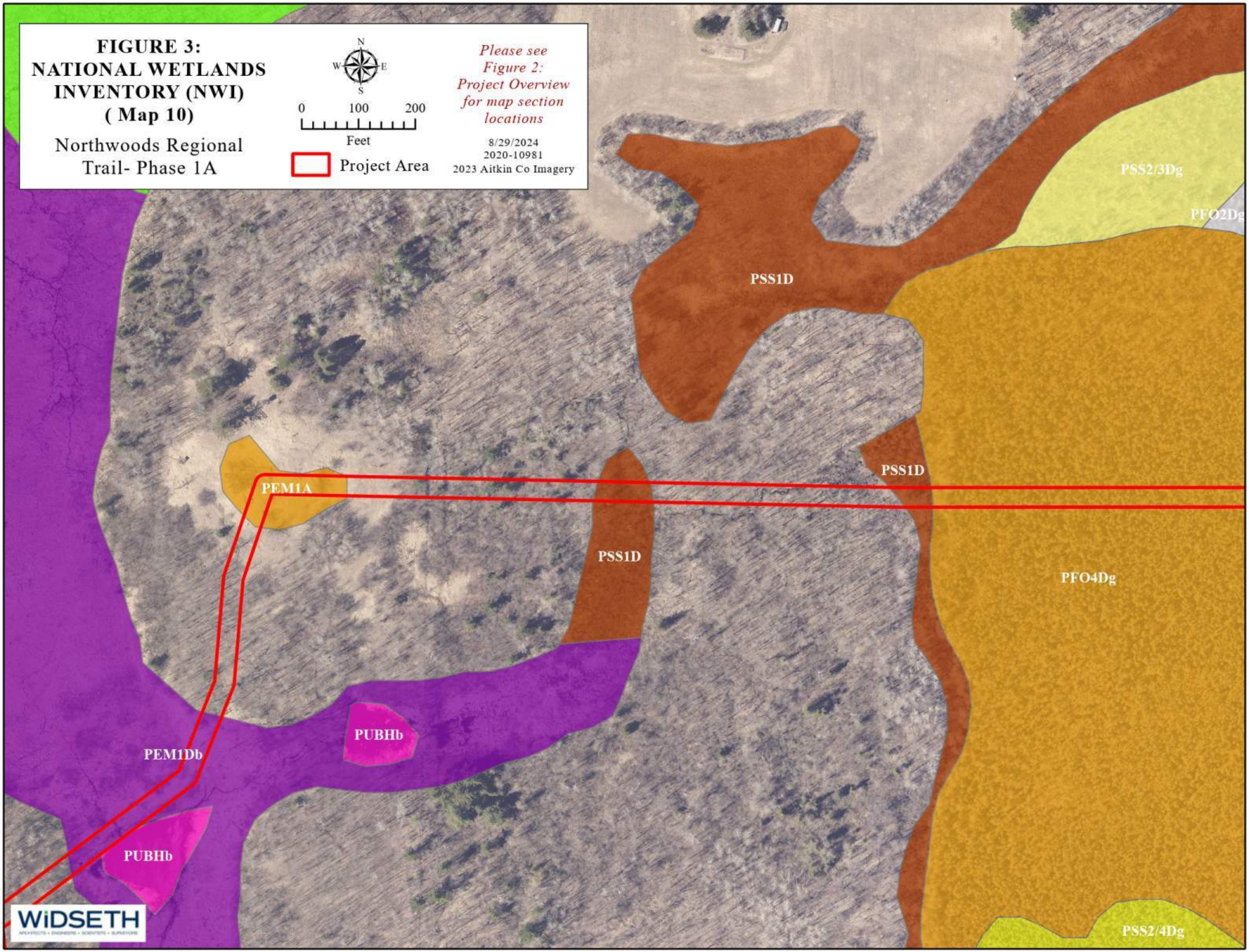


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 10)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS2/3Dg
PFO2Dg
PSS1D
PSS1D
PEM1A
PSS1D
PFO4Dg
PUBHb
PEM1Db
PUBHb
PSS2/4Dg
WiDSETH

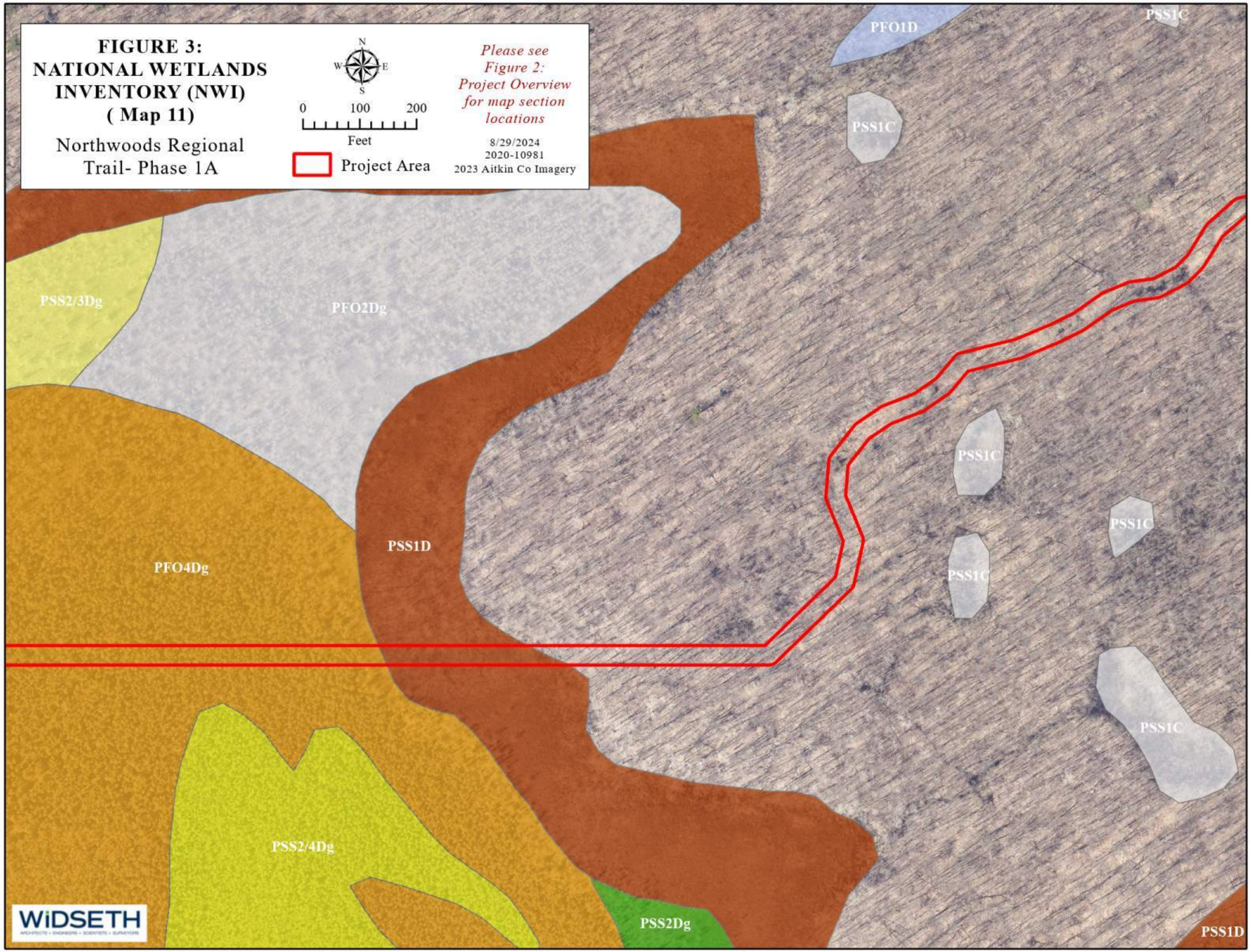


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 11)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO1D
PSS1C
PSS2/3Dg
PFO2Dg
PSS1C
PSS1C
PSS1C
PFO4Dg
PSS1D
PSS1C
PSS1C
PSS2/4Dg
PSS2Dg
PSS1D
WiDSETH

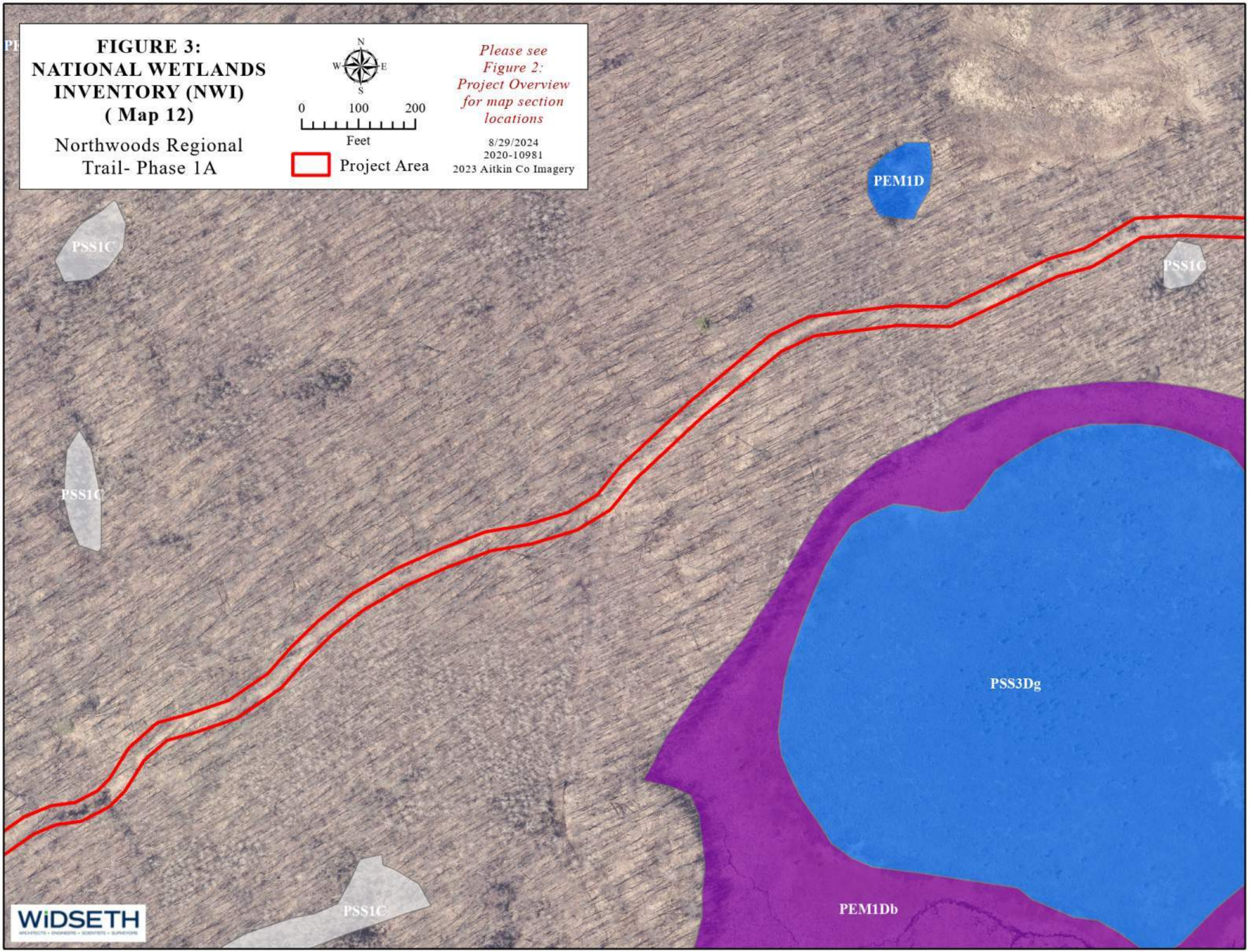


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 12)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PEM1D
PSS1C
PSS1C
PSS1C
PSS1C
PSS3Dg
PEM1Db
WiDSETH

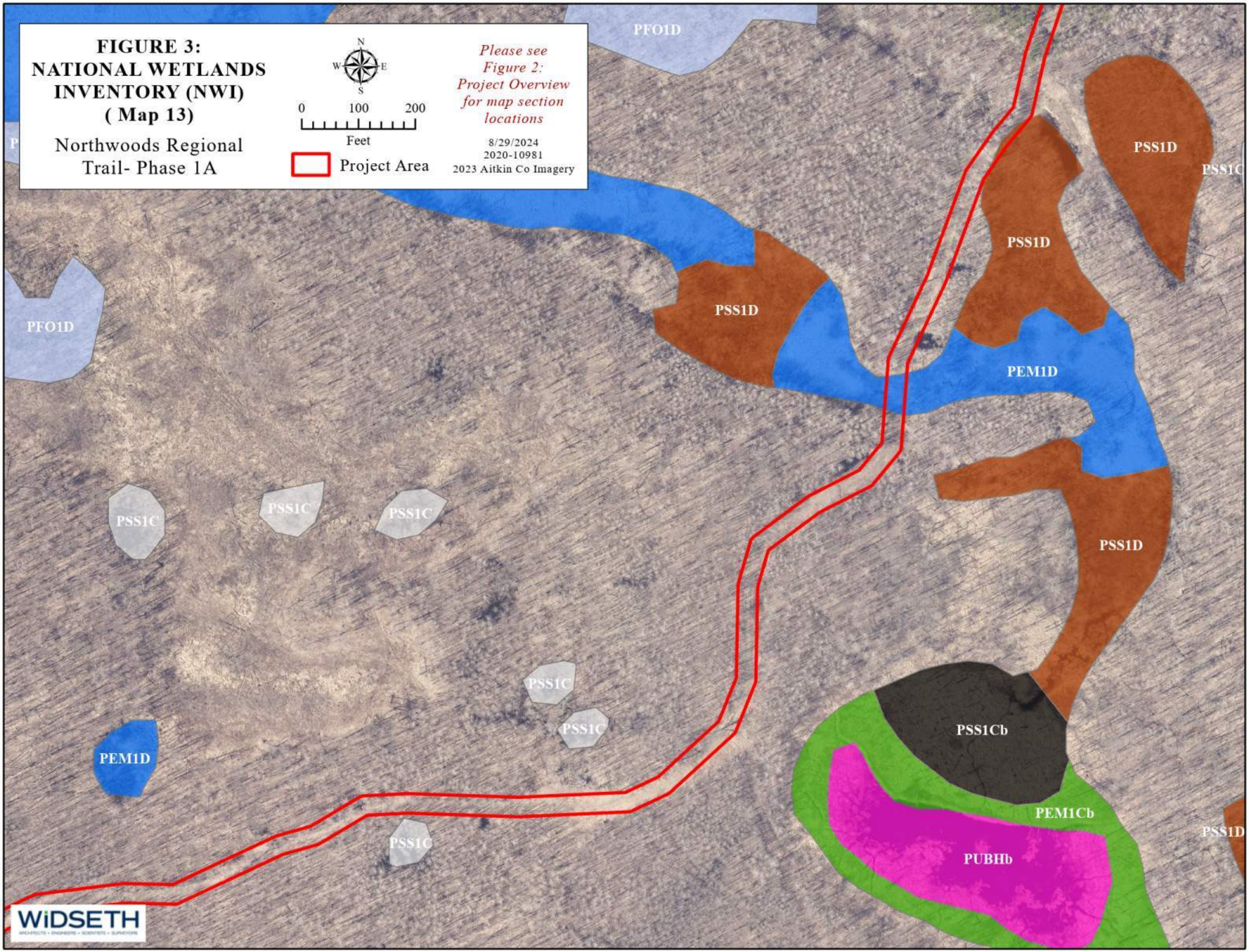


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 13)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO1D
PSS1D
PSS1C
PEM1D
PSS1Cb
PEM1Cb
PUBHb
WIDSETH

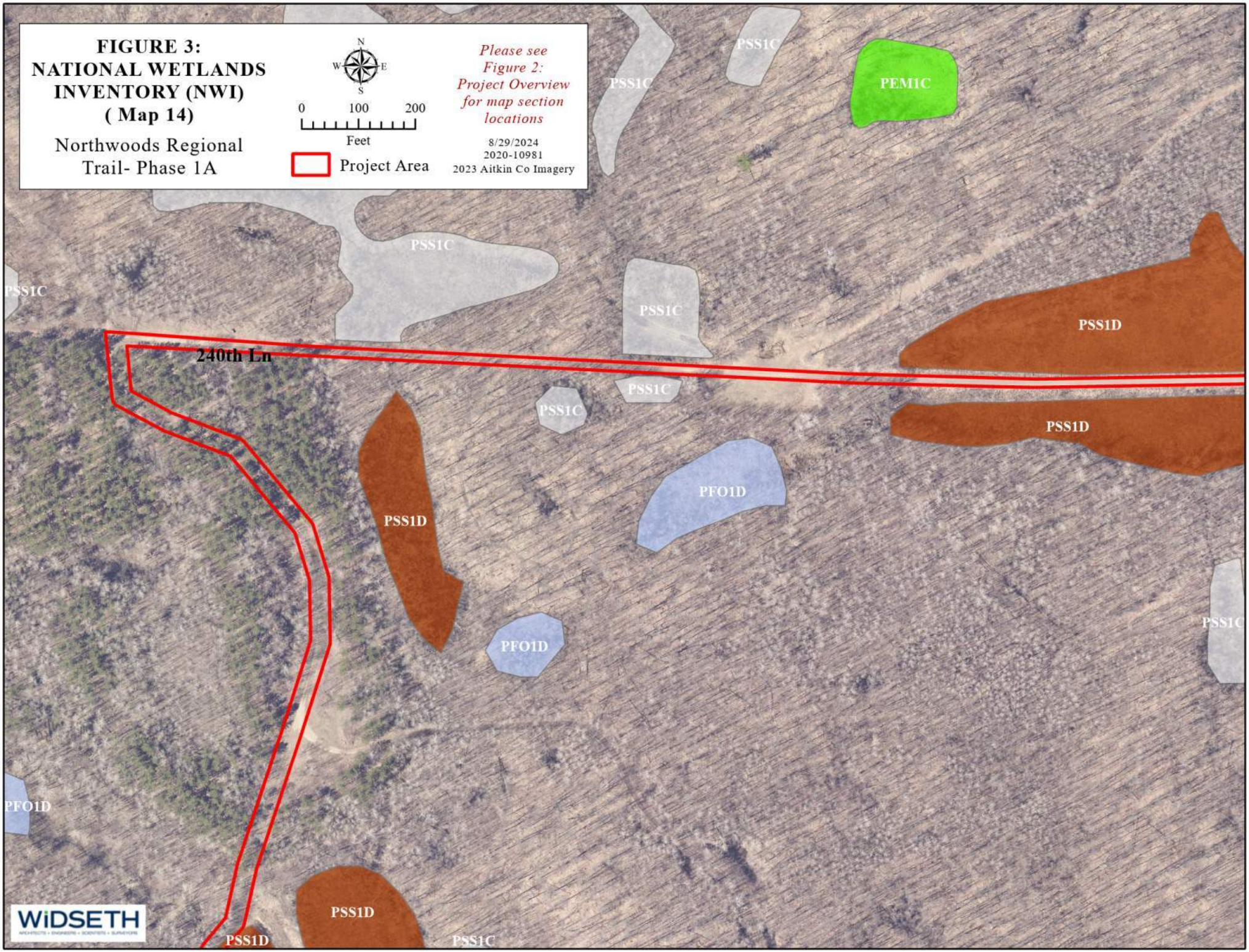


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 14)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1C
PEM1C
PSS1D
PFO1D
240th Ln
WIDSETH

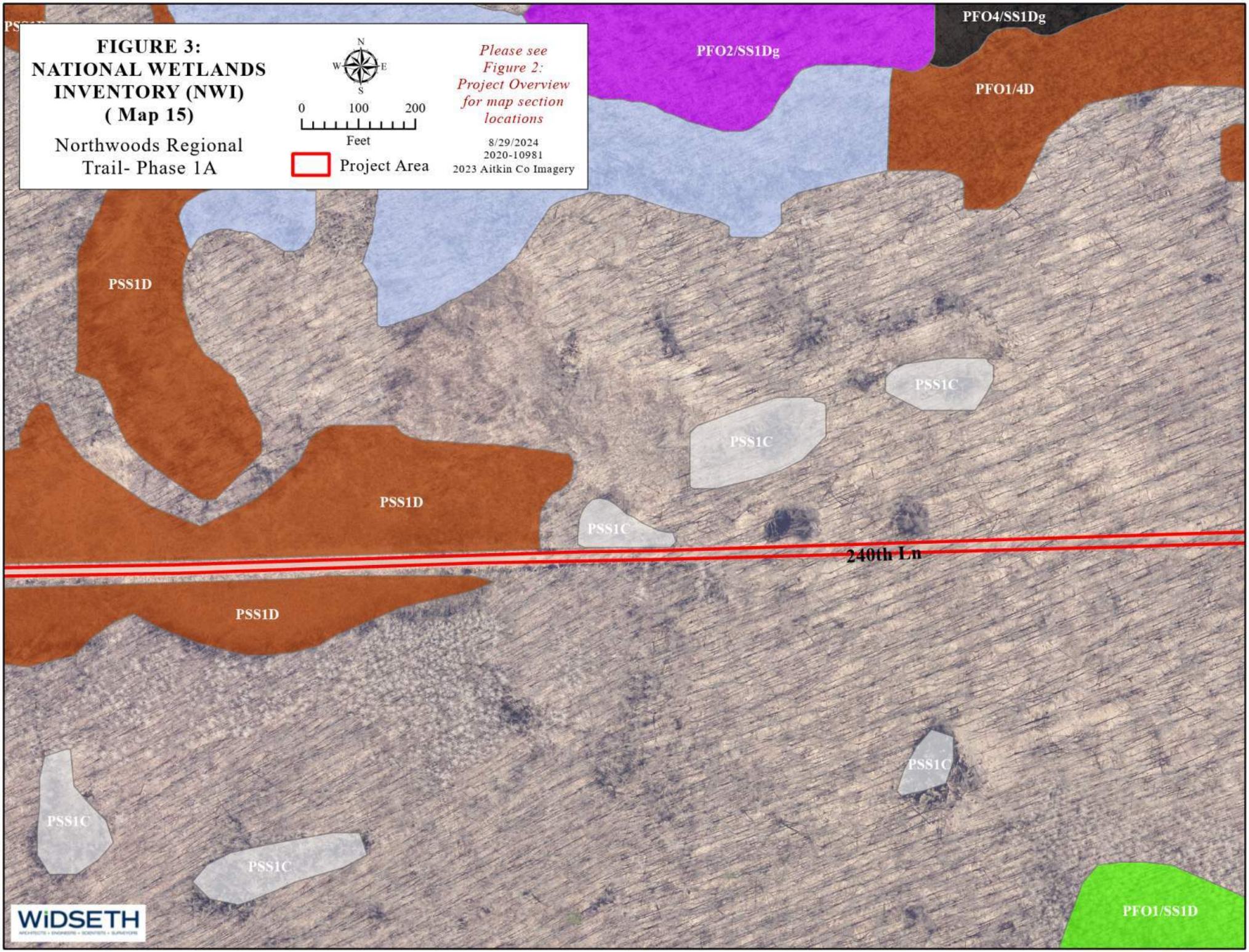
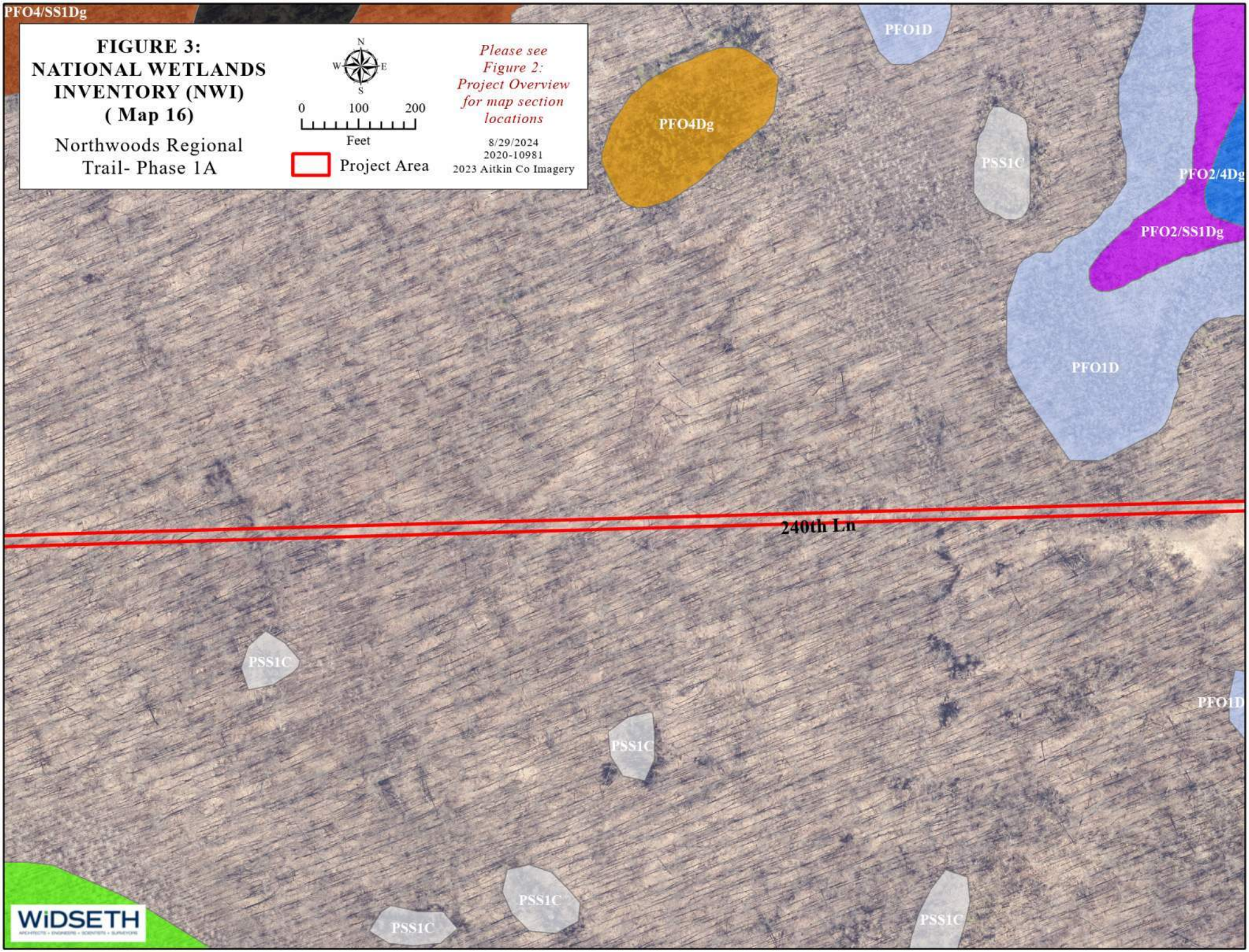


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 15)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO4/SS1Dg
PFO2/SS1Dg
PFO1/4D
PSS1D
PSS1C
PSS1C
PSS1D
PSS1C
240th Ln
PSS1D
PSS1C
PSS1C
PSS1C
PFO1/SS1D
WIDSETH


PFO4/SS1Dg
FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 16)
Northwoods Regional
Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see
Figure 2:
Project Overview
for map section
locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO1D
PFO4Dg
PSS1C
PFO2/4Dg
PFO2/SS1Dg
PFO1D
240th Ln
PSS1C
PSS1C
PFO1D
PSS1C
PSS1C
PSS1C
WiDSETH

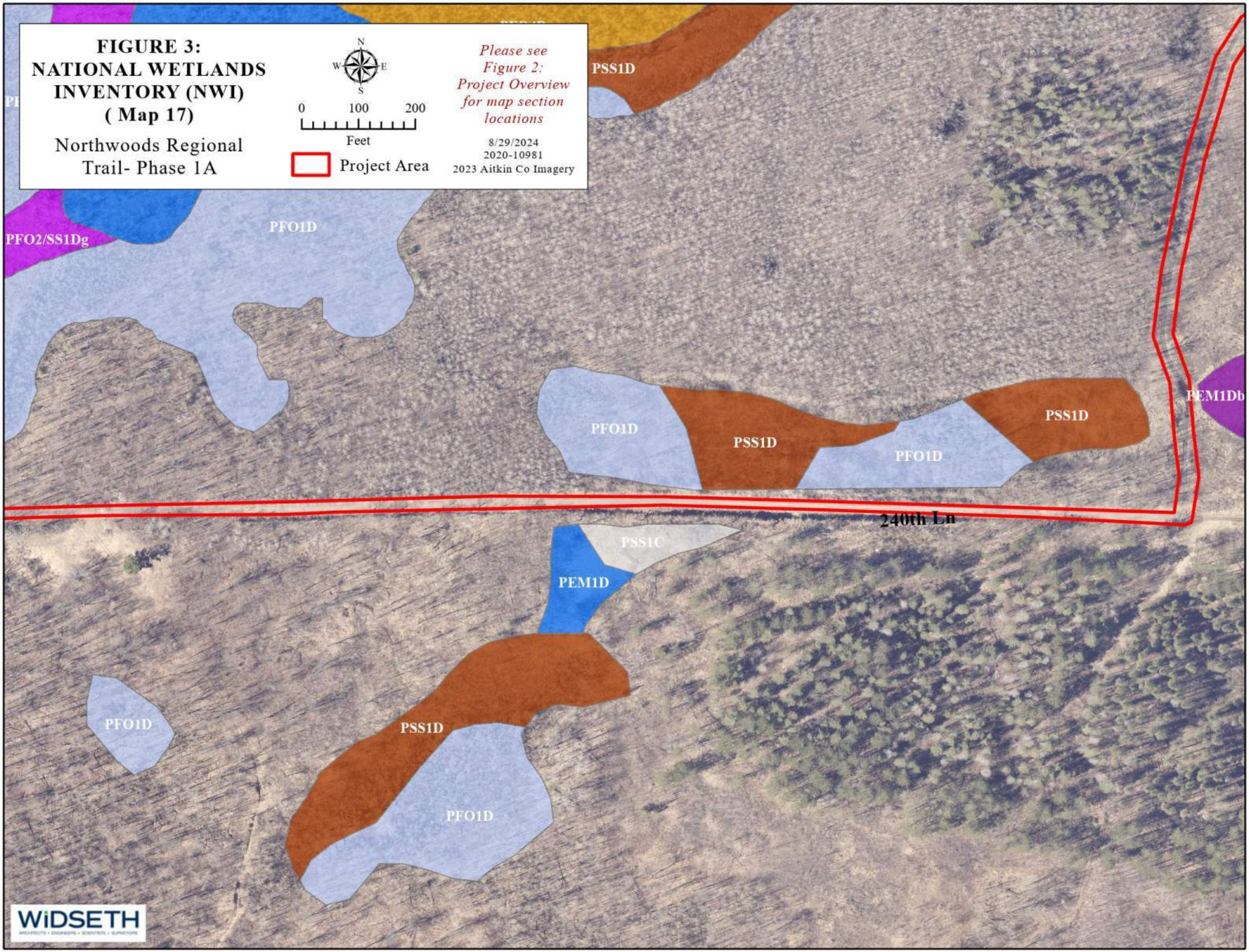


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 17)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1D
PFO2/SS1Dg
PFO1D
PFO1D
PSS1D
PFO1D
PSS1D
PEM1Db
240th Ln
PSS1C
PEM1D
PFO1D
PSS1D
PFO1D
WiDSETH

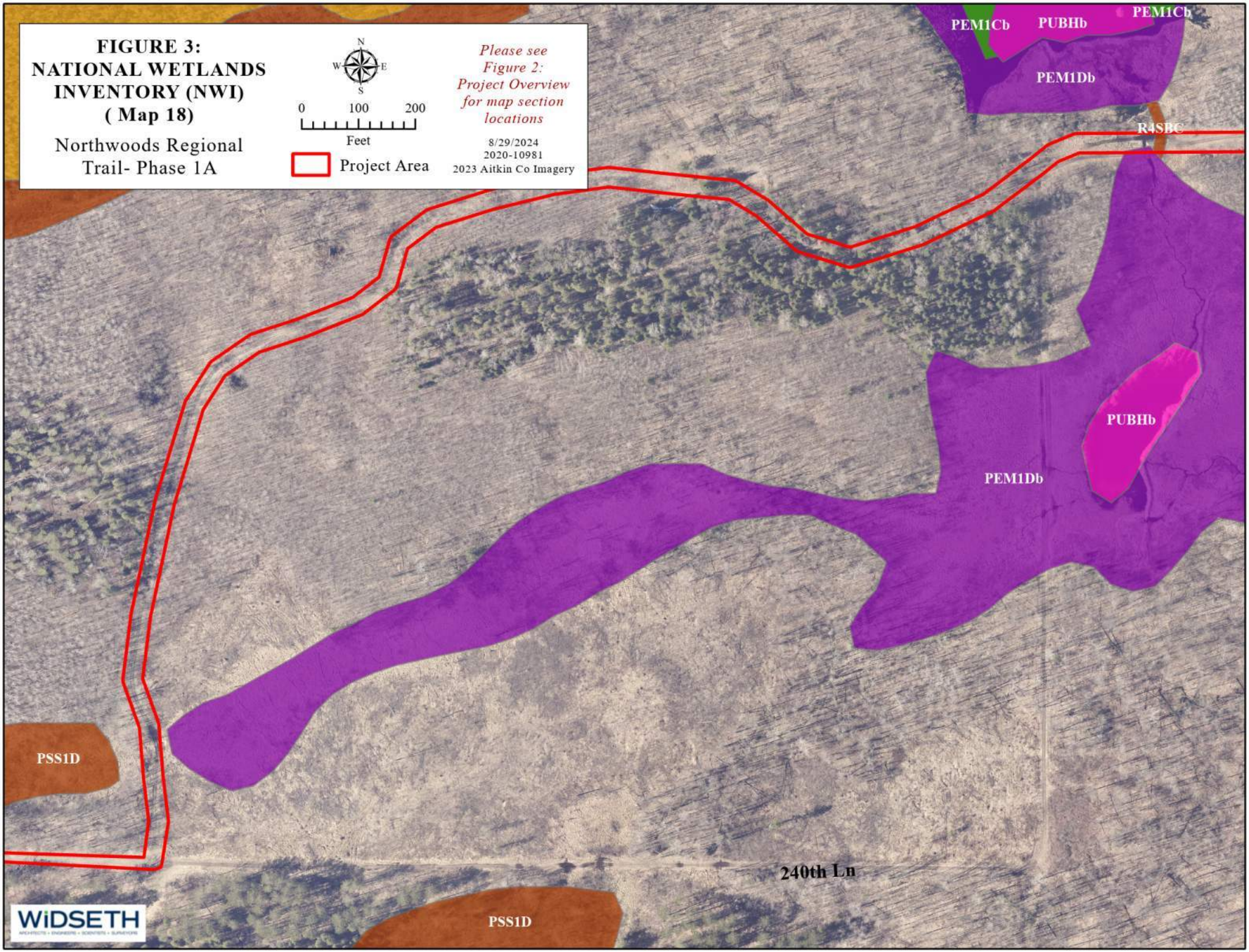
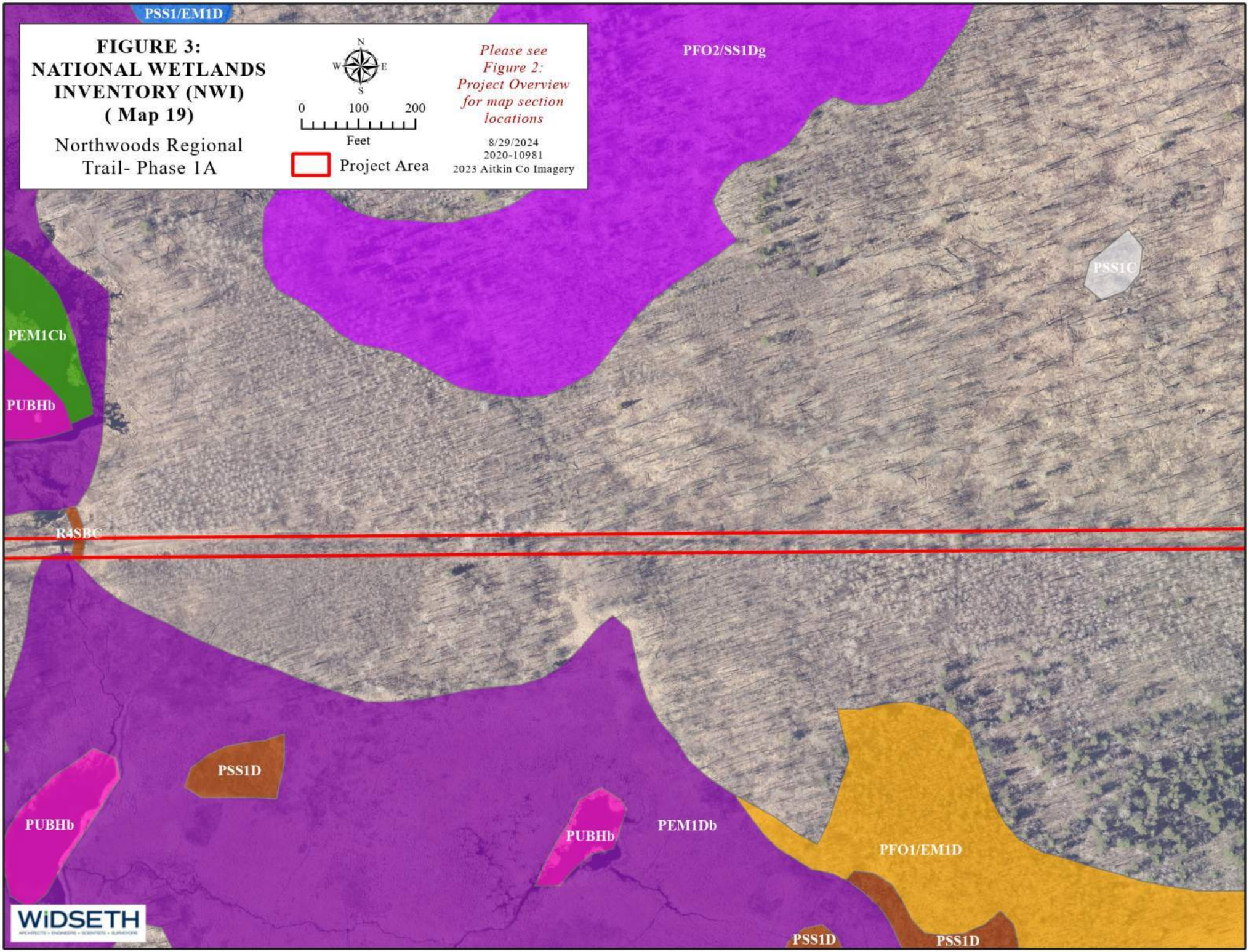


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 18)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PEM1Cb
PUBHb
PEM1Cb
PEM1Db
R4SBC
PUBHb
PEM1Db
PSS1D
240th Ln
PSS1D
WiDSETH


PSS1/EM1D
FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 19)
Northwoods Regional
Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see
Figure 2:
Project Overview
for map section
locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO2/SS1Dg
PSS1C
PEM1Cb
PUBHb
R4SBC
PSS1D
PUBHb
PUBHb
PEM1Db
PFO1/EM1D
PSS1D
PSS1D
WiDSETH

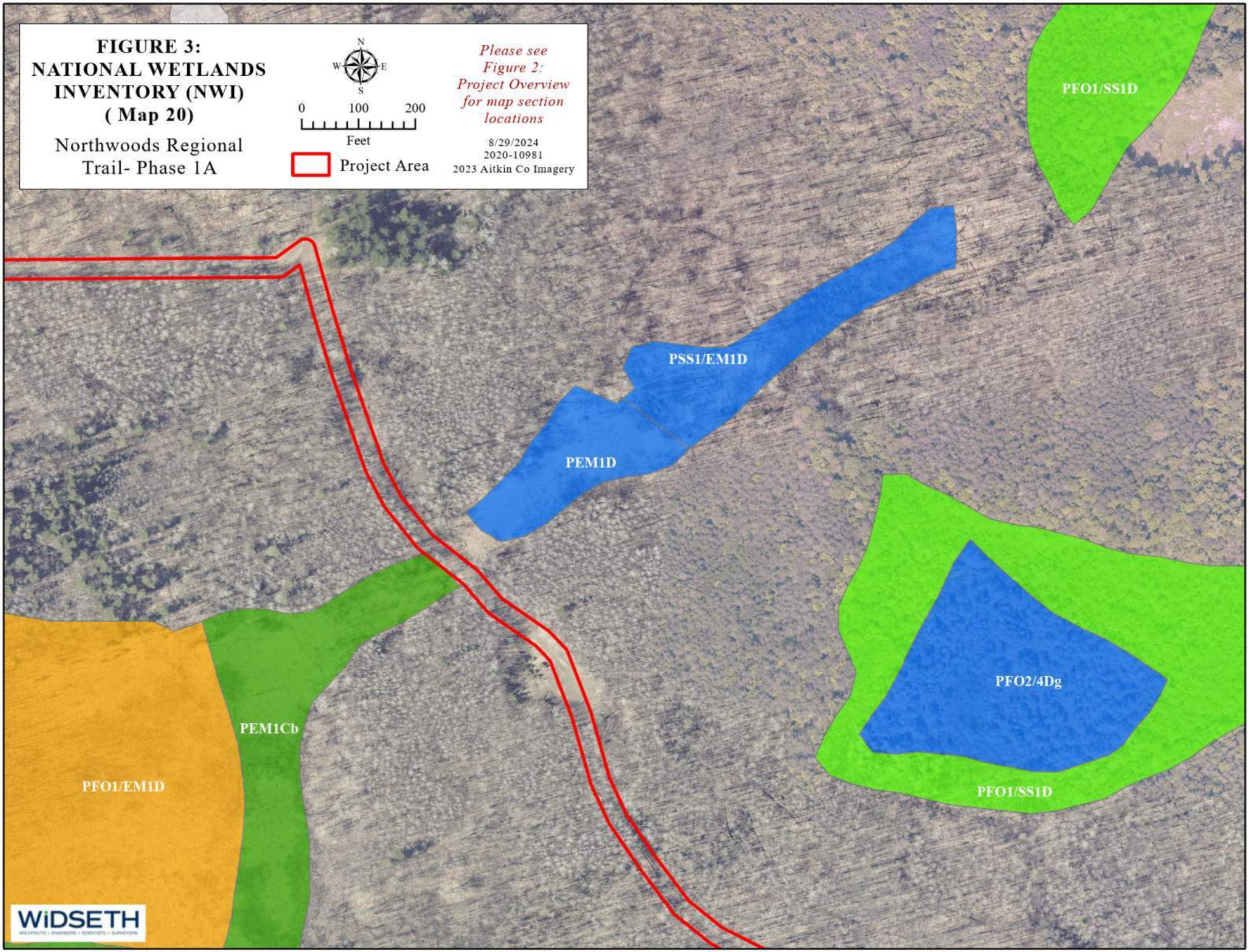
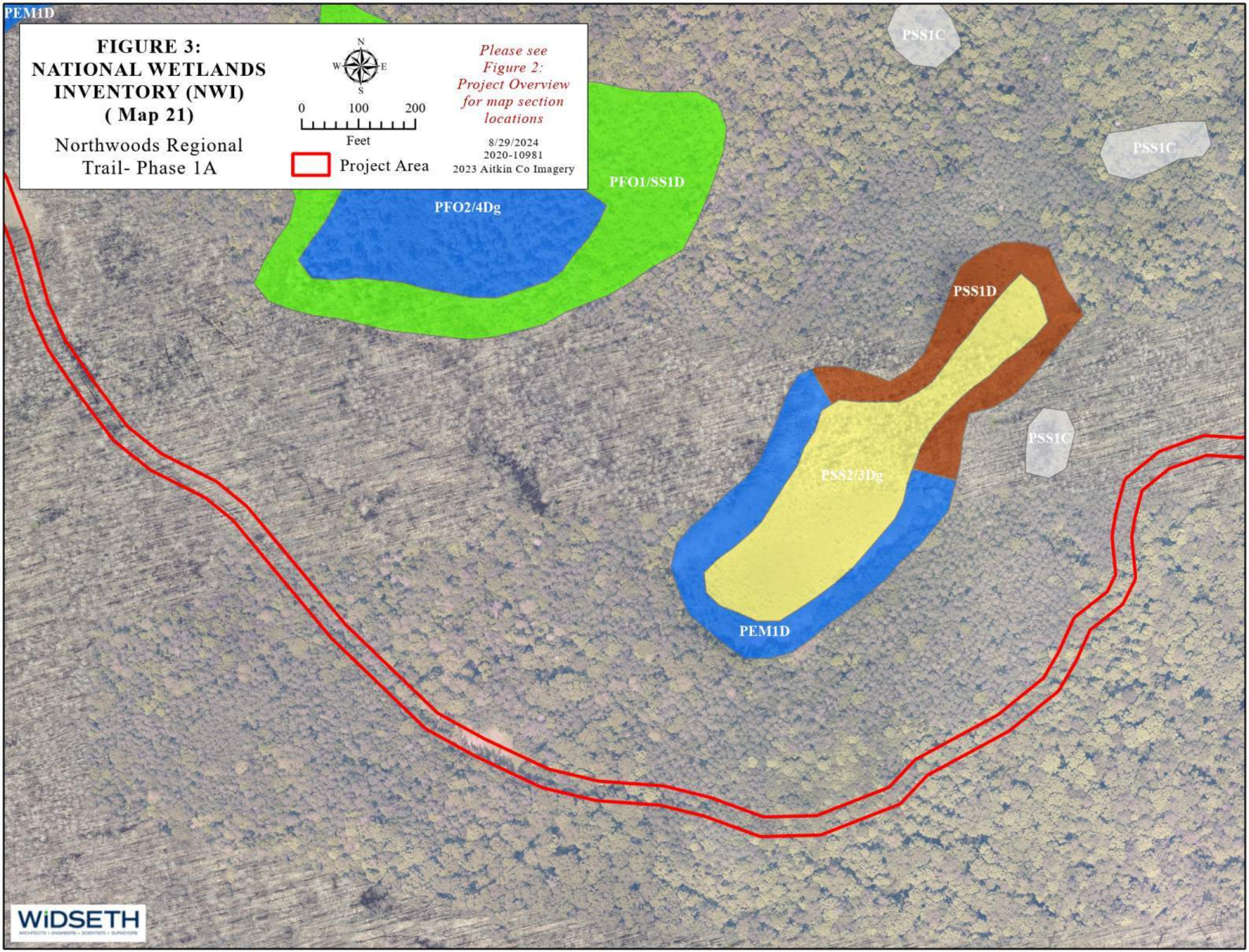


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 20)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO1/SS1D
PSS1/EM1D
PEM1D
PEM1Cb
PFO1/EM1D
PFO2/4Dg
PFO1/SS1D
WiDSETH


PEM1D
FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 21)
Northwoods Regional
Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see
Figure 2:
Project Overview
for map section
locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1C
PSS1C
PFO1/SS1D
PFO2/4Dg
PSS1D
PSS1C
PSS2/3Dg
PEM1D
WiDSETH

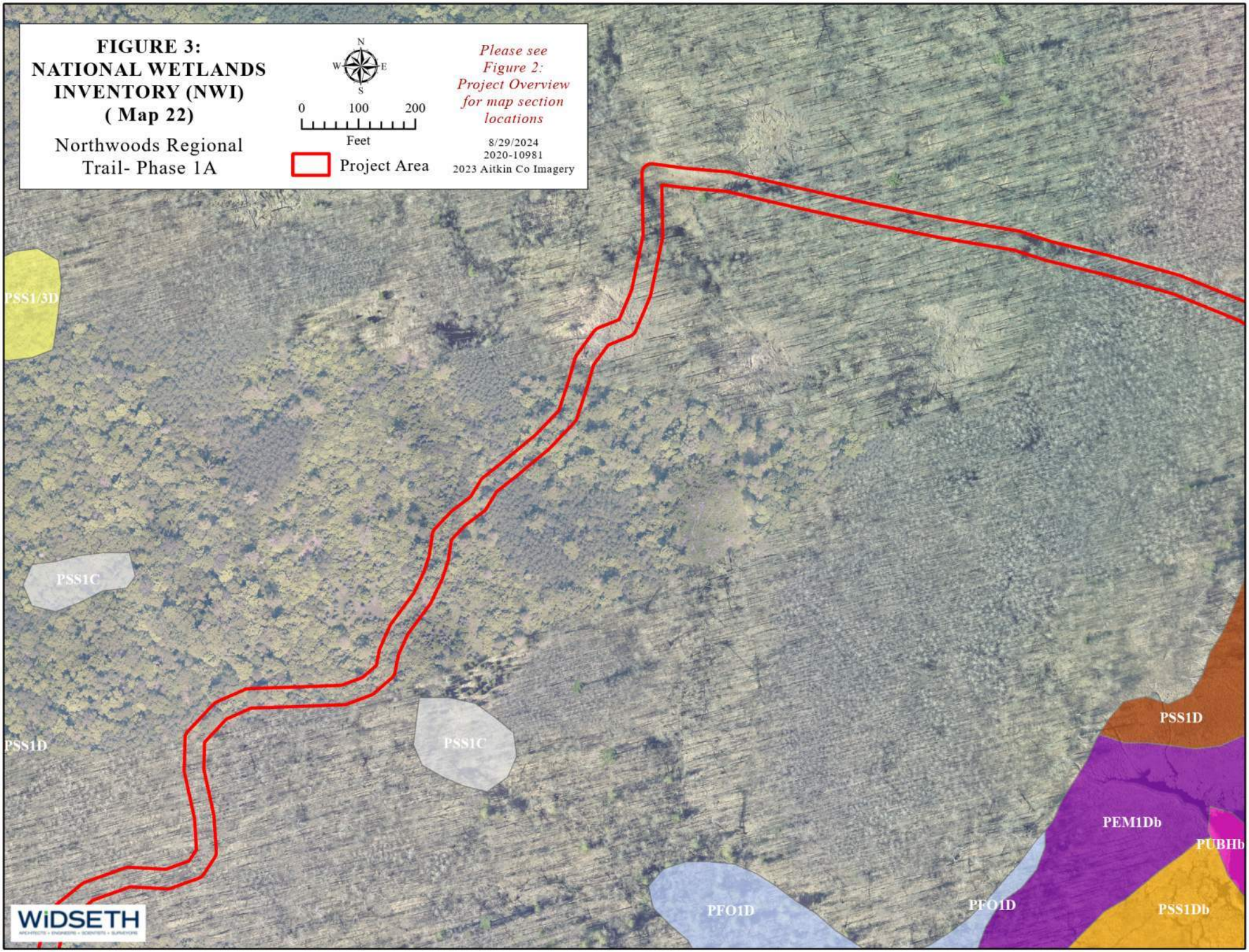


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 22)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1/3D
PSS1C
PSS1D
PSS1C
PSS1D
PEM1Db
PUBHb
PFO1D
PFO1D
PSS1Db
WIDSETH

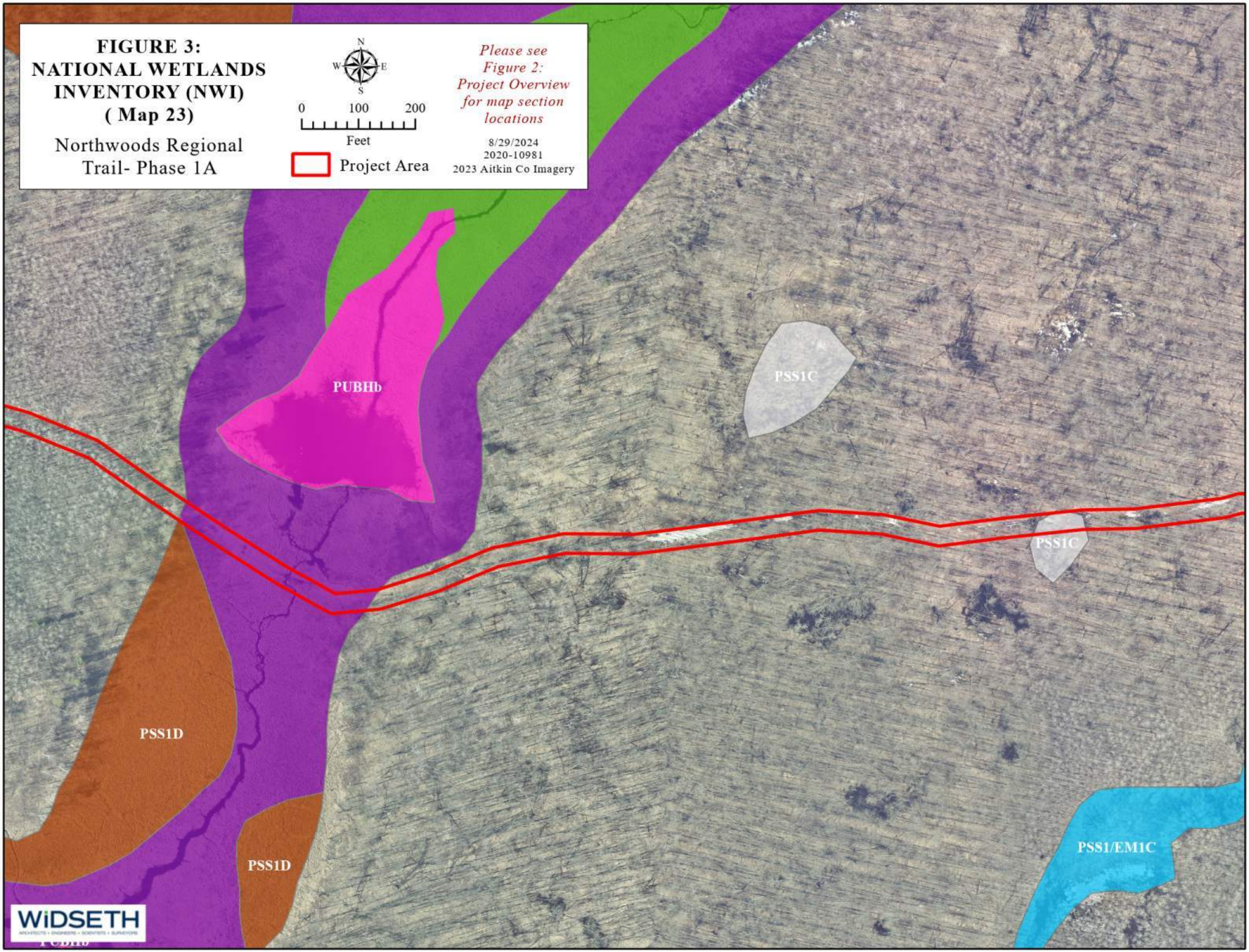


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 23)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PUBHb
PSS1C
PSS1C
PSS1D
PSS1D
PSS1/EM1C
WIDSETH

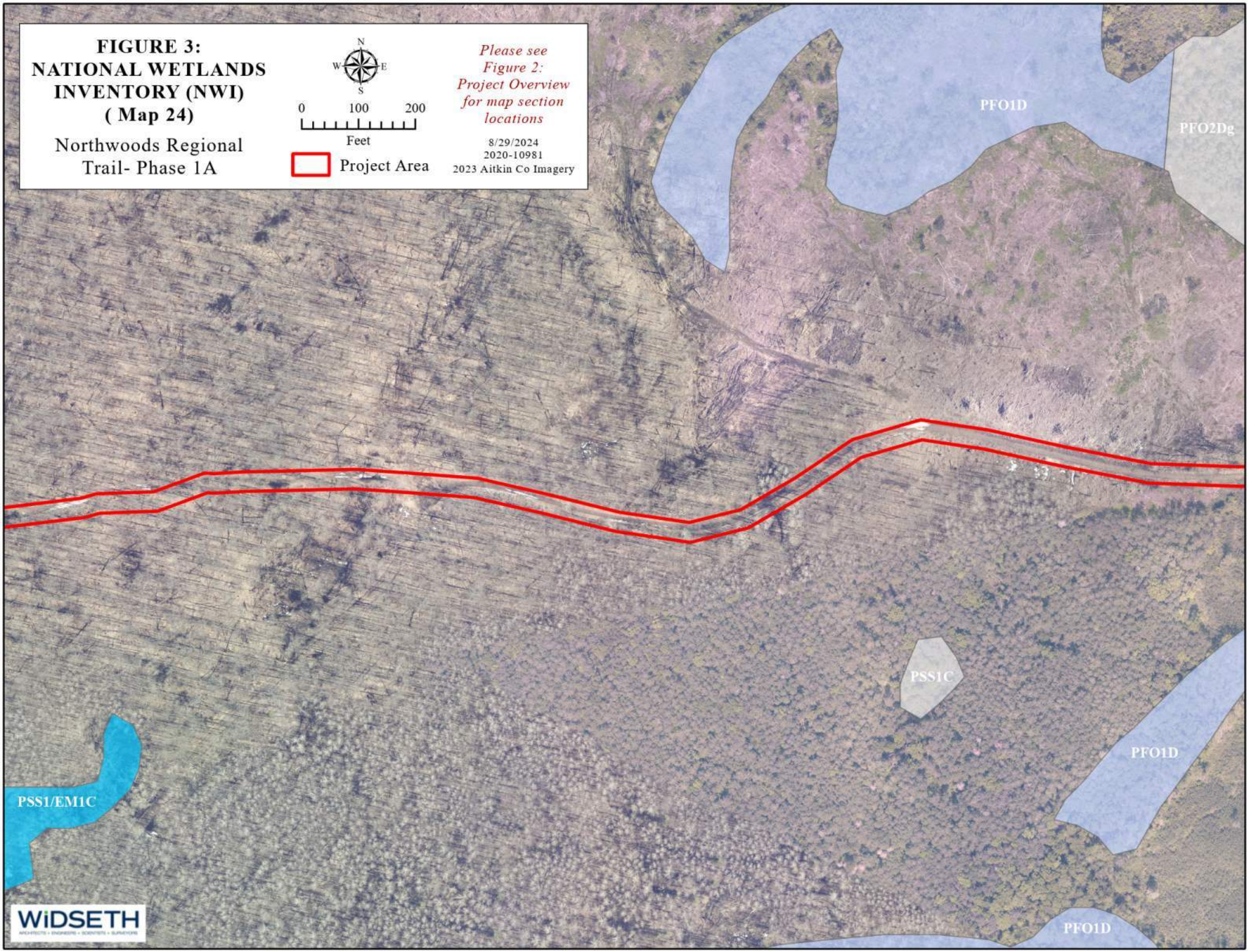


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 24)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO1D
PFO2Dg
PSS1C
PFO1D
PSS1/EM1C
PFO1D
WIDSETH

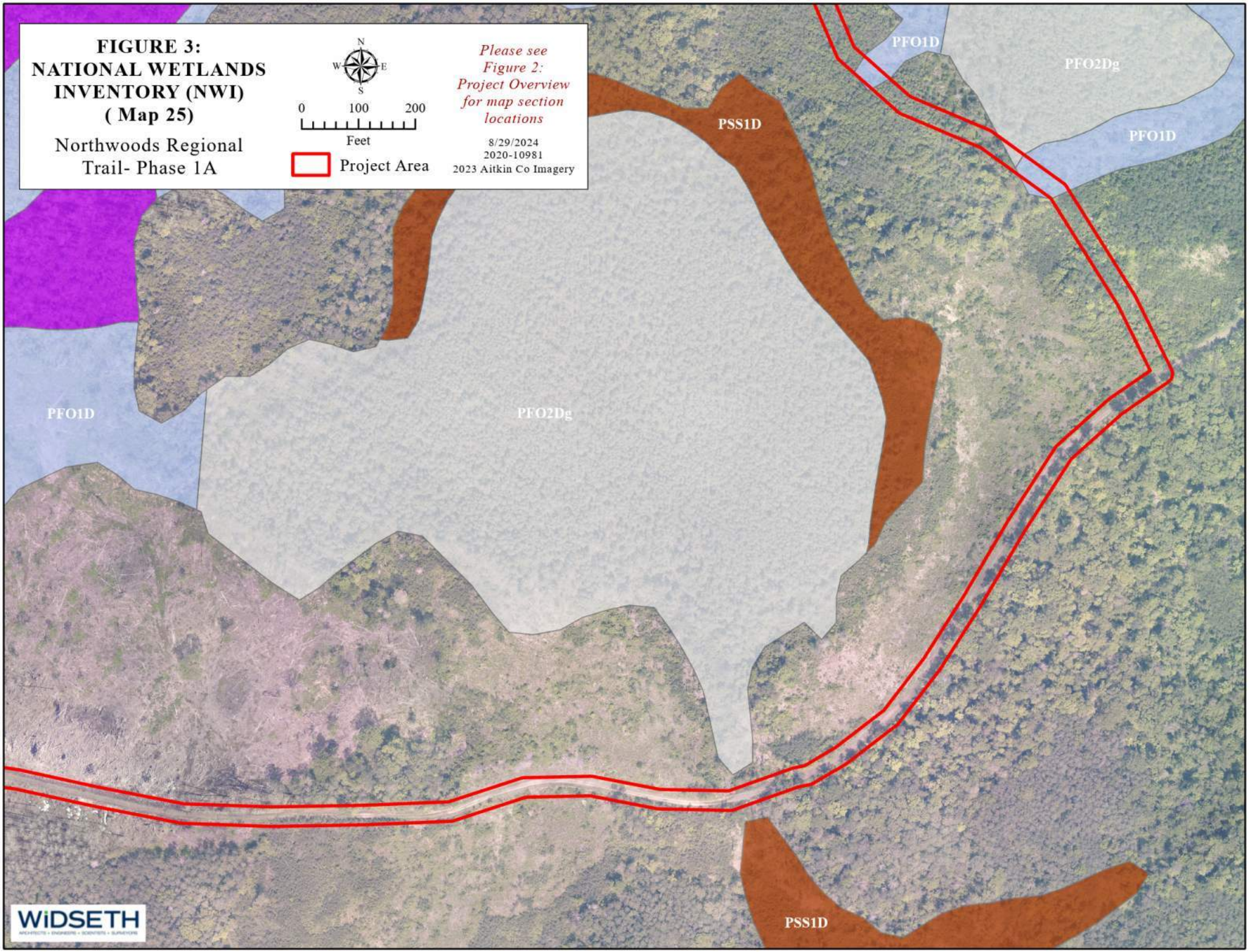


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 25)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO1D
PFO2Dg
PSS1D
PFO1D
PFO1D
PFO2Dg
PSS1D
WIDSETH

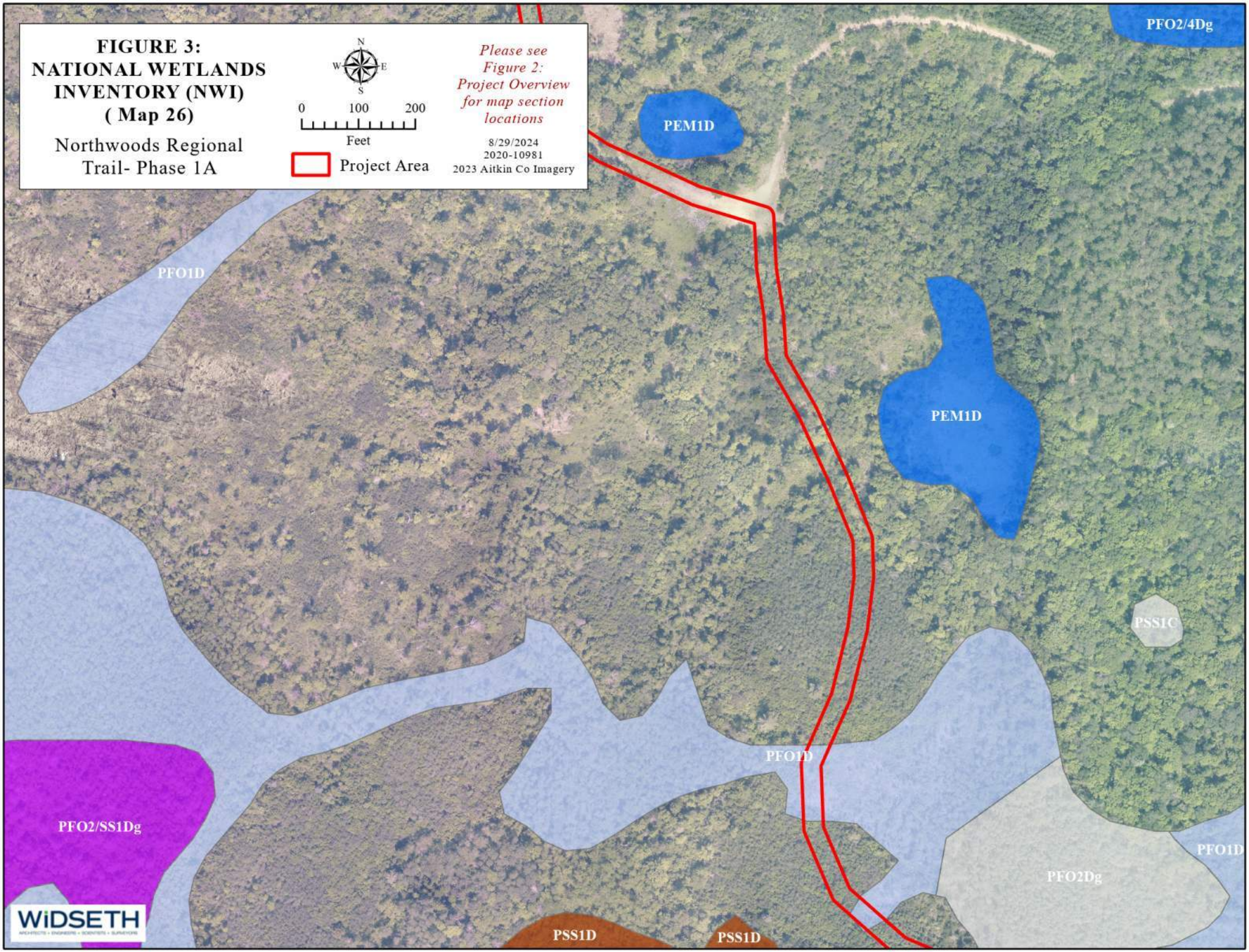


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 26)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO2/4Dg
PEM1D
PFO1D
PEM1D
PSS1C
PFO1D
PFO2/SS1Dg
PFO1D
PFO2Dg
PSS1D
PSS1D
WiDSETH

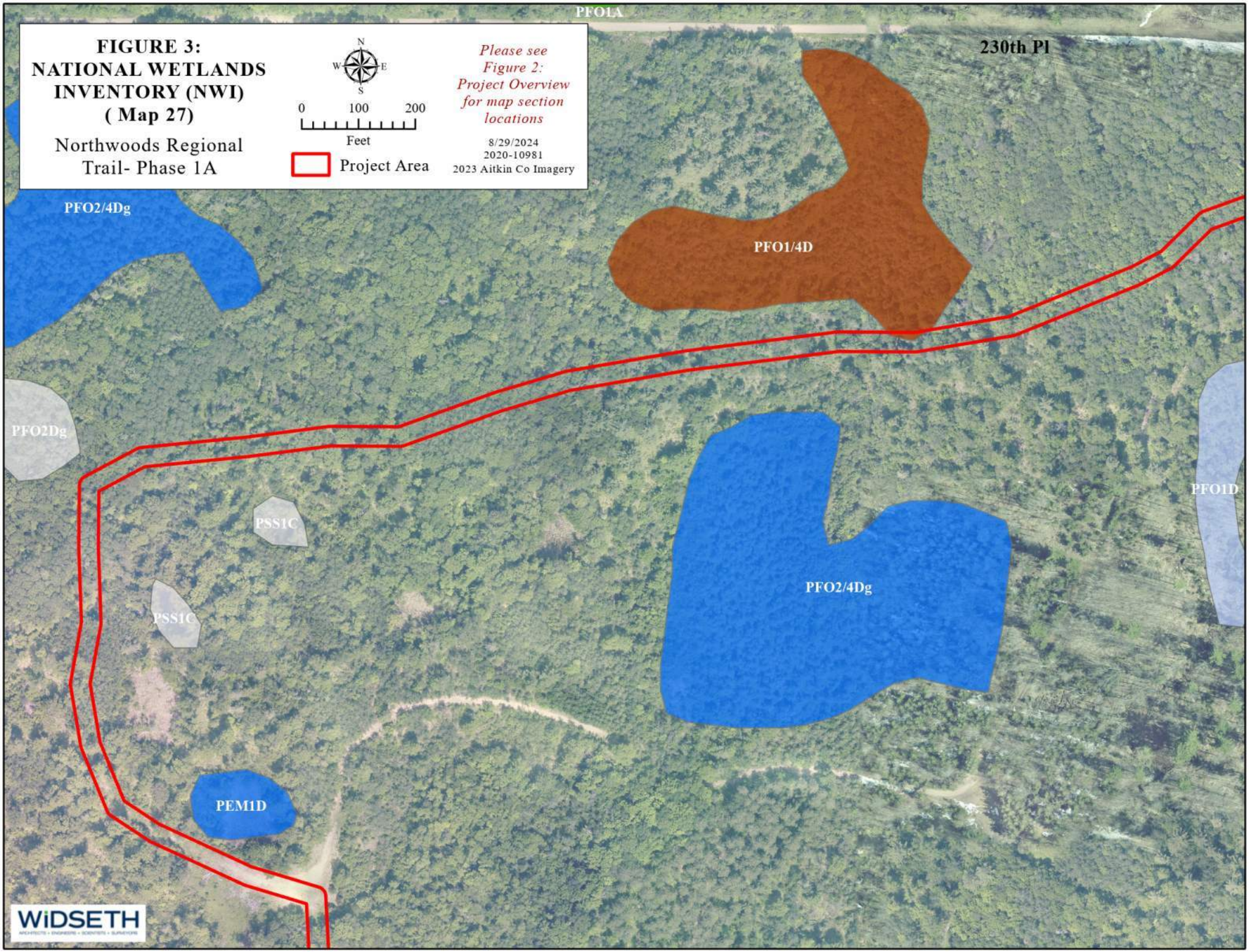


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 27)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO1A
230th Pl
PFO2/4Dg
PFO1/4D
PFO2Dg
PFO1D
PSS1C
PSS1C
PFO2/4Dg
PEM1D
WiDSETH

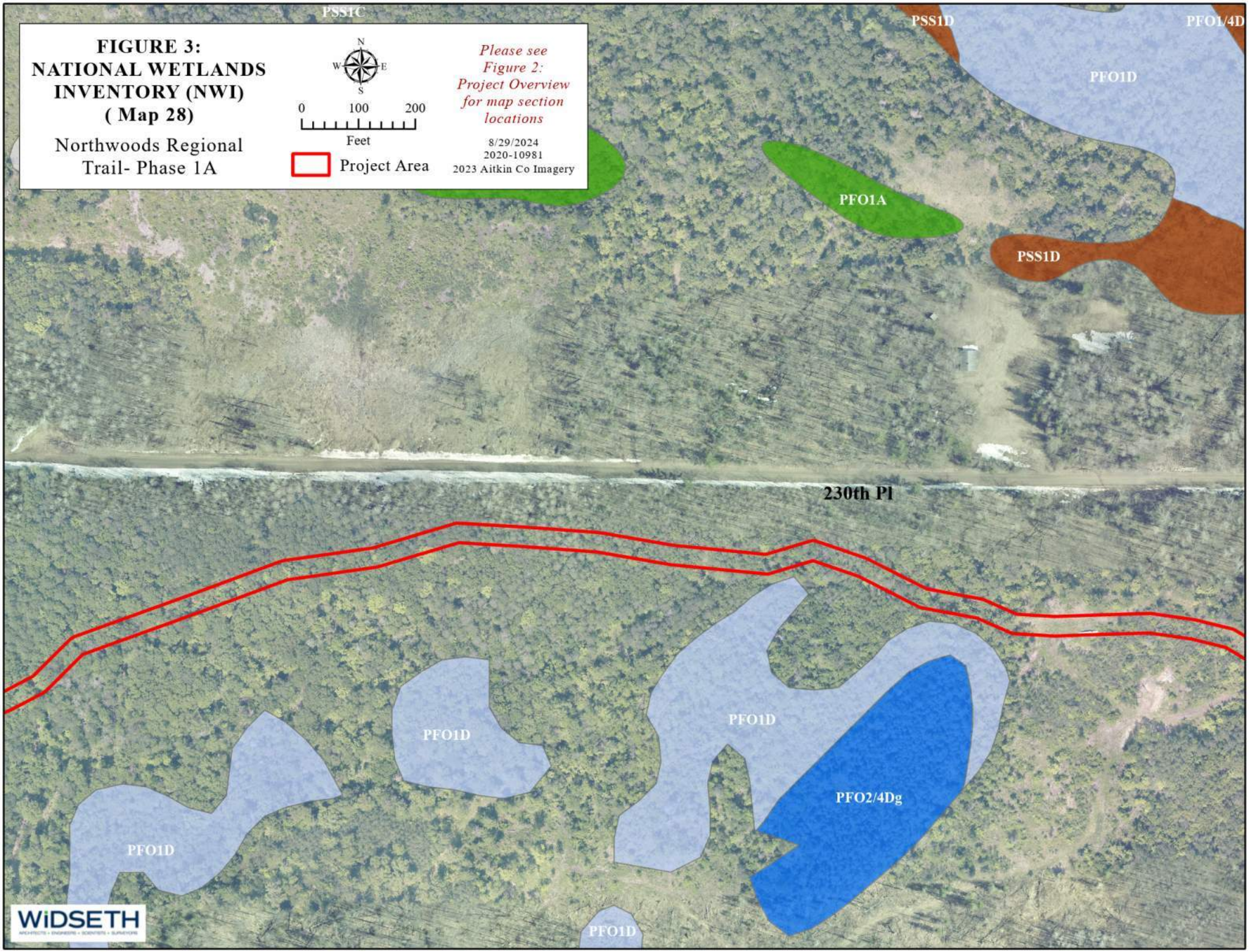


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 28)

Northwoods Regional Trail- Phase 1A

N
W E
S

0 100 200
Feet

Project Area

Please see Figure 2: Project Overview for map section locations

8/29/2024
2020-10981
2023 Aitkin Co Imagery

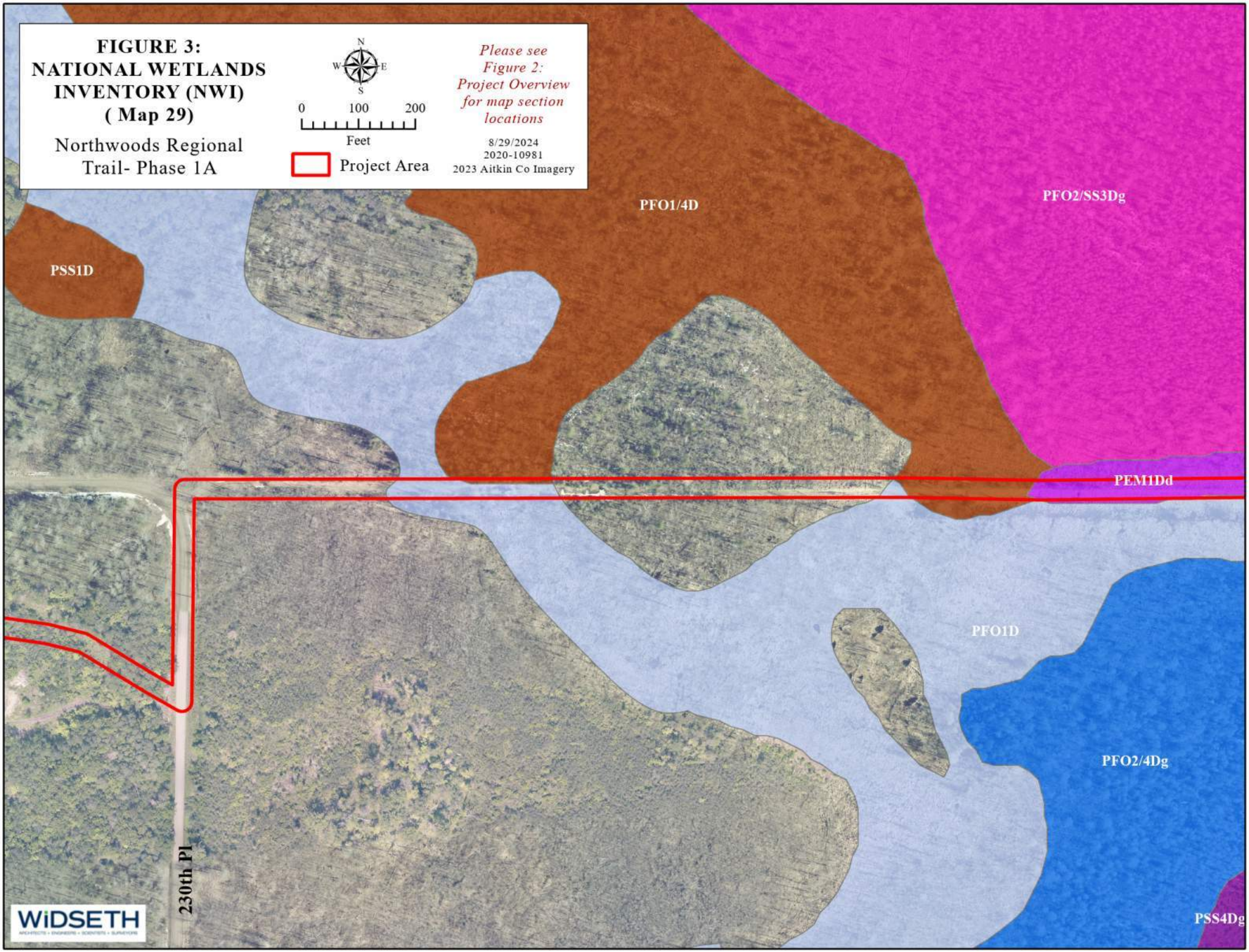


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 29)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO1/4D
PFO2/SS3Dg
PSS1D
PEM1Dd
PFO1D
PFO2/4Dg
PSS4Dg
230th Pl
WiDSETH

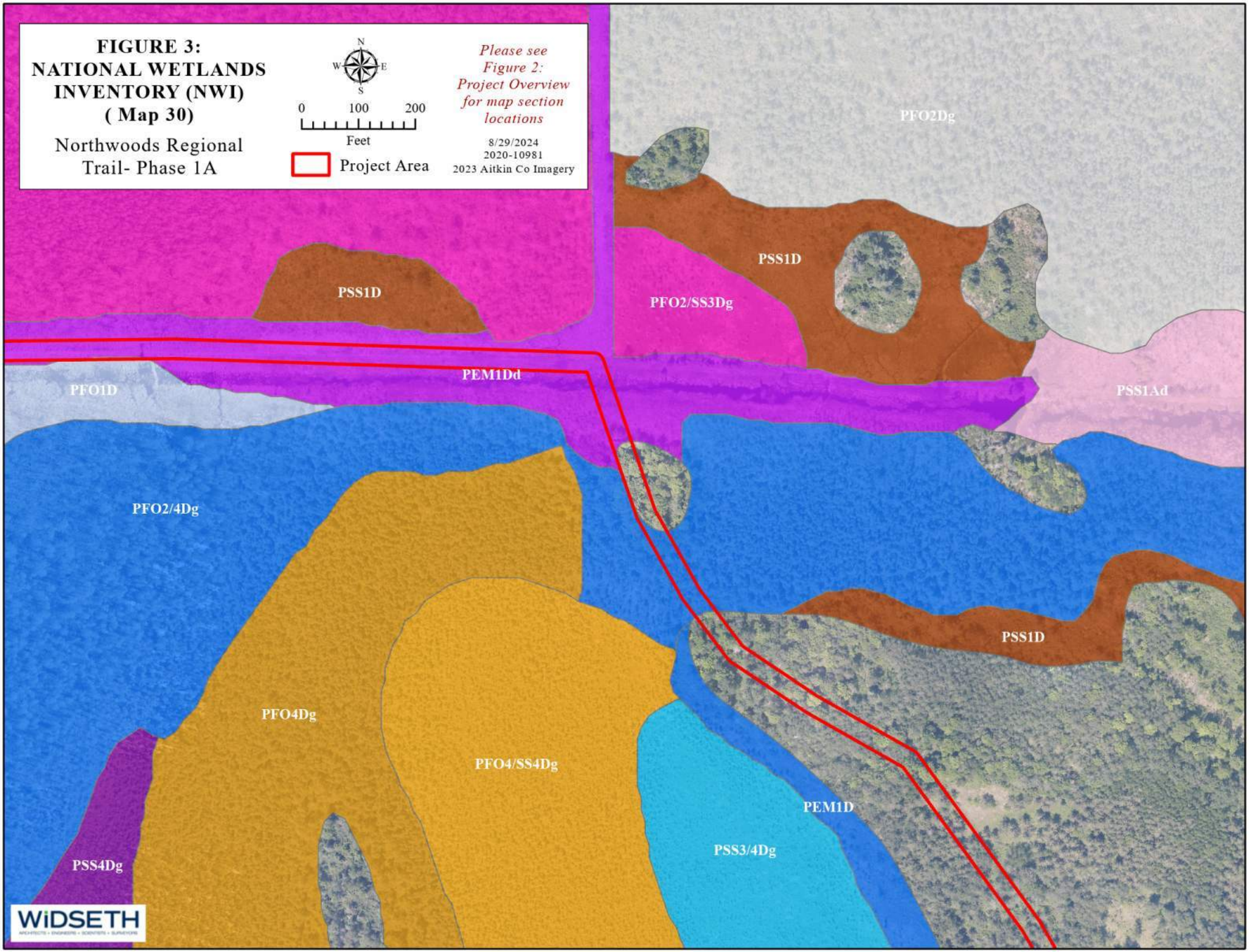


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 30)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO2Dg
PSS1D
PFO2/SS3Dg
PSS1D
PEM1Dd
PFO1D
PSS1Ad
PFO2/4Dg
PSS1D
PFO4Dg
PFO4/SS4Dg
PEM1D
PSS3/4Dg
PSS4Dg
WiDSETH

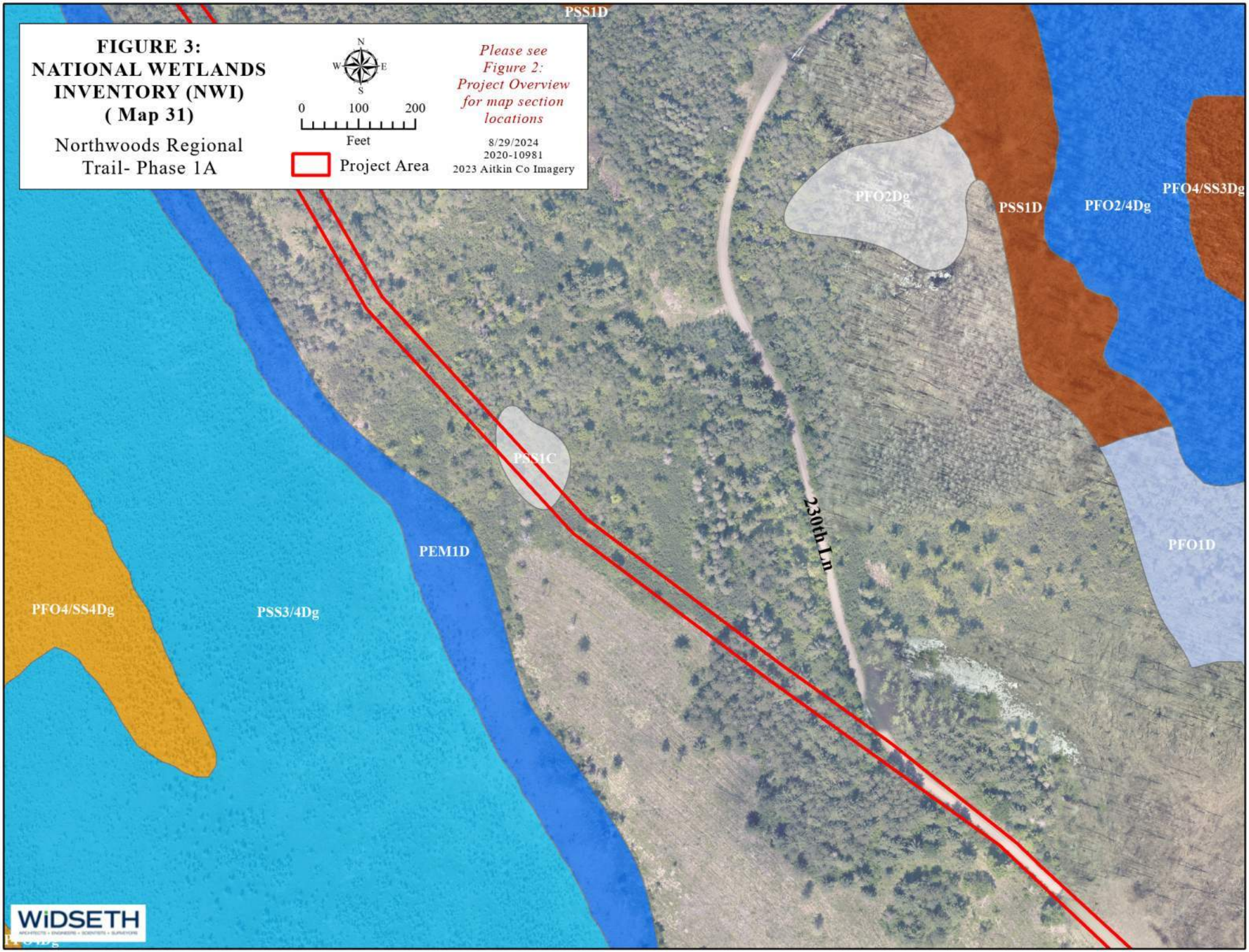


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 31)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1D
PFO2Dg
PSS1D
PFO2/4Dg
PFO4/SS3Dg
PSS1C
230th Ln
PEM1D
PFO1D
PFO4/SS4Dg
PSS3/4Dg
WiDSETH

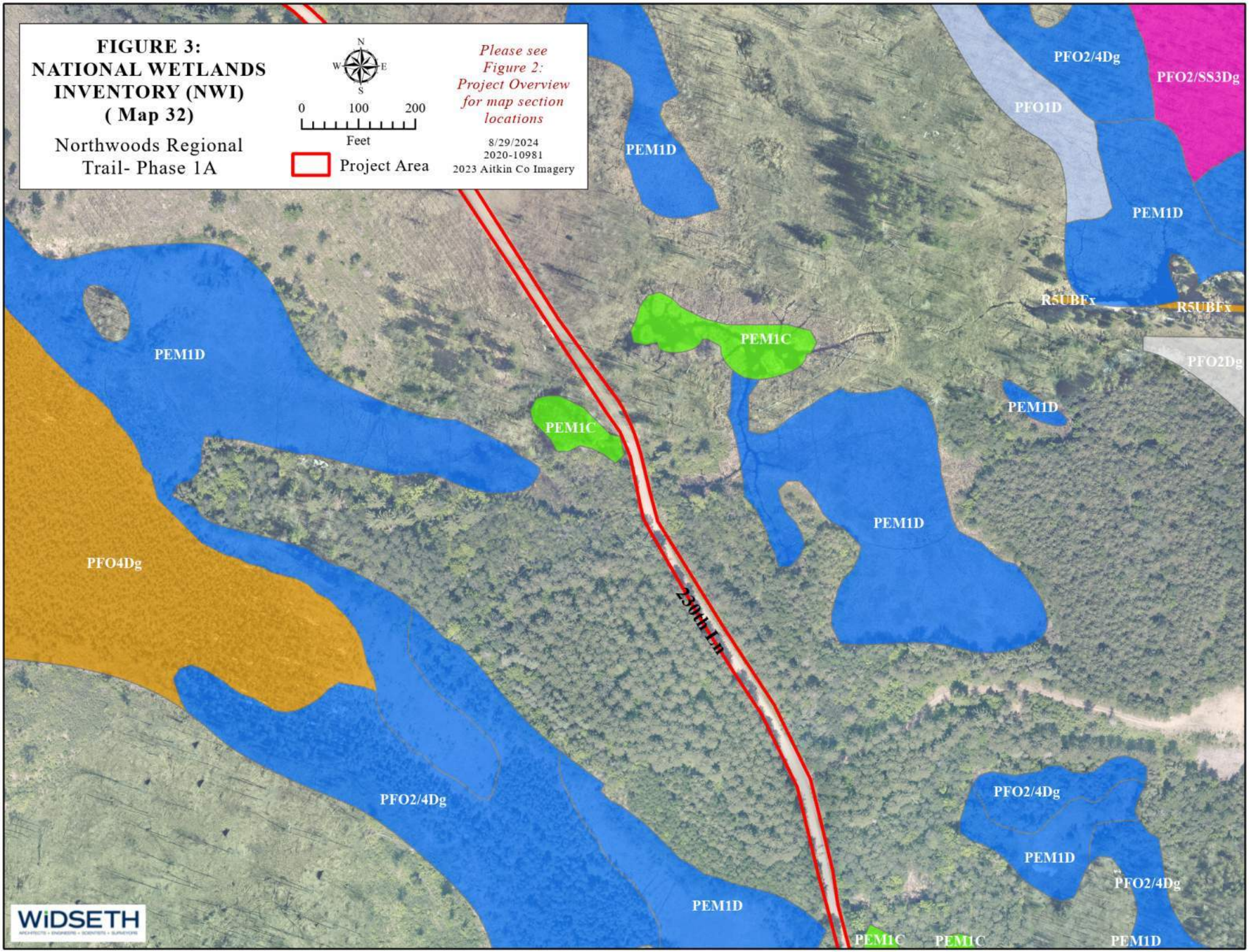


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 32)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PEM1D
PFO2/4Dg
PFO2/SS3Dg
PFO1D
PEM1D
R5UBFx
R5UBFx
PEM1C
PFO2Dg
PEM1D
PEM1D
PEM1C
PEM1D
PFO4Dg
230th Ln
PFO2/4Dg
PFO2/4Dg
PEM1D
PFO2/4Dg
PEM1D
PEM1C
PEM1C
PEM1D
WiDSETH

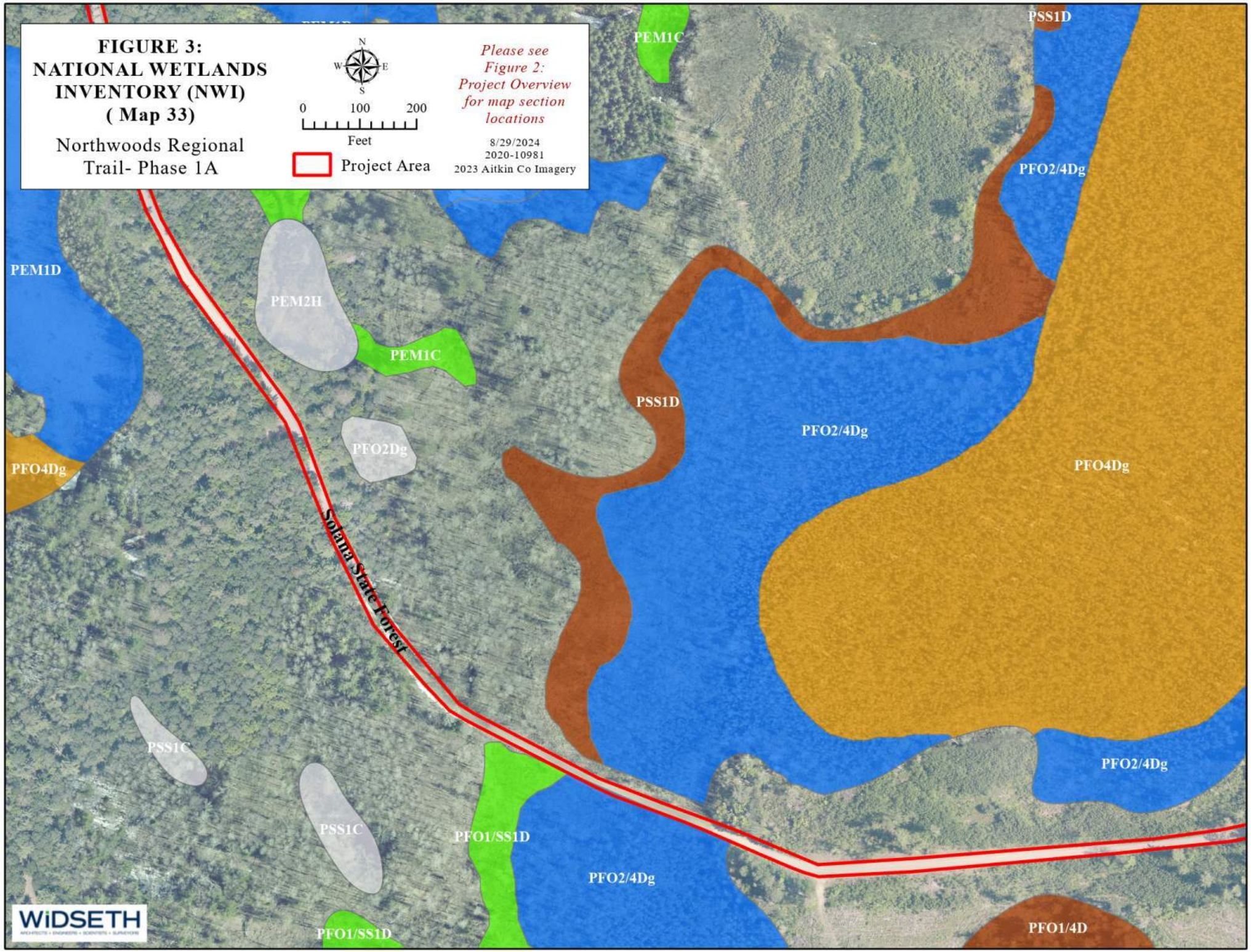


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 33)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PEM1C
PSS1D
PFO2/4Dg
PEM1D
PEM2H
PEM1C
PSS1D
PFO2/4Dg
PFO2Dg
PFO4Dg
PFO4Dg
Solana State Forest
PSS1C
PFO2/4Dg
PSS1C
PFO1/SS1D
PFO2/4Dg
PFO1/SS1D
PFO1/4D
WiDSETH

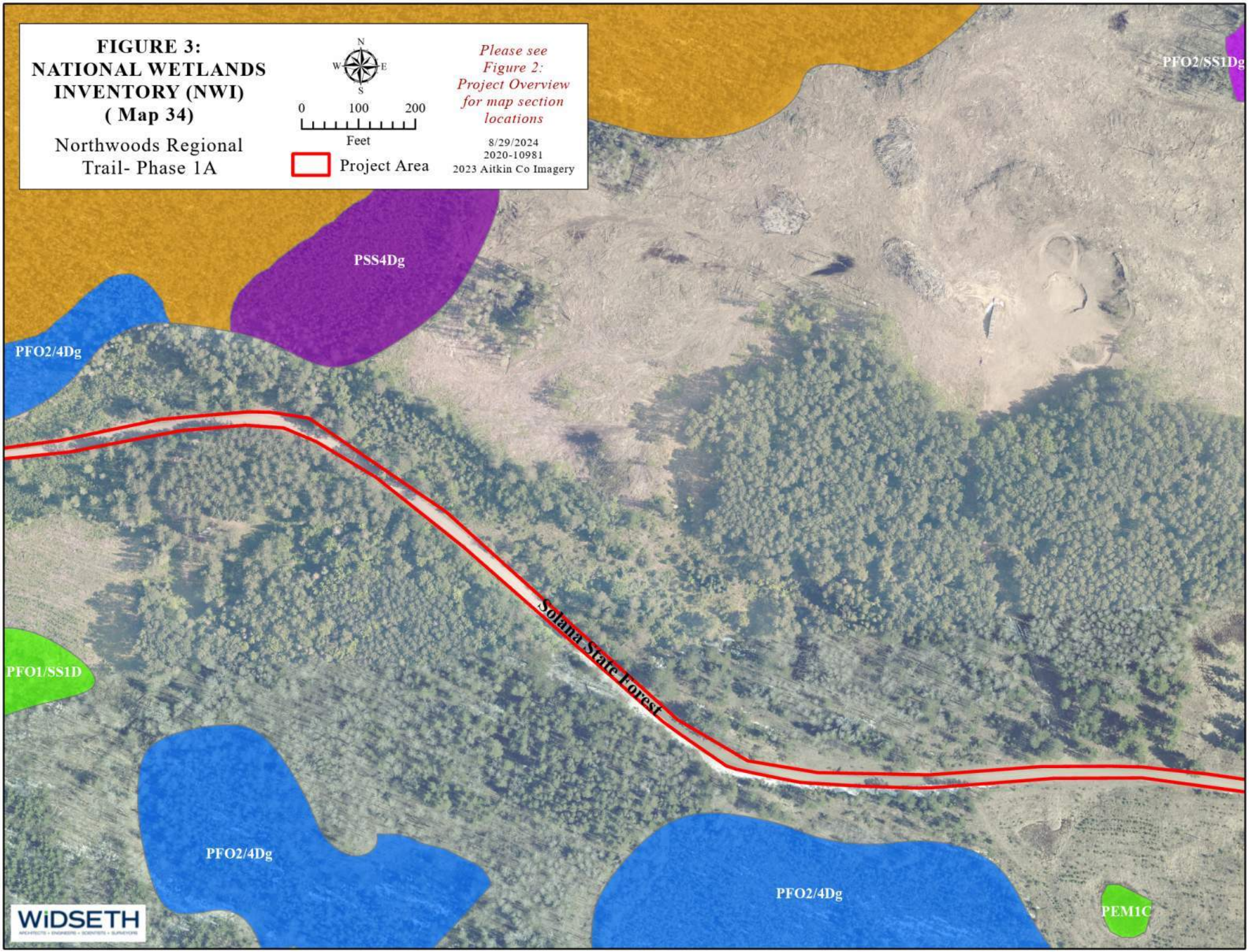


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 34)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO2/SS1Dg
PSS4Dg
PFO2/4Dg
Solana State Forest
PFO1/SS1D
PFO2/4Dg
PFO2/4Dg
PEM1C
WiDSETH

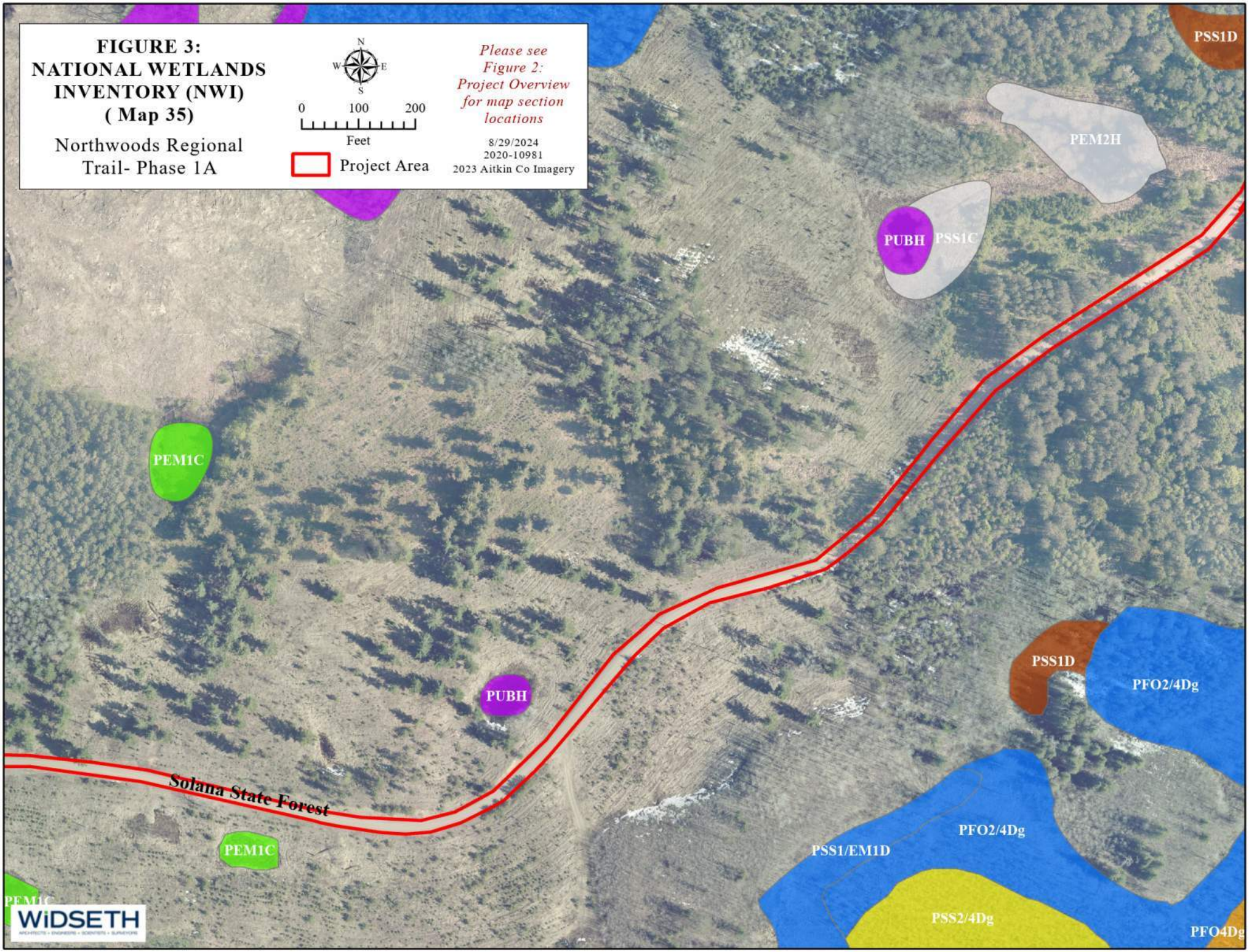


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 35)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1D
PEM2H
PUBH
PSS1C
PEM1C
PUBH
PSS1D
PFO2/4Dg
Solana State Forest
PEM1C
PFO2/4Dg
PSS1/EM1D
PSS2/4Dg
PFO4Dg
PEM1C
WiDSETH

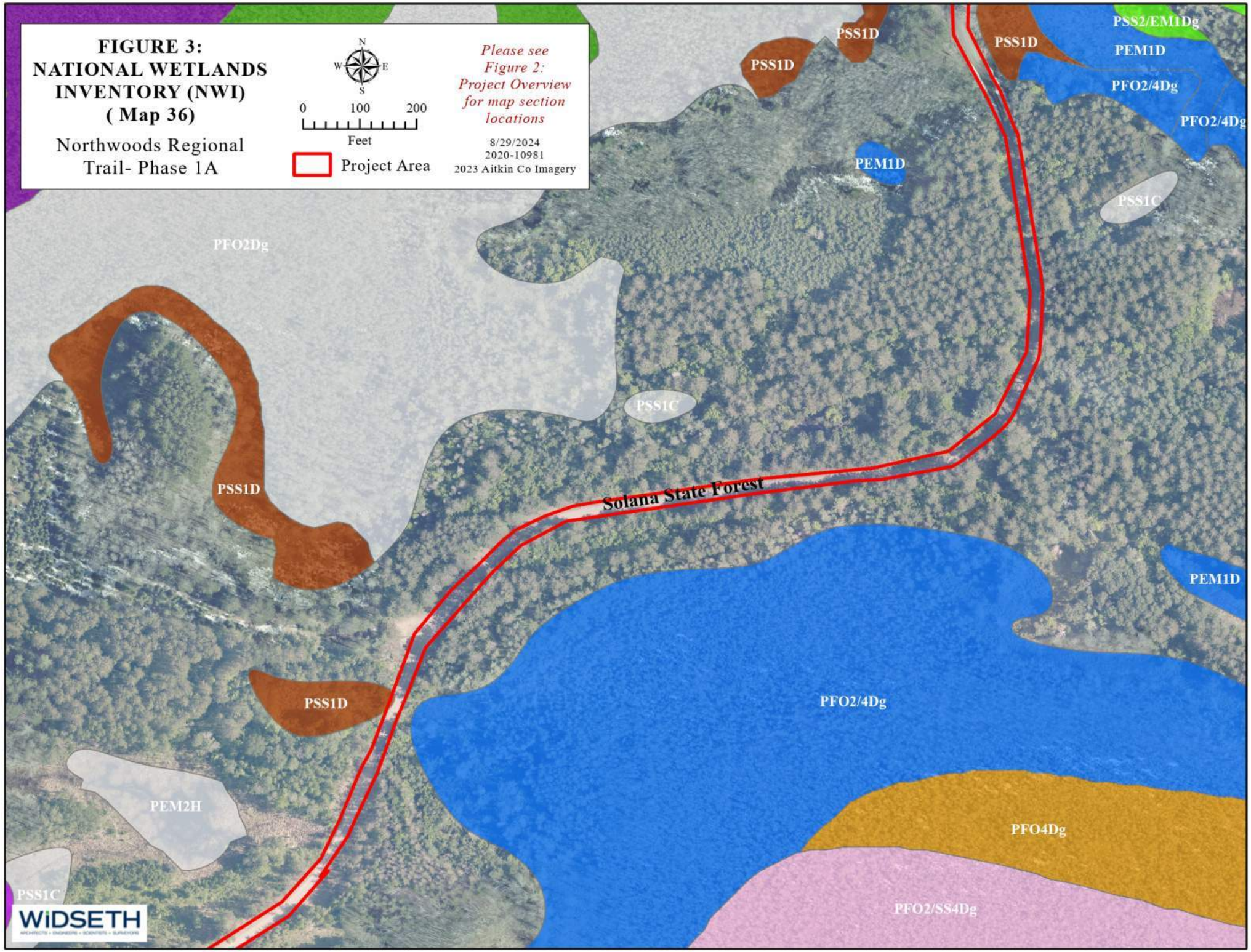


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 36)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1D
PSS1D
PSS1D
PSS2/EM1Dg
PEM1D
PFO2/4Dg
PFO2/4Dg
PEM1D
PSS1C
PFO2Dg
PSS1C
PSS1D
Solana State Forest
PEM1D
PSS1D
PFO2/4Dg
PEM2H
PFO4Dg
PSS1C
PFO2/SS4Dg
WiDSETH

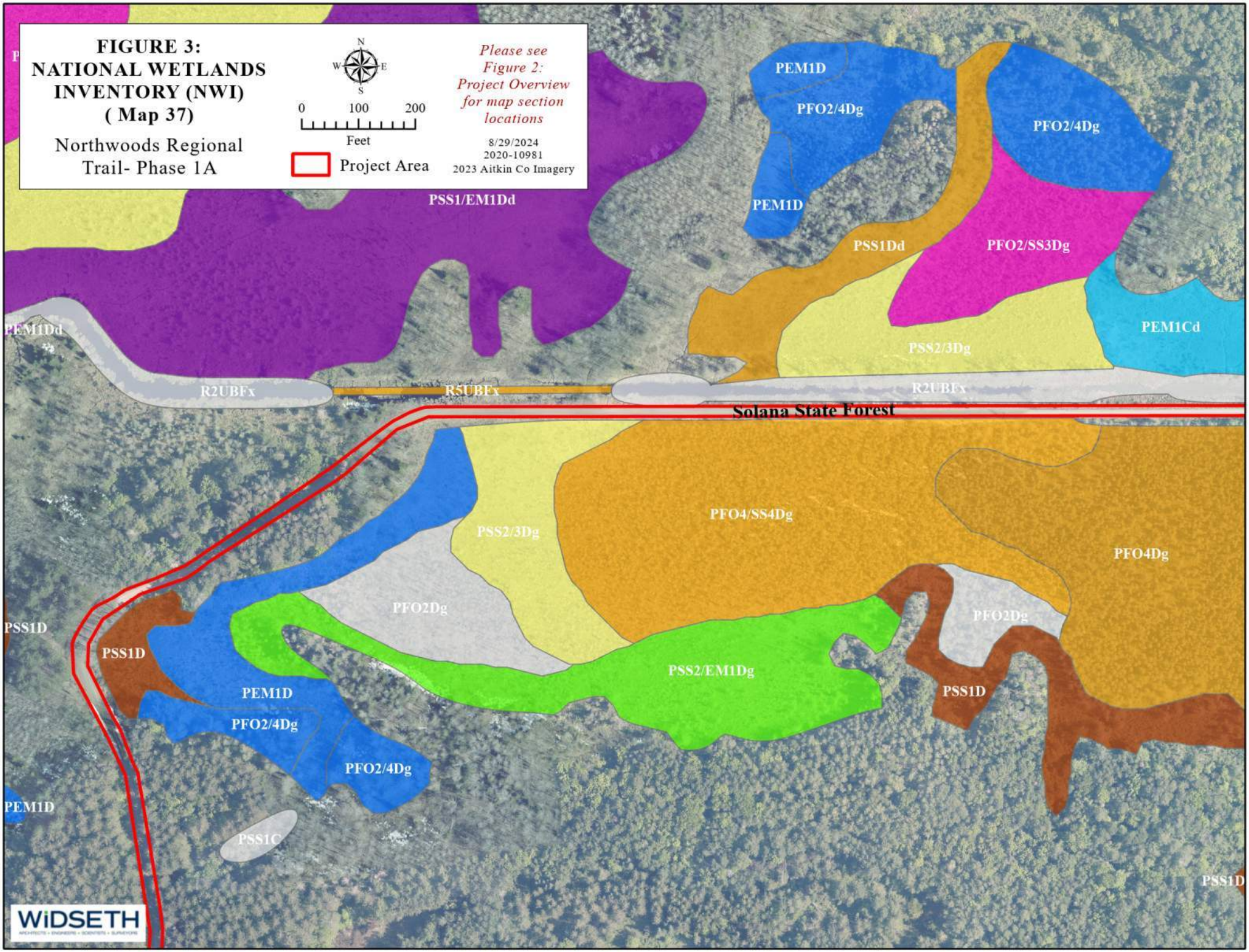


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 37)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PEM1D
PFO2/4Dg
PFO2/4Dg
PEM1D
PSS1/EM1Dd
PSS1Dd
PFO2/SS3Dg
PEM1Cd
PEM1Dd
PSS2/3Dg
R2UBFx
R5UBFx
R2UBFx
Solana State Forest
PFO4/SS4Dg
PSS2/3Dg
PFO4Dg
PFO2Dg
PFO2Dg
PSS1D
PSS1D
PSS2/EM1Dg
PEM1D
PSS1D
PFO2/4Dg
PFO2/4Dg
PEM1D
PSS1C
PSS1D
WiDSETH

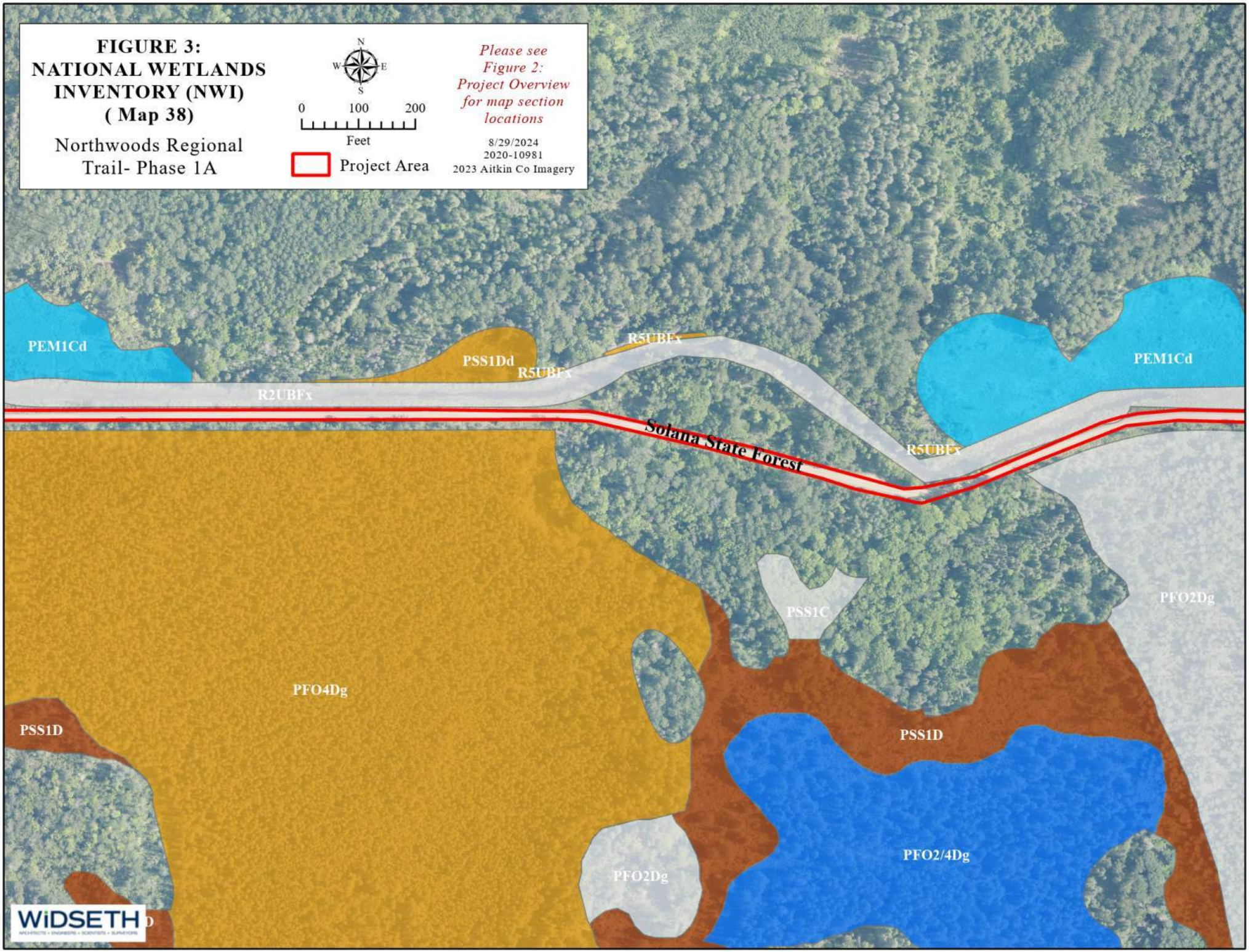


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 38)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PEM1Cd
PSS1Dd
R5UBFx
R2UBFx
R5UBFx
PEM1Cd
Solana State Forest
R5UBFx
PSS1C
PFO2Dg
PFO4Dg
PSS1D
PSS1D
PFO2/4Dg
PFO2Dg
WiDSETH


PEM1Cd
PEM1Cd
PEM1Cx
PEM1Ad
R2UBFx
PFO2Dg
PFO2/4Dg
PFO2/4Dg
PSS1D
PSS1D
PFO1/2D
R5UBFx
PSS1Ad
State Highway 65
PSS1/EM1D
PFO2/4Dg
PSS1/EM1Dd
FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 39)
Northwoods Regional
Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see
Figure 2:
Project Overview
for map section
locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
WiDSETH

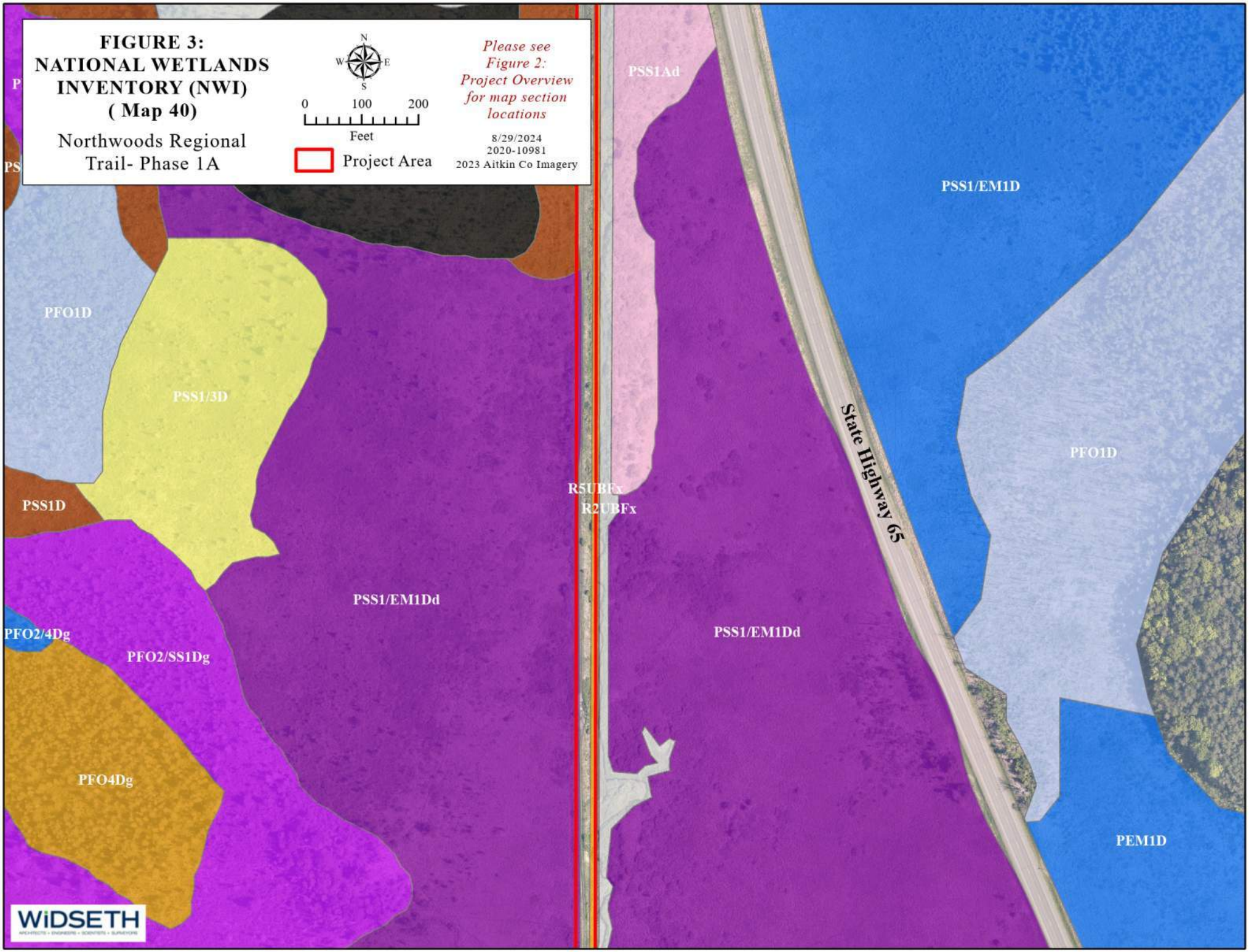


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 40)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1Ad
PSS1/EM1D
PFO1D
PSS1/3D
PSS1D
PSS1/EM1Dd
PFO2/4Dg
PFO2/SS1Dg
PFO4Dg
R5UBFx
R2UBFx
State Highway 65
PFO1D
PSS1/EM1Dd
PEM1D
WiDSETH

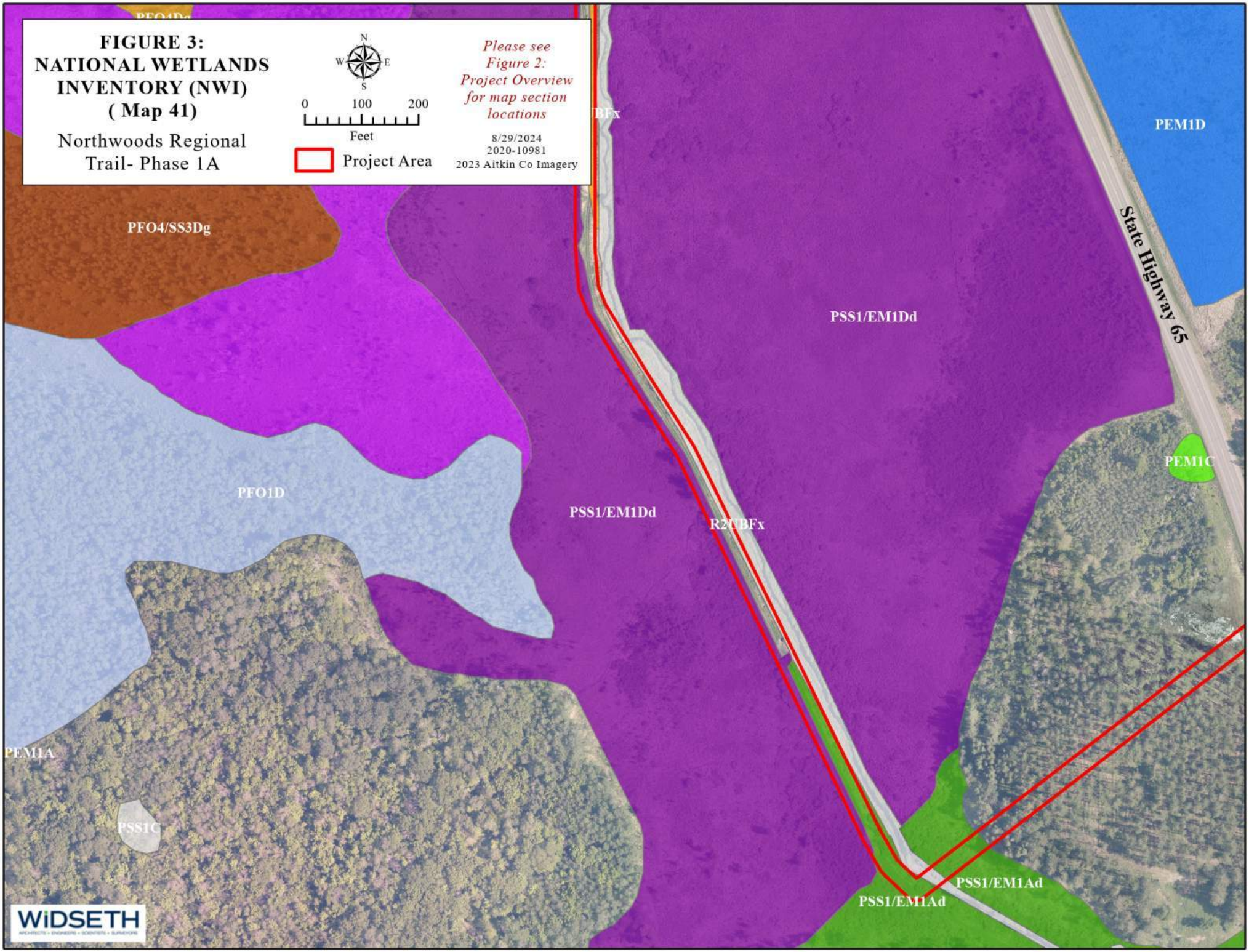


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 41)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO4/SS3Dg
PFO1D
PEM1A
PSS1C
PSS1/EM1Dd
R2UBFx
PEM1D
PEM1C
State Highway 65
PSS1/EM1Ad
PSS1/EM1Ad
WIDSETH

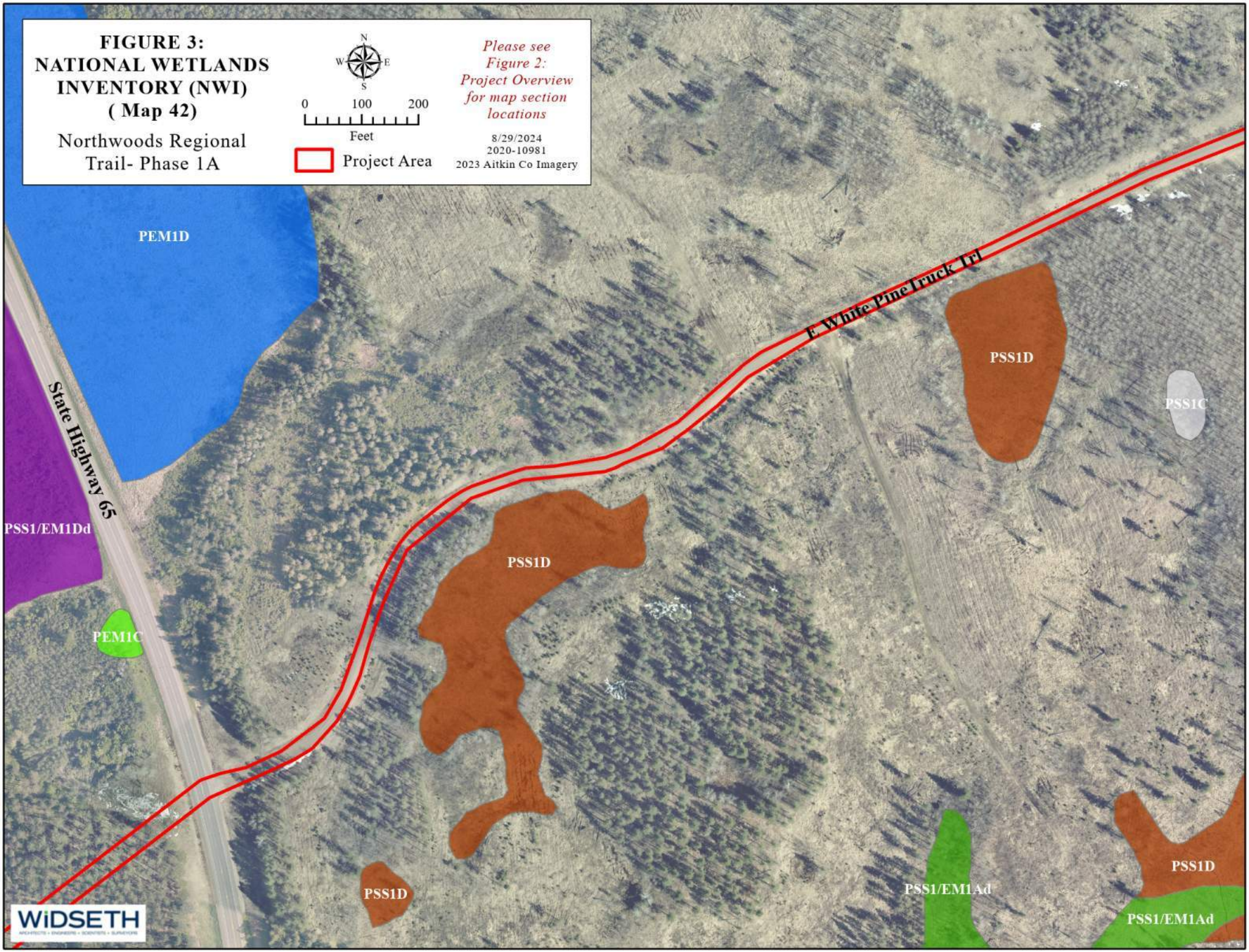


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 42)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PEM1D
State Highway 65
E White Pine Truck Trl
PSS1D
PSS1C
PSS1/EM1Dd
PSS1D
PEM1C
PSS1D
PSS1/EM1Ad
PSS1D
PSS1/EM1Ad
WiDSETH

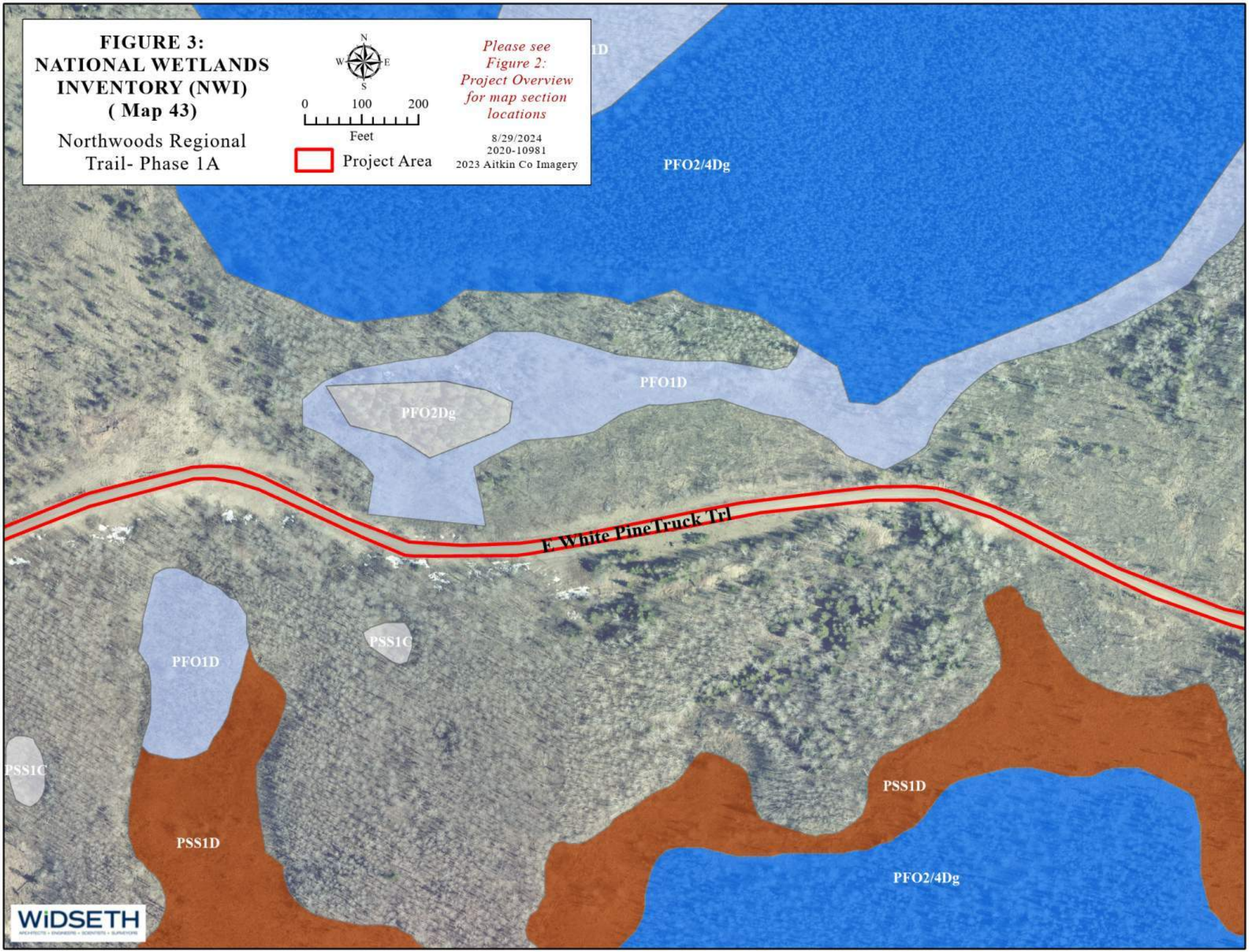


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 43)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO2/4Dg
PFO1D
PFO2Dg
E White PineTruck Trl
PFO1D
PSS1C
PSS1C
PSS1D
PSS1D
PFO2/4Dg
WiDSETH

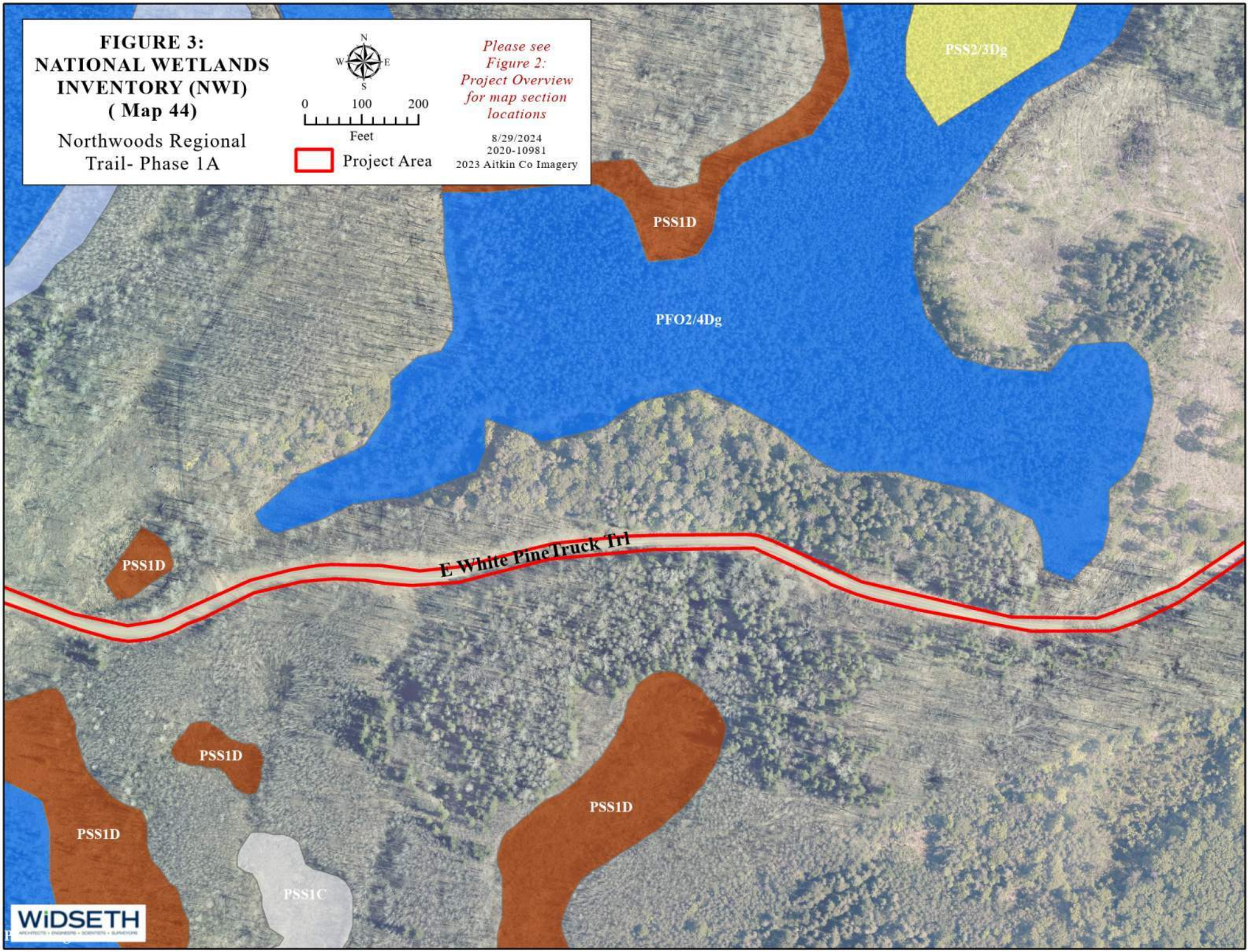


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 44)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS2/3Dg
PSS1D
PFO2/4Dg
E White Pine Truck Trl
PSS1D
PSS1D
PSS1D
PSS1D
PSS1C
WIDSETH

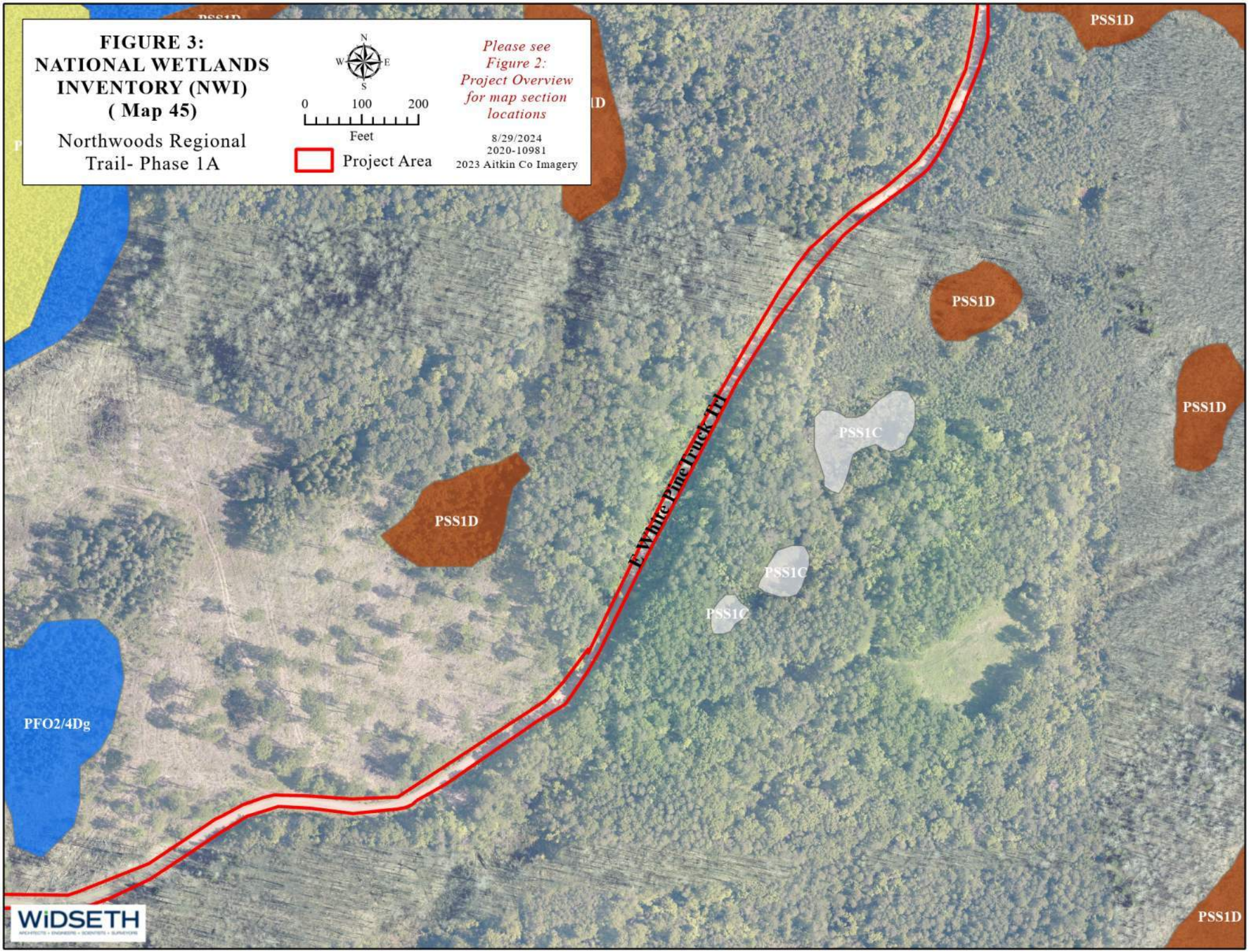


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 45)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1D
PSS1D
PSS1D
PSS1C
PSS1C
PSS1C
PSS1D
PSS1D
PFO2/4Dg
E White Pine Truck Trl
WiDSETH

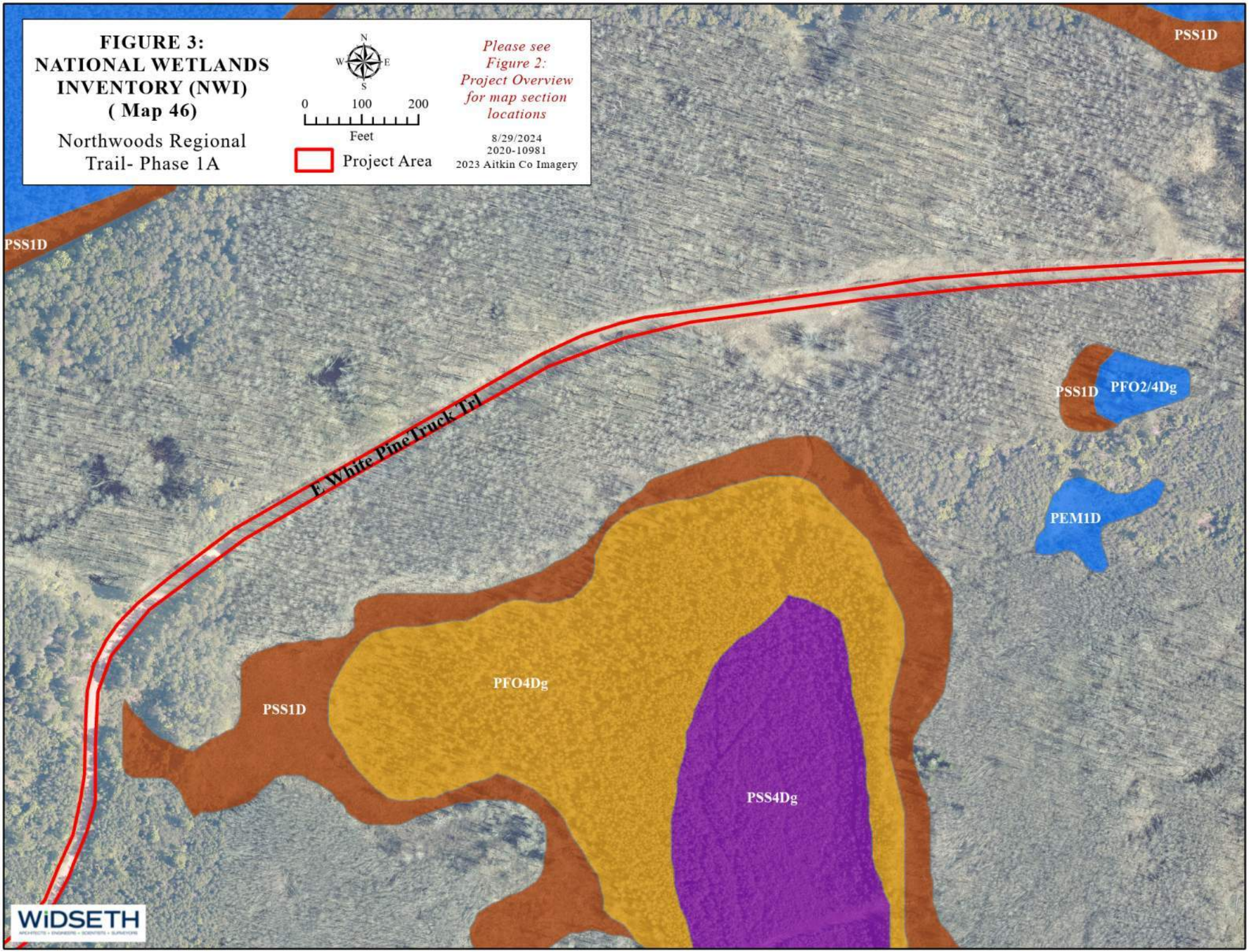


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 46)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1D
PSS1D
E White Pine Truck Trl
PSS1D
PFO2/4Dg
PEM1D
PFO4Dg
PSS1D
PSS4Dg
WiDSETH


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 47)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1D
PSS1D
PSS1D
PSS1D
E White Pine Truck Trl
PSS1C
PFO2/4Dg
PSS1D
PEM1D
PFO2/4Dg
WiDSETH

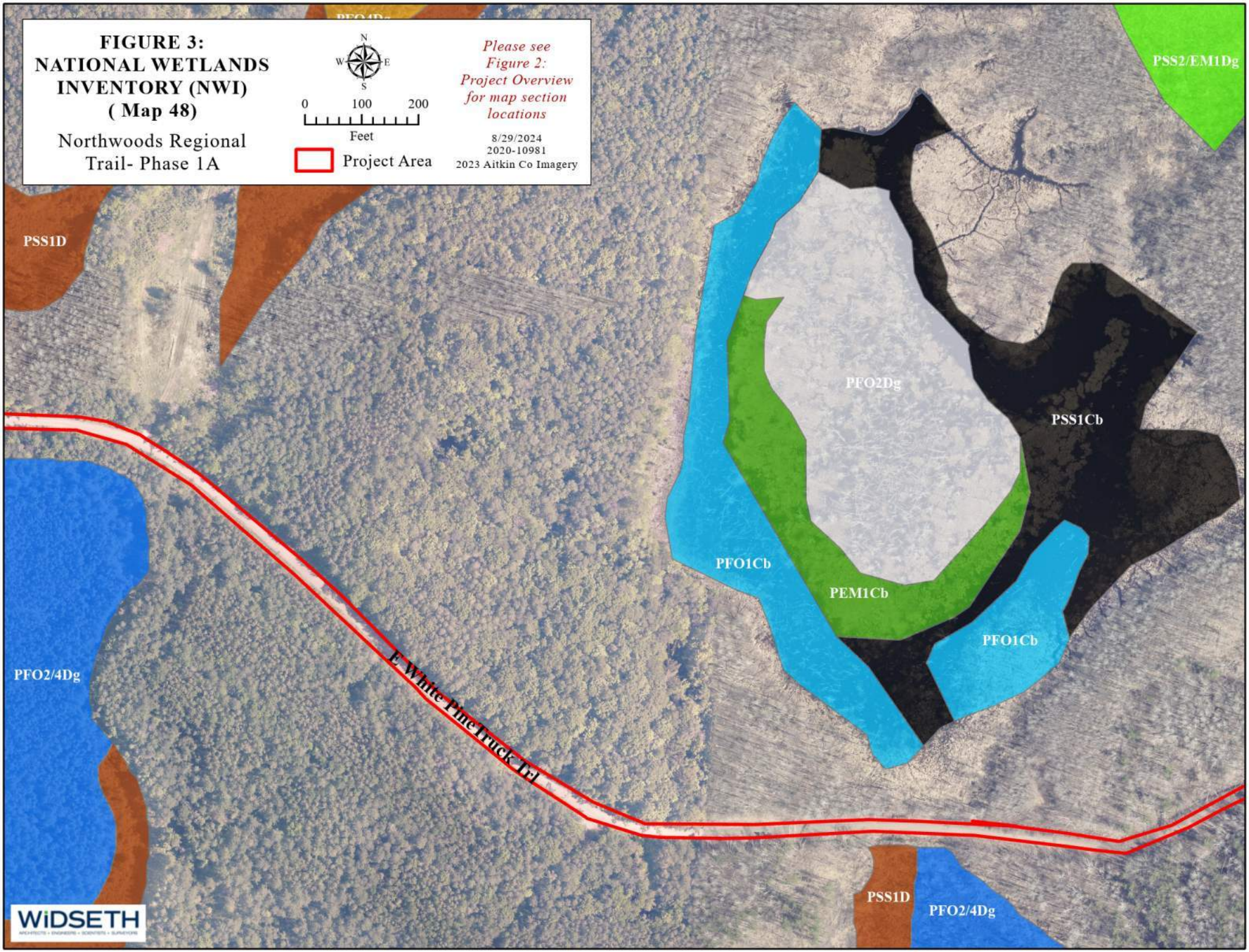


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 48)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS2/EM1Dg
PSS1D
PFO2Dg
PSS1Cb
PFO1Cb
PEM1Cb
PFO1Cb
PFO2/4Dg
E White Pine Truck Trl
PSS1D
PFO2/4Dg
WiDSETH

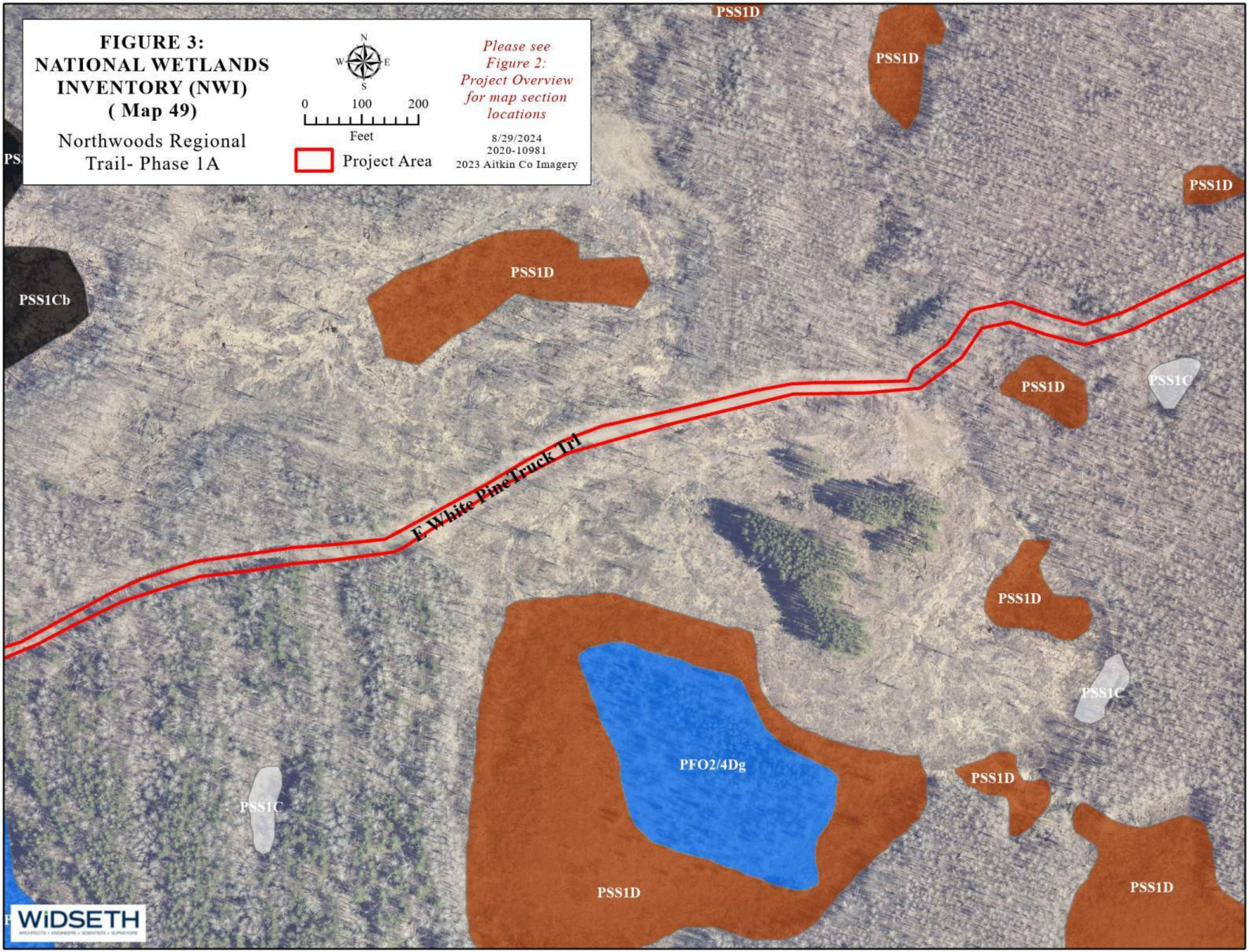


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 49)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1D
PSS1Cb
PSS1C
PFO2/4Dg
E White Pine Truck Trl
WIDSETH

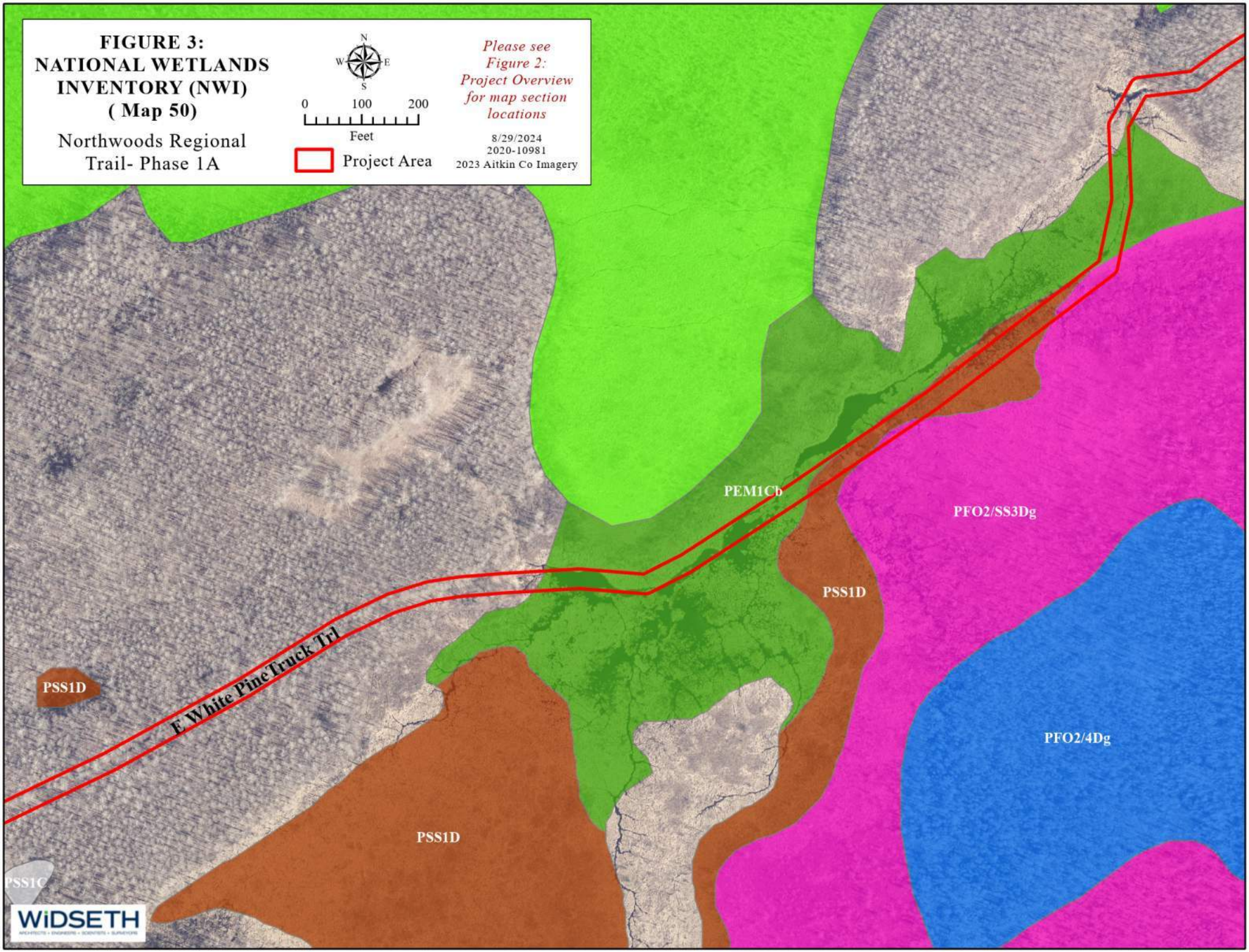


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 50)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PEM1Cb
PFO2/SS3Dg
PSS1D
PSS1D
E White Pine Truck Trl
PSS1D
PFO2/4Dg
PSS1D
PSS1C
WiDSETH

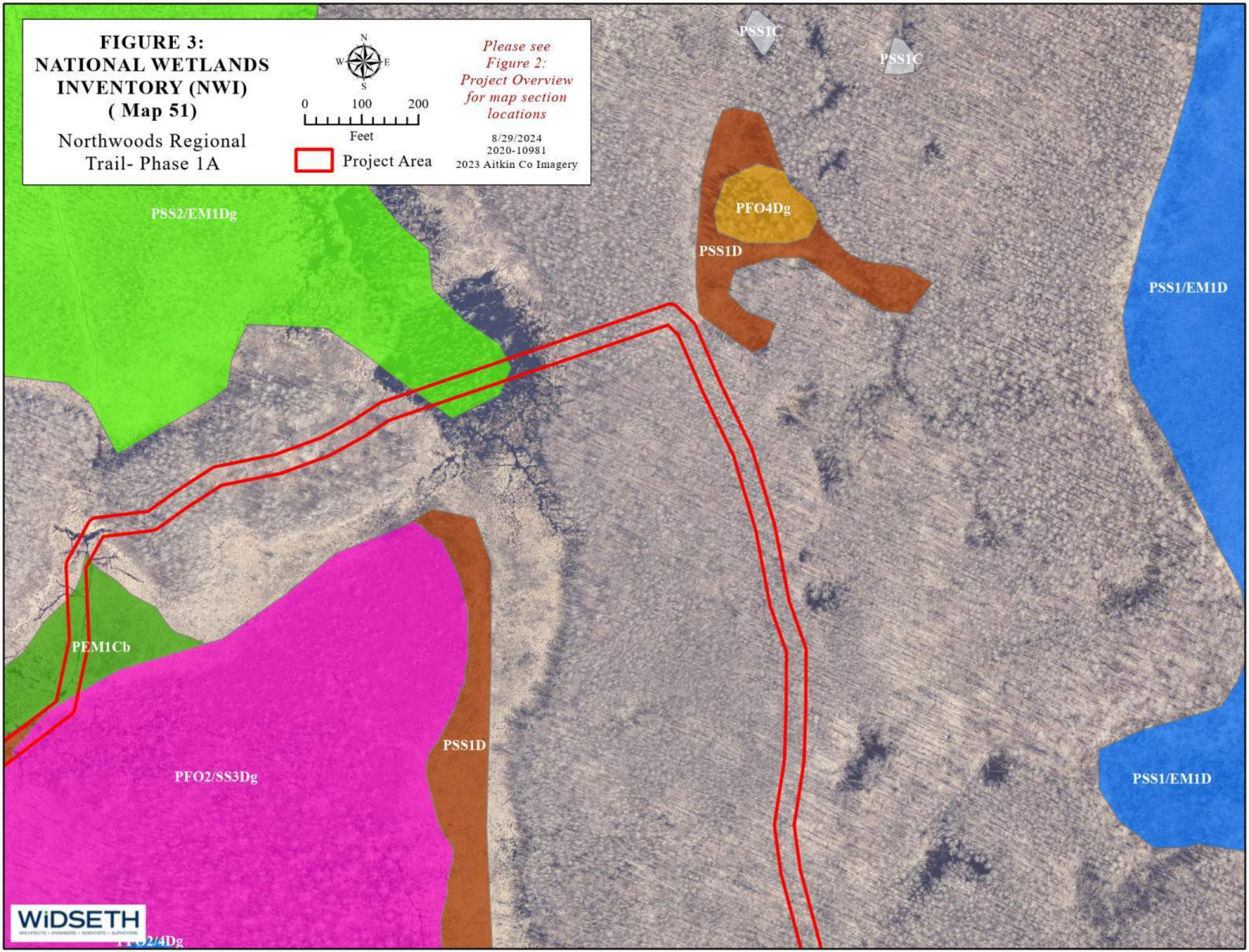


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 51)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1C
PSS1C
PFO4Dg
PSS1D
PSS2/EM1Dg
PSS1/EM1D
PEM1Cb
PSS1D
PFO2/SS3Dg
PSS1/EM1D
WiDSETH

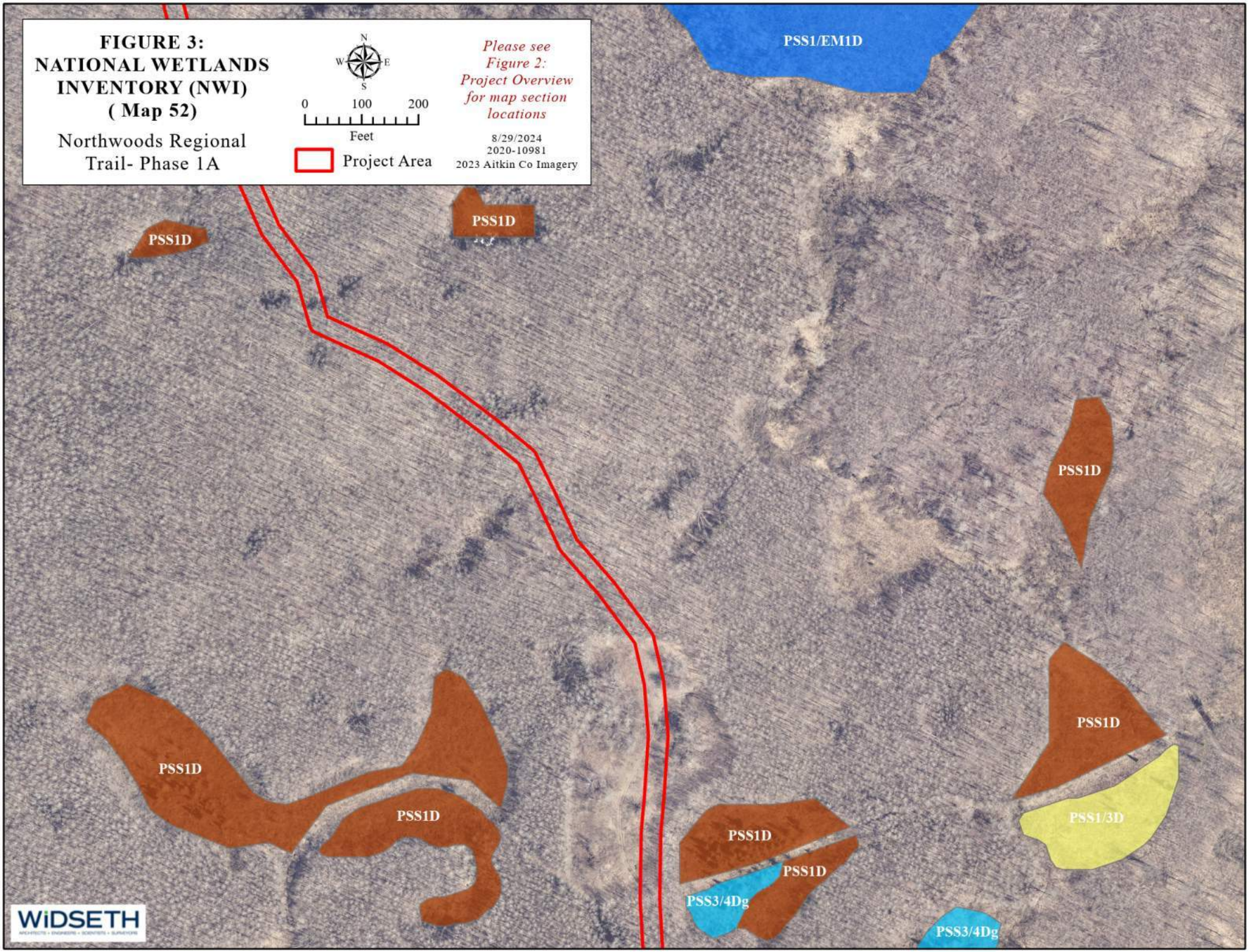


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 52)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1/EM1D
PSS1D
PSS1D
PSS1D
PSS1D
PSS1D
PSS1D
PSS1D
PSS1D
PSS1/3D
PSS3/4Dg
PSS3/4Dg
WiDSETH

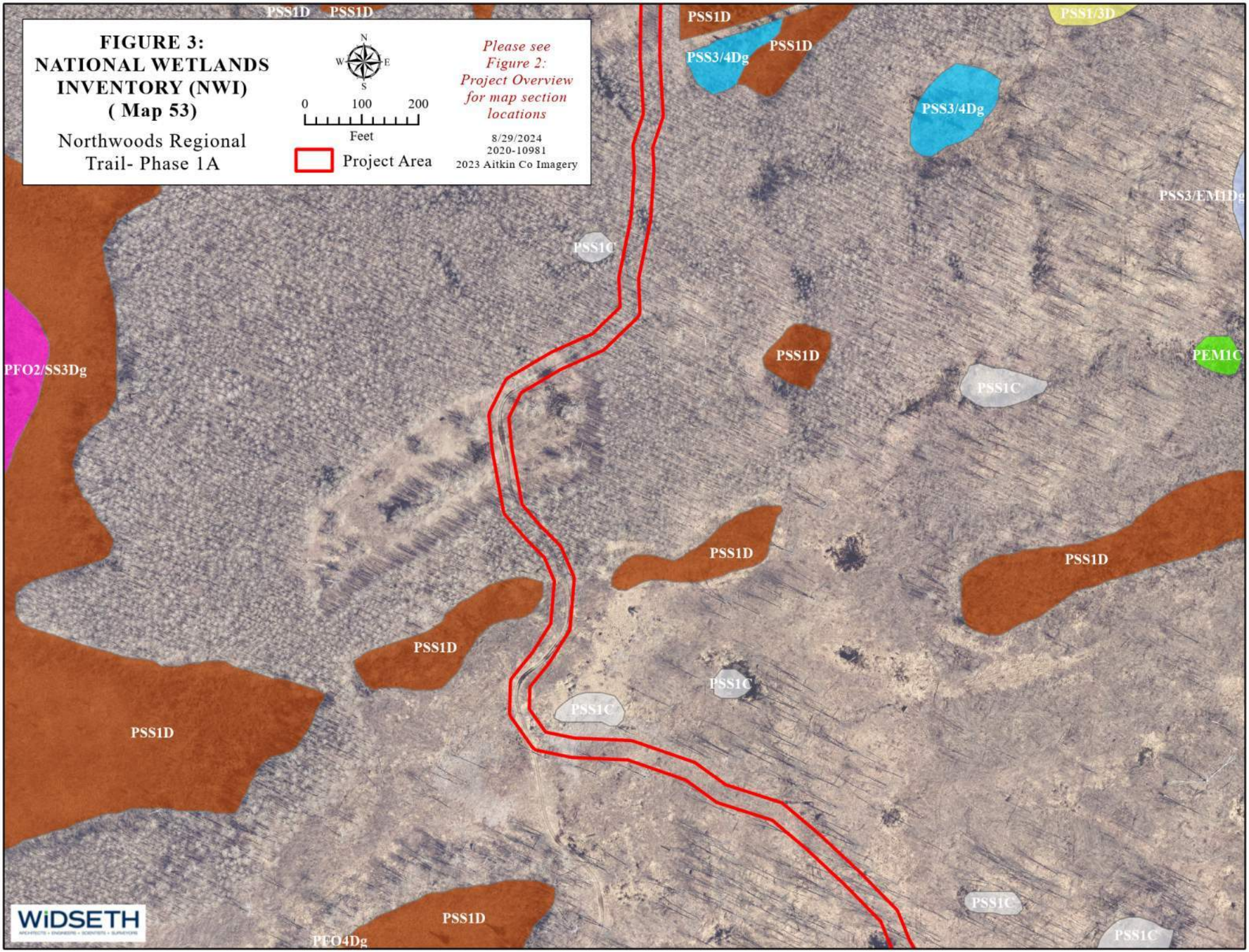


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 53)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1D
PSS1D
PSS1D
PSS1/3D
PSS3/4Dg
PSS1D
PSS3/4Dg
PSS3/EM1Dg
PSS1C
PFO2/SS3Dg
PSS1D
PEM1C
PSS1C
PSS1D
PSS1D
PSS1D
PSS1C
PSS1C
PSS1D
PSS1C
PSS1C
PEO4Dg
WiDSETH

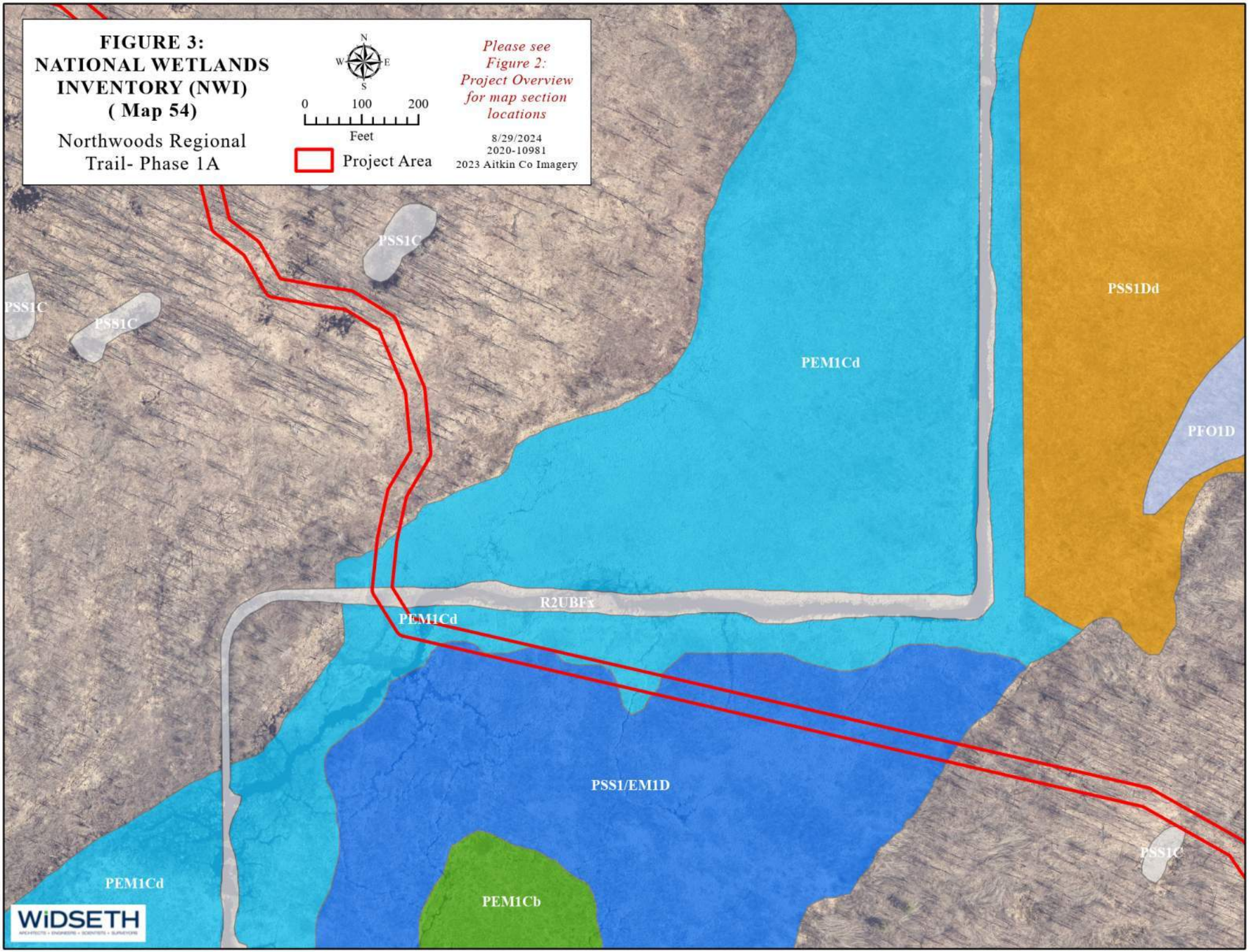


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 54)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1C
PSS1C
PSS1C
PEM1Cd
PSS1Dd
PFO1D
R2UBFx
PEM1Cd
PSS1/EM1D
PEM1Cb
PEM1Cd
PSS1C
WiDSETH

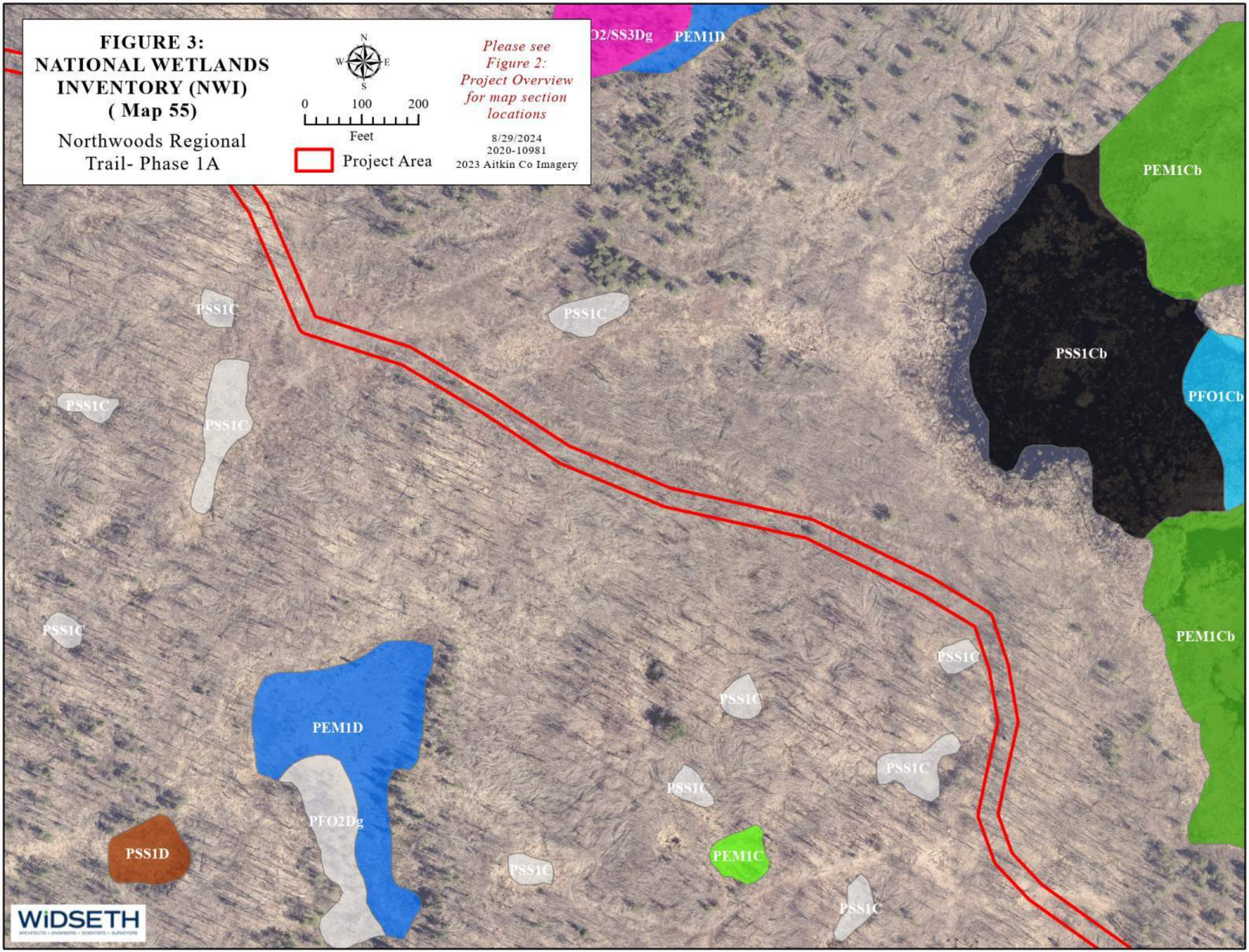


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 55)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
O2/SS3Dg
PEM1D
PEM1Cb
PSS1C
PSS1Cb
PFO1Cb
PEM1D
PFO2Dg
PSS1D
PEM1C
WIDSETH

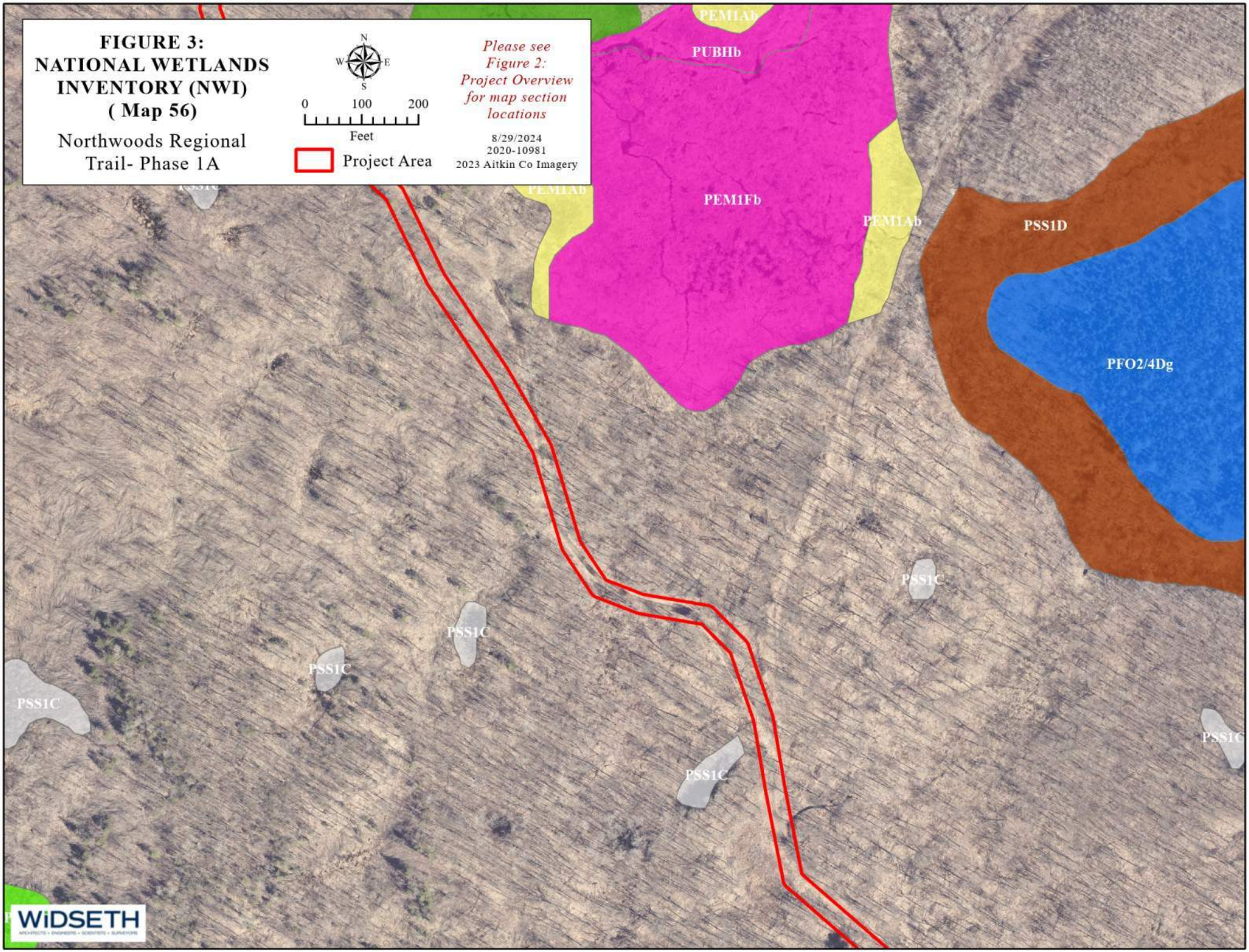


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 56)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PEM1Ab
PUBHb
PEM1Fb
PEM1Ab
PSS1D
PFO2/4Dg
PSS1C
PSS1C
PSS1C
PSS1C
PSS1C
PSS1C
WiDSETH

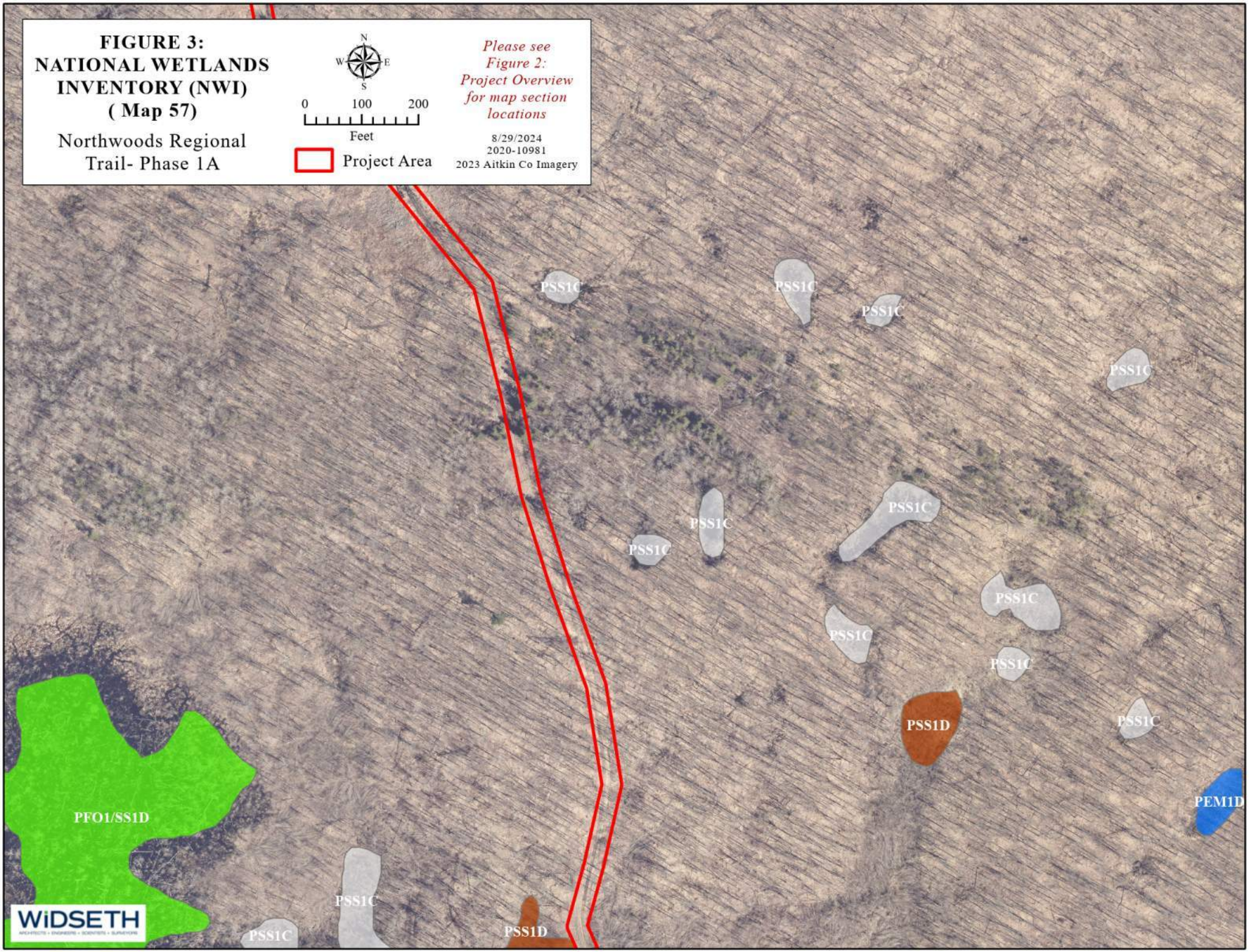


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 57)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1C
PSS1C
PSS1C
PSS1C
PSS1C
PSS1C
PSS1C
PSS1C
PSS1C
PSS1C
PSS1D
PSS1C
PEM1D
PFO1/SS1D
PSS1C
PSS1C
PSS1D
WiDSETH

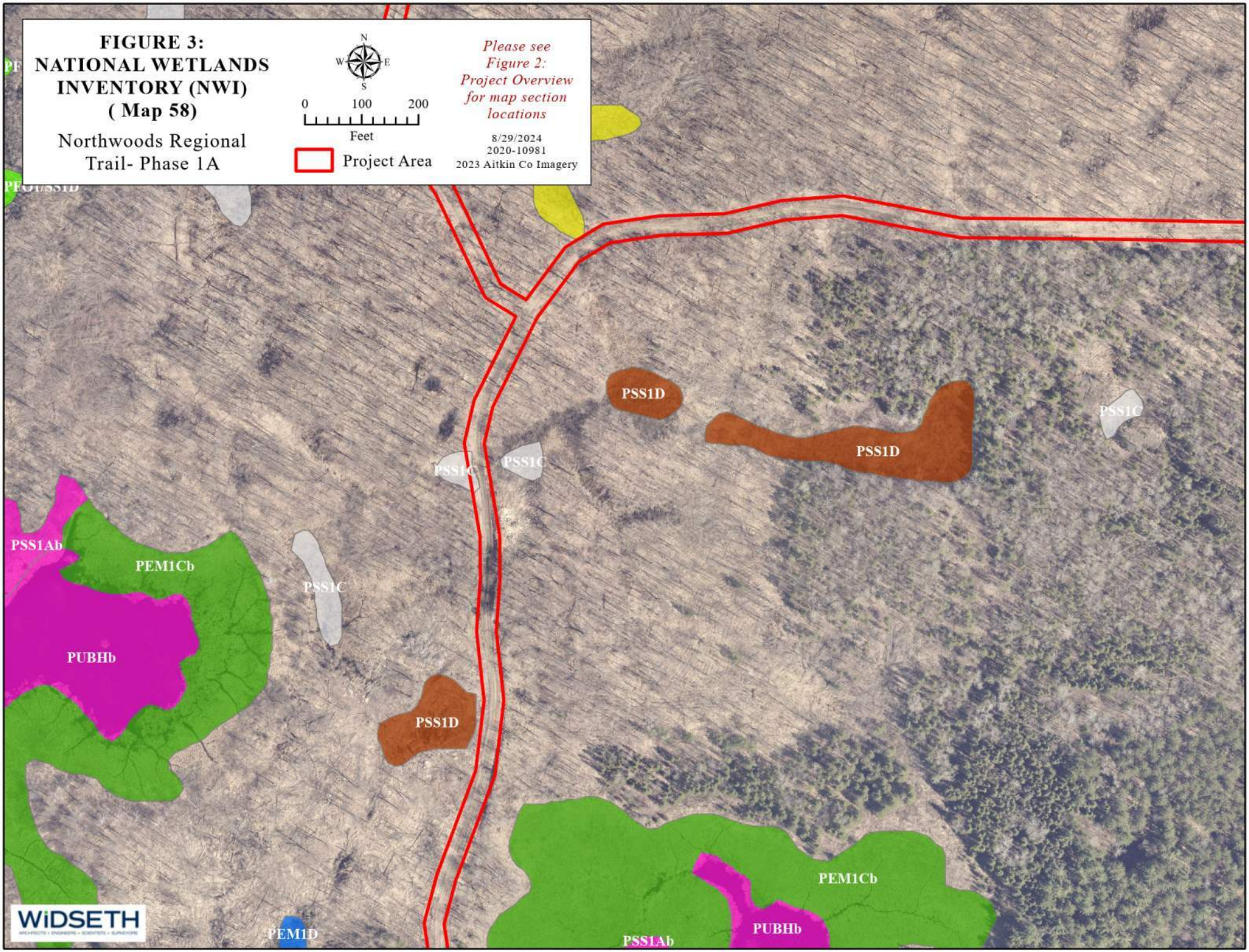


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 58)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1D
PSS1D
PSS1C
PSS1C
PSS1C
PSS1C
PSS1Ab
PEM1Cb
PUBHb
PSS1D
PEM1Cb
PUBHb
PSS1Ab
PEM1D
WiDSETH

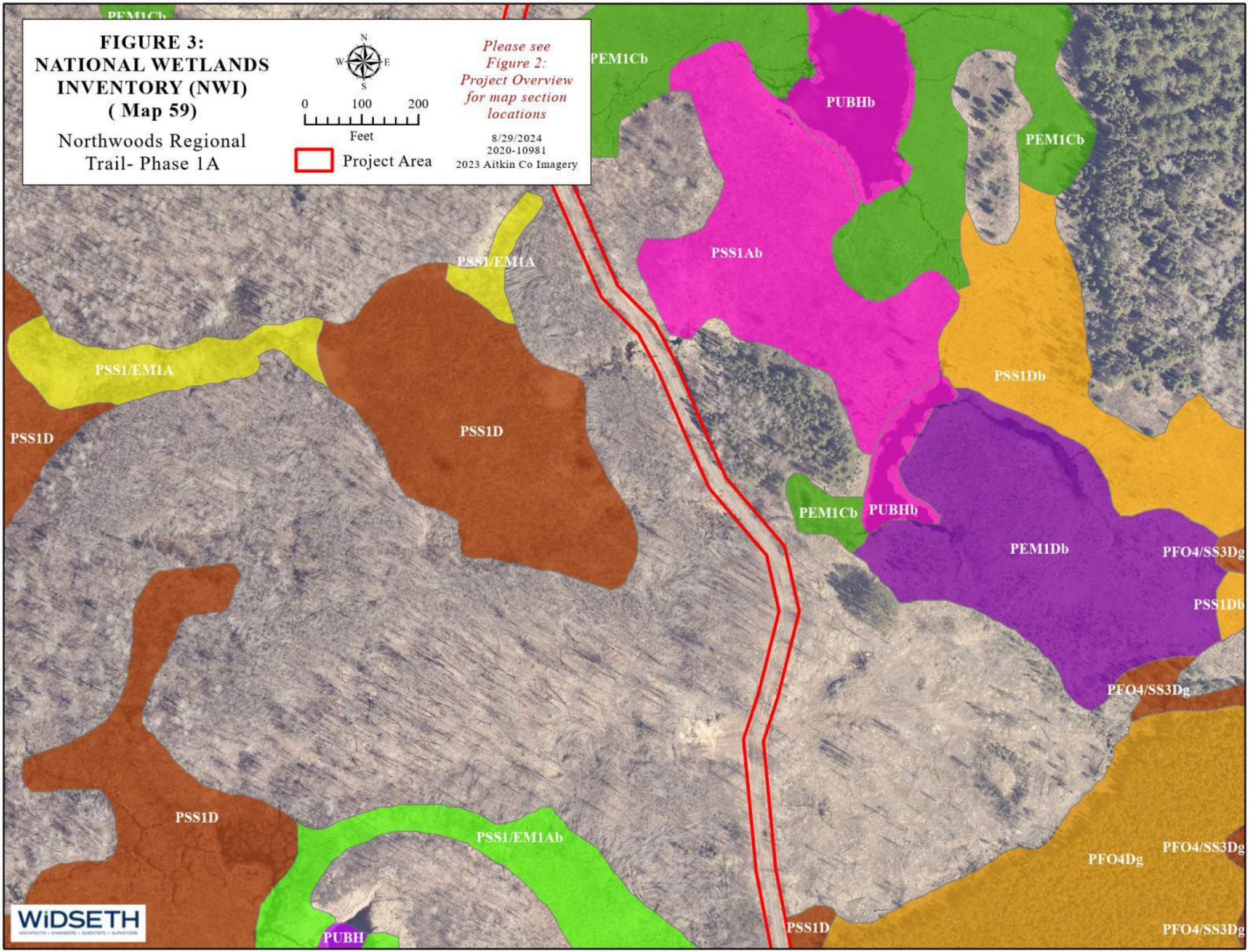


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 59)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PEM1Cb
PUBHb
PEM1Cb
PSS1Ab
PSS1/EM1A
PSS1/EM1A
PSS1Db
PSS1D
PSS1D
PEM1Cb
PUBHb
PEM1Db
PFO4/SS3Dg
PSS1Db
PFO4/SS3Dg
PSS1D
PSS1/EM1Ab
PFO4Dg
PFO4/SS3Dg
PUBH
PSS1D
PFO4/SS3Dg
WiDSETH

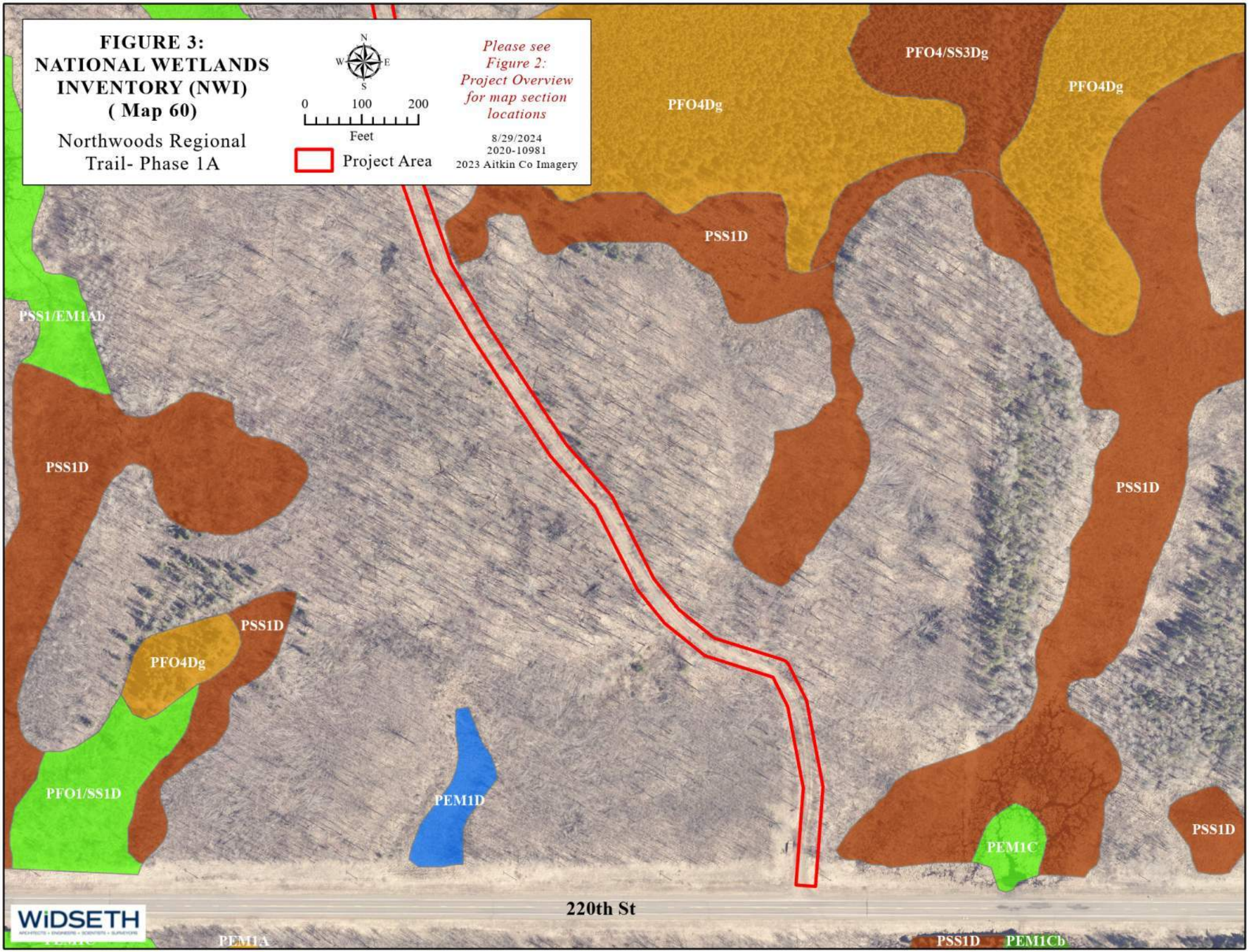


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 60)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO4/SS3Dg
PFO4Dg
PFO4Dg
PSS1D
PSS1/EM1Ab
PSS1D
PSS1D
PSS1D
PFO4Dg
PFO1/SS1D
PEM1D
PEM1C
PSS1D
220th St
PEM1A
PSS1D
PEM1Cb
WiDSETH

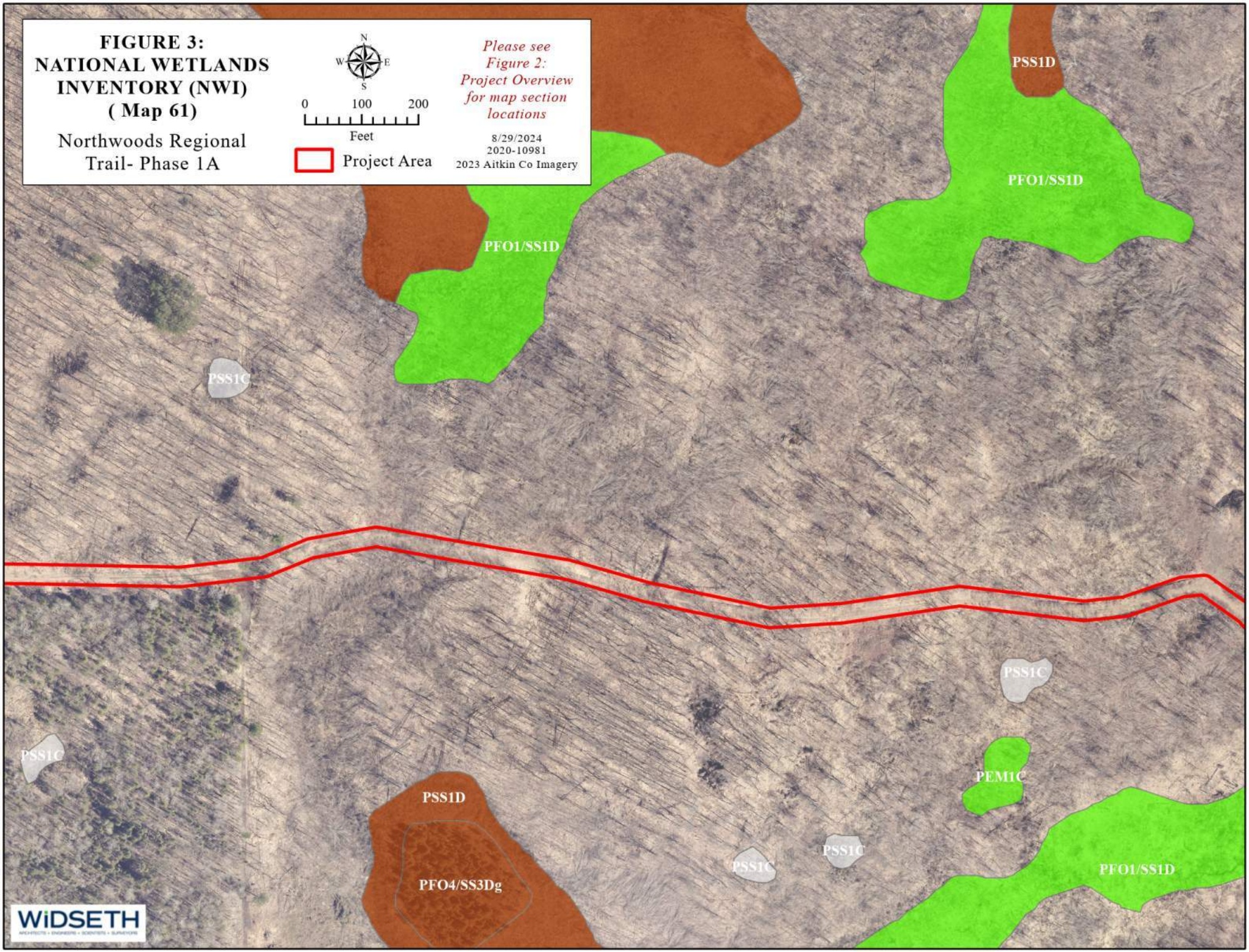


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 61)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PSS1D
PFO1/SS1D
PFO1/SS1D
PSS1C
PSS1C
PSS1C
PEM1C
PSS1C
PSS1C
PSS1D
PFO4/SS3Dg
PFO1/SS1D
WiDSETH

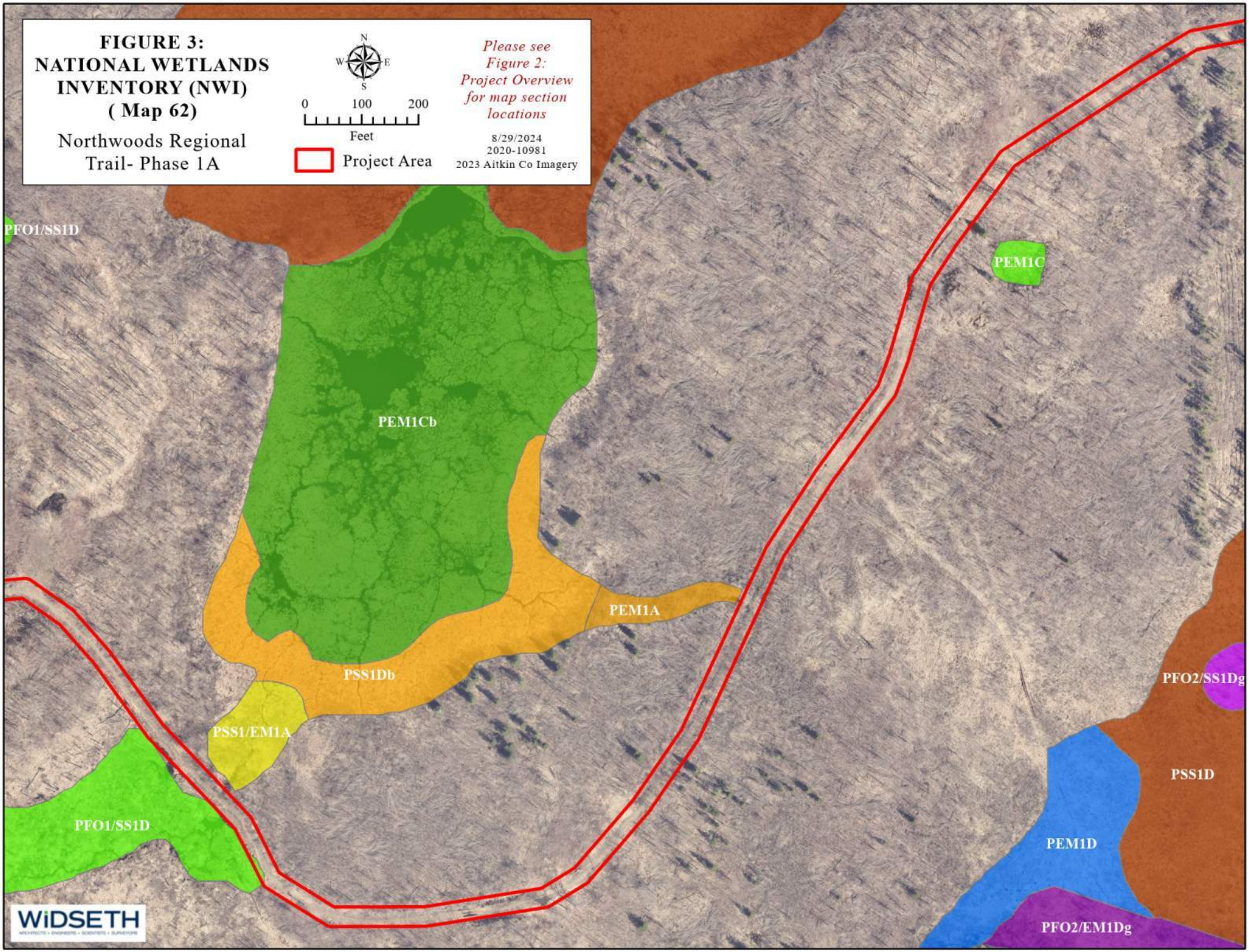


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 62)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO1/SS1D
PEM1C
PEM1Cb
PEM1A
PSS1Db
PSS1/EM1A
PFO1/SS1D
PFO2/SS1Dg
PSS1D
PEM1D
PFO2/EM1Dg
WiDSETH

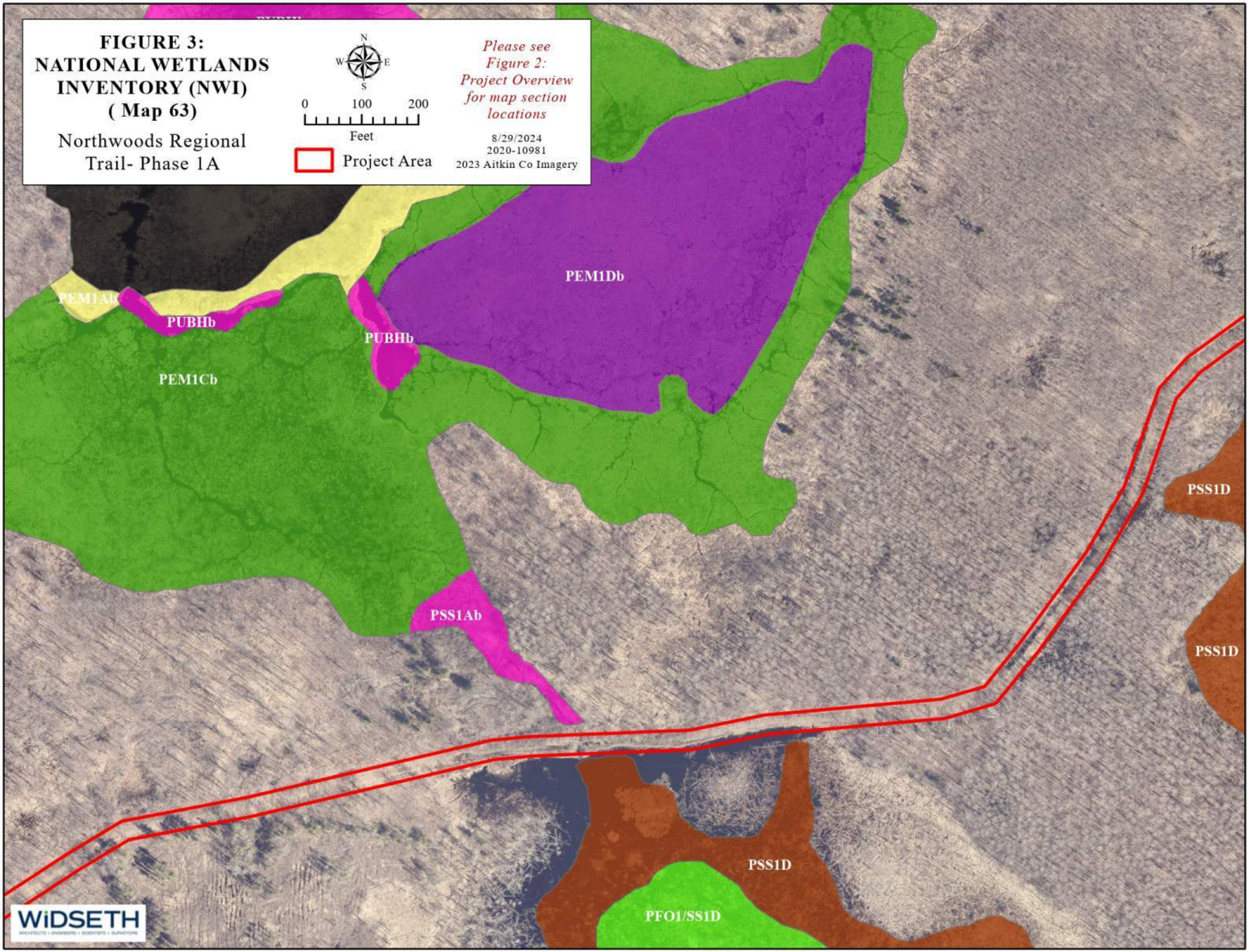


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 63)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PEM1Db
PEM1A
PUBHb
PUBHb
PEM1Cb
PSS1Ab
PSS1D
PSS1D
PSS1D
PFO1/SS1D
WIDSETH

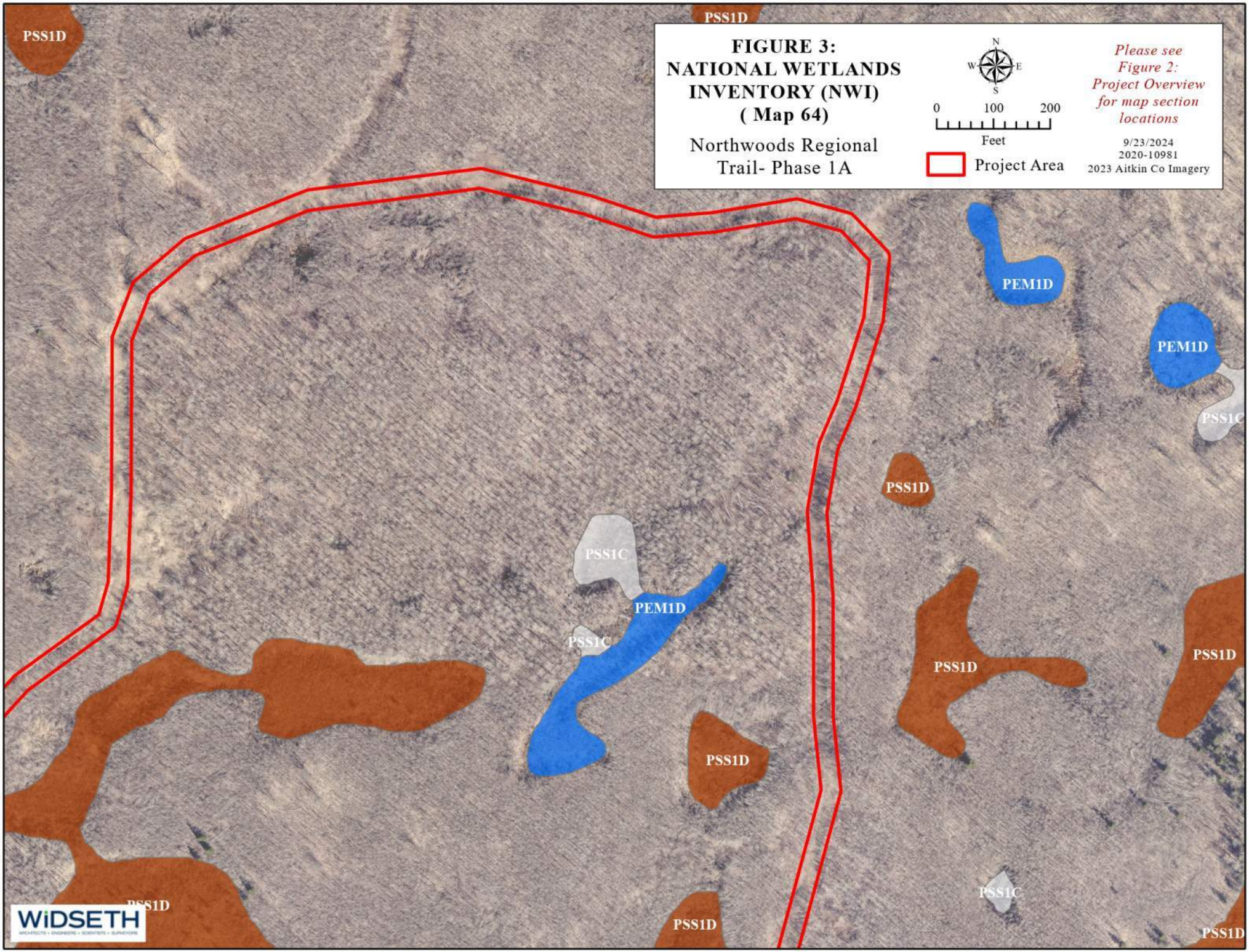
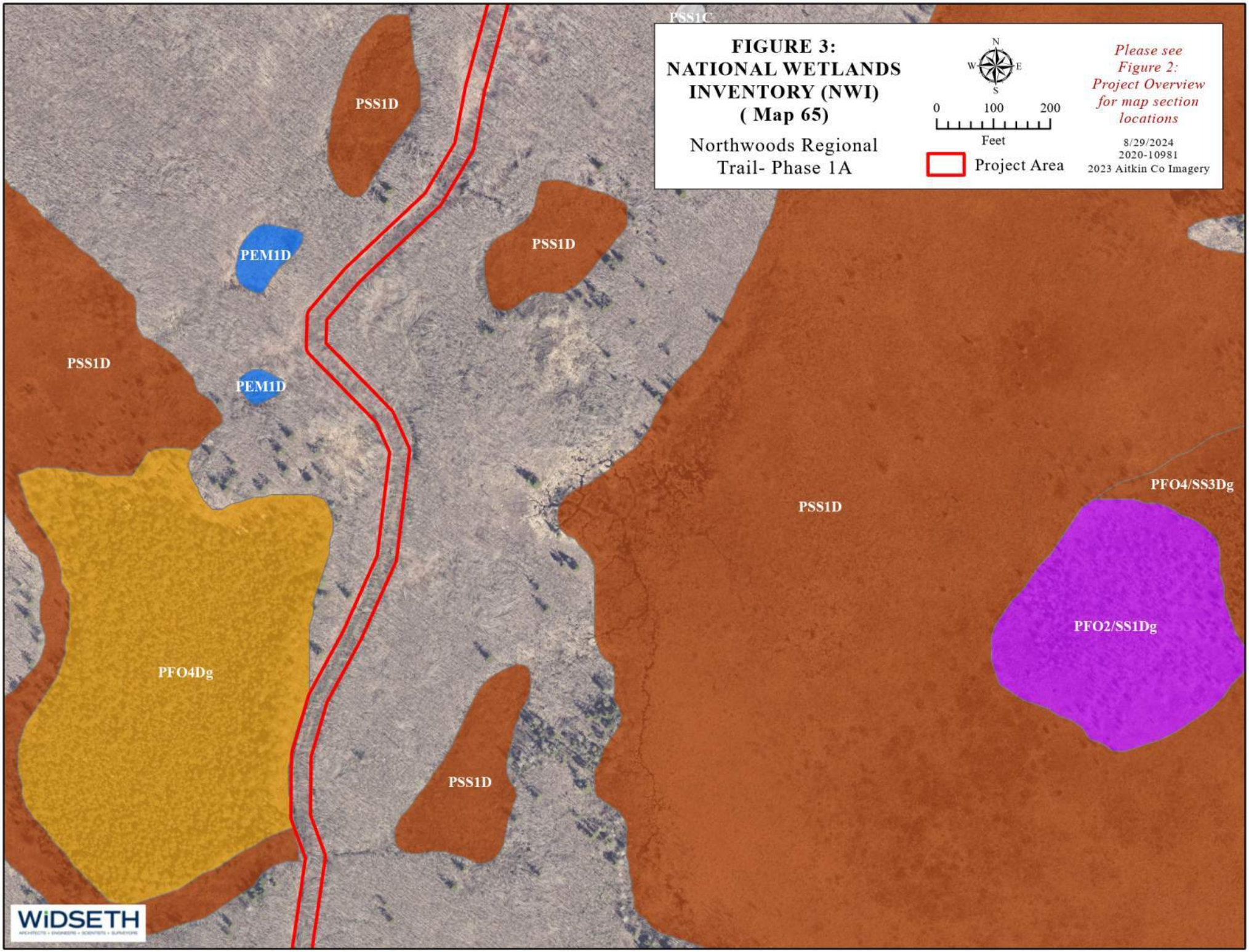


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 64)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
9/23/2024
2020-10981
2023 Aitkin Co Imagery
PSS1D
PEM1D
PSS1C
WiDSETH


PSS1C
PSS1D
PEM1D
PSS1D
PSS1D
PEM1D
PFO4Dg
PSS1D
PSS1D
PFO4/SS3Dg
PFO2/SS1Dg
FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 65)
Northwoods Regional
Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see
Figure 2:
Project Overview
for map section
locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
WiDSETH

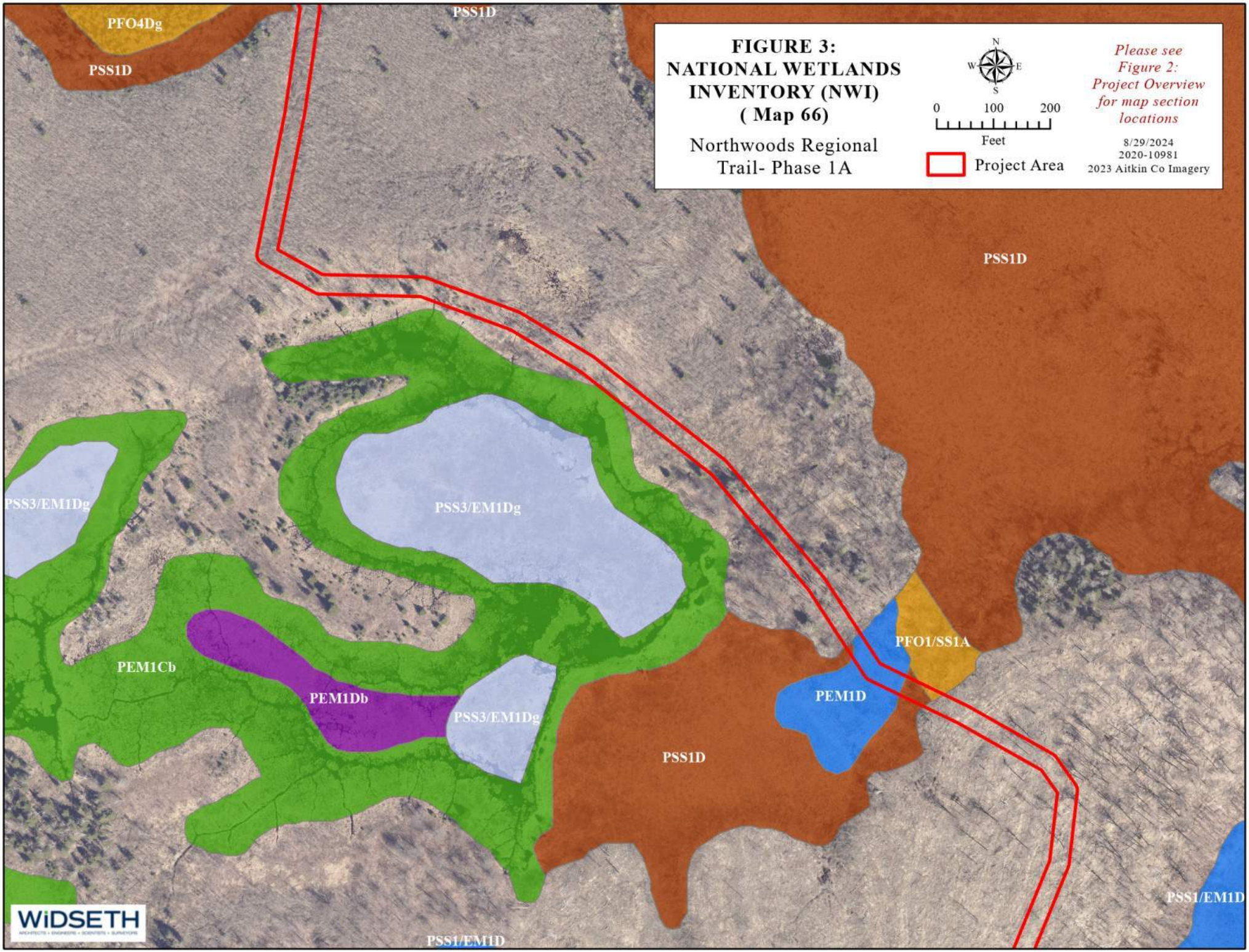
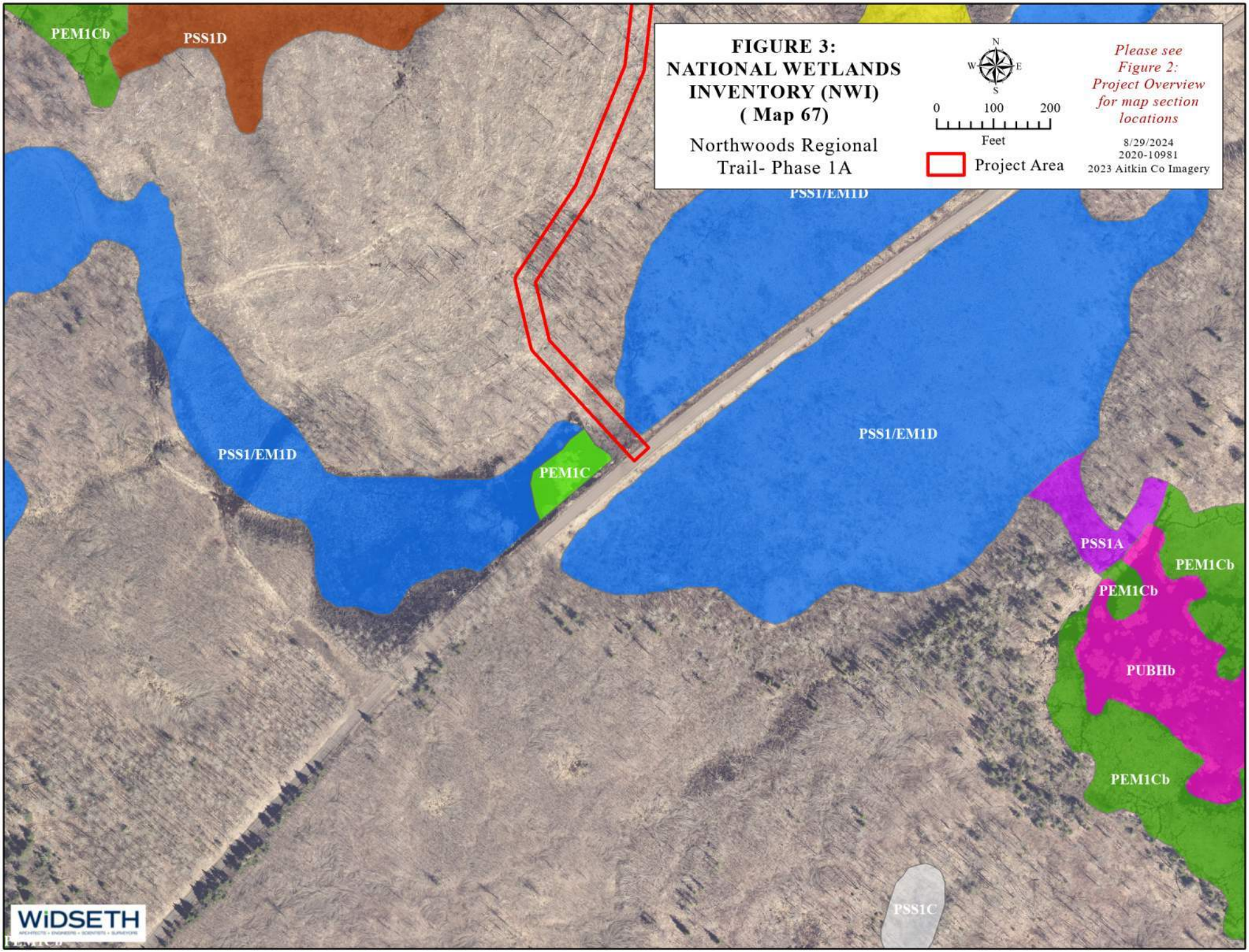


FIGURE 3:
NATIONAL WETLANDS INVENTORY (NWI)
(Map 66)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see Figure 2: Project Overview for map section locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
PFO4Dg
PSS1D
PSS1D
PSS1D
PSS3/EM1Dg
PSS3/EM1Dg
PEM1Cb
PEM1Db
PSS3/EM1Dg
PFO1/SS1A
PEM1D
PSS1D
PSS1/EM1D
PSS1/EM1D
WiDSETH


PEM1Cb
PSS1D
PSS1/EM1D
PEM1C
PSS1/EM1D
PSS1/EM1D
PSS1A
PEM1Cb
PEM1Cb
PUBHb
PEM1Cb
PSS1C
FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 67)
Northwoods Regional
Trail- Phase 1A
N
W
E
S
0
100
200
Feet
Project Area
Please see
Figure 2:
Project Overview
for map section
locations
8/29/2024
2020-10981
2023 Aitkin Co Imagery
WiDSETH

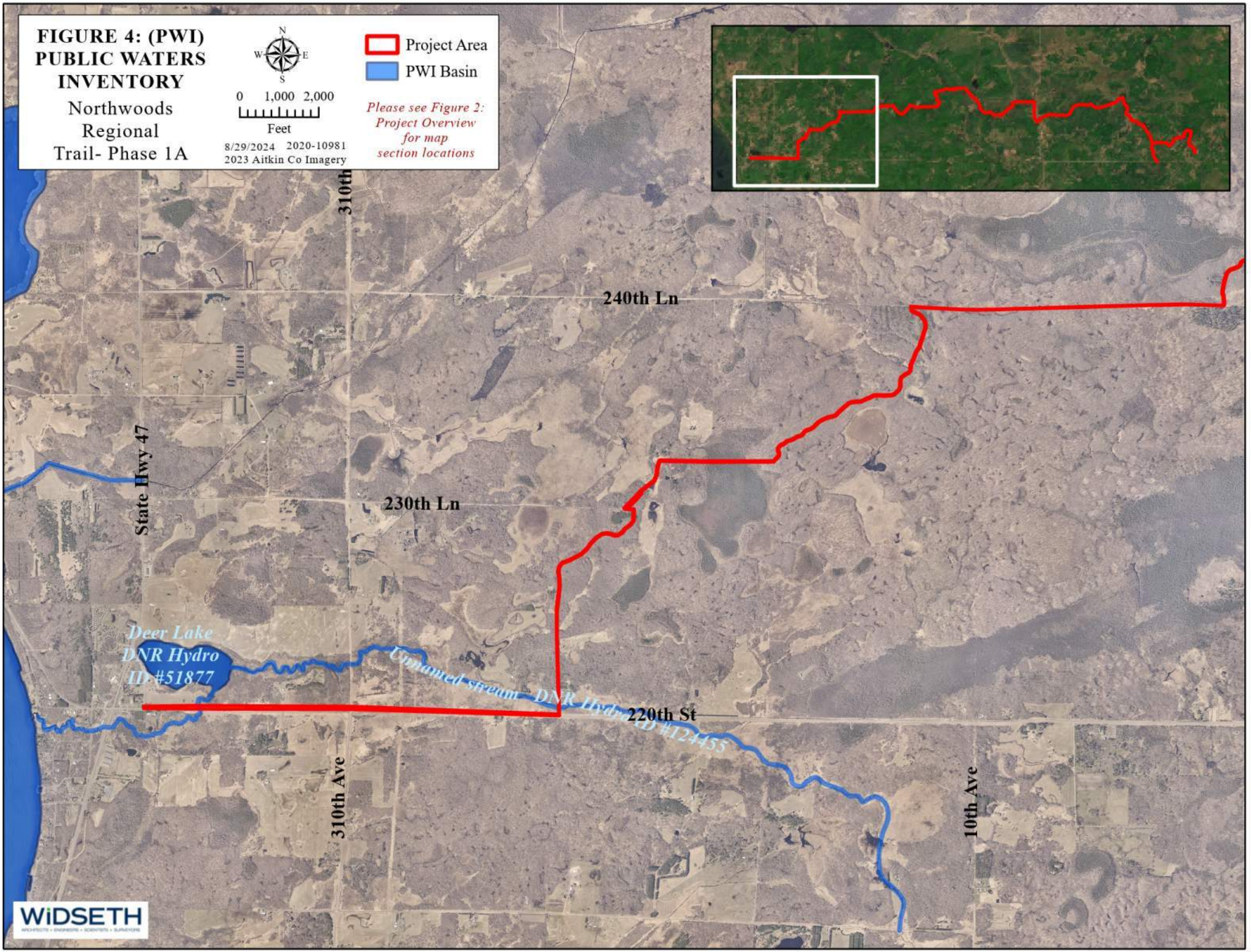


FIGURE 4: (PWI) PUBLIC WATERS INVENTORY
Northwoods Regional Trail- Phase 1A
N
W
E
S
0 1,000 2,000
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
PWI Basin
Please see Figure 2: Project Overview for map section locations
310th
240th Ln
State Hwy 47
230th Ln
Deer Lake
DNR Hydro
ID: #51877
Unnamed stream
DNR Hydro ID #T24455
220th St
310th Ave
10th Ave
WiDSETH

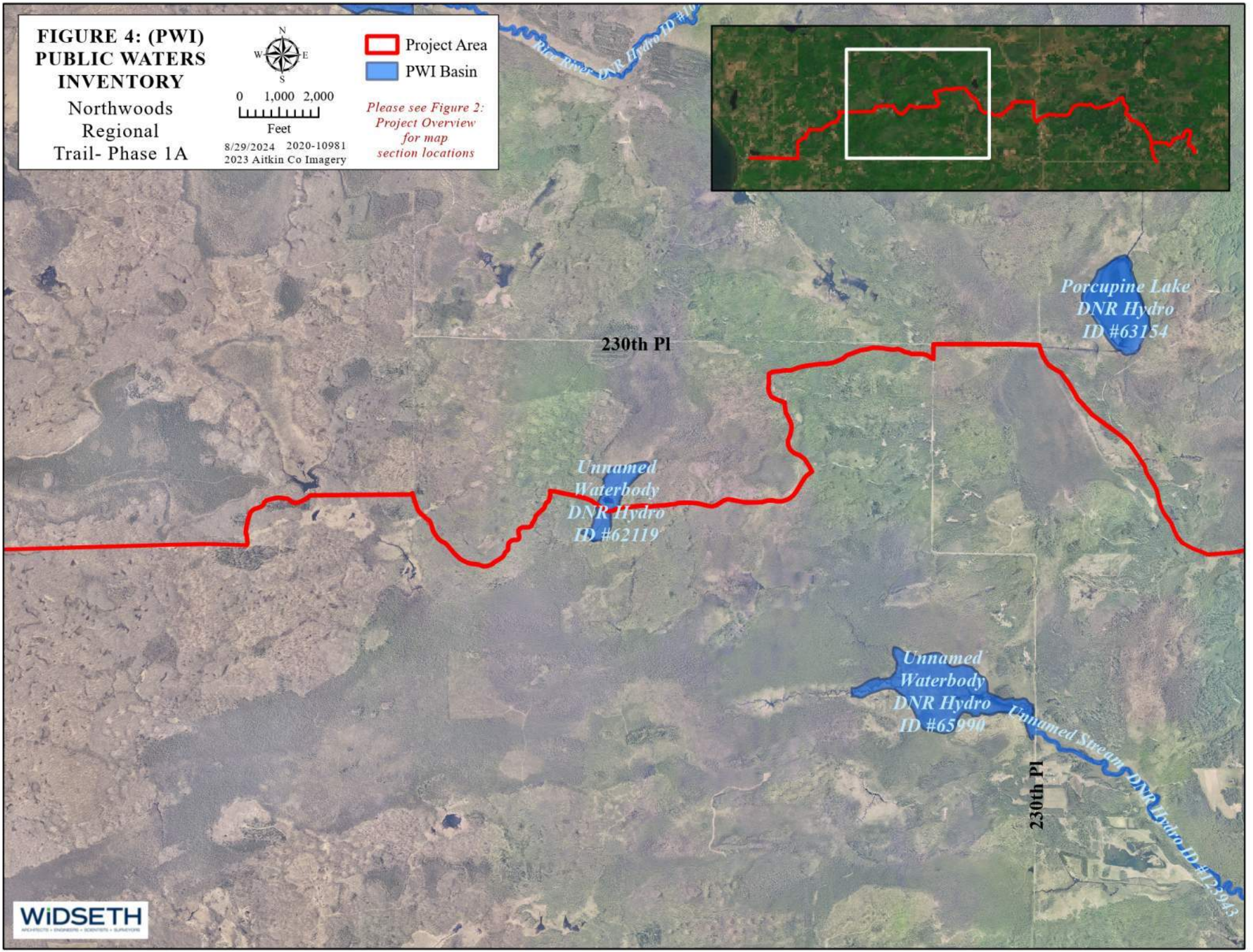


FIGURE 4: (PWI)
PUBLIC WATERS
INVENTORY
Northwoods
Regional
Trail- Phase 1A
N
W
E
S
0 1,000 2,000
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
PWI Basin
Please see Figure 2: Project Overview for map section locations
Rice River DNR Hydro ID #1
Porcupine Lake
DNR Hydro
ID #63154
230th Pl
Unnamed
Waterbody
DNR Hydro
ID #62119
Unnamed
Waterbody
DNR Hydro
ID #65990
Unnamed Stream DNR Hydro ID #72943
230th Pl
WiDSETH

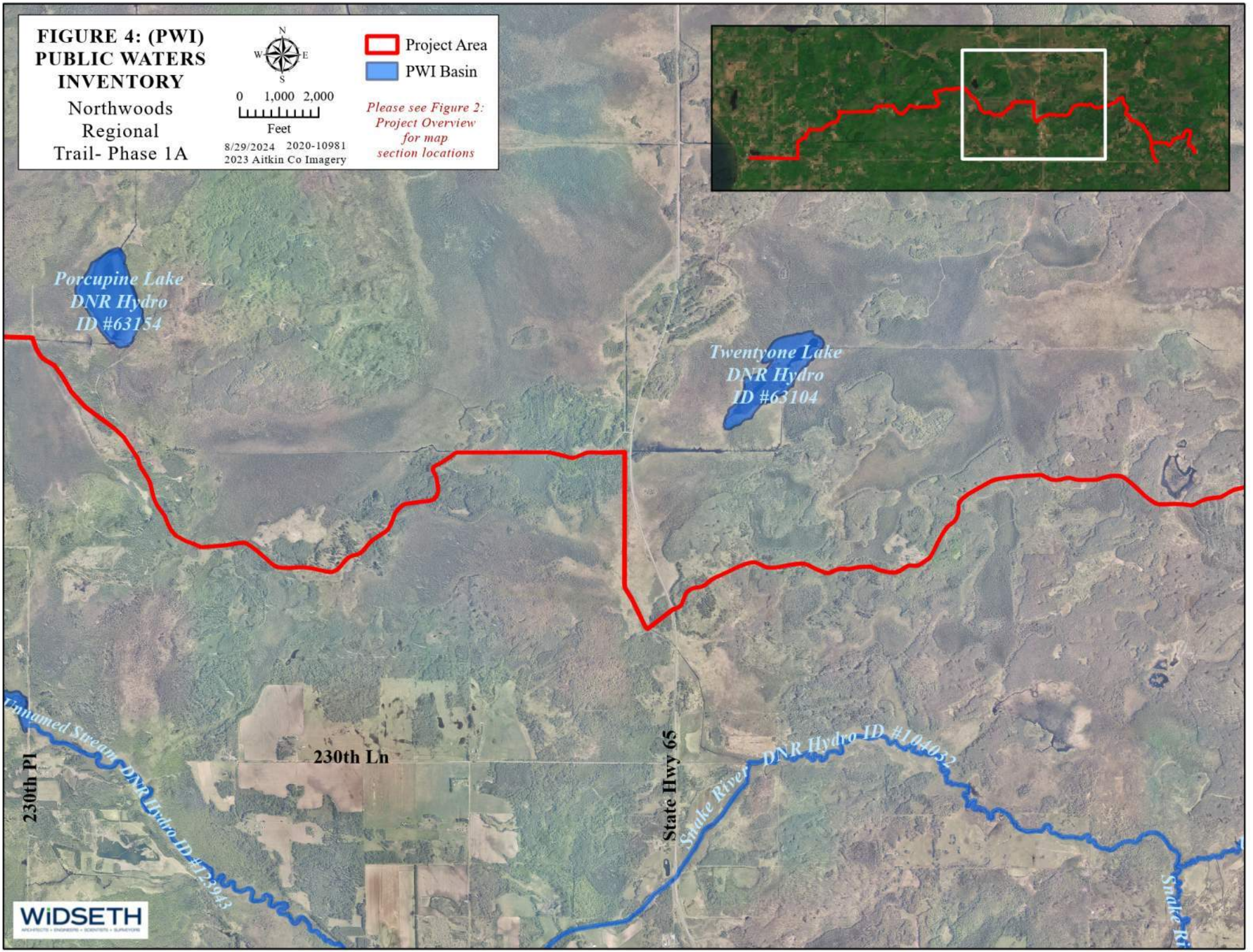


FIGURE 4: (PWI)
PUBLIC WATERS
INVENTORY
Northwoods
Regional
Trail- Phase 1A
N
W
E
S
0 1,000 2,000
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
PWI Basin
Please see Figure 2: Project Overview for map section locations
Porcupine Lake
DNR Hydro
ID #63154
Twentyone Lake
DNR Hydro
ID #63104
230th Ln
230th Pl
State Hwy 65
Unnamed Stream DNR Hydro ID #12943
Snake River DNR Hydro ID #10403
WIDSETH

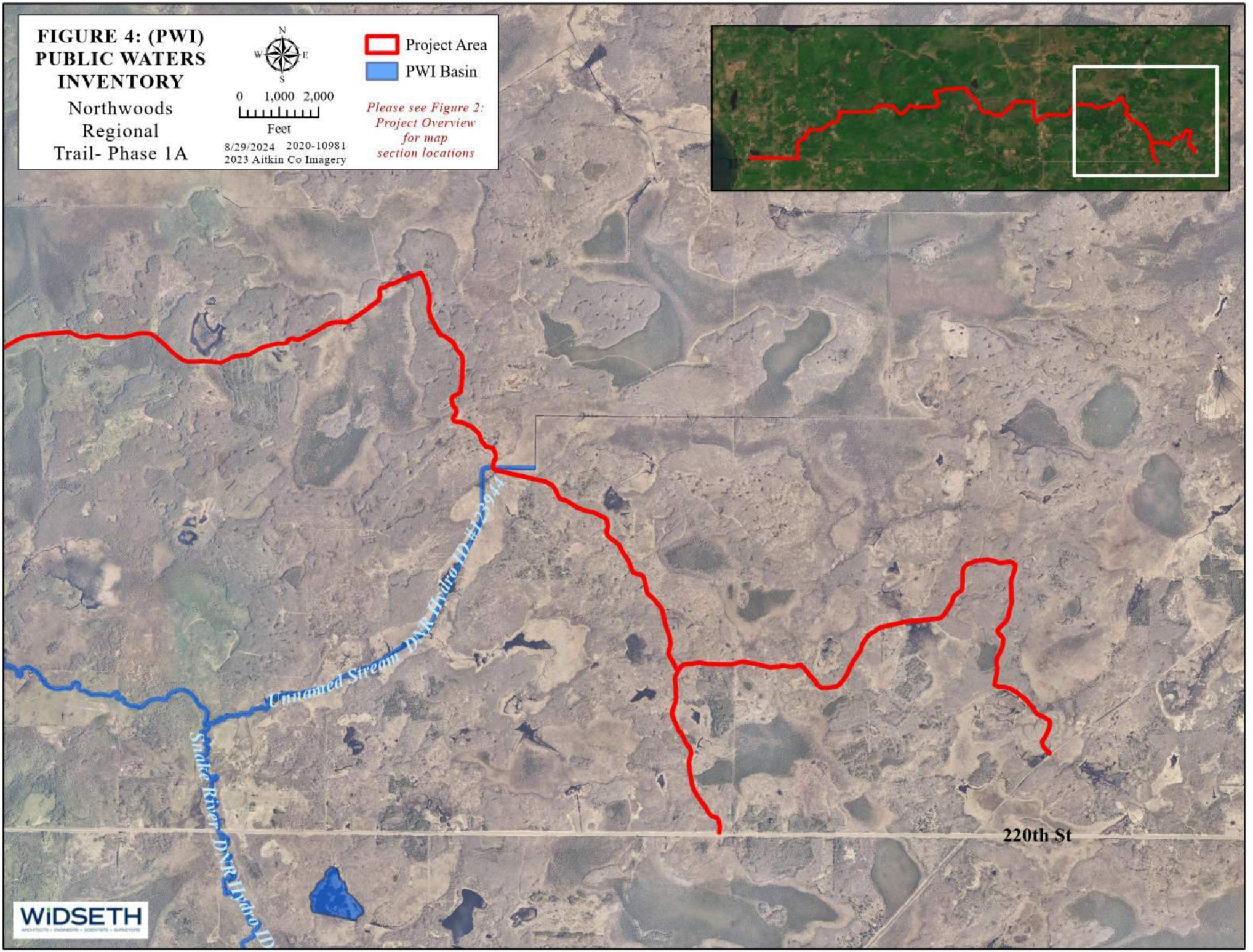


FIGURE 4: (PWI) PUBLIC WATERS INVENTORY
Northwoods Regional Trail- Phase 1A
N
W
E
S
0 1,000 2,000
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
PWI Basin
Please see Figure 2: Project Overview for map section locations
Unnamed Stream DNR Hydro ID #23044
Snake River DNR Hydro ID
220th St
WiDSETH

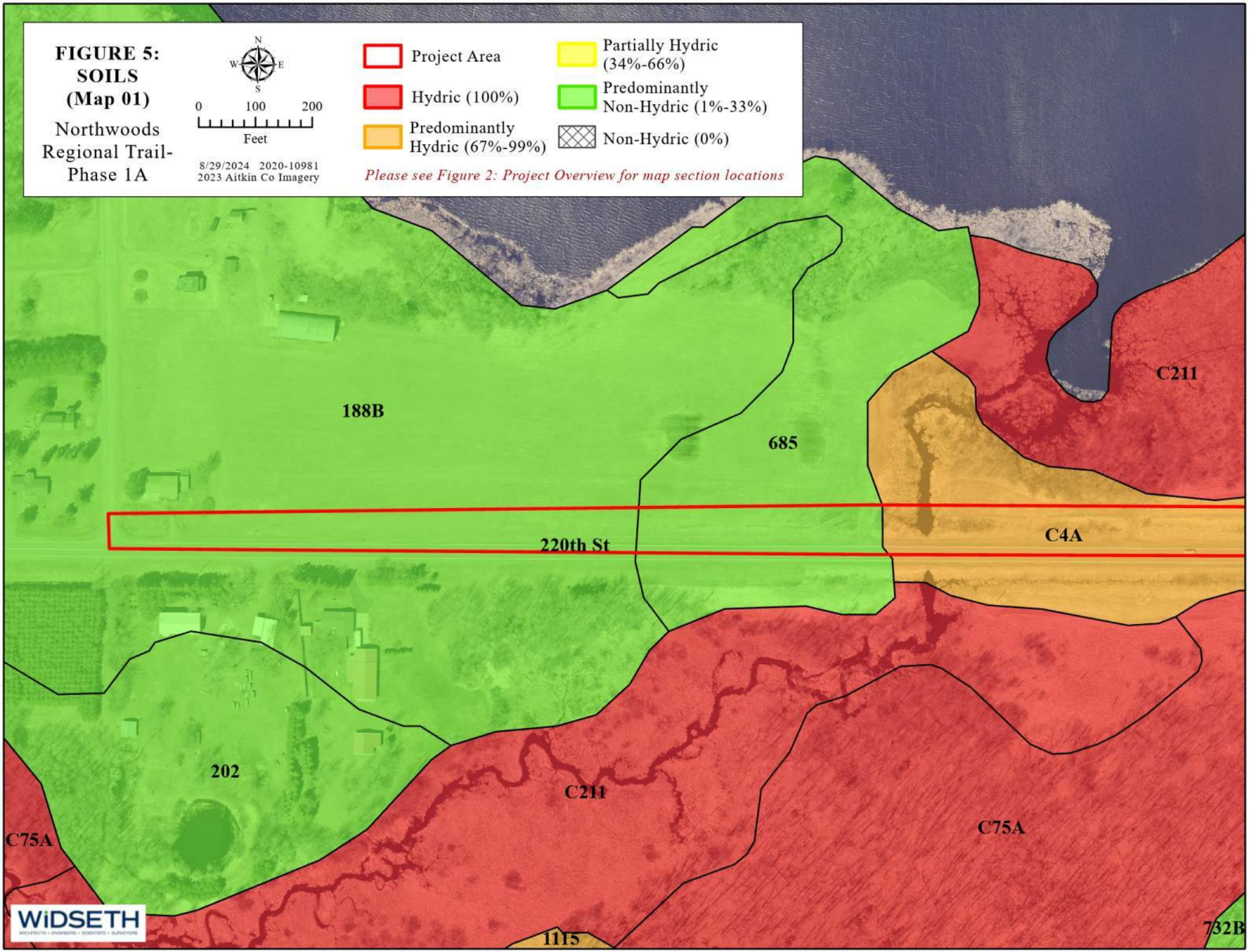


FIGURE 5:
SOILS
(Map 01)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
188B
685
C211
220th St
C4A
202
C211
C75A
C75A
1115
732B
WiDSETH

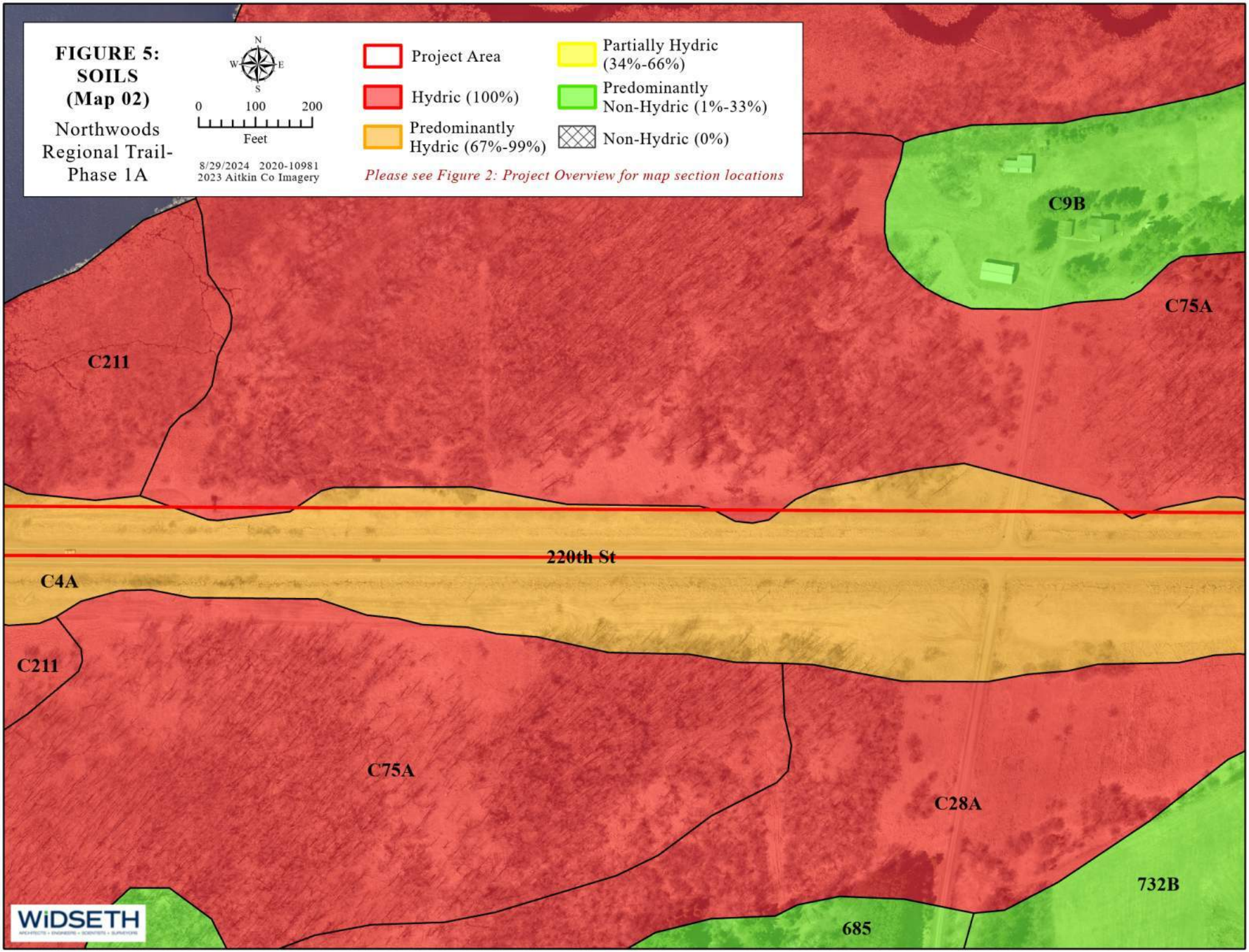


FIGURE 5:
SOILS
(Map 02)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C9B
C75A
C211
220th St
C4A
C211
C75A
C28A
732B
685
WiDSETH

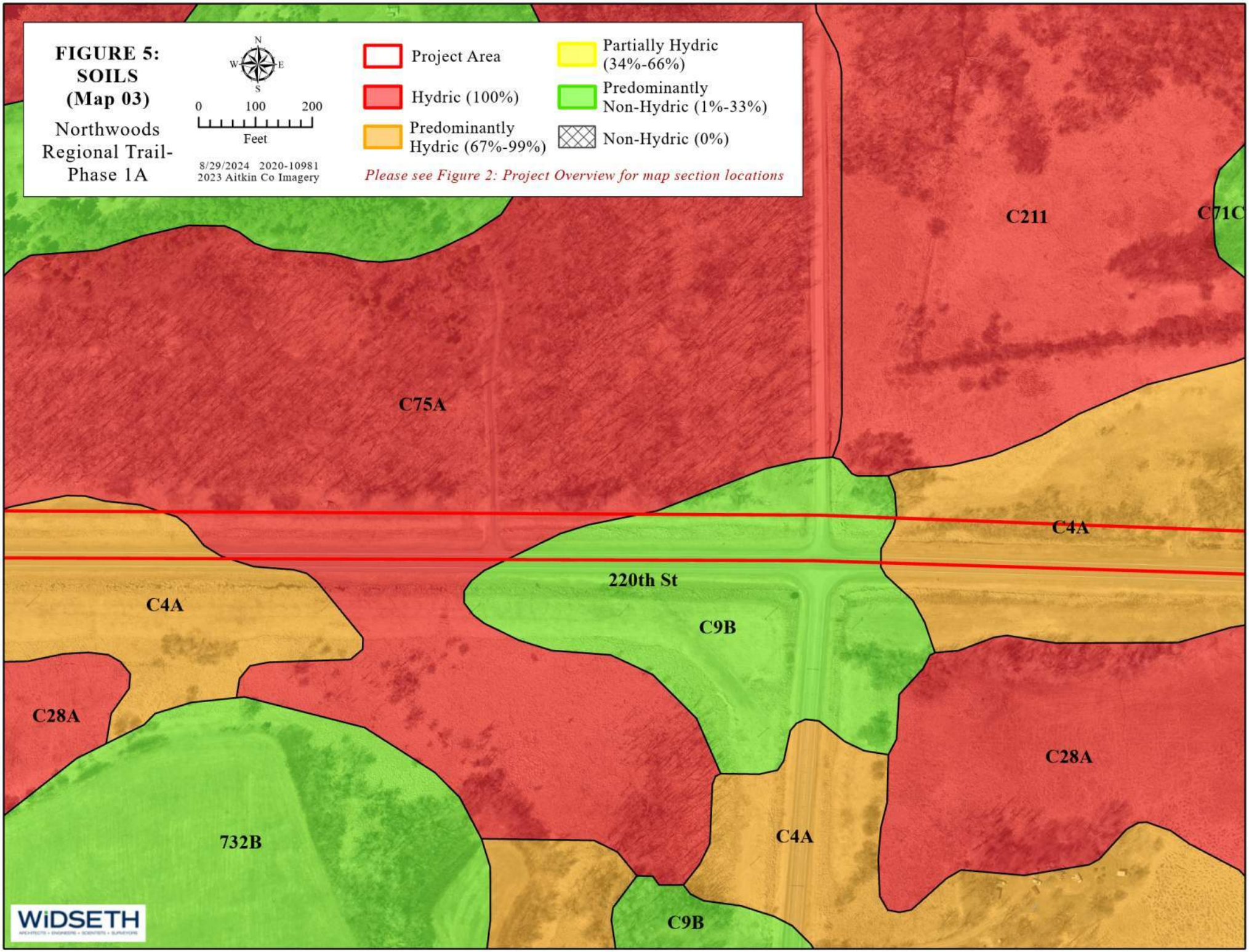


FIGURE 5:
SOILS
(Map 03)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C211
C71C
C75A
C4A
220th St
C4A
C9B
C28A
C28A
732B
C4A
C9B
WiDSETH

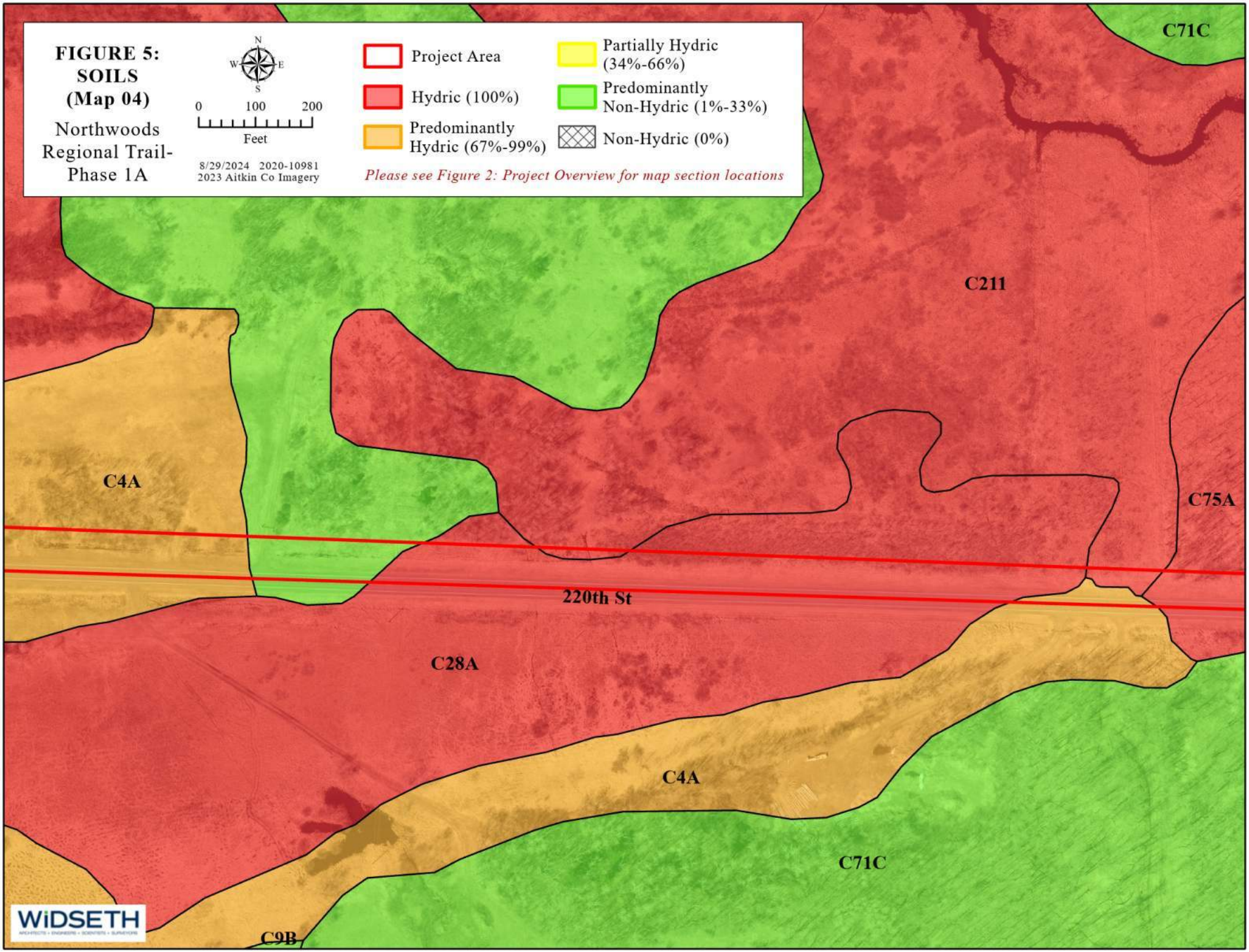
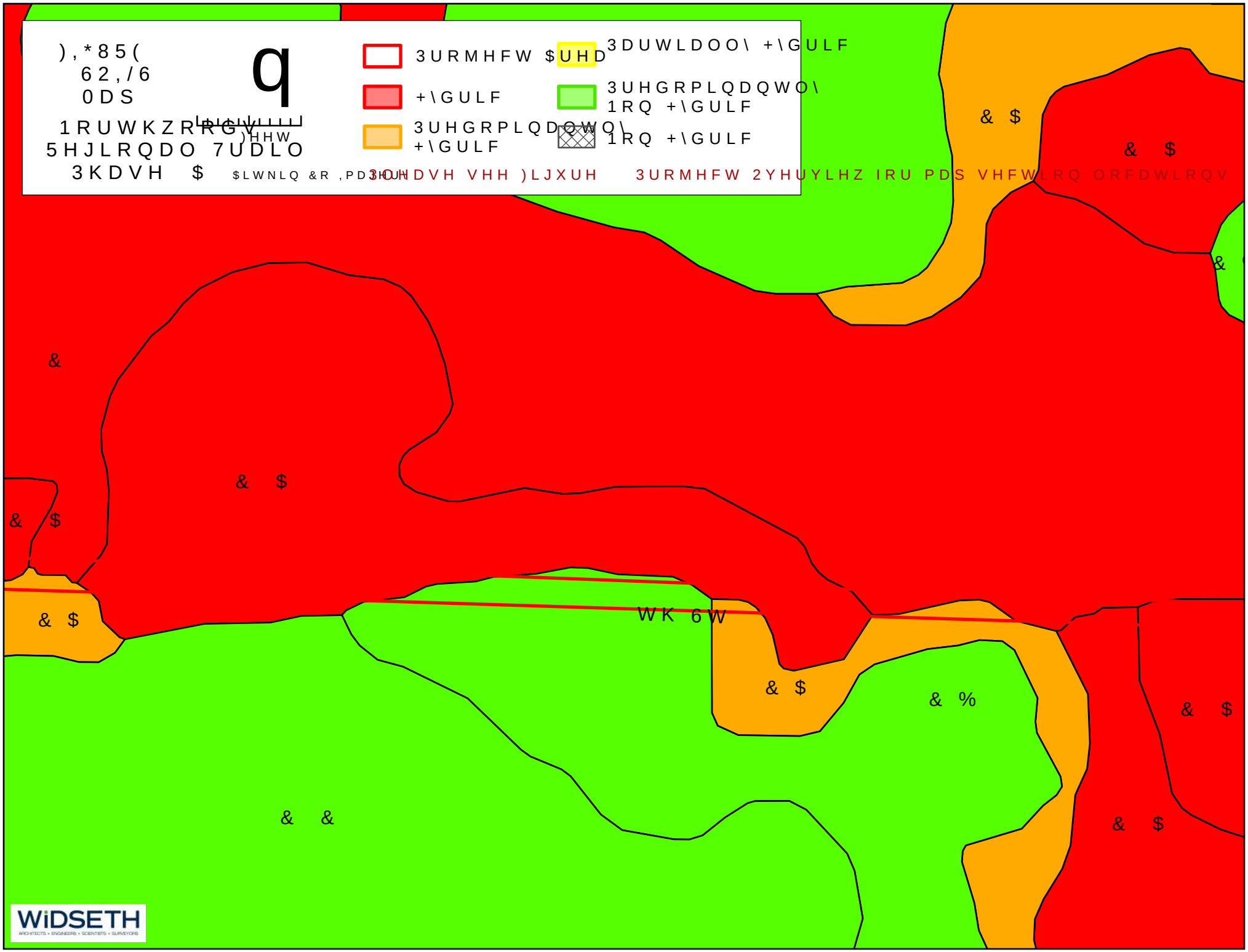


FIGURE 5:
SOILS
(Map 04)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C71C
C211
C4A
C75A
220th St
C28A
C4A
C71C
C9B
WiDSETH


),*85(
62,/6
0DS
1RUWKZRRGV
5HJLRQDO 7UDLO
3KDVH $
)HHW
3URMHFW $UHD
+\GULF
3UHGRPLQDQWO\ +\GULF
3DUWLDOO\ +\GULF
3UHGRPLQDQWO\ 1RQ +\GULF
1RQ +\GULF
3URMHFW 2YHUYLHZ IRU PDS VHFWLRQ ORFDWLRQV
WK 6W
WiDSETH

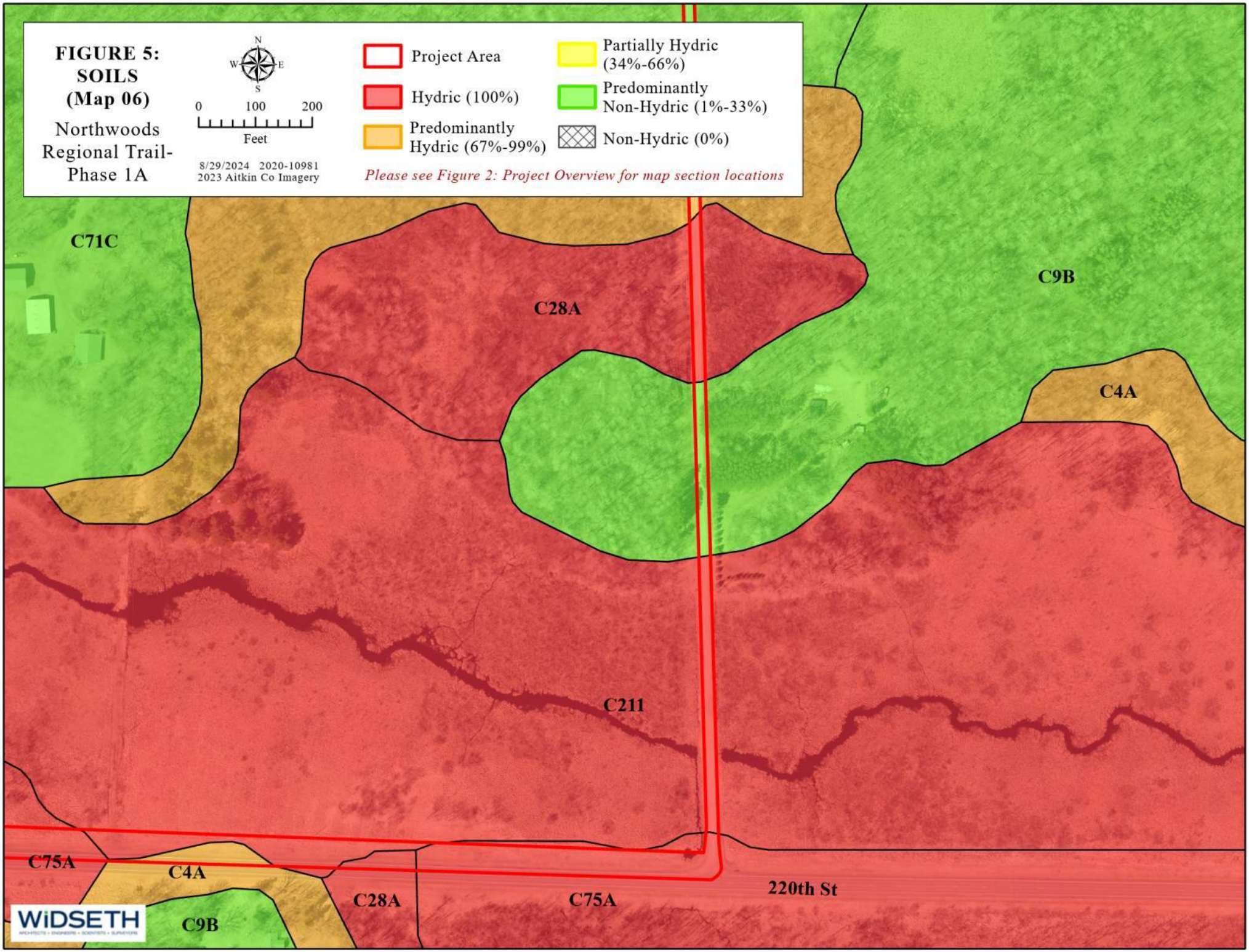


FIGURE 5:
SOILS
(Map 06)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C71C
C28A
C9B
C4A
C211
C75A
C4A
C28A
C75A
220th St
C9B
WiDSETH

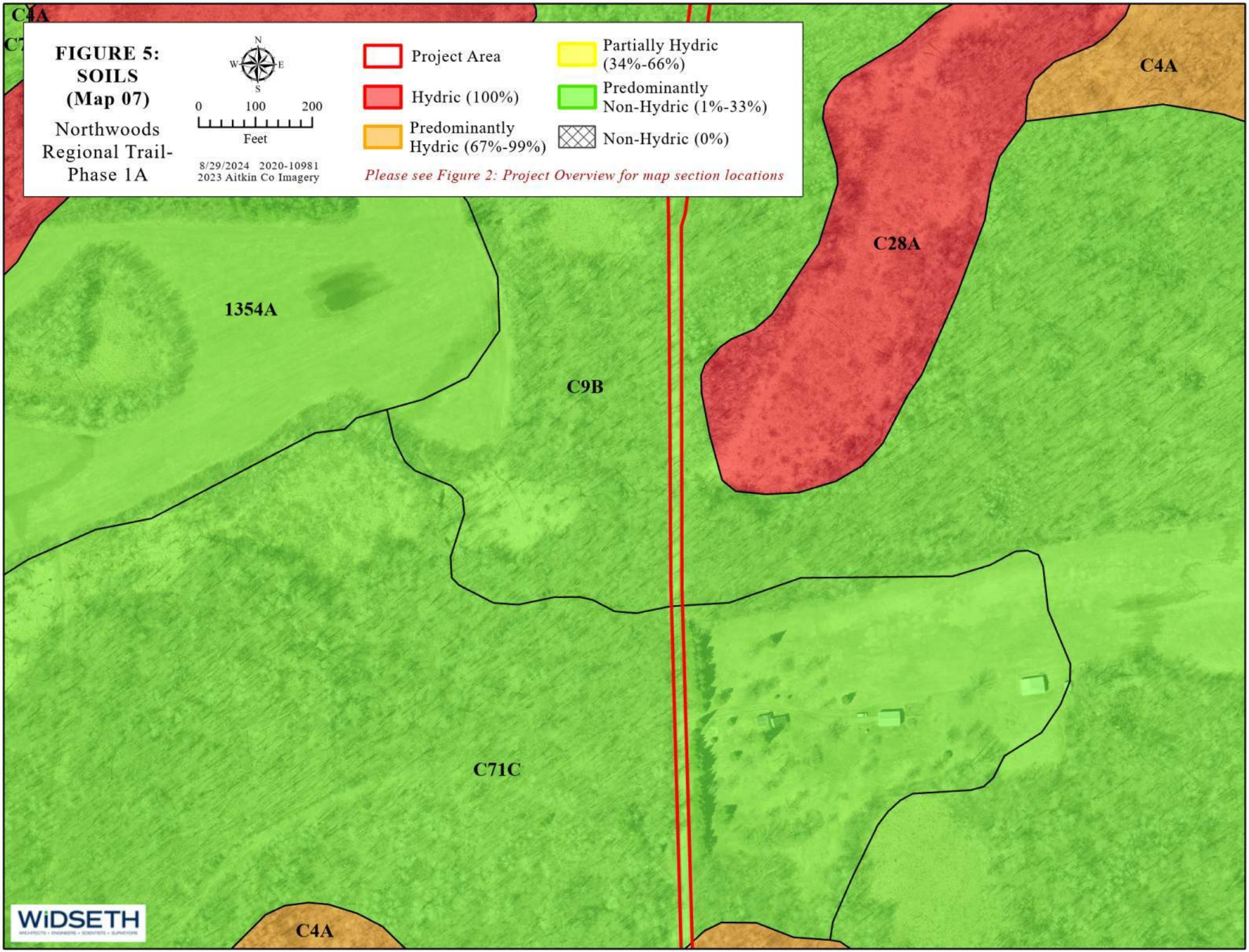


FIGURE 5:
SOILS
(Map 07)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C4A
C28A
1354A
C9B
C71C
C4A
WiDSETH

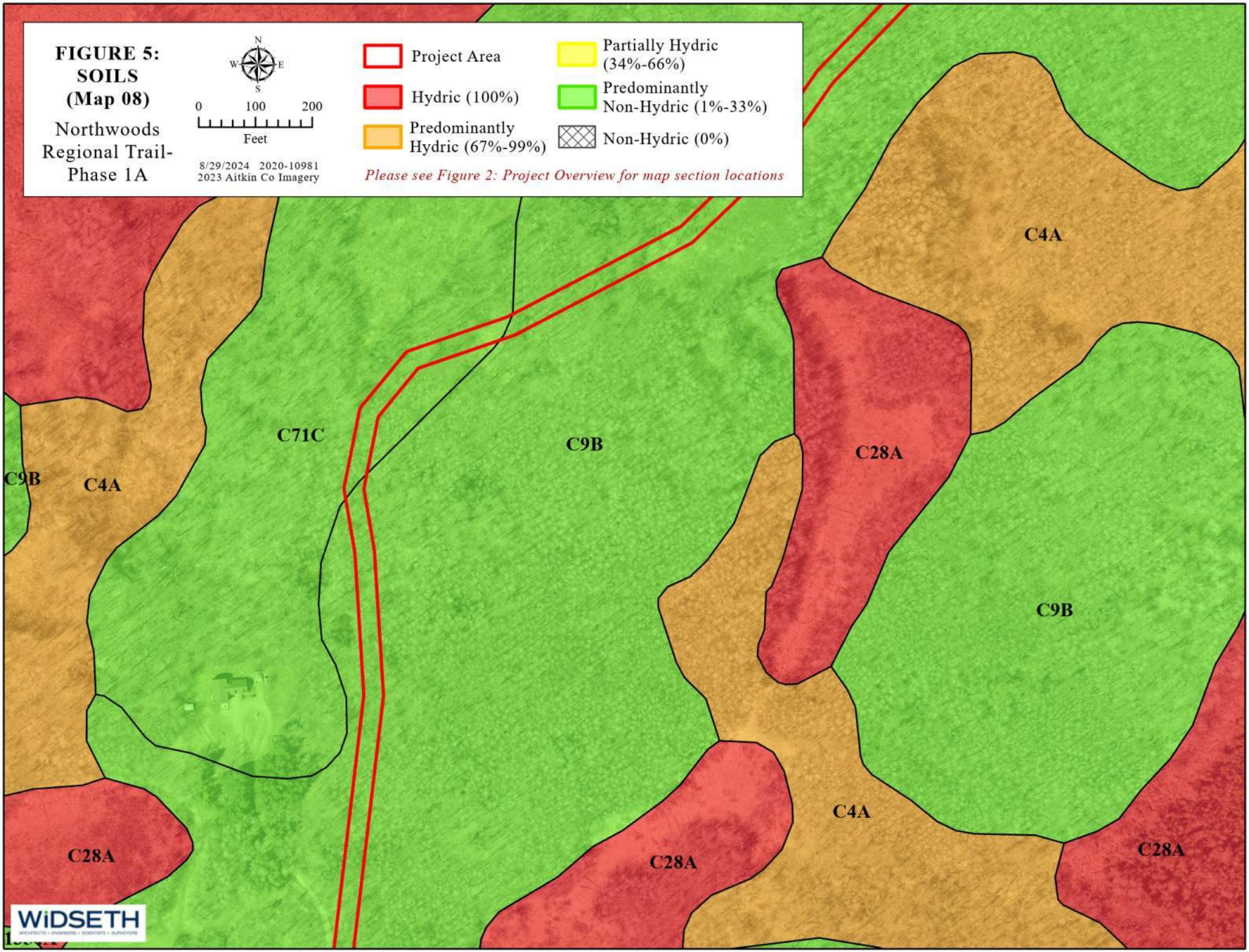


FIGURE 5:
SOILS
(Map 08)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C4A
C71C
C9B
C28A
C9B
C4A
C9B
C28A
C4A
C28A
C28A
WiDSETH

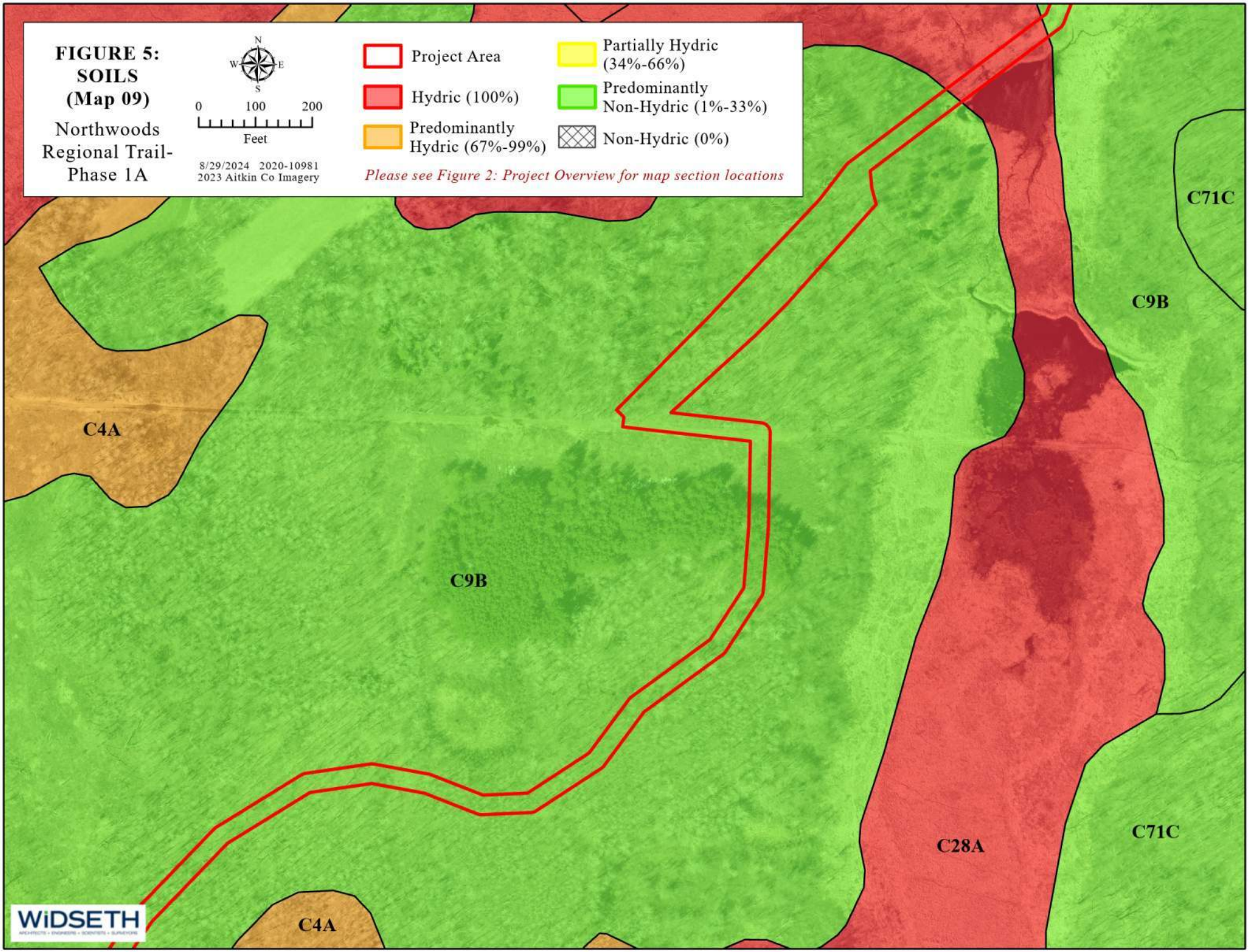


FIGURE 5:
SOILS
(Map 09)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C71C
C9B
C4A
C9B
C28A
C71C
C4A
WiDSETH

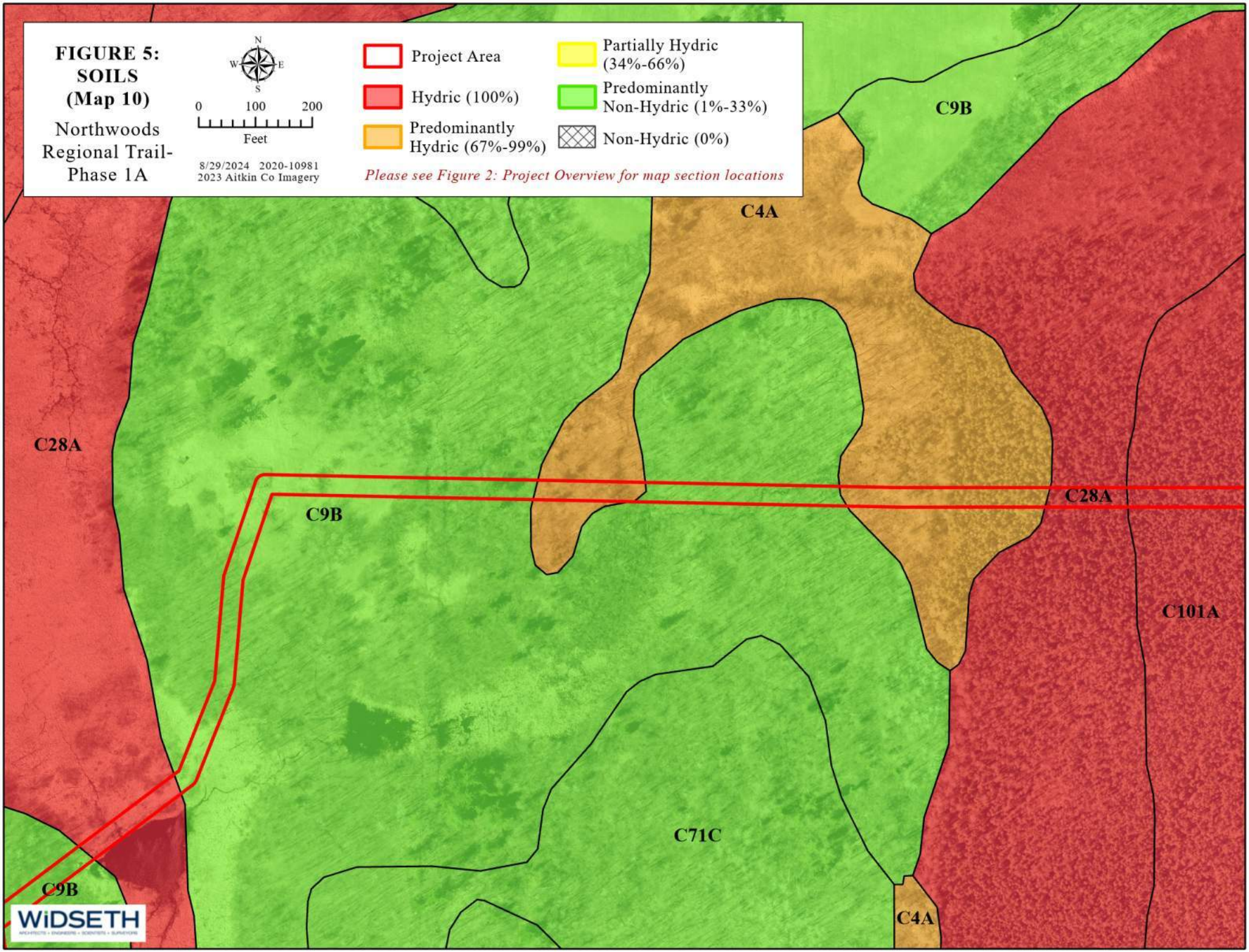


FIGURE 5:
SOILS
(Map 10)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C9B
C4A
C28A
C9B
C28A
C101A
C71C
C9B
C4A
WiDSETH

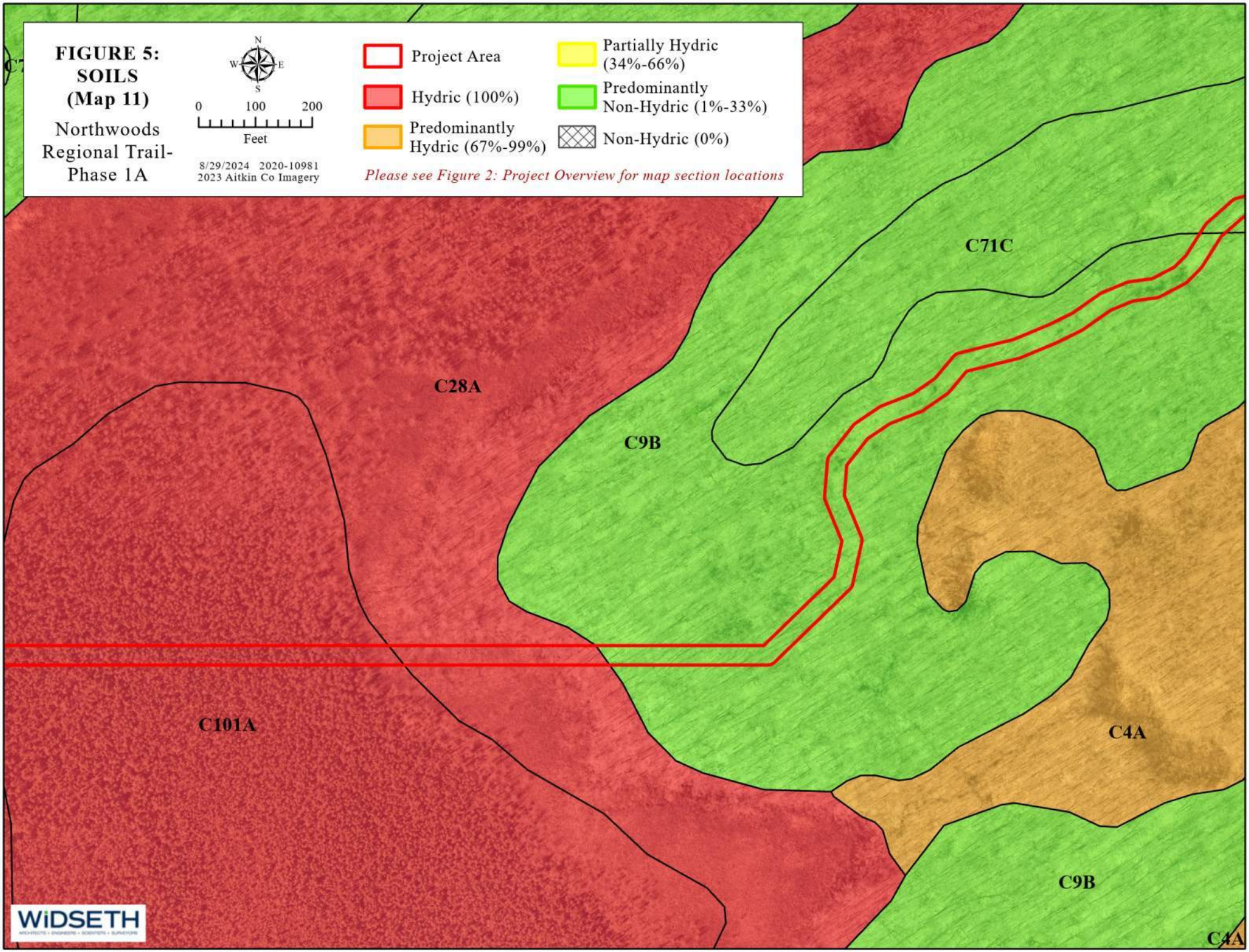


FIGURE 5:
SOILS
(Map 11)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C71C
C28A
C9B
C101A
C4A
C9B
C4A
WiDSETH

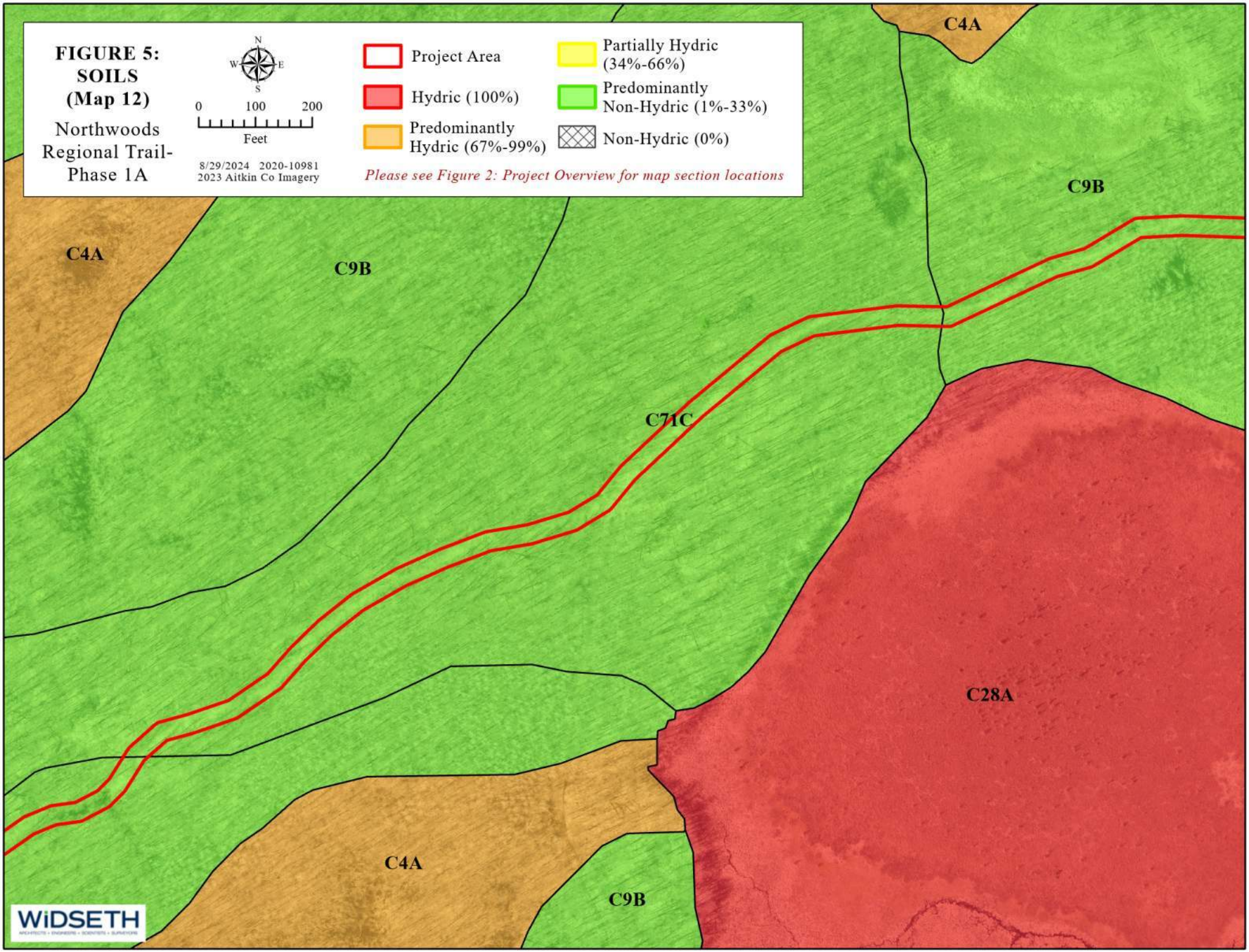


FIGURE 5:
SOILS
(Map 12)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C4A
C9B
C71C
C28A
C4A
C9B
C4A
C9B
WiDSETH

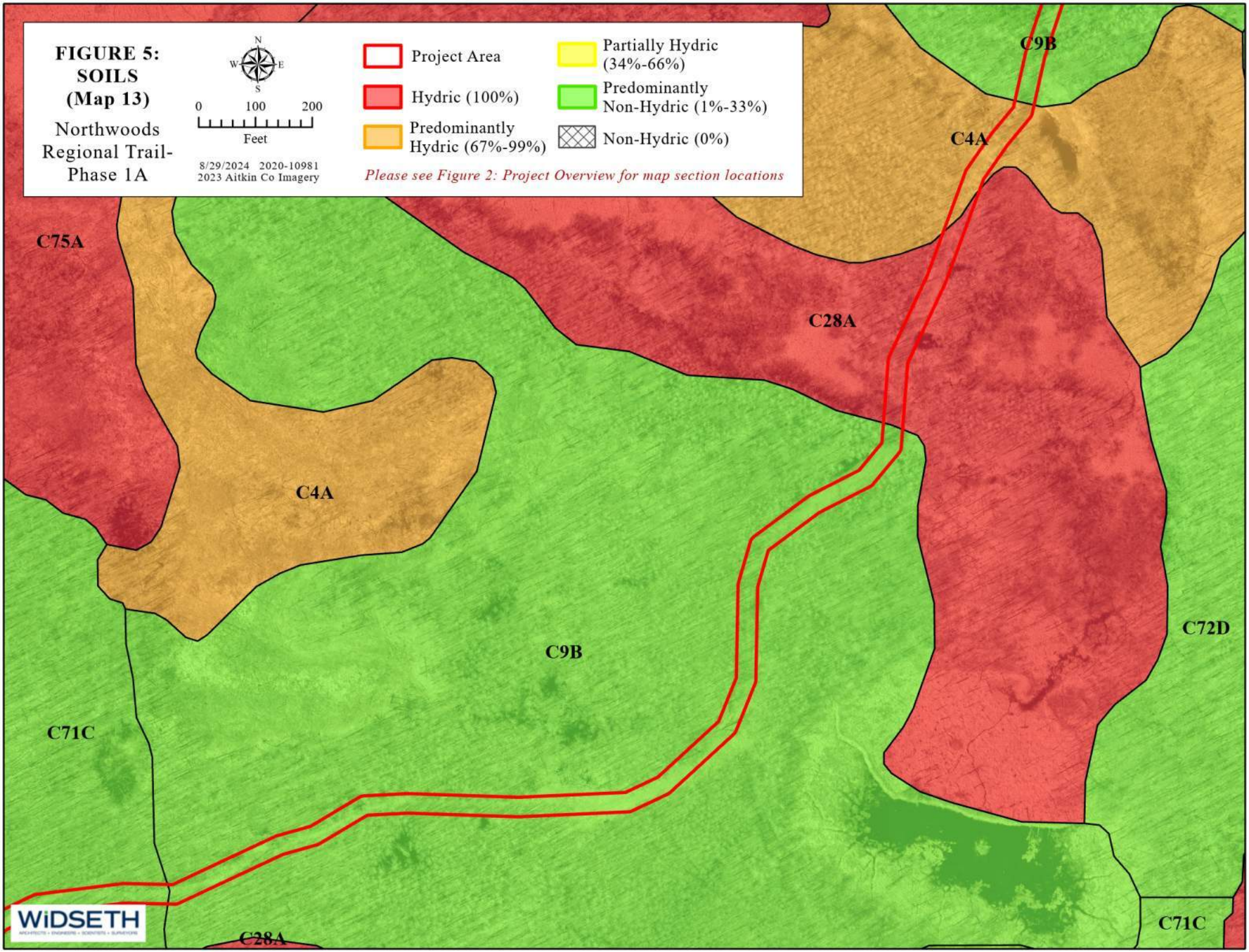


FIGURE 5:
SOILS
(Map 13)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C9B
C4A
C75A
C28A
C4A
C9B
C72D
C71C
C71C
C28A
WiDSETH

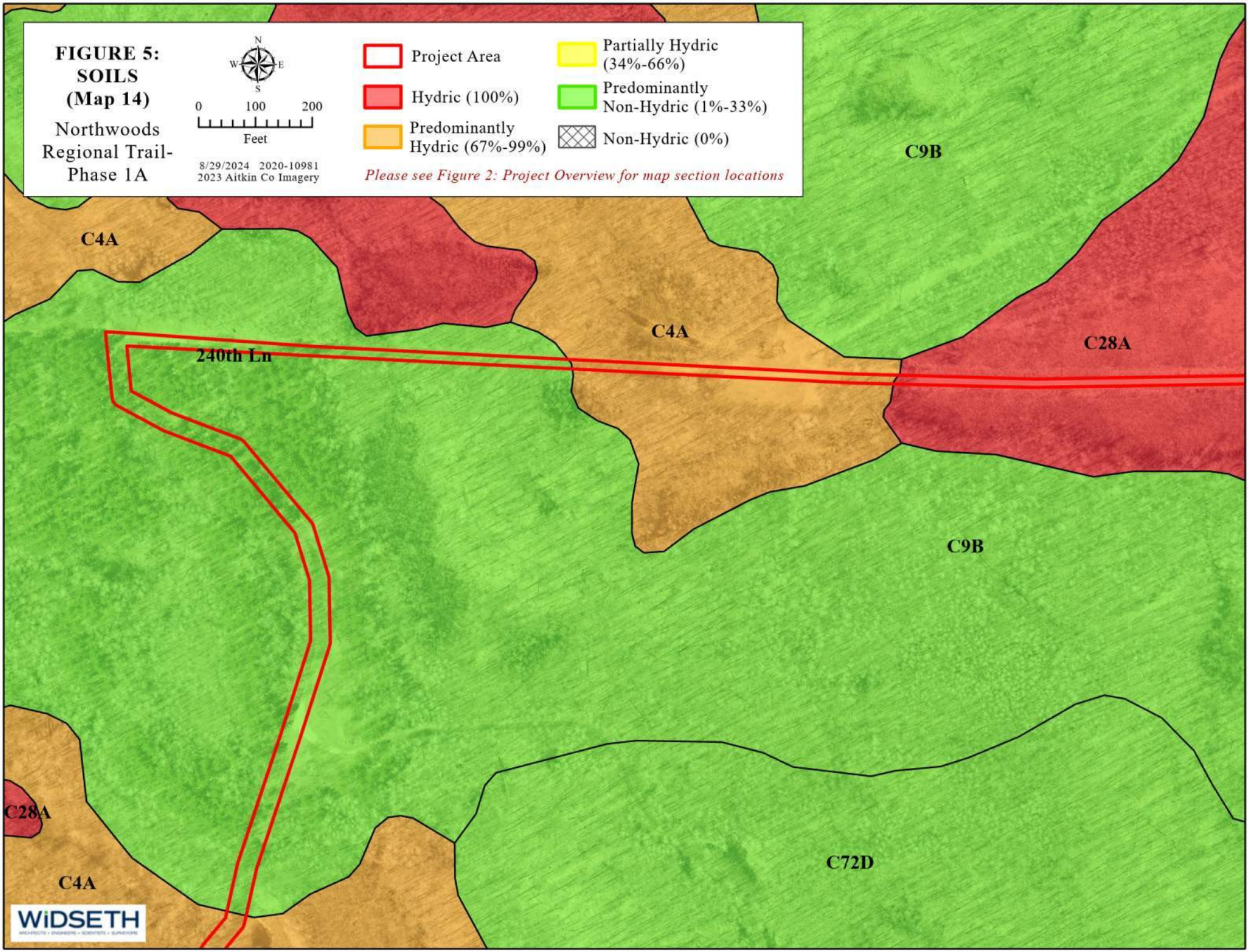


FIGURE 5:
SOILS
(Map 14)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C9B
C4A
C4A
C28A
240th Ln
C9B
C28A
C4A
C72D
WiDSETH

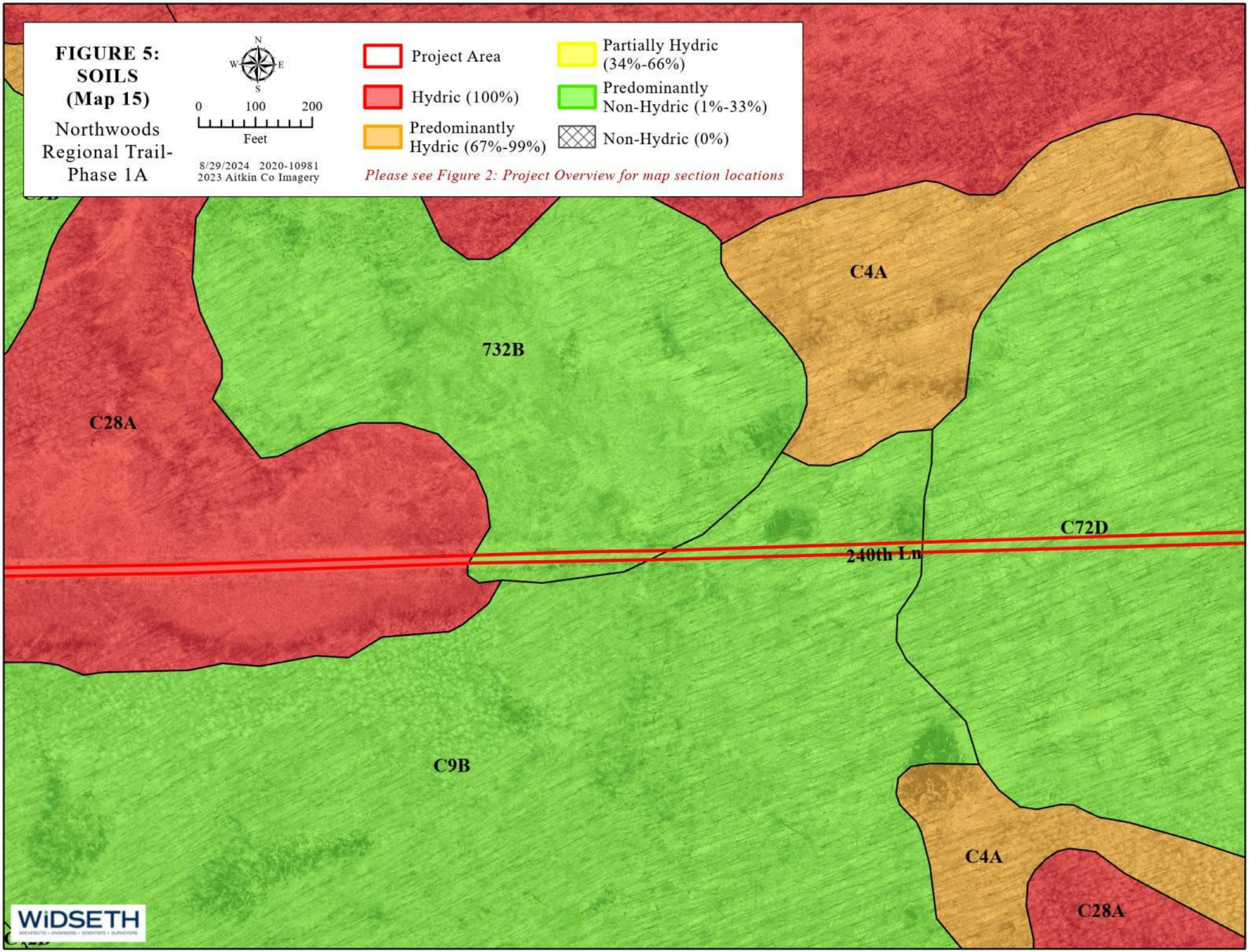


FIGURE 5:
SOILS
(Map 15)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C4A
732B
C28A
C72D
240th Ln
C9B
C4A
C28A
WiDSETH

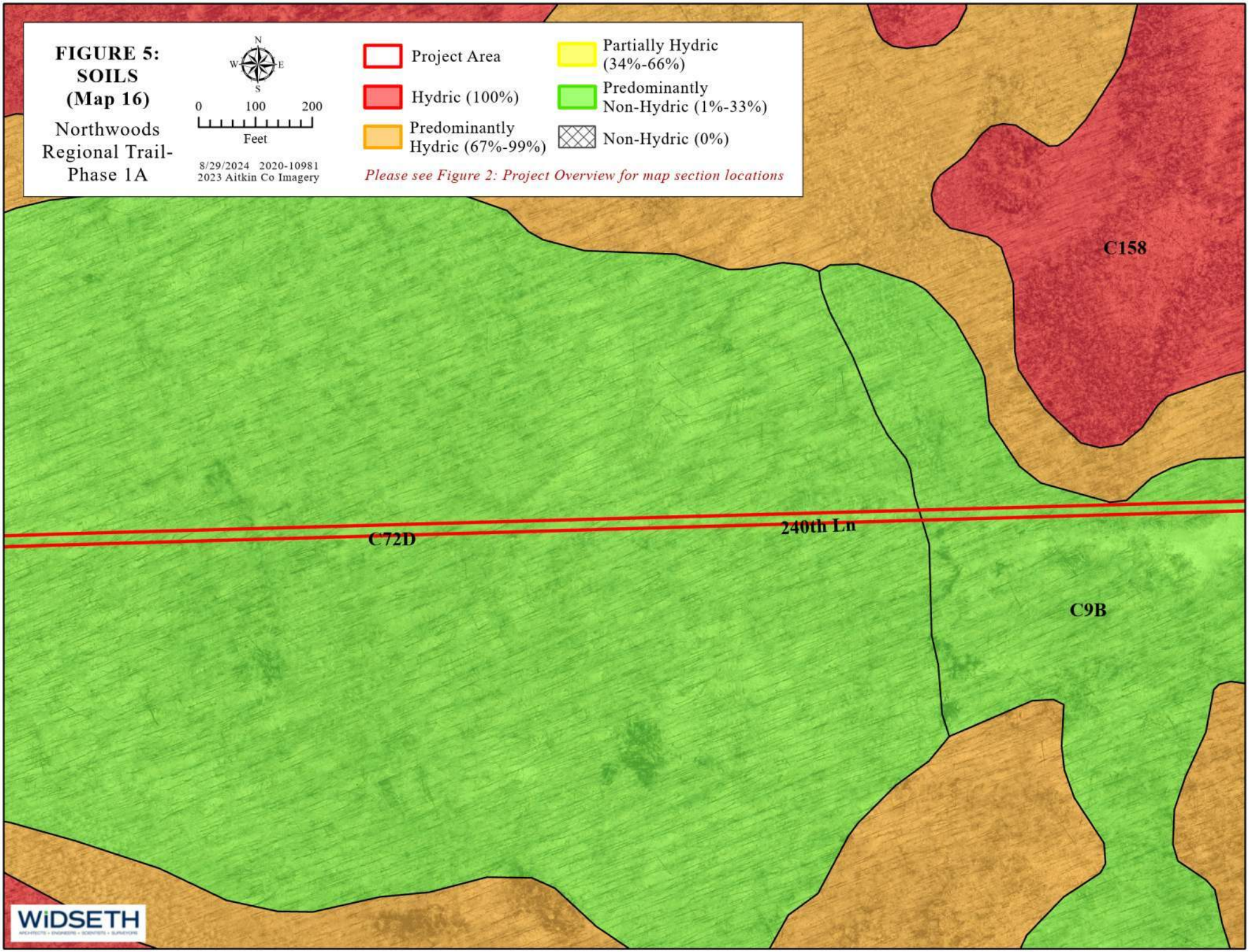


FIGURE 5:
SOILS
(Map 16)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C158
C72D
240th Ln
C9B
WiDSETH

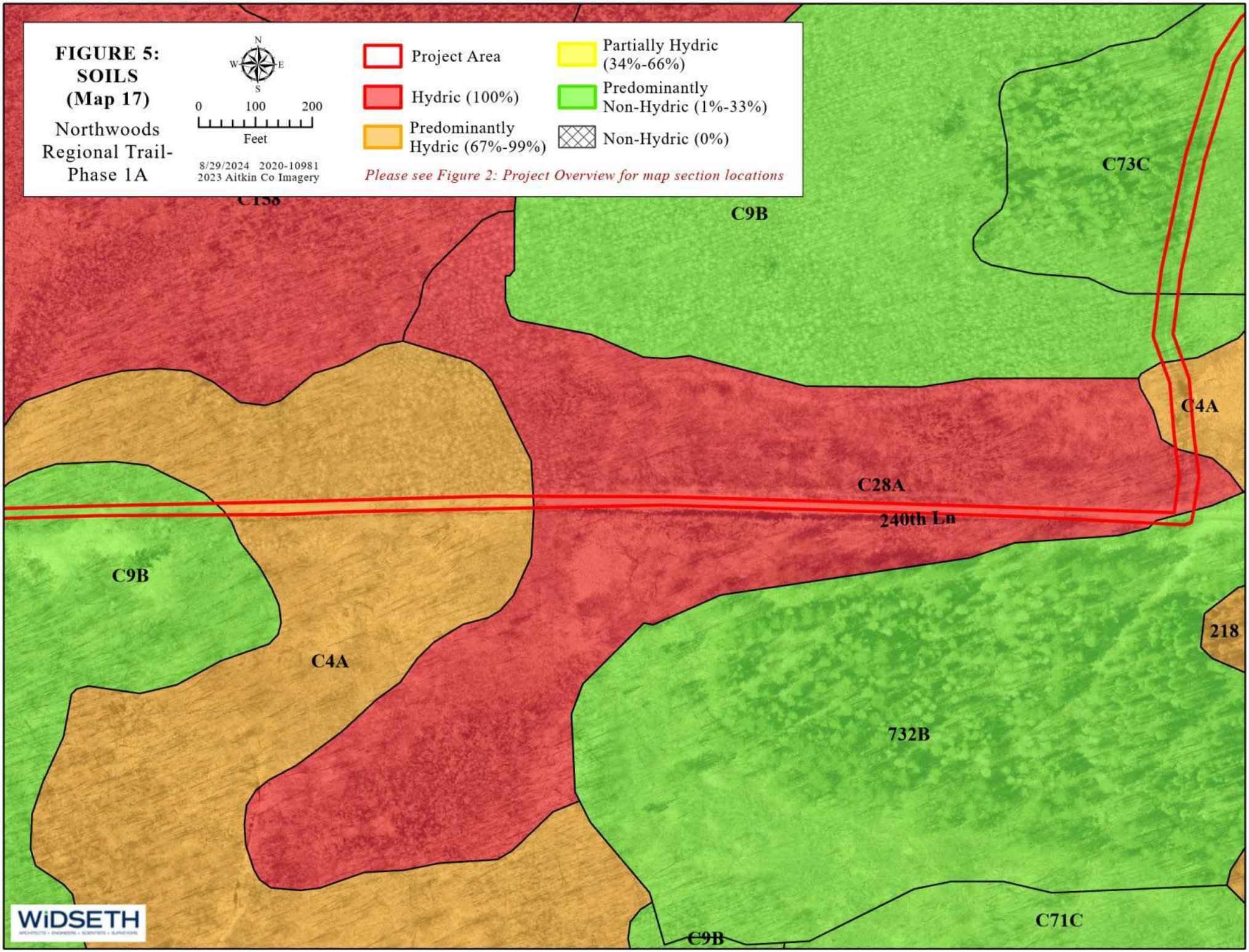


FIGURE 5:
SOILS
(Map 17)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C73C
C9B
C4A
C28A
240th Ln
C9B
C4A
218
732B
C71C
C9B
WiDSETH

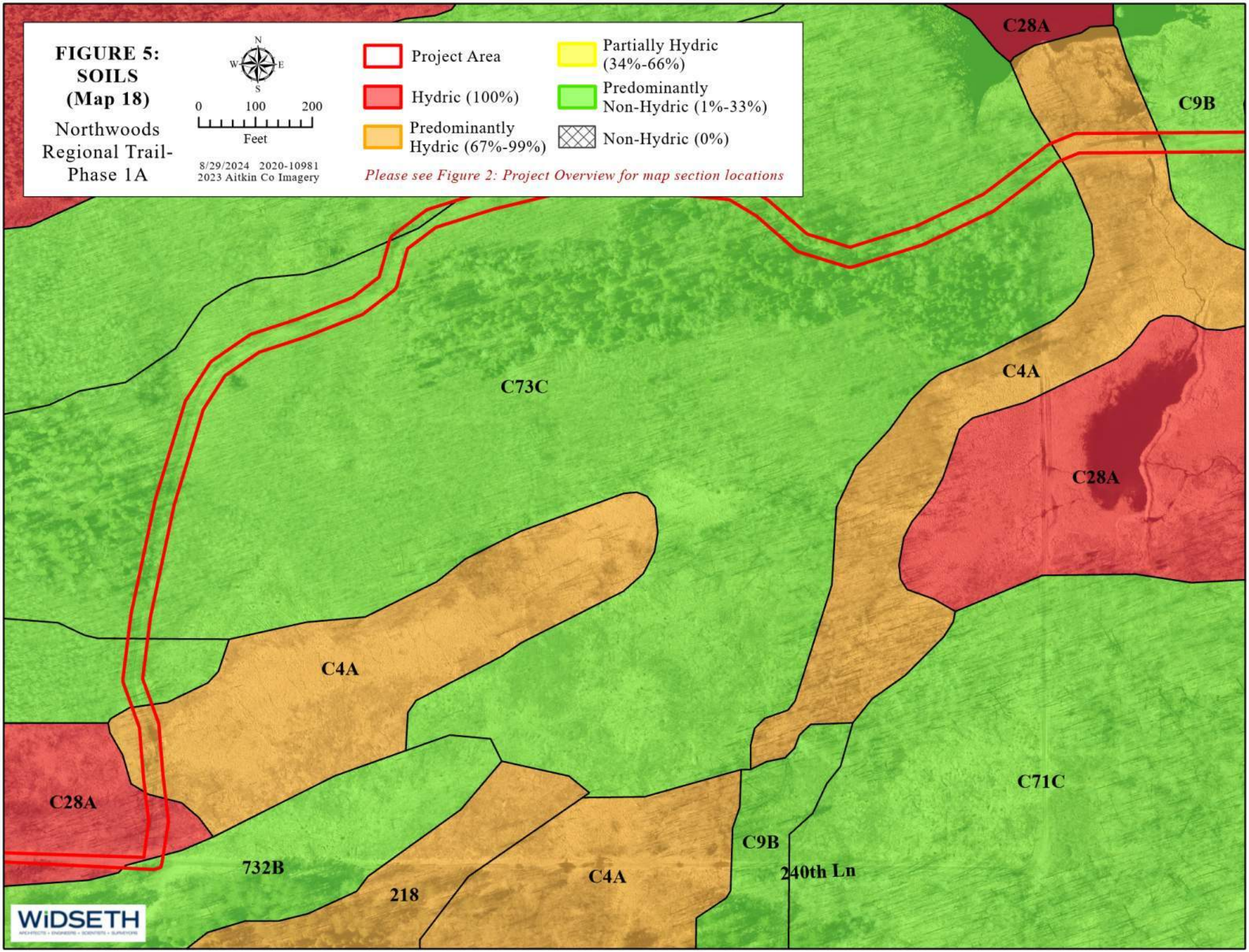
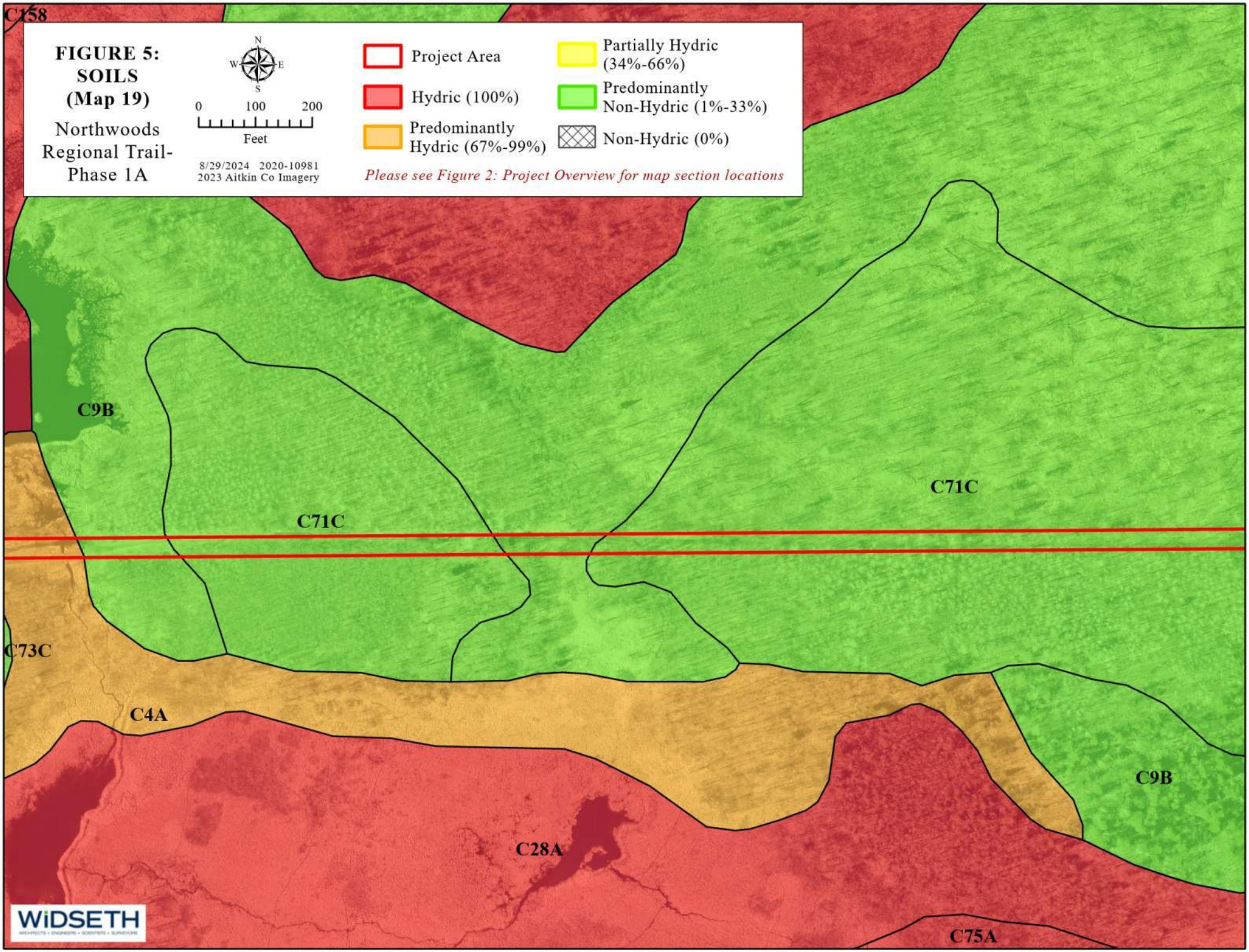


FIGURE 5:
SOILS
(Map 18)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C28A
C9B
C73C
C4A
C28A
C4A
C28A
C71C
C9B
240th Ln
732B
218
C4A
WiDSETH


C158
FIGURE 5:
SOILS
(Map 19)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C9B
C71C
C71C
C73C
C4A
C9B
C28A
C75A
WiDSETH

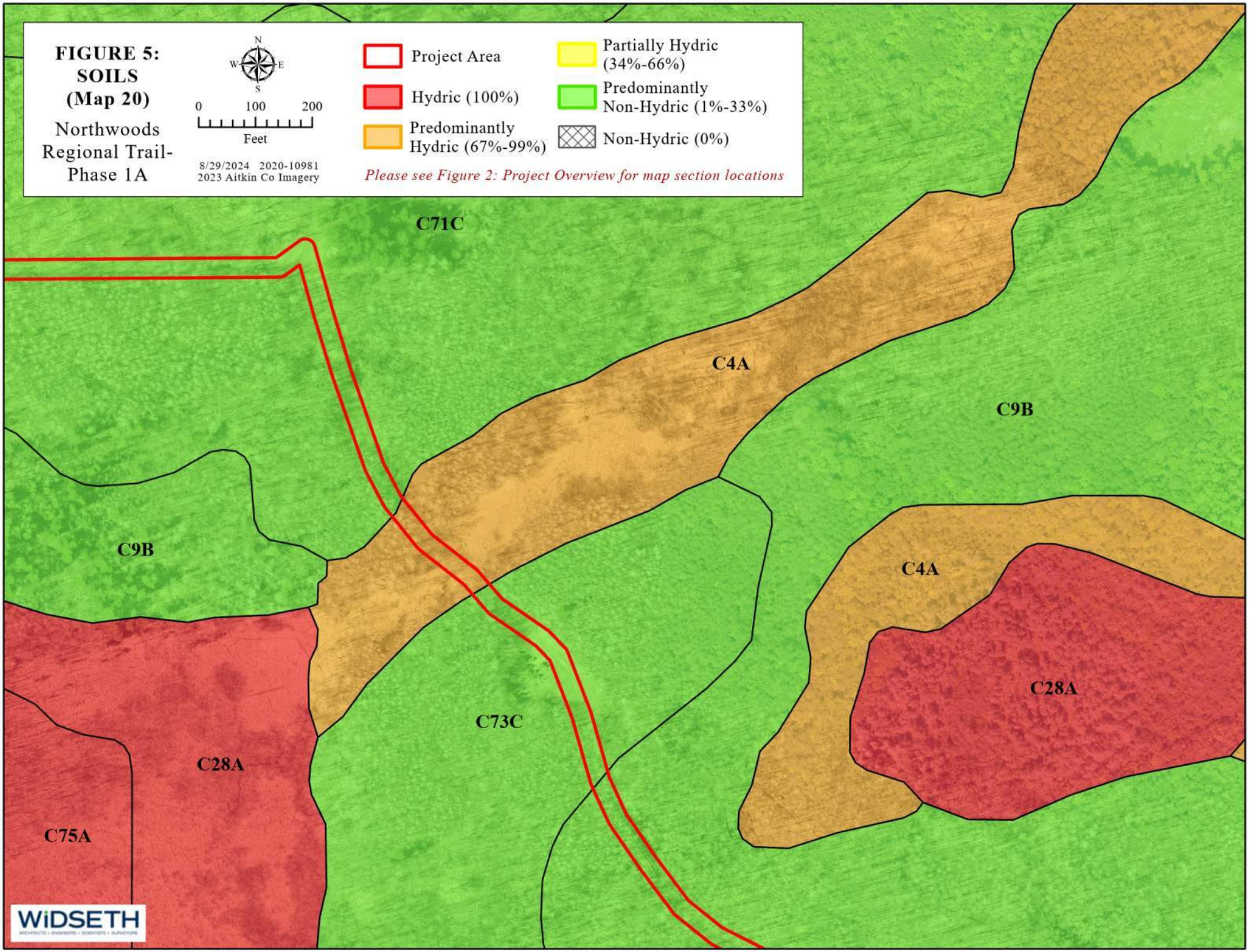


FIGURE 5:
SOILS
(Map 20)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C71C
C4A
C9B
C9B
C4A
C28A
C73C
C28A
C75A
WiDSETH

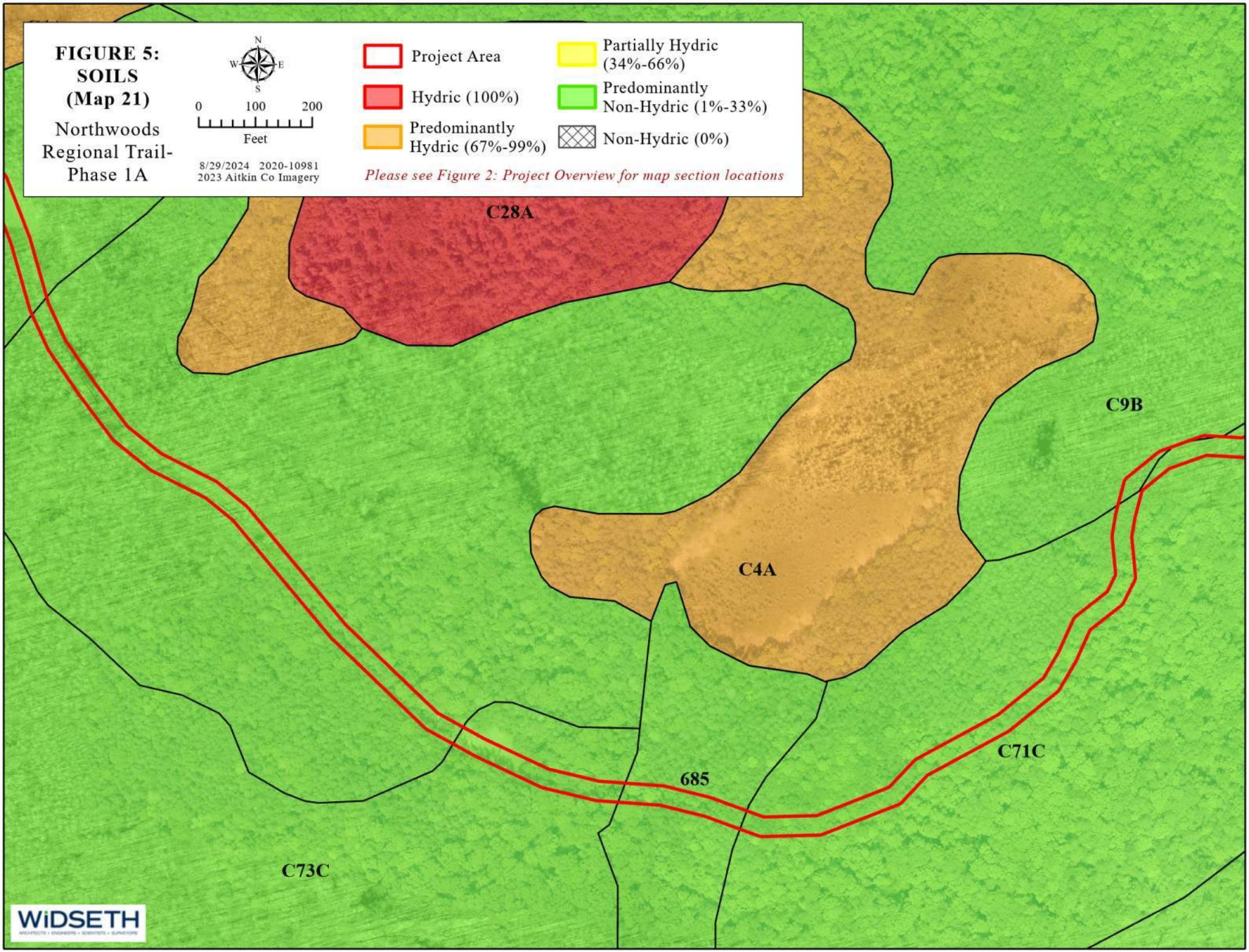


FIGURE 5:
SOILS
(Map 21)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C28A
C9B
C4A
C71C
685
C73C
WiDSETH

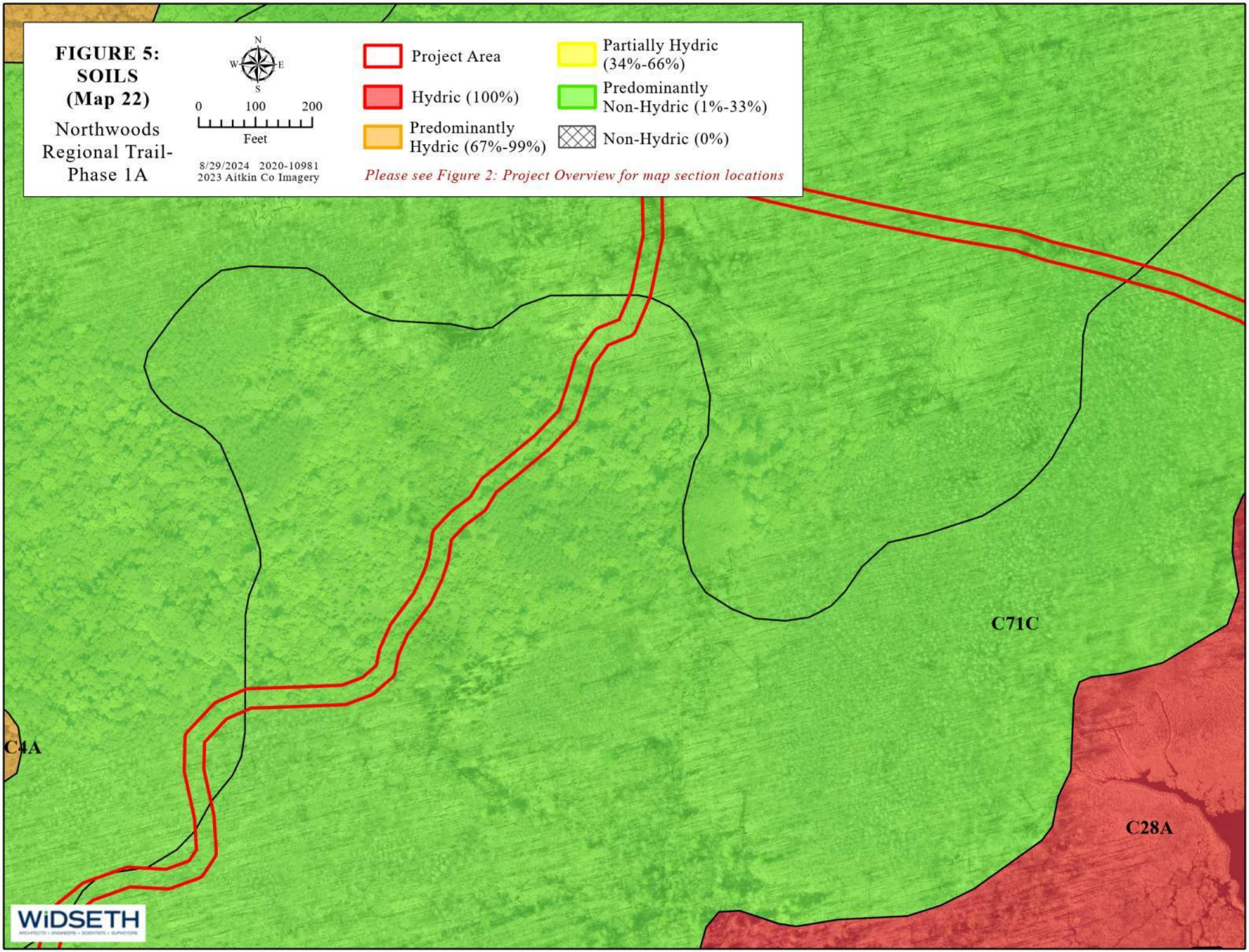


FIGURE 5:
SOILS
(Map 22)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C71C
C4A
C28A
WiDSETH

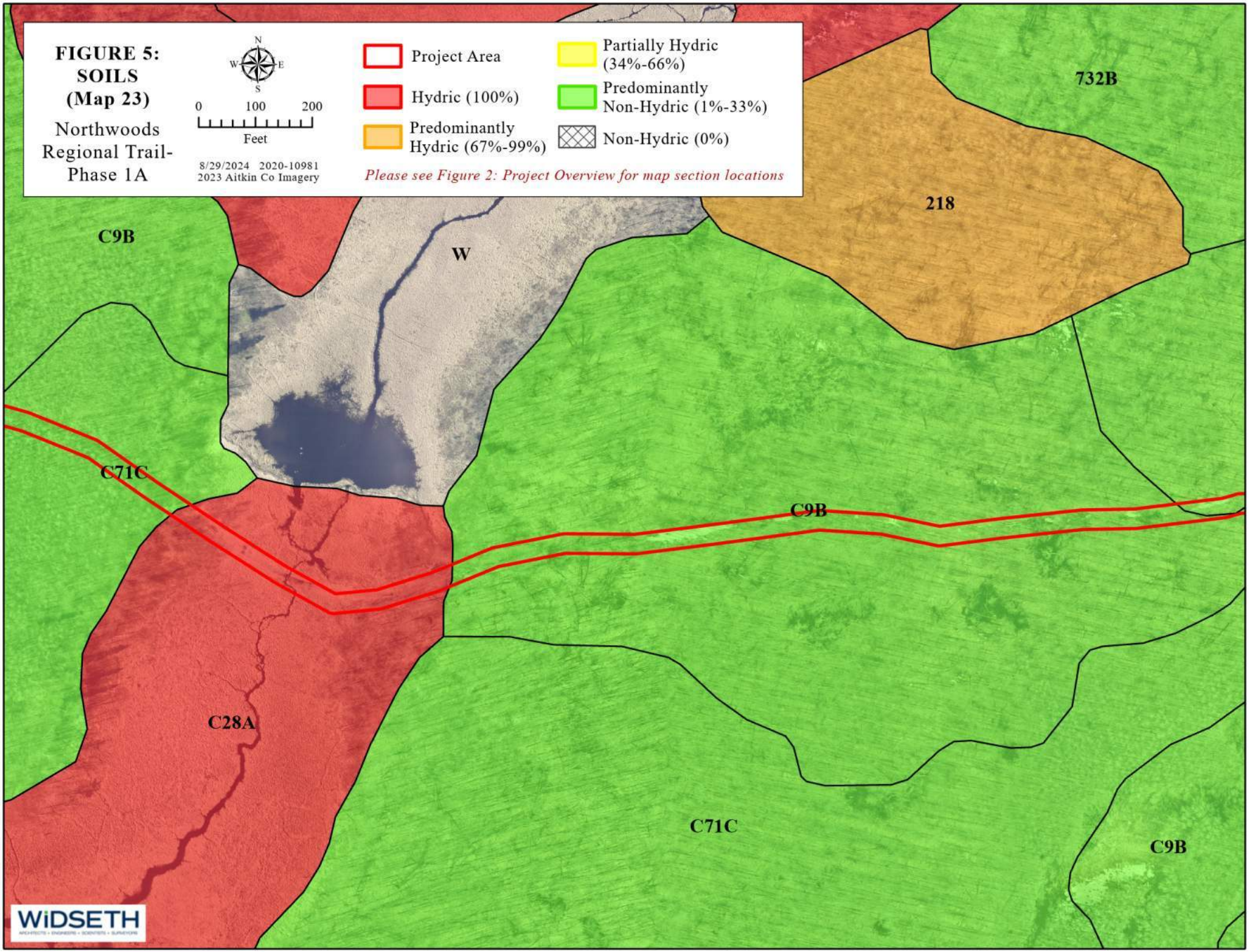


FIGURE 5:
SOILS
(Map 23)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
732B
218
C9B
W
C71C
C9B
C28A
C71C
C9B
WiDSETH

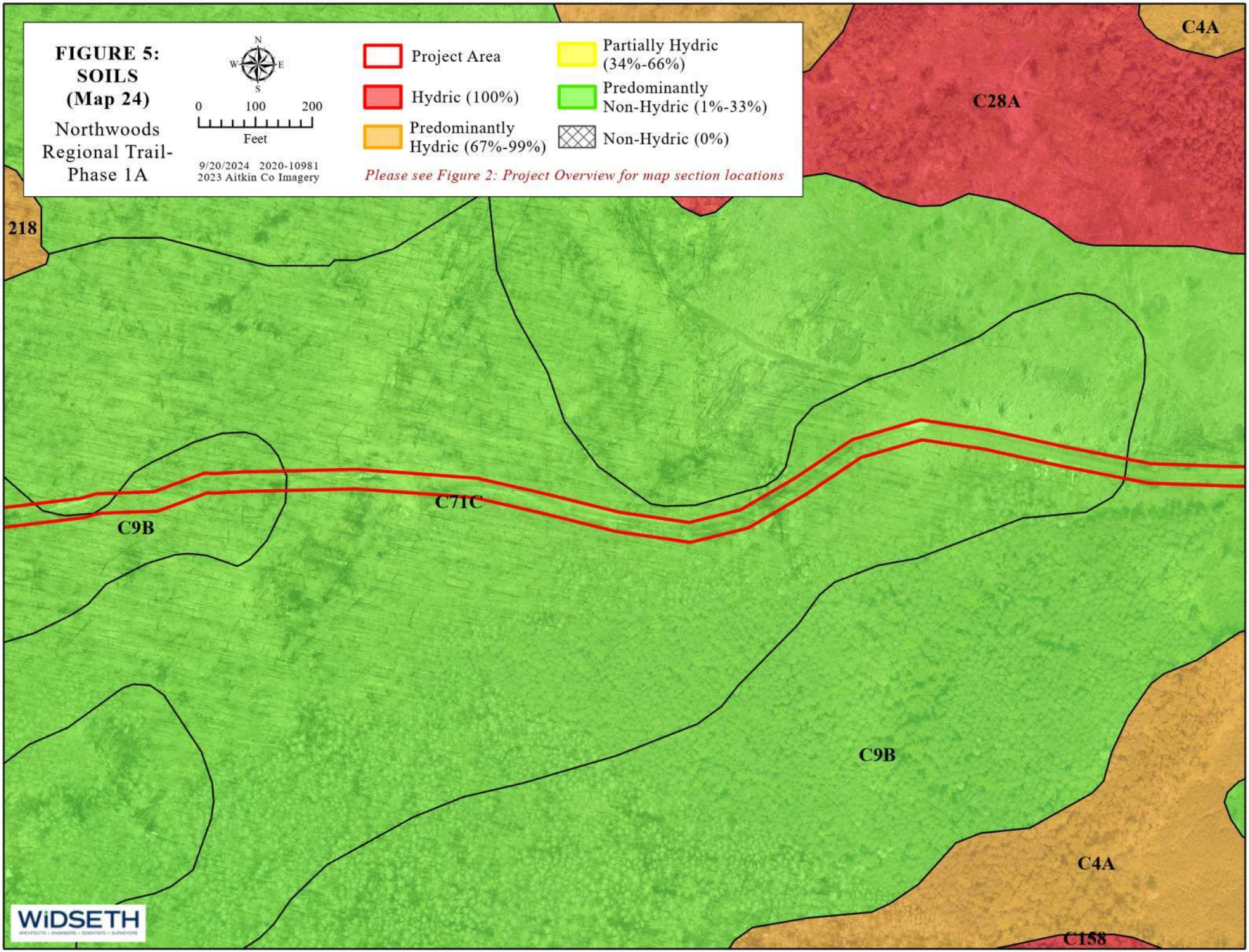


FIGURE 5:
SOILS
(Map 24)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
9/20/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C4A
C28A
218
C71C
C9B
C9B
C4A
C158
WiDSETH

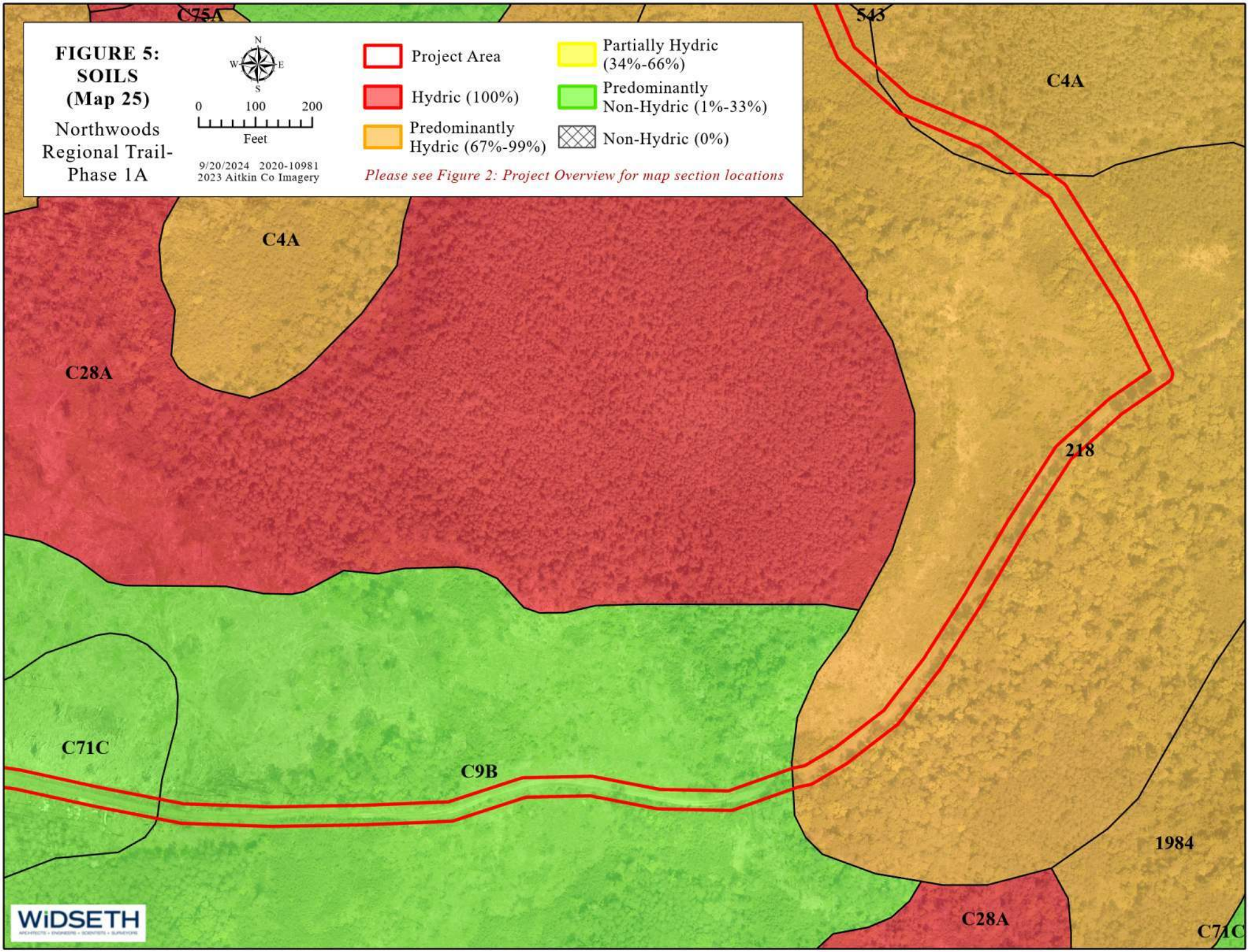


FIGURE 5:
SOILS
(Map 25)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
9/20/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C75A
543
C4A
C4A
C28A
218
C71C
C9B
1984
C28A
C71C
WiDSETH

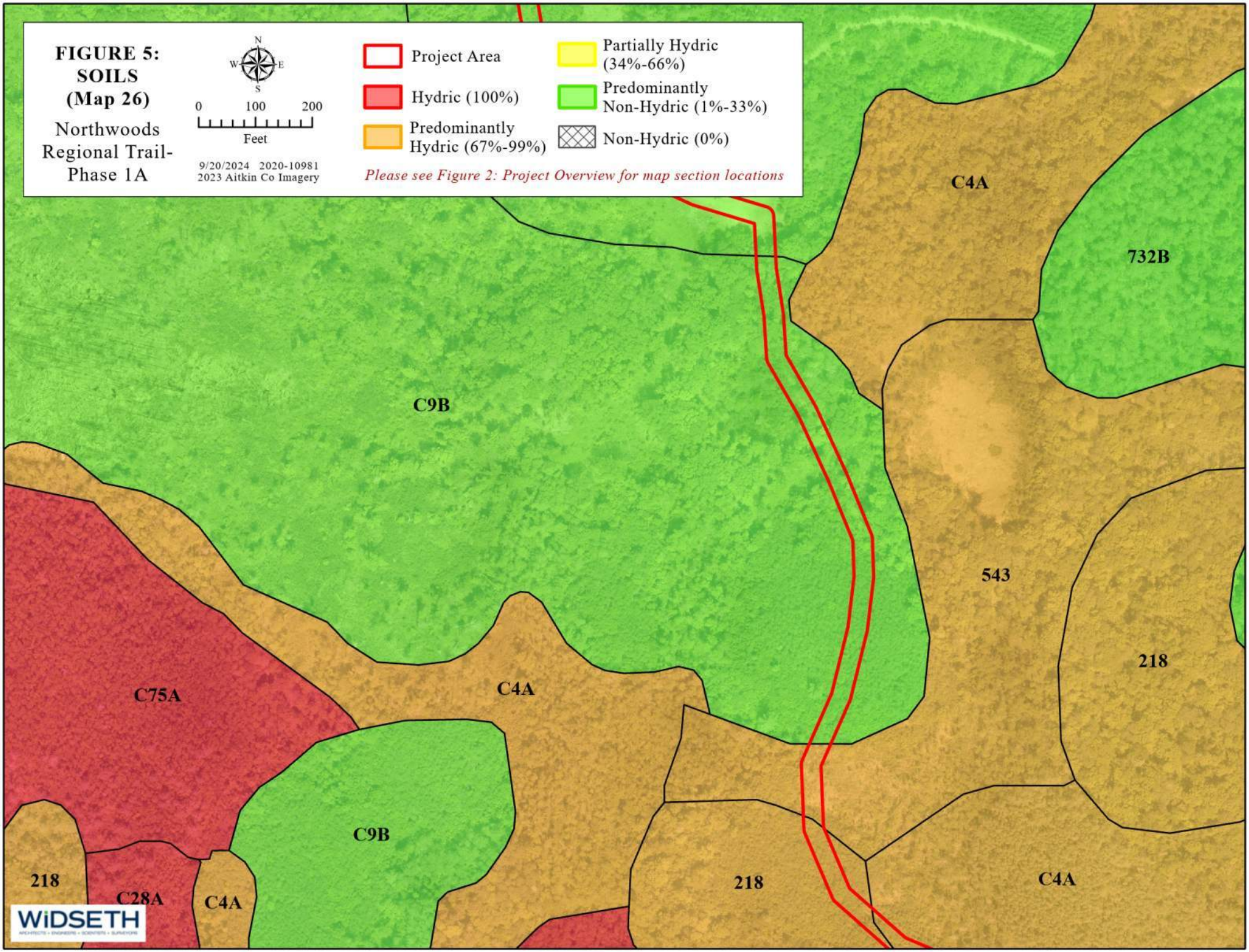


FIGURE 5:
SOILS
(Map 26)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
9/20/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C4A
732B
C9B
543
218
C75A
C4A
C9B
218
C4A
218
C28A
C4A
WiDSETH

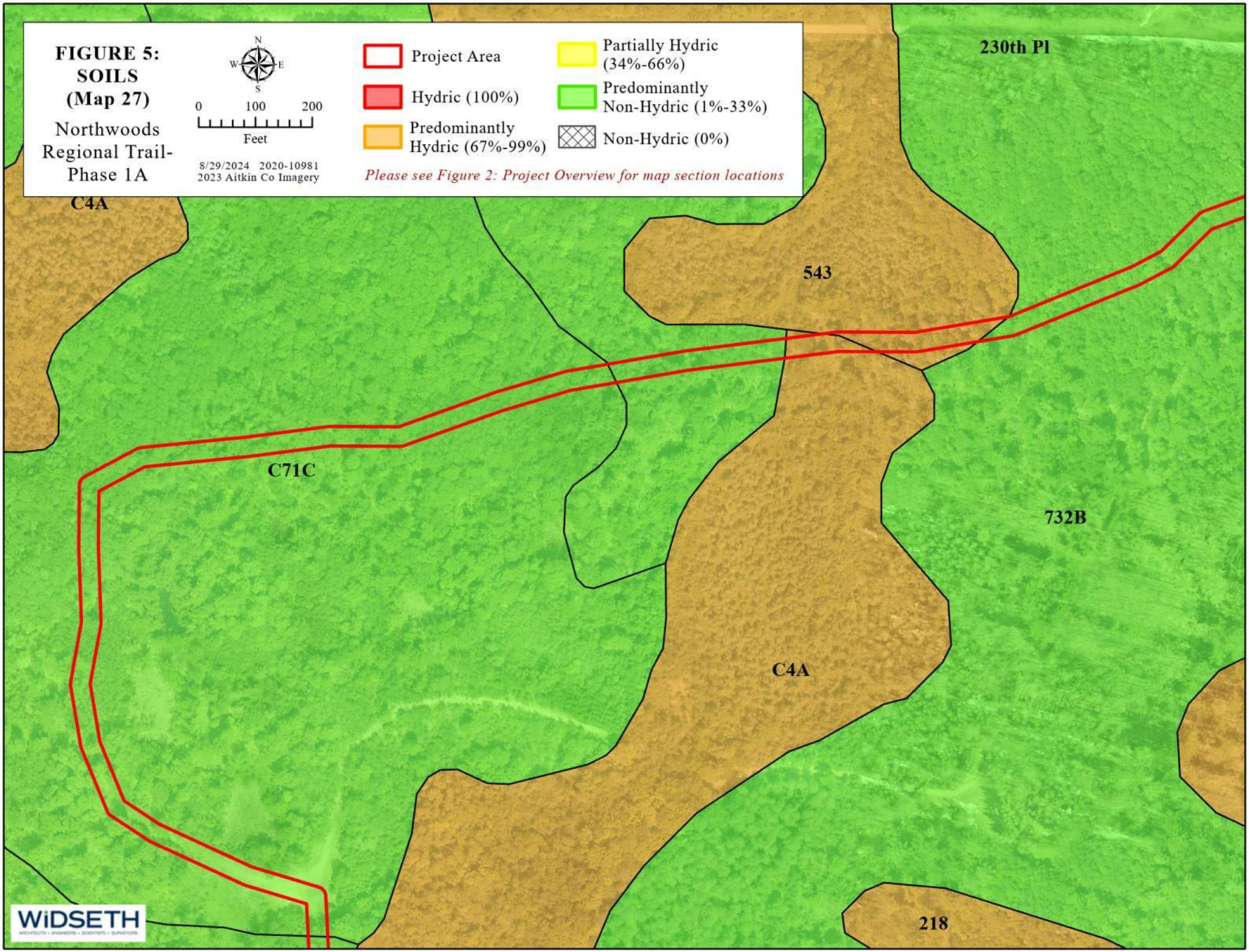


FIGURE 5:
SOILS
(Map 27)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
230th Pl
C4A
543
C71C
732B
C4A
218
WiDSETH

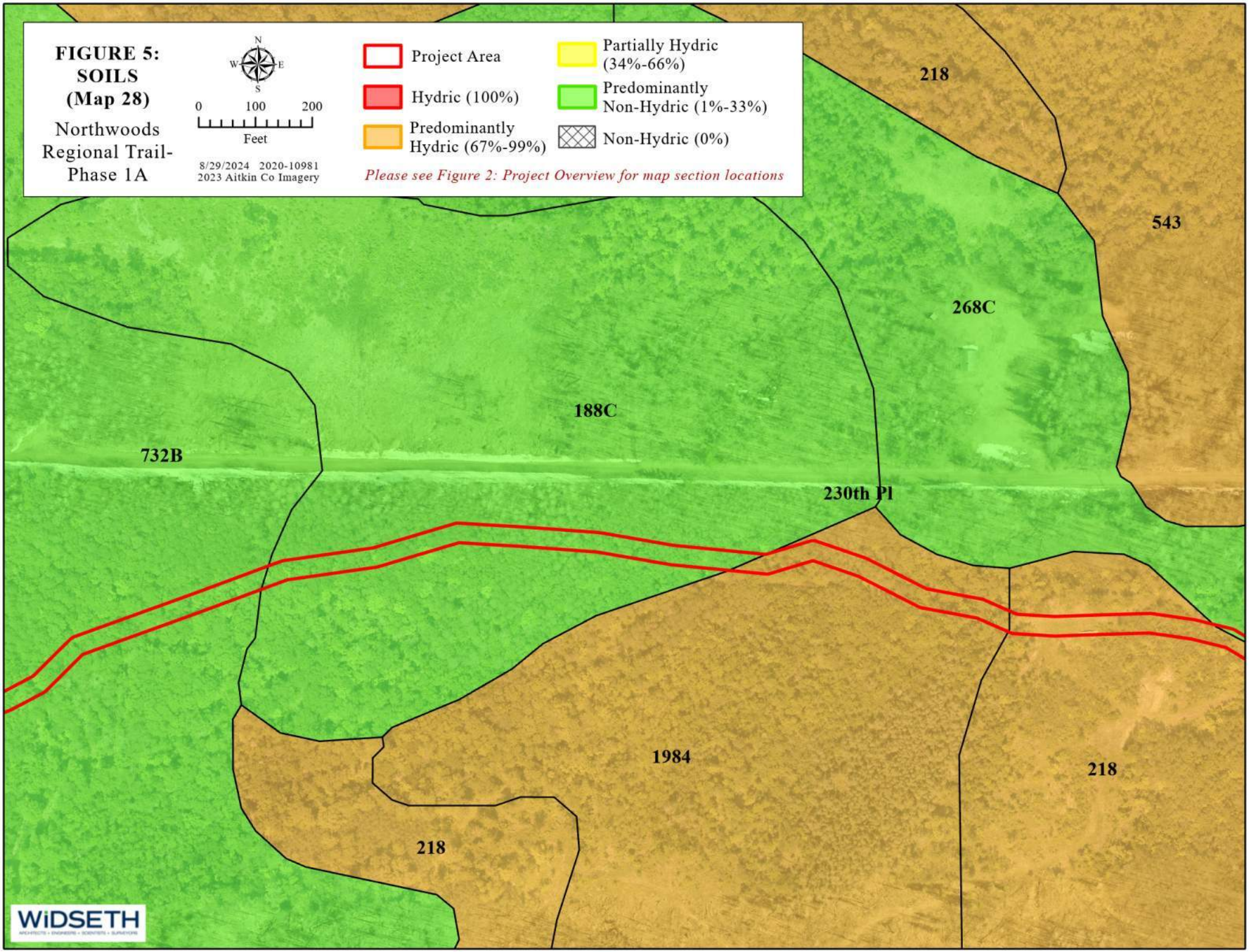


FIGURE 5:
SOILS
(Map 28)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
218
543
268C
188C
732B
230th Pl
1984
218
218
WiDSETH

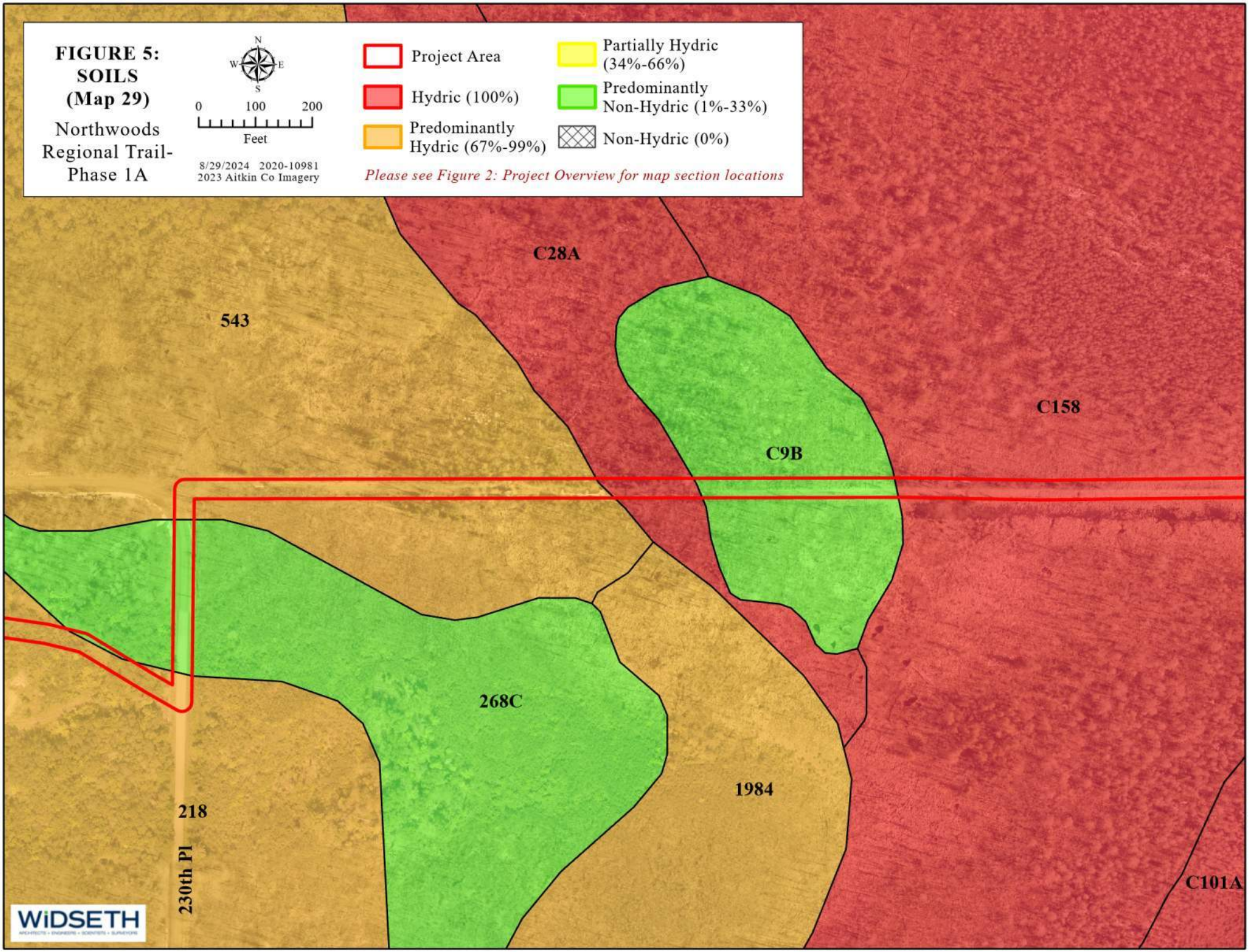


FIGURE 5:
SOILS
(Map 29)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C28A
543
C158
C9B
268C
1984
218
230th Pl
C101A
WiDSETH

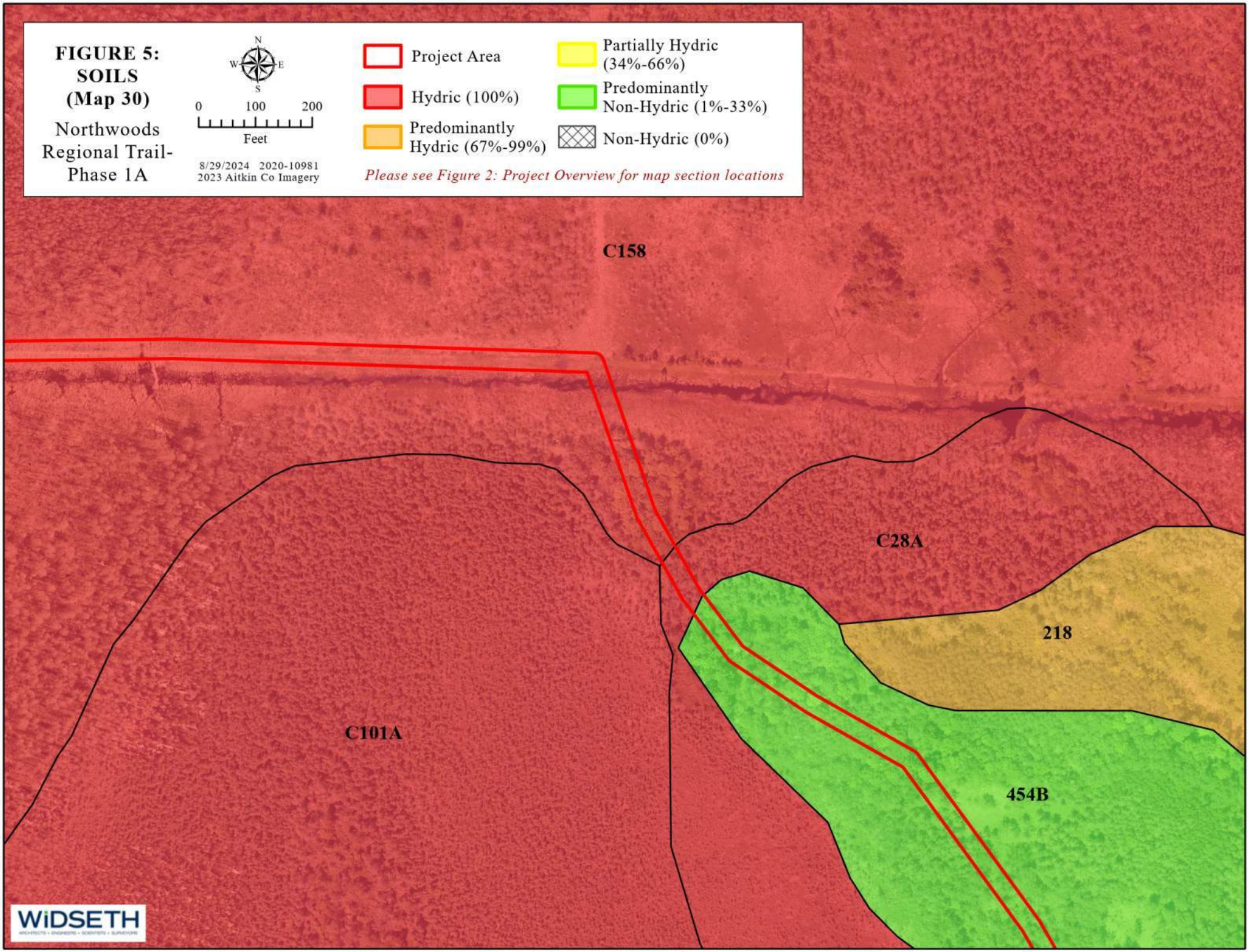


FIGURE 5:
SOILS
(Map 30)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C158
C28A
218
C101A
454B
WiDSETH

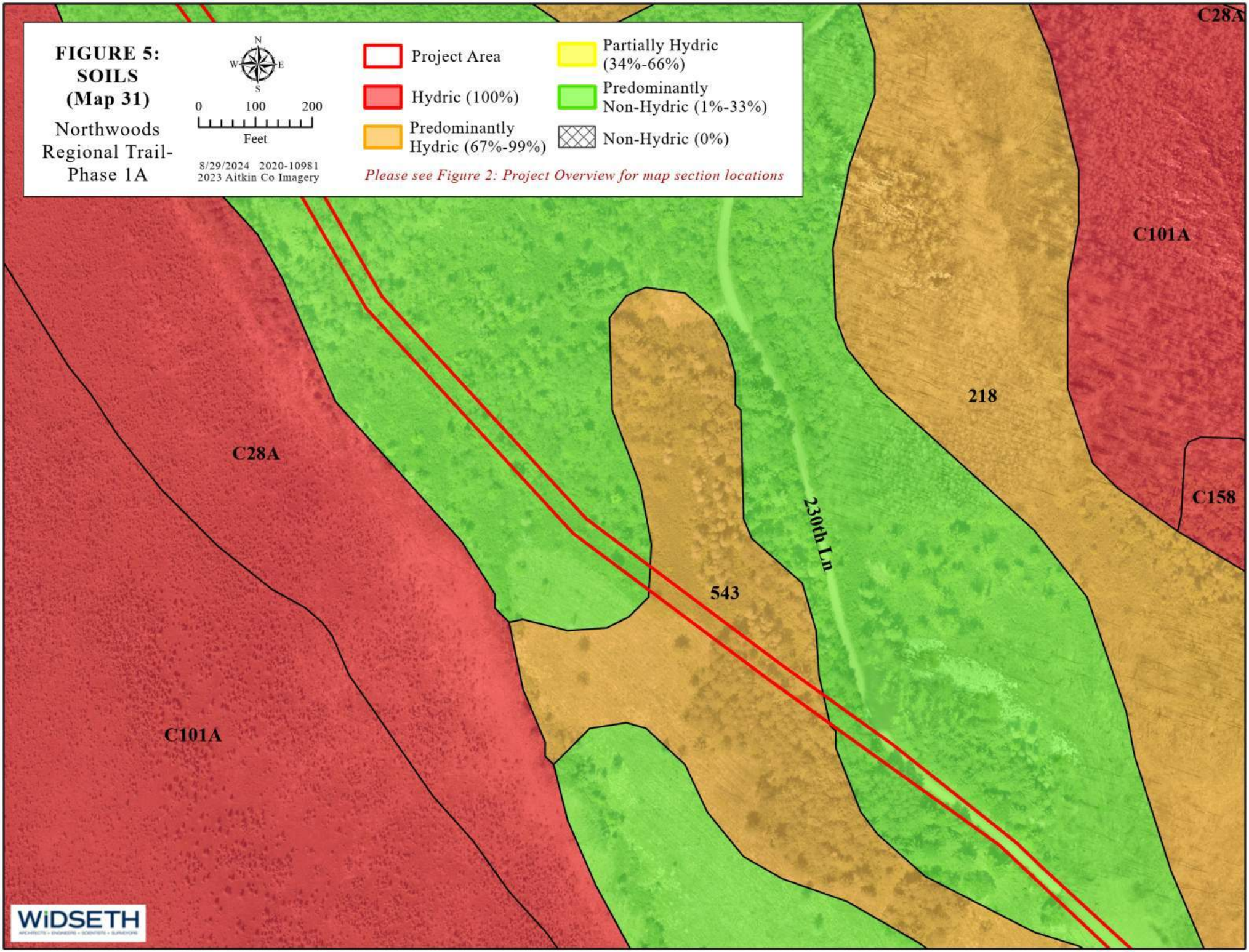


FIGURE 5:
SOILS
(Map 31)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C28A
C101A
218
C28A
C158
230th Ln
543
C101A
WiDSETH

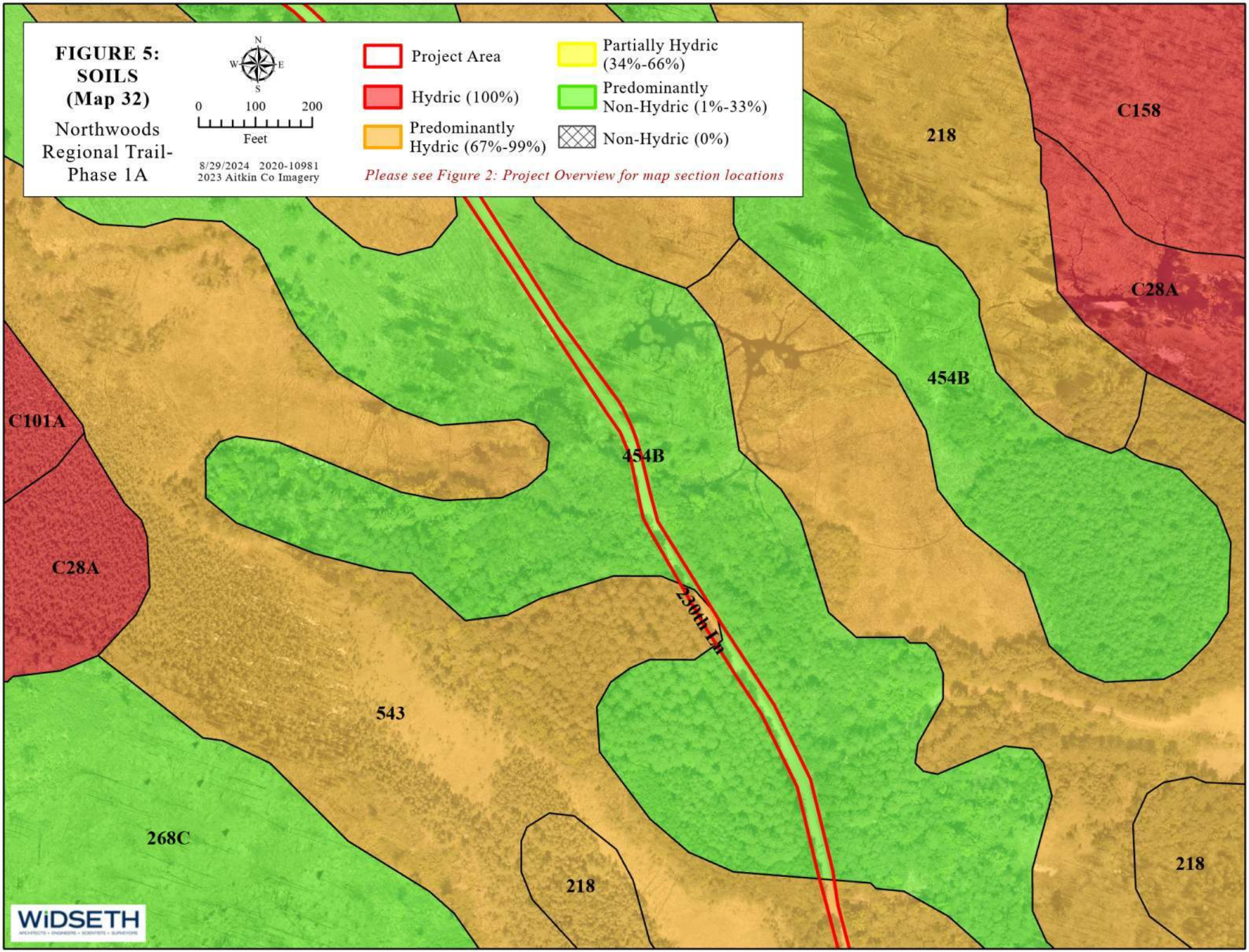


FIGURE 5:
SOILS
(Map 32)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C158
218
C28A
454B
C101A
454B
C28A
230th Ln
543
268C
218
218
WiDSETH

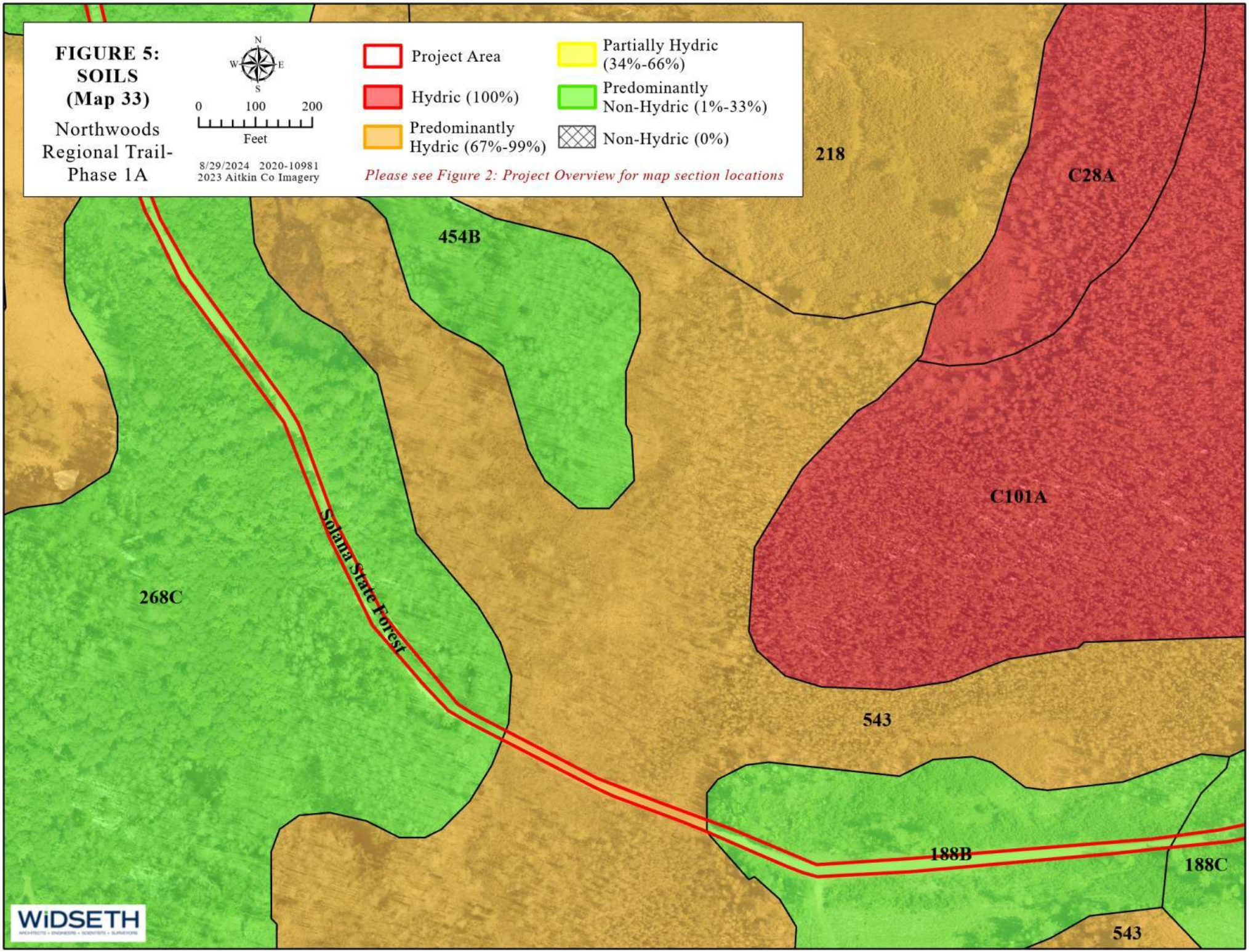


FIGURE 5:
SOILS
(Map 33)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
218
C28A
454B
C101A
268C
Solana State Forest
543
188B
188C
543
WiDSETH

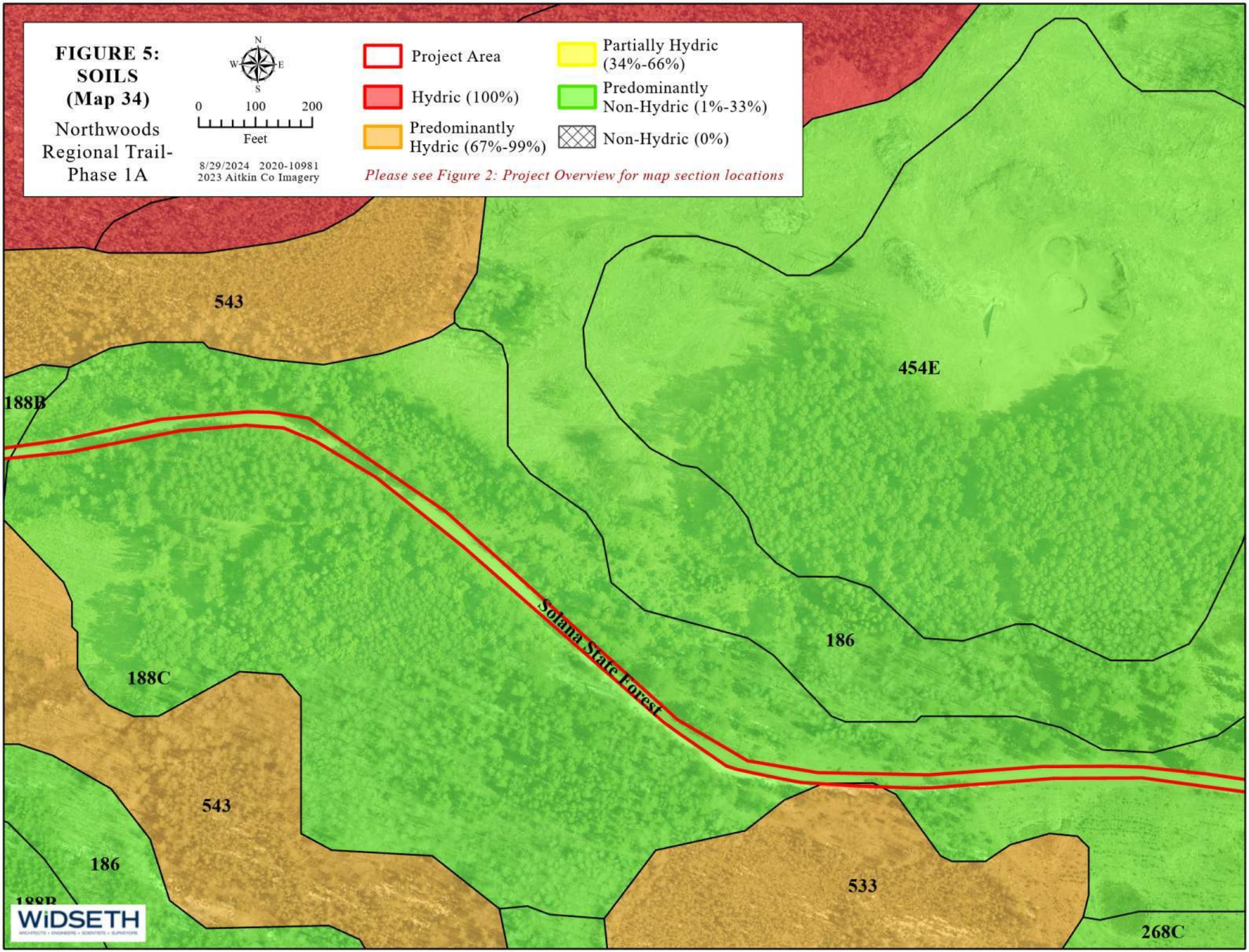
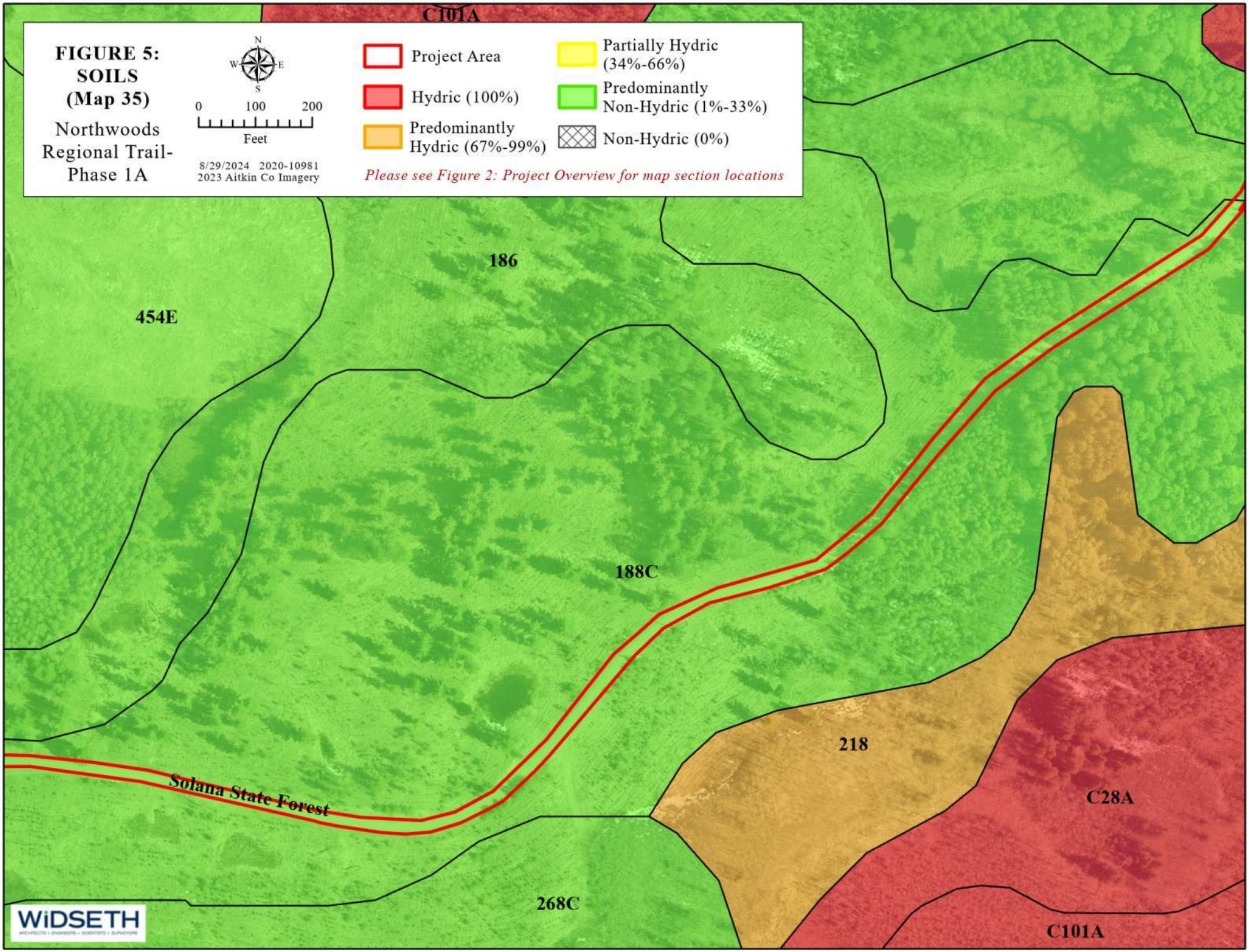


FIGURE 5:
SOILS
(Map 34)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
543
454E
188B
Solana State Forest
186
188C
543
186
533
268C
WiDSETH


C101A
FIGURE 5:
SOILS
(Map 35)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
186
454E
188C
218
C28A
Solana State Forest
268C
C101A
WiDSETH

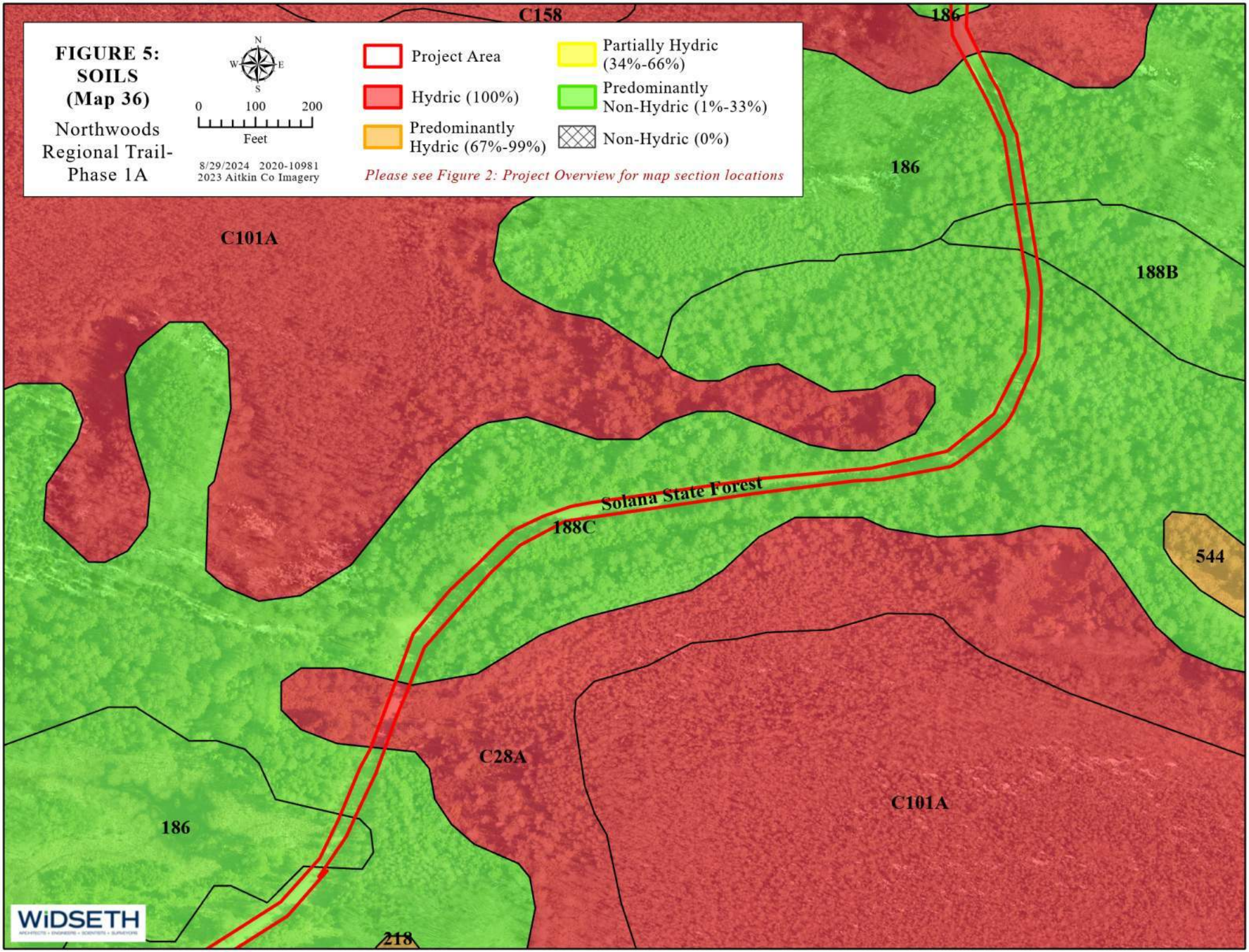


FIGURE 5:
SOILS
(Map 36)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C158
186
186
C101A
188B
Solana State Forest
188C
544
C28A
C101A
186
218
WiDSETH

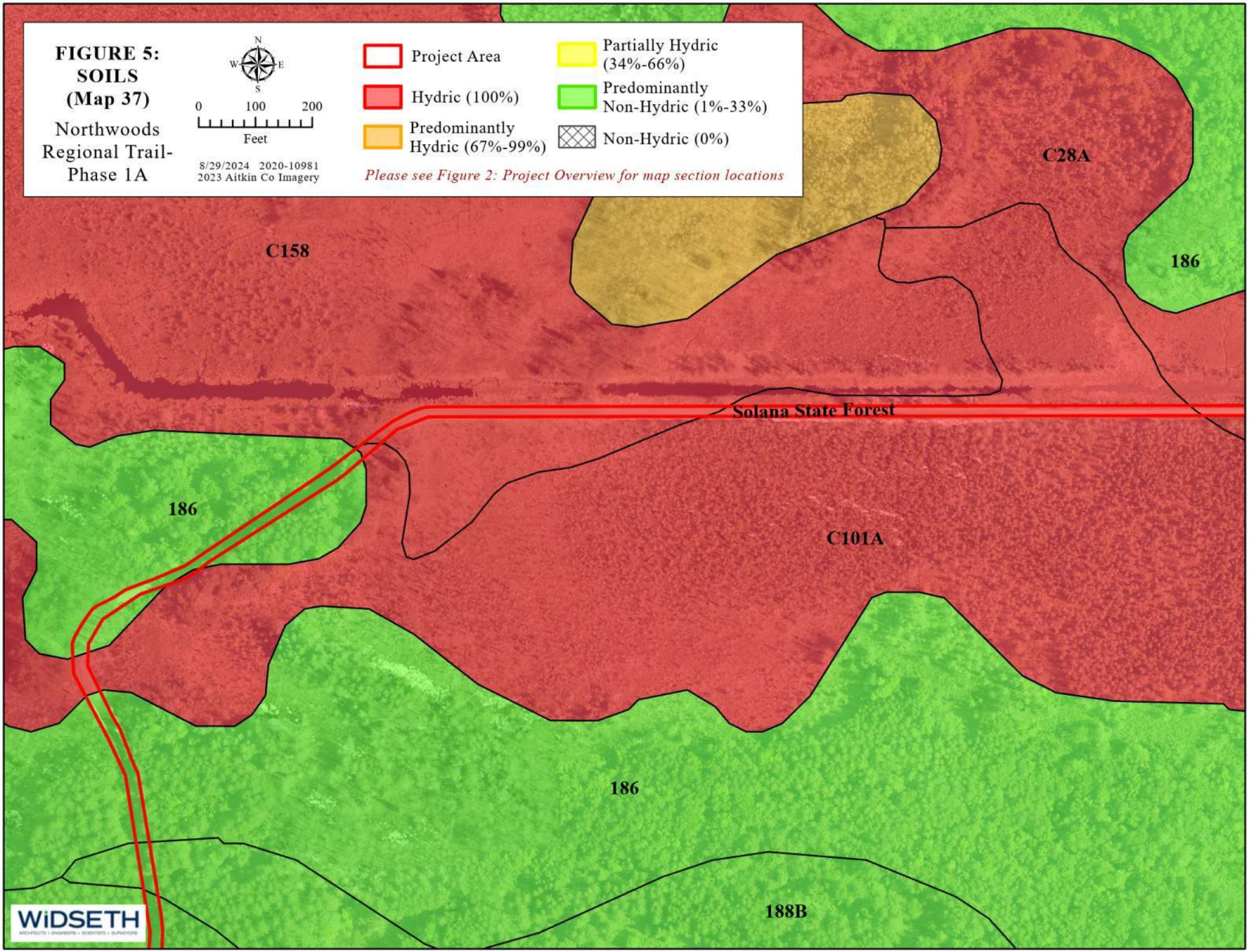


FIGURE 5:
SOILS
(Map 37)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C28A
C158
186
Solana State Forest
186
C101A
186
188B
WiDSETH

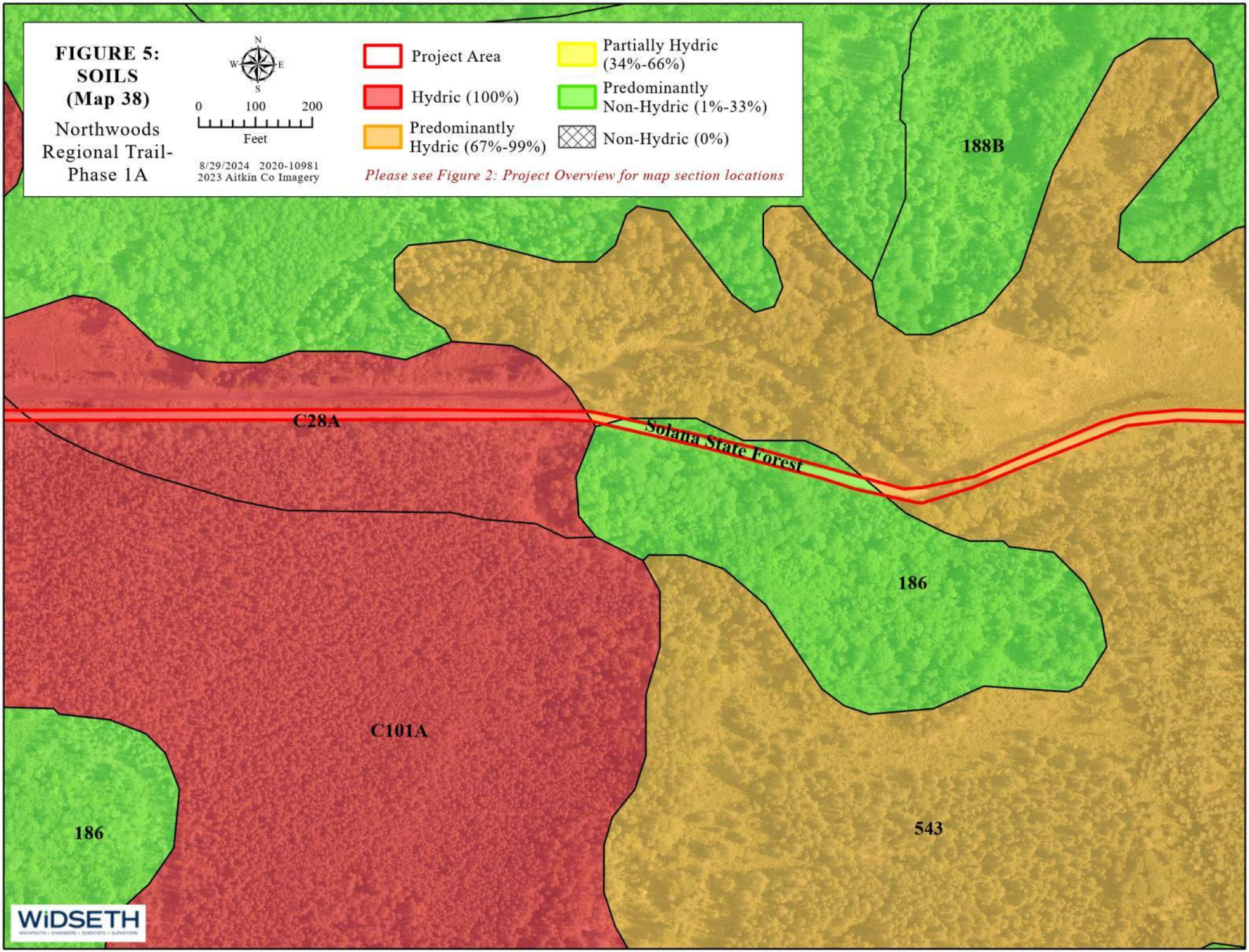


FIGURE 5:
SOILS
(Map 38)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
188B
C28A
Solana State Forest
186
C101A
186
543
WiDSETH

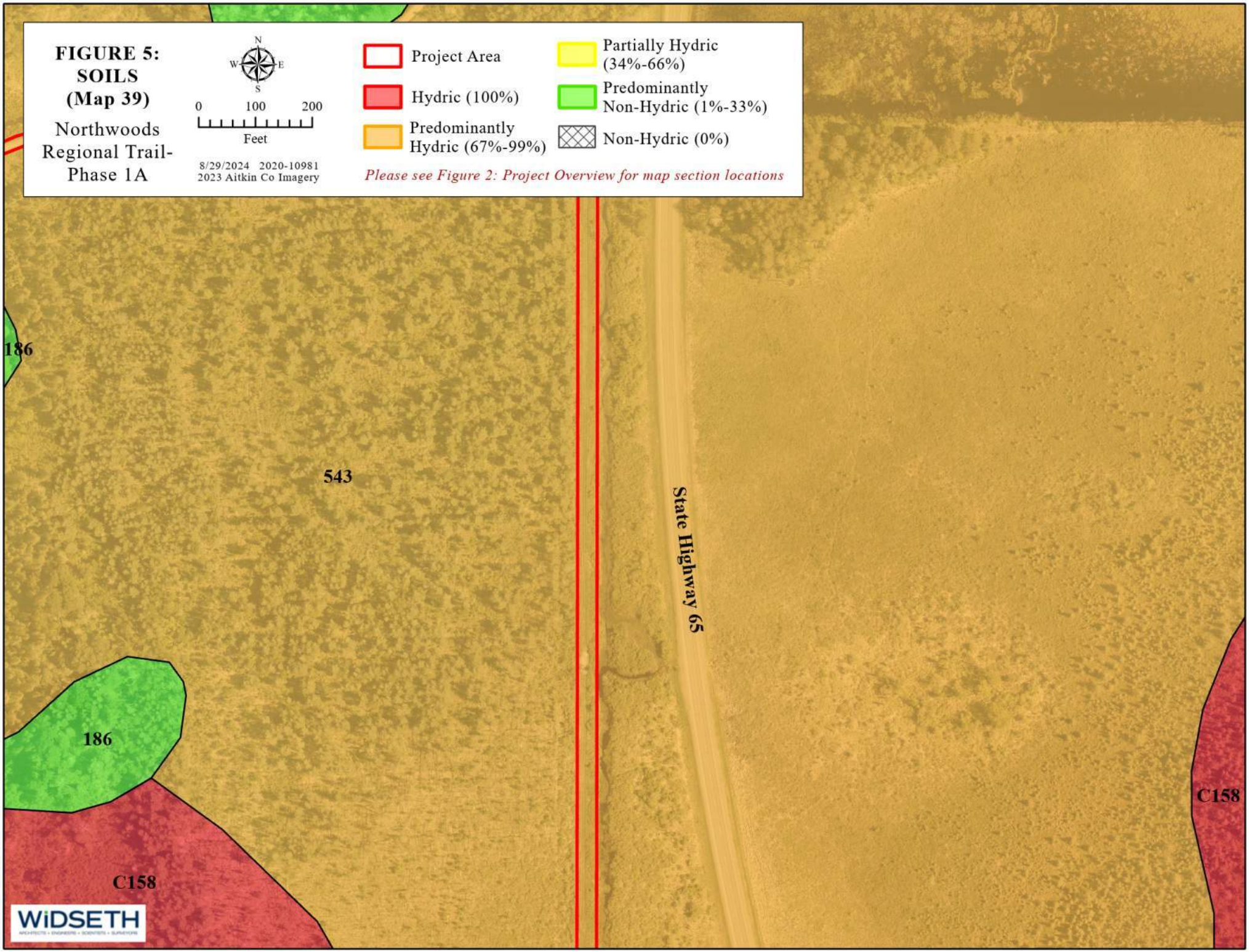


FIGURE 5:
SOILS
(Map 39)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
186
543
186
C158
C158
State Highway 65
WiDSETH

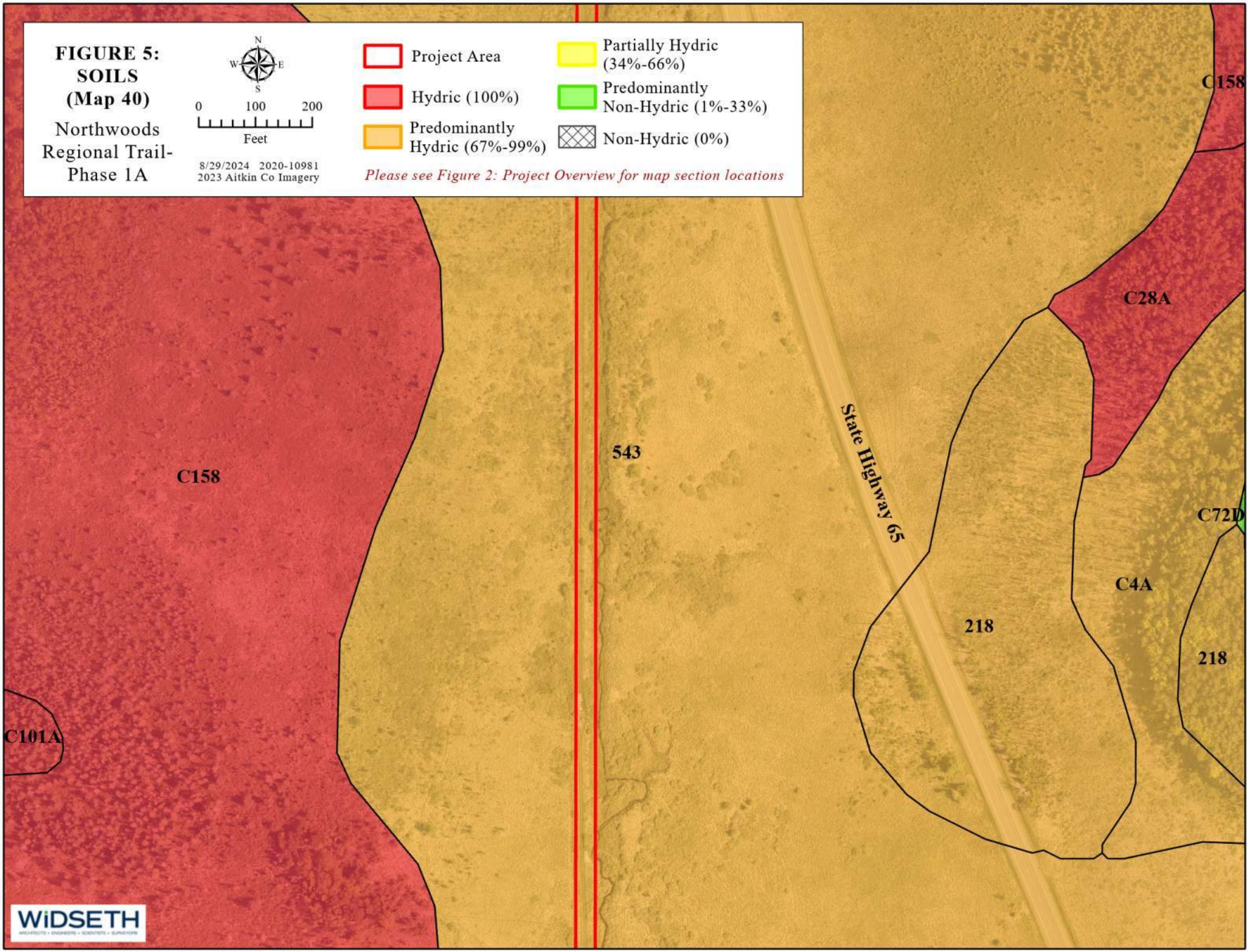


FIGURE 5:
SOILS
(Map 40)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C158
C28A
C158
543
State Highway 65
C72D
C4A
218
218
C101A
WiDSETH

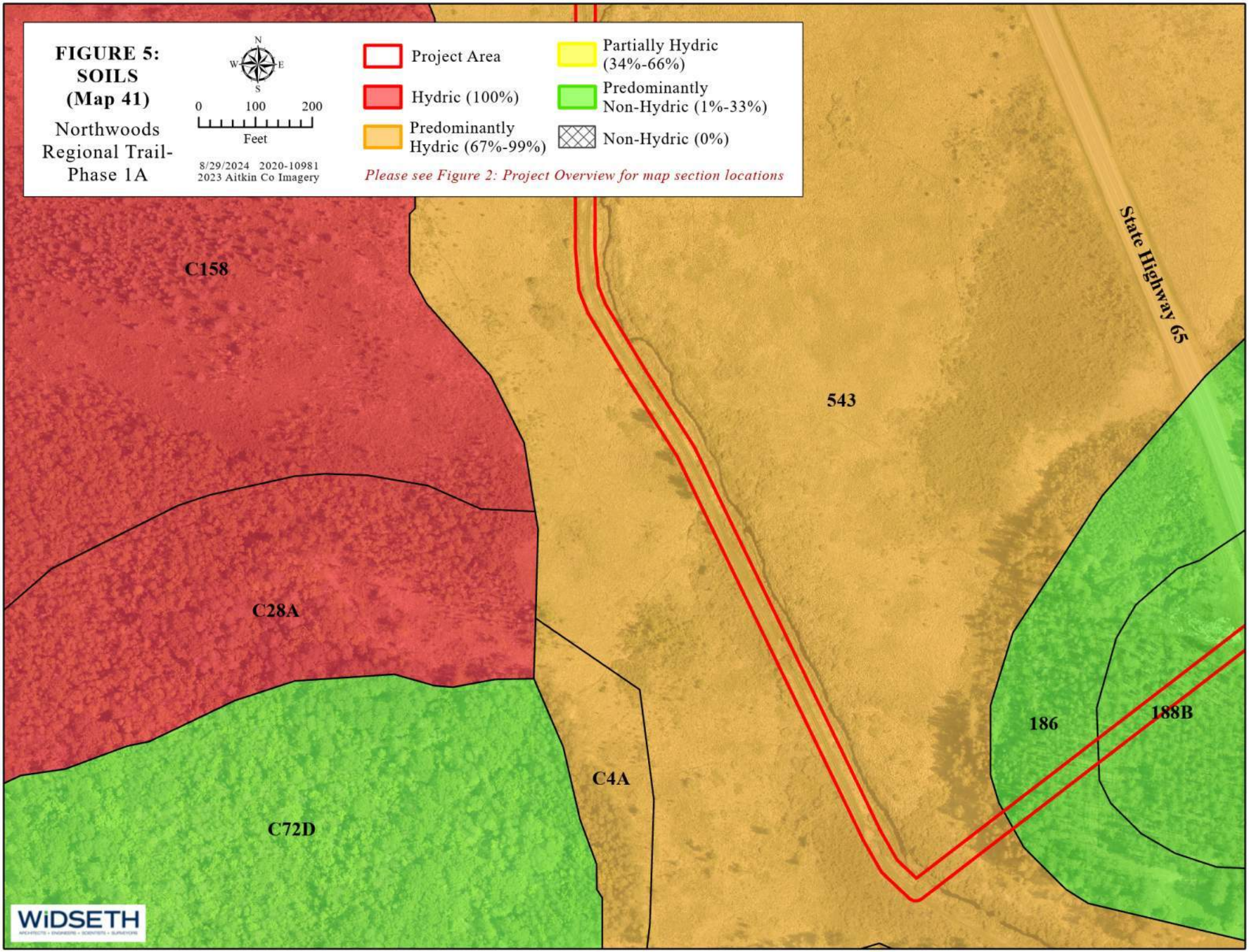


FIGURE 5:
SOILS
(Map 41)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C158
C28A
C72D
C4A
543
186
188B
State Highway 65
WiDSETH

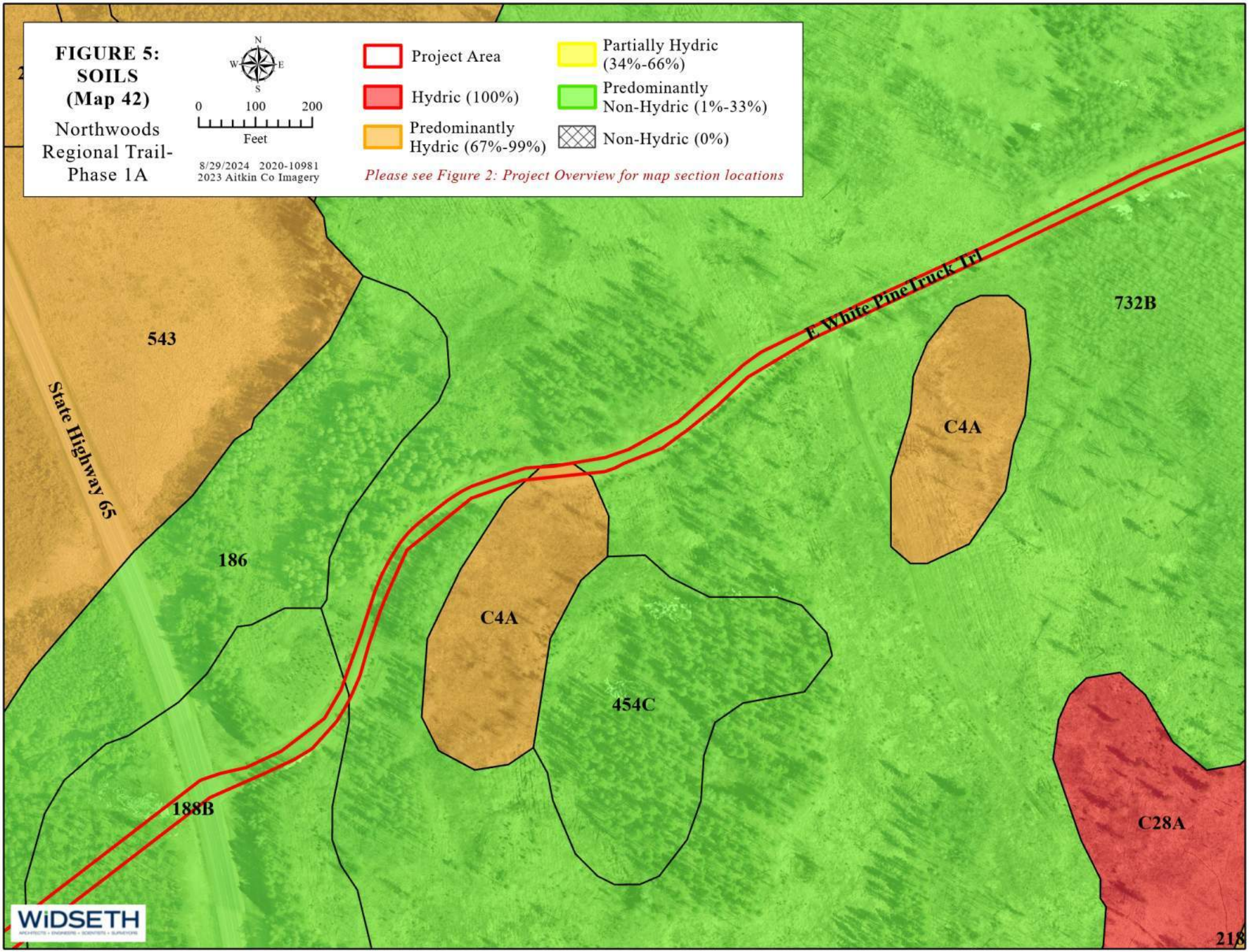
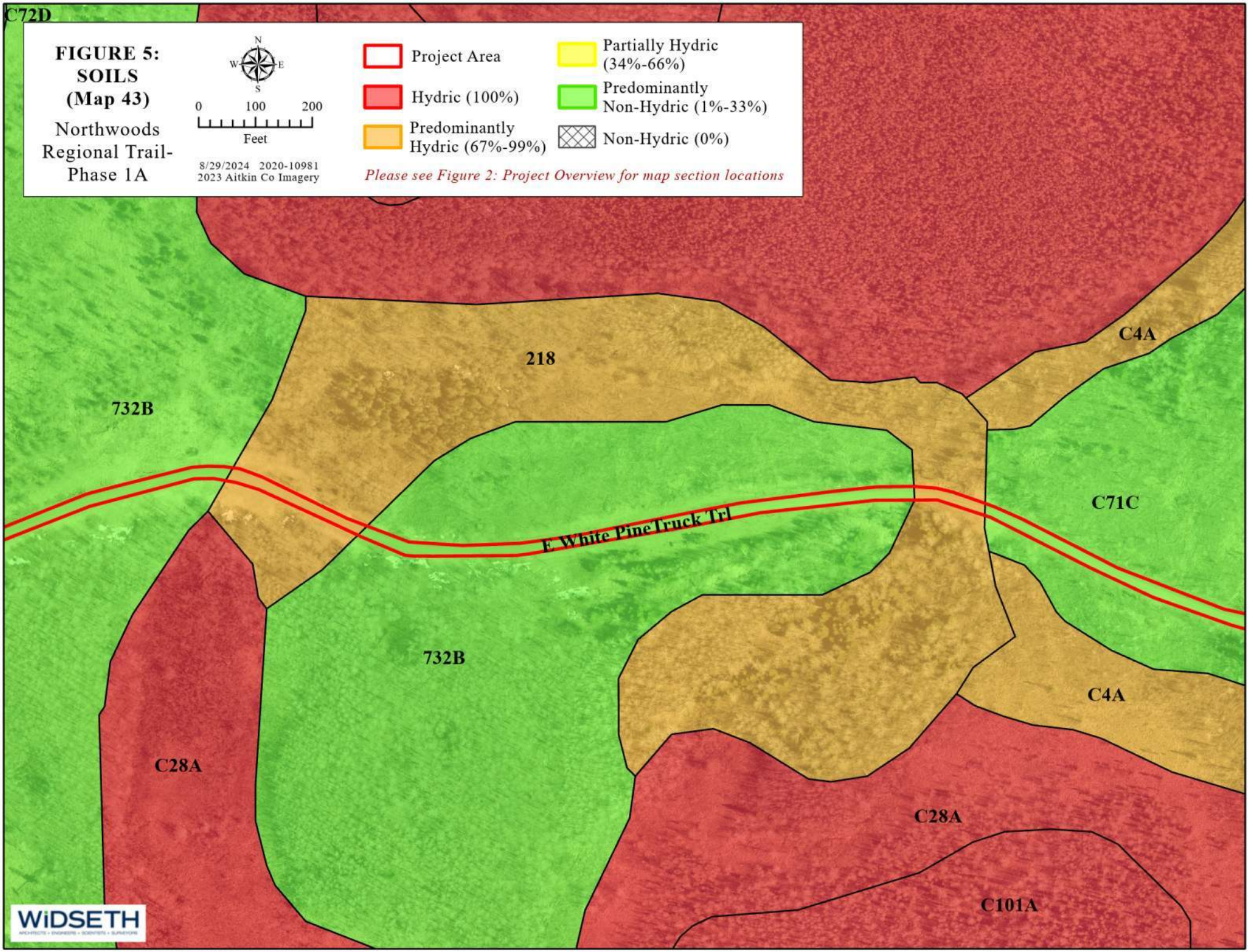


FIGURE 5:
SOILS
(Map 42)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
E White Pine Truck Trl
State Highway 65
543
186
188B
C4A
C4A
454C
732B
C28A
218
WiDSETH


C72D
FIGURE 5:
SOILS
(Map 43)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
218
732B
C4A
C71C
E White PineTruck Trl
732B
C4A
C28A
C28A
C101A
WiDSETH

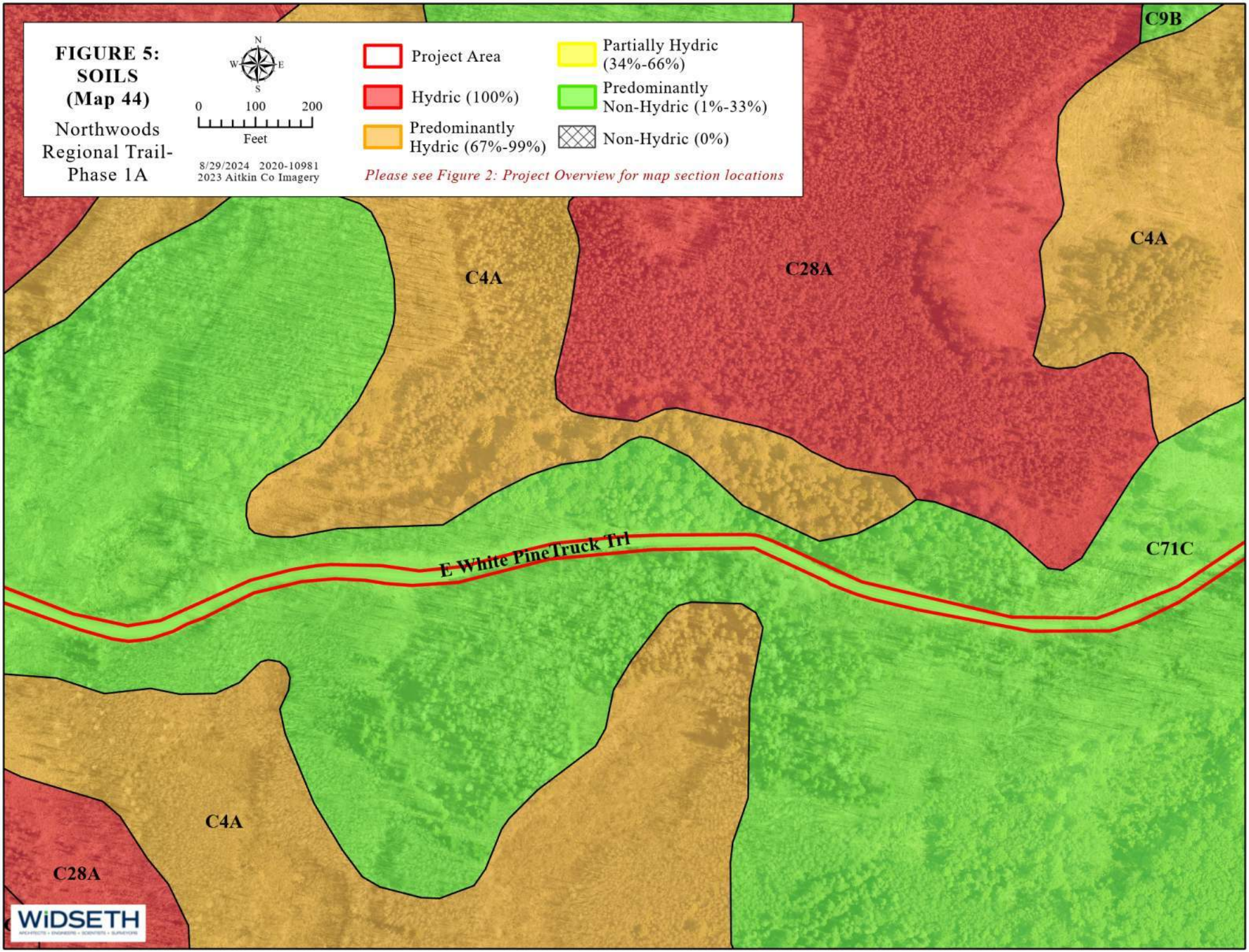


FIGURE 5:
SOILS
(Map 44)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C9B
C4A
C28A
C4A
C71C
E White Pine Truck Trl
C4A
C28A
WiDSETH

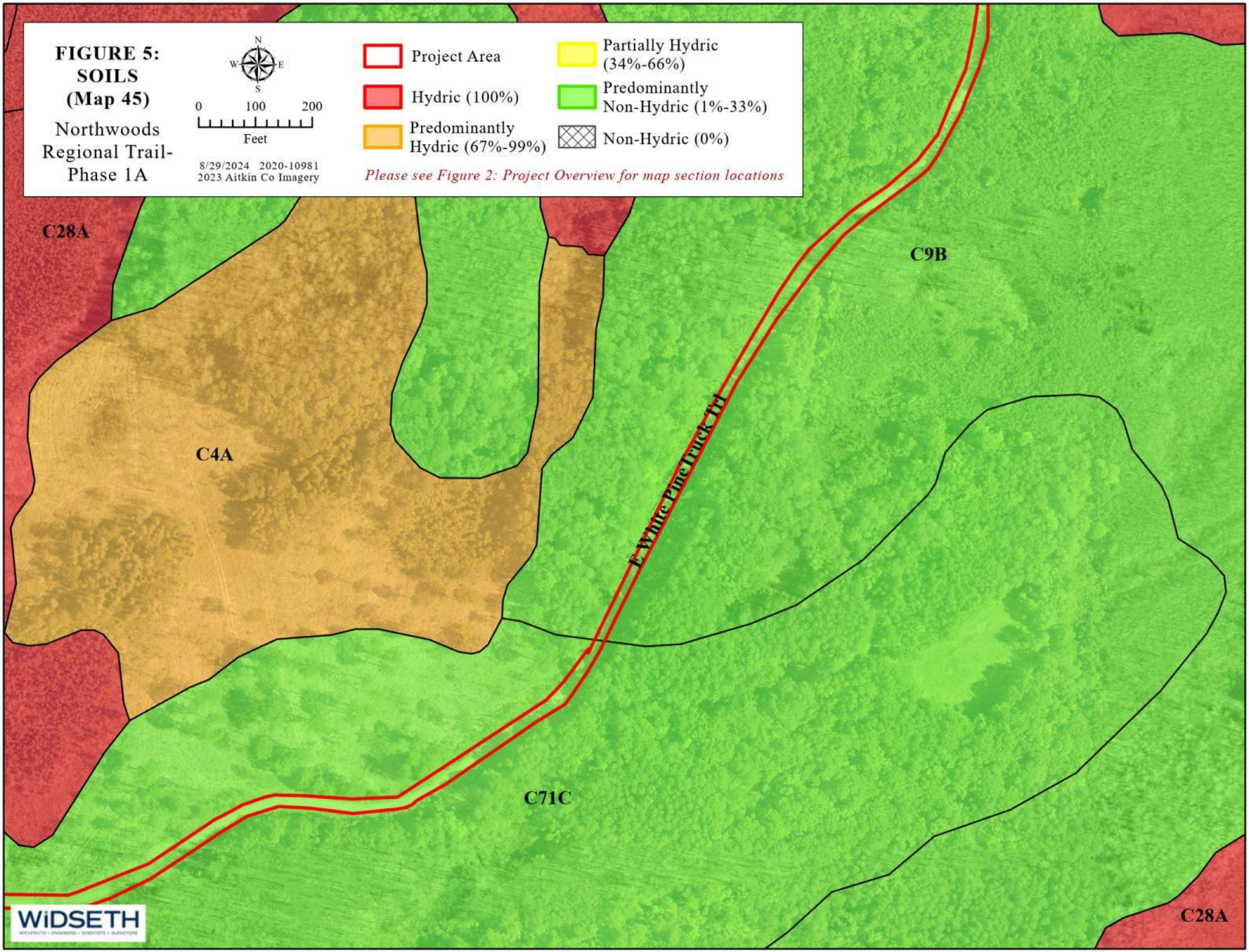


FIGURE 5:
SOILS
(Map 45)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C28A
C4A
C9B
E White Pine Truck Trl
C71C
C28A
WiDSETH

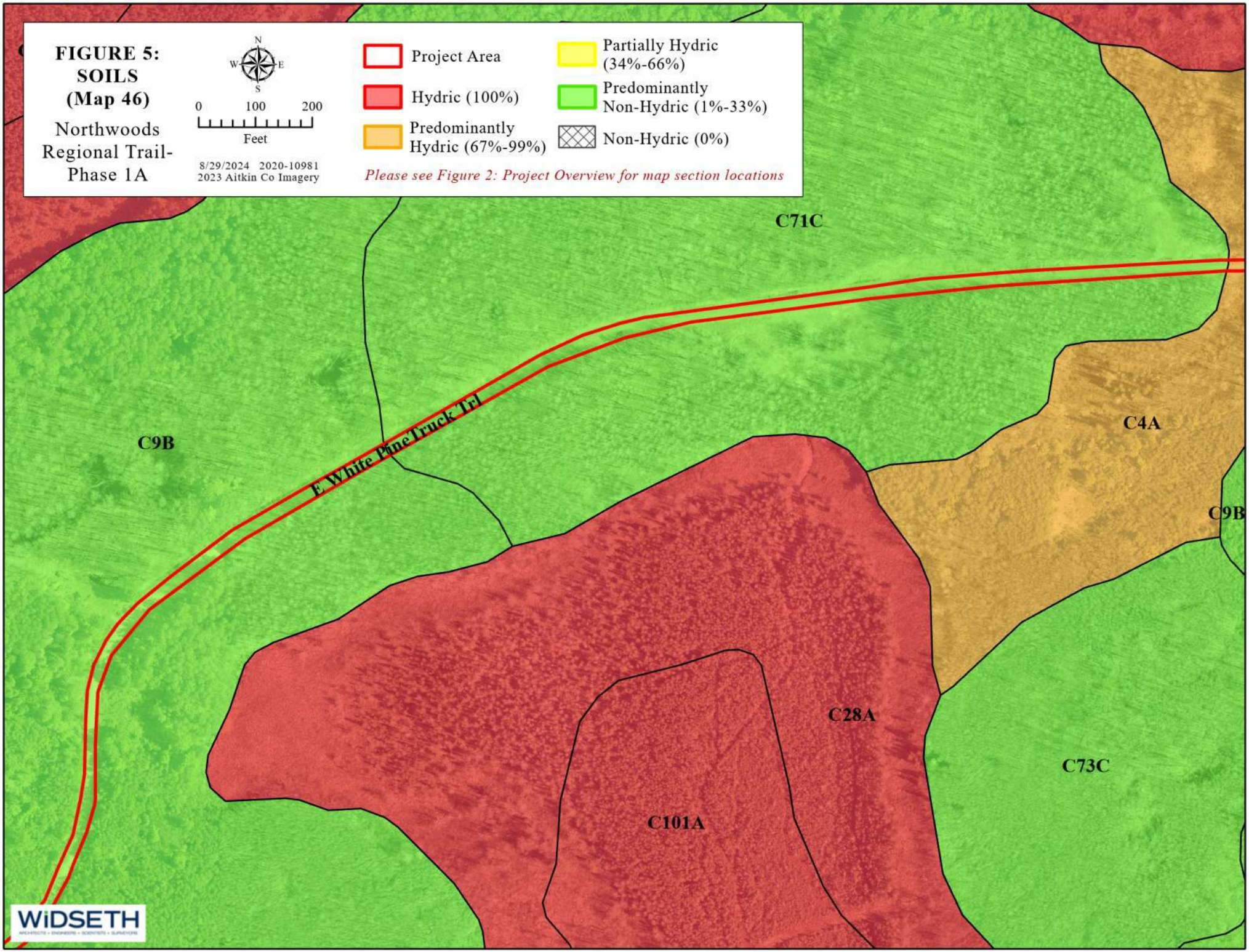


FIGURE 5:
SOILS
(Map 46)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C71C
C9B
E White Pine Truck Trl
C4A
C9B
C28A
C73C
C101A
WiDSETH

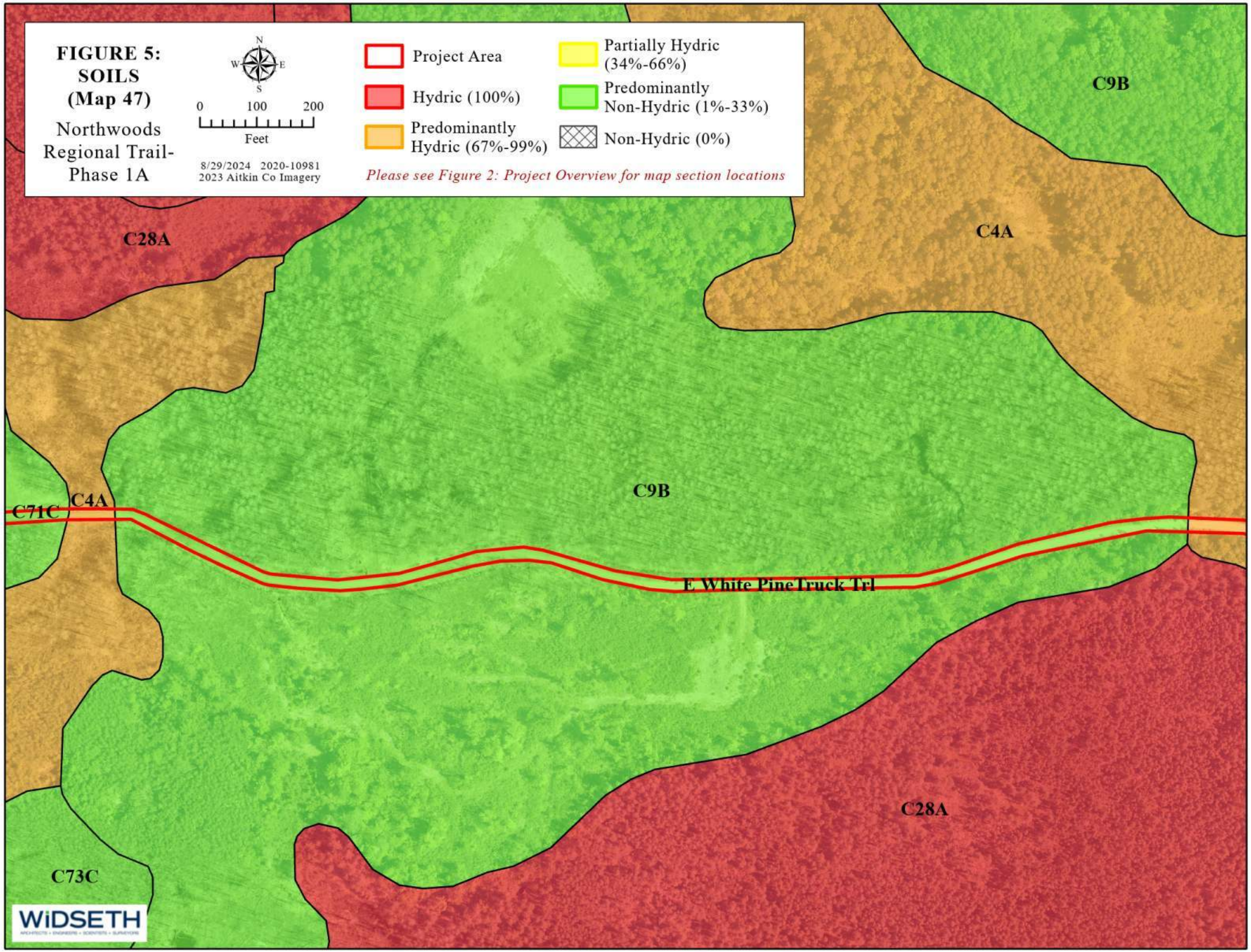


FIGURE 5:
SOILS
(Map 47)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C9B
C28A
C4A
C4A
C71C
C9B
E White Pine Truck Trl
C28A
C73C
WiDSETH

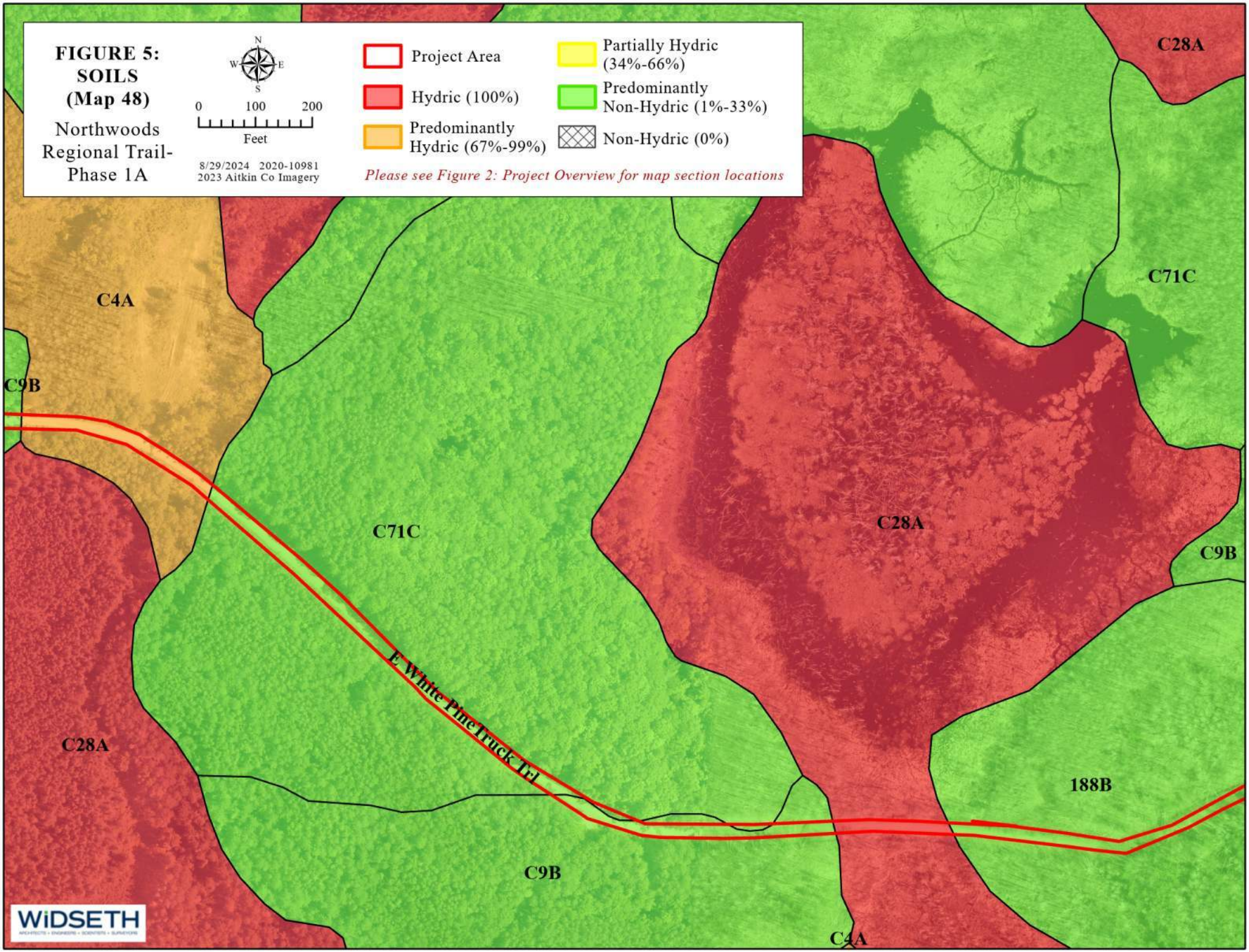


FIGURE 5:
SOILS
(Map 48)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C28A
C71C
C4A
C9B
C71C
C28A
C9B
E White Pine Truck Trl
C28A
188B
C9B
C4A
WiDSETH

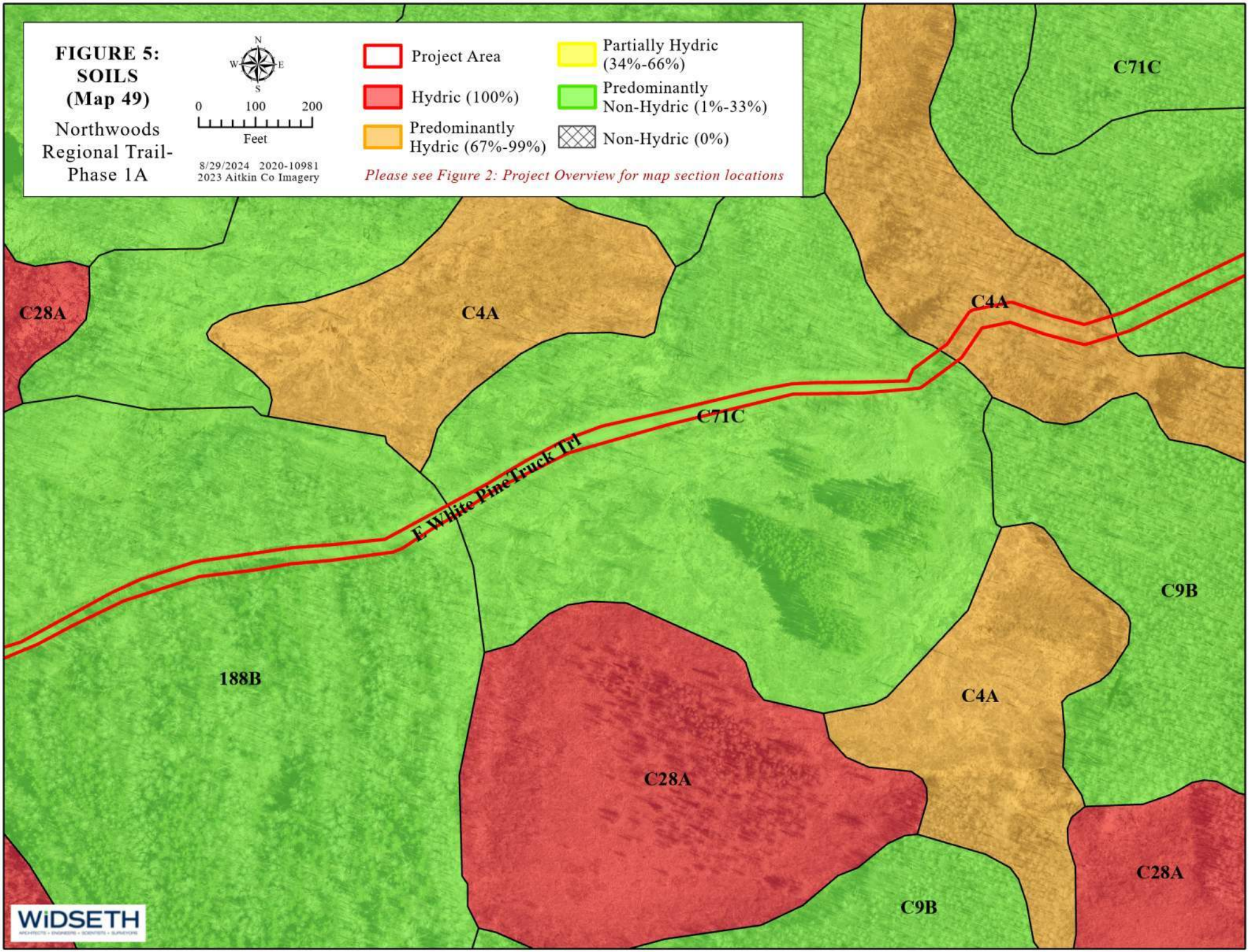


FIGURE 5:
SOILS
(Map 49)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C71C
C28A
C4A
C4A
C71C
E White Pine Truck Trl
C9B
188B
C4A
C28A
C28A
C9B
WiDSETH

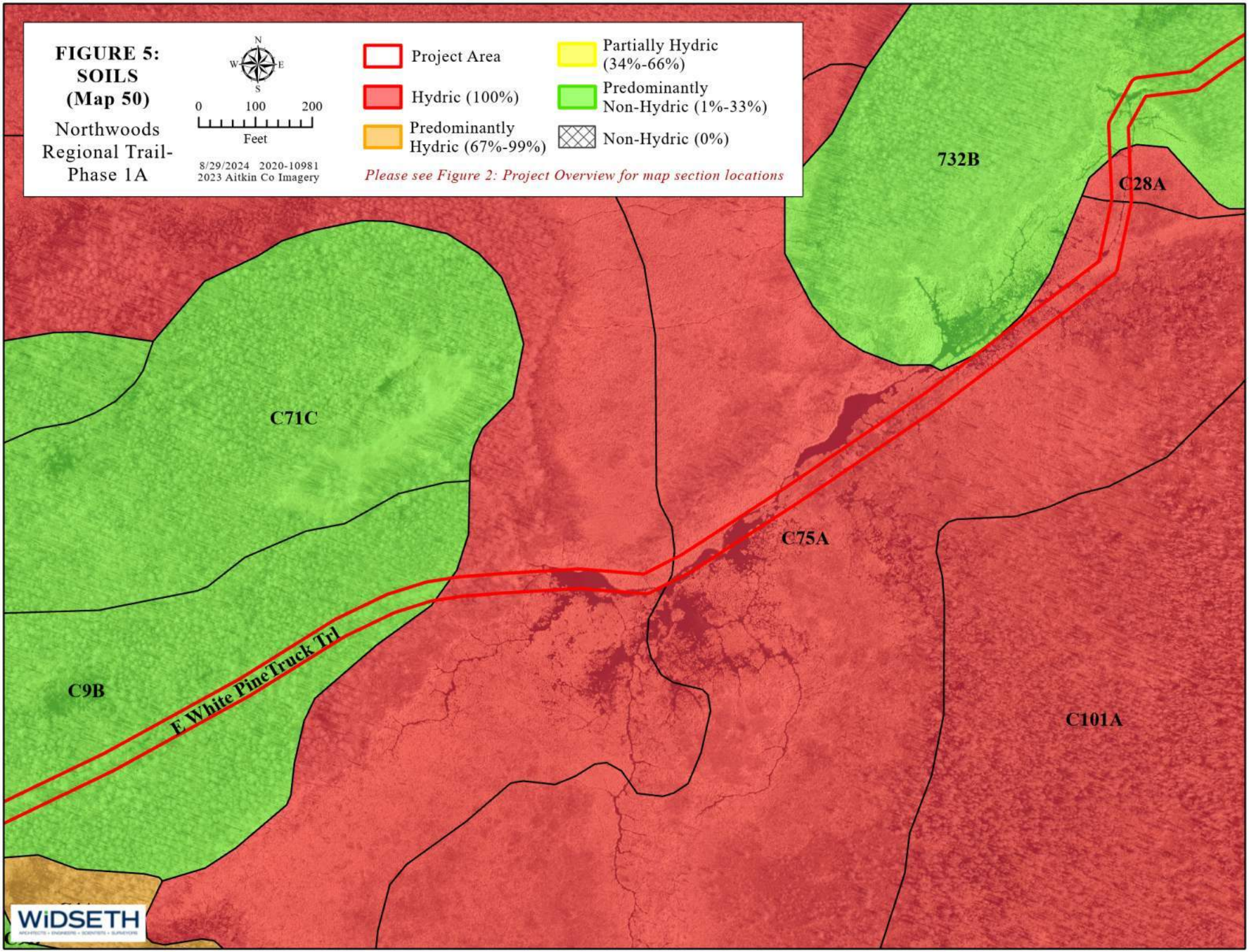


FIGURE 5:
SOILS
(Map 50)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
732B
C28A
C71C
C75A
C9B
E White Pine Truck Trl
C101A
WiDSETH

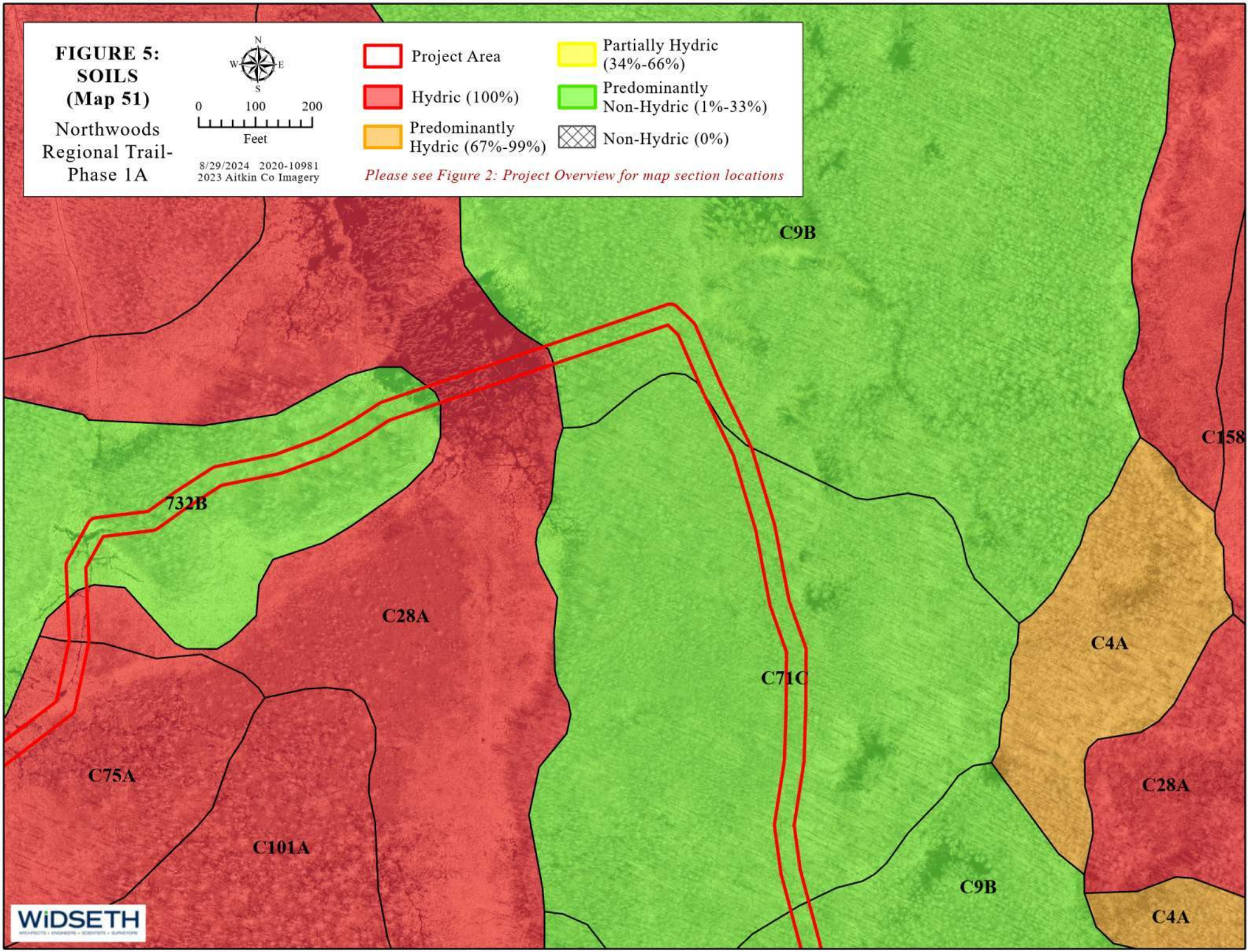


FIGURE 5:
SOILS
(Map 51)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C9B
C158
732B
C28A
C4A
C71C
C75A
C28A
C101A
C9B
C4A
WiDSETH

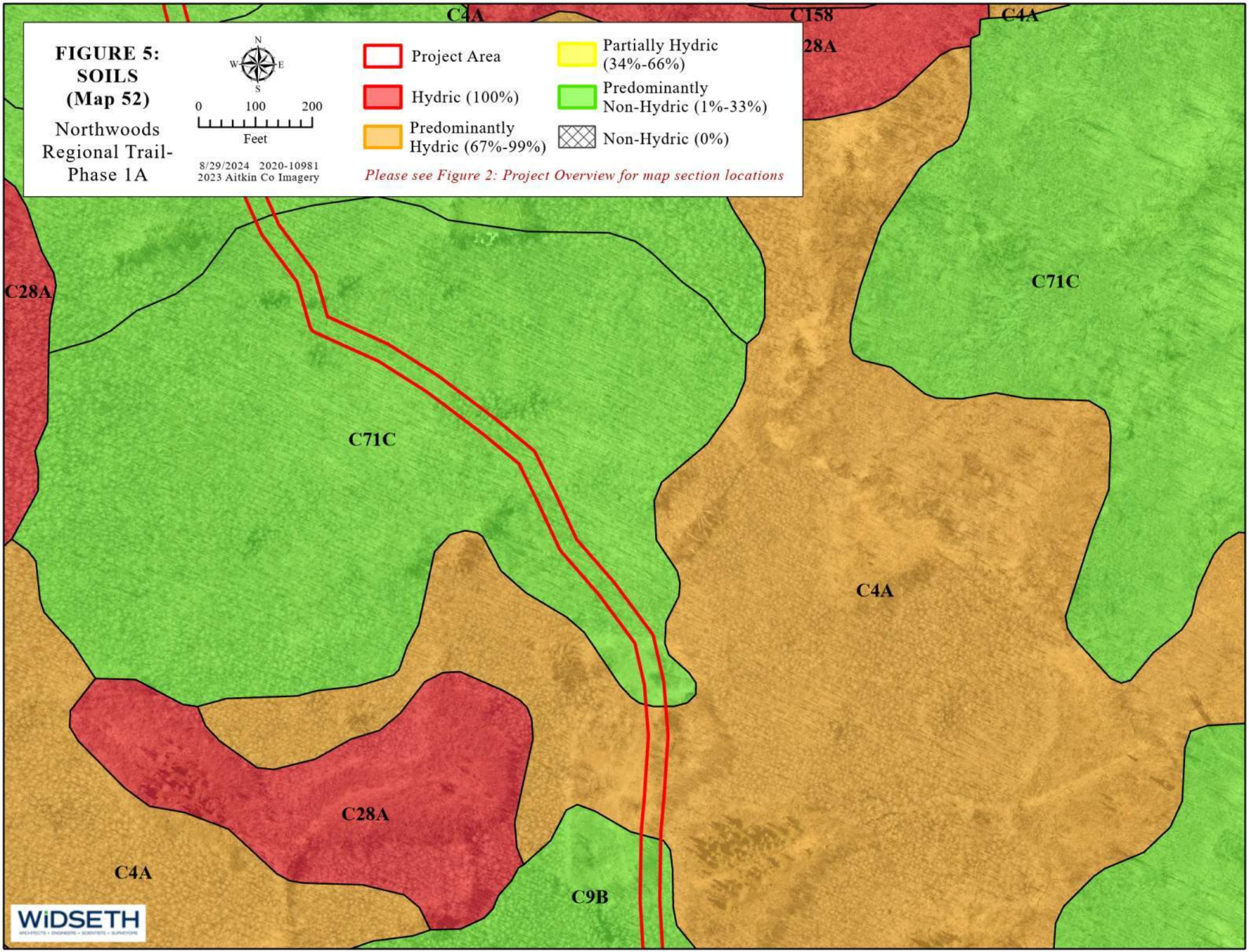


FIGURE 5:
SOILS
(Map 52)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C4A
C158
C4A
28A
C28A
C71C
C71C
C4A
C28A
C4A
C9B
WiDSETH

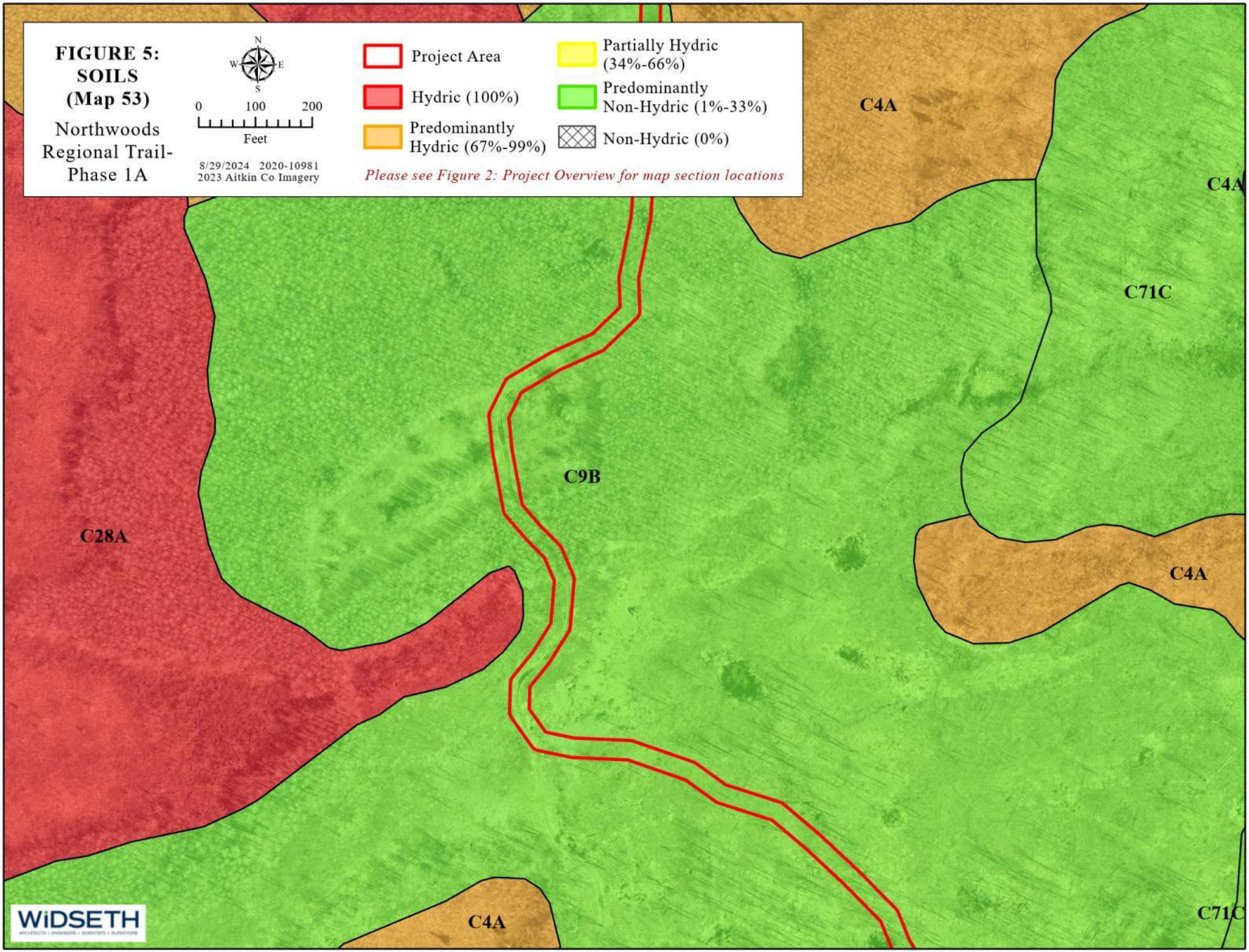


FIGURE 5:
SOILS
(Map 53)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C4A
C4A
C71C
C9B
C28A
C4A
C4A
C71C
WiDSETH

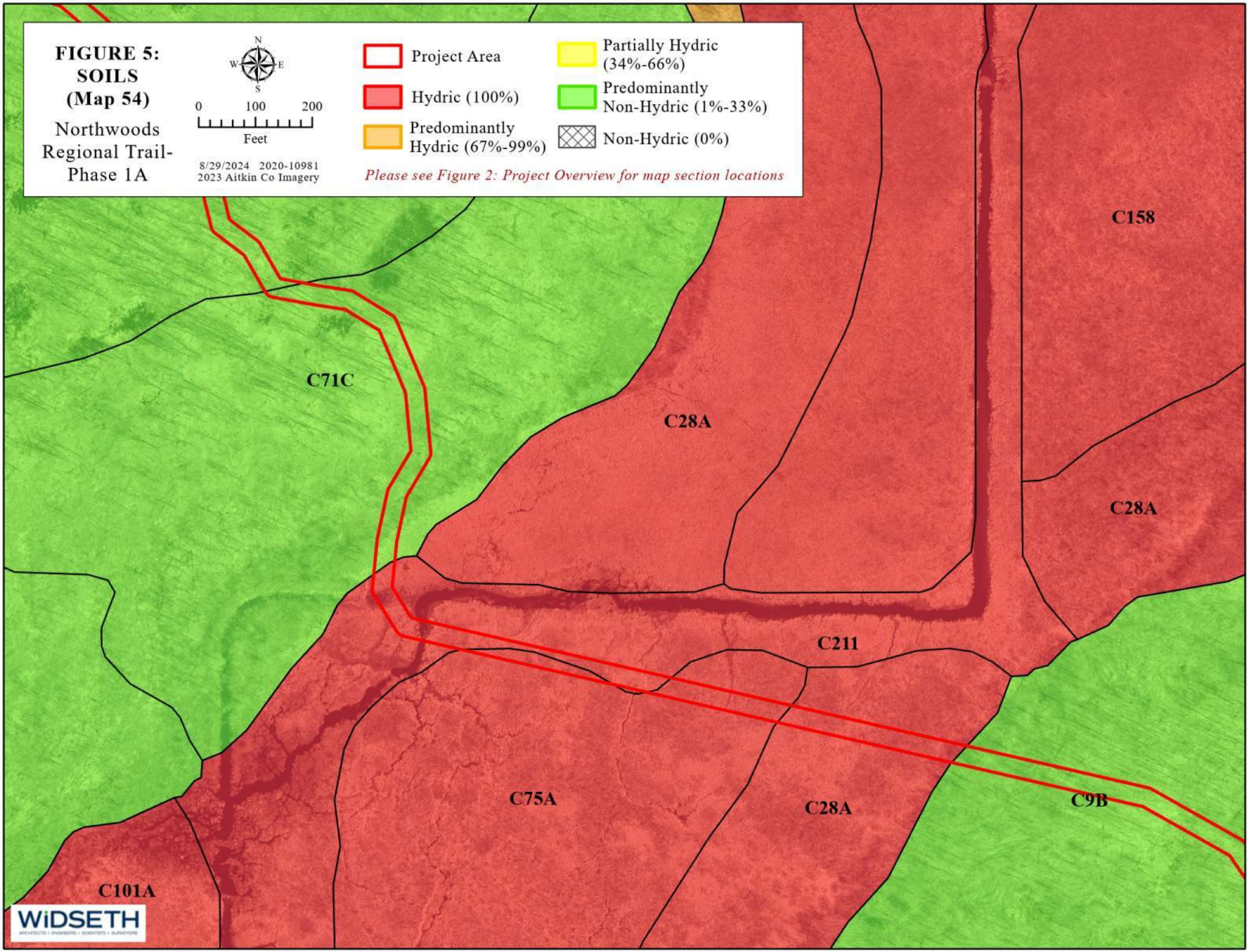


FIGURE 5:
SOILS
(Map 54)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C158
C71C
C28A
C28A
C211
C75A
C28A
C9B
C101A
WiDSETH

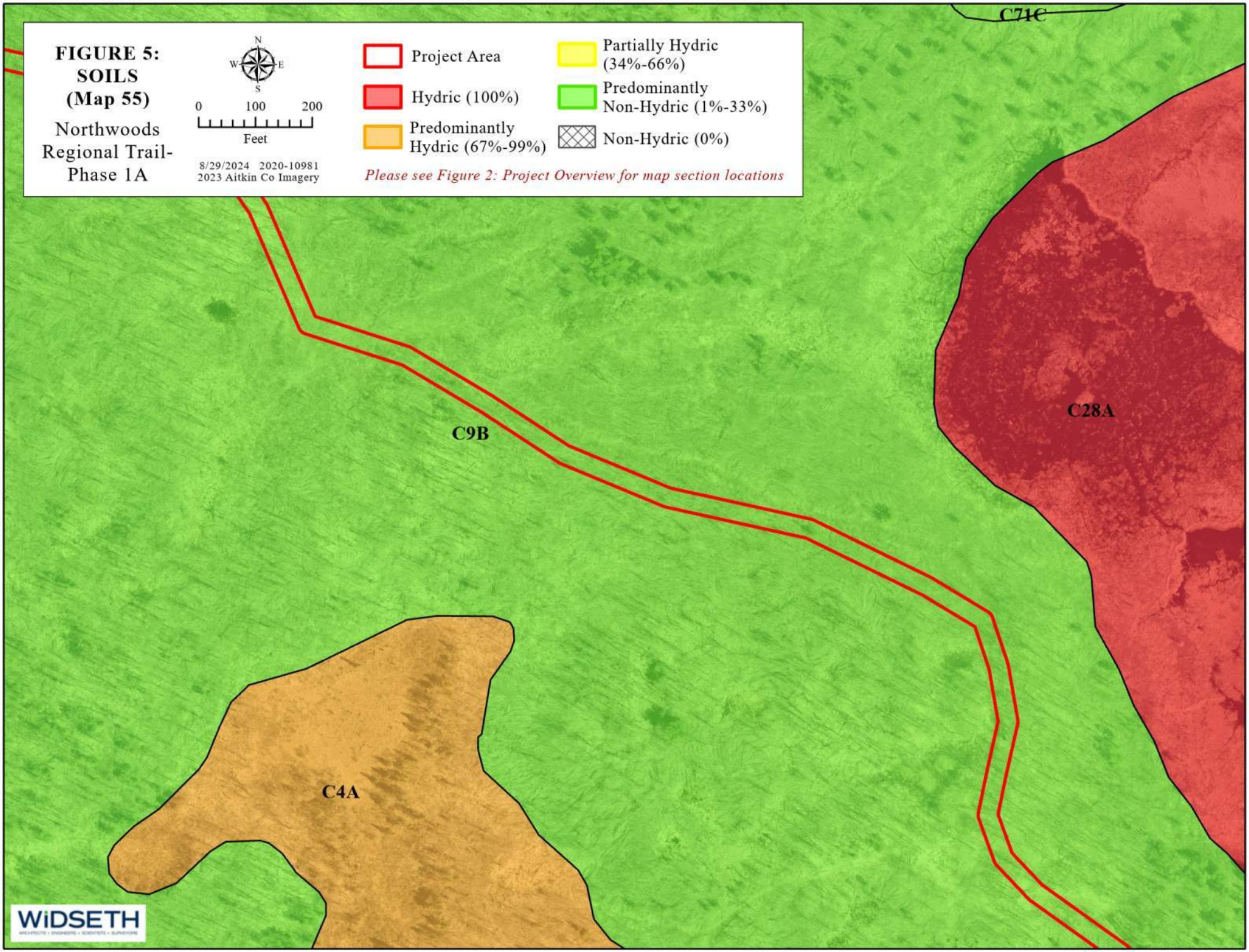


FIGURE 5:
SOILS
(Map 55)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C71C
C28A
C9B
C4A
WiDSETH

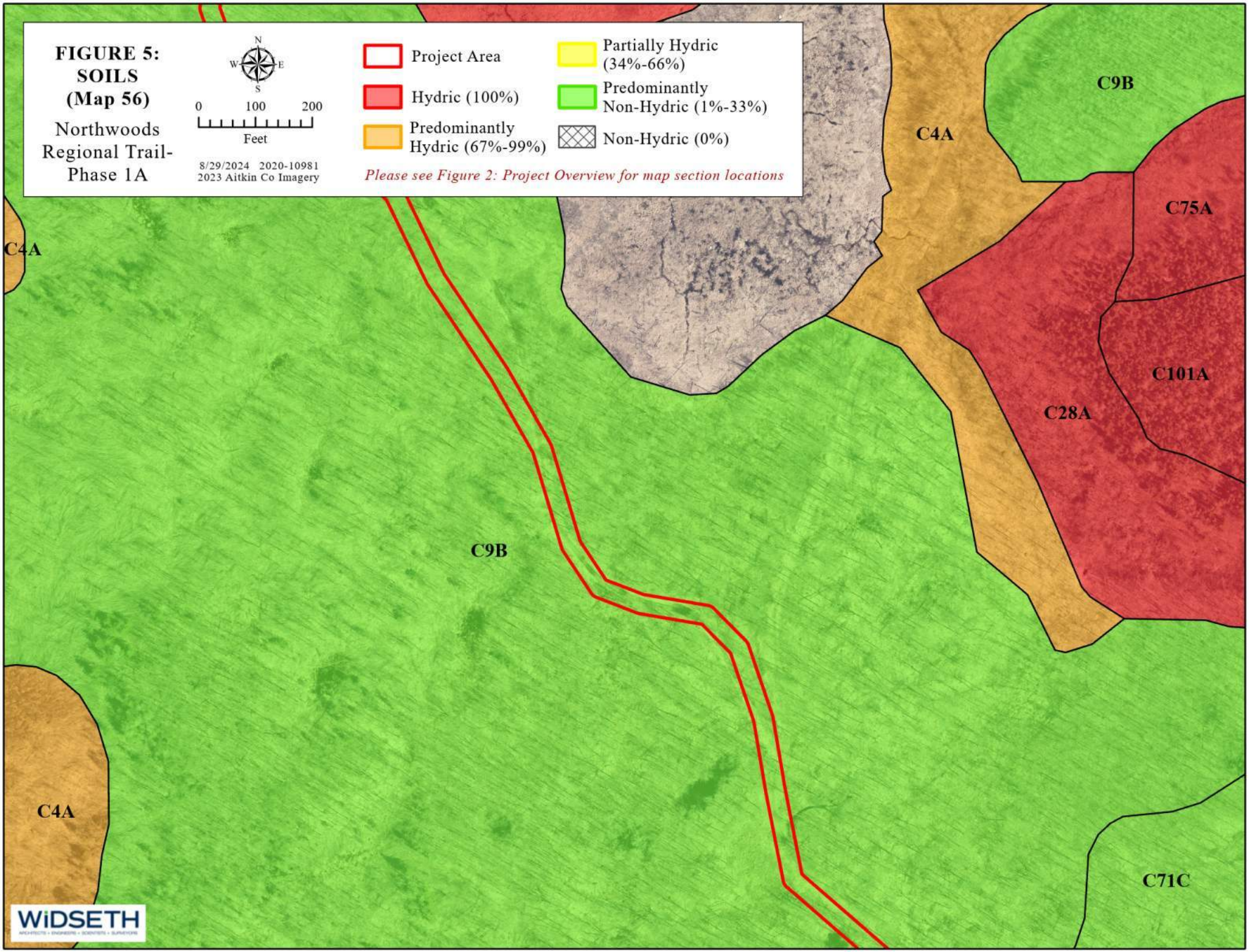


FIGURE 5:
SOILS
(Map 56)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C4A
C9B
C4A
C75A
C101A
C28A
C9B
C4A
C71C
WiDSETH

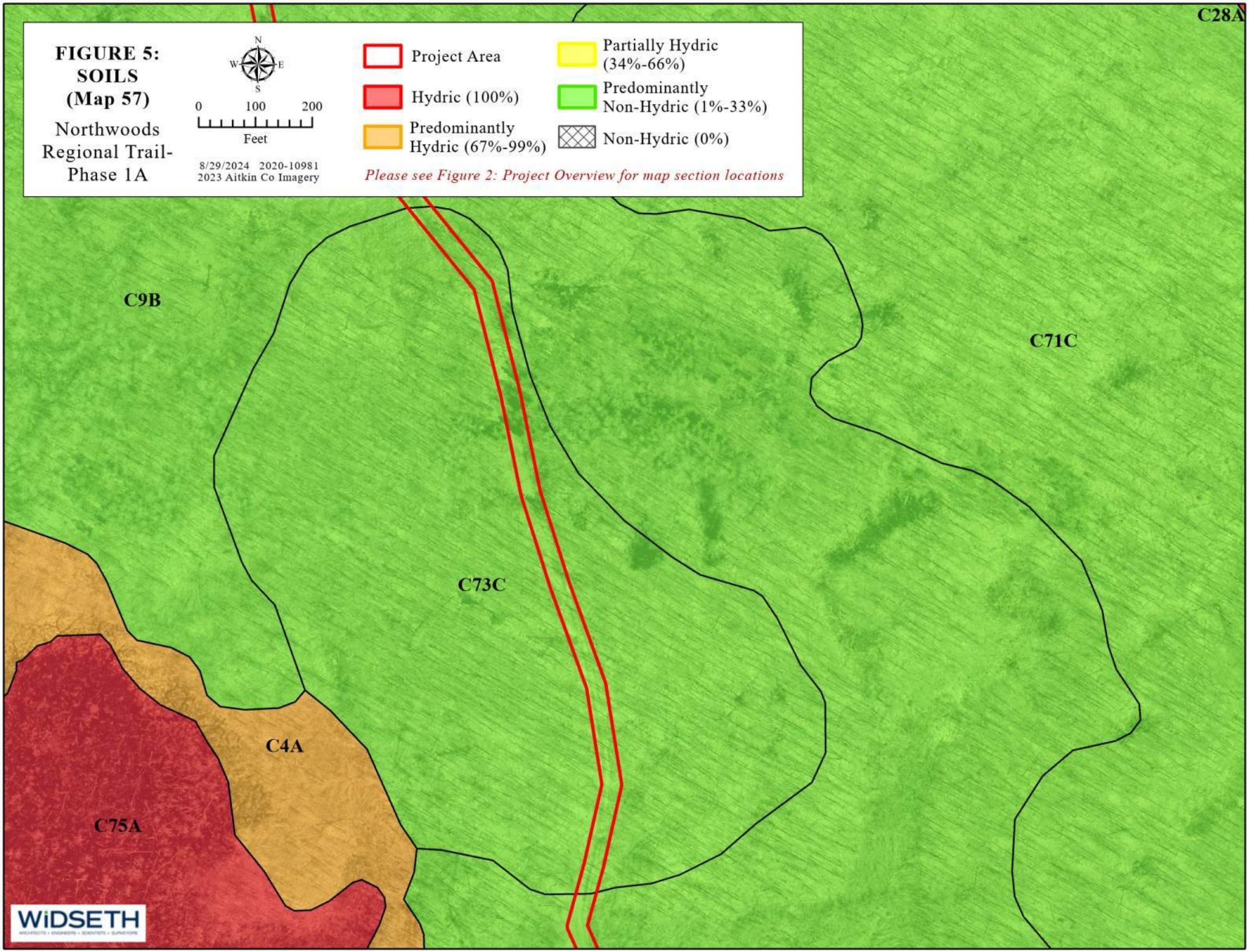


FIGURE 5:
SOILS
(Map 57)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C28A
C9B
C71C
C73C
C4A
C75A
WiDSETH

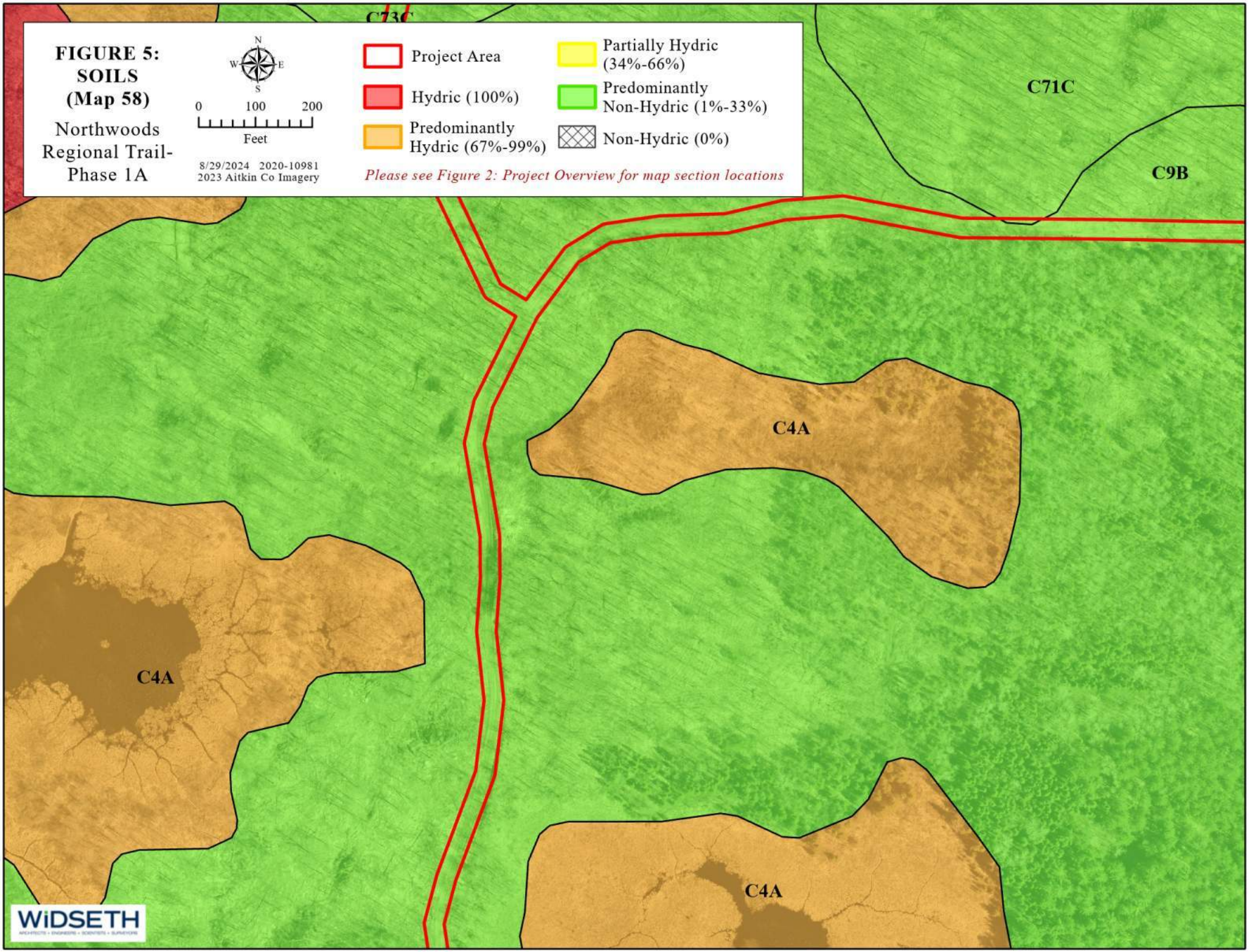


FIGURE 5:
SOILS
(Map 58)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C73C
C71C
C9B
C4A
C4A
C4A
WiDSETH

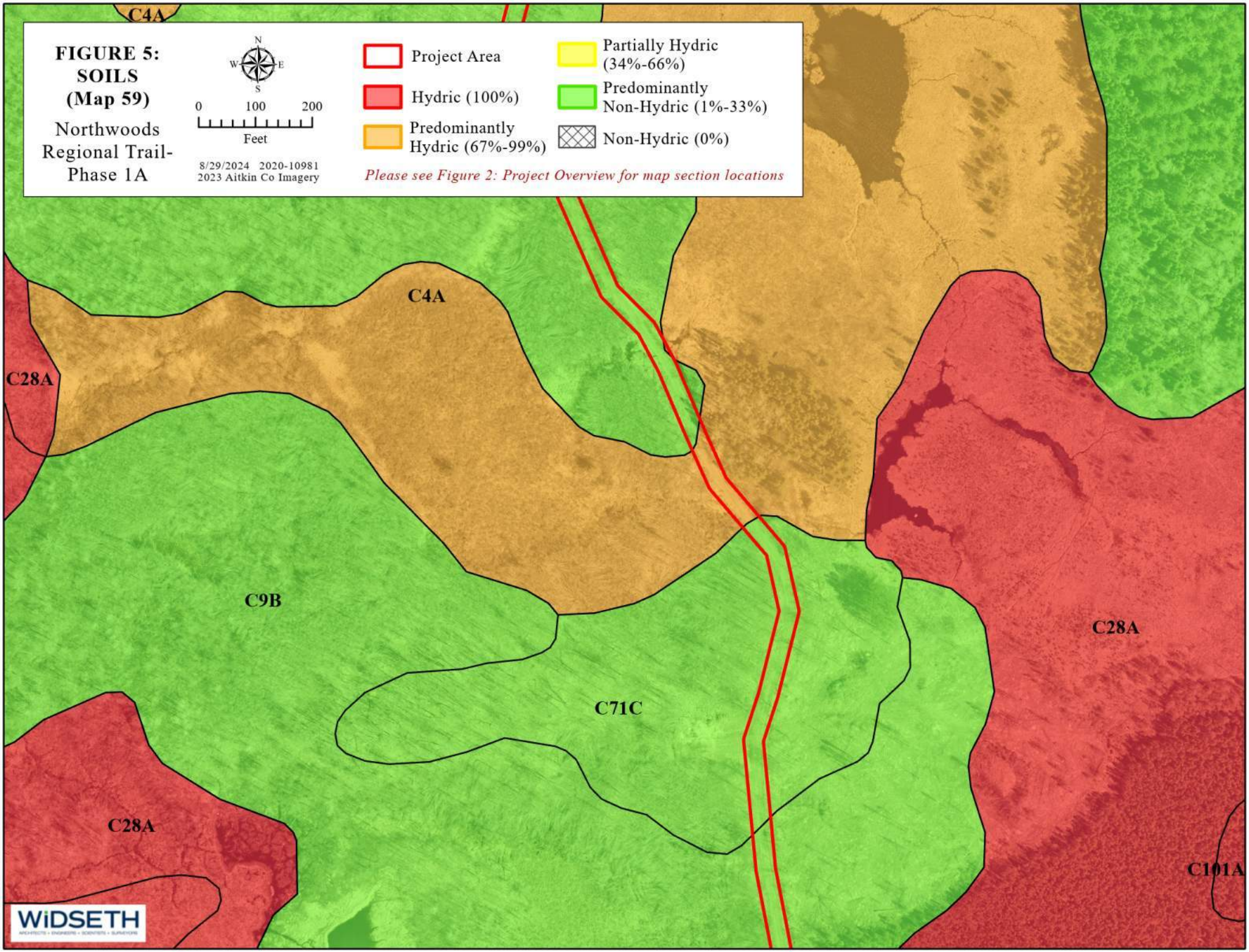


FIGURE 5:
SOILS
(Map 59)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C4A
C4A
C28A
C9B
C71C
C28A
C28A
C101A
WiDSETH

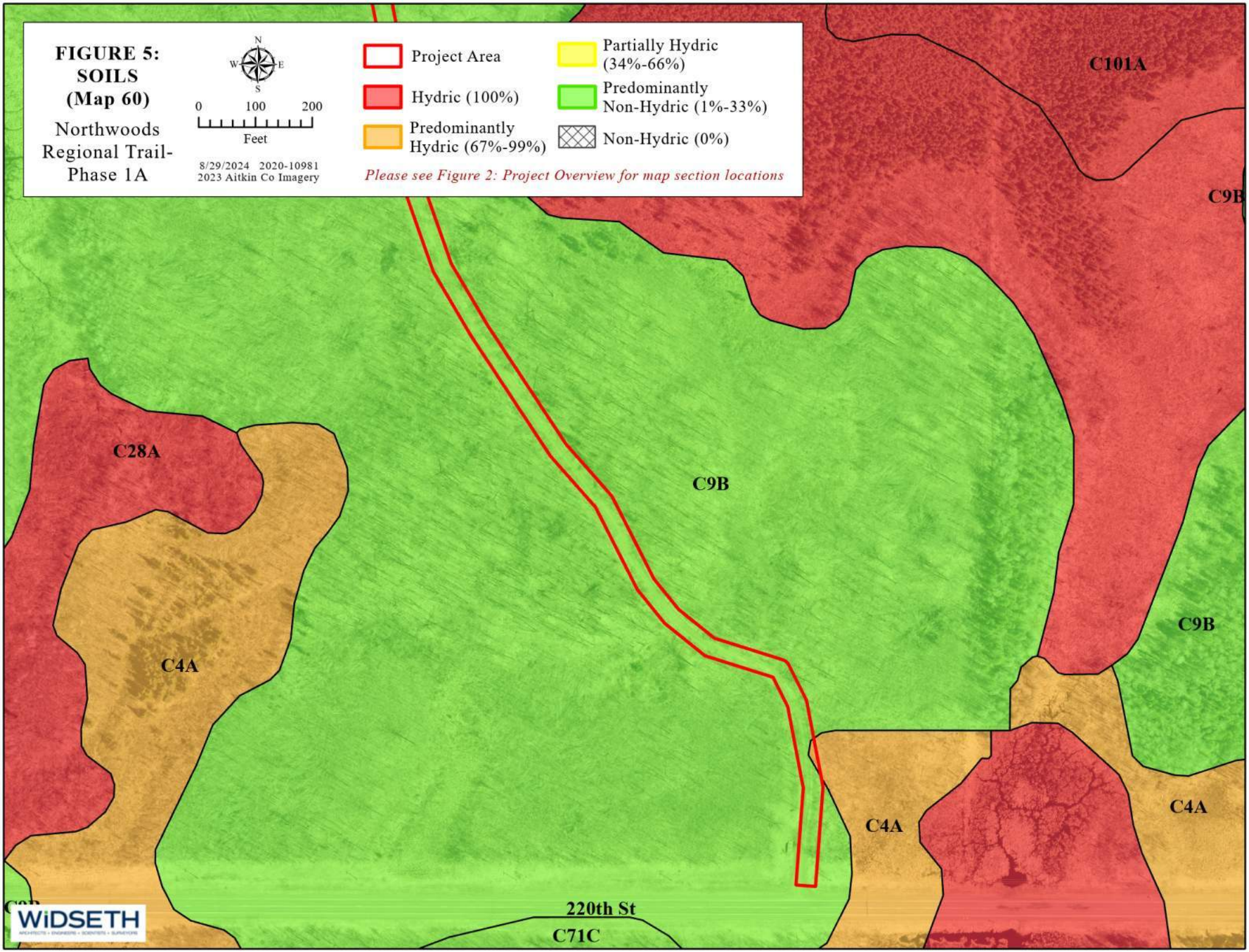


FIGURE 5:
SOILS
(Map 60)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C101A
C9B
C28A
C9B
C4A
C9B
C4A
C4A
220th St
C71C
WiDSETH

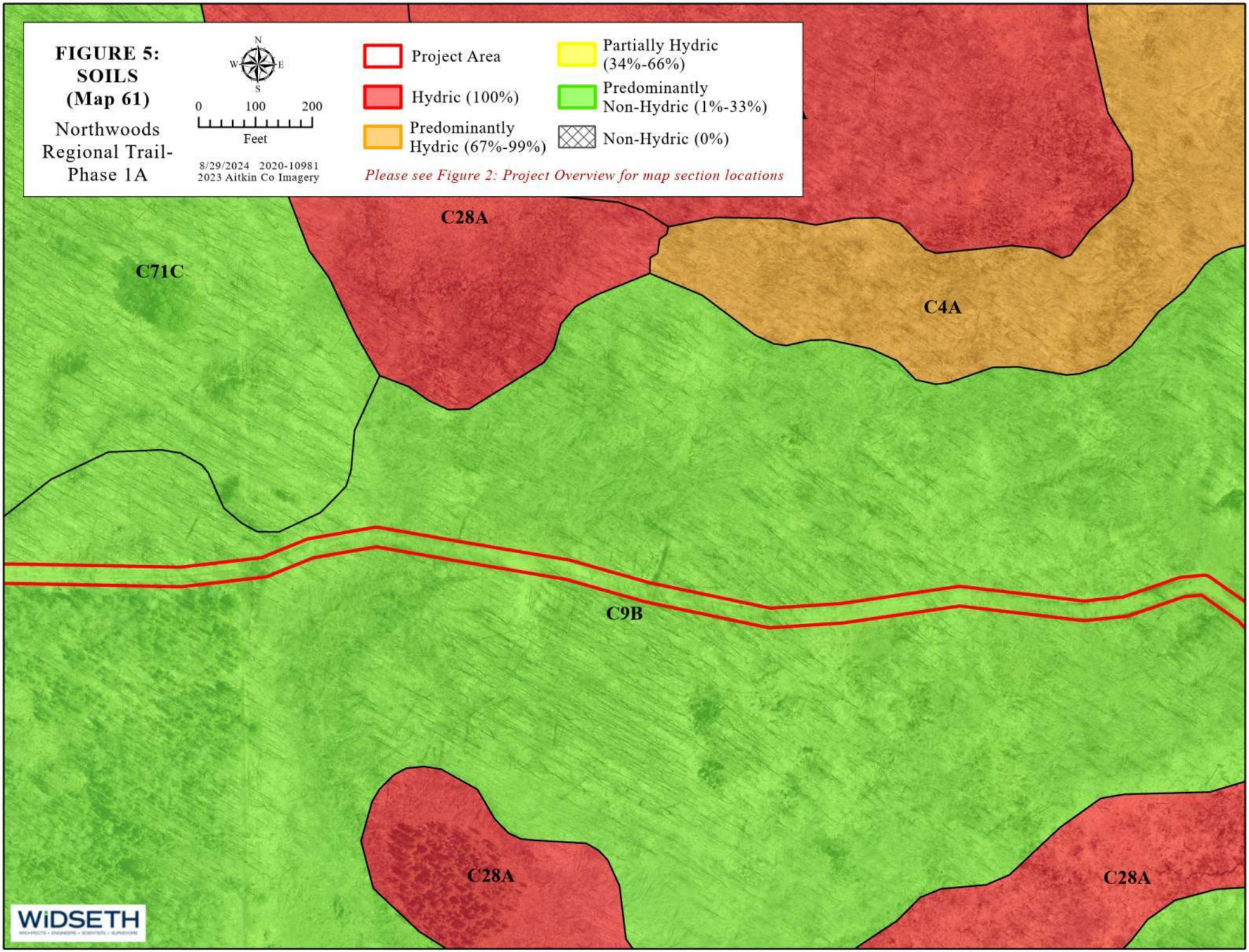


FIGURE 5:
SOILS
(Map 61)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C28A
C71C
C4A
C9B
C28A
C28A
WiDSETH

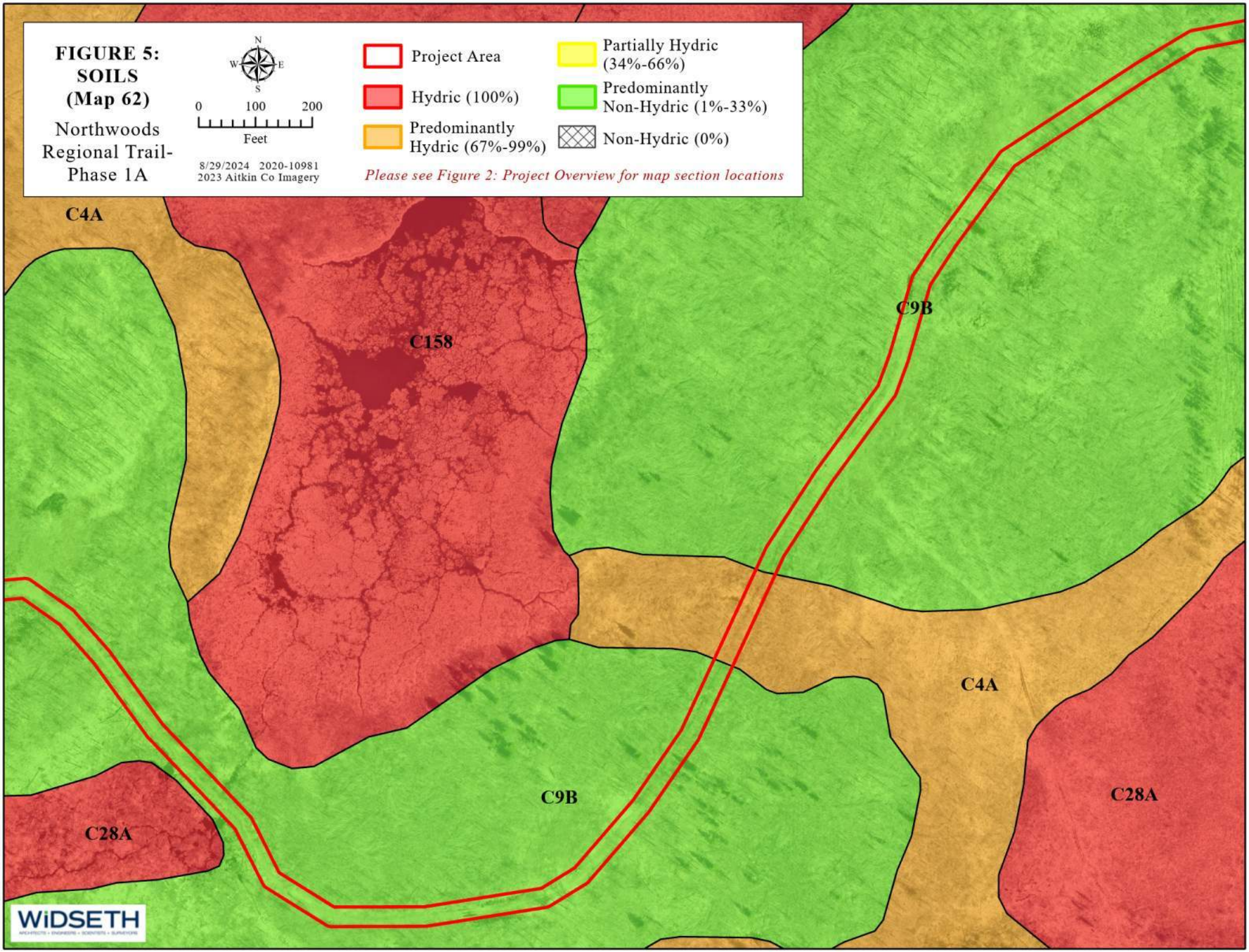


FIGURE 5:
SOILS
(Map 62)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C4A
C158
C9B
C4A
C9B
C28A
C28A
WiDSETH

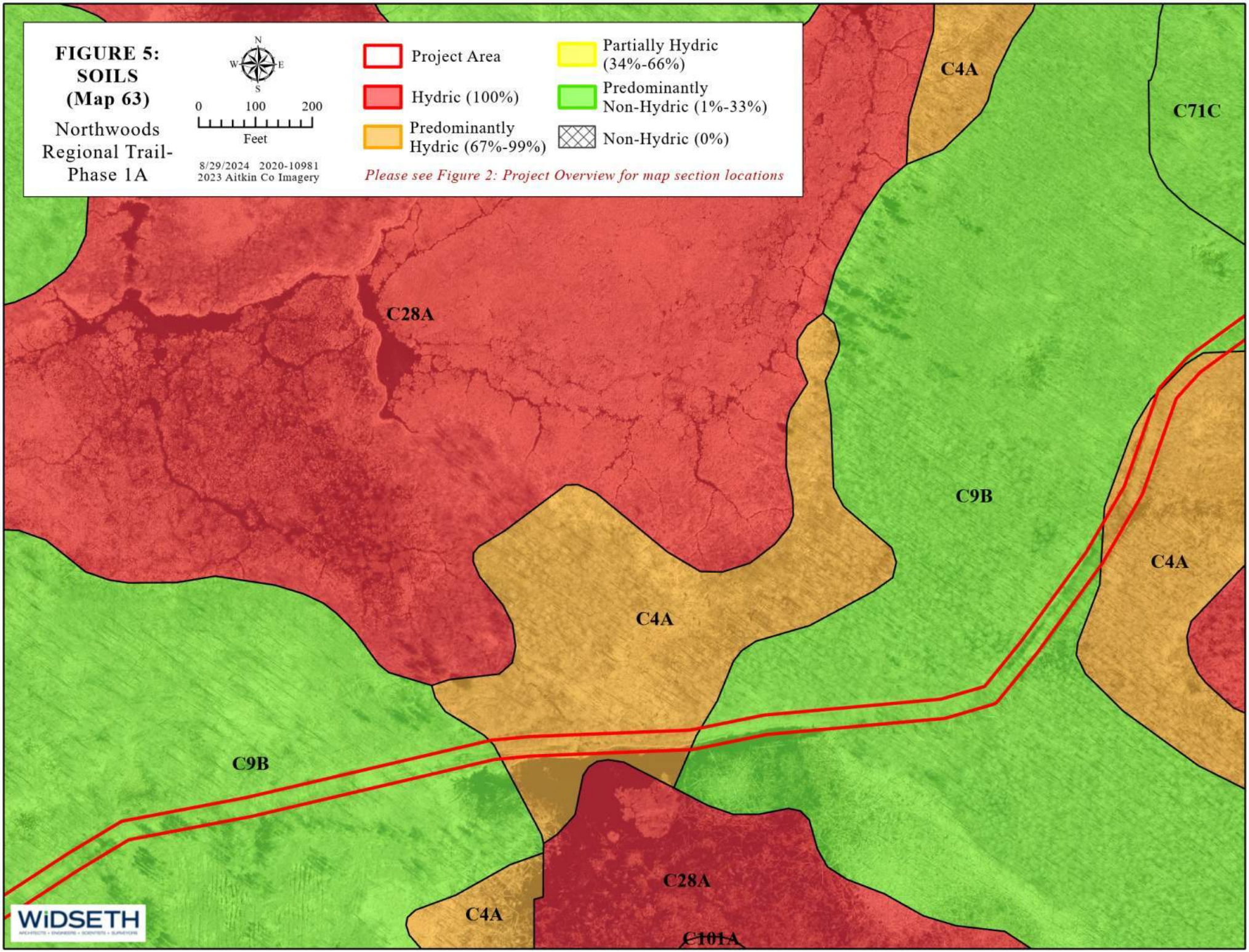


FIGURE 5:
SOILS
(Map 63)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C4A
C71C
C28A
C9B
C4A
C4A
C9B
C28A
C4A
C101A
WiDSETH

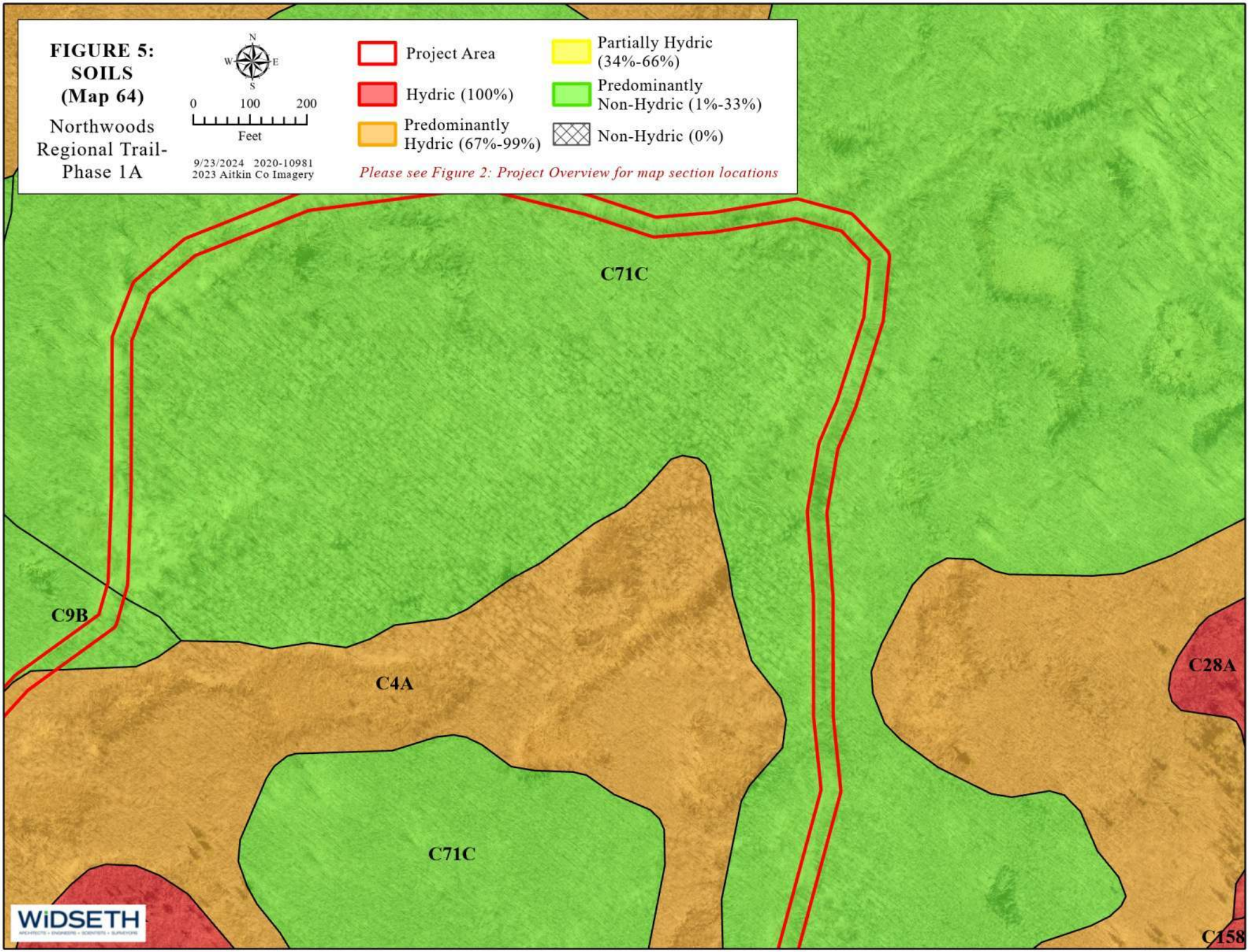


FIGURE 5:
SOILS
(Map 64)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
9/23/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C71C
C9B
C4A
C71C
C28A
C158
WiDSETH

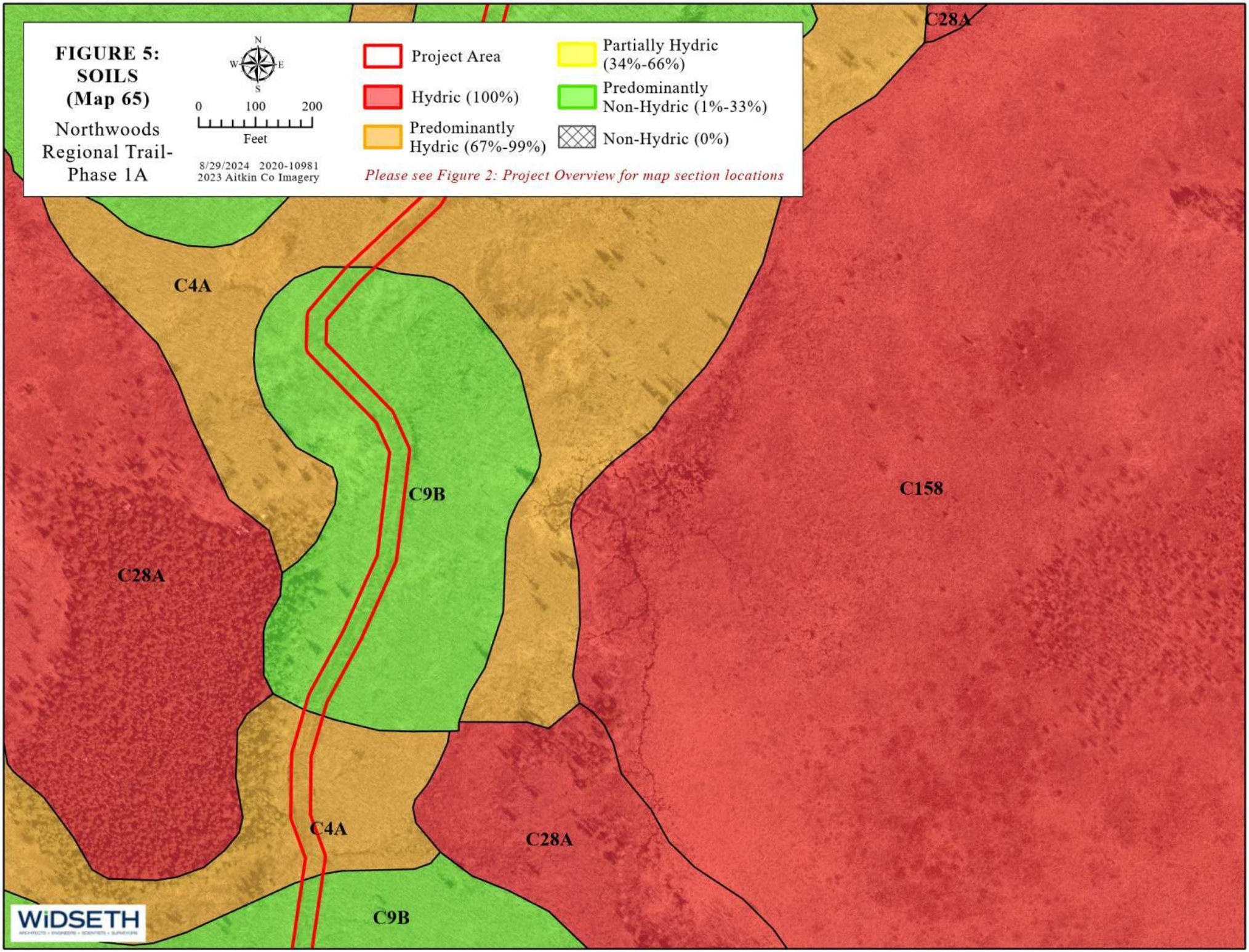


FIGURE 5:
SOILS
(Map 65)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C28A
C4A
C9B
C158
C28A
C4A
C28A
C9B
WiDSETH

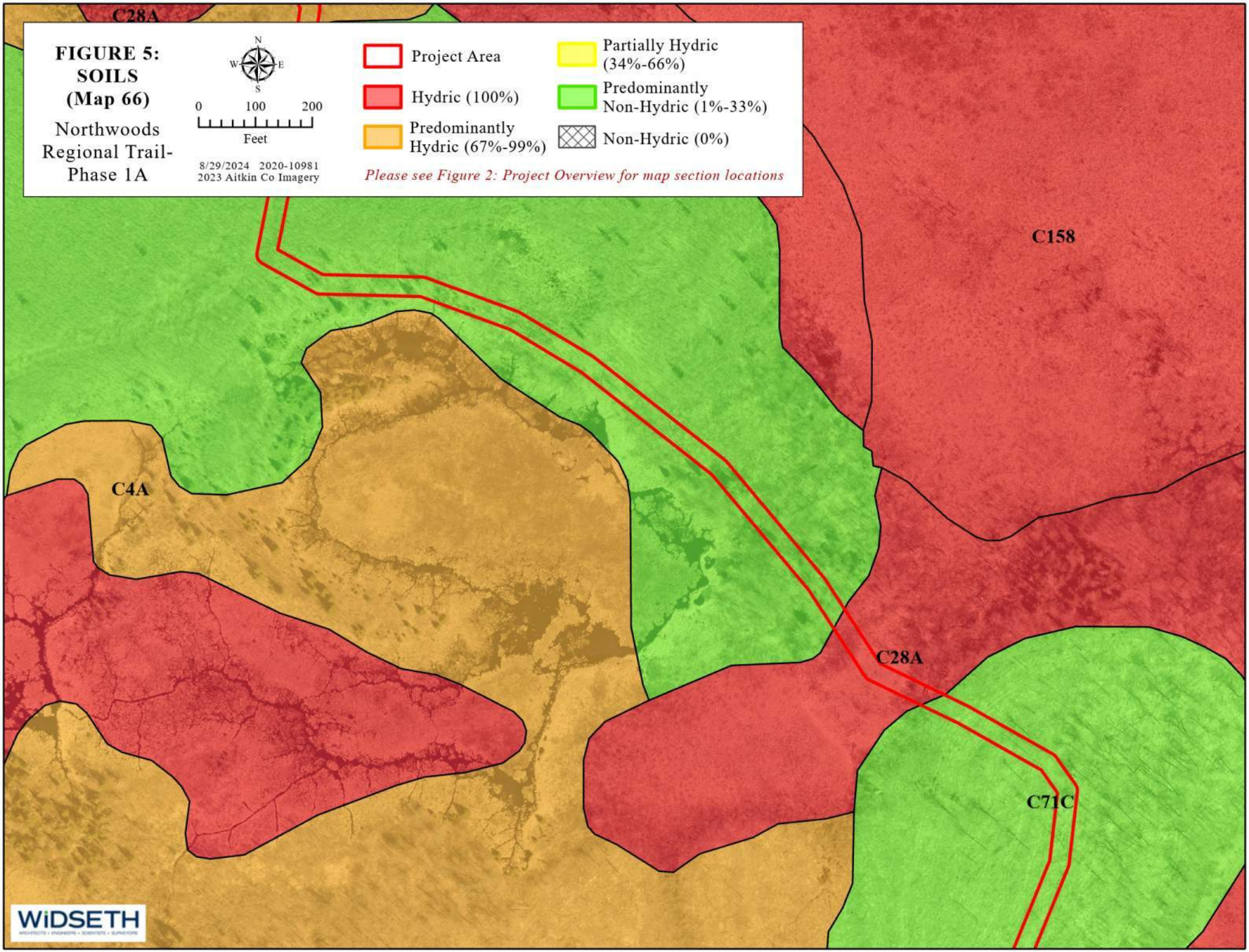


FIGURE 5:
SOILS
(Map 66)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C28A
C158
C4A
C28A
C71C
WiDSETH

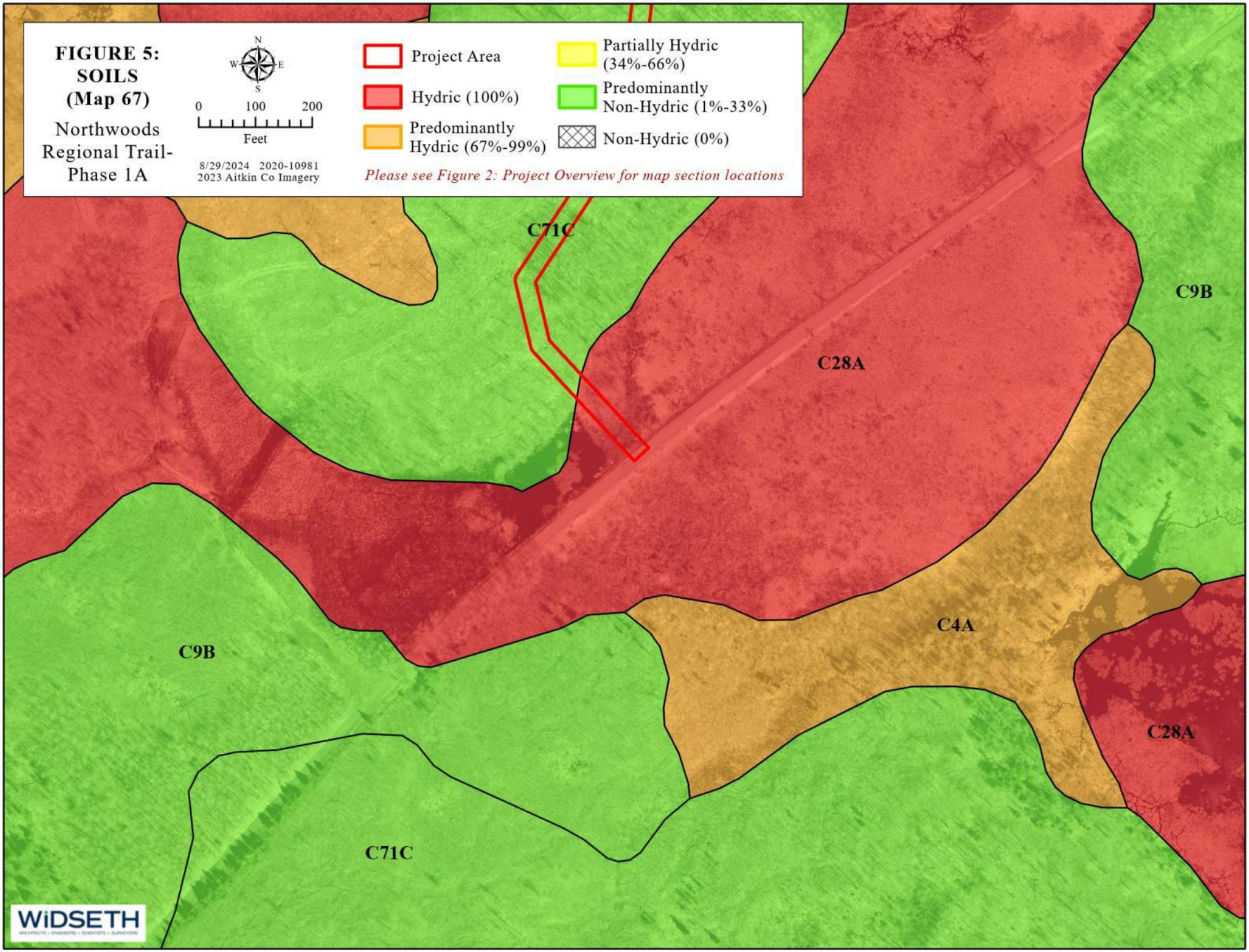


FIGURE 5:
SOILS
(Map 67)
Northwoods
Regional Trail-
Phase 1A
N
W
E
S
0
100
200
Feet
8/29/2024 2020-10981
2023 Aitkin Co Imagery
Project Area
Hydric (100%)
Predominantly
Hydric (67%-99%)
Partially Hydric
(34%-66%)
Predominantly
Non-Hydric (1%-33%)
Non-Hydric (0%)
Please see Figure 2: Project Overview for map section locations
C71C
C9B
C28A
C4A
C9B
C28A
C71C
WiDSETH

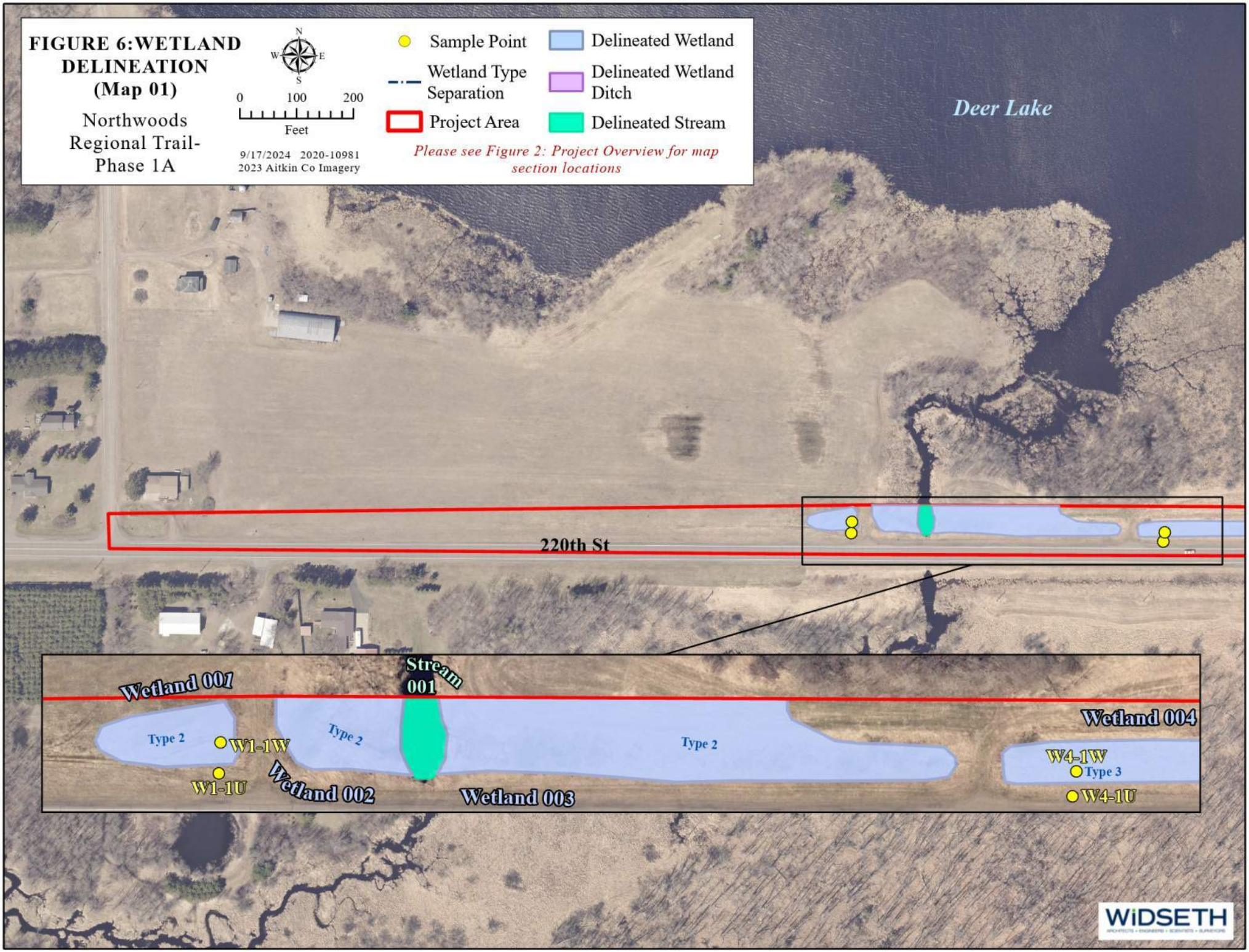


FIGURE 6:WETLAND DELINEATION (Map 01)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Deer Lake
220th St
Wetland 001
Stream 001
Wetland 004
Type 2
W1-1W
Type 2
Type 2
W4-1W
Type 3
W1-1U
Wetland 002
Wetland 003
W4-1U
WIDSETH

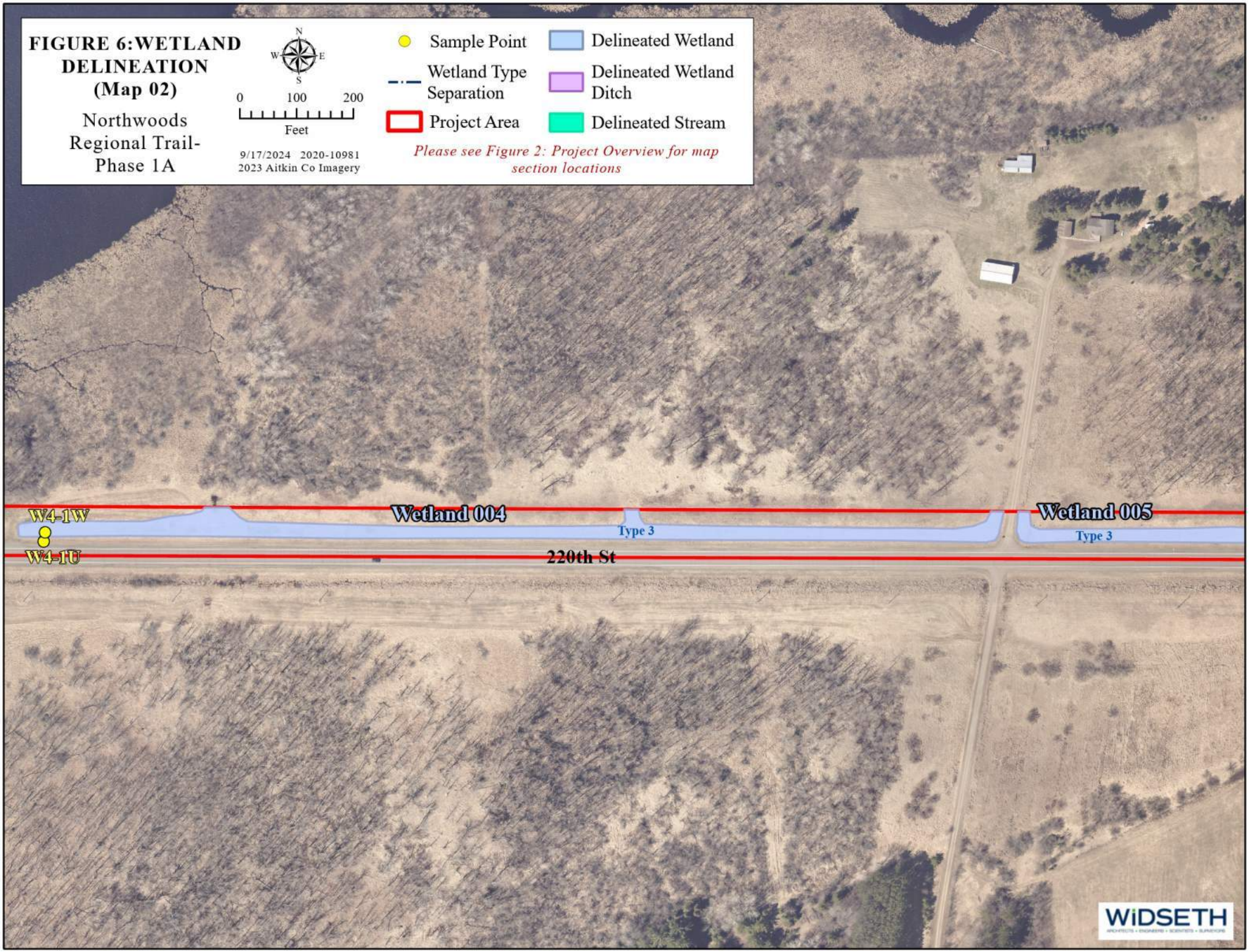


FIGURE 6:WETLAND DELINEATION (Map 02)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
W4-1W
W4-1U
Wetland 004
Type 3
Wetland 005
Type 3
220th St
WIDSETH

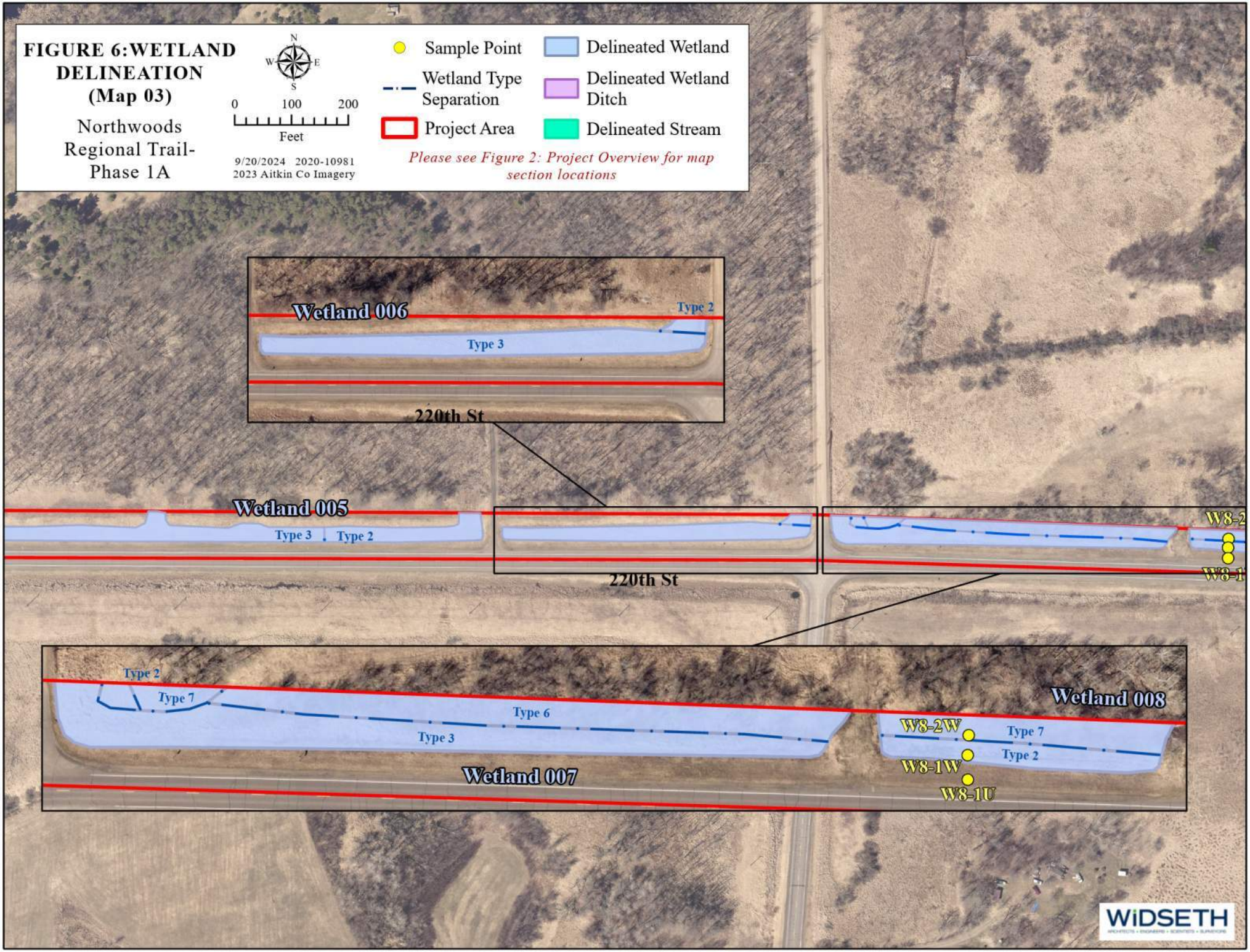


FIGURE 6:WETLAND DELINEATION (Map 03)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/20/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 006
Type 2
Type 3
220th St
Wetland 005
Type 3
Type 2
220th St
W8-2
W8-1
Type 2
Type 7
Type 6
Type 3
Wetland 007
Wetland 008
W8-2W
Type 7
Type 2
W8-1W
W8-1U
WIDSETH

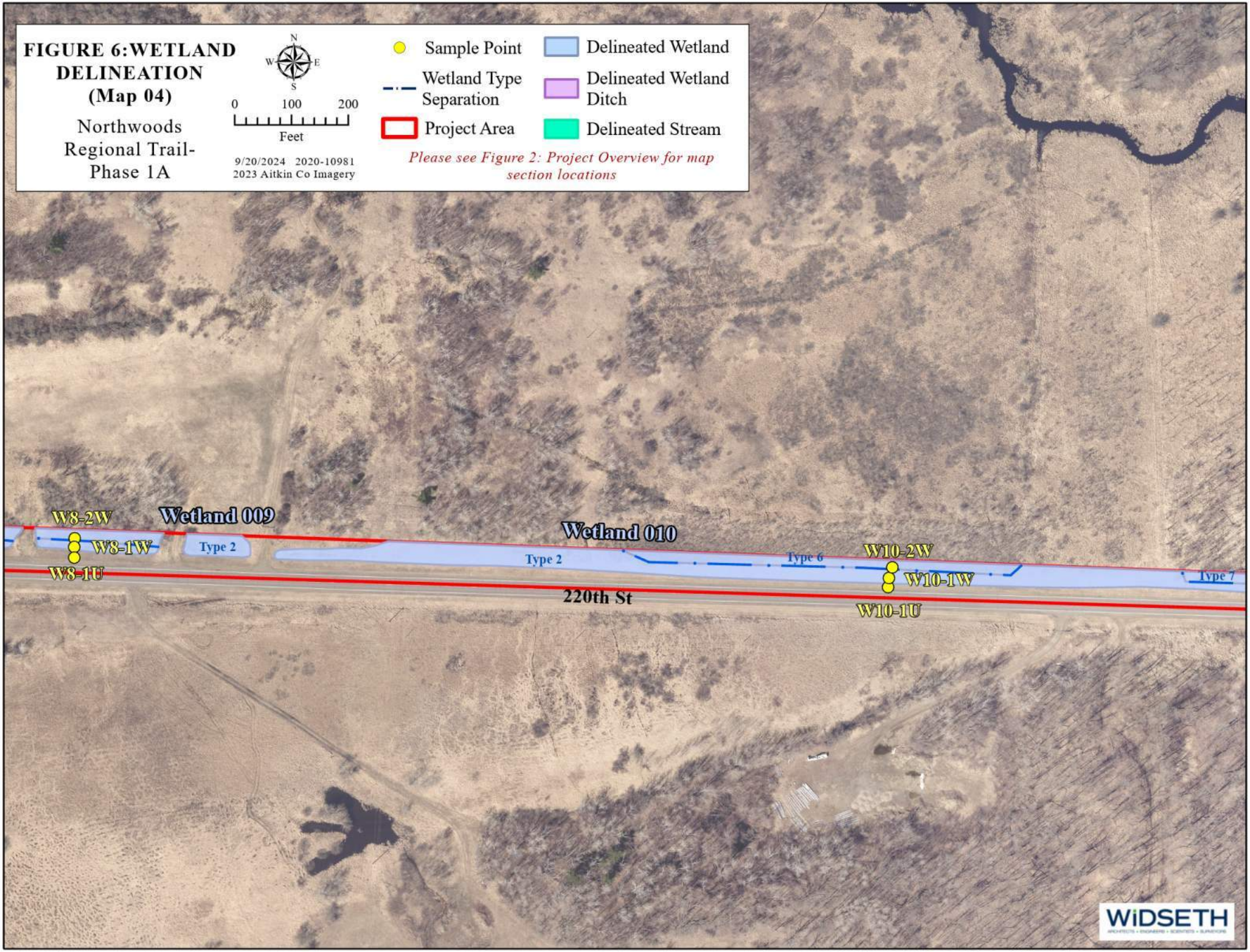


FIGURE 6:WETLAND DELINEATION (Map 04)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/20/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
W8-2W
W8-1W
W8-1U
Wetland 009
Type 2
Wetland 010
Type 2
Type 6
W10-2W
W10-1W
W10-1U
Type 7
220th St
WIDSETH

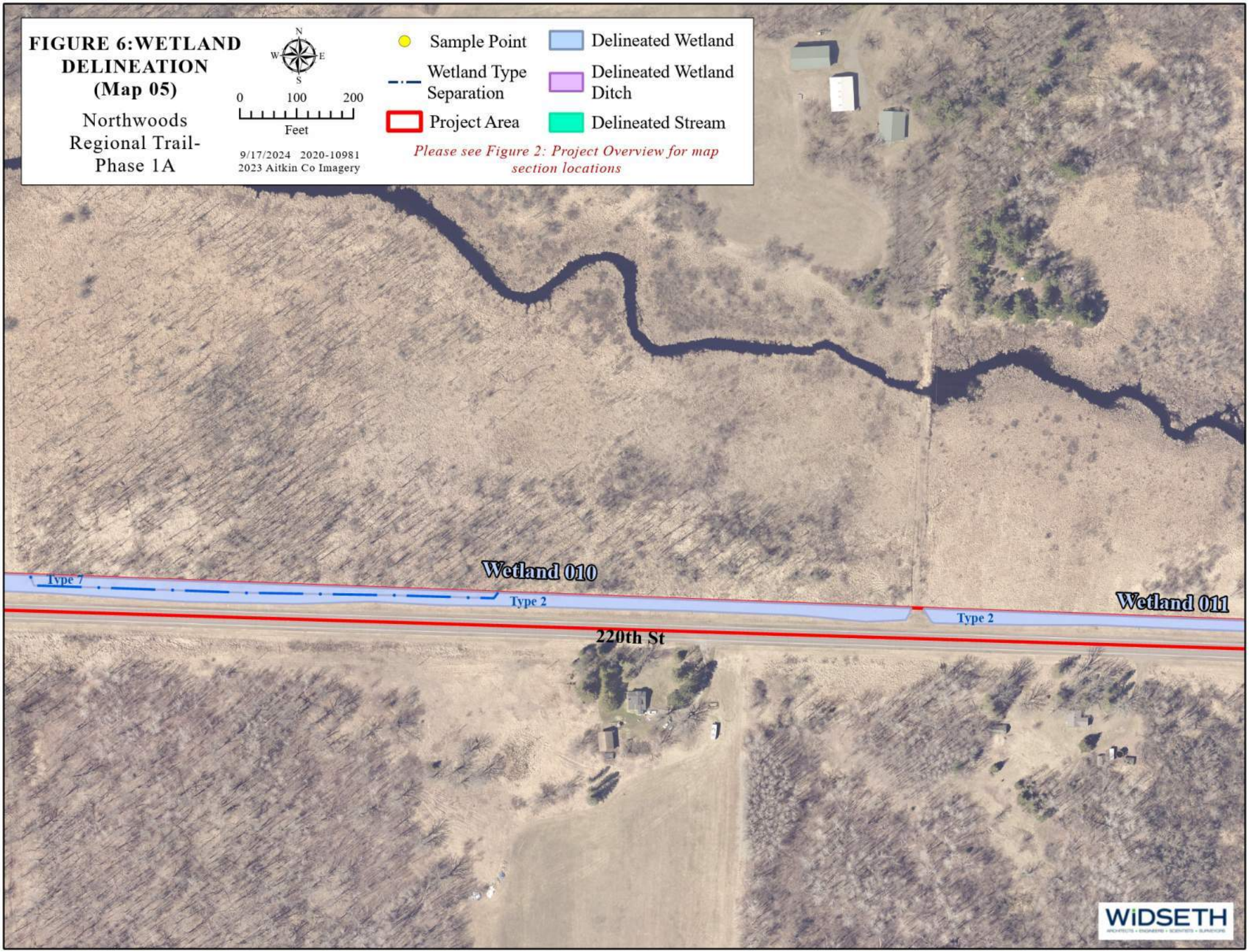


FIGURE 6:WETLAND DELINEATION (Map 05)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 010
Type 7
Type 2
Wetland 011
Type 2
220th St
WIDSETH

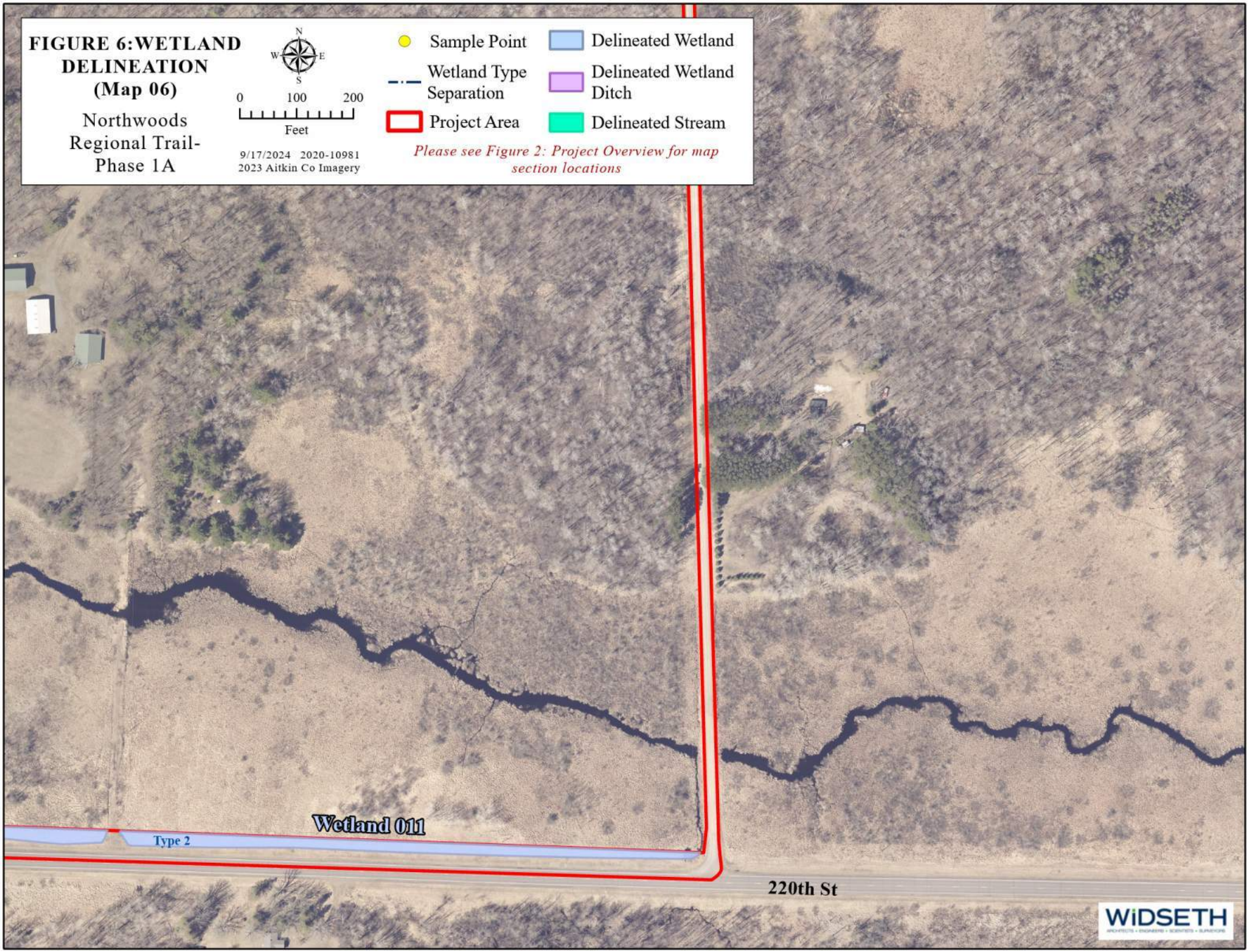


FIGURE 6:WETLAND DELINEATION (Map 06)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 011
Type 2
220th St
WIDSETH

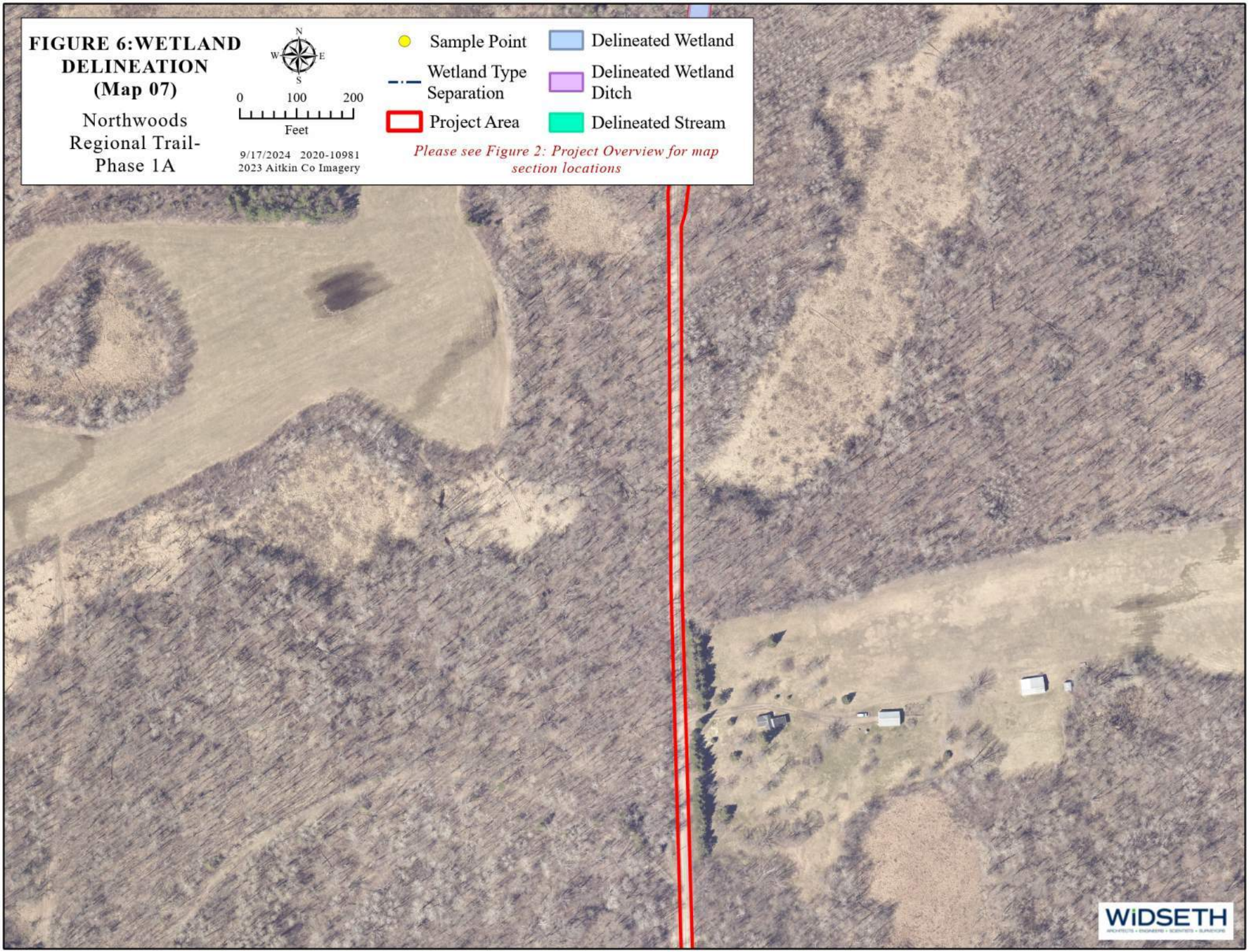


FIGURE 6:WETLAND DELINEATION (Map 07)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
WIDSETH

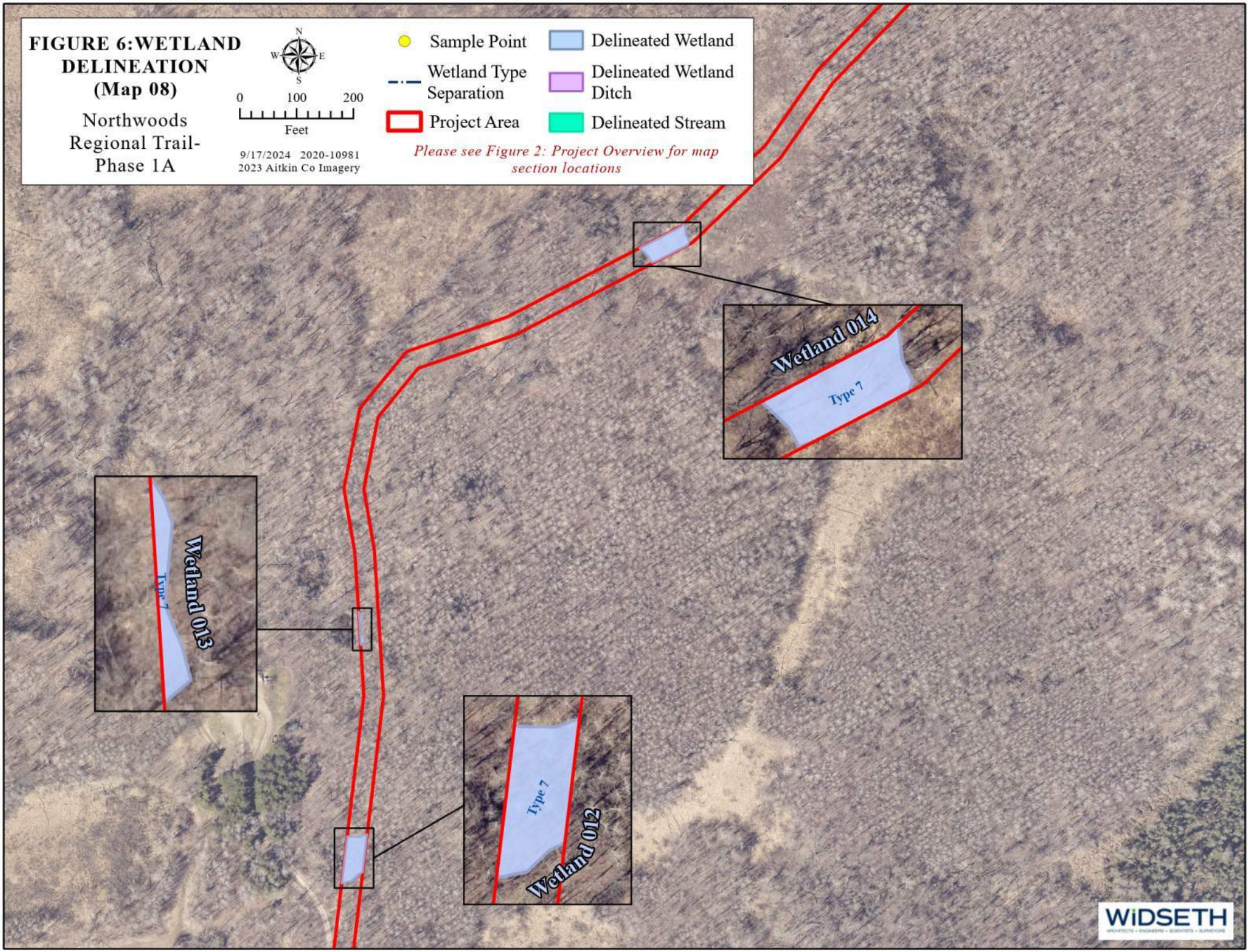


FIGURE 6:WETLAND DELINEATION (Map 08)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 014
Type 7
Wetland 013
Type 7
Wetland 012
Type 7
WIDSETH

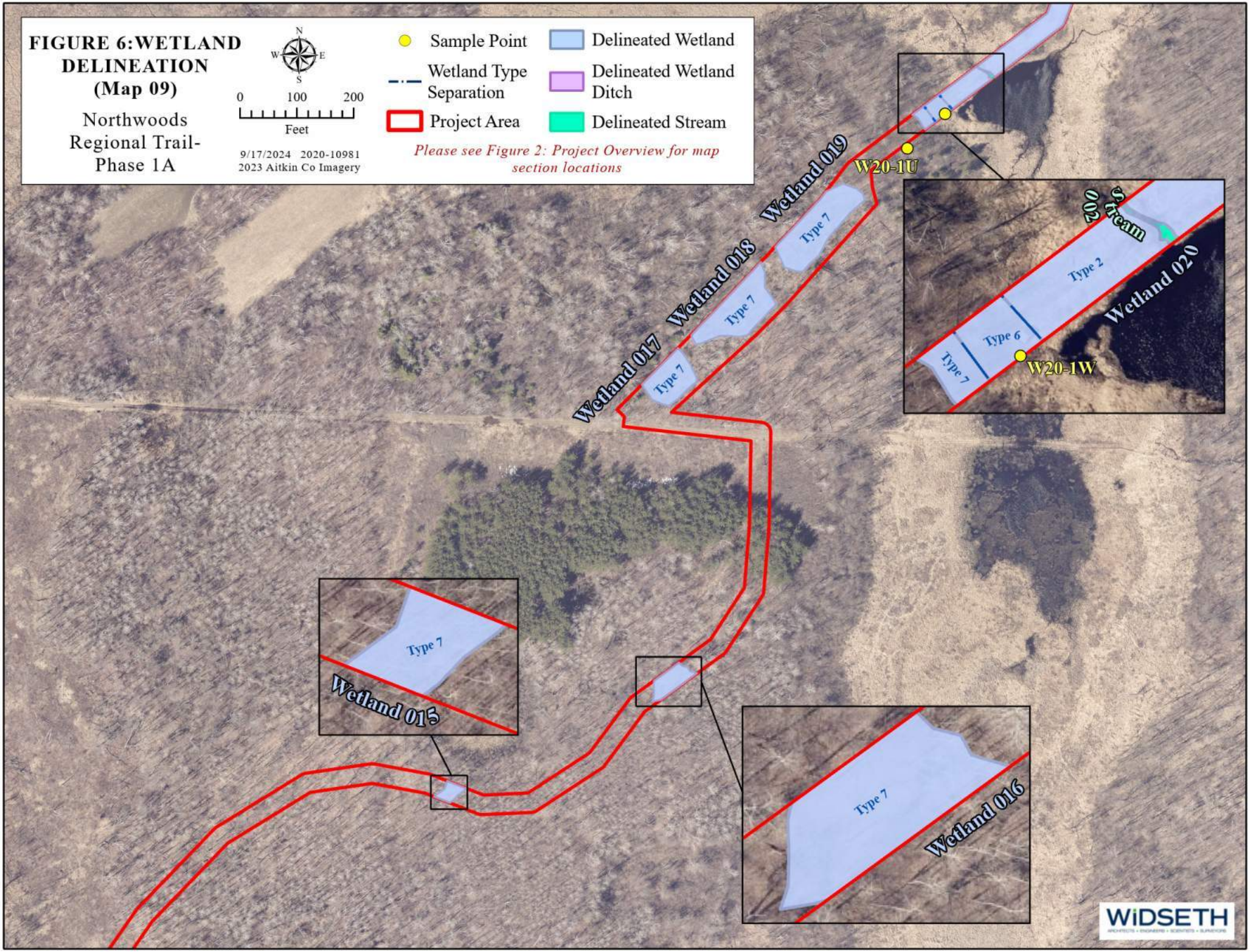


FIGURE 6:WETLAND DELINEATION (Map 09)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 019
Wetland 018
Wetland 017
Type 7
W20-1U
Stream 002
Type 2
Wetland 020
Type 6
W20-1W
Wetland 015
Wetland 016
WIDSETH

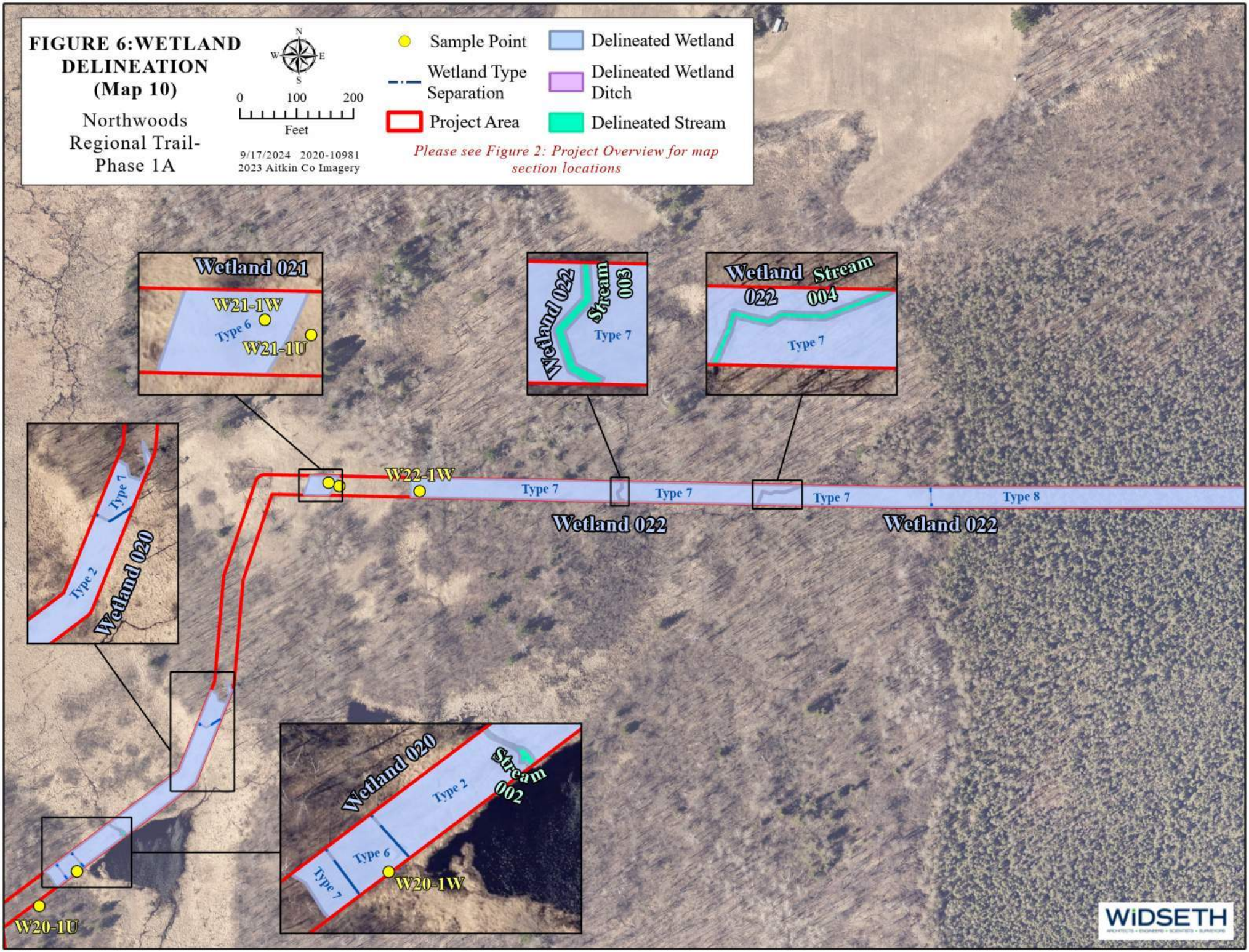


FIGURE 6:WETLAND DELINEATION (Map 10)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 021
W21-1W
Type 6
W21-1U
Wetland 022
Stream 003
Type 7
Wetland 022
Stream 004
Type 7
Type 7
Type 2
Wetland 020
W22-1W
Type 7
Type 7
Type 7
Type 8
Wetland 022
Wetland 022
Wetland 020
Type 2
Stream 002
Type 6
Type 7
W20-1W
W20-1U
WiDSETH

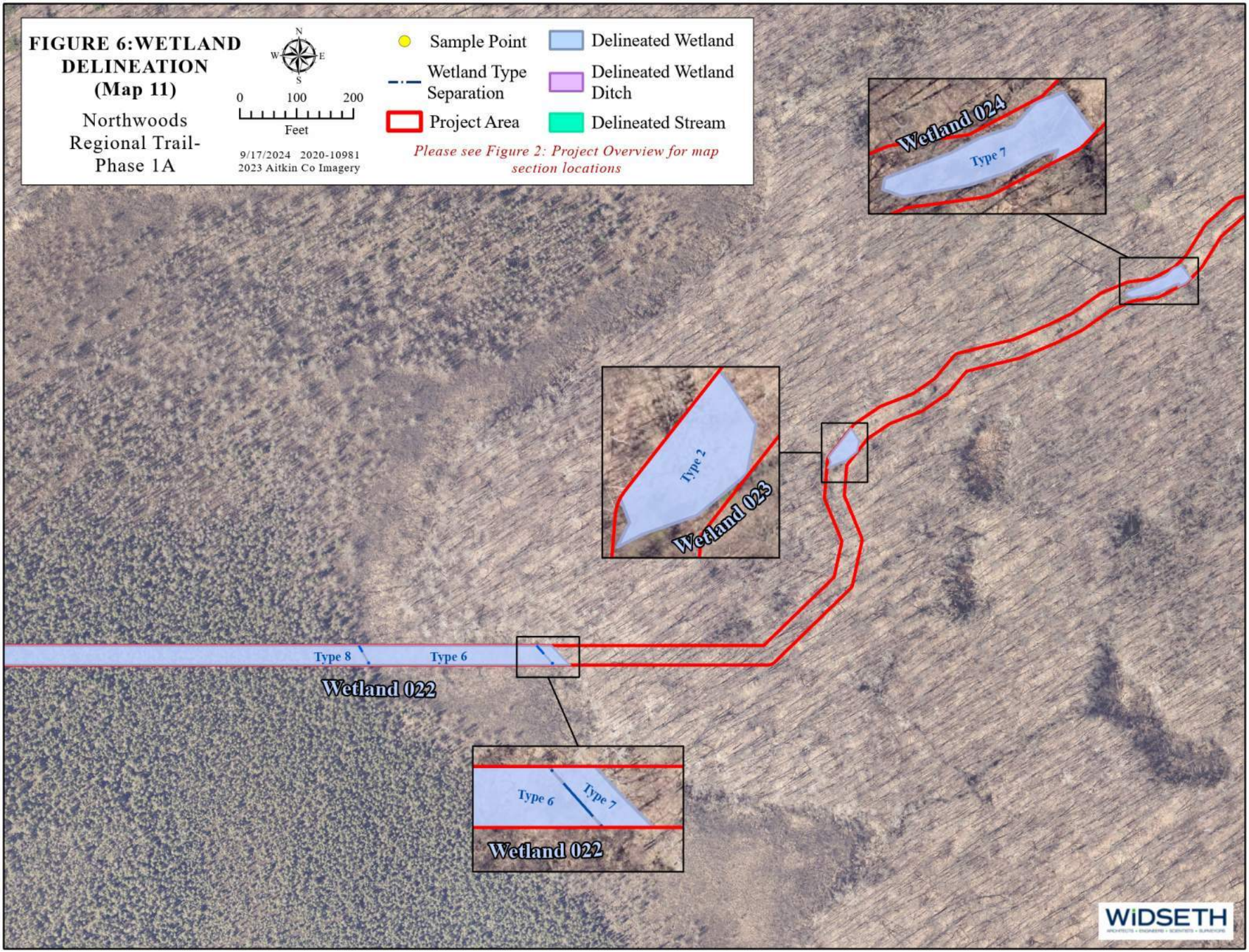


FIGURE 6:WETLAND DELINEATION (Map 11)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 024
Type 7
Type 2
Wetland 023
Type 8
Type 6
Wetland 022
Type 6
Type 7
Wetland 022
WIDSETH

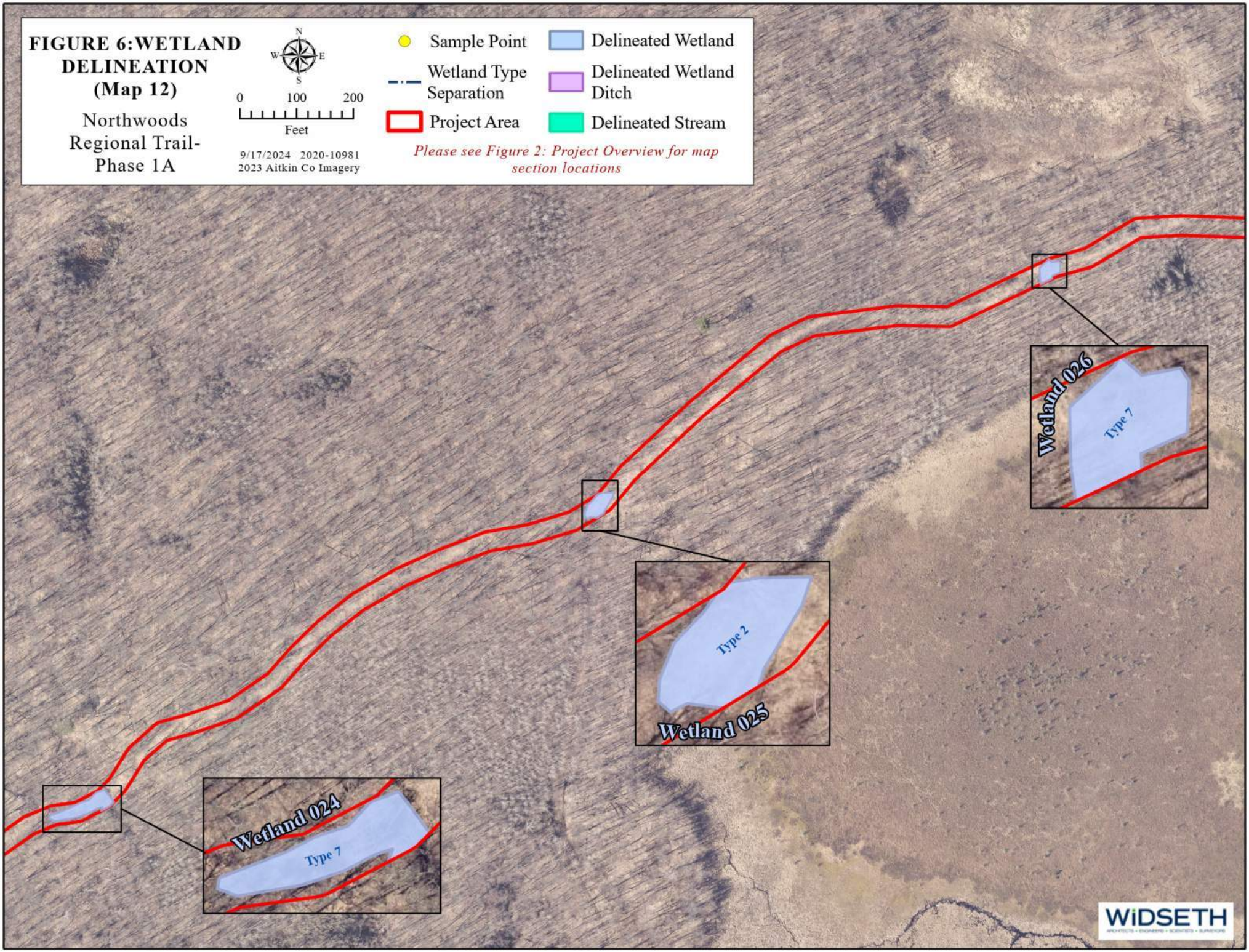


FIGURE 6:WETLAND DELINEATION (Map 12)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 026
Type 7
Wetland 025
Type 2
Wetland 024
Type 7
WIDSETH

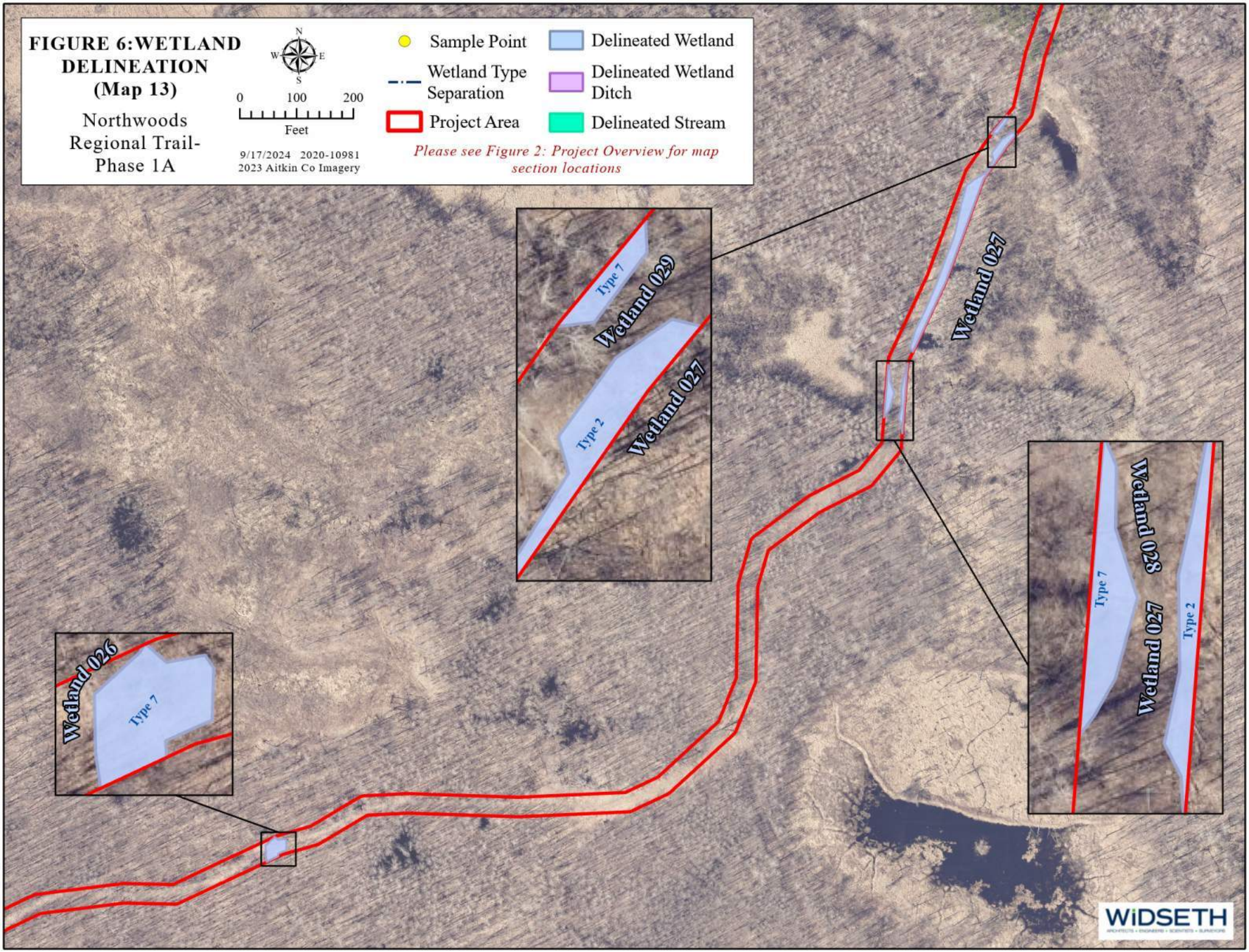


FIGURE 6:WETLAND DELINEATION (Map 13)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 026
Type 7
Wetland 029
Type 7
Type 2
Wetland 027
Wetland 027
Wetland 028
Type 7
Type 2
WIDSETH

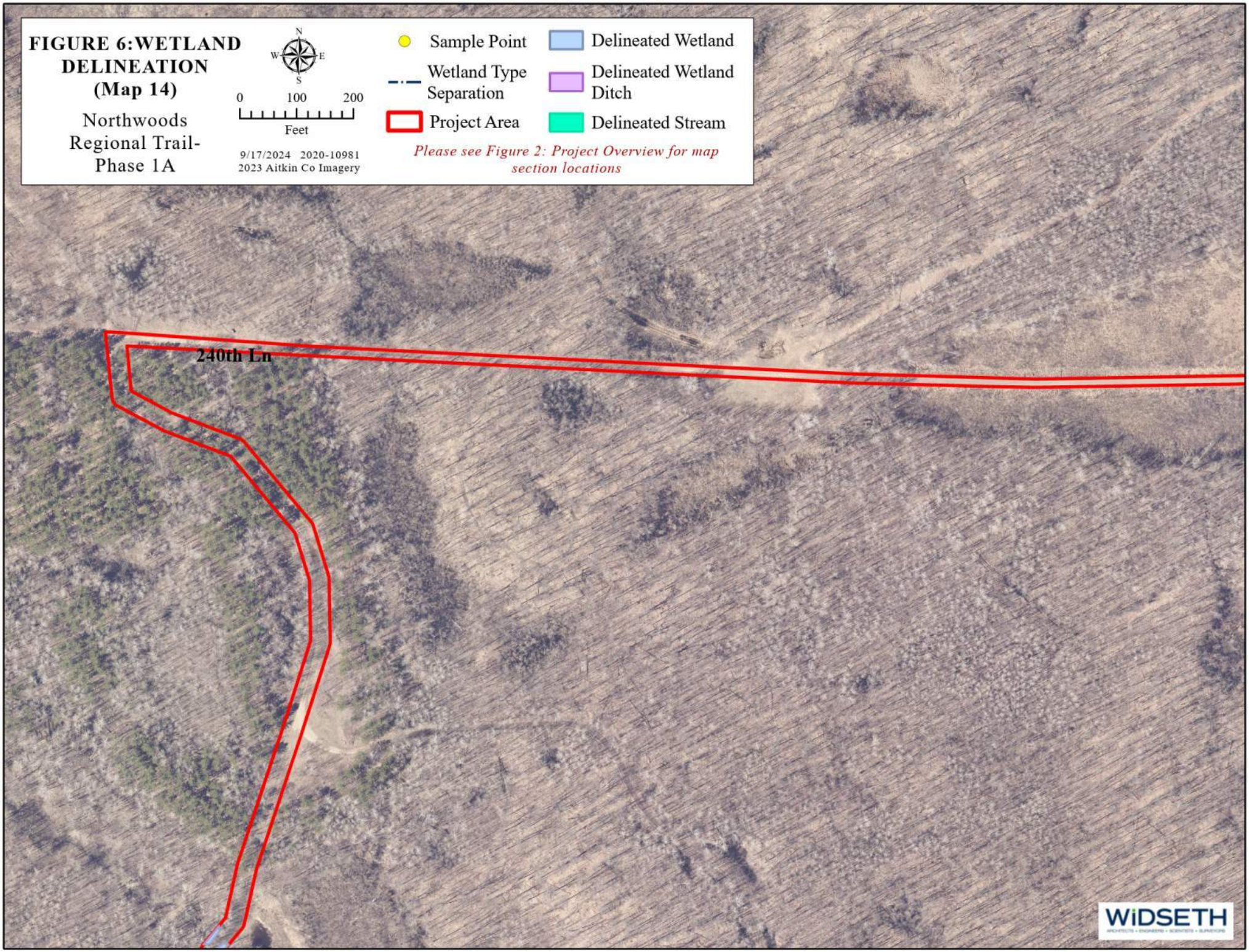


FIGURE 6:WETLAND DELINEATION (Map 14)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
240th Ln
WIDSETH

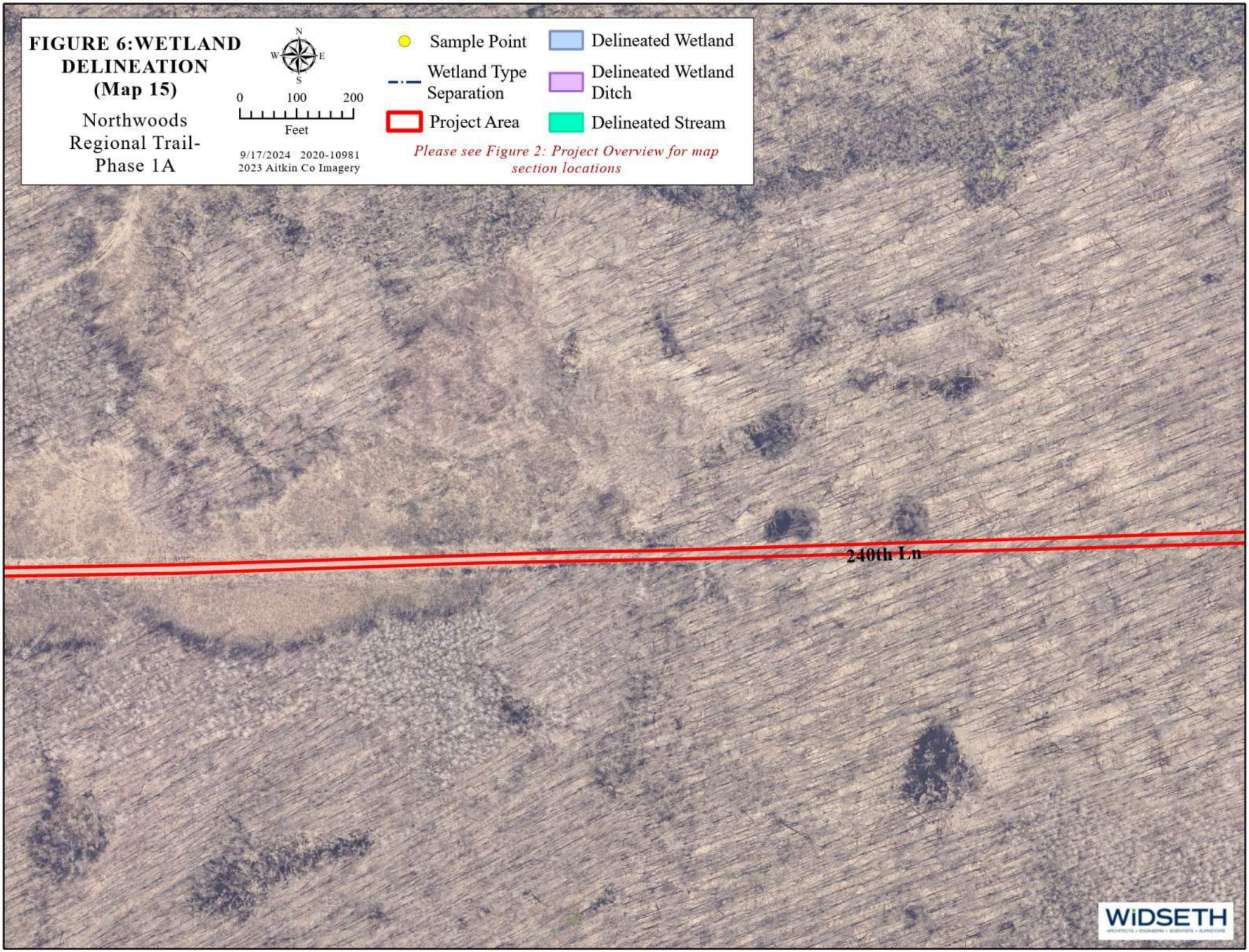


FIGURE 6:WETLAND DELINEATION
(Map 15)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
240th Ln
WIDSETH

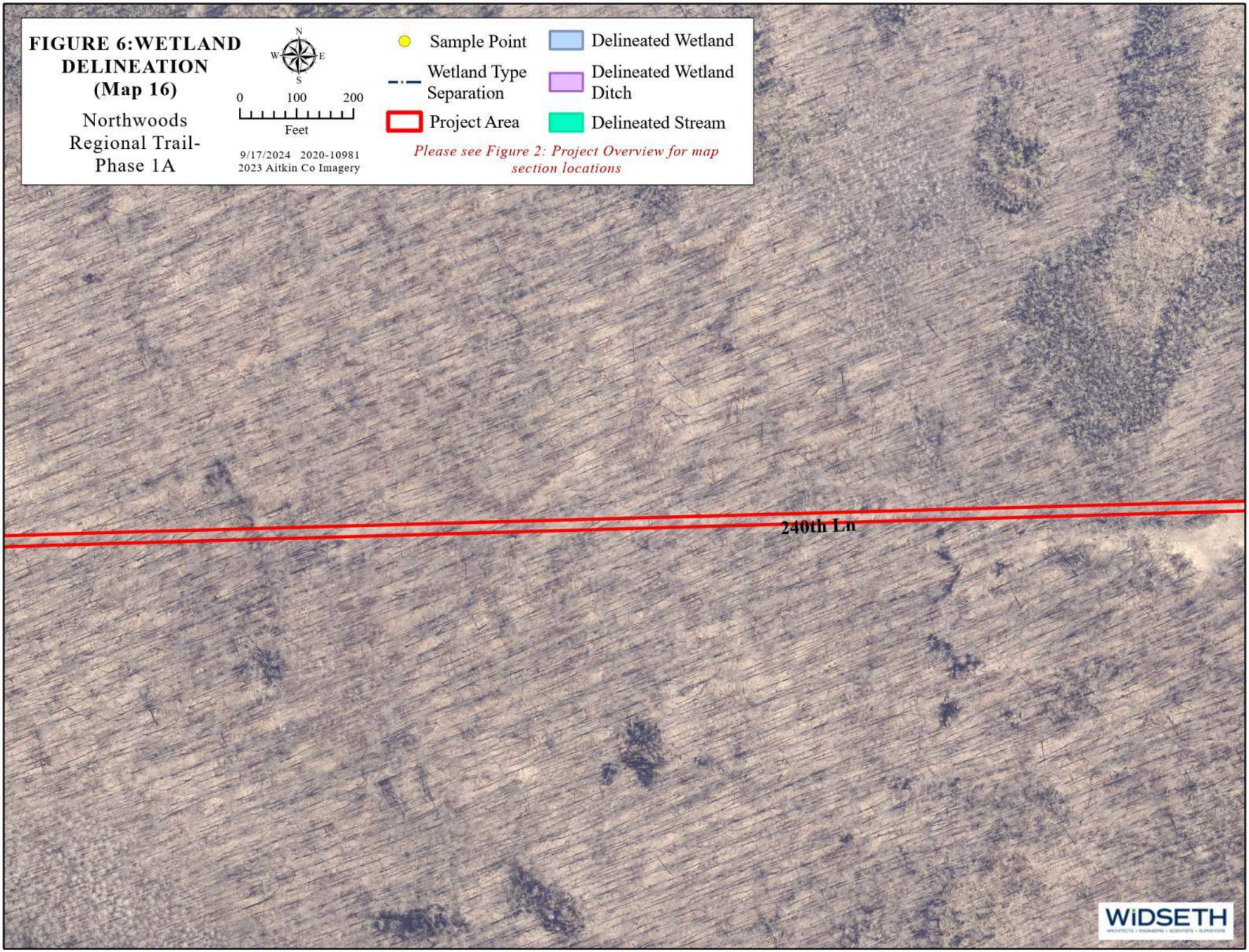


FIGURE 6:WETLAND DELINEATION (Map 16)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
240th Ln
WIDSETH

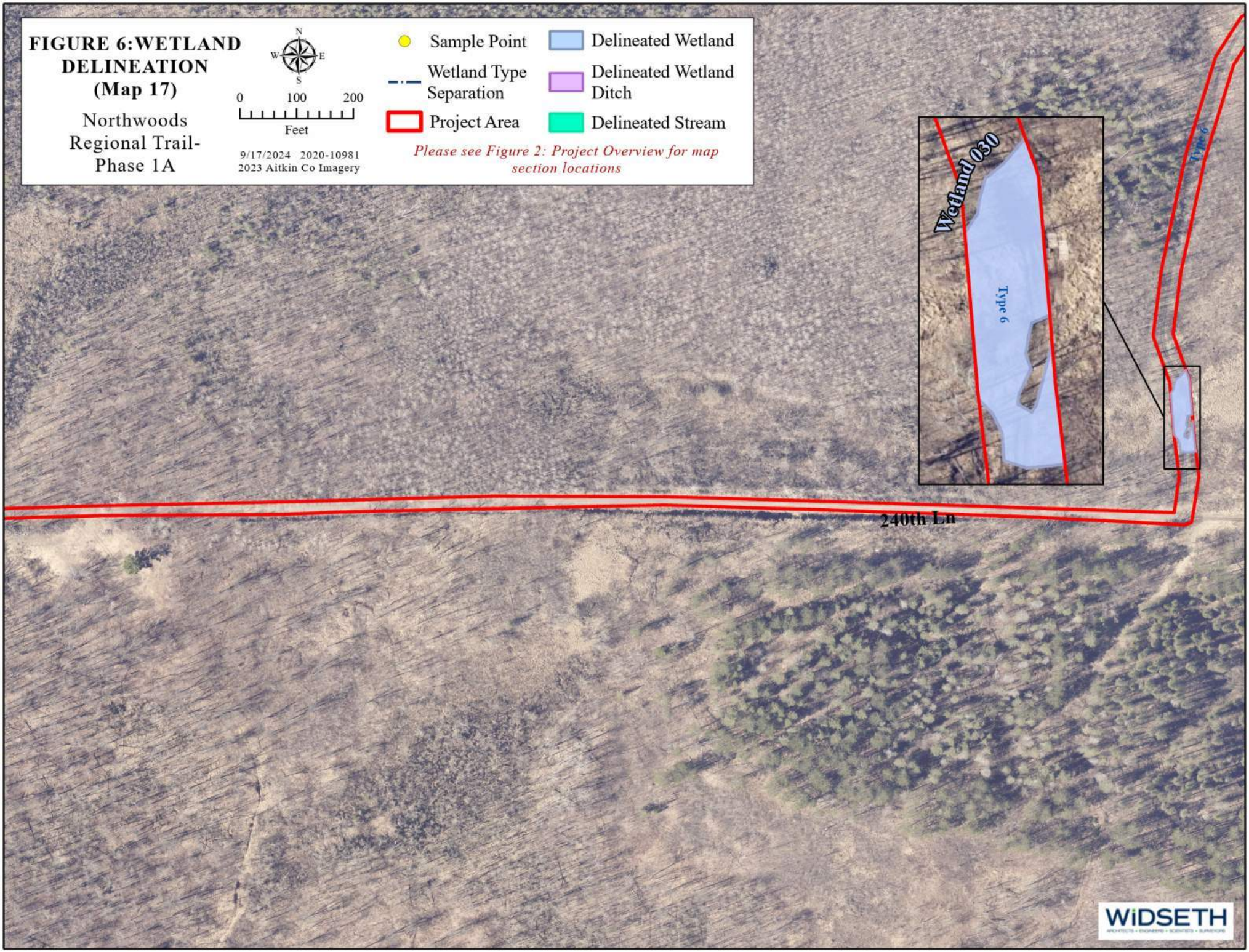


FIGURE 6:WETLAND DELINEATION (Map 17)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 030
Type 6
Type 6
240th Ln
WIDSETH

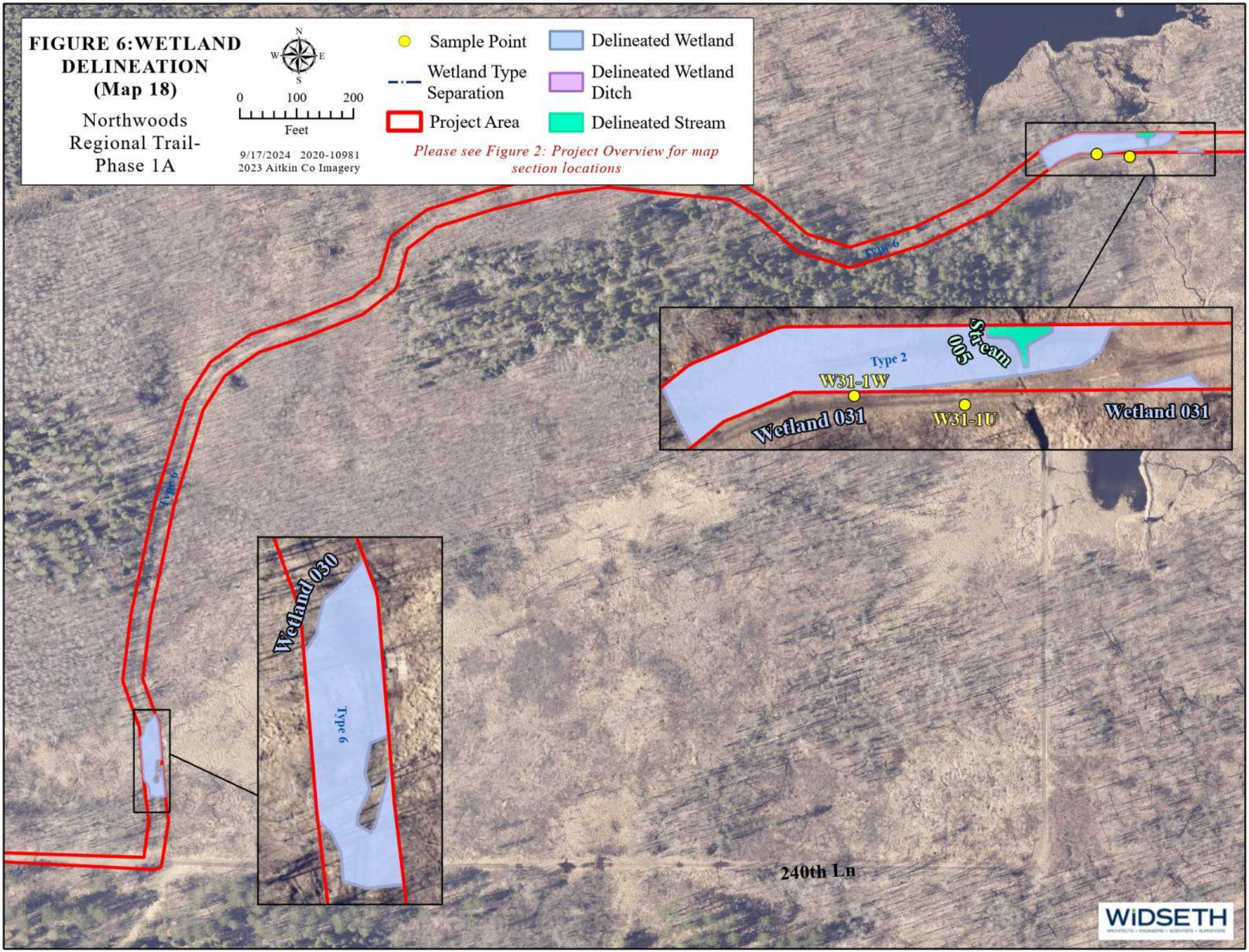


FIGURE 6:WETLAND DELINEATION (Map 18)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Type 6
Type 2
Stream 005
W31-1W
W31-1U
Wetland 031
Wetland 031
Wetland 030
Type 6
240th Ln
WIDSETH

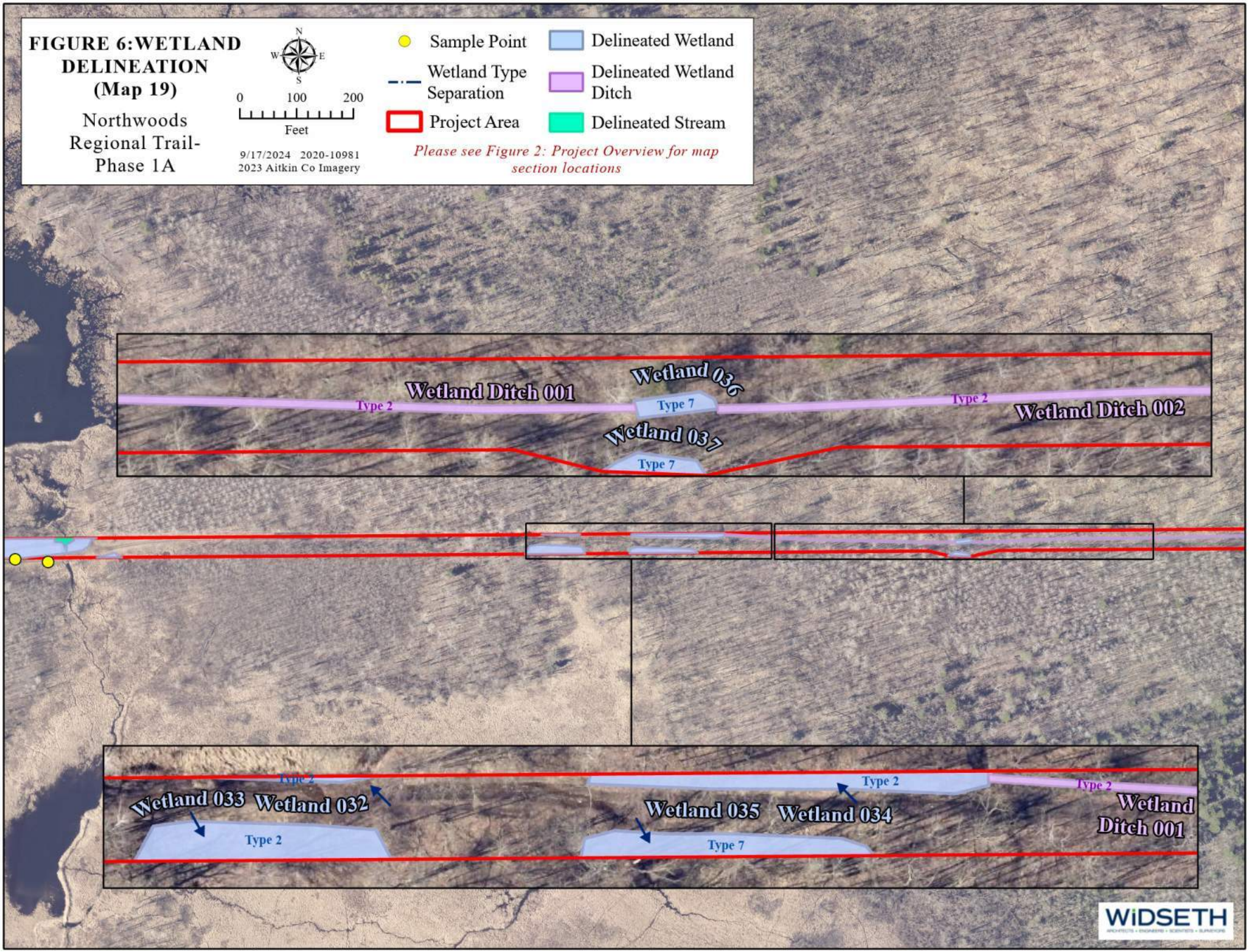


FIGURE 6:WETLAND DELINEATION (Map 19)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland Ditch 001
Type 2
Wetland 036
Type 7
Wetland 037
Type 7
Type 2
Wetland Ditch 002
Wetland 033
Type 2
Wetland 032
Type 2
Wetland 035
Type 7
Wetland 034
Type 2
Type 2
Wetland Ditch 001
WIDSETH

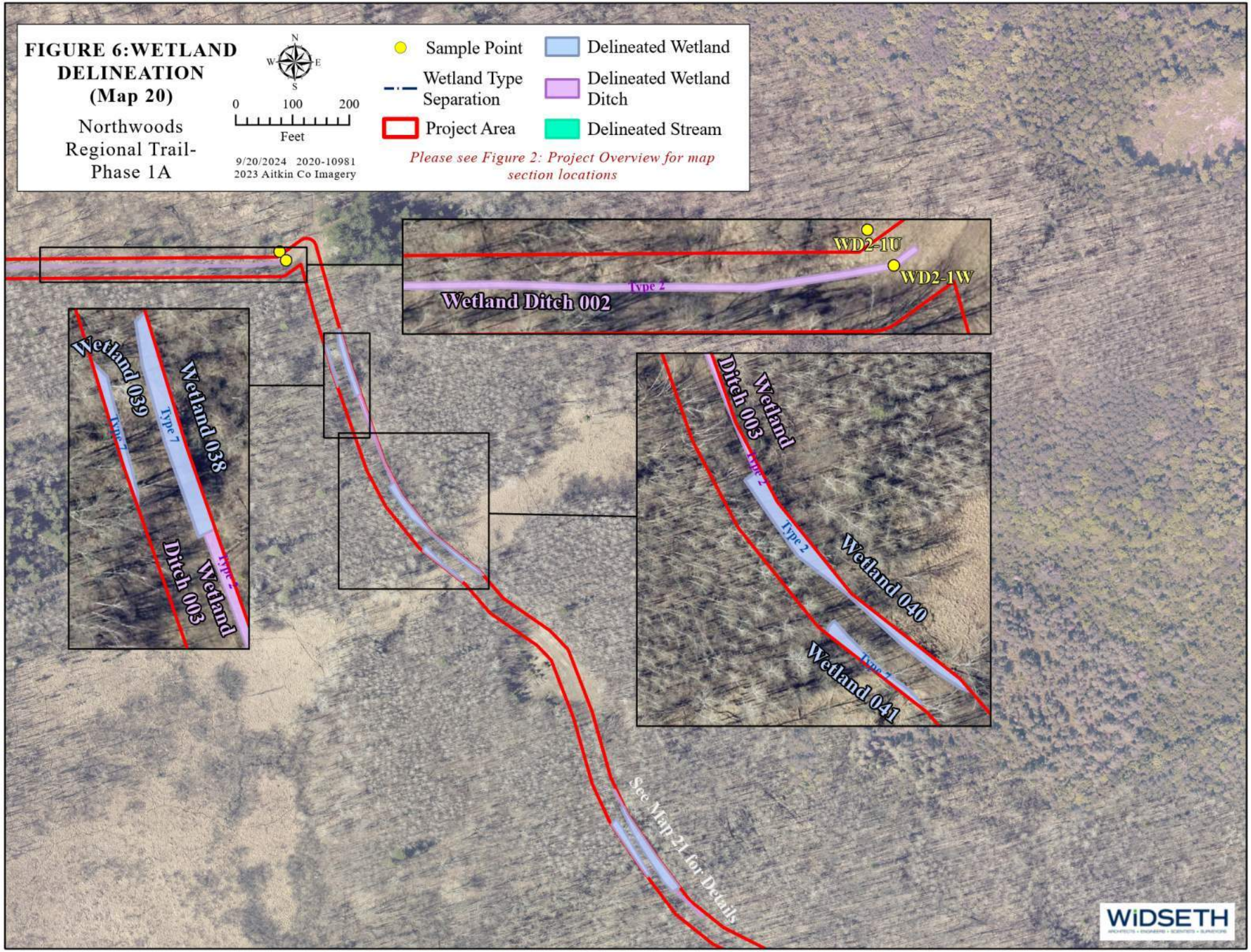


FIGURE 6:WETLAND DELINEATION (Map 20)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/20/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
WD2-1U
WD2-1W
Wetland Ditch 002
Type 2
Wetland 039
Type 7
Wetland 038
Type 7
Wetland Ditch 003
Type 2
Wetland Ditch 003
Type 2
Type 2
Wetland 040
Wetland 041
Type 7
See Map 21 for Details
WIDSETH

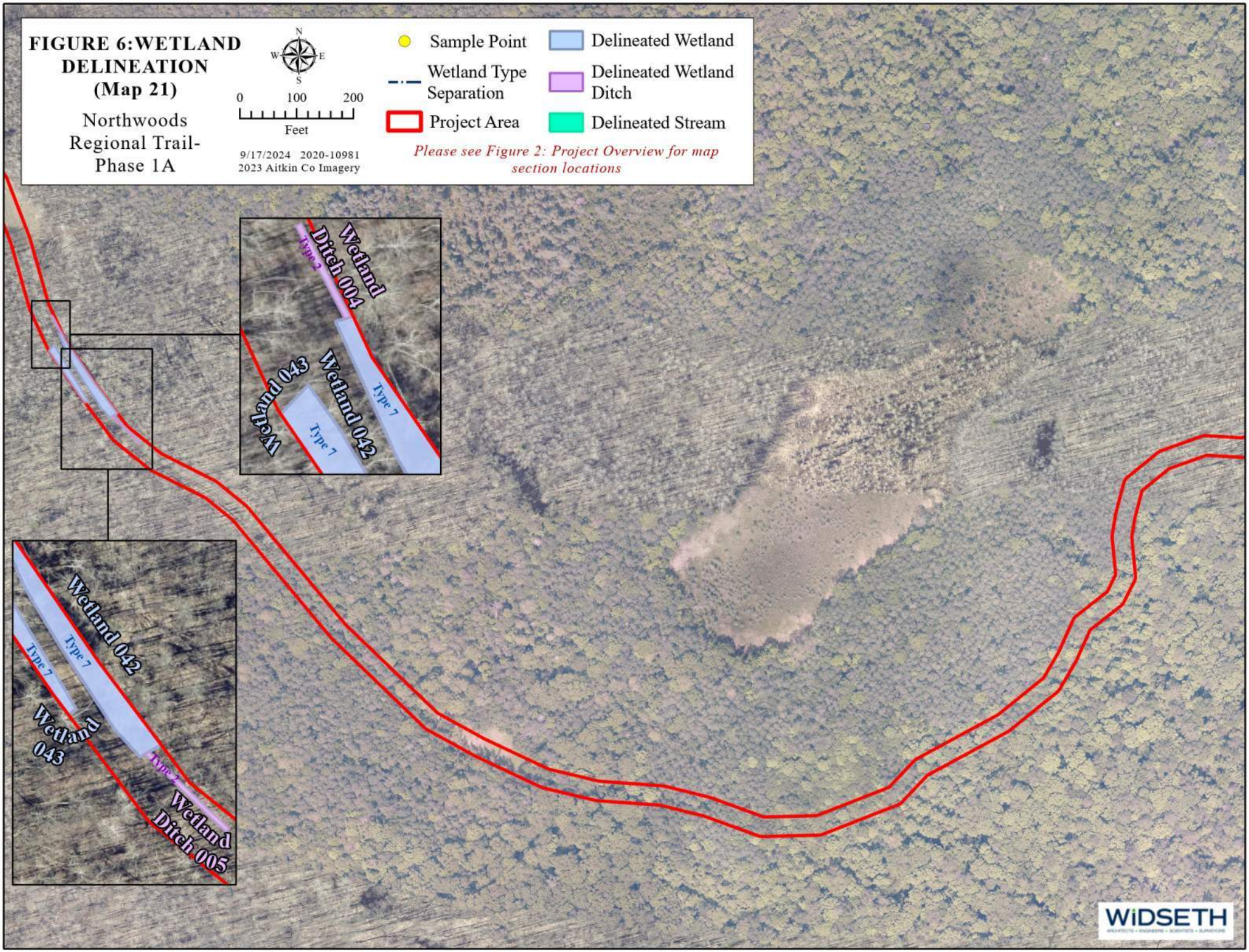


FIGURE 6:WETLAND DELINEATION (Map 21)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland Ditch 004
Type 7
Wetland 043
Wetland 042
Type 7
Type 7
Wetland 042
Type 7
Type 7
Wetland 043
Type 7
Wetland Ditch 005
WIDSETH

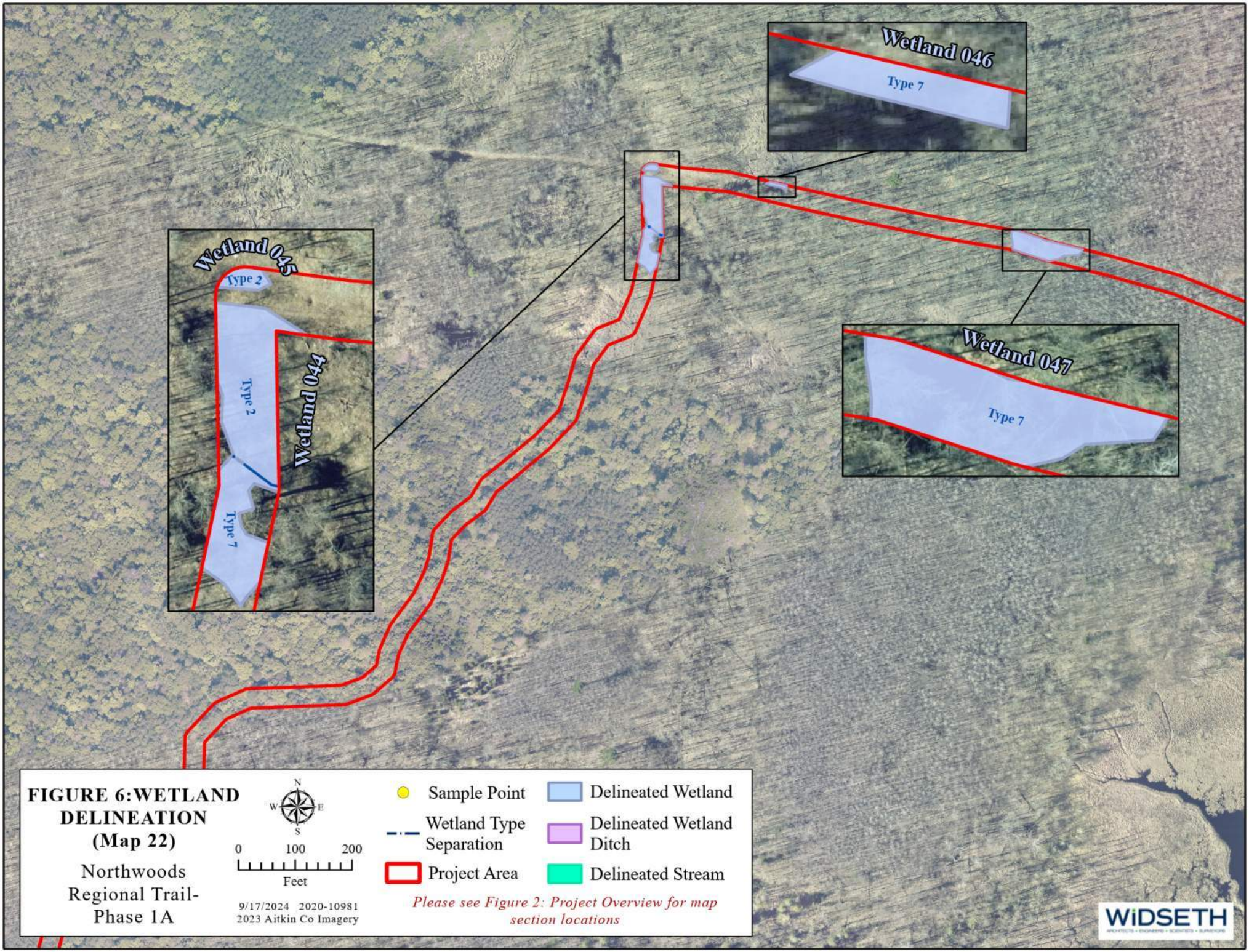


FIGURE 6:WETLAND DELINEATION (Map 22)

Northwoods Regional Trail-Phase 1A

N
W E
S

0 100 200
Feet

9/17/2024 2020-10981
2023 Aitkin Co Imagery

Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream

Please see Figure 2: Project Overview for map section locations

WIDSETH

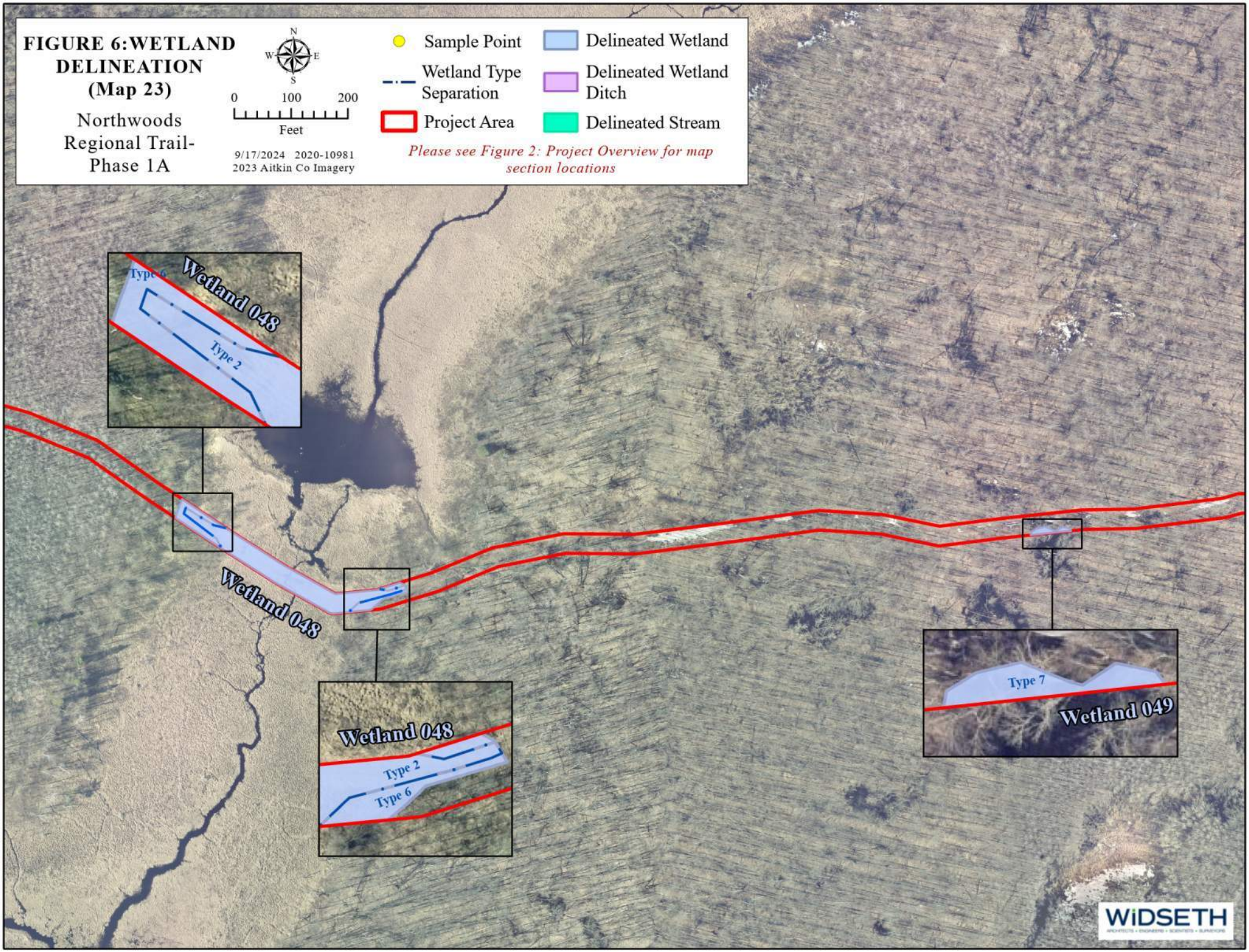


FIGURE 6:WETLAND DELINEATION (Map 23)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 048
Type 6
Type 2
Wetland 048
Wetland 048
Type 2
Type 6
Type 7
Wetland 049
WIDSETH

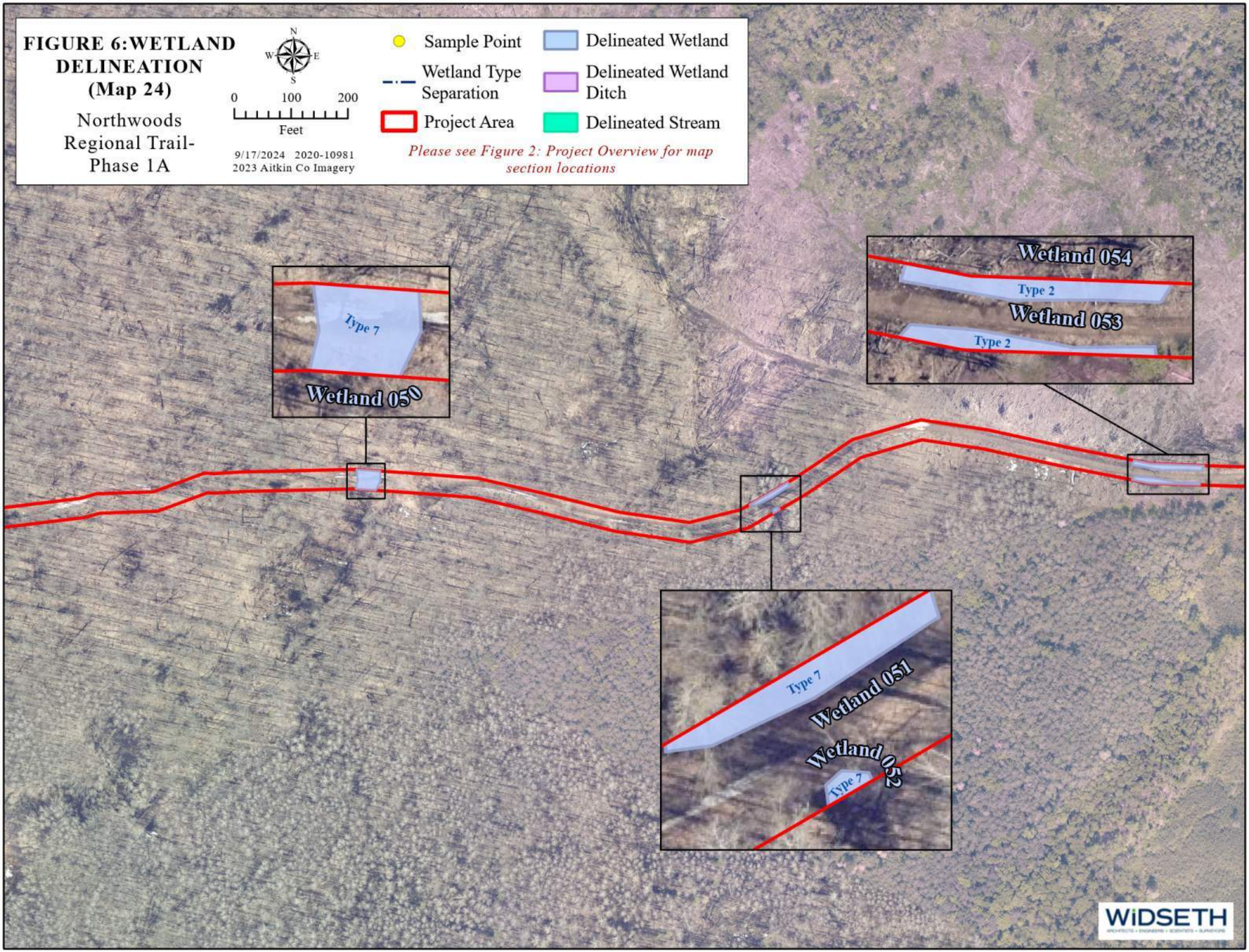


FIGURE 6:WETLAND DELINEATION (Map 24)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Type 7
Wetland 050
Wetland 054
Type 2
Wetland 053
Type 2
Type 7
Wetland 051
Wetland 052
Type 7
WIDSETH

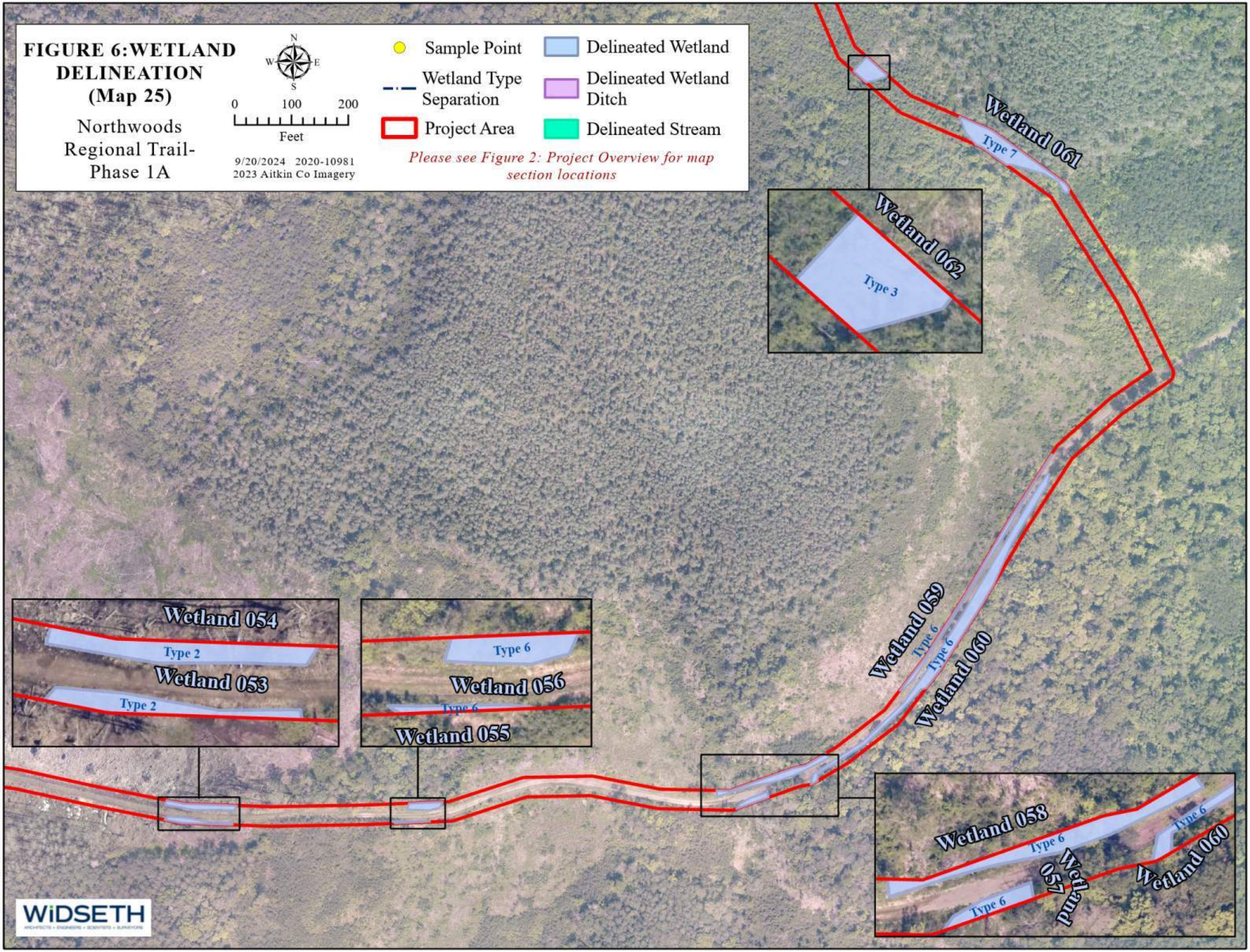


FIGURE 6:WETLAND DELINEATION (Map 25)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/20/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 061
Type 7
Wetland 062
Type 3
Wetland 059
Type 6
Type 6
Wetland 060
Wetland 054
Type 2
Wetland 053
Type 2
Type 6
Wetland 056
Type 6
Wetland 055
Wetland 058
Type 6
Type 6
Wetland 057
Type 6
Wetland 060
WiDSETH

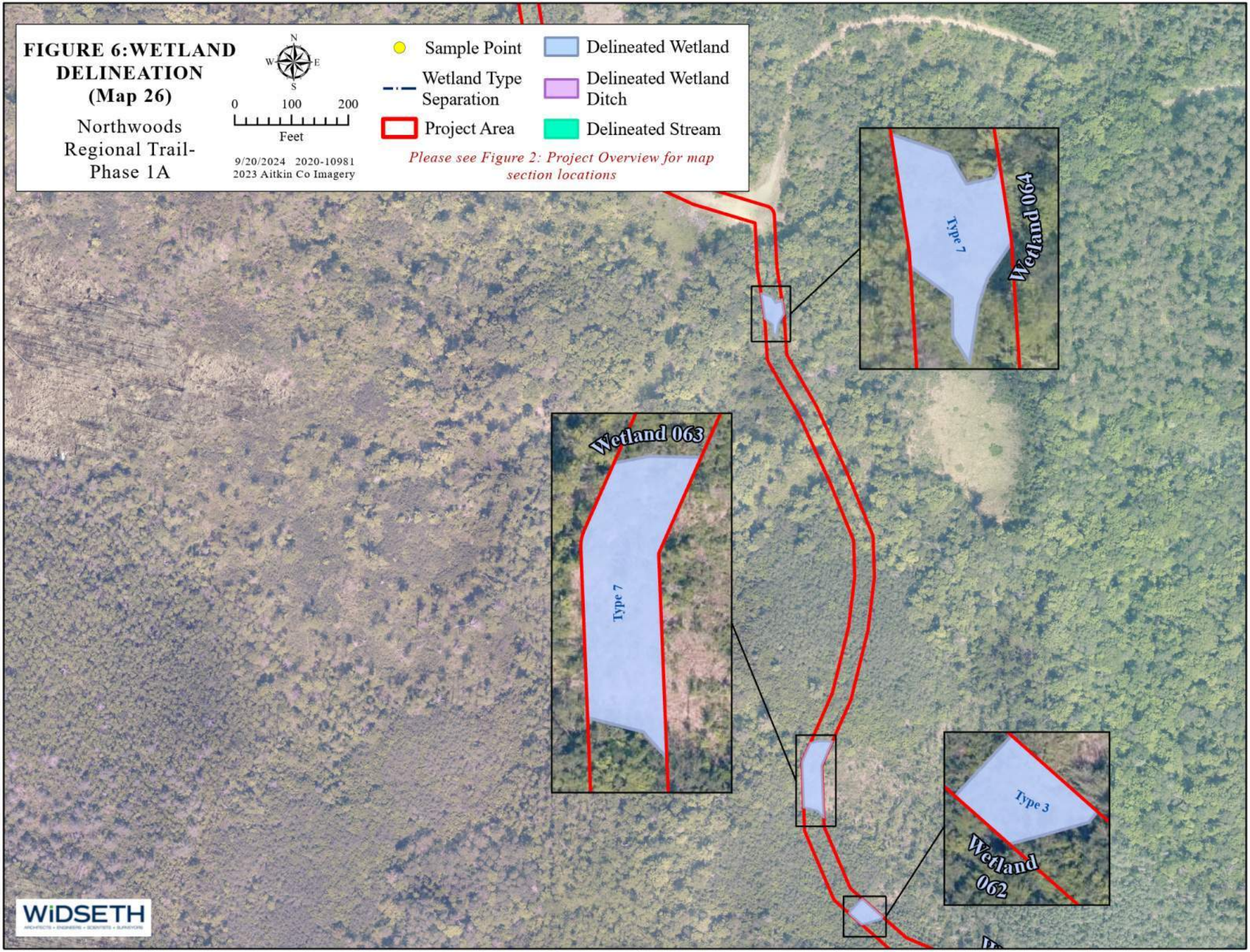


FIGURE 6:WETLAND DELINEATION (Map 26)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/20/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 064
Type 7
Wetland 063
Type 7
Type 3
Wetland 062
WiDSETH

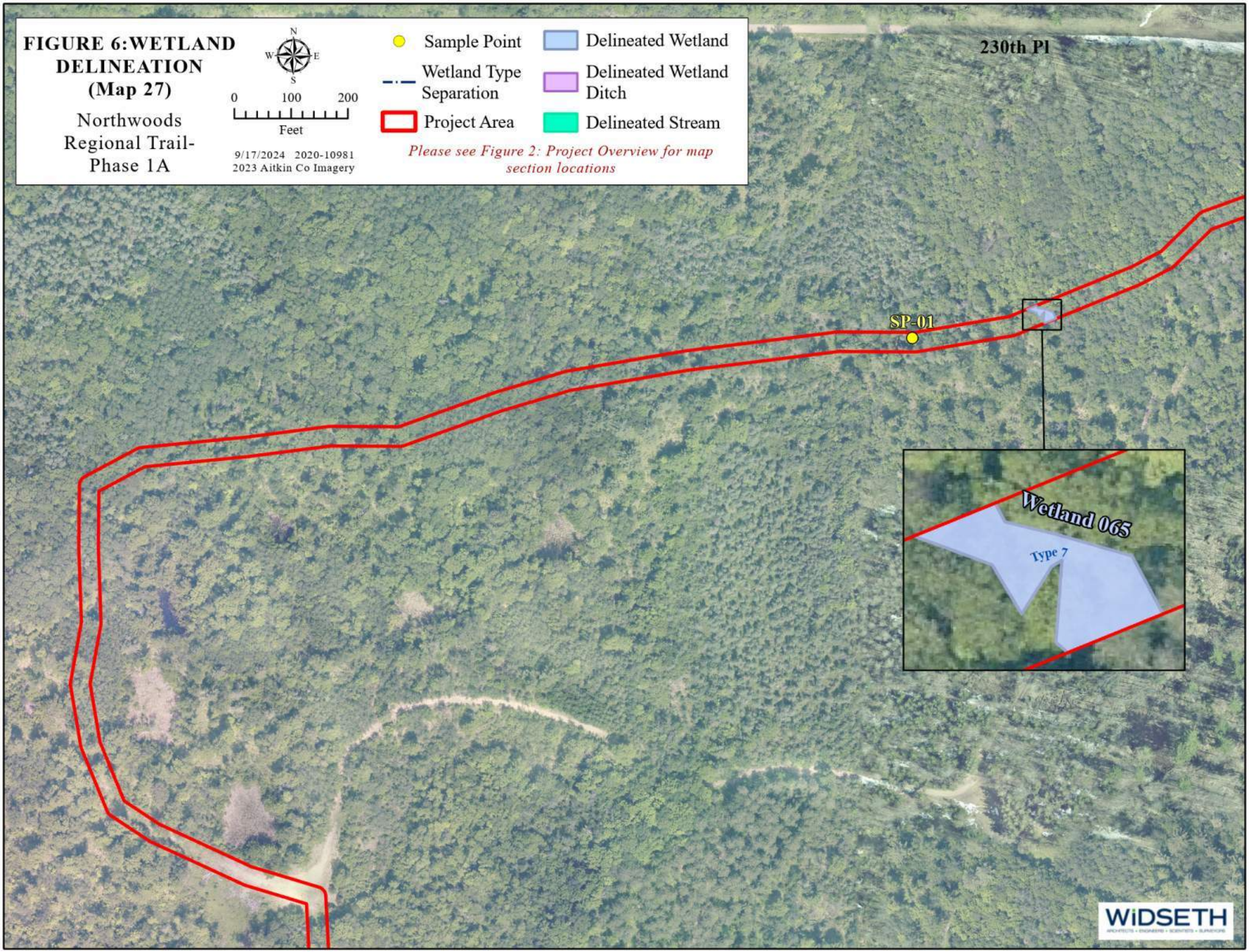


FIGURE 6:WETLAND DELINEATION (Map 27)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
230th Pl
SP-01
Wetland 065
Type 7
WIDSETH

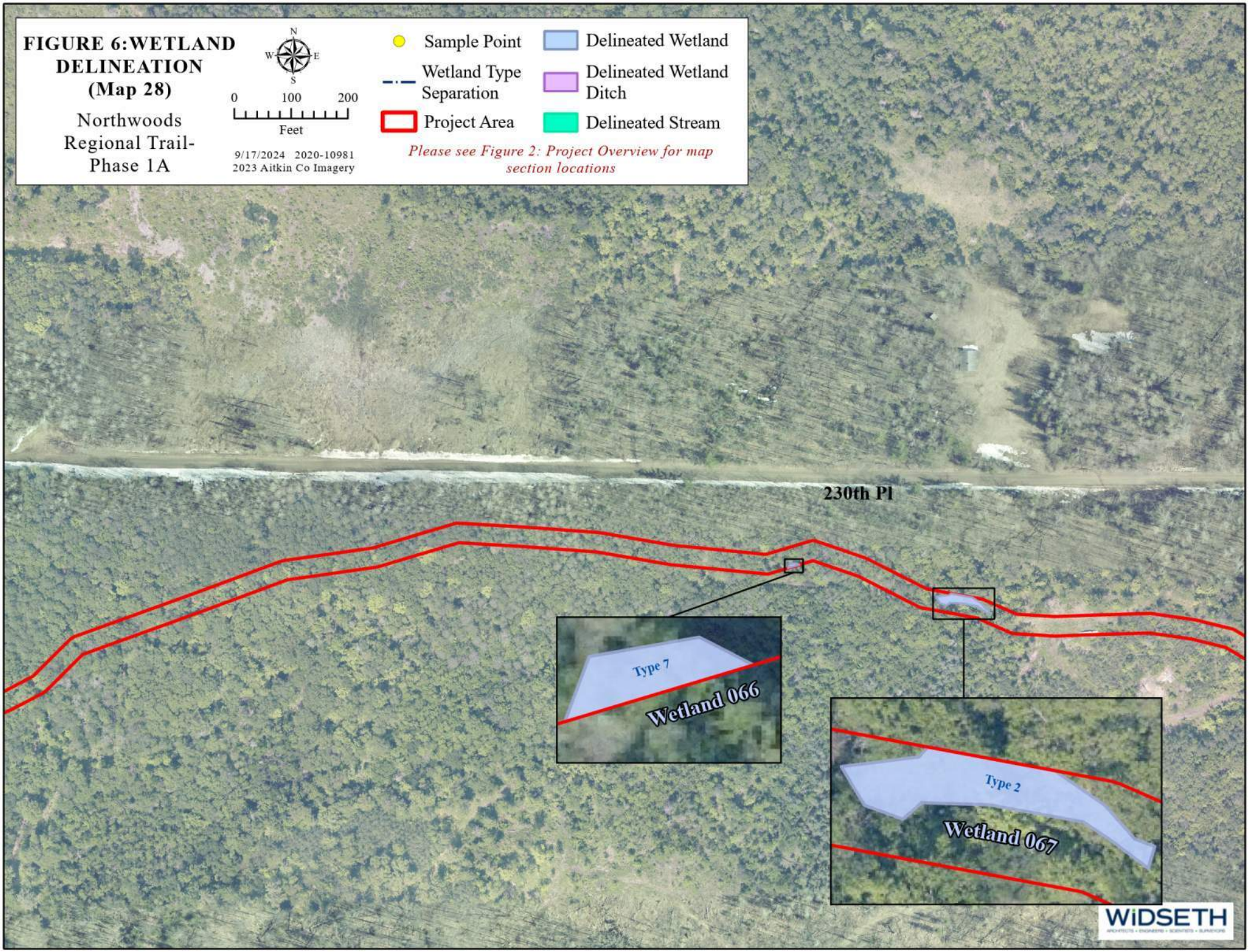


FIGURE 6:WETLAND DELINEATION (Map 28)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
230th Pl
Type 7
Wetland 066
Type 2
Wetland 067
WIDSETH

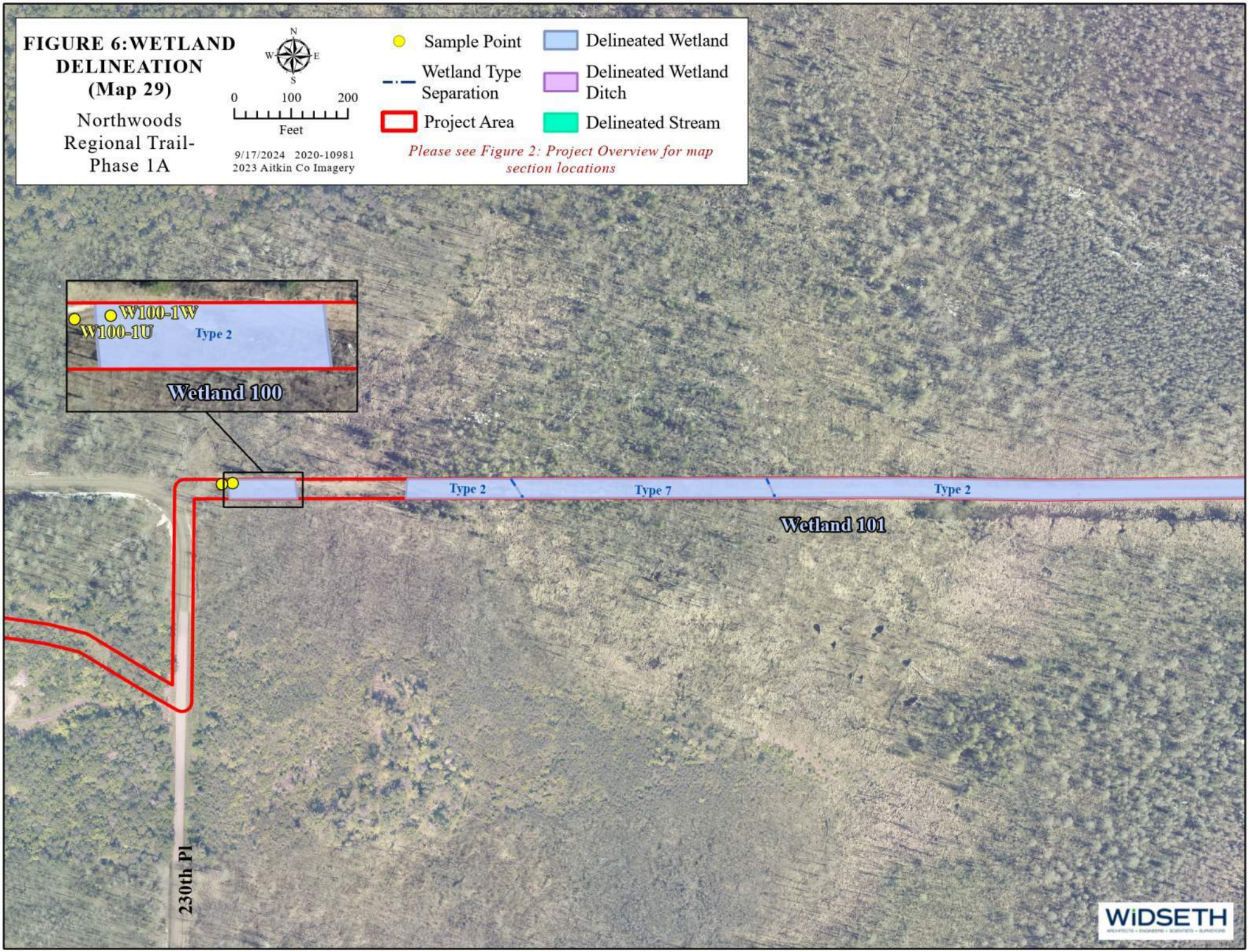


FIGURE 6:WETLAND DELINEATION (Map 29)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
W100-1W
W100-1U
Type 2
Wetland 100
Type 2
Type 7
Type 2
Wetland 101
230th Pl
WIDSETH

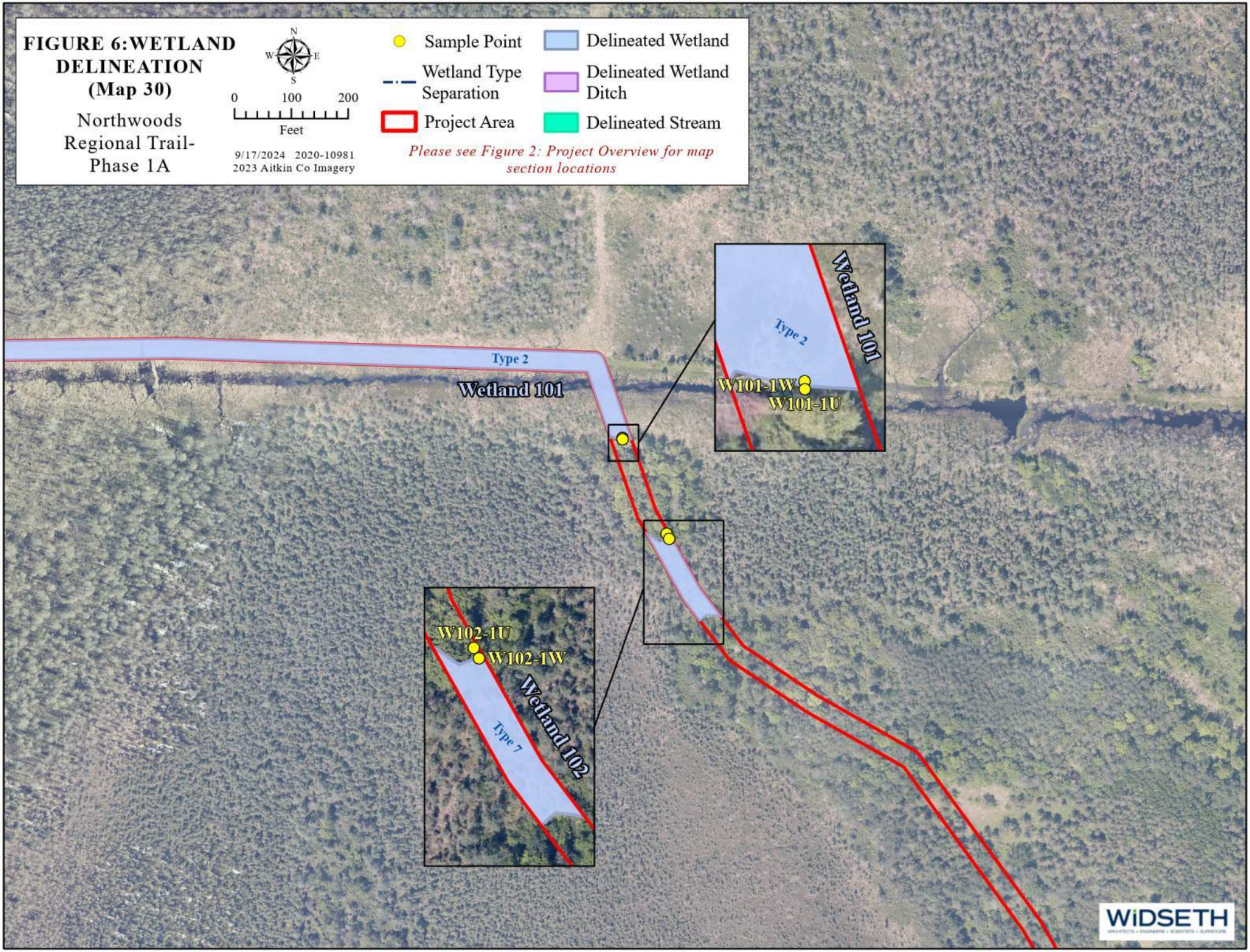


FIGURE 6:WETLAND DELINEATION (Map 30)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Type 2
Wetland 101
W101-1W
W101-1U
W102-1U
W102-1W
Wetland 102
Type 7
WIDSETH

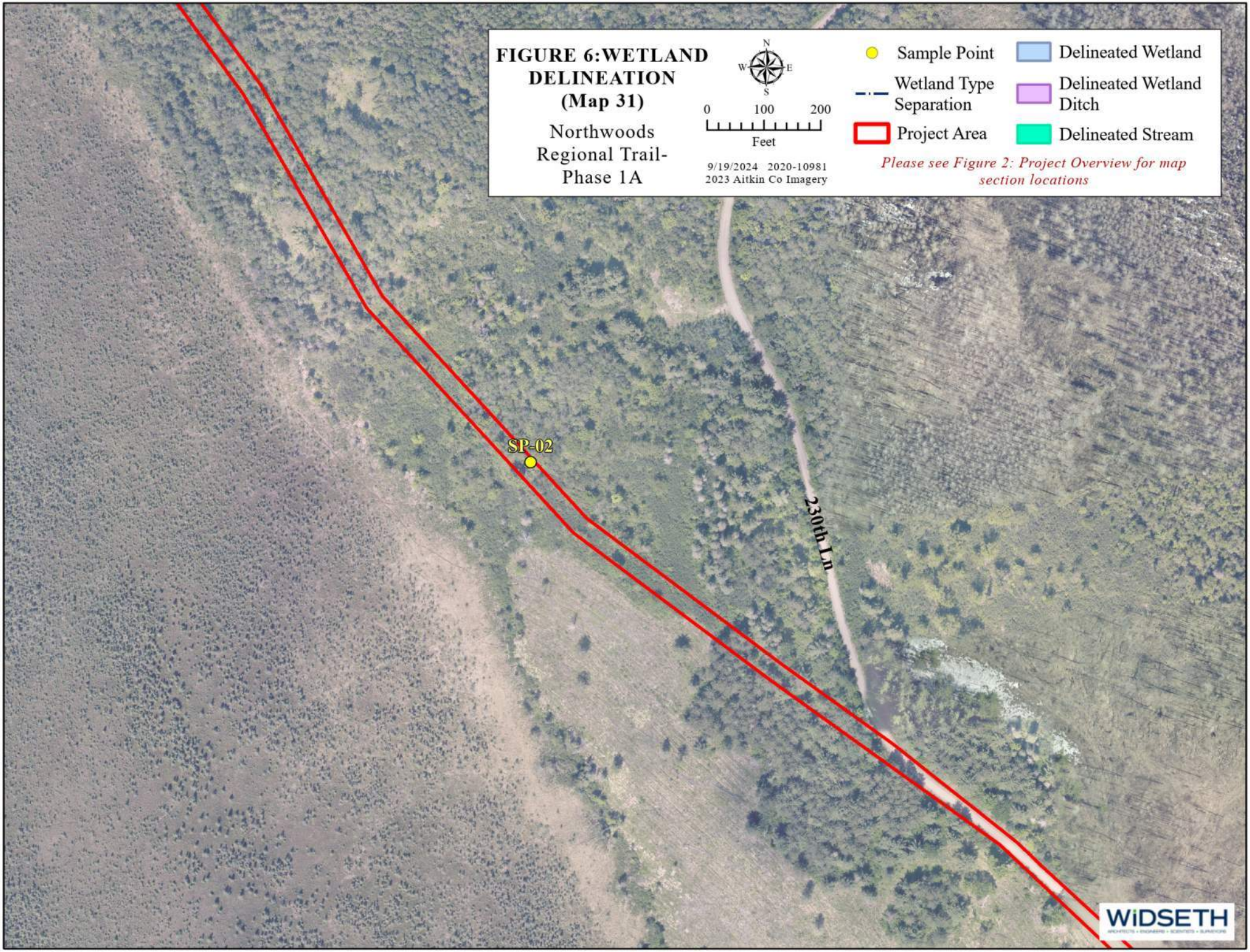


FIGURE 6:WETLAND DELINEATION (Map 31)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
SP-02
230th Ln
WIDSETH

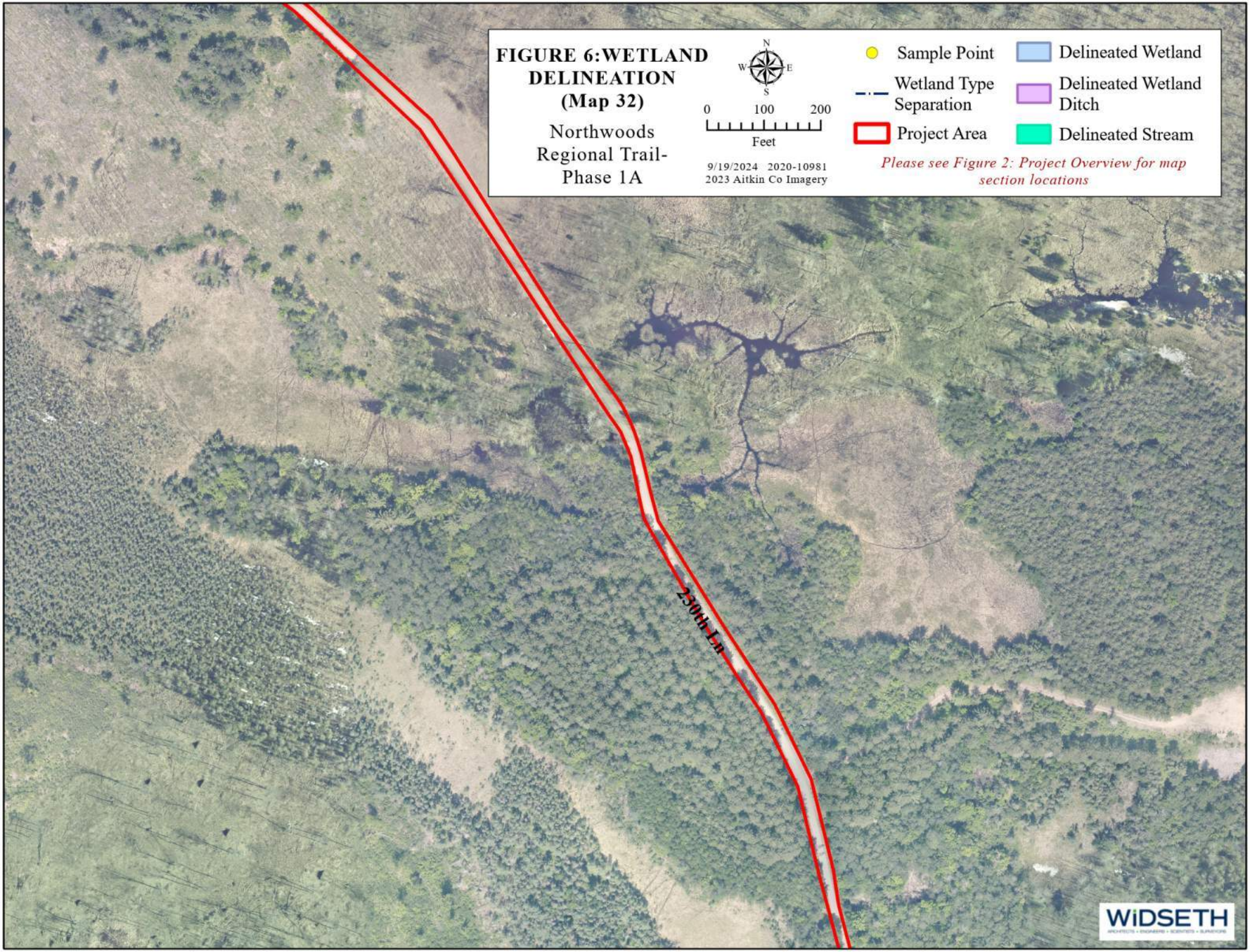


FIGURE 6:WETLAND DELINEATION (Map 32)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
230th Ln
WIDSETH

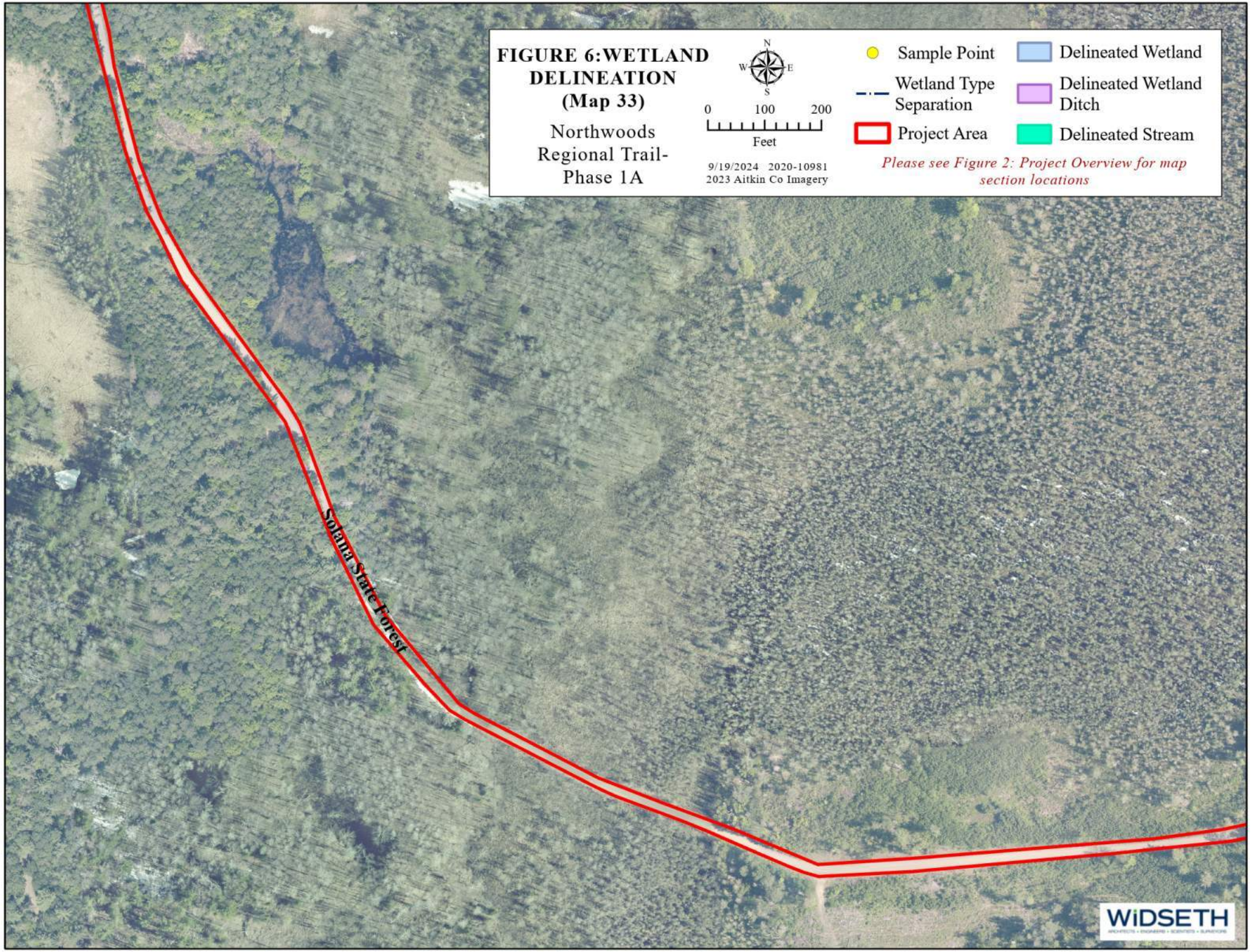


FIGURE 6:WETLAND DELINEATION (Map 33)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Solana State Forest
WIDSETH

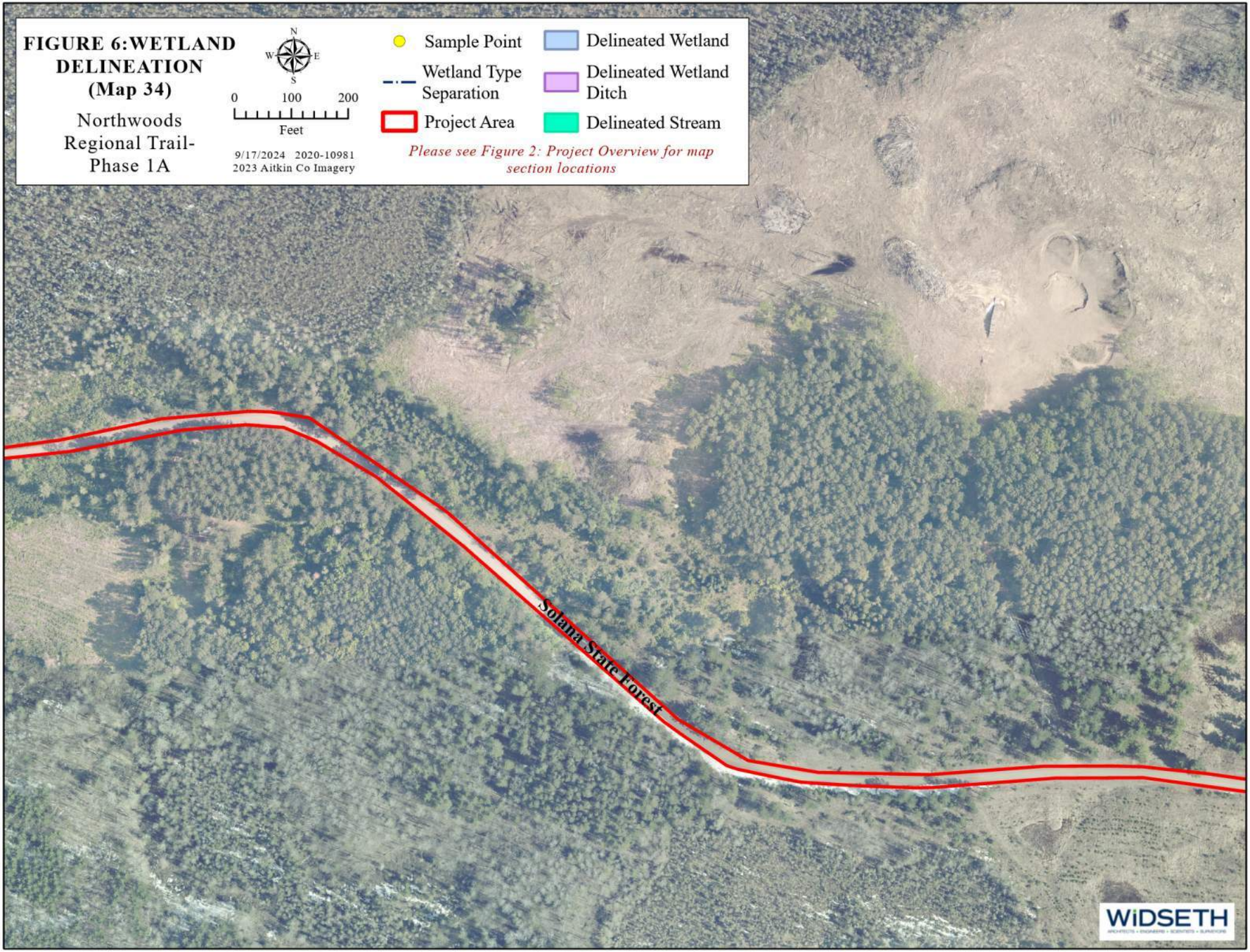


FIGURE 6:WETLAND DELINEATION (Map 34)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Solana State Forest
WIDSETH

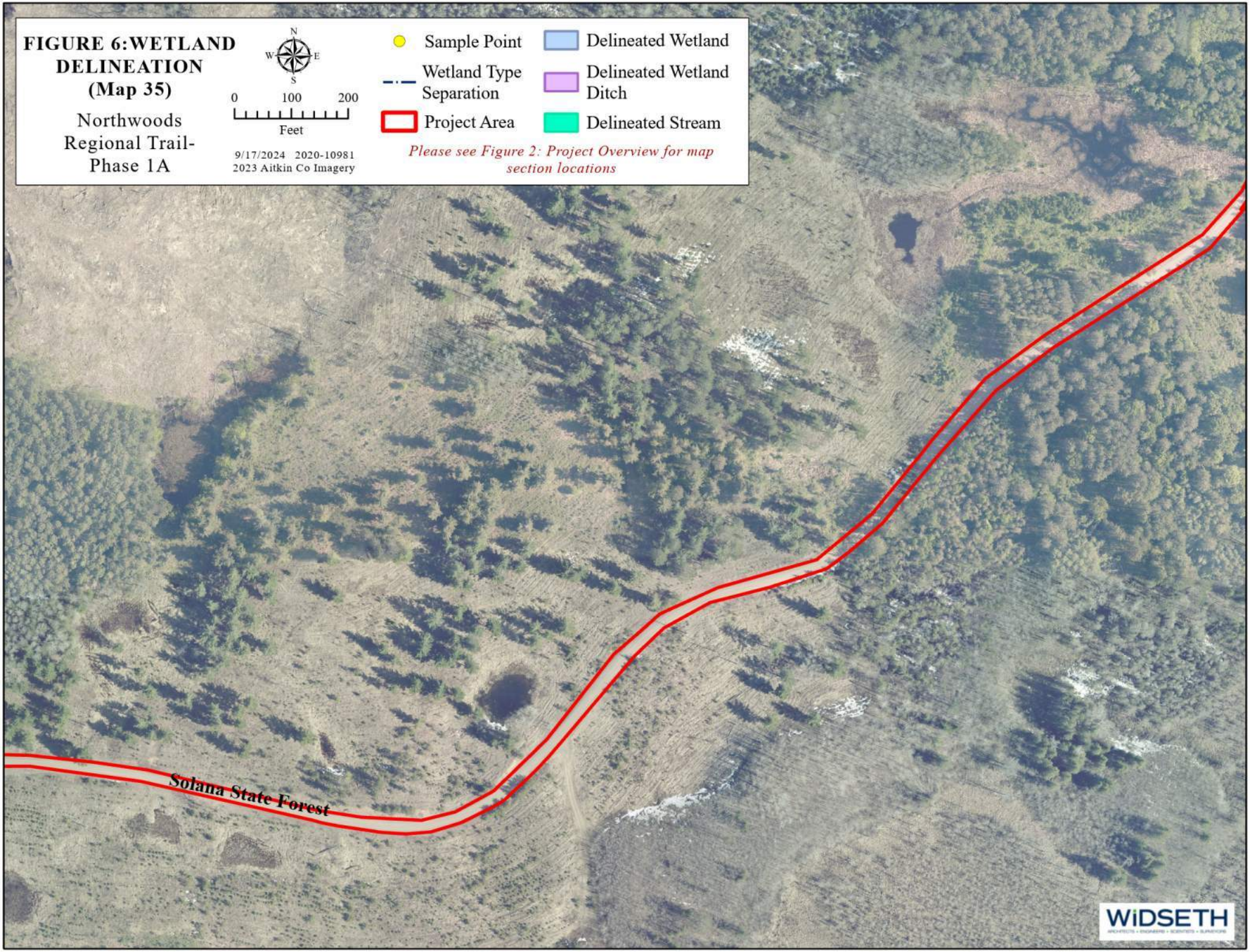


FIGURE 6:WETLAND DELINEATION (Map 35)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Solana State Forest
WIDSETH

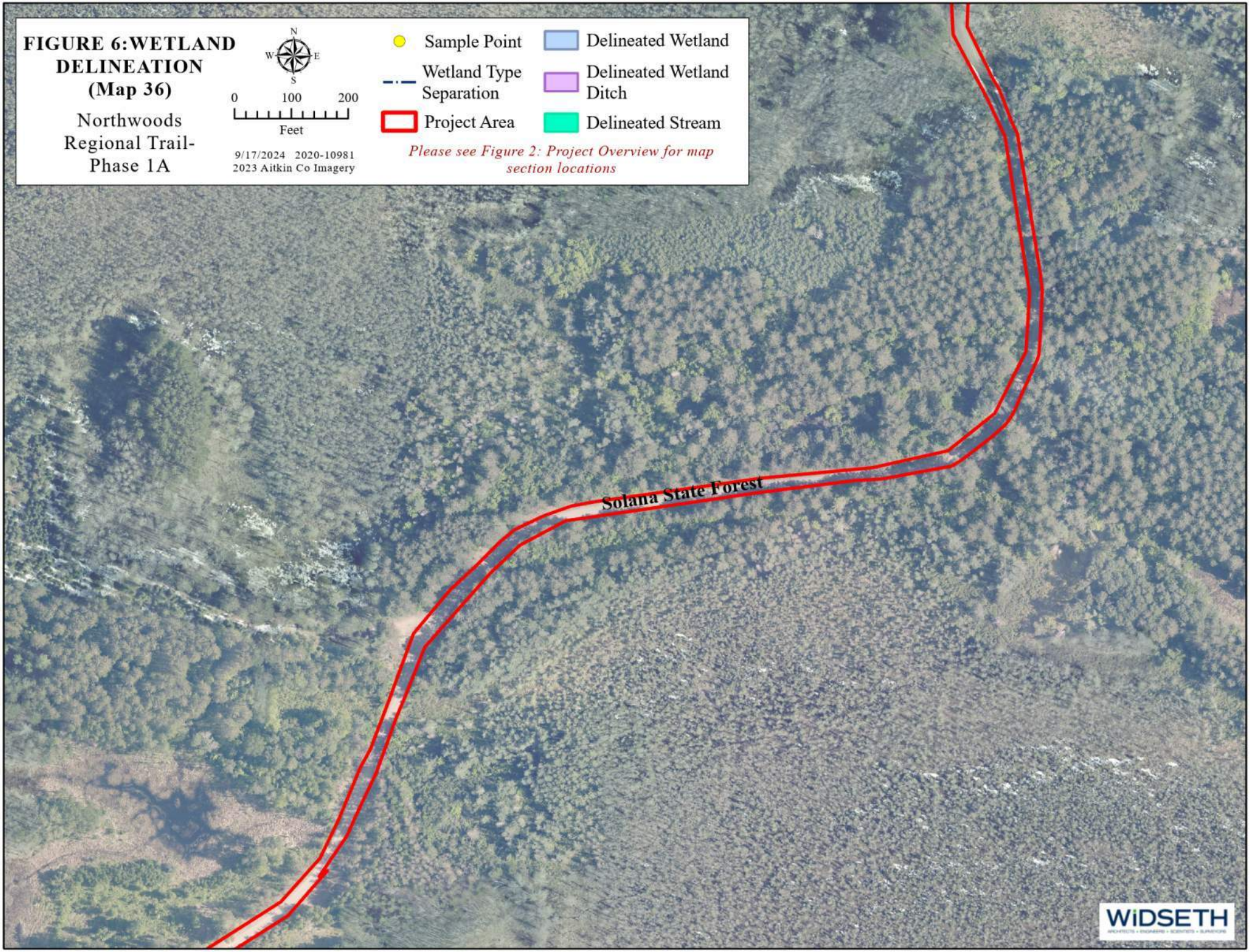


FIGURE 6:WETLAND DELINEATION (Map 36)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Solana State Forest
WIDSETH

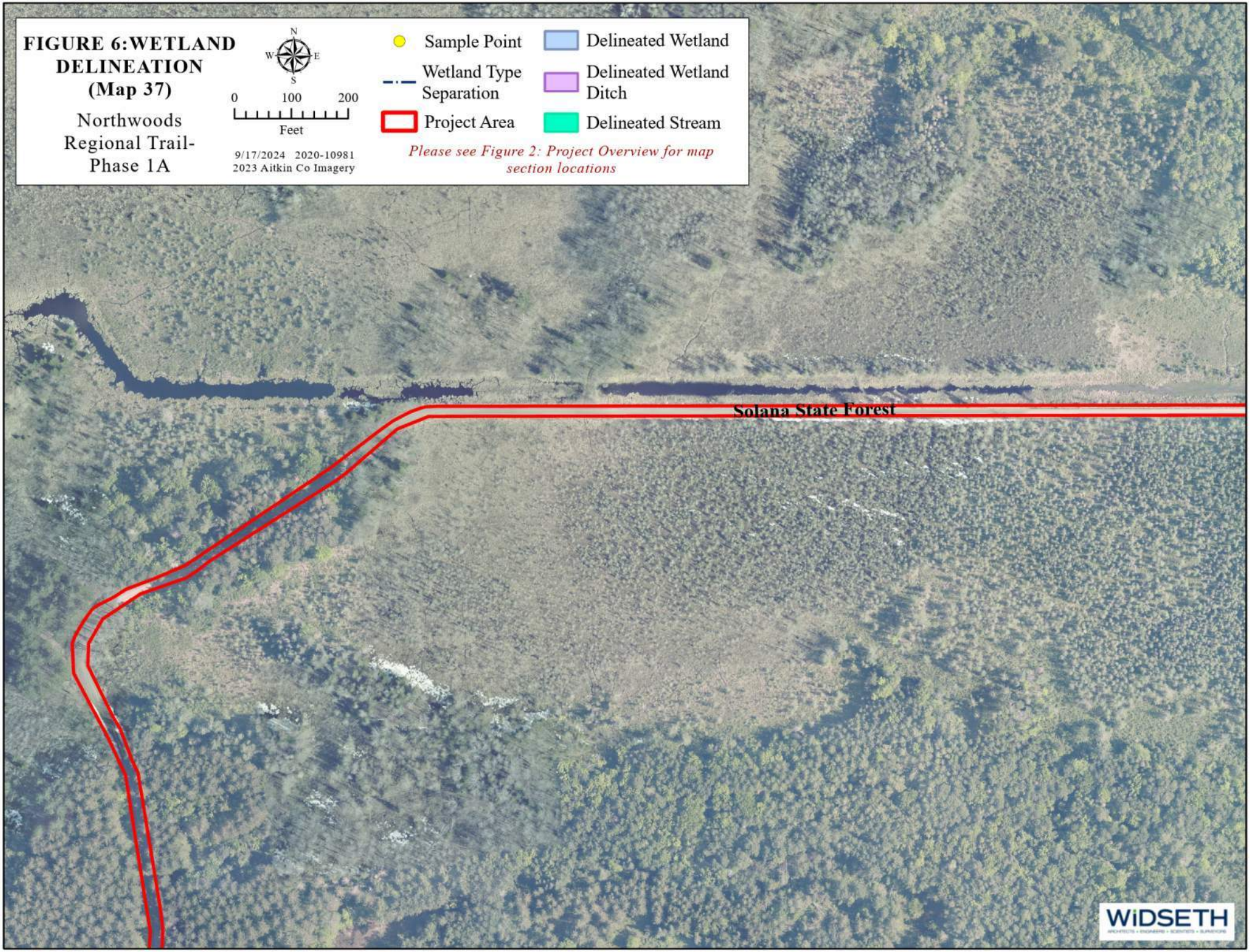


FIGURE 6:WETLAND DELINEATION (Map 37)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Solana State Forest
WIDSETH

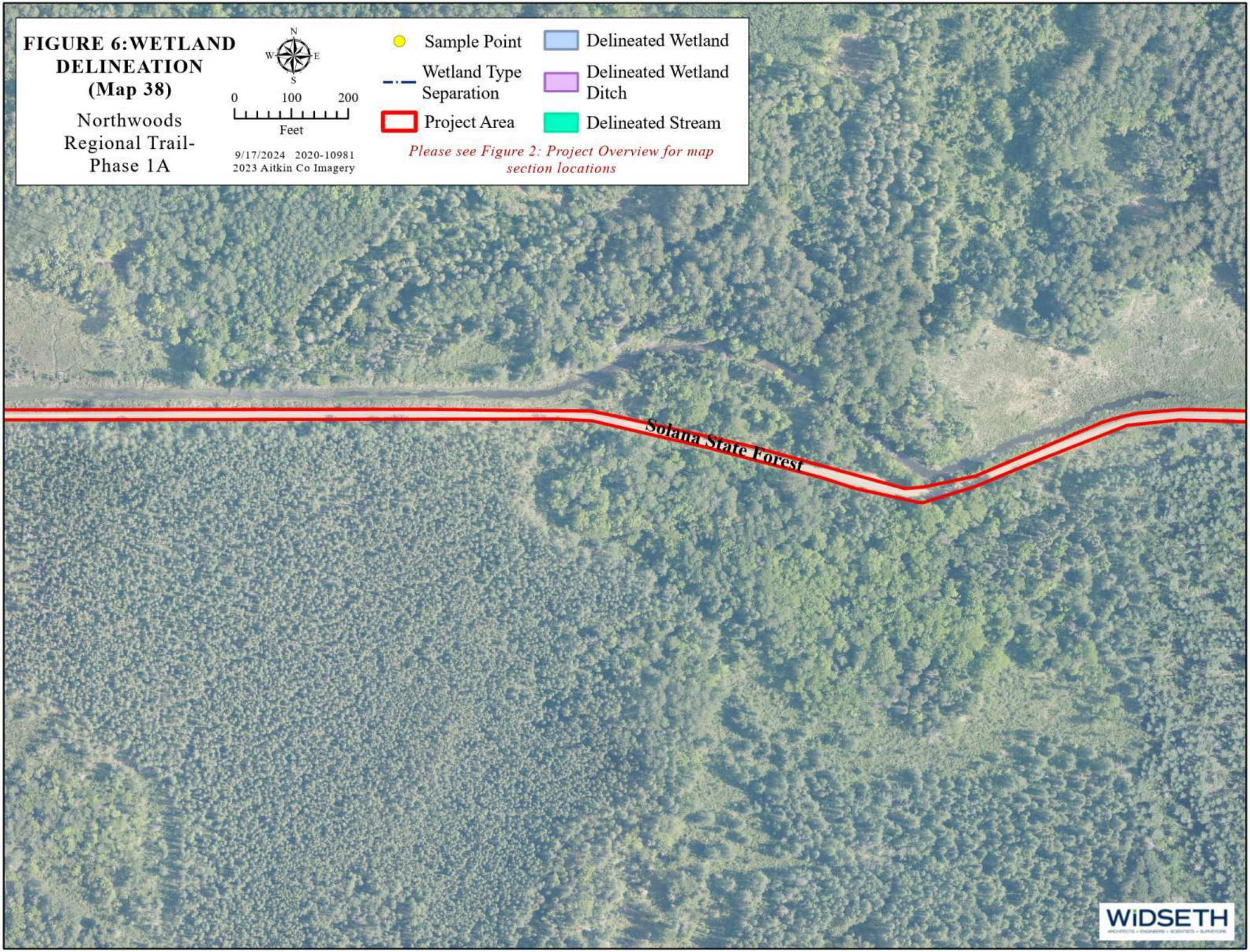


FIGURE 6:WETLAND DELINEATION (Map 38)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Solana State Forest
WIDSETH

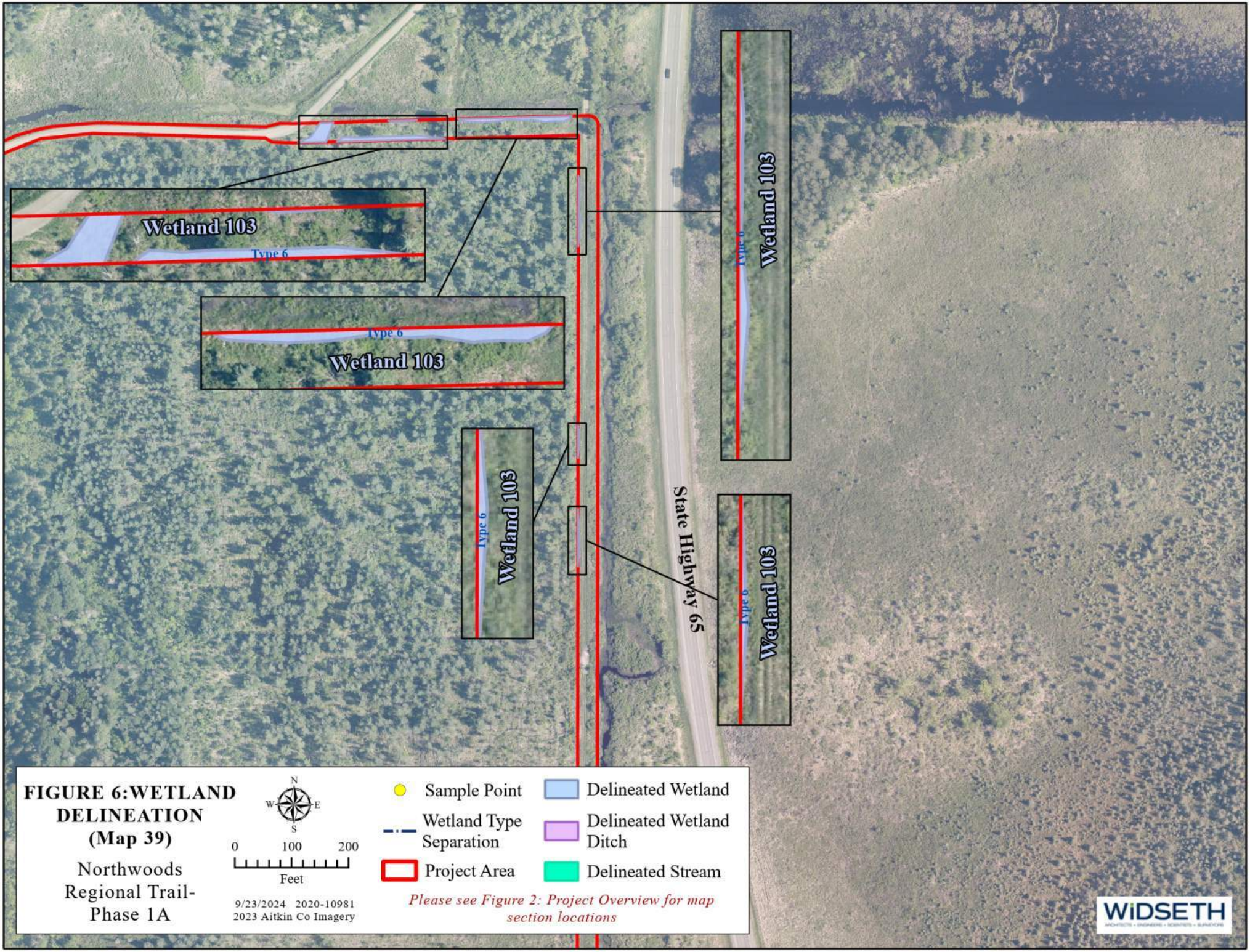


FIGURE 6:WETLAND DELINEATION (Map 39)

Northwoods Regional Trail-Phase 1A

N W E S

0 100 200

Feet

9/23/2024 2020-10981
2023 Aitkin Co Imagery

Sample Point

Wetland Type Separation

Project Area

Delineated Wetland

Delineated Wetland Ditch

Delineated Stream

Please see Figure 2: Project Overview for map section locations

WIDSETH

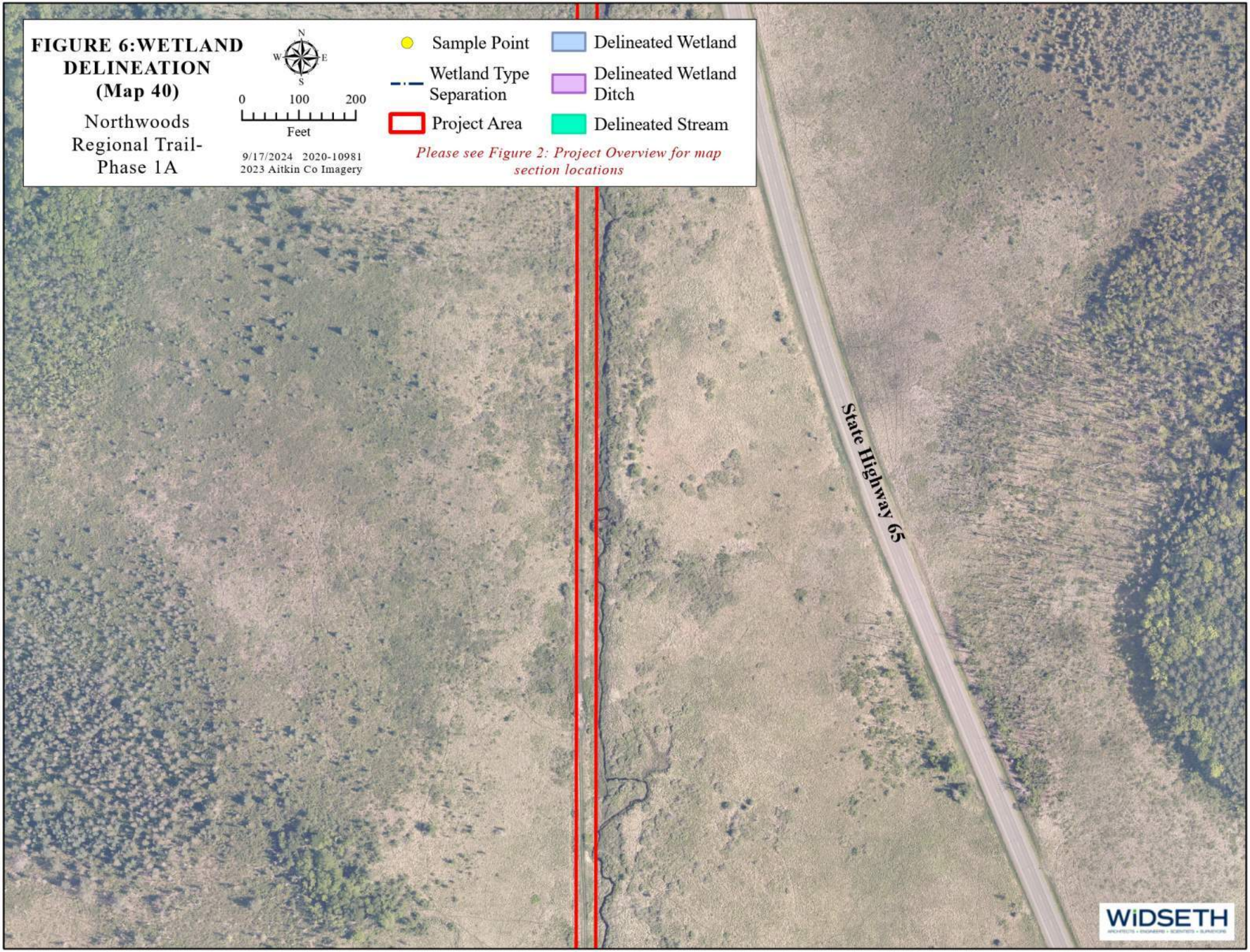


FIGURE 6:WETLAND DELINEATION
(Map 40)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
State Highway 65
WIDSETH

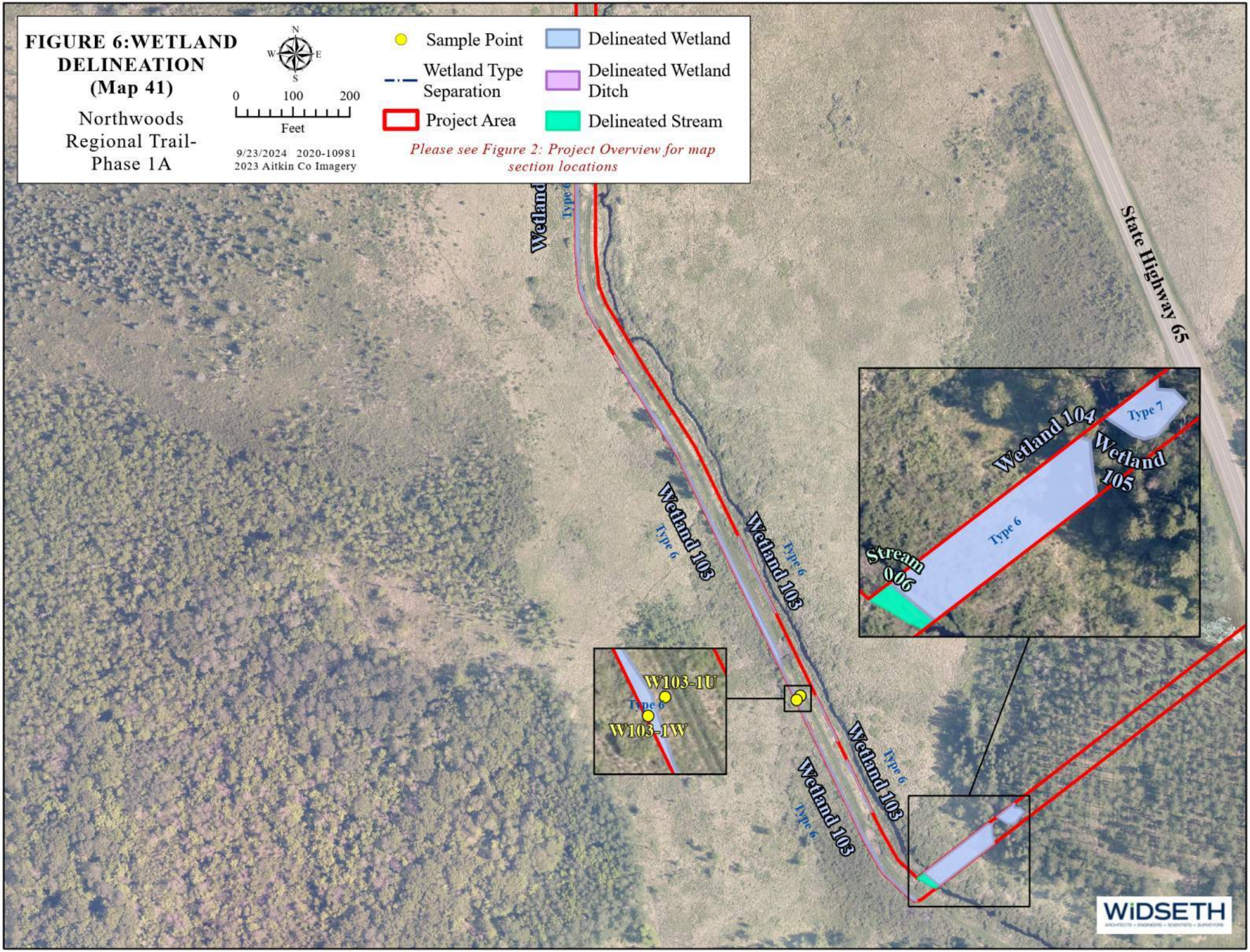


FIGURE 6:WETLAND DELINEATION (Map 41)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/23/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
State Highway 65
Wetland 103
Type 6
Wetland 104
Type 7
Wetland 105
Stream 006
W103-1U
W103-1W
WiDSETH

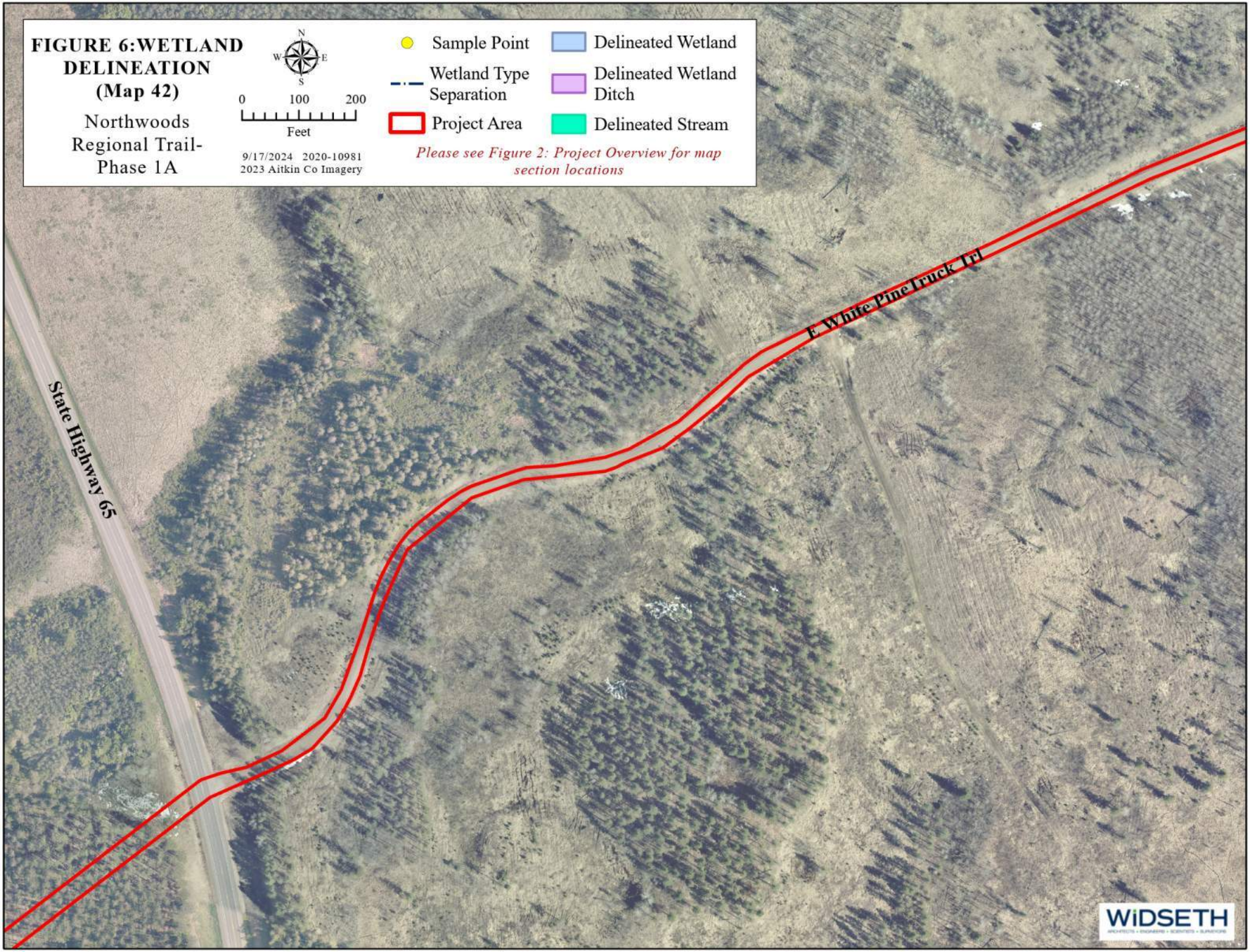


FIGURE 6:WETLAND DELINEATION
(Map 42)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
State Highway 65
E White Pine Truck Trl
WIDSETH

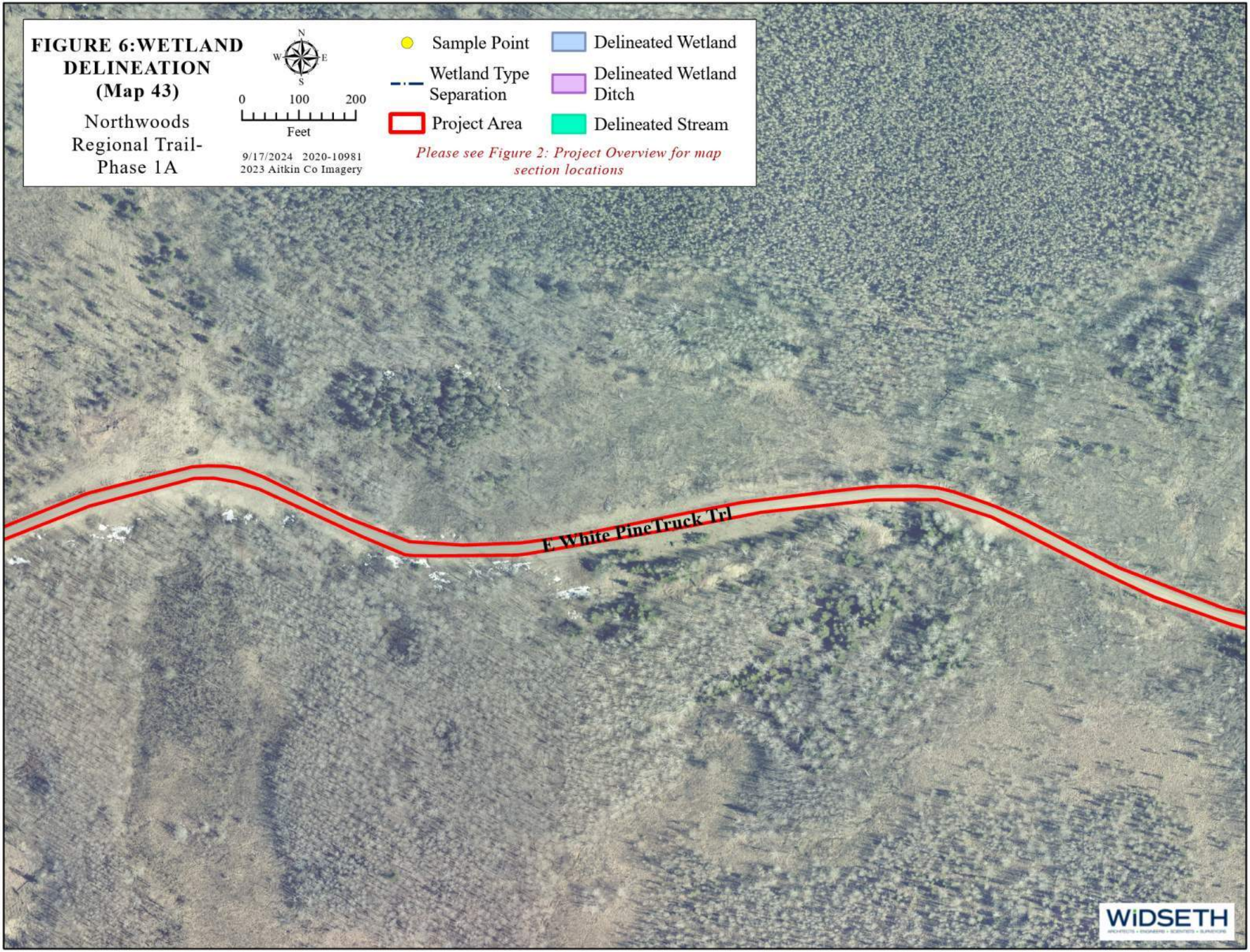


FIGURE 6:WETLAND DELINEATION
(Map 43)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
E White PineTruck Trl
WIDSETH

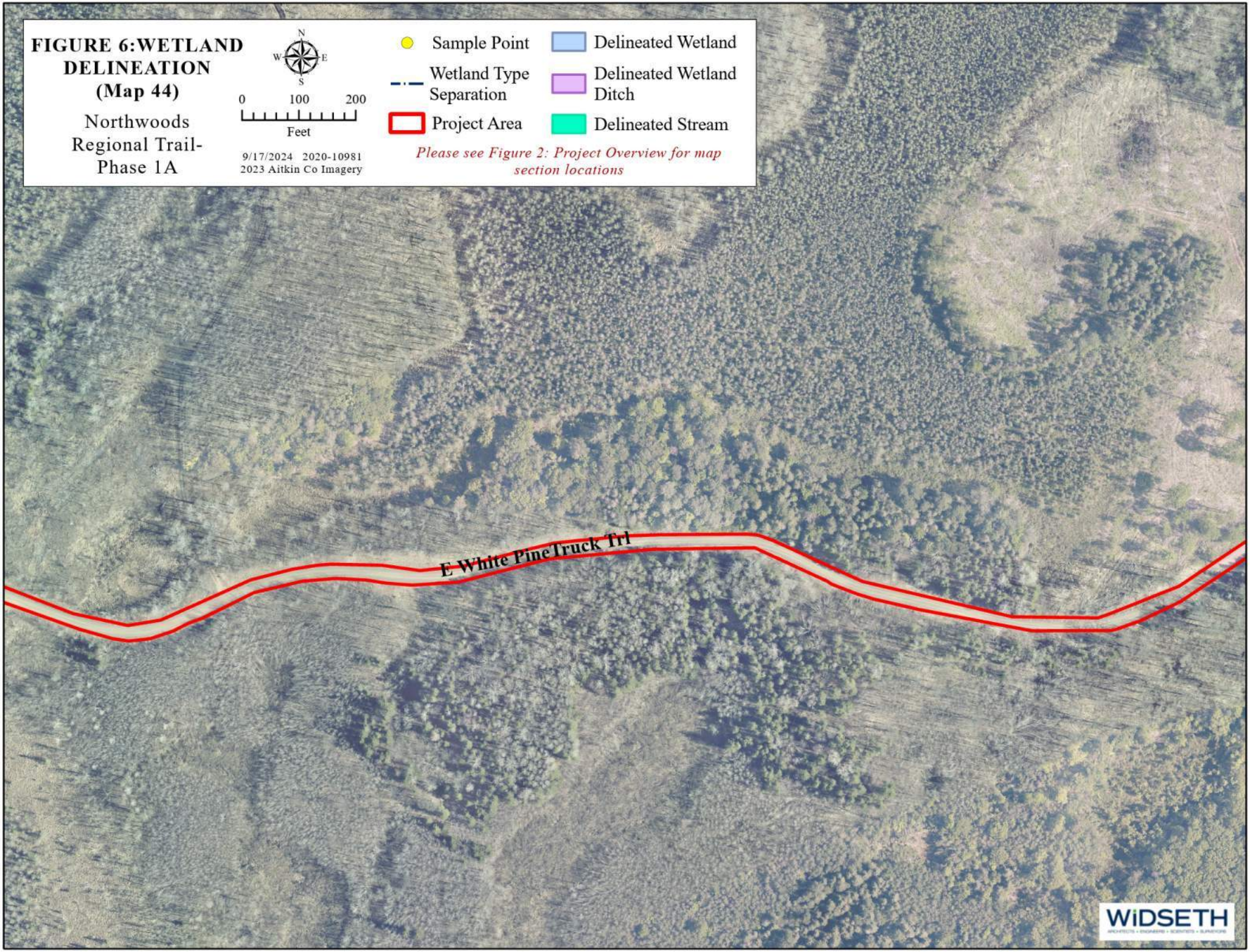


FIGURE 6:WETLAND DELINEATION
(Map 44)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
E White Pine Truck Trl
WIDSETH

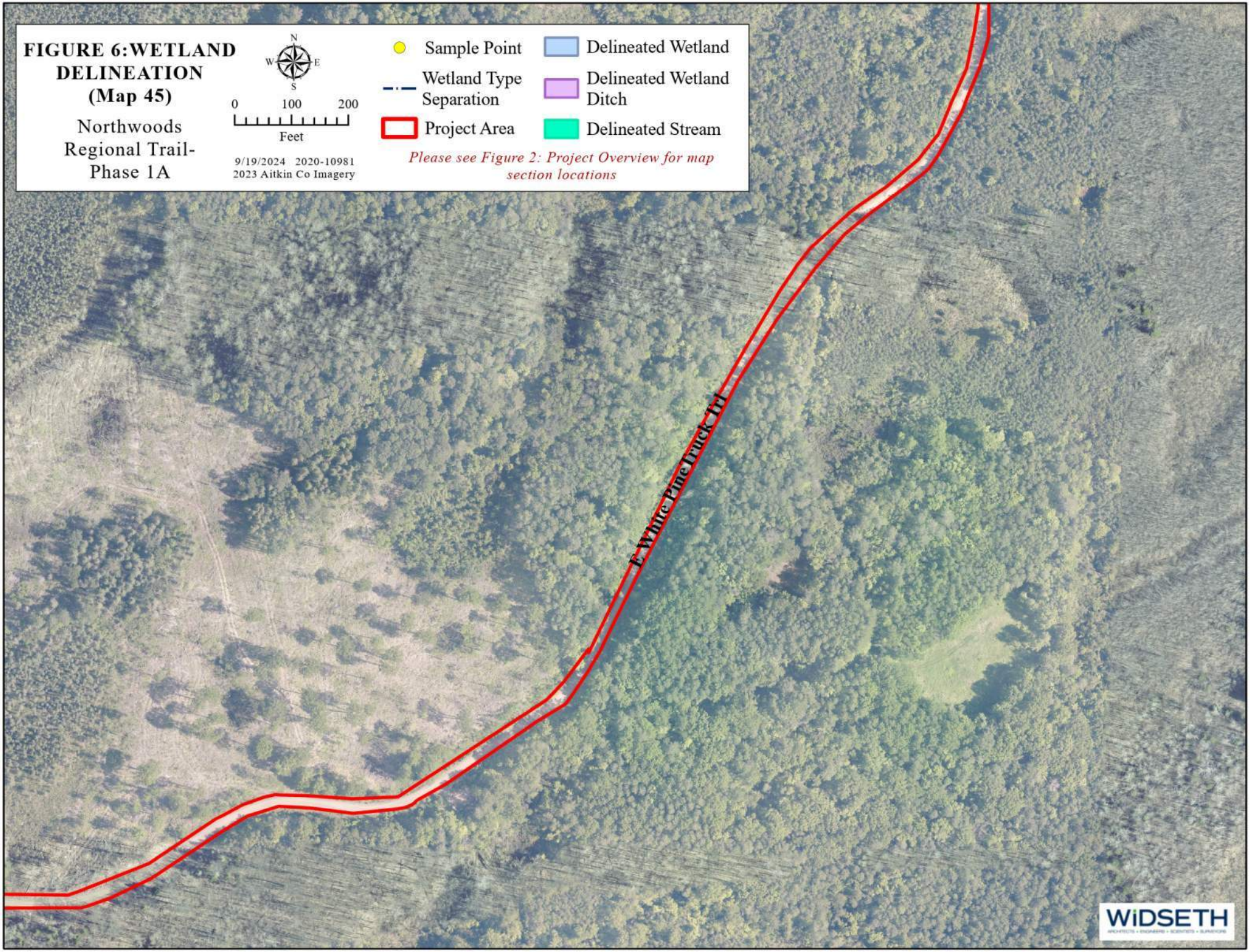


FIGURE 6:WETLAND DELINEATION (Map 45)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
E White Pine Trail Trl
WIDSETH

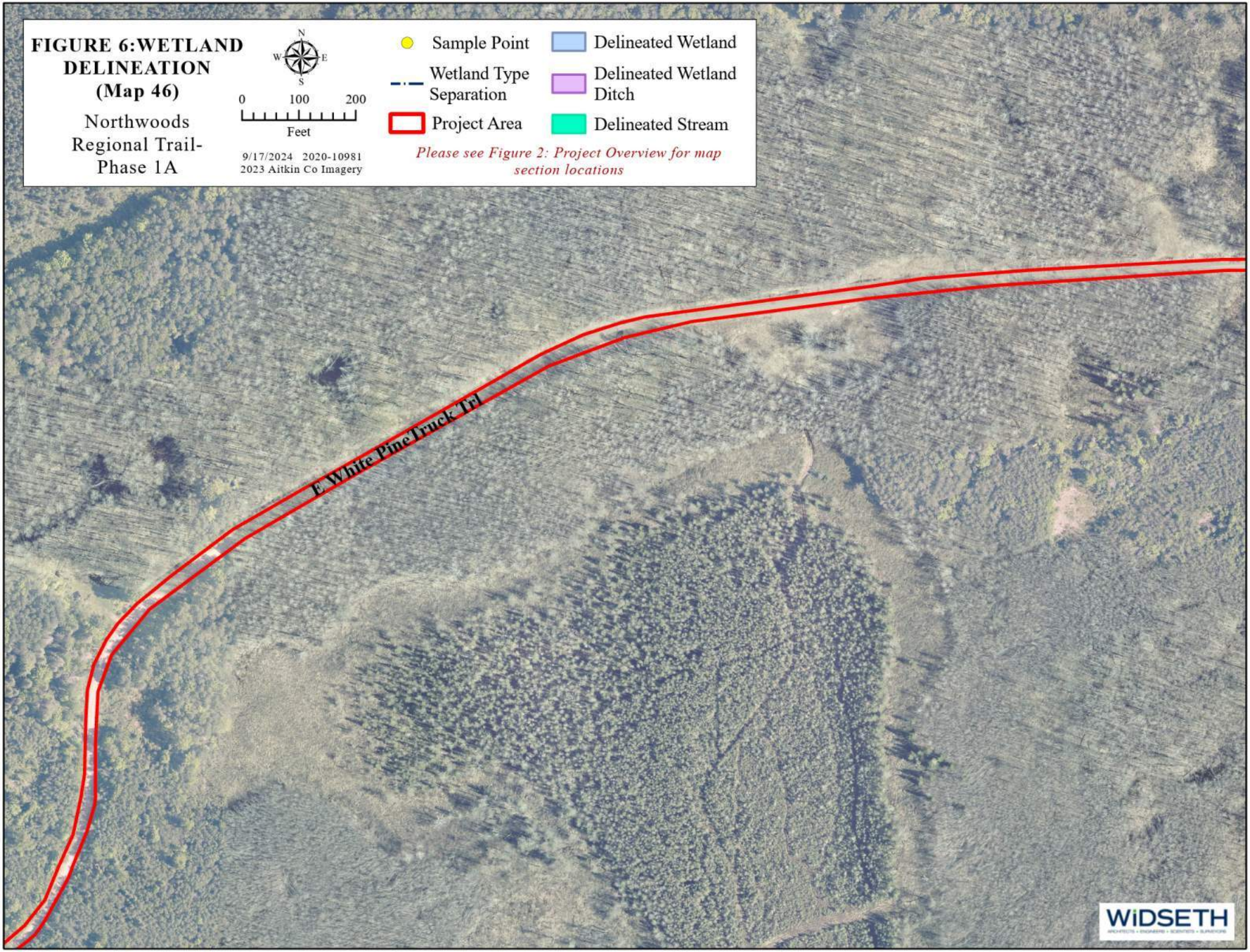


FIGURE 6:WETLAND DELINEATION
(Map 46)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
E White Pine Truck Trl
WIDSETH

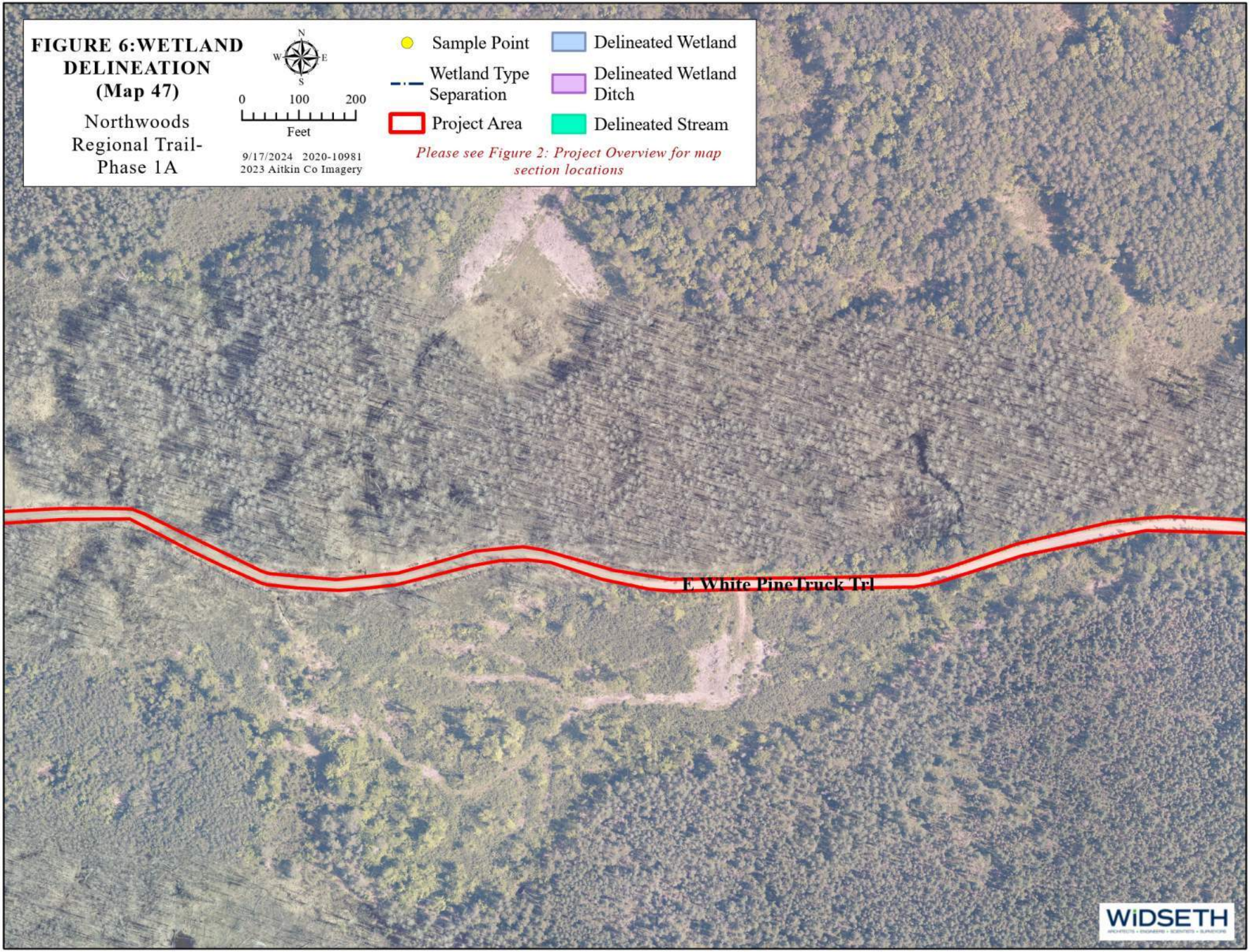


FIGURE 6:WETLAND DELINEATION
(Map 47)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
E White Pine Truck Trl
WIDSETH

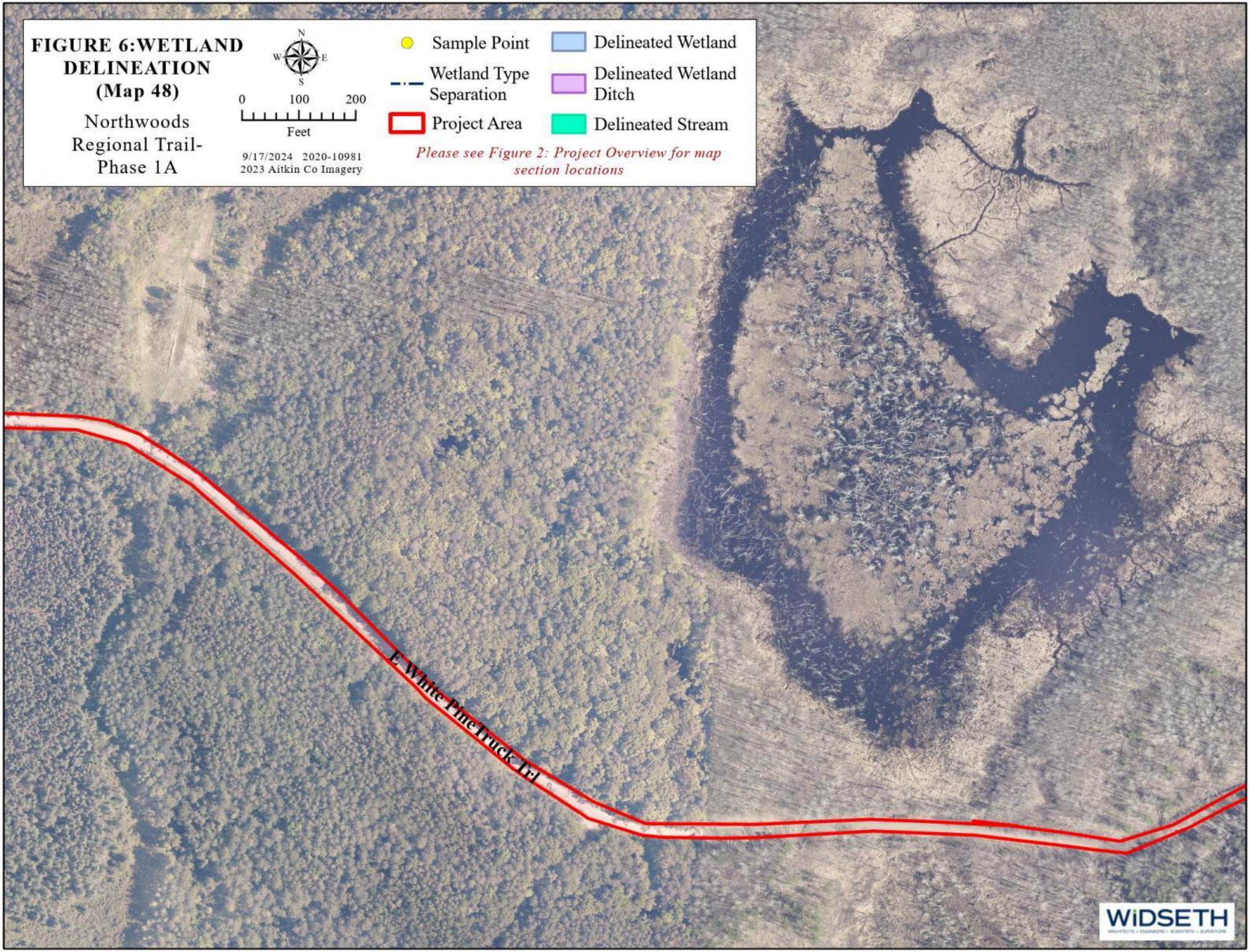


FIGURE 6:WETLAND DELINEATION
(Map 48)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
E White Pine Truck Trl
WIDSETH

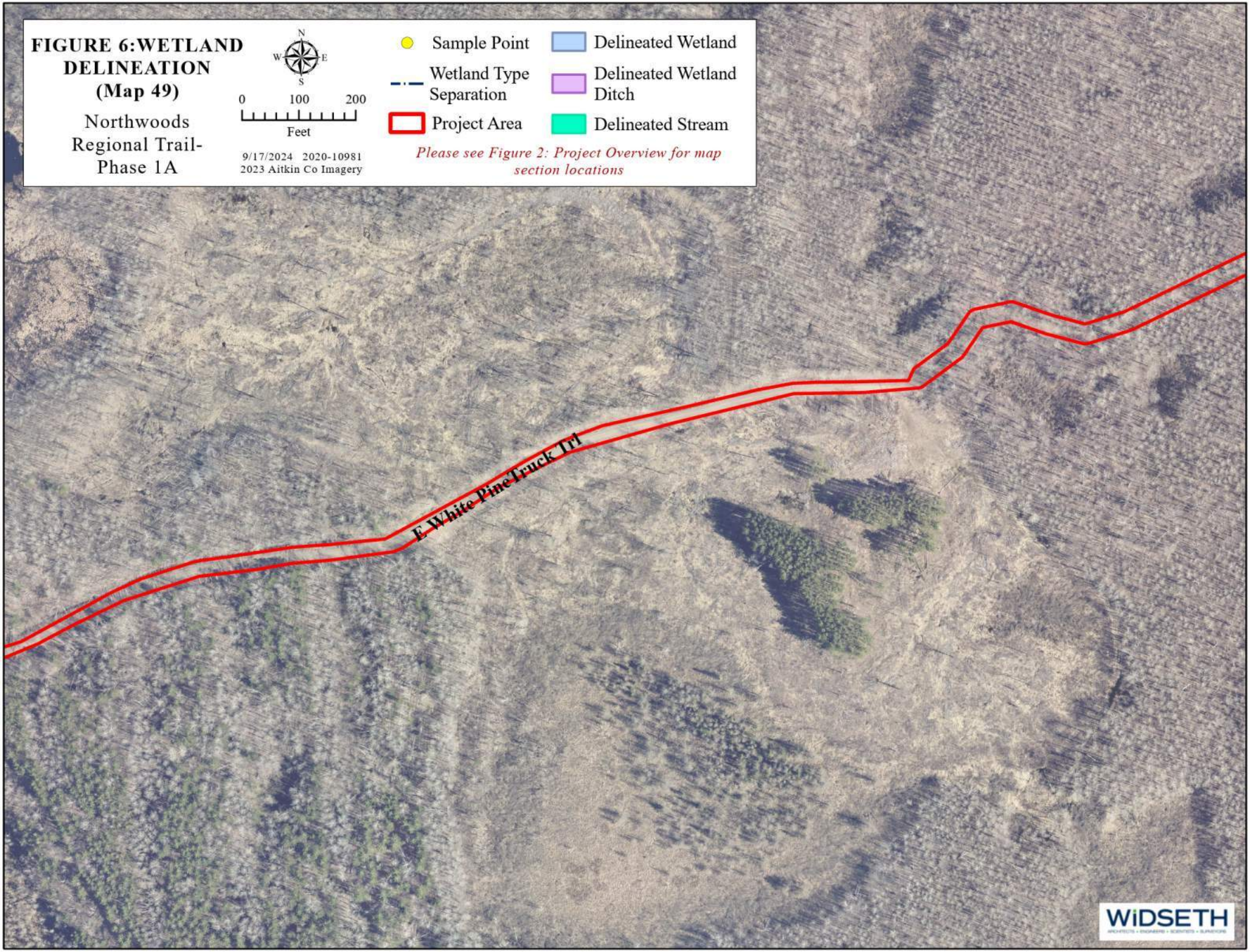


FIGURE 6:WETLAND DELINEATION
(Map 49)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/17/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
E White Pine Truck Trl
WIDSETH

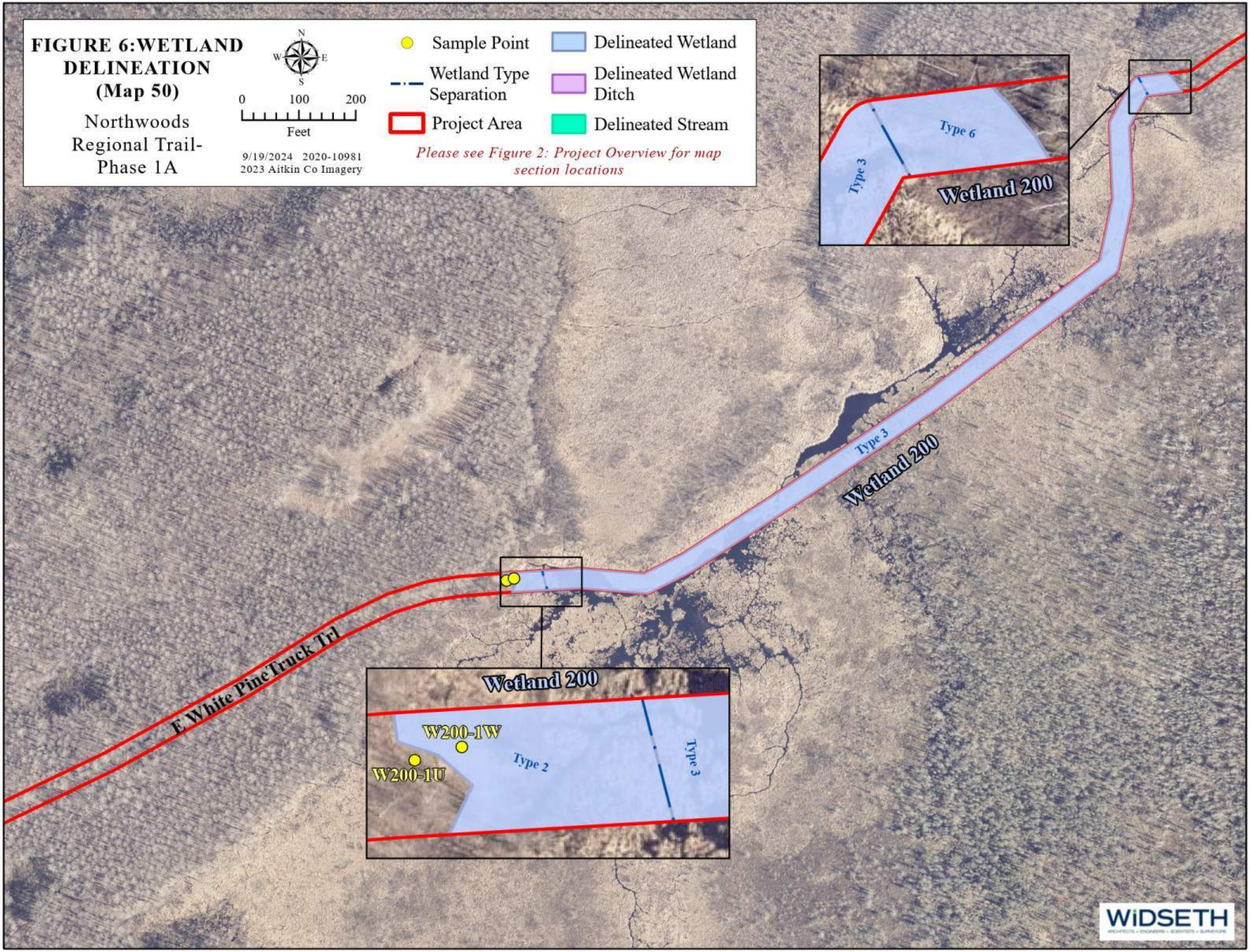


FIGURE 6:WETLAND DELINEATION (Map 50)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Type 6
Type 3
Wetland 200
Type 3
Wetland 200
E White Pine Truck Trl
Wetland 200
W200-1W
W200-1U
Type 2
Type 3
WIDSETH

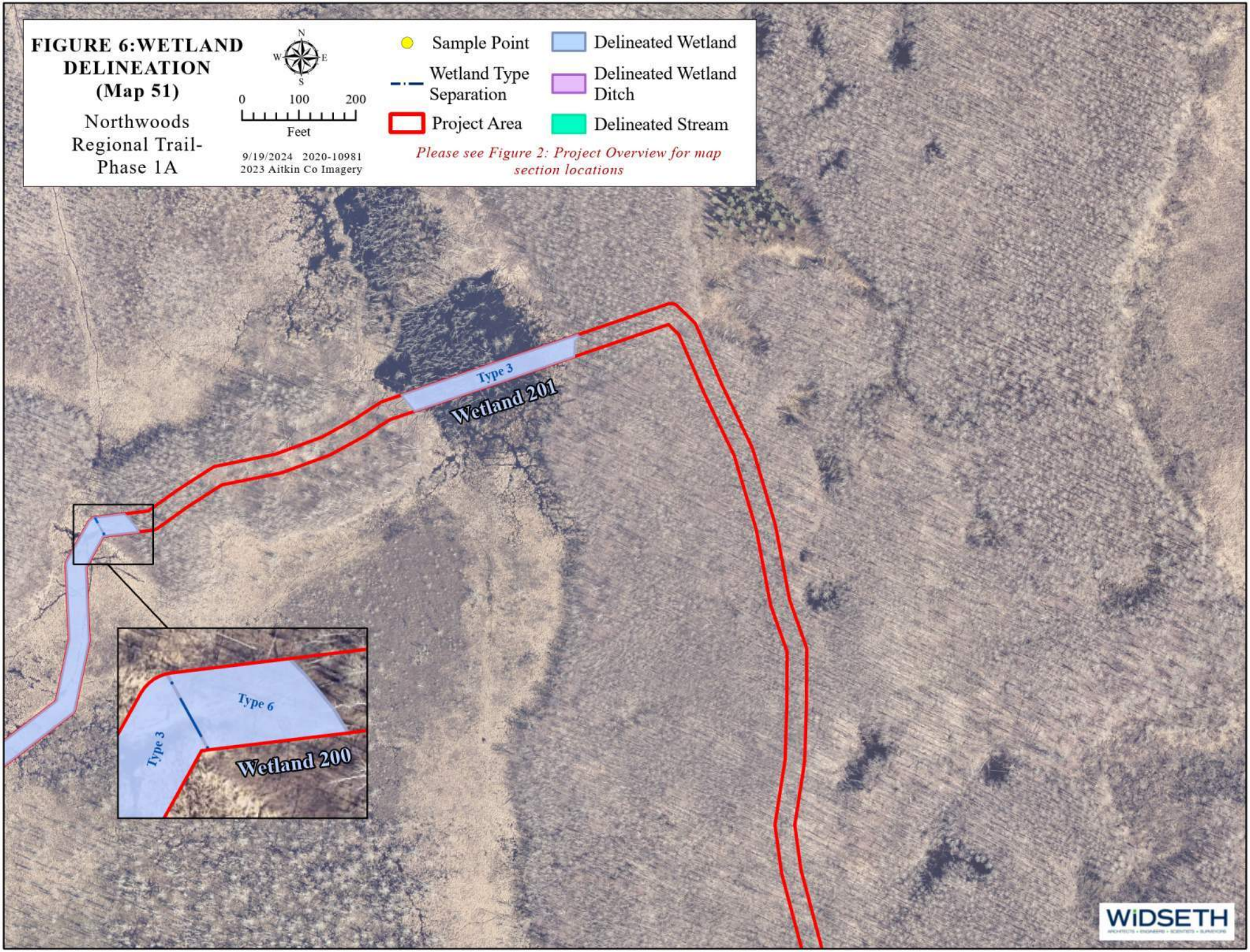


FIGURE 6:WETLAND DELINEATION (Map 51)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Type 3
Wetland 201
Type 6
Type 3
Wetland 200
WIDSETH

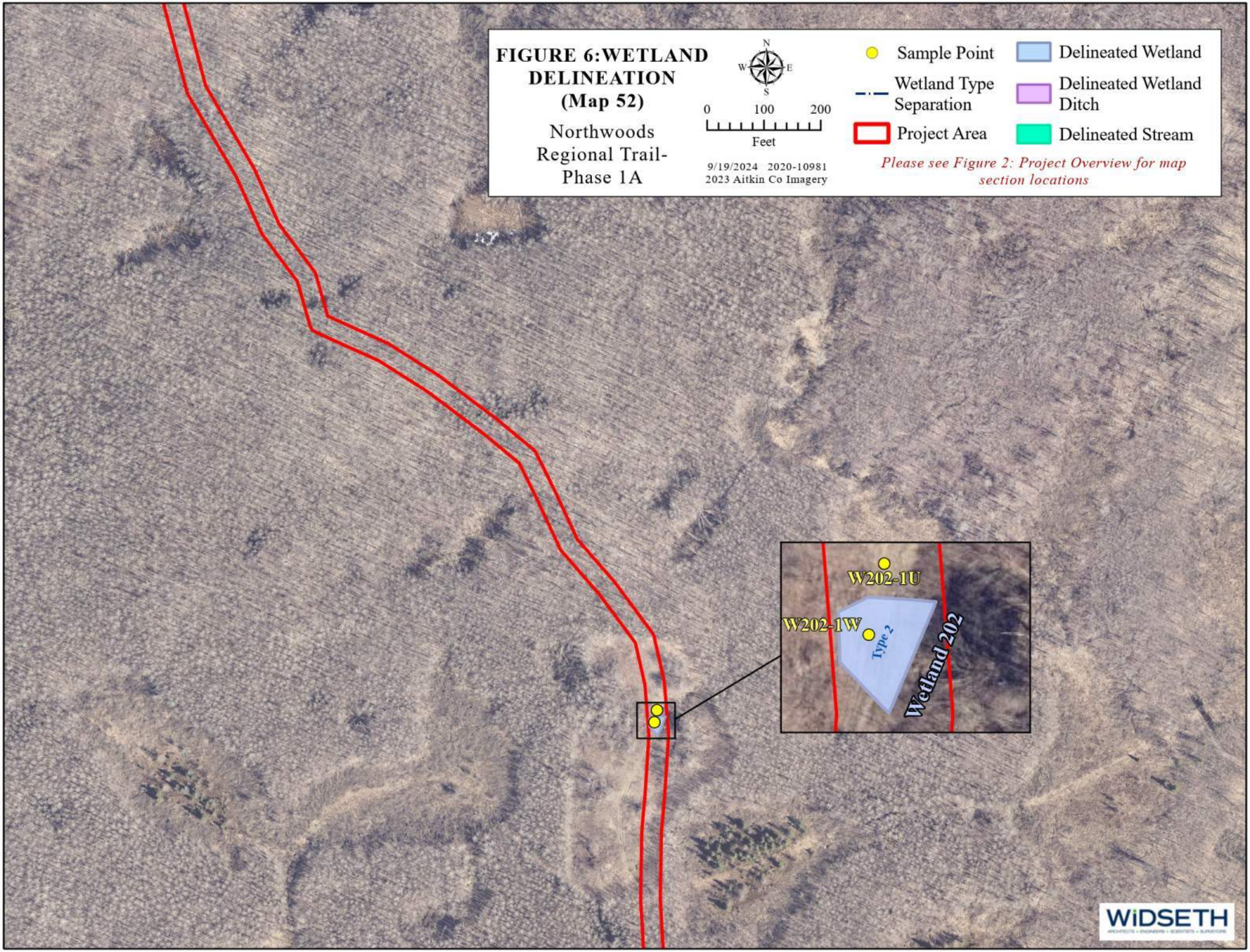


FIGURE 6:WETLAND DELINEATION (Map 52)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
W202-1U
W202-1W
Type 2
Wetland 202
WiDSETH

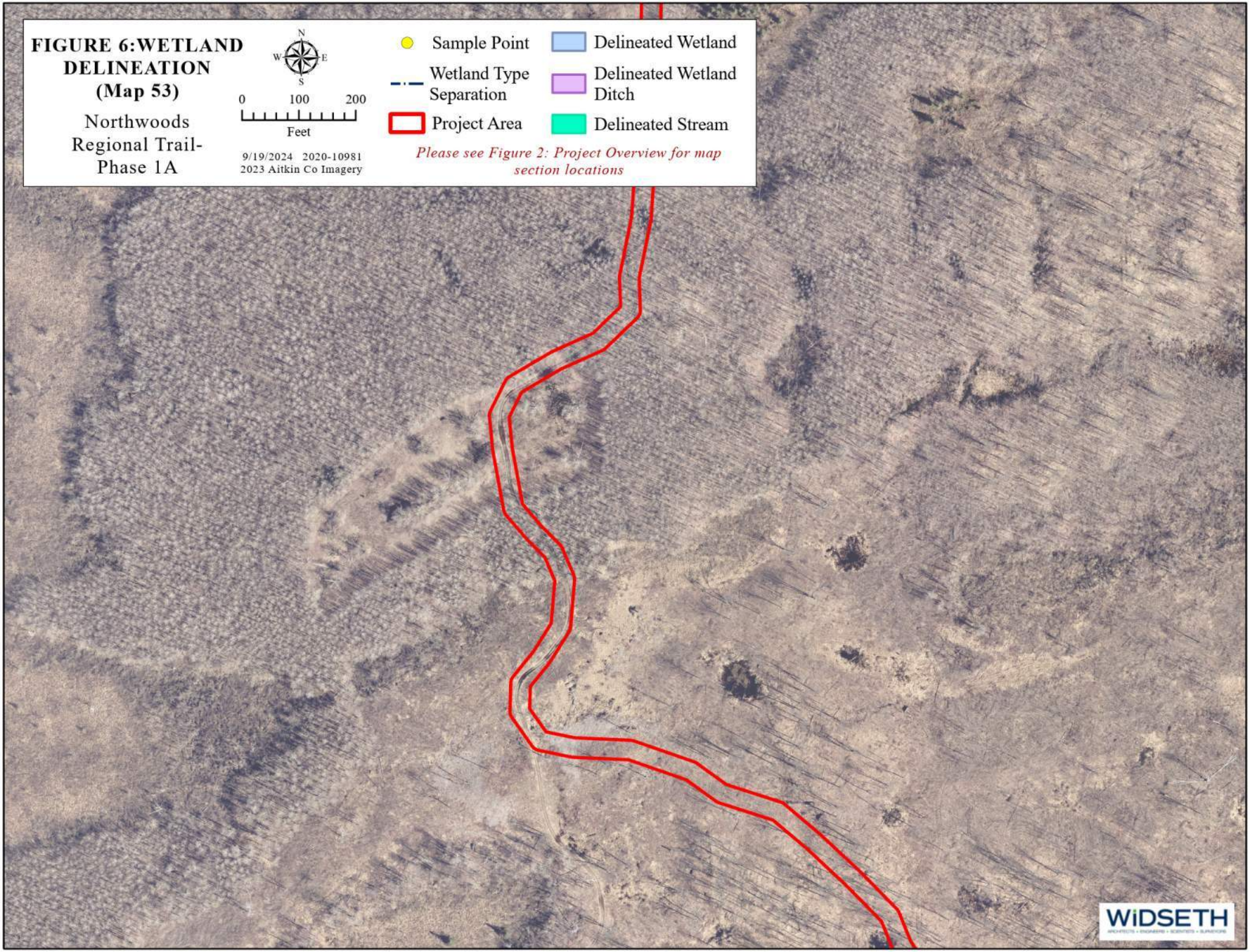


FIGURE 6:WETLAND DELINEATION
(Map 53)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
WIDSETH

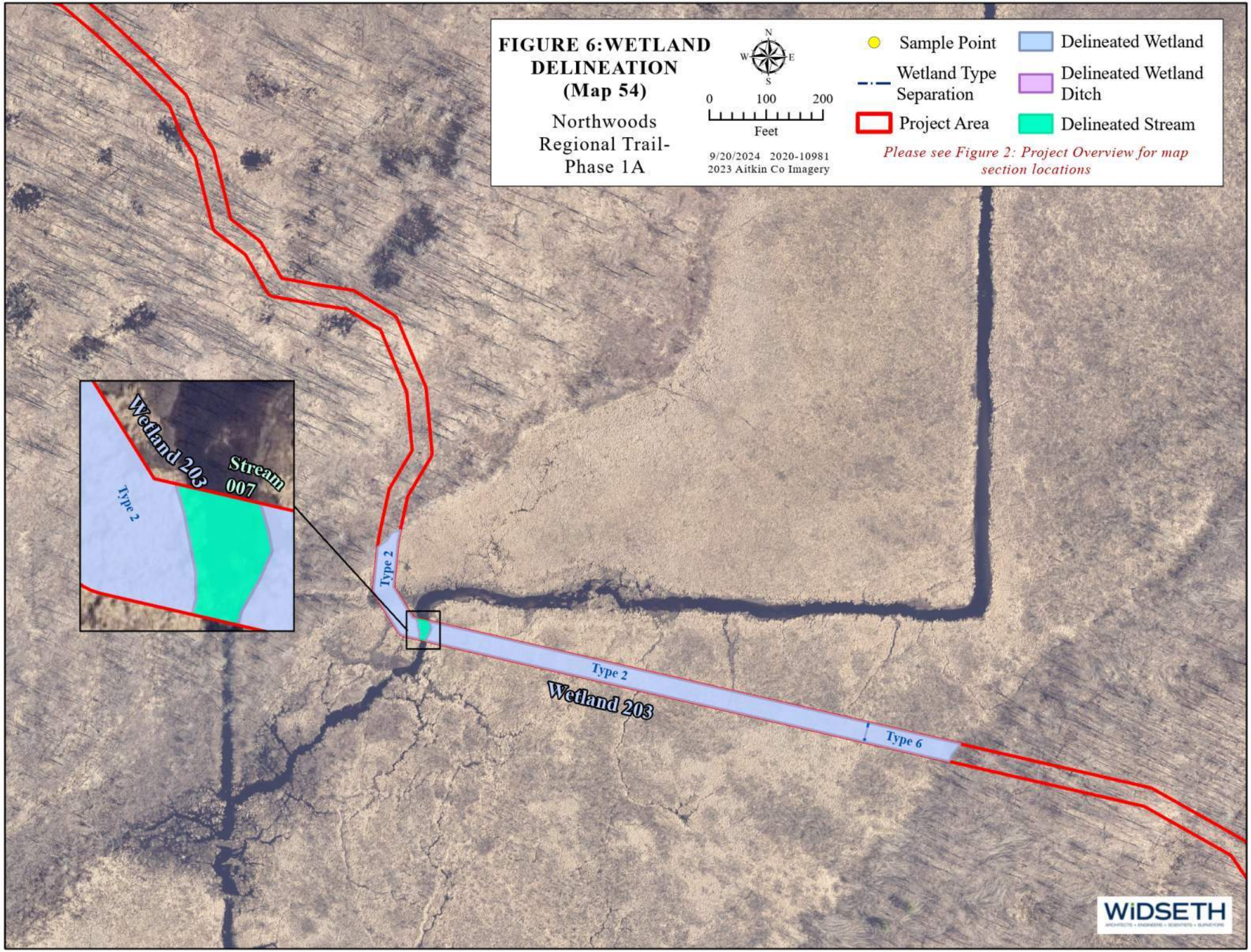


FIGURE 6:WETLAND DELINEATION (Map 54)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/20/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 203
Stream 007
Type 2
Type 2
Type 2
Wetland 203
Type 6
WiDSETH

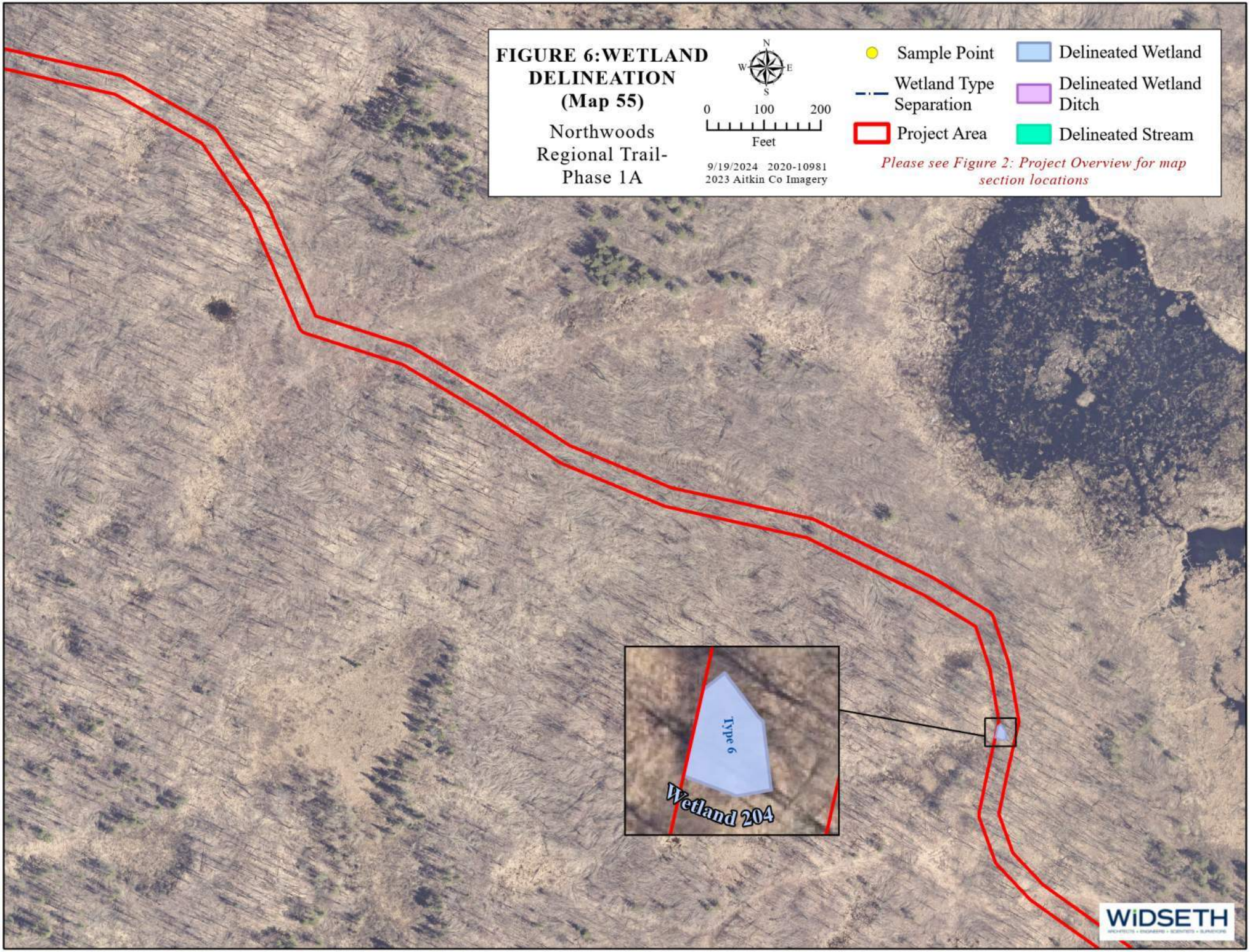


FIGURE 6:WETLAND DELINEATION (Map 55)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Type 6
Wetland 204
WIDSETH

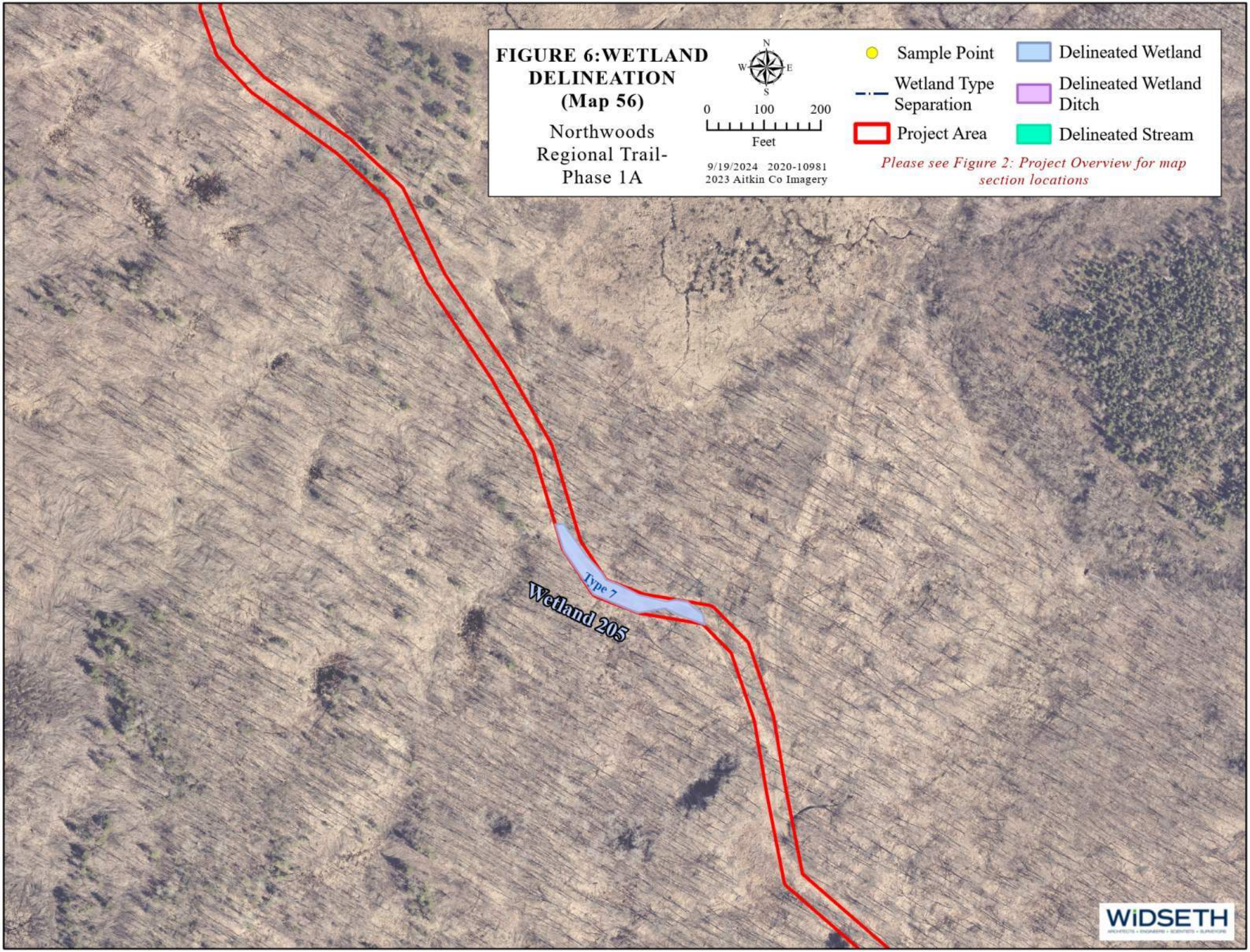


FIGURE 6:WETLAND DELINEATION (Map 56)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Type 7
Wetland 205
WIDSETH

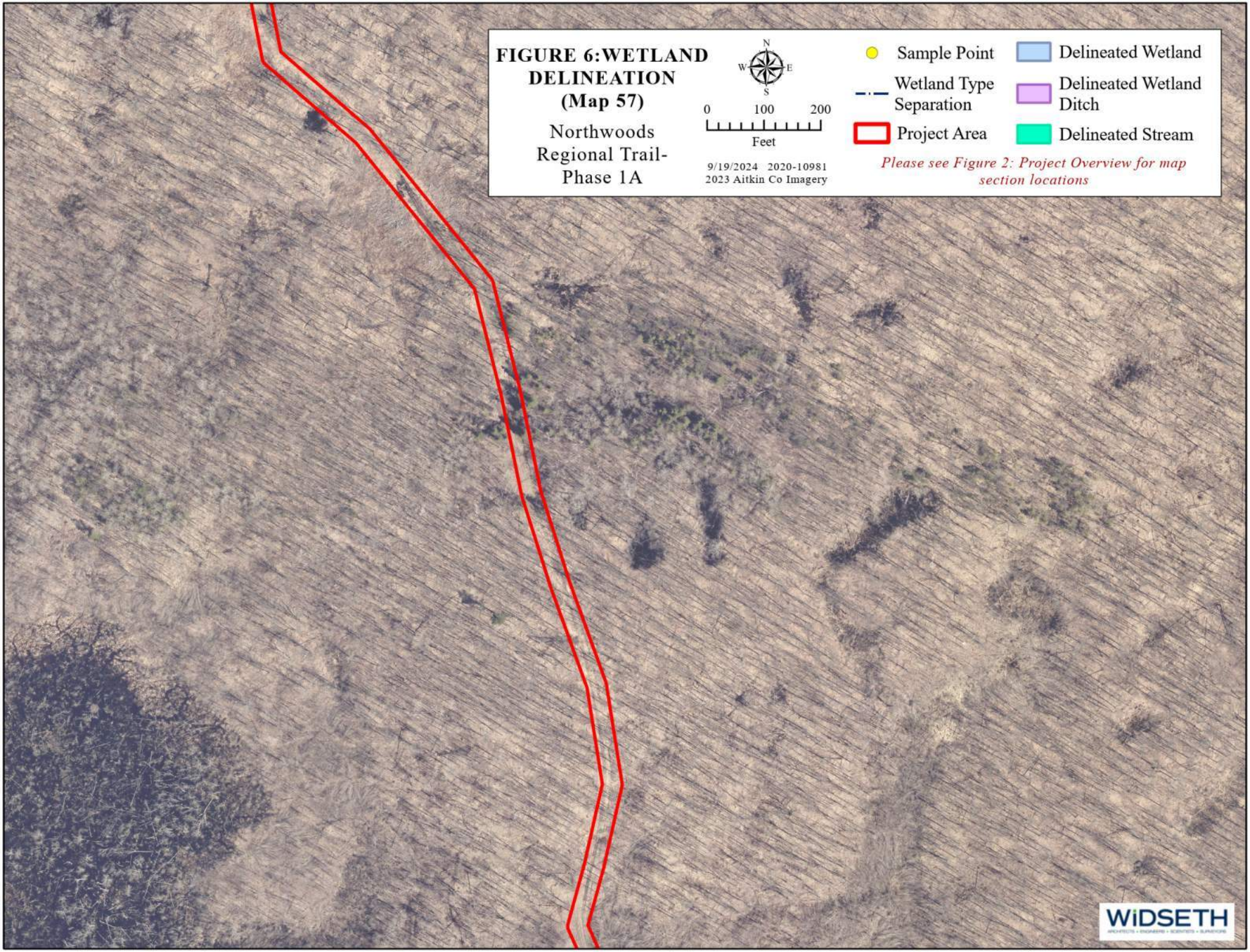


FIGURE 6:WETLAND DELINEATION (Map 57)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
WIDSETH

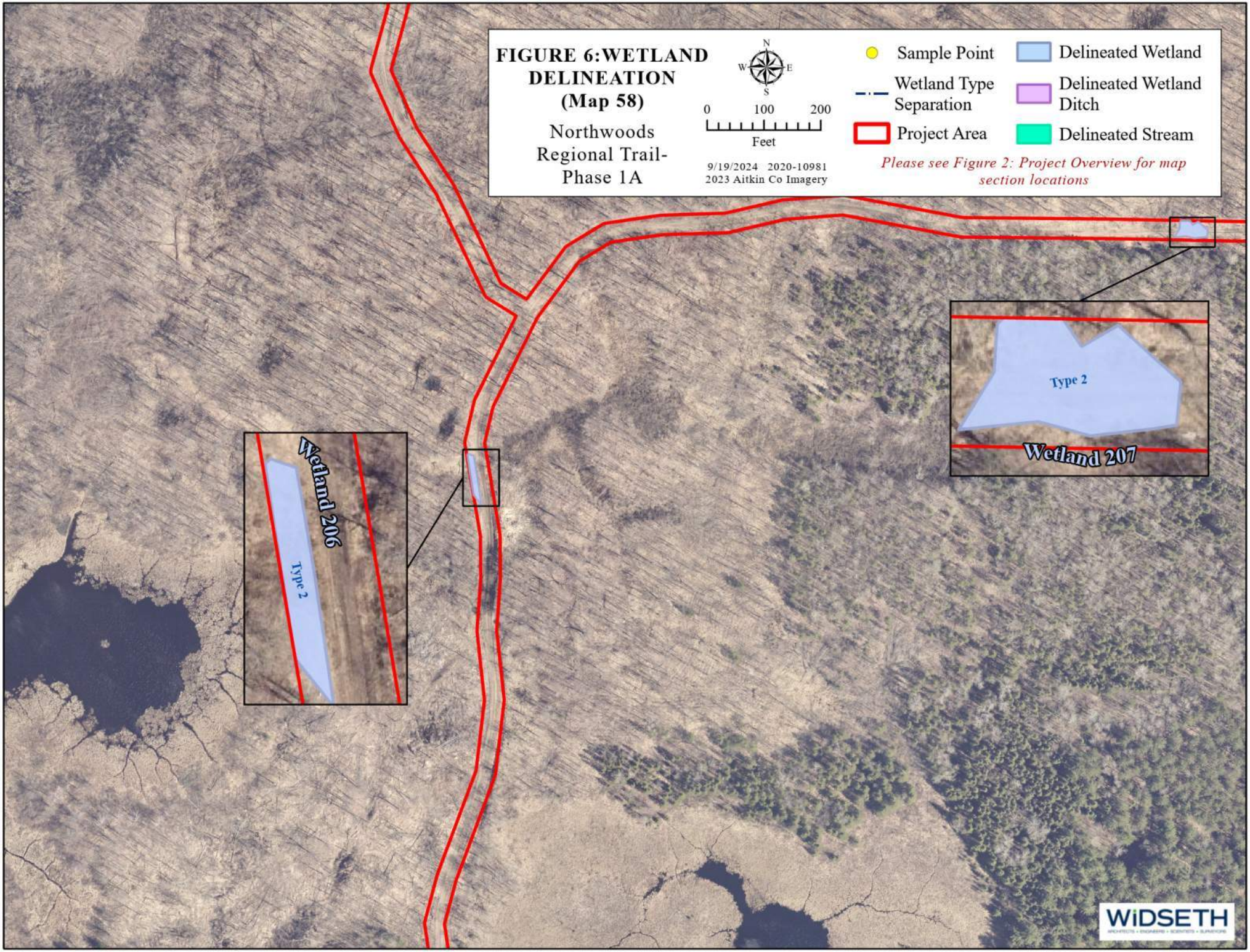


FIGURE 6:WETLAND DELINEATION (Map 58)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 206
Type 2
Type 2
Wetland 207
WIDSETH

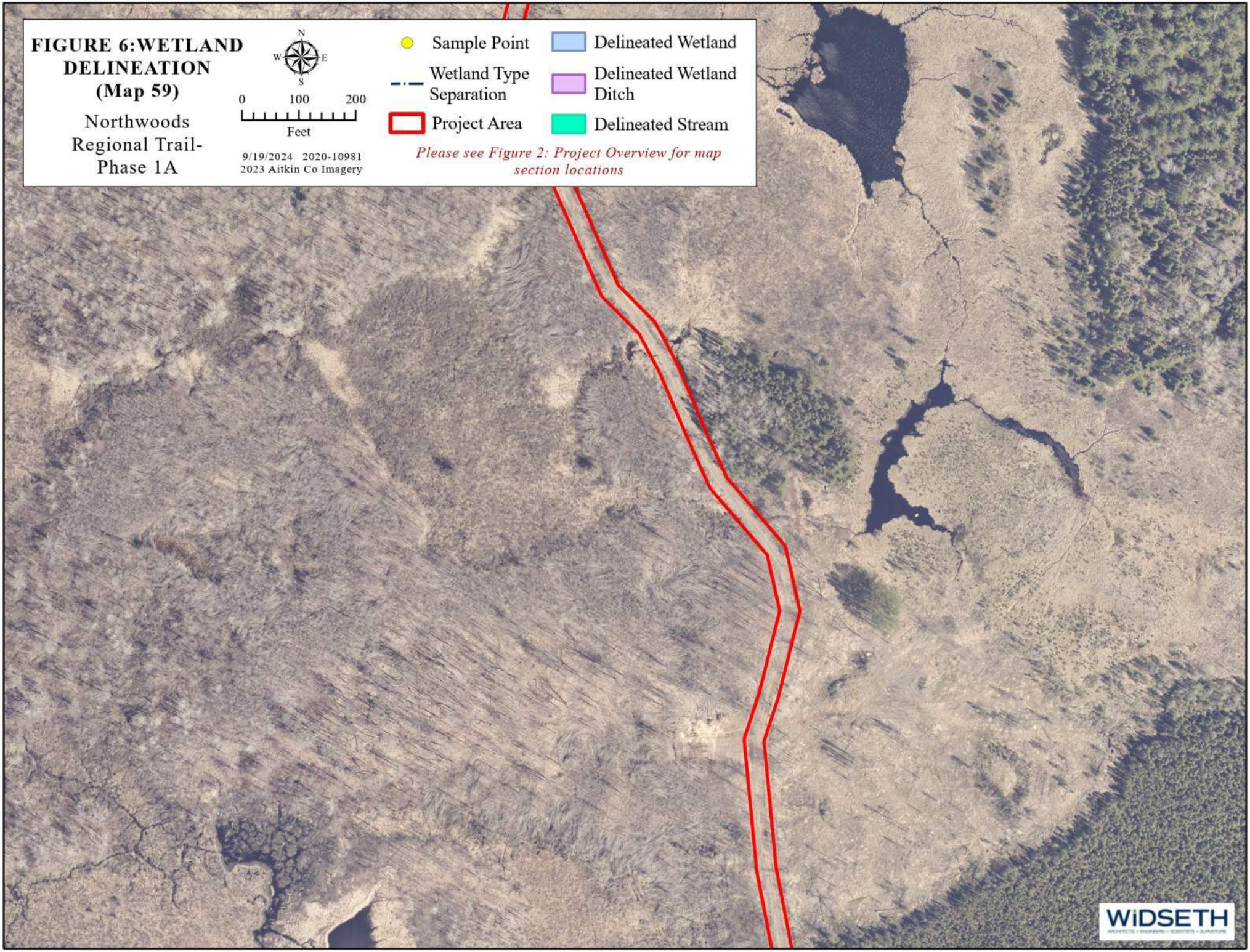


FIGURE 6:WETLAND DELINEATION (Map 59)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
WIDSETH


FIGURE 6:WETLAND DELINEATION
(Map 60)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
SP-03
220th St
WIDSETH

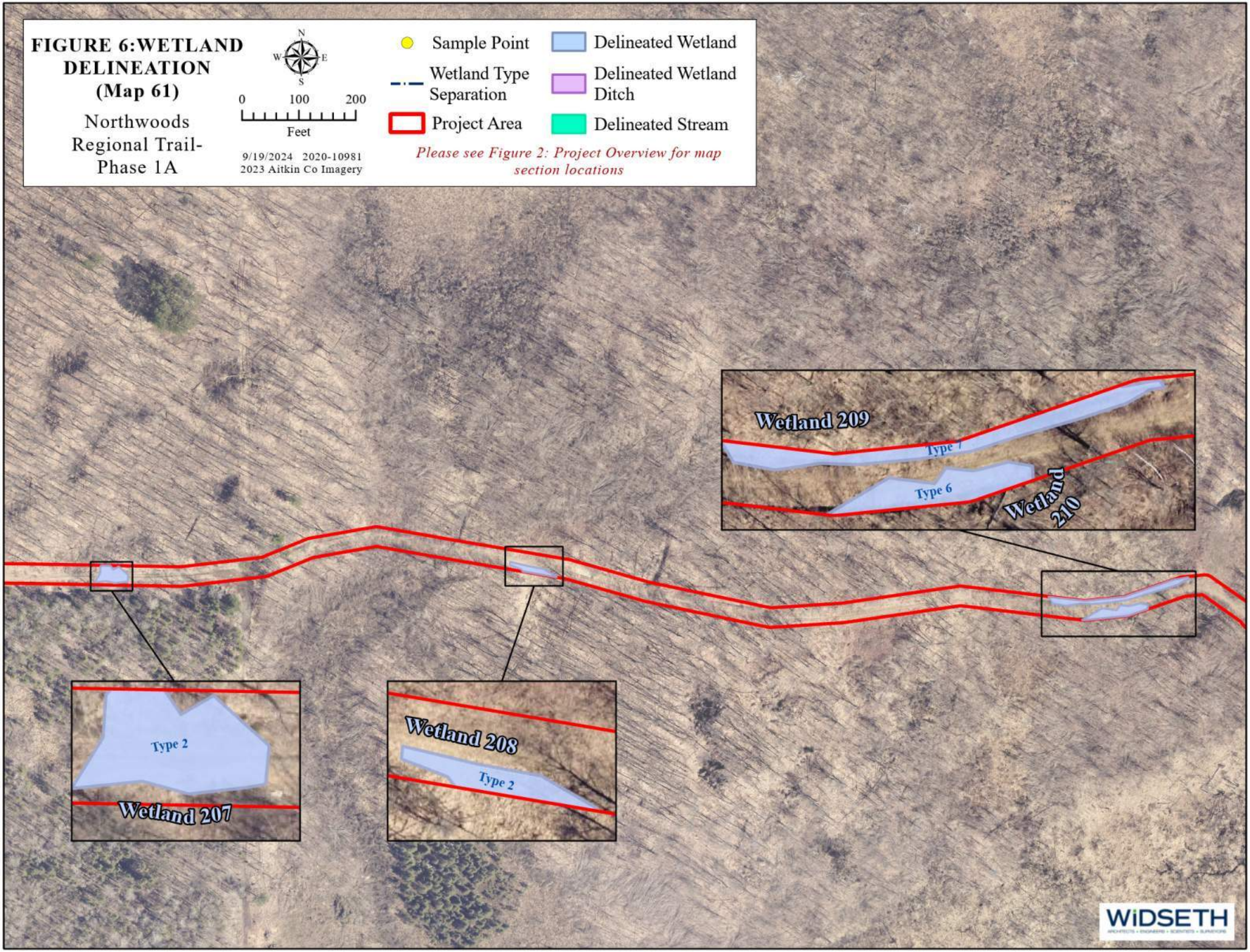


FIGURE 6:WETLAND DELINEATION
(Map 61)
Northwoods Regional Trail-Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 209
Type 7
Type 6
Wetland 210
Type 2
Wetland 207
Wetland 208
Type 2
WIDSETH

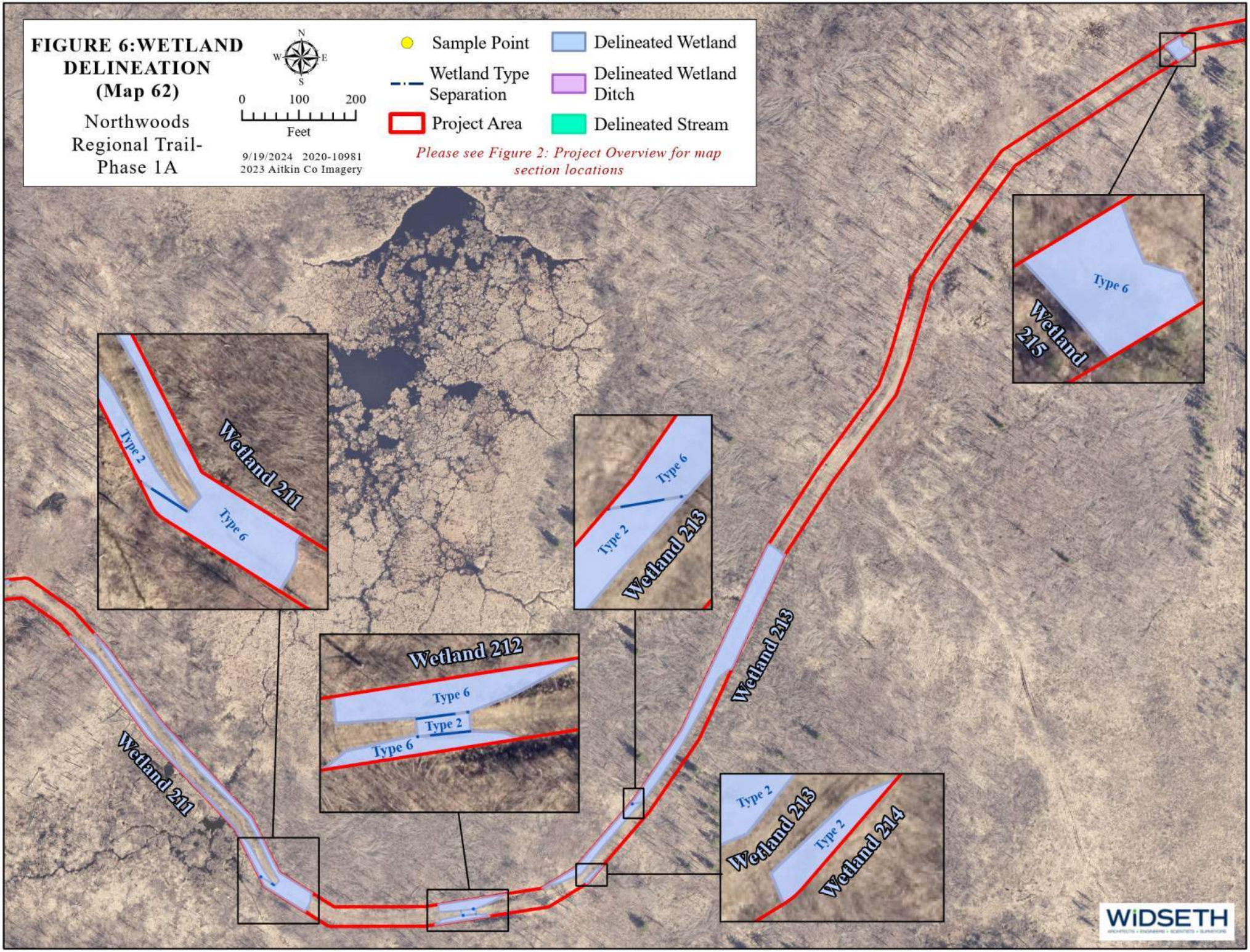


FIGURE 6:WETLAND DELINEATION (Map 62)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 211
Type 2
Type 6
Wetland 212
Type 6
Type 2
Type 6
Wetland 213
Type 6
Type 2
Wetland 213
Wetland 213
Type 2
Type 2
Wetland 214
Wetland 215
Type 6
WIDSETH

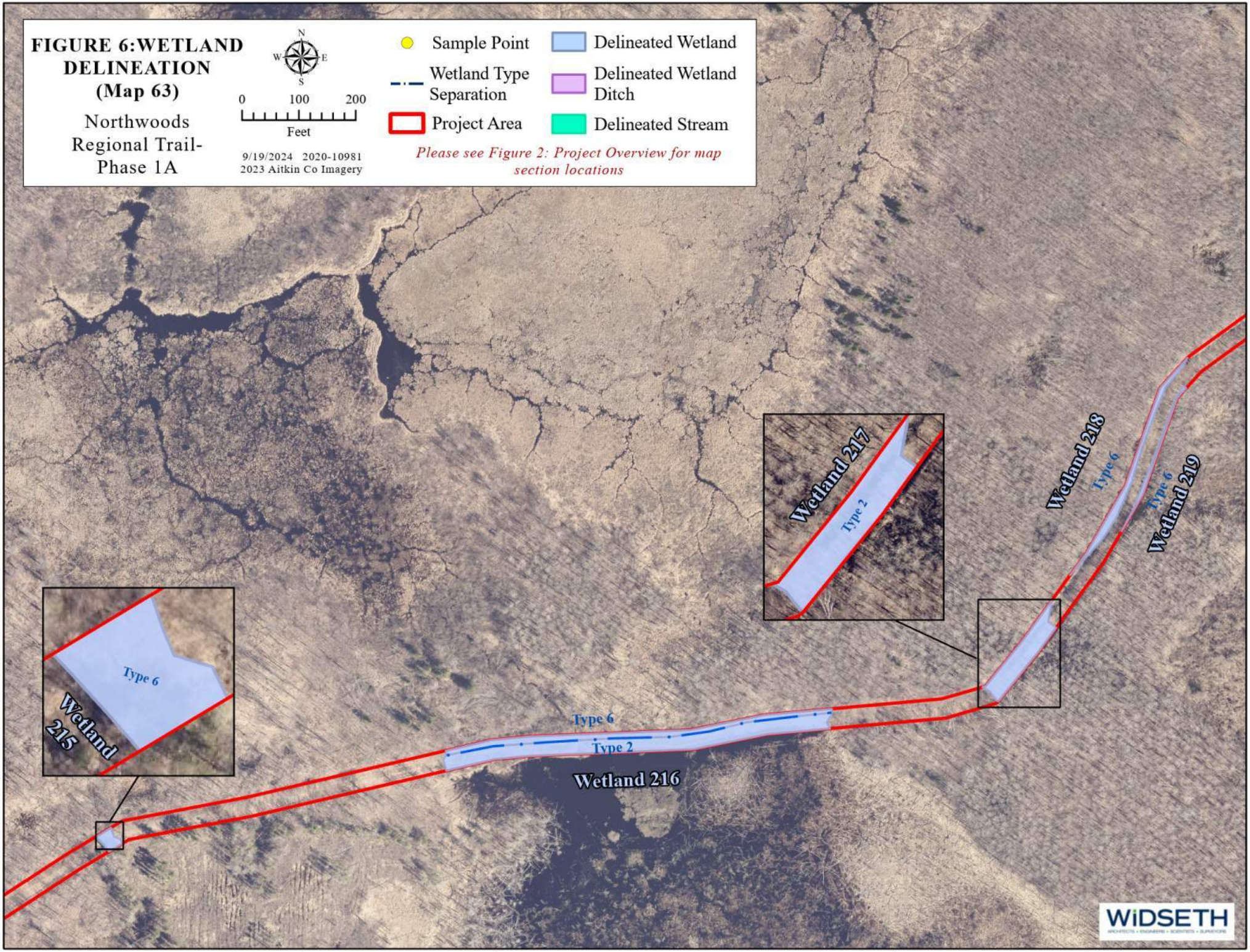


FIGURE 6:WETLAND DELINEATION (Map 63)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/19/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 217
Type 2
Wetland 218
Type 6
Type 6
Wetland 219
Type 6
Wetland 215
Type 6
Type 6
Type 2
Wetland 216
WIDSETH

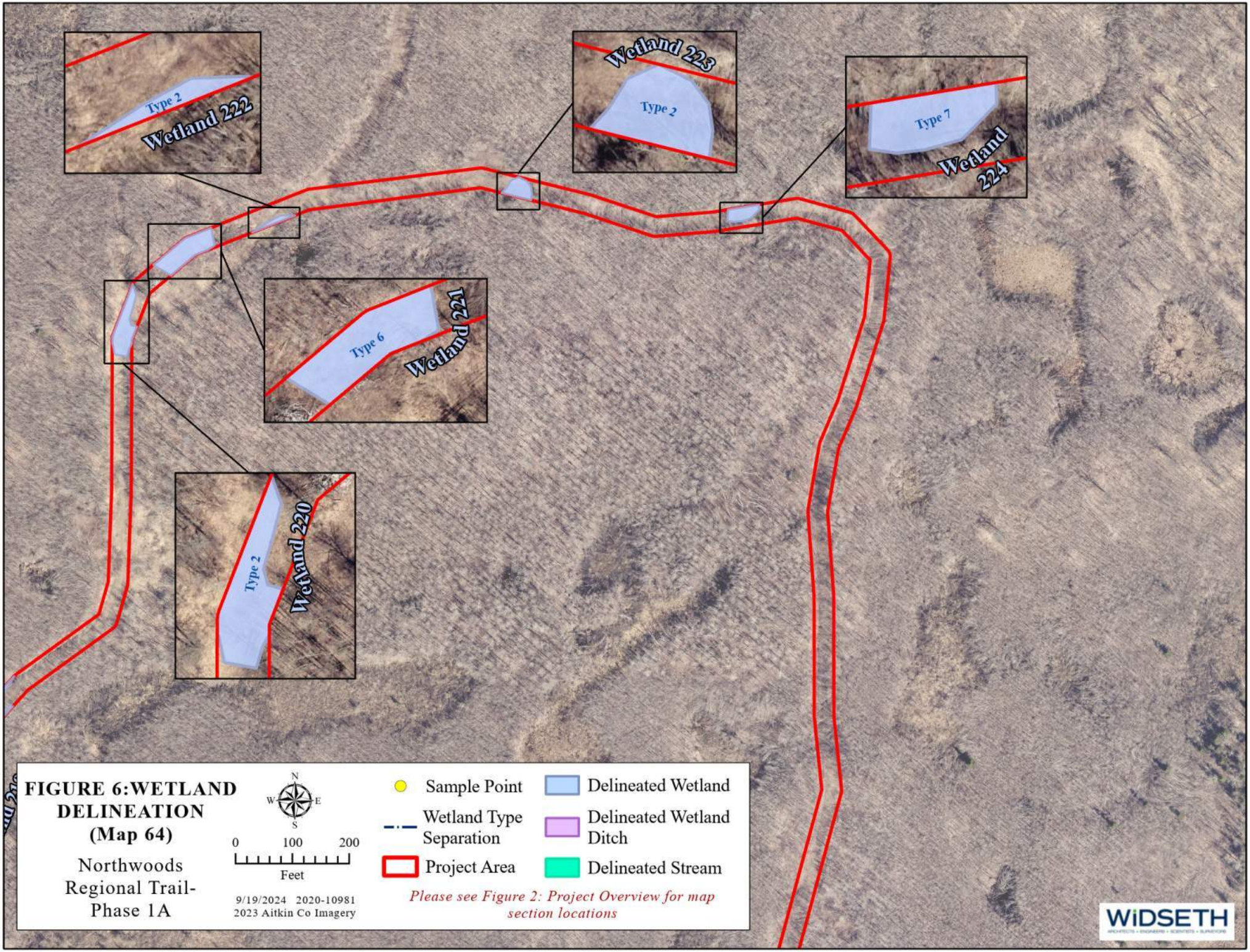


FIGURE 6:WETLAND DELINEATION (Map 64)

Northwoods Regional Trail-Phase 1A

N
W E
S

0 100 200
Feet

9/19/2024 2020-10981
2023 Aitkin Co Imagery

Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream

Please see Figure 2: Project Overview for map section locations

WIDSETH

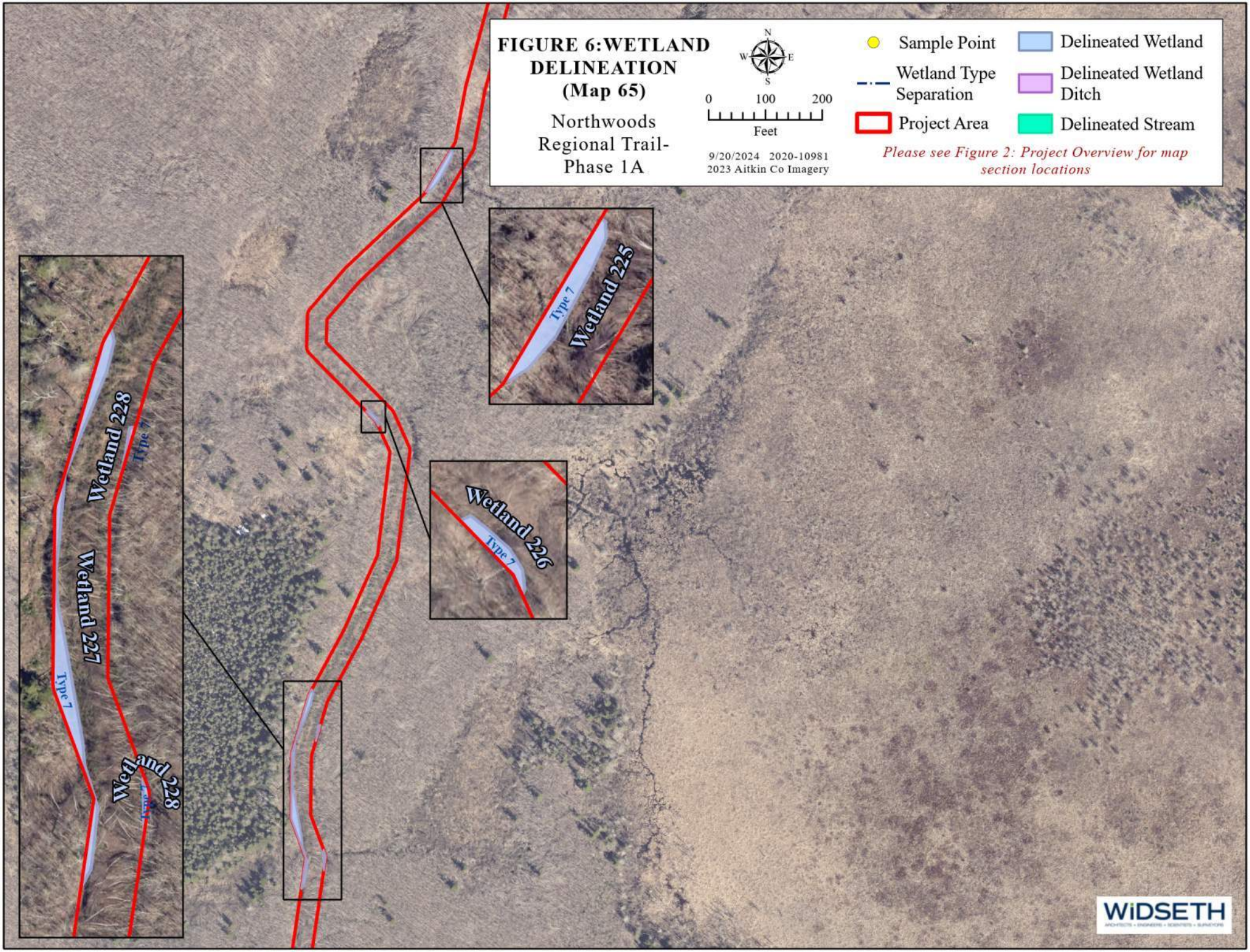


FIGURE 6:WETLAND DELINEATION (Map 65)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/20/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 225
Type 7
Wetland 226
Type 7
Wetland 228
Type 7
Wetland 227
Type 7
Wetland 228
Type 7
WiDSETH

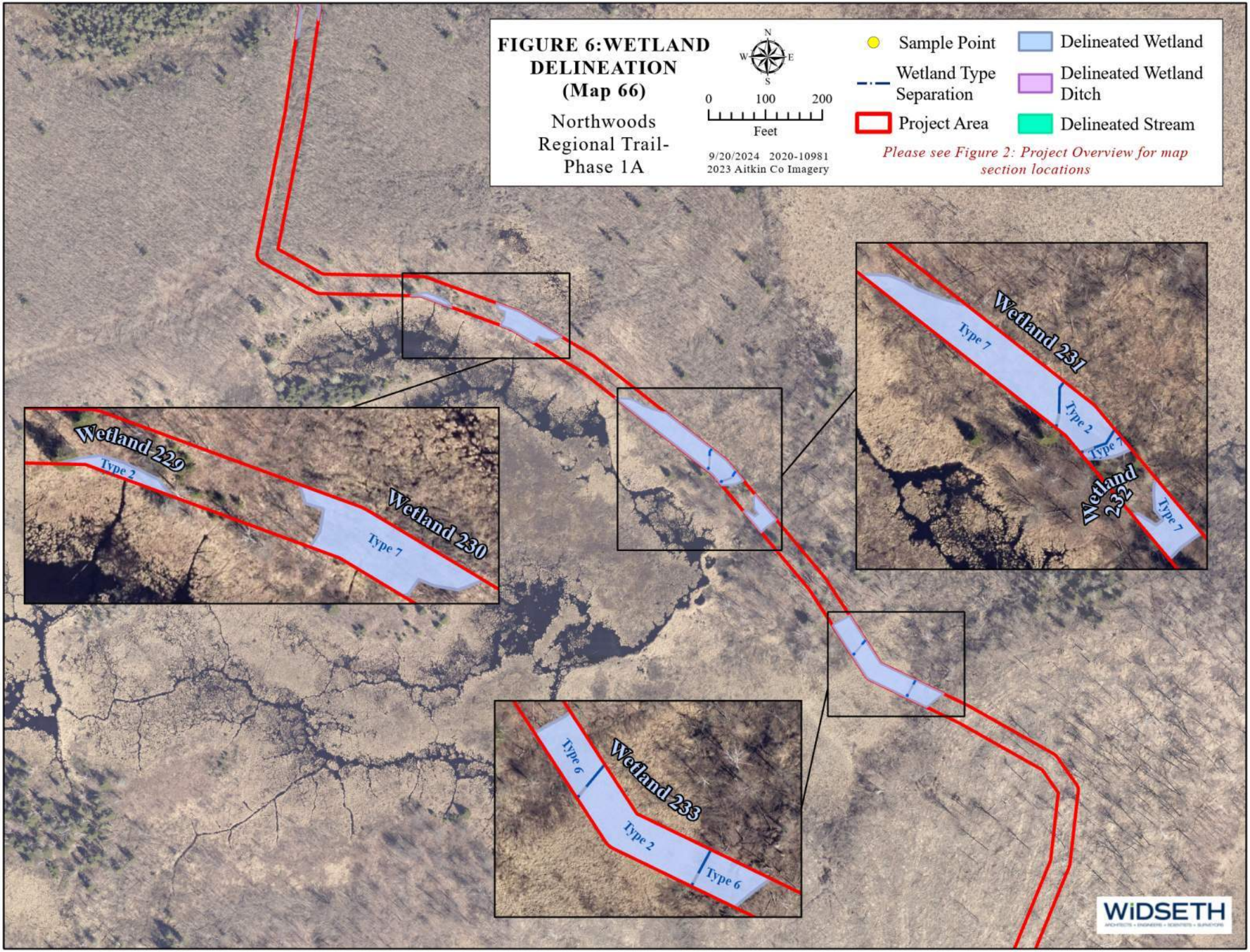


FIGURE 6:WETLAND DELINEATION (Map 66)
Northwoods Regional Trail- Phase 1A
N
W
E
S
0
100
200
Feet
9/20/2024 2020-10981
2023 Aitkin Co Imagery
Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream
Please see Figure 2: Project Overview for map section locations
Wetland 229
Type 2
Wetland 230
Type 7
Wetland 231
Type 7
Type 2
Type 7
Wetland 232
Type 7
Type 6
Wetland 233
Type 2
Type 6
WiDSETH

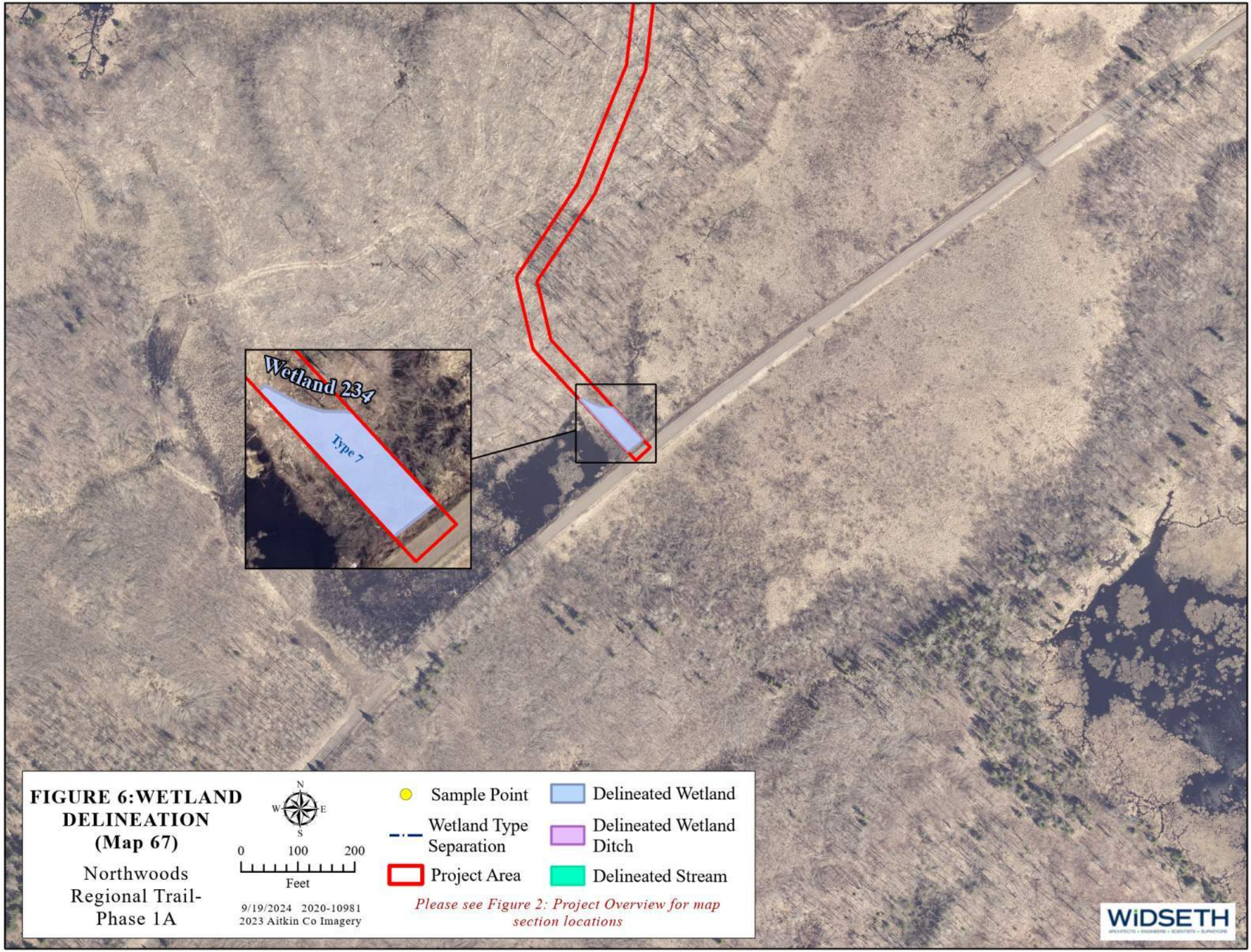


FIGURE 6:WETLAND DELINEATION (Map 67)

Northwoods Regional Trail-Phase 1A

N
W
E
S

0 100 200
Feet

9/19/2024 2020-10981
2023 Aitkin Co Imagery

Sample Point
Wetland Type Separation
Project Area
Delineated Wetland
Delineated Wetland Ditch
Delineated Stream

Please see Figure 2: Project Overview for map section locations

WIDSETH

APPENDIX A

Wetland Determination Data Forms

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/24/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W1-1U

Investigator(s): Joey Goeden Section, Township, Range: 33, 45N, 25W

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): concave Slope %: 8-10

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Oesterle fine sandy loam NWI classification: none

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

Are Vegetation X, Soil X, 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: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year. This sample point is located on the road inslope and the soil and vegetation are significantly disturbed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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: W1-1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Poa pratensis*	60	Yes	FACU
2. *Phalaris arundinacea*	20	No	FACW
3. *Melilotus officinalis*	10	No	FACU
4. *Solidago gigantea*	10	No	FACW
5. *Taraxacum officinale*	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	105 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column Totals:	105 (A)		360 (B)

Prevalence Index = B/A = 3.43

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W1-1U

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 3/2	100					Loamy/Clayey	
4-24	10YR 5/3	100					Loamy/Clayey	

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/24/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W1-1W

Investigator(s): Joey Goeden Section, Township, Range: 33, 45N, 25W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 1-2

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Oesterle fine sandy loam NWI classification: none

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

Are Vegetation ____, Soil X, 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: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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): 1
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: W1-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Juncus balticus*	50	Yes	OBL
2. *Phalaris arundinacea*	30	Yes	FACW
3. *Equisetum pratense*	15	No	FACW
4. *Solidago gigantea*	3	No	FACW
5. *Eupatorium perfoliatum*	2	No	FACW
6. *Fraxinus pennsylvanica*	1	No	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	101 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	51	x 2 =	102
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	101 (A)		152 (B)

Prevalence Index = B/A = 1.50

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W1-1W

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
0-3	10YR 2/1	100					Mucky Peat	
3-14	10YR 5/2	80	10YR 4/6	20	C	M	Loamy/Clayey	Prominent redox concentrations

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- X 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

Auger could not dig deeper due to presence of rock

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/24/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W4-1U

Investigator(s): Joey Goeden Section, Township, Range: 33, 45N, 25W

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope %: 8-10

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Cebana-Giese, frequently ponded Ronneby Complex, 0-3% slopes, stony NWI classification: none

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

Are Vegetation X, Soil X, 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: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of year. Sample point located on road inslope with mowed vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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: W4-1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Poa pratensis*	60	Yes	FACU
2. *Bromus inermis*	30	Yes	UPL
3. *Lolium perenne*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 0.0% (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	70	x 4 =	280
UPL species	30	x 5 =	150
Column Totals:	100 (A)		430 (B)

Prevalence Index = B/A = 4.30

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W4-1U

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 3/2	100					Loamy/Clayey	Sandy loam
6-24	10YR 5/3	100					Loamy/Clayey	

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/242024

Applicant/Owner: Aitkin County State: MN Sampling Point: W4-1W

Investigator(s): Joey Goeden Section, Township, Range: 33, 45N, 25W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 2-3

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Cebana-Giese, frequently ponded Ronneby Complex, 0-3% slopes, stony NWI classification: none

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

Are Vegetation ____, Soil X, 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: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of year. Soil is disturbed due to previous road construction.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

X Surface Water (A1)	___ Water-Stained Leaves (B9)	___ Surface Soil Cracks (B6)
X High Water Table (A2)	___ Aquatic Fauna (B13)	___ Drainage Patterns (B10)
X Saturation (A3)	___ Marl Deposits (B15)	___ Moss Trim Lines (B16)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Dry-Season Water Table (C2)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Crayfish Burrows (C8)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Saturation Visible on Aerial Imagery (C9)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Stunted or Stressed Plants (D1)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	X Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)	___ Shallow Aquitard (D3)
___ Sparsely Vegetated Concave Surface (B8)		___ Microtopographic Relief (D4)
		X FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 3
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: W4-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Carex lacustris*	60	Yes	OBL
2. *Typha X glauca*	40	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 1.00

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W4-1W

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
0-24	10YR 2/1	100					Mucky Peat	

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

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

Hydric Soil Indicators:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/25/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W8-1U

Investigator(s): Joey Goeden Section, Township, Range: 34, 45N, 25W

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): concave Slope %: 10-12

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Cebana-Giese, frequently ponded Ronneby complex, 0-3% slopes, stony NWI classification: none

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

Are Vegetation X, Soil X, 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: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of year. Vegetation is significantly disturbed due to mowing. Soil is disturbed due to previous road construction.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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: W8-1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Bromus inermis*	50	Yes	UPL
2. *Poa pratensis*	30	Yes	FACU
3. *Achillea millefolium*	10	No	FACU
4. *Lotus corniculatus*	5	No	FACU
5. *Solidago gigantea*	5	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 0.0% (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	45	x 4 =	180
UPL species	50	x 5 =	250
Column Totals:	100 (A)		440 (B)

Prevalence Index = B/A = 4.40

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W8-1U

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
0-3	10YR 3/2	100					Loamy/Clayey	Sandy loam
3-12	10YR 5/3	100					Sandy	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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

Couldn't dig down deeper due to rocks

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/25/2025

Applicant/Owner: Aitkin County State: MN Sampling Point: W8-1W

Investigator(s): Joey Goeden Section, Township, Range: 34, 45N, 25W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 1-2

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Cebana-Giese, frequently ponded, Ronneby complex, 0-3% slopes, stony NWI classification: none

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

Are Vegetation ____, Soil X, 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 ____	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes X	No ____	

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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): 1
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: W8-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	95	Yes	FACW
2. *Carex lacustris*	5	No	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
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:	100 (A)		195 (B)

Prevalence Index = B/A = 1.95

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W8-1W

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
0-10	10YR 3/1	90	10YR 4/6	10	C	M	Loamy/Clayey	Prominent redox concentrations
10-24	10YR 5/1	100					Loamy/Clayey	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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/25/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W8-2W

Investigator(s): Joey Goeden Section, Township, Range: 34, 45N, 25W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 2-3

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Cebana-Giese, frequently ponded, Ronneby complex, 0-3% slopes, stony NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this this time of year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ___ 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): 2
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: W8-2W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	45	Yes	FAC
2. *Populus balsamifera*	15	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	60	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Populus tremuloides*	15	Yes	FAC
2. *Salix discolor*	10	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	25	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	40	Yes	FACW
2. *Onoclea sensibilis*	30	Yes	FACW
3. *Solidago gigantea*	15	No	FACW
4. *Athyrium filix-femina*	10	No	UPL
5. *Carex lacustris*	5	No	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	110	x 2 =	220
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	10	x 5 =	50
Column Totals:	185 (A)		455 (B)

Prevalence Index = B/A = 2.46

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W8-2W

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
0-5	10YR 2/1	100					Loamy/Clayey	Sandy loam
5-24	10YR 5/2	80	10YR 4/6	20	C	M	Sandy	Prominent redox concentrations

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/25/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W10-1U

Investigator(s): Joey Goeden Section, Township, Range: 34, 45N, 25W

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope %: 6-8

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Cathro-Twig, stony complex, 0-1% slopes, frequently ponded NWI classification: PSS1D

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

Are Vegetation X, Soil X, 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: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year. Vegetation is disturbed due to mowing. Soil is disturbed due to previous road construction.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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: W10-1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Poa pratensis*	60	Yes	FACU
2. *Carex lacustris*	30	Yes	OBL
3. *Bromus inermis*	5	No	UPL
4. *Achillea millefolium*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	65	x 4 =	260
UPL species	5	x 5 =	25
Column Totals:	100 (A)		315 (B)

Prevalence Index = B/A = 3.15

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W10-1U

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 3/2	100					Loamy/Clayey	sandy loam
4-15	10YR 5/3	100					Sandy	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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

Couldn't dig down deeper due to hitting rock

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/25/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W10-1W

Investigator(s): Joey Goeden Section, Township, Range: 34, 45N, 25W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 1-2

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Cathro-Twig, stony complex, 0-1% slopes, frequently ponded NWI classification: PSS1D

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ___ 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): 2
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: W10-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Carex scoparia*	50	Yes	FACW
2. *Carex lacustris*	40	Yes	OBL
3. *Phalaris arundinacea*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		160 (B)

Prevalence Index = B/A = 1.60

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W10-1W

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
0-24	10YR 2/1	100					Peat	

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

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

Hydric Soil Indicators:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/25/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W10-2W

Investigator(s): Joey Goeden Section, Township, Range: 34, 45N, 25W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 0-1

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Cathro-Twig, stony complex, 0-1% slopes, frequently ponded NWI classification: PSS1D

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ____ 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): 1
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: W10-2W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Salix discolor*	80	Yes	FACW
2. *Salix pentandra*	20	Yes	UPL
3.			
4.			
5.			
6.			
7.			
	100 =Total Cover		
Herb Stratum (Plot size: 5')			
1. *Carex stricta*	70	Yes	OBL
2. *Onoclea sensibilis*	15	No	FACW
3. *Carex lacustris*	7	No	OBL
4. *Equisetum pratense*	5	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	97 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	77	x 1 =	77
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	20	x 5 =	100
Column Totals:	197 (A)		377 (B)
Prevalence Index = B/A =			1.91

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W10-2W

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
0-24	10YR 2/1	100					Peat	

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

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

Hydric Soil Indicators:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/26/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W20-1U

Investigator(s): Danny Perrault Section, Township, Range: 26, 45N, 25W

Landform (hillside, terrace, etc.): rise Local relief (concave, convex, none): convex Slope %: 0-3

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Mora-Ronneby complex, 1 to 4 percent slopes, stony NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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: W20-1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula papyrifera*			FACU
2. *Acer rubrum*			FAC
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Viburnum lentago*	30	Yes	FAC
2. *Frangula alnus*	25	Yes	FAC
3. *Acer rubrum*	10	No	FAC
4.			
5.			
6.			
7.			
	65 =Total Cover		
Herb Stratum (Plot size: 5')			
1. *Impatiens capensis*	40	Yes	FACW
2. *Plantago major*	20	Yes	FACU
3. *Rubus pubescens*	15	No	FACW
4. *Solidago canadensis*	15	No	FACU
5. *Solidago gigantea*	10	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	65	x 2 =	130
FAC species	65	x 3 =	195
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column Totals:	165 (A)		465 (B)

Prevalence Index = B/A = 2.82

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W20-1U

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 3/2	100					Loamy/Clayey	
6-24	10YR 5/2	85	10YR 5/8	15	C	M	Loamy/Clayey	Prominent redox concentrations

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/24/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W20-1W

Investigator(s): Danny Perrault Section, Township, Range: 26, 54N, 25W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 0-1

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Mora-Ronneby complex, 1 to 5 percent slopes, stony NWI classification: PEM1Db

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 X	No ____	Depth (inches): 14
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 8

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: W20-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Alnus incana*	25	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	25 =Total Cover		
Herb Stratum (Plot size: 5')			
1. *Onoclea sensibilis*	30	Yes	FACW
2. *Solidago gigantea*	25	Yes	FACW
3. *Rubus pubescens*	25	Yes	FACW
4. *Galium aparine*	20	No	FACU
5. *Phleum pratense*	3	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	103 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	105	x 2 =	210
FAC species	0	x 3 =	0
FACU species	23	x 4 =	92
UPL species	0	x 5 =	0
Column Totals:	128 (A)		302 (B)

Prevalence Index = B/A = 2.36

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W20-1W

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 3/1	100					Loamy/Clayey	
4-12	10YR 4/1	85	10YR 4/6	15	C	M	Loamy/Clayey	Prominent redox concentrations
12-24	10YR 5/2	80	10YR 5/6	20	C	M	Loamy/Clayey	Prominent redox concentrations

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/26/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W21-1U

Investigator(s): Joey Goeden Section, Township, Range: 26, 45N, 24W

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope %: 2-3

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Mora-Ronneby complex, 1-4% slopes, stony NWI classification: PEM1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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: W21-1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rhamnus frangula*	1	No	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	1 =Total Cover		
Herb Stratum (Plot size: 5')			
1. *Asclepias syriaca*	50	Yes	UPL
2. *Bromus inermis*	15	Yes	UPL
3. *Phalaris arundinacea*	15	Yes	FACW
4. *Solidago gigantea*	10	No	FACW
5. *Solidago canadensis*	10	No	FACU
6. *Onoclea sensibilis*	5	No	FACW
7. *Asclepias syriaca*	3	No	UPL
8.			
9.			
10.			
11.			
12.			
	108 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	1	x 3 =	3
FACU species	10	x 4 =	40
UPL species	68	x 5 =	340
Column Totals:	109 (A)		443 (B)

Prevalence Index = B/A = 4.06

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W21-1U

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
0-10	10YR 3/1	100					Loamy/Clayey	
10-24	10YR 5/2	85	10YR 5/6	15	C	M	Sandy	Prominent redox concentrations

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/26/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W21-1W

Investigator(s): Joey Goeden Section, Township, Range: 26, 45N, 24W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 1-2

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Mora-Ronneby Complex, 1-4% slopes, stony NWI classification: PEM1A

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

Are Vegetation ____, Soil X, 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: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year. Soil is disturbed due to previous excavation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ____ 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): 11
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 6

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: W21-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Salix lucida*	50	Yes	FACW
2. *Viburnum opulus*	10	No	FACW
3. *Fraxinus pennsylvanica*	5	No	FACW
4.			
5.			
6.			
7.			
	65 =Total Cover		
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	50	Yes	FACW
2. *Onoclea sensibilis*	20	Yes	FACW
3. *Eupatorium perfoliatum*	10	No	FACW
4. *Rubus idaeus*	10	No	FAC
5. *Solidago gigantea*	8	No	FACW
6. *Eupatorium perfoliatum*	2	No	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	155	x 2 =	310
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	165 (A)		340 (B)

Prevalence Index = B/A = 2.06

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W21-1W

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 4/2	90	10YR 5/1	10	D	M	Loamy/Clayey	
6-24	10YR 5/2	80	10YR 8/6	20	C	M	Sandy	Prominent redox concentrations

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/26/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W22-1W

Investigator(s): Joey Goeden Section, Township, Range: 26, 45N, 24W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 1-2

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Mora-Ronneby complex, 1-4% slopes, stony NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 X	No ____	Depth (inches): 14
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 8

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: W22-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	40	Yes	FACW
2. *Pinus strobus*	20	Yes	FACU
3. *Ulmus americana*	10	No	FACW
4. *Populus tremuloides*	10	No	FAC
5.			
6.			
7.			
	80	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Alnus incana*	20	Yes	FACW
2. *Fraxinus nigra*	20	Yes	FACW
3. *Frangula alnus*	15	Yes	FAC
4. *Populus tremuloides*	5	No	FAC
5. *Ulmus americana*	5	No	FACW
6.			
7.			
	65	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Rubus idaeus*	45	Yes	FAC
2. *Impatiens capensis*	45	Yes	FACW
3. *Solidago gigantea*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	150	x 2 =	300
FAC species	75	x 3 =	225
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	245 (A)		605 (B)

Prevalence Index = B/A = 2.47

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W22-1W

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 3/1	100					Loamy/Clayey	
4-10	10YR 3/1	90	10YR 4/6	10	C	M	Loamy/Clayey	Prominent redox concentrations
10-24	10YR 5/2	80	10YR 5/6	20	C	M	Sandy	Prominent redox concentrations

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/27/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W31-1U

Investigator(s): Joey Goeden Section, Township, Range: 20, 45N, 24W

Landform (hillside, terrace, etc.): trail Local relief (concave, convex, none): convex Slope %: 3-5

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Cebana-Giese, frequently ponded, Ronneby complex, 0-3% slopes, stony NWI classification: none

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 X, 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: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year. There is previous soil fill for the trail present. Vehicle travel has resulted in dispersed vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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: W31-1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Agrostis gigantea*	30	Yes	FACW
2. *Phleum pratense*	25	Yes	FACU
3. *Plantago major*	15	No	FACU
4. *Trifolium pratense*	15	No	FACU
5. *Juncus tenuis*	15	No	FAC
6. *Scirpus atrovirens*	5	No	OBL
7.			
8.			
9.			
10.			
11.			
12.			
	105 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	30	x 2 =	60
FAC species	15	x 3 =	45
FACU species	55	x 4 =	220
UPL species	0	x 5 =	0
Column Totals:	105 (A)		330 (B)

Prevalence Index = B/A = 3.14

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W31-1U

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
0-11	10YR 3/2	100					Loamy/Clayey	Sandy loam fill
11-16	10YR 3/1	90	10YR 4/6	10	C	M	Loamy/Clayey	Prominent redox concentrations

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

Couldn't dig down deeper due to hitting rock.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/27/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W31-1W

Investigator(s): Joey Goeden Section, Township, Range: 20, 45N, 24W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 1-2

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Cebana-Giese, frequently ponded, Ronneby complex, 0-3% slopes, stony NWI classification: none

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

Are Vegetation X, Soil X, 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: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year. Vegetation disturbed due to trail location.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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): 1
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: W31-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Agrostis gigantea*	30	Yes	FACW
2. *Carex lacustris*	15	Yes	OBL
3. *Juncus balticus*	13	Yes	OBL
4. *Scirpus atrovirens*	7	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	35	x 1 =	35
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:	65 (A)		95 (B)

Prevalence Index = B/A = 1.46

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W31-1W

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
0-12	10YR 3/1	90	10YR 4/1	10	D	M	Loamy/Clayey	
12-24	10YR 5/2	80	10YR 5/6	20	C	M	Loamy/Clayey	Prominent redox concentrations

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/27/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: WD2-1U

Investigator(s): Joey Goeden Section, Township, Range: 20, 45N, 24W

Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope %: 8-10

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Milaca-Mora complex, 1-7% slopes, stony NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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: WD2-1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Salix bebbiana*	8	Yes	FACW
2. *Corylus americana*	3	Yes	FACU
3. *Populus tremuloides*	2	No	FAC
4. *Quercus rubra*	2	No	FACU
5.			
6.			
7.			
	15 =Total Cover		
Herb Stratum (Plot size: 5')			
1. *Rubus idaeus*	70	Yes	FAC
2. *Poa pratensis*	20	Yes	FACU
3. *Pteridium aquilinum*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	8	x 2 =	16
FAC species	72	x 3 =	216
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column Totals:	115 (A)		372 (B)

Prevalence Index = B/A = 3.23

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: WD2-1U

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
0-9	10YR 3/1	100					Loamy/Clayey	
9-16	10YR 5/3	100					Loamy/Clayey	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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

Couldn't dig down deeper due to hitting rock

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/27/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: WD2-1W

Investigator(s): Joey Goeden Section, Township, Range: 20, 45N, 24W

Landform (hillside, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope %: 3-4

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Milaca-Mora complex, 1-7% slopes, stony NWI classification: none

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

Are Vegetation X, Soil X, or Hydrology X 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**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year. This sample point is located in a constructed wetland ditch.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 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: WD2-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Agrostis gigantea*	50	Yes	FACW
2. *Carex scoparia*	20	Yes	FACW
3. *Phleum pratense*	10	No	FACU
4. *Eleocharis palustris*	10	No	OBL
5. *Scirpus atrovirens*	5	No	OBL
6. *Plantago major*	3	No	FACU
7. *Onoclea sensibilis*	2	No	FACW
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	72	x 2 =	144
FAC species	0	x 3 =	0
FACU species	13	x 4 =	52
UPL species	0	x 5 =	0
Column Totals:	100 (A)		211 (B)

Prevalence Index = B/A = 2.11

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: WD2-1W

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
0-7	10YR 3/1	95	10YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
7-24	10YR 5/2	80	10YR 5/6	20	C	M	Loamy/Clayey	Prominent redox concentrations

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

Sandy loam texture throughout

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/24/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W100-1U

Investigator(s): Danny Perrault Section, Township, Range: 24, 45N, 24W

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope %: 3-5

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Markey muck NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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: W100-1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Phleum pratense*	80	Yes	FACU
2. *Panicum virgatum*	15	No	FAC
3. *Agrimonia eupatoria*	10	No	UPL
4. *Plantago major*	10	No	FACU
5. *Solidago gigantea*	5	No	FACW
6. *Phalaris arundinacea*	5	No	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	125 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	15	x 3 =	45
FACU species	90	x 4 =	360
UPL species	10	x 5 =	50
Column Totals:	125 (A)		475 (B)

Prevalence Index = B/A = 3.80

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W100-1U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	80	10YR 5/8	20	C	M	Loamy/Clayey	Prominent redox concentrations
12-24	10YR 3/2	100					Loamy/Clayey	

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/24/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W100-1W

Investigator(s): Danny Perrault Section, Township, Range: 23, 45N 24W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 3-5

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Markey muck NWI classification: none

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

Are Vegetation ____, Soil X, 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**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year. Soil has been disturbed due to previous trail construction.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 X	No ____	Depth (inches): 15
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: W100-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	35	Yes	FAC
2. *Quercus rubra*	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	55	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Salix amygdaloides*	25	Yes	FACW
2. *Sambucus nigra*	10	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	35	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Solidago gigantea*	30	Yes	FACW
2. *Panicum virgatum*	20	Yes	FAC
3. *Phalaris arundinacea*	15	No	FACW
4. *Onoclea sensibilis*	10	No	FACW
5. *Impatiens capensis*	5	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	95	x 2 =	190
FAC species	55	x 3 =	165
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	170 (A)		435 (B)

Prevalence Index = B/A = 2.56

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W100-1W

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 3/1	85	10YR 5/8	15	C	M	Sandy	Prominent redox concentrations
6-24	10YR 5/1	100					Loamy/Clayey	

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/24/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W101-1U

Investigator(s): Danny Perrault Section, Township, Range: 24, 45N, 24W

Landform (hillside, terrace, etc.): rise Local relief (concave, convex, none): convex Slope %: 2-3

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Rifle mucky peat, 0 to 1 percent slopes, occasionally ponded NWI classification: PEM1Dd

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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: W101-1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus rubra*	55	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	55 =Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Corylus cornuta*			FACU
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Maianthemum canadense*	20	Yes	FACU
2. *Trientalis borealis*	15	Yes	FAC
3. *Equisetum pratense*	5	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	15	x 3 =	45
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column Totals:	95 (A)		355 (B)

Prevalence Index = B/A = 3.74

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W101-1U

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 3/2	100					Loamy/Clayey	
6-24	10YR 6/8	100					Loamy/Clayey	

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/24/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W101-1W

Investigator(s): Danny Perrault Section, Township, Range: 24, 45N, 24W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 0-2

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Rifle mucky peat, 0 to 1 percent slopes, occasionally ponded NWI classification: PEM1Dd

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

X Surface Water (A1)	___ Water-Stained Leaves (B9)	___ Surface Soil Cracks (B6)
X High Water Table (A2)	___ Aquatic Fauna (B13)	___ Drainage Patterns (B10)
X Saturation (A3)	___ Marl Deposits (B15)	___ Moss Trim Lines (B16)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Dry-Season Water Table (C2)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Crayfish Burrows (C8)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Saturation Visible on Aerial Imagery (C9)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Stunted or Stressed Plants (D1)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	X Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)	___ Shallow Aquitard (D3)
___ Sparsely Vegetated Concave Surface (B8)		___ Microtopographic Relief (D4)
		X FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 6
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: W101-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	25	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	25	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Frangula alnus*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Carex stricta*	50	Yes	OBL
2. *Phalaris arundinacea*	45	Yes	FACW
3. *Frangula alnus*	10	No	FAC
4. *Pinus strobus*	2	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	107	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		=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 Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	45	x 2 =	90
FAC species	40	x 3 =	120
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	137 (A)		268 (B)

Prevalence Index = B/A = 1.96

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W101-1W

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
0-15	10YR 2/1	100					Muck	
15-24	10YR 5/1	100					Loamy/Clayey	

[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)
- X Histic Epipedon (A2)
- X Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- X Thick Dark Surface (A12)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/24/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W102-1U

Investigator(s): Danny Perrault Section, Township, Range: 24, 45N, 24W

Landform (hillside, terrace, etc.): rise Local relief (concave, convex, none): convex Slope %: 2-4

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Rifle mucky peat, 0 to 1 percent slopes, occasionally ponded NWI classification: PFO2/4Dg

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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: W102-1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	30	Yes	FAC
2. *Quercus rubra*	25	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	55	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Corylus cornuta*			FACU
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Eurybia macrophylla*	35	Yes	UPL
2. *Vaccinium angustifolium*	30	Yes	FACU
3. *Pteridium aquilinum*	15	No	FACU
4. *Rubus pubescens*	5	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		=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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	30	x 3 =	90
FACU species	70	x 4 =	280
UPL species	35	x 5 =	175
Column Totals:	140 (A)		555 (B)

Prevalence Index = B/A = 3.96

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W102-1U

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 5/2	100					Sandy	
6-24	10YR 5/4	100					Sandy	

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/24/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W102-1W

Investigator(s): Danny Perrault Section, Township, Range: 24, 45N, 24W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 2-3

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Rifle mucky peat, 0 to 1 percent slopes, occasionally ponded NWI classification: PFO2/4Dg

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 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: W102-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus pennsylvanica*	35	Yes	FACW
2. *Populus tremula*	20	Yes	FAC
3. *Betula papyrifera*	10	No	FACU
4. *Acer rubrum*	10	No	FAC
5. *Quercus rubra*	5	No	FACU
6.			
7.			
	80	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Amelanchier arborea*	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	10	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Carex straminea*	55	Yes	OBL
2. *Pteridium aquilinum*	15	No	FACU
3. *Eurybia macrophylla*	10	No	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		=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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	55	x 1 =	55
FACW species	35	x 2 =	70
FAC species	30	x 3 =	90
FACU species	40	x 4 =	160
UPL species	10	x 5 =	50
Column Totals:	170 (A)		425 (B)

Prevalence Index = B/A = 2.50

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W102-1W

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
0-2	10YR 2/1	100					Loamy/Clayey	
2-6	10YR 5/1	60					Loamy/Clayey	40% of soil is rock

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: rock

Depth (inches): 6

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

Remarks:

Rock prevented a deeper soil boring.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/24/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W103-1U

Investigator(s): Danny Perrault Section, Township, Range: 29, 45N, 23W

Landform (hillside, terrace, etc.): rise Local relief (concave, convex, none): convex Slope %: 0-2

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Markey muck NWI classification: PSS1/EM1Dd

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

Are Vegetation ____, Soil X, 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**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year. Soil is significantly disturbed due to previous trail construction.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- 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** ____ **No** X

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W103-1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	70	Yes	FACW
2. *Rubus pubescens*	25	Yes	FACW
3. *Solidago gigantea*	20	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	115 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	115	x 2 =	230
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	115 (A)		230 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W103-1U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					Loamy/Clayey	
3-24	10YR 5/2	80	10YR 5/8	20	C	M	Loamy/Clayey	Prominent redox concentrations

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/24/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W103-1W

Investigator(s): Danny Perrault Section, Township, Range: 29, 45N, 23W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 0-3

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Markey muck NWI classification: PSS1/EM1Dd

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

Are Vegetation ____, Soil X, 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**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year. Soil is significantly disturbed due to previous trail construction.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ____ 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): 10
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: W103-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Salix interior*	50	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	50 =Total Cover		
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	30	Yes	FACW
2. *Carex stricta*	25	Yes	OBL
3. *Rubus pubescens*	20	Yes	FACW
4. *Salix interior*	10	No	FACW
5. *Solidago gigantea*	5	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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 Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	115	x 2 =	230
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	140 (A)		255 (B)

Prevalence Index = B/A = 1.82

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W103-1W

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
0-3	10YR 3/1	100					Loamy/Clayey	
3-6	10YR 5/8	100					Loamy/Clayey	Trail Fill
6-30	10YR 2/1	100					Loamy/Clayey	

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- X 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/24/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W200-1U

Investigator(s): Duncan Widman Section, Township, Range: 24, 45N, 23W

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope %: 3-4

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Cathro-Twig, stony complex, 0-1% slopes, frequently ponded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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 X	No ____	
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 18
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 16

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: W200-1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	15	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	15	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Populus tremuloides*	15	Yes	FAC
2. *Alnus incana*	5	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	20	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Rubus idaeus*	40	Yes	FAC
2. *Solidago gigantea*	20	Yes	FACW
3. *Poa trivialis*	20	Yes	FACW
4. *Castilleja coccinea*	10	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	45	x 2 =	90
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	125 (A)		330 (B)

Prevalence Index = B/A = 2.64

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W200-1U

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
0-5	10YR 2/2	90	10YR 4/6	10	C	M	Sandy	Prominent redox concentrations
5-24	10YR 4/3	100					Sandy	Silty 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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/24/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W200-1W

Investigator(s): Duncan Widman Section, Township, Range: 24, 45N, 23W

Landform (hillside, terrace, etc.): toe slope Local relief (concave, convex, none): concave Slope %: 1-2

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Cathro-Twig, stony complex, 0-1% slopes, frequently ponded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ___ 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): 2
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 1

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

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

Remarks:
Surface water is present approximately one foot northeast of the sample point.

VEGETATION – Use scientific names of plants.

Sampling Point: W200-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Populus tremuloides*	10	Yes	FAC
2. *Alnus incana*	10	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	20	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	80	Yes	FACW
2. *Poa trivialis*	15	No	FACW
3. *Rubus idaeus*	10	No	FAC
4. *Solidago gigantea*	5	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	110	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		=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 Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	110	x 2 =	220
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	135 (A)		295 (B)

Prevalence Index = B/A = 2.19

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W200-1W

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
0-2	10YR 4/1	100					Mucky Peat	Vegetation material
2-6	10YR 4/1	95	10YR 6/6	5	C	M	Sandy	Prominent redox concentrations
6-16	10YR 6/4	95	10YR 6/8	5	C	M	Loamy/Clayey	Prominent redox concentrations

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

Indicators for Problematic Hydric Soils[3]:

- X 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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: rock

Depth (inches): 16

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

Remarks:

Couldn't dig deeper due to hitting rocks

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/25/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W202-1U

Investigator(s): Duncan Widman Section, Township, Range: 24, 45N, 23W

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope %: 3-5

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Cebana-Giese, frequently ponded Ronneby complex, 0-3% slopes, stony NWI classification: none

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

Are Vegetation ____, Soil X, 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**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year. Soil is disturbed due to previous trail construction

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 22
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 18

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: W202-1U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Alnus incana*	10	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	10 =Total Cover		
Herb Stratum (Plot size: 5')			
1. *Solidago gigantea*	40	Yes	FACW
2. *Corylus cornuta*	20	Yes	FACU
3. *Poa trivialis*	20	Yes	FACW
4. *Rubus allegheniensis*	10	No	FACU
5. *Phleum pratense*	10	No	FACU
6. *Hieracium caespitosum*	5	No	UPL
7. *Calystegia sepium*	5	No	FAC
8. *Apocynum androsaemifolium*	5	No	UPL
9.			
10.			
11.			
12.			
	115 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	5	x 3 =	15
FACU species	40	x 4 =	160
UPL species	10	x 5 =	50
Column Totals:	125 (A)		365 (B)

Prevalence Index = B/A = 2.92

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W202-1U

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
0-26	10YR 2/2	95					Loamy/Clayey	5% 10YR 4/6

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

Redox features from 0"-26" are believed to be mixed in from previous soil disturbance and are not considered concentrations or depletions.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/25/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: W202-1W

Investigator(s): Duncan Widman Section, Township, Range: 24, 45N, 23W

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 1-2

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Cebana-Giese, frequently ponded Ronneby complex, 0-3% slopes, stony NWI classification: none

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

Are Vegetation ____, Soil X, 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**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year. Soil is disturbed due to being taken in a existing ATV trail

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ___ 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): 9
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 1

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: W202-1W

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Alnus incana*	25	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	25 =Total Cover		
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	50	Yes	FACW
2. *Pteridium aquilinum*	35	Yes	FACU
3. *Phleum pratense*	20	No	FACU
4. *Poa annua*	10	No	FACU
5. *Cicuta maculata*	10	No	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	125 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	75	x 2 =	150
FAC species	0	x 3 =	0
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	150 (A)		420 (B)

Prevalence Index = B/A = 2.80

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: W202-1W

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
0-8	10YR 4/2	100					Loamy/Clayey	
8-25	10YR 5/2	100					Sandy	

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- X 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:

Soil is disturbed due to previous trail construction.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/27/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: SP-01

Investigator(s): Danny Perrault Section, Township, Range: 22, 45N, 24W

Landform (hillside, terrace, etc.): hilltop Local relief (concave, convex, none): convex Slope %: 2-3

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Markey muck NWI classification: PFO1/4D

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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: SP-01

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus resinosa*	70	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	70	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Pteridium aquilinum*	30	Yes	FACU
2. *Aralia nudicaulis*	30	Yes	FACU
3. *Plantago major*	15	No	FACU
4. *Acer rubrum*	15	No	FAC
5. *Trientalis borealis*	10	No	FAC
6.			
7.			
	100	=Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	145	x 4 =	580
UPL species	0	x 5 =	0
Column Totals:	170 (A)		655 (B)

Prevalence Index = B/A = 3.85

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: SP-01

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 5/2	100					Sandy	
6-24	10YR 5/6	100					Sandy	

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 6/26/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: SP-02

Investigator(s): Danny Perrault Section, Township, Range: 24, 45N, 24W

Landform (hillside, terrace, etc.): rise Local relief (concave, convex, none): convex Slope %: 2-3

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Mahtomedi loamy coarse sand, 2 to 6 percent NWI classification: PSS1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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: SP-02

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus rubra*	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	10	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Populus balsamifera*	40	Yes	FACW
2. *Acer rubrum*	25	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	65	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Rubus occidentalis*	95	Yes	UPL
2. *Pteridium aquilinum*	70	Yes	FACU
3. *Verbascum thapsus*	2	No	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	167	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		=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 Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	25	x 3 =	75
FACU species	80	x 4 =	320
UPL species	97	x 5 =	485
Column Totals:	242 (A)		960 (B)

Prevalence Index = B/A = 3.97

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] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: SP-02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-24	10YR 5/2	100					Sandy	

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Northwoods Regional Trail - Phase 1A City/County: Aitkin County Sampling Date: 06/25/2024

Applicant/Owner: Aitkin County State: MN Sampling Point: SP-03

Investigator(s): Duncan Widman Section, Township, Range: 31, 45N, 22W

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope %: 5-7

Subregion (LRR or MLRA): LRR K Lat: N/A Long: N/A Datum: NAD 83

Soil Map Unit Name: Mora-Ronneby complex, 1-4% slopes, stony NWI classification: PSS1D

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- 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** ____ **No** X

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: SP-03

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Acer rubrum*	10	Yes	FAC
2. *Populus tremuloides*	5	Yes	FAC
3. *Alnus incana*	5	Yes	FACW
4.			
5.			
6.			
7.			
	20 =Total Cover		
Herb Stratum (Plot size: 5')			
1. *Solidago gigantea*	30	Yes	FACW
2. *Phleum pratense*	25	Yes	FACU
3. *Bromus inermis*	20	Yes	UPL
4. *Pteridium aquilinum*	10	No	FACU
5. *Chamaenerion angustifolium*	10	No	FAC
6. *Leucanthemum vulgare*	5	No	UPL
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	25	x 3 =	75
FACU species	35	x 4 =	140
UPL species	25	x 5 =	125
Column Totals:	120 (A)		410 (B)

Prevalence Index = B/A = 3.42

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 vines – 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: SP-03

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 4/4	95	10R 5/6	5	C	M	Sandy	Prominent redox concentrations
6-20	10YR 4/4	90	10R 5/6	10	C	M	Sandy	Prominent redox concentrations
20-25	10YR 3/3	95	10R 5/6	5	C	M	Sandy	Prominent redox concentrations

[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)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

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**)
- ___ 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**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ 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): _____

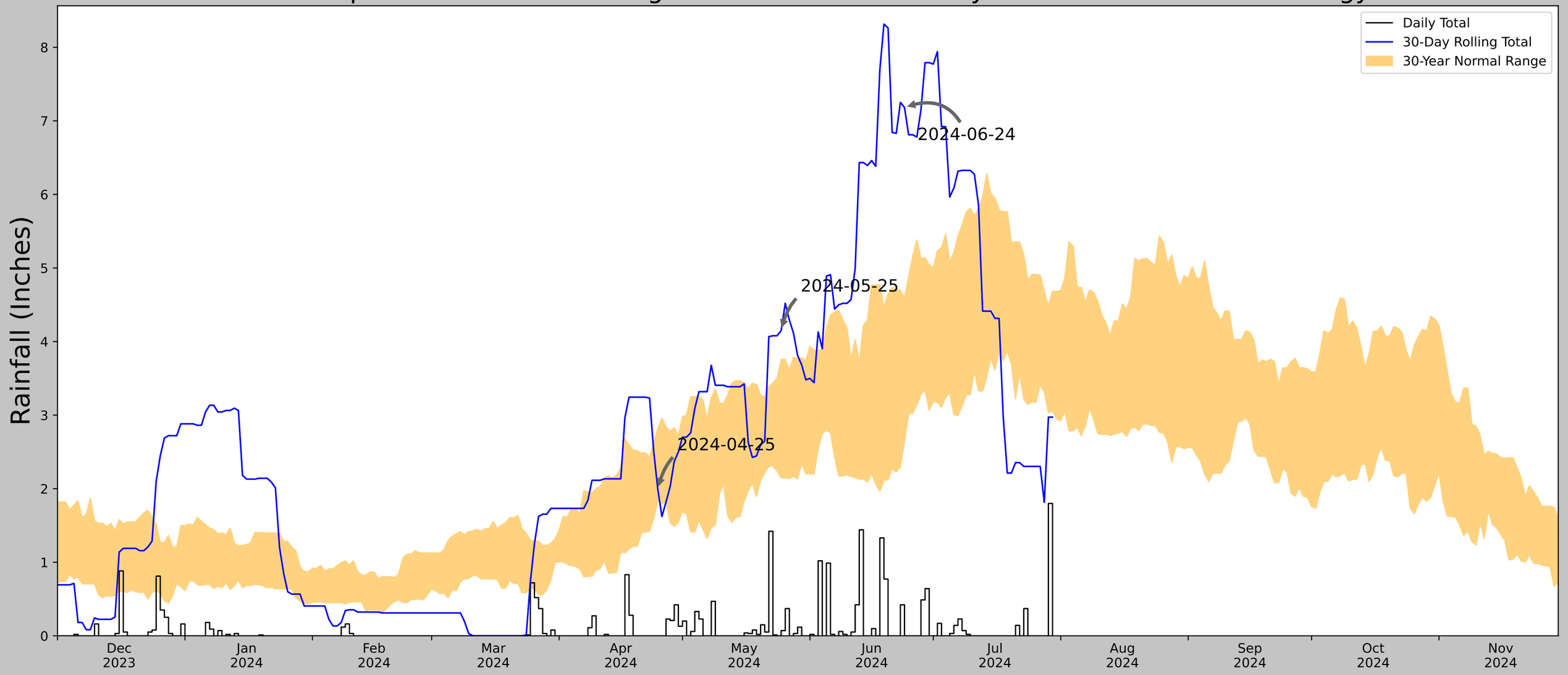
Hydric Soil Present? **Yes** ___ **No** X

Remarks:

APPENDIX B

Precipitation Data

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	46.376582, -93.337329
Observation Date	2024-06-24
Elevation (ft)	1281.285
Drought Index (PDSI)	Moderate wetness
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
2024-06-24	2.649606	4.598819	7.181103	Wet	3	3	9
2024-05-25	2.148425	3.756693	4.149606	Wet	3	2	6
2024-04-25	1.84252	2.814173	1.992126	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
WRIGHT 3 E	46.6803, -92.9542	1330.053	27.786	48.768	13.859	10551	86
TAMARACK 2.5 SE	46.6275, -93.087	1298.885	7.278	31.168	3.502	2	4
TAMARACK 2.3 SSE	46.6254, -93.0984	1273.95	7.82	56.103	3.958	39	0
TAMARACK 1.4 SW	46.6376, -93.1455	1274.934	9.539	55.119	4.818	52	0
MCGREGOR 7.3 N	46.7138, -93.2885	1258.858	16.01	71.195	8.344	45	0
RICE LAKE NWR	46.5381, -93.2844	1250.0	18.498	80.053	9.805	244	0
SANDY LAKE DAM LIBBY	46.7953, -93.3211	1233.924	19.104	96.129	10.433	387	0
MOOSE LAKE 1 SSE	46.4378, -92.7578	1109.908	19.178	220.145	12.852	32	0

APPENDIX C

Site Photographs

Photo 1: Wetland 1 facing north.

Photo 2: Sample Point W1-1U facing south.

Photo 3: Sample Point W1-1W facing north.

Photo 4: Wetland 2 facing north.

Photo 5: Wetland 3 facing northwest.

Photo 6: Wetland 3 facing west.

Photo 7: West end of Wetland 4 facing east.

Photo 8: Sample Point W4-1U facing south.

Photo 9: Sample Point W4-1W facing north.

Photo 10: West end of Wetland 5 facing east.

Photo 11: East end of Wetland 5 facing west.

Photo 12: Wetland 6 facing east.

Photo 13: East side of Wetland 6 facing west.

Photo 14: Type 2 portion of Wetland 7 facing northwest.

Photo 15: Type 3 portion of Wetland 7 facing east.

Photo 16: Type 6 portion of Wetland 7 facing northeast.

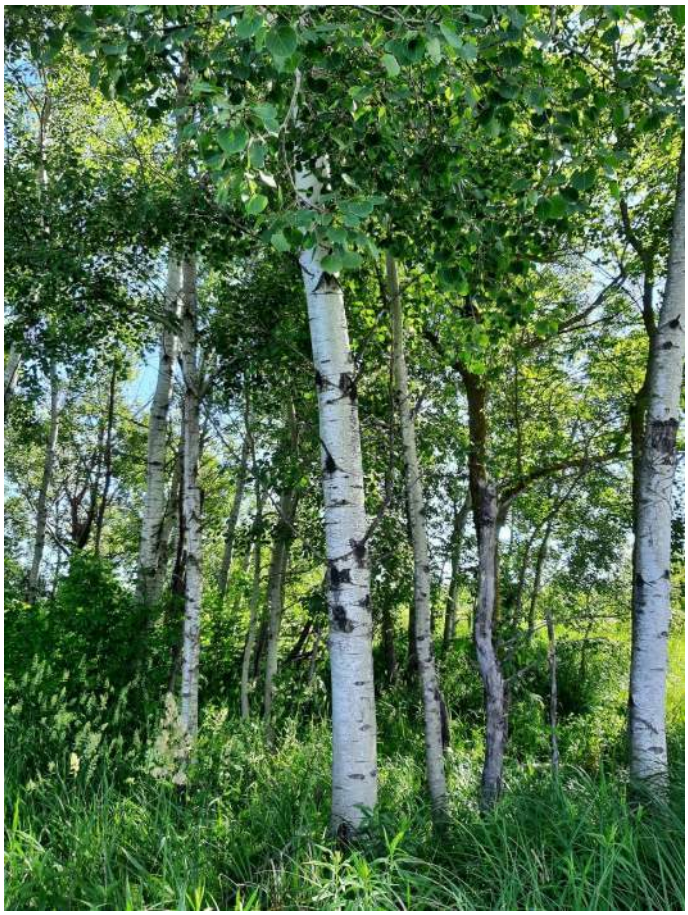


Photo 17: Type 7 portion of Wetland 7 facing north.

Photo 18: West end of Wetland 8 facing northeast.

Photo 19: Sample Point W8-1U facing west.

Photo 20: Sample Point W8-1W facing west.

Photo 21: Sample Point W8-2W facing north.

Photo 22: East end of Wetland 9 facing west.

Photo 23: West end of Wetland 10 facing east.

Photo 24: East end of Wetland 10 facing west.

Photo 25: Sample Point W10-1U facing south.

Photo 26: Sample Point W10-1W facing west.

Photo 27: Sample Point W10-2W facing north.

Photo 28: West end of Wetland 11 facing east.

Photo 29: East end of Wetland 11 facing west.

Photo 30: Southwest side of Wetland 12 facing northeast.

Photo 31: South side of Wetland 13 facing north.

Photo 32: Northeast side of Wetland 14 facing south.

Photo 33: Northeast side of Wetland 15 facing east.

Photo 34: South side of Wetland 16 facing north.

Photo 35: South side of Wetland 17 facing north.

Photo 36: North side of Wetland 18 facing south.

Photo 37: North side of Wetland 19 facing south.

Photo 38: West side of Wetland 20 facing east.

Photo 39: Sample Point W20-1U facing southwest.

Photo 40: Sample Point W20-1W facing northeast.

Photo 41: Wetland 21 facing east.

Photo 42: Sample Point W21-1U facing east.

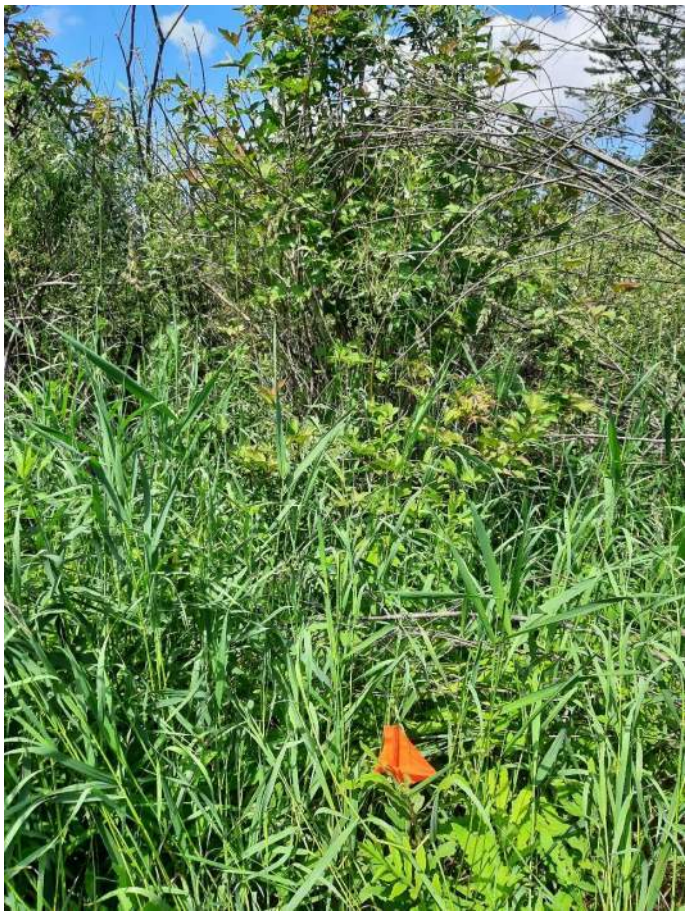


Photo 43: Sample Point W21-1W facing west.

Photo 44: Type 8 portion of Wetland 22 facing east.

Photo 45: Type 6 portion of Wetland 22 facing east.

Photo 46: Sample Point W22-1W facing east.

Photo 47: Wetland 23 facing north.

Photo 48: Wetland 24 facing northeast.

Photo 49: Wetland 25 facing southwest.

Photo 50: Wetland 26 facing northeast.

Photo 51: Wetland 27 facing east.

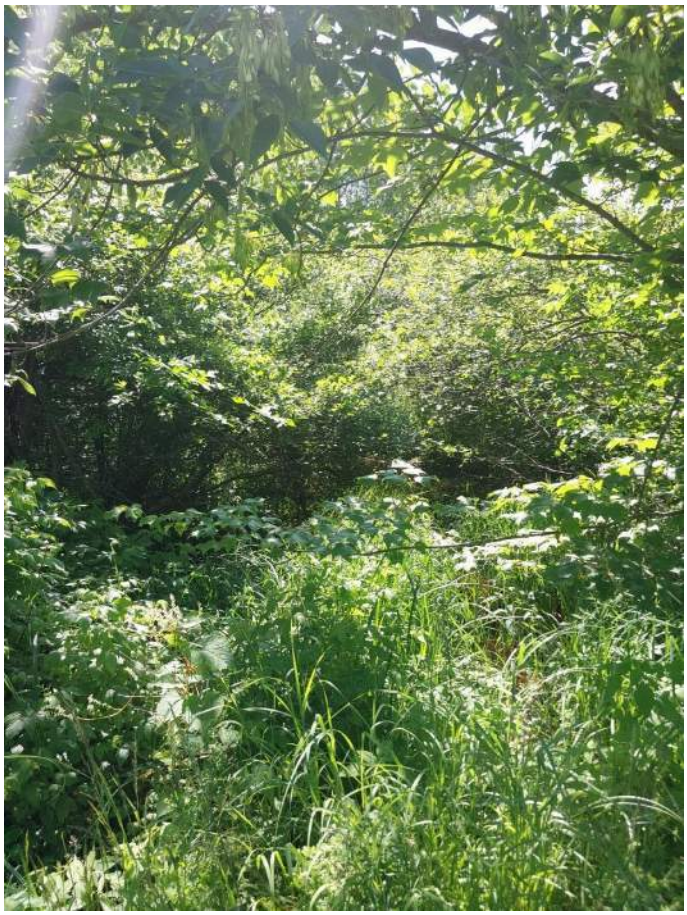


Photo 52: Wetland 28 facing northwest.

Photo 53: Wetland 29 facing east.

Photo 54: Wetland 30 facing east.

Photo 55: Wetland 31 facing west.

Photo 56: Sample Point W31-1U facing east.

Photo 57: Sample Point W31-1W facing west.

Photo 58: Wetland 32 facing north.

Photo 59: Wetland 33 facing south.

Photo 60: Wetland 34 facing northeast.

Photo 61: Wetland 35 facing south.

Photo 62: Wetland 36 facing west.

Photo 63: Wetland 37 facing south.

Photo 64: Wetland 38 facing east.

Photo 65: Wetland 39 facing west.

Photo 66: Wetland 40 facing east.

Photo 67: Wetland 41 facing southwest.

Photo 68: Wetland 42 facing northeast.

Photo 69: Wetland 43 facing southwest.

Photo 70: Wetland 44 facing south.

Photo 71: Wetland 45 facing west.

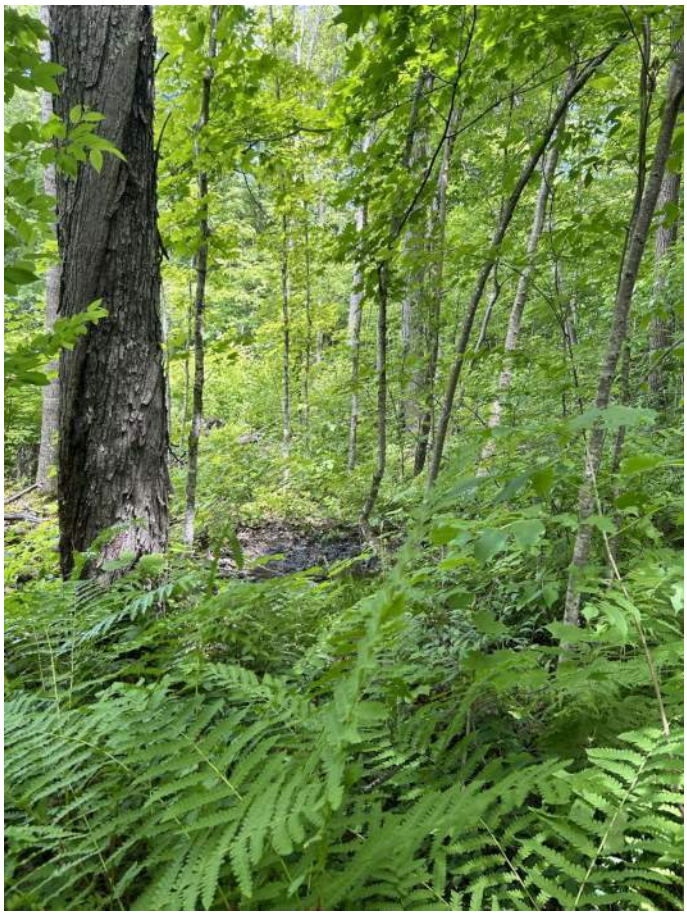


Photo 72: Wetland 46 facing north.

Photo 73: Wetland 47 facing east.

Photo 74: Wetland 48 facing east.

Photo 75: Wetland 48 facing west.

Photo 76: Wetland 49 facing south.

Photo 77: Wetland 50 facing west.

Photo 78: Wetland 51 facing north.

Photo 79: Wetland 52 facing south.

Photo 80: Wetland 53 facing south.

Photo 81: Wetland 54 facing north.

Photo 82: Wetland 55 facing south.

Photo 83: Wetland 56 facing north.

Photo 84: Wetland 58 facing north.

Photo 85: Wetland 59 facing west.

Photo 86: Wetland 60 facing northeast.

Photo 87: Wetland 61 facing northwest.

Photo 88: Wetland 62 facing north.

Photo 89: Wetland 63 facing north.

Photo 90: Wetland 64 facing north.

Photo 91: Wetland 65 facing southeast.

Photo 92: Wetland 66 facing west.

Photo 93: Wetland 67 facing north.

Photo 94: Wetland 100 facing east.

Photo 95: Sample Point W100-1W facing east.

Photo 96: Sample Point W100-1U facing west.

Photo 97: Wetland 101 facing north.

Photo 98: Sample Point W101-1U facing south.

Photo 99: Sample Point W101-1W facing north.

Photo 100: Wetland 102 facing southeast.

Photo 101: Sample Point W102-1W facing south.

Photo 102: Sample Point W102-1U facing north.

Photo 103: Wetland 103 facing west.

Photo 104: Wetland 103 facing west.

Photo 105: Sample Point 103-1U facing north.

Photo 106: Sample Point 103-1W facing west.

Photo 107: Wetland 104 facing west.

Photo 108: Wetland 105 facing south.

Photo 109: Sample Point W200-1U facing west.

Photo 110: Sample Point W200-1W facing east.

Photo 111: Wetland 201 facing west.

Photo 112: Wetland 202 facing south.

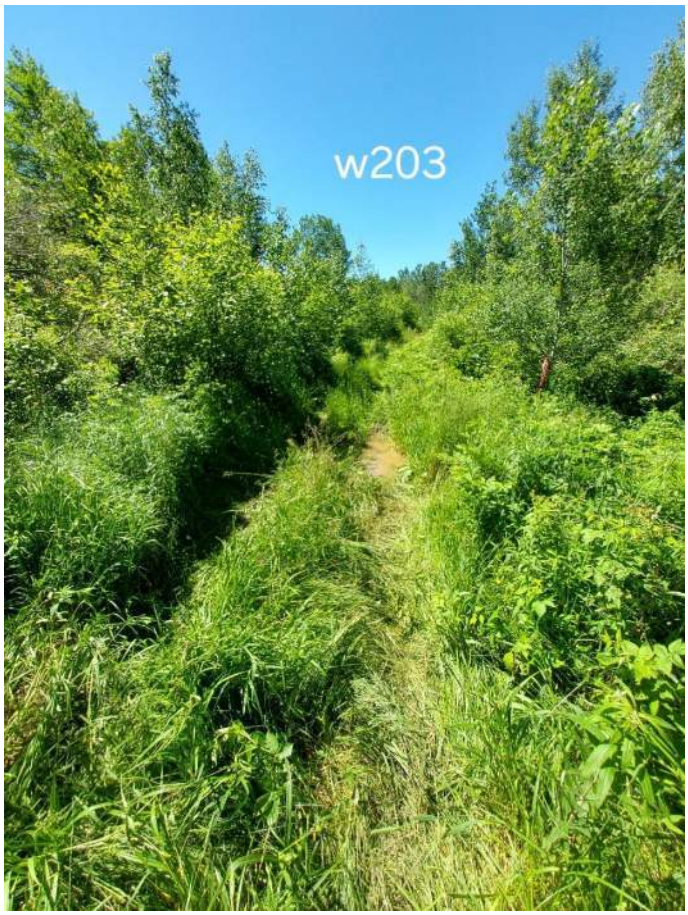


Photo 113: Wetland 203 facing south.

Photo 114: Wetland 203 facing northwest.

Photo 115: Wetland 207 facing south.

Photo 116: Wetland 208 facing south.

Photo 117: Wetland 209 facing east.

Photo 118: Wetland 210 facing south.

Photo 119: Wetland 211 facing north.

Photo 120: Type 2 portion of Wetland 211 facing east.

Photo 121: Type 6 portion of Wetland 211 facing northwest.

Photo 122: Wetland 212 facing west.

Photo 123: Wetland 213 facing north.

Photo 124: Wetland 214 facing south.

Photo 125: Wetland 215 facing northeast.

Photo 126: Wetland 216 facing west.

Photo 127: Wetland 217 facing northeast.

Photo 128: Wetland 218 facing northwest.

Photo 129: Wetland 219 facing southwest.

Photo 130: Wetland 220 facing north.

Photo 131: Wetland 221 facing northeast.

Photo 132: Wetland 223 facing east.

Photo 133: Wetland 224 facing north.

Photo 134: Wetland 225 facing west.

Photo 135: Wetland 226 facing west.

Photo 136: Wetland 227 facing west.

Photo 137: Wetland 228 facing east.

Photo 138: Wetland 229 facing south.

Photo 139: Wetland 230 facing east.

Photo 140: Wetland 231 facing west.

Photo 141: Wetland 232 facing northwest.

Photo 142: Wetland 233 facing southeast.

Photo 143: Wetland 234 facing northwest.

Photo 144: Wetland Ditch 1 facing west.

Photo 145: Wetland Ditch 2 facing east.

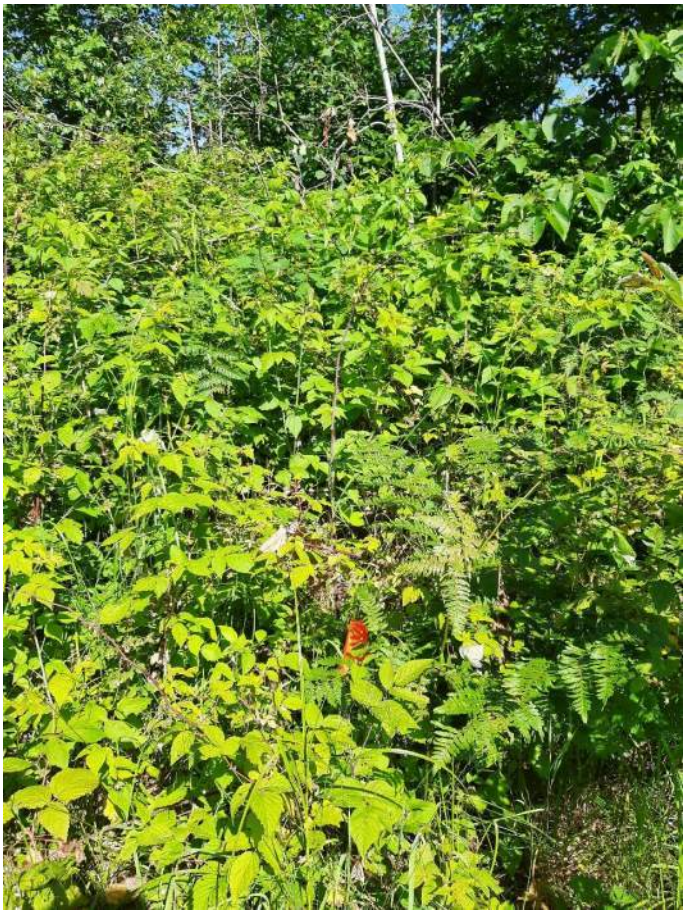


Photo 146: WD2-1U facing north.

Photo 147: WD2-1W facing west.

Photo 148: Wetland Ditch 3 facing southeast.

Photo 149: Wetland Ditch 4 facing northwest.

Photo 150: Wetland Ditch 5 facing southeast.

Photo 151: Stream 1 facing north.

Photo 152: Stream 2 facing northwest.

Photo 153: Stream 3 facing south.

Photo 154: Stream 4 facing southwest.

Photo 155: Stream 5 facing northwest.

Photo 156: Stream 6 facing northwest.

Photo 157: Sample Point 1 facing north.

Photo 158: Sample Point 2 facing east.

BOARD OF WATER AND SOIL RESOURCES

Minnesota Wetland Conservation Act
Notice of Decision

Local Government Unit: Aitkin County Planning & Zoning	**County:** Aitkin
Applicant Name: Aitkin County (Dennis Thompson)	**Applicant Representative:** Widseth (Joey Goeden)
Project Name: Northwoods Regional Trail Wetland Delineation	**LGU Project No. (if any):**
Date Complete Application Received by LGU: 9/27/2024	
Date of LGU Decision: 10/29/2024	
Date this Notice was Sent: 10/29/2024	

WCA Decision Type - check all that apply

☒ Wetland Boundary/Type ☐ Sequencing ☐ Replacement Plan ☐ Bank Plan (not credit purchase)
☐ No-Loss (8420.0415) ☐ Exemption (8420.0420)
Part: ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐ H Subpart: ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9

Replacement Plan Impacts (replacement plan decisions only)

Total WCA Wetland Impact Area:
Wetland Replacement Type: ☐ Project Specific Credits: ☐ Bank Credits:
Bank Account Number(s):

Technical Evaluation Panel Findings and Recommendations (attach if any)

☒ Approve ☐ Approve w/Conditions ☐ Deny ☐ No TEP Recommendation

LGU Decision

☐ Approved with Conditions (specify below)[1] ☒ Approved[1] ☐ Denied
List Conditions:

Decision-Maker for this Application: ☒ Staff ☐ Governing Board/Council ☐ Other:

Decision is valid for: ☒ 5 years (default) ☐ Other (specify):

[1] *Wetland Replacement Plan approval is not valid until BWSR confirms the withdrawal of any required wetland bank credits. For project-specific replacement a financial assurance per MN Rule 8420.0522, Subp. 9 and evidence that all required forms have been recorded on the title of the property on which the replacement wetland is located must be provided to the LGU for the approval to be valid.*

LGU Findings – Attach document(s) and/or insert narrative providing the basis for the LGU decision[1].

☐ Attachment(s) (specify):
☒ Summary: On October 17, 2024, a site visit was conducted by Aitkin County Wetland Specialist Henry Egland, MN DNR Area Hydrologist and TEP member Jacob Frie, along with Widseth Environmental Scientist Joey Goeden. The purpose of the visit was to review the wetland boundaries and classifications for the proposed Northwoods Regional ATV Trail. After a thorough site inspection, it was confirmed that the delineated wetland boundaries and classifications accurately align with those outlined in the proposed project area.

[1] *Findings must consider any TEP recommendations.*

Attached Project Documents

☒ Site Location Map ☐ Project Plan(s)/Descriptions/Reports (specify):

Appeals of LGU Decisions

If you wish to appeal this decision, you must provide a written request within 30 calendar days of the date you received the notice. All appeals must be submitted to the Board of Water and Soil Resources Executive Director along with a check payable to BWSR for $500 *unless* the LGU has adopted a local appeal process as identified below. The check must be sent by mail and the written request to appeal can be submitted by mail or e-mail. The appeal should include a copy of this notice, name and contact information of appellant(s) and their representatives (if applicable), a statement clarifying the intent to appeal and supporting information as to why the decision is in error. Send to:

Appeals & Regulatory Compliance Coordinator
Minnesota Board of Water & Soils Resources
520 Lafayette Road North
St. Paul, MN 55155
travis.germundson@state.mn.us

Does the LGU have a local appeal process applicable to this decision?

☐ Yes[1] ☒ No

[1]*If yes, all appeals must first be considered via the local appeals process.*

Local Appeals Submittal Requirements (LGU must describe how to appeal, submittal requirements, fees, etc. as applicable)

Notice Distribution (include name)

Required on all notices:

☒ SWCD TEP Member: Chelsey Koebernick	☒ BWSR TEP Member: Matt Johnson
☐ LGU TEP Member (if different than LGU contact):	
☒ DNR Representative: Jacob Frie	
☐ Watershed District or Watershed Mgmt. Org.:	
☒ Applicant: Dennis Thompson	☒ Agent/Consultant: Joey Goeden

Optional or As Applicable:

☒ Corps of Engineers: St. Paul	
☐ BWSR Wetland Mitigation Coordinator (required for bank plan applications only):	
☒ Members of the Public (notice only):	☐ Other:

Signature: *Henry Egland*	**Date:** 10/29/2024

This notice and accompanying application materials may be sent electronically or by mail. The LGU may opt to send a summary of the application to members of the public upon request per 8420.0255, Subp. 3.

APPENDIX D

Well Logs

Minnesota Unique Well Number

131561

County Aitkin
Quad Arthyde
Quad ID 207D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 04/07/1988
Update Date 01/03/2020
Received Date

Well Name	Township	Range	Dir	Section	Subsection
VIERKANDT,	45	22	W	26	CADBBC

Elevation 1304 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact BOX 158 WYOMING MN 55092

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	33	BROWN	MEDIUM
GRANITE	33	105	DK. GRY	HARD

Remarks

Well Depth 105 ft. **Depth Completed** 105 ft. **Date Well Completed** 02/02/1977

Drill Method Air Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☐ No ☐ **Above/Below** 1 ft.

Casing Diameter **Weight**
6 in. To 35 ft. lbs./ft.

Open Hole From 35 ft. To 105 ft.

Screen? ☐ **Type** **Make**

Static Water Level
30 ft. land surface Measure 02/02/1977

Pumping Level (below land surface)
ft. hrs. Pumping at 1.5 g.p.m.

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☐ Yes ☒ No ☐ Not Specified

Nearest Known Source of Contamination
100 feet South Direction Barnyard Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☒ Not Installed Date Installed
Manufacturer's name
Model Number HP Volt
Length of drop pipe ft Capacity g.p. Typ

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Mcgrath Gneiss Aquifer Mcgrath Gneiss
Last Strat Mcgrath Gneiss Depth to Bedrock 33 ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 493243 Y 5133143
Unique Number Verification Site Plan Input Date 03/29/2002

Angled Drill Hole

Well Contractor
North Star Drilling 48038 EXSTED, M.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

332633

County Aitkin
Quad Thor SW
Quad ID 208C

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 06/01/2016
Update Date 05/16/2017
Received Date 07/29/2013

Well Name	Township	Range	Dir	Section	Subsection
DEMAR, LEROY	44	25	W	2	ACADCC

Elevation 1308 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 29345 220TH ST ISLE MN 56342

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	21	BROWN	HARD
CLAY ROCKS	21	30	BROWN	HARD
SAND	30	32	BROWN	MEDIUM
CLAY ROCKS	32	71	GRAY	HARD
SAND	71	80	GRAY	MEDIUM

Remarks

WELL SEALED ON 6/17/2013 BY 1933

COULD NOT MAKE WELL - IT WAS PUMPING SAND. SEE UNIQUE NUMBER 792370.

Well Depth 80 ft. **Depth Completed** 80 ft. **Date Well Completed** 07/30/2012

Drill Method **Drill Fluid**

Use test well **Status** Sealed

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below**

Open Hole From ft. To ft.

Screen? ☐ **Type** **Make**

Static Water Level

Pumping Level (below land surface)

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount		From	To
bentonite	3	Sacks	ft. 80	ft.

Nearest Known Source of Contamination

feet Direction Type

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed

Manufacturer's name

Model Number HP Volt

Length of drop pipe ft Capacity g.p. Typ

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Aquifer

Last Strat sand-gray Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 464688 Y 5130624

Unique Number Verification Address verification Input Date 06/01/2016

Angled Drill Hole

Well Contractor

Northland Drilling, Inc. 1933 KEMPENICH, C.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

441223

County Aitkin
Quad Arthyde
Quad ID 207D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 10/31/1990
Update Date 01/03/2020
Received Date

Well Name	Township	Range	Dir	Section	Subsection
ERICKSON,	45	22	W	22	DDDAAC

Elevation 1283 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact RR 3 BOX 86 MCGRATH MN 56350

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SANDY CLAY	0	7	BROWN	M.SOFT
SAND	7	9	BROWN	
SANDY CLAY	9	17	BROWN	
CLAY & ROCK	17	21	BROWN	
SANDY CLAY	21	29	BROWN	
CLAY & GRAVEL	29	33	BROWN	
CLAY & ROCK	33	36	GRAY	
SILTY SAND	36	36	BROWN	
CLAY & ROCK	36	40	GRAY	
GRANITE	36	145	GRAY	

Remarks

Well Depth 145 ft. **Depth Completed** 145 ft. **Date Well Completed** 05/27/1988

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter **Weight**
6 in. To 42 ft. lbs./ft.

Open Hole From 42 ft. To 145 ft.

Screen? ☐ **Type** **Make**

Static Water Level
11 ft. land surface Measure 05/27/1988

Pumping Level (below land surface)
140 ft. 0.5 hrs. Pumping at 2 g.p.m.

Wellhead Completion
Pitless adapter manufacturer X Model
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		ft.	ft.

Nearest Known Source of Contamination
70 feet Northeas Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☒ Not Installed Date Installed
Manufacturer's name
Model Number HP Volt
Length of drop pipe ft Capacity g.p. Typ

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Denham Formation Aquifer Denham
Last Strat Denham Formation Depth to Bedrock 40 ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 492577 Y 5134370
Unique Number Verification Site Plan Input Date 03/29/2002

Angled Drill Hole

Well Contractor
Rosga Well Co. 58069 ROSGA, T.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

453720

County Aitkin
Quad Malmo
Quad ID 209D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 10/31/1990
Update Date 01/03/2020
Received Date

Well Name	Township	Range	Dir	Section	Subsection
OTT, GEORGE	45	25	W	33	CCCBBD

Elevation 1272 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W GLEN RT BOX 244 AITKIN MN 56431

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SANDY CLAY	0	32	BROWN	MEDIUM
CLAY	32	59	GRAY	MEDIUM
SAND	59	64	GRAY	SOFT
BROKEN LEDGE	64	68		HARD

Remarks

Well Depth 68 ft. **Depth Completed** 68 ft. **Date Well Completed** 07/21/1989

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**

Drive Shoe? Yes ☐ No ☒ **Above/Below** 1 ft.

Casing Diameter		Weight	
4	in. To 60 ft.		lbs./ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
2 in.	12	8 ft.	60 ft.	68 ft.

Static Water Level

28 ft. land surface Measure 07/21/1989

Pumping Level (below land surface)

37 ft. 1 hrs. Pumping at 11 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MAASS Model J

☐ Casing Protection ☐ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
neat cement		10 ft.	30 ft.

Nearest Known Source of Contamination

100 feet Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 08/04/1989

Manufacturer's name AERMOTOR

Model Number SD12-50 HP 0.5 Volt 230

Length of drop pipe 9 ft Capacity 42 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Little Falls Formation Aquifer multiple

Last Strat Little Falls Formation Depth to Bedrock 64 ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 460427 Y 5131440

Unique Number Verification Plat Book Input Date 04/16/2001

Angled Drill Hole

Well Contractor

A & M Drilling 48589 ROBB, D.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

520670

County Aitkin
Quad Split Rock
Quad ID 207B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 10/20/1993
Update Date 05/16/2017
Received Date 09/30/1993

Well Name	Township	Range	Dir	Section	Subsection
CRANCER,	45	22	W	5	BBBBCA

Elevation 1292 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact 861 IVY AV E ST PAUL MN 55106

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY/COBBLES	0	32	BROWN	M.HARD
SANDY CLAY	32	45	BROWN	M.SOFT
CLAY/COBBLES	45	51	BROWN	M.HARD
SANDY CLAY	51	61	BROWN	MEDIUM
MED. COARSE SAND	61	65	BROWN	SOFT
SILTY FINE SAND	65	65	BROWN	SOFT

Remarks

OLD WELL SEALED #H31293

Well Depth 65 ft. **Depth Completed** 65 ft. **Date Well Completed** 06/22/1993

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded

Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter		Weight		Hole Diameter	
4 in. To	61 ft.	11 lbs./ft.		6.2 in. To	65 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** WESCO

Diameter	Slot/Gauze	Length	Set	
2 in.	12	4 ft.	61 ft.	65 ft.

Static Water Level

6.5 ft. land surface Measure 06/22/1993

Pumping Level (below land surface)

49 ft. 0.5 hrs. Pumping at 15 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model

☐ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount		From	To
bentonite	2	Sacks	0 ft.	30 ft.

Nearest Known Source of Contamination

50 feet Northwes Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 07/12/1993

Manufacturer's name GOULDS

Model Number 10EJ05412 HP 0.5 Volt 230

Length of drop pipe 49 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand+silt-brown Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method GPS SA Off (averaged) (15 meters)

System UTM - NAD83, Zone 15, Meters X 487801 Y 5140595

Unique Number Verification Site Plan Input Date 03/29/2002

Angled Drill Hole

Well Contractor

Rosga Well Co. 58069 FRYE, F.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

577898

County Aitkin
Quad Malmo
Quad ID 209D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 11/25/1996
Update Date 01/03/2020
Received Date

Well Name	Township	Range	Dir	Section	Subsection
HANSON, GENE	44	25	W	4	ACBDAB

Elevation 1294 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

C/W HC 69 BOX 109 ISLE MN

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
TOPSOIL	0	2	BLACK	
CLAY, SAND	2	18	RED/BRN	
ROCKS, CLAY	18	42	BROWN	
CLAY, GRAVEL	42	77	GRAY	
SAND	77	84	BROWN	
CLAY, GRAVEL	84	117	GRAY	
SAND	117	126	BROWN	

Remarks

Well Depth 126 ft. **Depth Completed** 126 ft. **Date Well Completed** 05/30/1996

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 118 ft.	lbs./ft.	6.2 in. To 126 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
2 in.	12	11 ft.	118 ft.	126 ft.

Static Water Level

25 ft. land surface Measure 05/30/1996

Pumping Level (below land surface)

25 ft. hrs. Pumping at 30 g.p.m.

Wellhead Completion

Pitless adapter manufacturer WHITEWATER Model
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	2 Sacks	10 ft.	40 ft.

Nearest Known Source of Contamination

25 feet South Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 09/00/1996
Manufacturer's name FLINT & WALLING
Model Number HP 0.5 Volt 220
Length of drop pipe ft Capacity g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried
Last Strat sand-brown Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 461313 Y 5130762
Unique Number Verification Tax Records Input Date 02/23/2016

Angled Drill Hole

Well Contractor

Bohn Well Co. 70350 VON BANK, B
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

591054

County Aitkin
Quad Thor SW
Quad ID 208C

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 01/28/1997
Update Date 05/18/2017
Received Date 12/30/1996

Well Name	Township	Range	Dir	Section	Subsection
SWENSON, RAY	45	25	W	33	DDBDDA

Elevation 1279 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

C/W HC 69 BOX 129 ISLE MN 56342

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND CLAY & ROCK	0	50	BROWN	MEDIUM
SAND	50	65	BROWN	MEDIUM

Remarks

Well Depth	Depth Completed	Date Well Completed
65 ft.	65 ft.	10/16/1996

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
6 in. To 57 ft.	lbs./ft.	6.5 in. To 65 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
2 in.	10	8 ft.	57 ft.	65 ft.

Static Water Level

17 ft. land surface Measure 10/16/1996

Pumping Level (below land surface)

50 ft. 1 hrs. Pumping at 19 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model SNAPPY
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		0 ft.	30 ft.
cuttings		30 ft.	65 ft.

Nearest Known Source of Contamination

50 feet Direction Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed
Manufacturer's name STA-RITE
Model Number HP 0.5 Volt 230
Length of drop pipe 50 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried
Last Strat sand-brown Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 461764 Y 5131508
Unique Number Verification Site Plan Input Date 04/16/2001

Angled Drill Hole

Well Contractor

Hasskamp Bros. Well 01310 LLOYD
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

594471

County Aitkin
Quad Ronald
Quad ID 207A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/20/1999
Update Date 01/03/2020
Received Date 07/15/1998

Well Name	Township	Range	Dir	Section	Subsection
BROUSE,	45	22	W	3	DDDDDC

Elevation 1296 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact 5247 SUMMERS RD DULUTH MN 55803

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
TOPSOIL	0	1	BLACK	SOFT
CLAY	1	37	BROWN	MEDIUM
SILT & MUD	37	38	BROWN	SOFT
CLAY	38	56	BROWN	MEDIUM
SILT	56	57	BROWN	SOFT
SHALE	57	66	GRAY	
SLATE ROCK	66	205	GRY/RED	M.HARD

Remarks

NEAREST SOURCE OF CONT: PRIVY.

Well Depth 205 ft. **Depth Completed** 205 ft. **Date Well Completed** 06/17/1998

Drill Method Multiple methods used **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Welded

Drive Shoe? Yes ☒ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
6 in. To 60 ft.	19 lbs./ft.	6 in. To 205 ft.

Open Hole From 60 ft. To 205 ft.

Screen? ☐ **Type** **Make**

Static Water Level

20 ft. land surface Measure 06/17/1998

Pumping Level (below land surface)

200 ft. 2 hrs. Pumping at 5 g.p.m.

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		ft.	ft.

Nearest Known Source of Contamination

110 feet Northwes Direction Septic tank/drain field Type

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☒ Not Installed Date Installed

Manufacturer's name

Model Number HP Volt

Length of drop pipe ft Capacity g.p. Typ

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock weathering residuum unc. Aquifer multiple

Last Strat Little Falls Formation Depth to Bedrock 57 ft

Located by Minnesota Geological Survey

Locate Method GPS SA Off (averaged) (15 meters)

System UTM - NAD83, Zone 15, Meters X 492552 Y 5139040

Unique Number Verification Site Plan Input Date 02/23/2016

Angled Drill Hole

Well Contractor

Lakehead Well 09199 KENT, BOB

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

603470

County Aitkin
Quad Malmo
Quad ID 209D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 03/12/1998
Update Date 01/03/2020
Received Date 01/12/1998

Well Name	Township	Range	Dir	Section	Subsection
JOHNSON, JEFF	44	25	W	5	ADADAC

Elevation 1272 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact GLEN AITKIN MN 56431

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
TOPSOIL	0	3	BLACK	MEDIUM
SAND	3	13	BROWN	MEDIUM
CLAY & GRAVEL	13	60	GRAY	MEDIUM
SAND	60	63	GRAY	MEDIUM
CLAY & GRAVEL	63	130	BROWN	MEDIUM
SAND	130	141	BROWN	MEDIUM

Remarks

Well Depth 141 ft. **Depth Completed** 141 ft. **Date Well Completed** 09/10/1997

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 133 ft.	lbs./ft.	6.5 in. To 141 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
2 in.	12	8 ft.	133 ft.	141 ft.

Static Water Level

5 ft. land surface Measure 09/10/1997

Pumping Level (below land surface)

ft. 1 hrs. Pumping at 50 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model SNAPPY

☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		0 ft.	30 ft.
cuttings		30 ft.	141 ft.

Nearest Known Source of Contamination

50 feet Direction Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed

Manufacturer's name STA RITE

Model Number HP 0.5 Volt 230

Length of drop pipe 30 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand-brown Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method GPS SA Off (averaged) (15 meters)

System UTM - NAD83, Zone 15, Meters X 460332 Y 5130751

Unique Number Verification Site Plan Input Date 02/23/2016

Angled Drill Hole

Well Contractor

Hasskamp Bros. Well | 01310 | HASSKAMP, L.
Licensee Business | Lic. or Reg. No. | Name of Driller

Minnesota Unique Well Number

607932

County Aitkin
Quad Malmo
Quad ID 209D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/20/1999
Update Date 07/28/2017
Received Date

Well Name	Township	Range	Dir	Section	Subsection
OTT, WILLIAM	45	25	W	32	DDDDAC

Elevation 1270 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact 228 3RD AV E SHAKOPEE MN 55379

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	18	BROWN	MEDIUM
SAND	18	40	GRAY	MEDIUM
CLAY & ROCK	40	80	GRAY	MEDIUM
CLAY & ROCK	80	96	BROWN	MEDIUM
DIRTY SAND	96	110	BROWN	MEDIUM
SAND	110	132	BROWN	MEDIUM

Remarks

Well Depth 132 ft. **Depth Completed** 132 ft. **Date Well Completed** 03/30/1998

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter		Weight
4	in. To 124 ft.	lbs./ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
2 in.	12	8 ft.	124 ft.	132 ft.

Static Water Level

13 ft. land surface Measure 03/30/1998

Pumping Level (below land surface)

ft. 1 hrs. Pumping at 50 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model SNAPPY
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
cuttings		30 ft.	132 ft.
high solids bentonite		ft.	30 ft.

Nearest Known Source of Contamination

50 feet South Direction Septic tank/drain field Type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed 03/30/1998
Manufacturer's name STARRITE
Model Number HP 0.5 Volt 230
Length of drop pipe 40 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried
Last Strat sand-brown Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 460362 Y 5131317
Unique Number Verification Address verification Input Date 05/23/2017

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Hasskamp Bros. Well	01310	LOYD

Minnesota Unique Well Number

621661

County Aitkin
Quad Arthyde
Quad ID 207D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 02/23/1999
Update Date 07/26/2017
Received Date 01/15/1999

Well Name	Township	Range	Dir	Section	Subsection
PAYNE, DOUG	45	22	W	23	CCBACA

Elevation 1278 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Well RR 2 BOX 65A MCGRATH MN 55350
Contact 25329 LEVER ST NE ISANTI MN 55040

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
TOP SOIL	0	3	RED	SOFT
CLAY GRAVEL	3	17	RED	MEDIUM
AQUIFER	17	25	BROWN	SOFT

Remarks

Well Depth 25 ft. **Depth Completed** 25 ft. **Date Well Completed** 11/04/1998

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
5 in. To 17 ft.	2.65 lbs./ft.	8 in. To 25 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
5 in.	7	8 ft.	17 ft. 25 ft.

Static Water Level
12 ft. land surface Measure 10/12/1998

Pumping Level (below land surface)
20 ft. 2 hrs. Pumping at 5 g.p.m.

Wellhead Completion
Pitless adapter manufacturer MONITOR Model SNAPPY
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	3 Cubic yards	0 ft.	15 ft.
cuttings		15 ft.	17 ft.

Nearest Known Source of Contamination
130 feet Northeas Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 11/04/1998
Manufacturer's name AERMOTOR, 2 WIRE
Model Number T12-50- HP 0.5 Volt 220
Length of drop pipe 15 ft Capacity 12 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous
First Bedrock Aquifer Quat. buried
Last Strat Quat. deposit-brown Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 492776 Y 5134530
Unique Number Verification Site Plan Input Date 02/23/2016

Angled Drill Hole

Well Contractor
Bill's Well Drilling, Inc. 33709 JOHNSON, MIKE
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

639884

County Aitkin
Quad Malmo
Quad ID 209D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/20/2000
Update Date 02/21/2018
Received Date

Well Name	Township	Range	Dir	Section	Subsection
DEXHEIMER,	45	25	W	33	CCCCCB

Elevation 1269 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact HC 69 BOX 132D ISLE MN 56342

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	6	BROWN	SOFT
SAND	6	15	BROWN	SOFT
CLAY	15	40	BROWN	MEDIUM
SAND	40	42	GRAY	MEDIUM
CLAY	42	75	GRAY	MEDIUM
SAND	75	83	GRAY	MEDIUM

Remarks

Well Depth 83 ft. **Depth Completed** 83 ft. **Date Well Completed** 11/08/1999

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? **Yes** ☐ **No** ☐ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? **Yes** ☐ **No** ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 75 ft.	3 lbs./ft.	8 in. To 83 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
4 in.	12	10 ft.	75 ft. 83 ft.

Static Water Level

16 ft. land surface Measure 11/08/1999

Pumping Level (below land surface)

ft. hrs. Pumping at 15 g.p.m.

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	6 Sacks	0 ft.	60 ft.

Nearest Known Source of Contamination

feet Direction Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☒ Not Installed Date Installed

Manufacturer's name

Model Number HP Volt

Length of drop pipe ft Capacity g.p. Typ

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried
Last Strat sand-gray Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 460416 Y 5131298
Unique Number Verification Site Plan Input Date 05/23/2017

Angled Drill Hole

Well Contractor

Northland Drilling, Inc. 49697 KERSTING, R.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

669623

County Aitkin
Quad Thor SW
Quad ID 208C

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 03/25/2002
Update Date 07/28/2017
Received Date

Well Name	Township	Range	Dir	Section	Subsection
VANKEVCLEN,	45	25	W	34	DDBCAD

Elevation 1295 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact 36877 304TH LA NW AITKIN MN 56431

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY & ROCKS	0	35	BROWN	MEDIUM
SAND	35	44	GRAY	MEDIUM
CLAY & ROCKS	44	50	GRAY	HARD
SAND	50	62	GRAY	MEDIUM

Remarks

Well Depth 62 ft. **Depth Completed** 62 ft. **Date Well Completed** 11/07/2001

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**

Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 54 ft.	lbs./ft.	6.5 in. To 62 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
2 in.	12	8 ft.	54 ft. 62 ft.

Static Water Level

34 ft. land surface Measure 11/07/2001

Pumping Level (below land surface)

ft. 1 hrs. Pumping at 13.5 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model SNAPPY

☐ Casing Protection ☐ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	3 Sacks	0 ft.	30 ft.

Nearest Known Source of Contamination

50 feet Direction Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed

Manufacturer's name STA-RITE

Model Number HP 0.5 Volt 230

Length of drop pipe 50 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand-gray Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method GPS SA Off (averaged) (15 meters)

System UTM - NAD83, Zone 15, Meters X 463293 Y 5131501

Unique Number Verification Site Plan Input Date 05/23/2017

Angled Drill Hole

Well Contractor

Hasskamp Bros. Well 01310 LLOYD

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

673396

County Aitkin
Quad Thor SW
Quad ID 208C

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 05/02/2002
Update Date 07/17/2017
Received Date

Well Name	Township	Range	Dir	Section	Subsection
DAMER, HAVEN	44	25	W	2	DBDCCC

Elevation 1315 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

C/W 29494 210TH ST ISLE MN 56342

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	37	BROWN	MEDIUM
CLAY (ROCKY)	37	73	GRAY	HARD
SAND	73	77	GRAY	MEDIUM

Remarks

Well Depth	Depth Completed	Date Well Completed
77 ft.	77 ft.	01/11/2002

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 73 ft.	3 lbs./ft.	8 in. To 77 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
3 in.	15	4 ft.	73 ft. 77 ft.

Static Water Level
29 ft. land surface Measure 01/11/2002

Pumping Level (below land surface)
ft. hrs. Pumping at 11 g.p.m.

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	5 Sacks	0 ft.	65 ft.

Nearest Known Source of Contamination
50 feet South Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☒ Not Installed Date Installed
Manufacturer's name
Model Number HP Volt
Length of drop pipe ft Capacity g.p. Typ

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous
First Bedrock Aquifer Quat. buried
Last Strat sand-gray Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 464558 Y 5130032
Unique Number Verification Tax Records Input Date 05/23/2017

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Northland Drilling, Inc.	49697	FENSKE, N.

Minnesota Unique Well Number

686399

County Aitkin
Quad Split Rock
Quad ID 207B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 11/11/2003
Update Date 07/28/2017
Received Date 09/10/2003

Well Name	Township	Range	Dir	Section	Subsection
LUNDQUIST,	45	22	W	8	BBABCB

Elevation 1292 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Well 37002 150TH PL STURGEON LAKE MN 55783

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY & ROCKS	0	48	BROWN	MEDIUM
SAND	48	54	BROWN	SOFT
CLAY & ROCKS	54	70	GRAY	MEDIUM
SAND	70	78	GRAY	SOFT

Remarks

Well Depth 78 ft. **Depth Completed** 78 ft. **Date Well Completed** 09/10/2003

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**

Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight
4 in. To 70 ft.	lbs./ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
2 in.	12	8 ft.	70 ft.	78 ft.

Static Water Level

38 ft. land surface Measure 09/10/2003

Pumping Level (below land surface)

46 ft. 1 hrs. Pumping at 20 g.p.m.

Wellhead Completion

Pitless adapter manufacturer SNAPPY Model 8PL41U

☐ Casing Protection ☐ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	3 Sacks	10 ft.	40 ft.

Nearest Known Source of Contamination

50 feet Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 09/12/2003

Manufacturer's name AERMOTOR

Model Number T12-50 HP 0.5 Volt 230

Length of drop pipe 54 ft Capacity 12 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand-gray Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method GPS SA Off (averaged) (15 meters)

System UTM - NAD83, Zone 15, Meters X 487996 Y 5138996

Unique Number Verification Site Plan Input Date 02/23/2016

Angled Drill Hole

Well Contractor

A & M Drilling Co. 48717 ANDERSON, D.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

690277

County Aitkin
Quad Split Rock
Quad ID 207B

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date
Update Date 02/20/2018
Received Date 07/13/2003

Well Name	Township	Range	Dir	Section	Subsection
GENE HAUER	46	22	W	33	CCACBC

Elevation 1288 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact 2449 EAGLE CREEK BL SHAKOPEE MN 55379

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
GRAVEL WITH CLAY	0	17	BROWN	MEDIUM
CLAY & GRAVEL	17	26	BROWN	M.HARD
CLAY	26	29	RED	HARD
CLAY & GRAVEL	29	101	BROWN	HARD
CLAY & COBBLES	101	106	BROWN	V.HARD
SHALE	106	112	GRAY	HARD

Remarks

Well Depth 112 ft. **Depth Completed** 112 ft. **Date Well Completed** 06/24/2003

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
6 in. To 110 ft.	19 lbs./ft.	10. in. To 30 ft.
		8.7 in. To 110 ft.
		6 in. To 112 ft.

Open Hole From 110 ft. To 112 ft.

Screen? ☐ **Type** **Make**

Static Water Level
18 ft. land surface Measure 06/26/2003

Pumping Level (below land surface)
46 ft. 0.6 hrs. Pumping at 20 g.p.m.

Wellhead Completion
Pitless adapter manufacturer MONITOR Model SNAPPY
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	2 Sacks	0 ft.	30 ft.

Nearest Known Source of Contamination
60 feet Southwes Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 06/26/2003
Manufacturer's name GOULDS
Model Number 10GS05422 HP 0.5 Volt 230
Length of drop pipe 77 ft Capacity 10 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous
First Bedrock weathering residuum unc. Aquifer Weathering
Last Strat weathering residuum unc. Depth to Bedrock 106 ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 489582 Y 5140922
Unique Number Verification Site Plan Input Date 02/23/2016

Angled Drill Hole

Well Contractor
Rosga Well Co. 58069 ROSGA, T.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

695007

County Aitkin
Quad Malmo
Quad ID 209D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 06/30/2003
Update Date 07/17/2017
Received Date 06/16/2003

Well Name	Township	Range	Dir	Section	Subsection
JORSON, LLOYD	44	25	W	4	BBBABB

Elevation 1271 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

C/W 31903 220TH ST ISLE MN 55342

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	16	BROWN	MEDIUM
CLAY	16	48	GRAY	SOFT
SAND	48	60	GRAY	SOFT

Remarks

EXISTING WELL SEALED, SEE H206872

Well Depth 60 ft. **Depth Completed** 60 ft. **Date Well Completed** 06/11/2003

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Unknown
Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 56 ft.	lbs./ft.	8 in. To 60 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** telescoping **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
3 in.	15	4 ft.	56 ft. 60 ft.

Static Water Level

17 ft. land surface Measure 06/11/2003

Pumping Level (below land surface)

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	5 Sacks	0 ft.	40 ft.

Nearest Known Source of Contamination

50 feet South Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☒ Not Installed Date Installed

Manufacturer's name

Model Number HP Volt

Length of drop pipe ft Capacity g.p. Typ

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried
Last Strat sand-gray Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or
System UTM - NAD83, Zone 15, Meters X 460507 Y 5131243
Unique Number Verification Address verification Input Date 07/17/2017

Angled Drill Hole

Well Contractor

Northland Drilling, Inc. 49697 PUGH, G
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

702322

County Aitkin
Quad Malmo
Quad ID 209D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date
Update Date 07/20/2017
Received Date 12/09/2004

Well Name	Township	Range	Dir	Section	Subsection
JOHNSON, JEFF	45	25	W	32	DDDCAC

Elevation 1261 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

C/W 32060 220TH ST AITKIN MN 56431

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	8	BROWN	
CLAY	8	28	GRAY	SFT-MED
SAND	28	40		
HARD PAN	40	99	GRAY	MEDIUM
SAND	99	102	BROWN	
HARD PAN	102	105	BROWN	SOFT
SAND	105	106	BROWN	

Remarks

Well Depth 106 ft. **Depth Completed** 106 ft. **Date Well Completed** 10/21/2003

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 99 ft.	lbs./ft.	6.5 in. To 106 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
2 in.	12	8 ft.	98 ft.	106 ft.

Static Water Level
10 ft. land surface Measure 10/21/2003

Pumping Level (below land surface)
ft. 1 hrs. Pumping at 5 g.p.m.

Wellhead Completion
Pitless adapter manufacturer MONITOR Model SNAPPY
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	5 Sacks	0 ft.	30 ft.

Nearest Known Source of Contamination
50 feet Direction Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed
Manufacturer's name STA-RITE
Model Number HP 0.5 Volt 230
Length of drop pipe 100 ft Capacity 10 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous
First Bedrock Aquifer Quat. buried
Last Strat sand-brown Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 460273 Y 5131327
Unique Number Verification Site Plan Input Date 02/23/2016

Angled Drill Hole

Well Contractor
Hasskamp Bros. Well 01310 LLOYD
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

706624

County Aitkin
Quad Split Rock
Quad ID 207B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date
Update Date 07/26/2017
Received Date 10/18/2004

Well Name	Township	Range	Dir	Section	Subsection
KLEMZ, DOUG	45	22	W	6	CDCADB

Elevation 1286 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact 8800 LEYTE ST NE BLAINE MN

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY & ROCKS	0	25	BROWN	MEDIUM
CLAY & SAND	25	38	BROWN	SOFT
HARDPAN	38	104	GRAY	HARD
SAND	104	114	BROWN	

Remarks

Well Depth 114 ft. **Depth Completed** 114 ft. **Date Well Completed** 09/28/2004

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 106 ft.	lbs./ft.	6.5 in. To 114 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
2 in.	10	8 ft.	106 ft. 114 ft.

Static Water Level

24 ft. land surface Measure 09/28/2004

Pumping Level (below land surface)

ft. 1 hrs. Pumping at 20 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model SNAPPY

☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	Sacks	ft. 30	ft.

Nearest Known Source of Contamination

50 feet Direction Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed

Manufacturer's name STA-RITE

Model Number HP 0.5 Volt 230

Length of drop pipe 50 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand-brown Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method GPS SA Off (averaged) (15 meters)

System UTM - NAD83, Zone 15, Meters X 486794 Y 5139208

Unique Number Verification Site Plan Input Date 05/23/2017

Angled Drill Hole

Well Contractor

Hasskamp Bros. Well 01310 LLOYD

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

710665

County Aitkin
Quad Thor SW
Quad ID 208C

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date
Update Date 07/28/2017
Received Date 06/07/2004

Well Name	Township	Range	Dir	Section	Subsection
RHODE, JUDY	45	25	W	35	CCBCAC

Elevation 1272 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 22144 300TH PL ISLE MN 56342

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	15	BROWN	MEDIUM
SANDY CLAY	15	33	BROWN	MEDIUM
CLAY, SANDY, ROCKY	33	43	BROWN	HARD

Remarks

SEE H#222169 FOR ABANDONMENT OF TEST HOLE (#328529)

Well Depth	Depth Completed	Date Well Completed
43 ft.	43 ft.	04/30/2004

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint** Unknown
Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 35 ft.	3 lbs./ft.	8 in. To 43 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
3 in.	15	8 ft.	35 ft.	43 ft.

Static Water Level

11 ft. land surface Measure 04/30/2004

Pumping Level (below land surface)

30 ft. 1 hrs. Pumping at 10 g.p.m.

Wellhead Completion

Pitless adapter manufacturer BAKER Model BULLDOG

☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	5 Sacks	0 ft.	30 ft.

Nearest Known Source of Contamination

75 feet North Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 05/06/2004

Manufacturer's name STA-RITE
Model Number HP 0.5 Volt 230
Length of drop pipe 23 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried
Last Strat pebbly sand/silt/clay- Depth to Bedrock ft
Located by Minnesota Department of Health
Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or
System UTM - NAD83, Zone 15, Meters X 463655 Y 5131480
Unique Number Verification Info/GPS from data Input Date 06/10/2004

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Northland Drilling, Inc.	49697	HINES, R

Minnesota Unique Well Number

716969

County Aitkin
Quad Malmo
Quad ID 209D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date
Update Date 05/18/2017
Received Date 12/30/2004

Well Name	Township	Range	Dir	Section	Subsection
BAYERLE,	45	25	W	32	DDDDBC

Elevation 1264 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact 32046 220TH ST AITKIN MN 56431

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY & ROCKS	0	13	BROWN	MEDIUM
SAND	13	17	BROWN	SOFT
CLAY & ROCKS	17	96	GRAY	MEDIUM
SAND	96	100	GRAY	SOFT

Remarks

Well Depth 100 ft. **Depth Completed** 100 ft. **Date Well Completed** 10/15/2004

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter		Weight
4	in. To 96 ft.	lbs./ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
2 in.	12	4 ft.	96 ft.	100 ft.

Static Water Level

12 ft. land surface Measure 10/15/2004

Pumping Level (below land surface)

28 ft. 1 hrs. Pumping at 20 g.p.m.

Wellhead Completion

Pitless adapter manufacturer SNAPPY Model 8PL41U
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	3 Sacks	10 ft.	40 ft.

Nearest Known Source of Contamination

50 feet Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 10/19/2004
Manufacturer's name AERMOTOR
Model Number T12-50 HP 0.5 Volt 230
Length of drop pipe 60 ft Capacity 12 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried
Last Strat sand-gray Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 460320 Y 5131322
Unique Number Verification Site Plan Input Date 02/23/2016

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
A & M Drilling Co.	48717	ANDERSON, D.

Minnesota Unique Well Number

836777

County Aitkin
Quad Ronald
Quad ID 207A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 11/09/2018
Update Date 01/06/2020
Received Date 09/14/2018

Well Name	Township	Range	Dir	Section	Subsection
BURGESON,	46	22	W	34	DCCDDA

Elevation 1280 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Well 27552 KESTRAL AV MN

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
TOPSOIL	0	2		
CLAY, ROCKS	2	80		
COARSE BOULDERS	80	84		
ROCK	84	144		

Remarks

Well Depth 144 ft. **Depth Completed** 144 ft. **Date Well Completed** 08/31/2018

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**

Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
6 in. To 84 ft.	18.9 lbs./ft.	10 in. To 84 ft.
		6 in. To 144 ft.

Open Hole From 84 ft. To 144 ft.

Screen? ☐ **Type** **Make**

Static Water Level

10 ft. land surface Measure 08/31/2018

Pumping Level (below land surface)

84 ft. 1 hrs. Pumping at 1 g.p.m.

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
cuttings		55 ft.	84 ft.
high solids bentonite	6 Sacks	ft.	55 ft.

Nearest Known Source of Contamination

100 feet West Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☒ Not Installed Date Installed

Manufacturer's name

Model Number HP Volt

Length of drop pipe ft Capacity g.p. Typ

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Little Falls Formation Aquifer Little Falls

Last Strat Little Falls Formation Depth to Bedrock 84 ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 491957 Y 5140677

Unique Number Verification Address verification Input Date 11/09/2018

Angled Drill Hole

Well Contractor

Mccullough and Sons, Inc. 1506 HOKENSON, J.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

720834

County Aitkin
Quad Arthyde
Quad ID 207D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date
Update Date 01/03/2020
Received Date 10/05/2005

Well Name	Township	Range	Dir	Section	Subsection
WAITE, STEVE	45	22	W	27	DCDACA

Elevation 1313 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact 12174 230TH LA MCGRATH MN 56350

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
GRAVEL W/ CLAY	0	18	BROWN	MEDIUM
SANDY CLAY	18	25	BROWN	SOFT
CLAY & SAND	25	30	BROWN	MEDIUM
FINE GRAVEL W/ CLAY	30	38	RED	M.SOFT
COARSE SAND W/ SILT	38	45	BROWN	SOFT
CLAY & GRAVEL	45	49	BROWN	M.HARD
SHALE	49	51	GRAY	M.HARD
GRANITE	51	125	ORANGE	HARD

Remarks

Well Depth 125 ft. **Depth Completed** 125 ft. **Date Well Completed** 06/24/2005

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint** Threaded

Drive Shoe? Yes ☒ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
6 in. To 54 ft.	19 lbs./ft.	10. in. To 30 ft.
		9 in. To 54 ft.
		6 in. To 125 ft.

Open Hole From 54 ft. To 125 ft.

Screen? ☐ **Type** **Make**

Static Water Level

14 ft. land surface Measure 06/24/2005

Pumping Level (below land surface)

33 ft. 0.6 hrs. Pumping at 17 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model SN

☐ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	2 Sacks	ft.	30 ft.

Nearest Known Source of Contamination

75 feet Direction Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 08/30/2005

Manufacturer's name GOULDS

Model Number 10GS05412 HP 0.5 Volt 230

Length of drop pipe 87 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock weathering residuum unc. Aquifer Mcgrath Gneiss

Last Strat Mcgrath Gneiss Depth to Bedrock 49 ft

Located by Minnesota Geological Survey

Locate Method GPS SA Off (averaged) (15 meters)

System UTM - NAD83, Zone 15, Meters X 492157 Y 5132718

Unique Number Verification Site Plan Input Date 05/23/2017

Angled Drill Hole

Well Contractor

Rosga Well Co. 58069 ROSGA, T

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

733798

County Aitkin
Quad Arthyde
Quad ID 207D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date
Update Date 01/03/2020
Received Date 08/24/2007

Well Name	Township	Range	Dir	Section	Subsection
WILSON,	45	22	W	34	ABADAD

Elevation 1308 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact 5309 82ND AV N BROOKLYN PARK MN 55443

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY & FINE SAND	0	8	RED	M.SOFT
CLAY & FINE GRAVEL	8	32	BROWN	MEDIUM
GRANITE	32	125	BLACK	HARD

Remarks

Well Depth 125 ft. **Depth Completed** 125 ft. **Date Well Completed** 09/07/2006

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint** Threaded

Drive Shoe? Yes ☒ No ☐ **Above/Below**

Casing Diameter		Weight		Hole Diameter	
6 in. To	37 ft.	19 lbs./ft.		10 in. To	30 ft.

Open Hole From 37 ft. To 125 ft.

Screen? ☐ **Type** **Make**

Static Water Level

11 ft. land surface Measure 06/21/2006

Pumping Level (below land surface)

98 ft. 0.8 hrs. Pumping at 5 g.p.m.

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
well grouted, type unknown	4 Sacks	ft.	30 ft.

Nearest Known Source of Contamination

50 feet Direction Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 06/21/2007

Manufacturer's name GOULDS

Model Number 10GS05422 HP 0.5 Volt 230

Length of drop pipe 100 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Mcgrath Gneiss Aquifer Mcgrath Gneiss

Last Strat Mcgrath Gneiss Depth to Bedrock 32 ft

Located by Minnesota Geological Survey

Locate Method GPS SA Off (averaged) (15 meters)

System UTM - NAD83, Zone 15, Meters X 492207 Y 5132446

Unique Number Verification Site Plan Input Date 05/23/2017

Angled Drill Hole

Well Contractor

Rosga Well Drilling, Inc. 1708 ROSGA, T.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

738233

County Aitkin
Quad Arthyde
Quad ID 207D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date
Update Date 05/16/2017
Received Date 12/13/2006

Well Name	Township	Range	Dir	Section	Subsection
TREBTOSKE,	45	22	W	26	BCBAAC

Elevation 1293 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact 19769 15 SH KIMBALL MN 55353
Well KRESTREL AV MCGRATH MN 56350

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	9	BROWN	SOFT
SAND	9	13	BROWN	SOFT
CLAY & GRAVEL	13	36	BROWN	SOFT
SAND	36	51	BROWN	SOFT

Remarks

Well Depth	Depth Completed	Date Well Completed
51 ft.	51 ft.	08/25/2006

Drill Method Non-specified Rotary **Drill Fluid** Qwik gel

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint** Glued
Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
5 in. To 36 ft.	0 lbs./ft.	8.7 in. To 51 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
4 in.	10	15 ft.	36 ft. 51 ft.

Static Water Level
6 ft. land surface Measure 08/25/2006

Pumping Level (below land surface)
ft. 2 hrs. Pumping at 7 g.p.m.

Wellhead Completion
Pitless adapter manufacturer BAKER Model SNAPPY
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
pearock	0	26 ft.	51 ft.
bentonite	3 Sacks	ft.	26 ft.

Nearest Known Source of Contamination
feet Direction Type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed 08/25/2006
Manufacturer's name AERMOTOR
Model Number T12-50 HP 0.5 Volt 115
Length of drop pipe 24 ft Capacity 6 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous
First Bedrock Aquifer Quat. buried
Last Strat sand-brown Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 492793 Y 5133748
Unique Number Verification Site Plan Input Date 02/23/2016

Angled Drill Hole

Well Contractor
Able Well, Inc. 1377 BECKWORTH, D.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

742542

County Aitkin
Quad Split Rock
Quad ID 207B

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date
Update Date 01/06/2020
Received Date 08/24/2007

Well Name	Township	Range	Dir	Section	Subsection
URBIA-ROTE,	46	22	W	32	BCABBC

Elevation 1305 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Contact 238 DUNBAR WA MAHTOMEDI MN 55115

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SANDY CLAY &	0	28	RED	M.SOFT
CLAY & COBBLES	28	52	BROWN	MEDIUM
SILTY SAND	52	58	BROWN	V.SOFT
CLAY & SAND	58	66	RED/BRN	MEDIUM
SANDY CLAY	66	91	GRAY	HARD
SHALE	91	102	GRAY	M.SOFT
GRANITE	102	245	GRY/BLK	V.HARD

Remarks

Well Depth 245 ft. **Depth Completed** 245 ft. **Date Well Completed** 06/06/2007

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes [X] No [ ] **From** 123 ft. **To** 245 ft.

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes [X] No [ ] **Above/Below**

Casing Diameter	Weight	Hole Diameter
6 in. To 105 ft.	19 lbs./ft.	10. in. To 30 ft.
		8.7 in. To 105 ft.
		6 in. To 245 ft.

Open Hole From 105 ft. To 245 ft.

Screen? [ ] **Type** **Make**

Static Water Level
37 ft. land surface Measure 07/19/2007

Pumping Level (below land surface)
105 ft. 1 hrs. Pumping at 5 g.p.m.

Wellhead Completion
Pitless adapter manufacturer MONITOR Model SN
[ ] Casing Protection [X] 12 in. above grade
[ ] At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? [X] Yes [ ] No [ ] Not Specified

Material	Amount	From	To
bentonite	2 Sacks	ft.	30 ft.

Nearest Known Source of Contamination
50 feet East Direction Sewer Type
Well disinfected upon completion? [X] Yes [ ] No

Pump [ ] Not Installed Date Installed 06/27/2007
Manufacturer's name GOULDS
Model Number 10GS07432 HP 0.75 Volt 230
Length of drop pipe 187 ft Capacity 10 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? [ ] Yes [X] No

Variance
Was a variance granted from the MDH for this well? [ ] Yes [X] No

Miscellaneous
First Bedrock weathering residuum unc. Aquifer Mille Lacs Group
Last Strat Mille Lacs Group Depth to Bedrock 91 ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 487985 Y 5141823
Unique Number Verification Site Plan Input Date 02/23/2016

Angled Drill Hole

Well Contractor
Rosga Well Drilling, Inc. 1708 ROSGA, T.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

751406

County Aitkin
Quad Split Rock
Quad ID 207B

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date
Update Date 01/06/2020
Received Date 08/22/2007

Well Name	Township	Range	Dir	Section	Subsection
ODDEN, LARRY	46	22	W	32	CBCBDD

Elevation 1312 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Well 75 CR MN

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SANDY CLAY	0	8	BROWN	MEDIUM
CLAY & ROCKS	8	38	BROWN	M.HARD
SILTY SAND	38	41	BROWN	SOFT
CLAY & BOULDERS	41	91	BROWN	V.HARD
GRANITE	91	225	BLK/GRY	V.HARD

Remarks

Well Depth 225 ft. **Depth Completed** 225 ft. **Date Well Completed** 07/30/2007

Drill Method Multiple methods used **Drill Fluid** Water

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint** Other
Drive Shoe? Yes ☒ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
6 in. To 92.5 ft.	19 lbs./ft.	6 in. To 225 ft.

Open Hole From 92.5 ft. To 225 ft.

Screen? ☐ **Type** **Make**

Static Water Level
35 ft. land surface Measure 07/30/2007

Pumping Level (below land surface)
220 ft. 2 hrs. Pumping at 3 g.p.m.

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		0 ft.	ft.

Nearest Known Source of Contamination
60 feet West Direction Sewer Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☒ Not Installed Date Installed
Manufacturer's name
Model Number HP Volt
Length of drop pipe ft Capacity g.p. Typ

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous
First Bedrock Mille Lacs Group Aquifer Mille Lacs Group
Last Strat Mille Lacs Group Depth to Bedrock 91 ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 487835 Y 5141165
Unique Number Verification Site Plan Input Date 02/23/2016

Angled Drill Hole

Well Contractor
Bob Kent Well Drilling 1886 KENT, B.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

774214

County Aitkin
Quad Split Rock
Quad ID 207B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 12/13/2011
Update Date 08/10/2017
Received Date 02/19/2010

Well Name	Township	Range	Dir	Section	Subsection
RAY DRAKE	46	22	W	32	BCABDB

Elevation 1302 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Well NA MN

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY/ROCKS	0	89	BROWN	MEDIUM
SAND/GRAVEL	89	106	BROWN	SOFT

Remarks

Well Depth	Depth Completed	Date Well Completed
106 ft.	106 ft.	10/11/2009

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 96 ft.	lbs./ft.	6.7 in. To 106 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** plastic **Make** BIGFOOT

Diameter	Slot/Gauze	Length	Set	
4 in.	10	10 ft.	96 ft.	106 ft.

Static Water Level

28 ft. top of casing Measure 10/11/2009

Pumping Level (below land surface)

60 ft. 2 hrs. Pumping at 30 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MAASS Model JC-4
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
cuttings		55 ft.	96 ft.
well grouted, type unknown	4 Sacks	ft.	55 ft.

Nearest Known Source of Contamination

50 feet North Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 10/11/2009
Manufacturer's name SCHAEFER
Model Number HP 0.5 Volt 230
Length of drop pipe 60 ft Capacity 12 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried
Last Strat sand +larger-brown Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 488034 Y 5141801
Unique Number Verification Tax Records Input Date 05/23/2017

Angled Drill Hole

Well Contractor

A Ruppert Well, Inc. 1572 RUPPERT, C.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

817759

County Aitkin
Quad Thor SW
Quad ID 208C

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 06/15/2016
Update Date 07/17/2017
Received Date 05/18/2016

Well Name	Township	Range	Dir	Section	Subsection
EKLUND, HELEN	44	25	W	2	CCCADB

Elevation 1325 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

C/W 29926 210TH ST ISLE MN 56342

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	16	BROWN	MEDIUM
CLAY & ROCKS	16	58	BROWN	HARD
SAND & ROCKS	58	68	BROWN	HARD

Remarks

Well Depth 68 ft. **Depth Completed** 68 ft. **Date Well Completed** 04/04/2016

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**

Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 60 ft.	lbs./ft.	8 in. To 68 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
3 in.	15	8 ft.	60 ft.	68 ft.

Static Water Level

41 ft. land surface Measure 04/04/2016

Pumping Level (below land surface)

45 ft. 3 hrs. Pumping at 20 g.p.m.

Wellhead Completion

Pitless adapter manufacturer SNAPPY Model 8PL4IU

☐ Casing Protection ☐ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
well grouted, type unknown	9 Sacks	ft.	58 ft.

Nearest Known Source of Contamination

50 feet North Direction Sewer Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 04/08/2016

Manufacturer's name FLOWISE

Model Number P10S05 HP 0.5 Volt 230

Length of drop pipe 50 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand +larger-brown Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 463675 Y 5129829

Unique Number Verification Address verification Input Date 07/17/2017

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
A and M Pumps	2121	KEMPENICH, C.

Minnesota Unique Well Number

817773

County Aitkin
Quad Thor SW
Quad ID 208C

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date
Update Date 07/18/2017
Received Date 05/24/2017

Well Name	Township	Range	Dir	Section	Subsection
EKLUND, JOAN	44	25	W	3	CBBBCD

Elevation 1300 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

C/W 21436 310TH AV ISLE MN 56342

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY & ROCKS	0	48	BROWN	HARD
SAND	48	56	BROWN	MEDIUM

Remarks

Well Depth 56 ft. **Depth Completed** 56 ft. **Date Well Completed** 09/16/2016

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 48 ft.	lbs./ft.	8 in. To 56 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
3 in.	15	8 ft.	48 ft.	56 ft.

Static Water Level

25 ft. land surface Measure 09/16/2016

Pumping Level (below land surface)

45 ft. 3 hrs. Pumping at 10 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MAASS Model J

☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
well grouted, type unknown	6 Sacks	ft.	43 ft.

Nearest Known Source of Contamination

50 feet South Direction Sewer Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 10/12/2016

Manufacturer's name FLOWISE

Model Number P10S05 HP 0.5 Volt 230

Length of drop pipe 40 ft Capacity 9 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand-brown Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461979 Y 5130403

Unique Number Verification Address verification Input Date 07/18/2017

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
A and M Pumps	2121	KEMPENICH, C.

APPENDIX E

NHIS Review Letter and Conservation Planning Report

Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

June 7, 2024

Daniel McInnis
Widseth Smith and Nolting and Associates, Inc.

RE: Natural Heritage Review of the proposed **Northwoods Regional Trail - Phase 1A**

County	Township	Range	Section
Aitkin	44N	22W	6
Aitkin	45N	22W	19, 20, 21, 28, 29, 30, 31, 32, 33
Aitkin	45N	23W	19, 20, 22, 23, 24, 25, 27, 28, 29, 30
Aitkin	45N	24W	19, 20, 21, 22, 23, 24, 28, 29, 30
Aitkin	45N	25W	24, 25, 26, 32, 33, 34, 35

Dear Daniel McInnis,

For all correspondence regarding the Natural Heritage Review of this project please include the project ID **MCE-2024-00378** in the email subject line.

As requested, the Minnesota Natural Heritage Information System has been reviewed to determine if the proposed project has the potential to impact any rare species or other significant natural features. Based on the project details provided with the request, the following rare features may be impacted by the proposed project:

Ecologically Significant Areas

- The Minnesota Biological Survey (MBS) has identified several Sites of Biodiversity Significance within the project boundary. Sites of Biodiversity Significance have varying levels of native biodiversity and are ranked based on the relative significance of this biodiversity at a statewide level. Factors taken into account during the ranking process include the number of rare species documented within the site, the quality of the native plant communities in the site, the size of the site, and the context of the site within the landscape. **The DNR recommends avoidance of MBS Sites of Biodiversity Significance ranked *High* or *Outstanding***. Please see your MCE-generated Conservation Planning Report for a comprehensive list of MBS Sites of Biodiversity Significance.

The proposed project crosses and is adjacent to multiple native plant communities. DNR native plant community types are given a Conservation Status Rank that reflects the relative rarity and endangerment of the community type in Minnesota. Conservation Status Ranks range from S1 (critically imperiled) to S5 (secure, common, widespread, and abundant). Native plant communities with a Conservation Status Rank of S1 through S3 are considered rare in the state. **The DNR recommends avoidance of rare native plant communities.** Please see your MCE-generated Conservation Planning Report for a comprehensive list of native plant communities in your proposed project area.

The DNR recommends that the project be designed to avoid impacts to these ecologically significant areas. Actions to avoid or minimize disturbance include, but are not limited to, the following recommendations:

- Minimize width of trail.
- As much as possible, operate within already-disturbed areas.
- Avoid MBS Sites and native plant communities ranked S1, S2, or S3.
- Retain a buffer between proposed activities and the MBS Site.
- If working in an MBS Site:
  - Minimize vehicular disturbance in the MBS Site (allow only vehicles/equipment necessary for construction activities).
  - Do not park equipment or stockpile supplies in the MBS Site.
  - Do not place spoil in the MBS Site or other sensitive areas.
- If possible, conduct the work under frozen ground conditions.
- Do not route trails through wet swales or depressions, or sensitive rock outcrop areas.
- Bridge all stream and wetland crossings.
- Trail maintenance plans should address erodible soils, especially in areas of steep topography.
- Use signage to encourage visitors to stay on designated trails.
- Use effective erosion prevention and sediment control measures.
- Inspect and clean equipment prior to operation and follow recommendations to prevent the spread of invasive species.
- Revegetate disturbed soil with native species suitable to the local habitat as soon after construction as possible.
- Use only weed-free mulches, topsoils, and seed mixes. Of particular concern are birdsfoot trefoil (*Lotus corniculatus*) and crown vetch (*Coronilla varia*), two invasive species that are sold commercially and are problematic in prairies and disturbed open areas.

Please reference the Guidelines for Managing and Restoring Natural Plant Communities along Trails and Waterways for additional information.

MBS Sites of Biodiversity Significance and DNR Native Plant Communities can be viewed using the Explore page in Minnesota Conservation Explorer or their GIS shapefiles can be downloaded from the MN Geospatial Commons. Please contact the NH Review Team if you need assistance accessing the data. Reference the MBS Site Biodiversity Significance and Native Plant Community websites for information on interpreting the data. To receive a list of MBS Sites of Biodiversity Significance and DNR Native Plant Communities in the vicinity of your project, create a Conservation Planning Report using the Explore Tab in Minnesota Conservation Explorer.

- If the Wetland Conservation Act (WCA) is applicable to this project, please note that native plant communities with a Conservation Status Rank of S1 through S3 or wetlands within *High* or *Outstanding* MBS Sites of Biodiversity Significance may qualify as Rare Natural Communities (RNC) under WCA. Minnesota Rules, part 8420.0515, subpart 3 states that a wetland replacement plan for activities that modify a RNC must be denied if the local government unit determines the proposed activities will permanently adversely affect the RNC. If the proposed project includes a wetland replacement plan under WCA, please contact your DNR Regional Ecologist for further evaluation. Please visit WCA Program Guidance and Information for additional information, including the Rare Natural Communities Technical Guidance.

State-listed Species

- Blunt-lobed grapefern (*Sceptridium oneidense*), goblin fern (*Botrychium mormo*), and narrow triangle moonwort (*Botrychium angustisegmentum*), all state-listed threatened plants, have been documented in the vicinity of the proposed project. Additionally, St. Lawrence grapefern (*Sceptridium rugulosum*), least moonwort (*Botrychium simplex*), and pale moonwort (*Botrychium pallidum*), all state-listed plant species of special concern, have been documented in the vicinity of the proposed project.

  Minnesota's Endangered Species Statute (Minnesota Statutes, section 84.0895) and associated Rules (Minnesota Rules, part 6212.1800 to 6212.2300 and 6134) prohibit the take of endangered or threatened plants or animals, including their parts or seeds, without a permit. **To demonstrate avoidance, a qualified surveyor will need to determine if suitable habitat exists within the activity impact area and, if so, conduct a survey prior to any project activities.** Surveys must be conducted by a qualified surveyor and follow the standards contained in the Rare Species Survey Process and Rare Plant Guidance. Visit the Natural Heritage Review page for a list of certified surveyors and more information on this process. Project planning should take into account that any botanical survey needs to be conducted during the appropriate time of the year, which may be limited. Please consult with the NH Review Team at Review.NHIS@state.mn.us if you have any questions regarding this process.

- Northern long-eared bat (*Myotis septentrionalis*) and little brown myotis (*Myotis lucifugus*), both state-listed as species of special concern, have been documented in the vicinity of the proposed project. During the winter these species hibernate in caves and mines. During the active season (approximately April-November) they roost underneath bark, in cavities, or in crevices of both live and dead trees; and in human structures such as buildings and bridges. Activities that may impact these species include, but are not limited to, wind farm operation, any disturbance to hibernacula, and destruction/degradation of habitat. Tree removal can negatively impact bats by destroying roosting habitat, especially during the pup rearing season when females are forming maternity roosting colonies and the pups are not able to fly. **To minimize impacts to these species, the DNR recommends that tree removal be avoided from June 1 through August 15.**

- Please visit the DNR Rare Species Guide for more information on the habitat use of these species and recommended measures to avoid or minimize impacts.

Federally Protected Species

- The northern long-eared bat is also federally listed as endangered. **To ensure compliance with federal law, please conduct a federal regulatory review using the U.S. Fish and Wildlife Service's online Information for Planning and Consultation (IPaC) tool**. Please note that all projects, regardless of whether there is a federal nexus, are subject to federal take prohibitions. The IPaC review will determine if take is reasonably certain to occur and, if not, will generate an automated letter. Please see USFWS Northern Long-eared Bat for additional information.

Environmental Review and Permitting

- Please include a copy of this letter and the MCE-generated Final Project Report in any state or local license or permit application. Please note that measures to avoid or minimize disturbance to the above rare features may be included as restrictions or conditions in any required permits or licenses.

- The Environmental Assessment Worksheet should address whether the proposed project has the potential to adversely affect the above rare features and, if so, it should identify specific measures that will be taken to avoid or minimize disturbance. Sufficient information should be provided so the DNR can determine whether a takings permit will be needed for any of the above protected species.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore,

ecologically significant features for which we have no records may exist within the project area. If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location and project description provided with the request. **If project details change or the project has not occurred within one year, please resubmit the project for review within one year of initiating project activities.**

The Natural Heritage Review does not constitute project approval by the Department of Natural Resources. Instead, it identifies issues regarding known occurrences of rare features and potential impacts to these rare features. Visit the Natural Heritage Review website for additional information regarding this process, survey guidance, and other related information. For information on the environmental review process or other natural resource concerns, you may contact your DNR Regional Environmental Assessment Ecologist.

Thank you for consulting us on this matter and for your interest in preserving Minnesota's rare natural resources.

Sincerely,

Molly Barrett

Digitally signed by Molly Barrett
Date: 2024.06.07 17:28:30 -05'00'

Molly Barrett
Natural Heritage Review Specialist
Molly.Barrett@state.mn.us

Cc: Jessica Parson, Regional Environmental Assessment Ecologist, Northeast (Region 2)
Cc: Mark White, Regional Ecologist, Northeast (Region 2)
Cc: Jennie Skancke, Wetlands Program Coordinator

Conservation Planning Report: Northwoods Regional Trail

This document is intended for planning purposes only for the area of interest defined by the user. The report identifies ecologically significant areas documented within the defined area of interest plus any additional search distance indicated below. These ecologically significant areas can be viewed in the Explore Tab of the Minnesota Conservation Explorer. Please visit MN Geospatial Commons for downloadable GIS data.

This document does not meet the criteria for a Natural Heritage Review. If a Natural Heritage Review is needed, please define an Area of Interest in the Explore Tab and click on the Natural Heritage Review option.

This document does not include known occurrences of state-listed or federally listed species.

MBS Sites of Biodiversity Significance

Search distance = 330 feet

Minnesota Biological Survey (MBS) Sites of Biodiversity Significance are areas with varying levels of native biodiversity that may contain high quality native plant communities, rare plants, rare animals, and/or animal aggregations. A Biodiversity Significance Rank is assigned on the basis of the number of rare species, the quality of the native plant communities, size of the site, and context within the landscape. MBS Sites are ranked Outstanding, High, or Moderate. Areas ranked as Below were found to be disturbed and are retained in the layer as negative data. These areas do not meet the minimum biodiversity threshold for statewide significance but may have conservation value at the local level as habitat for native plants and animals, corridors for animal movements, buffers surrounding higher quality natural areas, or as areas with high potential for restoration of native habitat. The DNR recommends avoidance of MBS Sites of Biodiversity Significance ranked High or Outstanding.

Wetlands within MBS Sites of Outstanding or High Biodiversity Significance may be considered Rare Natural Communities under the Wetland Conservation Act. For technical guidance on Rare Natural Communities, please visit WCA Program Guidance and Information.

For more information please visit MBS Sites of Biodiversity Significance.

The following MBS Sites of Biodiversity Significance are within the search area:

MBS Site Name	Biodiversity Significance	Status
Lee 31	Moderate	final
Malmo 1	High	final
Malmo 23	Moderate	final
Solana Northeast	Moderate	final

DNR Native Plant Communities

Search distance = 330 feet

A native plant community is a group of native plants that interact with each other and with their environment in ways not greatly altered by modern human activity or by introduced organisms. These groups of native plant species form recognizable units, such as oak savannas, pine forests, or marshes, that tend to repeat over space and time. Native plant communities are classified and described by considering vegetation, hydrology, landforms, soils, and natural disturbance regimes.

DNR Native Plant Community types and subtypes are given a Conservation Status Rank that reflects the relative rarity and endangerment of the community type in Minnesota. Conservation Status Ranks range from S1 (critically imperiled) to S5 (secure, common, widespread, and abundant). Native plant communities with a Conservation Status Rank of S1 through S3 are considered rare in the state. The DNR recommends avoidance of rare native plant communities.

Wetland native plant communities with a conservation status rank of S1 through S3 may also be considered Rare Natural Communities under the Wetland Conservation Act. For technical guidance on Rare Natural Communities, please visit WCA Program Guidance and Information.

DNR Native Plant Communities may be given a Condition Rank that reflects the degree of ecological integrity of a specific occurrence of a native plant community. The Condition Rank is based on species composition, vegetation structure, ecological processes and functions, level of human disturbance, presence of exotic species, and other factors. Condition Ranks range from A-rank (excellent ecological integrity) to D-rank (poor ecological integrity. A Condition Rank of NR means Not Ranked and a Condition Rank of MULTI mean multiple ranks are present because the record is a native plant community complex.

For more information please visit Minnesota's Native Plant Communities.

The following DNR Native Plant Communities are within the search area:

MBS Site Name	NPC Code	Native Plant Community Classification	Conservation Status Rank	Number of Communities
Lee 31	APn80a1	Black Spruce Bog, Treed Subtype	S4	1
Lee 31	APn80a2	Black Spruce Bog, Semi-Treed Subtype	S4	1
Lee 31	APn81	Northern Poor Conifer Swamp	(S4, S5)	1
Lee 31	APn90	Northern Open Bog	(S2, S4, S4S5) (S2, S4, S4S5) (S2, S4, S4S5)	1
Lee 31	FDn43	Northern Mesic Mixed Forest	(S2, S3, S5)	4
Lee 31	FPn72	Northern Rich Tamarack Swamp (Eastern Basin)	(S3)	4
Lee 31	FPn72a	Rich Tamarack Swamp (Eastcentral)	S3	2
Lee 31	FPn73	Northern Rich Alder Swamp	(S5)	4
Lee 31	MHn35	Northern Mesic Hardwood Forest	(S4)	4
Lee 31	MHn44	Northern Wet-Mesic Boreal Hardwood-Conifer Forest	(S2, S3, S3S4, S4)	5
Lee 31	MHn46	Northern Wet-Mesic Hardwood Forest	(S4)	1
Lee 31	WFn64	Northern Very Wet Ash Swamp	(S4)	1
Lee 31	WFn64a	Black Ash - Conifer Swamp (Northeastern)	S4	1
Lee 31	WMn82a	Willow - Dogwood Shrub Swamp	S5	3
Lee 31	WMn82b	Sedge Meadow	S4 or S5	2
Lee 31	WMn82b3	Sedge Meadow, Beaked Sedge Subtype	S4	3
Malmo 1	APn80a1	Black Spruce Bog, Treed Subtype	S4	1
Malmo 1	APn81	Northern Poor Conifer Swamp	(S4, S5)	1
Malmo 1	APn81a	Poor Black Spruce Swamp	S5	1
Malmo 1	APn91	Northern Poor Fen	(S3, S4, S5)	1
Malmo 1	BW_CX	Beaver Wetland Complex	(S2, S3, S4, S5)	1
Malmo 1	FPn72	Northern Rich Tamarack Swamp (Eastern Basin)	(S3)	2
Malmo 1	FPn73	Northern Rich Alder Swamp	(S5)	1

MBS Site Name	NPC Code	Native Plant Community Classification	Conservation Status Rank	Number of Communities
Malmo 1	MHc36	Central Mesic Hardwood Forest (Eastern)	(S4)	1
Malmo 1	MHn35	Northern Mesic Hardwood Forest	(S4)	10
Malmo 1	MHn47	Northern Rich Mesic Hardwood Forest	(S3)	3
Malmo 1	OPn81	Northern Shrub Shore Fen	(S5)	1
Malmo 1	WFn64	Northern Very Wet Ash Swamp	(S4)	4
Malmo 1	WFn74	Northern Wet Alder Swamp	(S3)	1
Malmo 1	WMn82a	Willow - Dogwood Shrub Swamp	S5	4
Malmo 1	WMn82b	Sedge Meadow	S4 or S5	3
Solana Northeast	APn80	Northern Spruce Bog	(S4)	3
Solana Northeast	APn90	Northern Open Bog	(S2, S4, S4S5) (S2, S4, S4S5) (S2, S4, S4S5)	2
Solana Northeast	FDn43	Northern Mesic Mixed Forest	(S2, S3, S5)	7
Solana Northeast	FPn72	Northern Rich Tamarack Swamp (Eastern Basin)	(S3)	5
Solana Northeast	FPn72a	Rich Tamarack Swamp (Eastcentral)	S3	1
Solana Northeast	FPn73	Northern Rich Alder Swamp	(S5)	17
Solana Northeast	MHn35	Northern Mesic Hardwood Forest	(S4)	9
Solana Northeast	MHn44	Northern Wet-Mesic Boreal Hardwood-Conifer Forest	(S2, S3, S3S4, S4)	13
Solana Northeast	MHn46	Northern Wet-Mesic Hardwood Forest	(S4)	8
Solana Northeast	WFn64	Northern Very Wet Ash Swamp	(S4)	2
Solana Northeast	WFn64c	Black Ash - Alder Swamp (Northern)	S4	1
Solana Northeast	WMn82a	Willow - Dogwood Shrub Swamp	S5	13
Solana Northeast	WMn82b	Sedge Meadow	S4 or S5	7
Not Within MBS Site	APn80	Northern Spruce Bog	(S4)	2
Not Within MBS Site	APn90	Northern Open Bog	(S2, S4, S4S5) (S2, S4, S4S5) (S2, S4, S4S5)	1
Not Within MBS Site	FDc34	Central Dry-Mesic Pine-Hardwood Forest	(S2, S3)	2
Not Within MBS Site	FDn43	Northern Mesic Mixed Forest	(S2, S3, S5)	9
Not Within MBS Site	FPn72	Northern Rich Tamarack Swamp (Eastern Basin)	(S3)	2
Not Within MBS Site	FPn73	Northern Rich Alder Swamp	(S5)	6
Not Within MBS Site	MHn35	Northern Mesic Hardwood Forest	(S4)	7
Not Within MBS Site	MHn44	Northern Wet-Mesic Boreal Hardwood-Conifer Forest	(S2, S3, S3S4, S4)	7
Not Within MBS Site	WFn64	Northern Very Wet Ash Swamp	(S4)	1
Not Within MBS Site	WFn64a	Black Ash - Conifer Swamp (Northeastern)	S4	1
Not Within MBS Site	WMn82a	Willow - Dogwood Shrub Swamp	S5	1
Not Within MBS Site	WMn82b	Sedge Meadow	S4 or S5	5

Calcareous Fens

Search distance = 5 miles

A calcareous fen is a rare and distinctive peat-accumulating wetland that is legally protected in Minnesota under the Wetland Conservation Act (*Minnesota Statutes*, section 103G.223). Many of the unique characteristics of calcareous fens result from the upwelling of groundwater through calcareous substrates. Because of this dependence on groundwater hydrology, calcareous fens can be affected by nearby activities or even those several miles away. For more information regarding calcareous fens, please see the Calcareous Fen Fact Sheet or review the List of Known Calcareous Fens.

SEARCH RESULTS: No features were found within the search area.

DNR Old Growth Stands

Search distance = 330 feet

Old-growth forests are natural forests that have developed over a long period of time, generally at least 120 years, without experiencing severe, stand-replacing disturbances such as fires, windstorms, or logging. Old-growth forests are a unique, nearly vanished piece of Minnesota's history and ecology; less than 4% of Minnesota's old-growth forests remain. The DNR recommends avoidance of all DNR Old Growth Stands. The following DNR Old Growth Stands have been documented within the search area.

SEARCH RESULTS: No features were found within the search area.

MN Prairie Conservation Plan

Search distance = 330 feet

The Minnesota Prairie Conservation Plan, a twenty-five year strategy for accelerating prairie conservation in the state, identifies Core Areas, Corridors, and Corridor Complexes as areas to focus conservation efforts. The Plan's strategies include protection, enhancement, and restoration of grassland and wetland habitat. To meet the Plan's goals, approaches within Core Areas will need to include restoration and approaches within Corridors will need to include conservation of grassland habitat which can provide stepping stones between larger Core Areas.

SEARCH RESULTS: No features were found within the search area.

Important Bird Areas

Search distance = 1 mile

Important Bird Areas, identified by Audubon Minnesota in partnership with the DNR, are part of an international conservation effort aimed at conserving globally important bird habitats. They are voluntary and non-regulatory, but the designation demonstrates the significant ecological value of the area.

The following Important Birds Areas are within the search area:

- Mille Lacs IBA

Lakes of Biological Significance

Search distance = 330 feet

Lakes of Biological Significance are high quality lakes as determined by the aquatic plant, fish, bird, or amphibian communities present within the lake. To be included in this layer, a lake only needs to meet the criteria for one of these four community types. The lake is assigned a biological significance of Outstanding, High, or Moderate based on the community with the highest quality.

SEARCH RESULTS: No features were found within the search area.

USFWS Habitat Conservation Plans

A Habitat Conservation Plan (HCP) is a mechanism for compliance with the federal Endangered Species Act for a given set of activities and protected species. An HCP is required by the U.S. Fish and Wildlife Service (USFWS) as part of an application for an incidental take permit (ITP). The ITP allows the permit holder to proceed with activities covered in the HCP that could result in the unintentional take of federally listed species.

Lakes States Forest Management Bat Habitat Conservation Plan (Bat HCP): (search distance = 0; within area of interest only) This HCP was created to provide flexibility to the Minnesota Department of Natural Resources (DNR) to manage forests while addressing federal Endangered Species Act (ESA) regulations related to federally threatened and endangered bat species. The Bat HCP covers three bat species within Minnesota: northern long-eared bat, little brown bat, and tricolored bat. This report is intended to help non-federal, non-DNR landowners evaluate their potential eligibility for the Landowner Enrollment Program of the Bat HCP (For DNR-administered land, DNR staff should refer to the Bat HCP Implementation Policy).

Landowner Enrollment Program – DNR's incidental take permit may be extended through the Landowner Enrollment Program (LEP) to eligible non-federal landowners who conduct forest management activities. Landowners may be eligible to enroll in the LEP if they are a county land administrator, own more than 10,000 acres, or own land that overlaps a Bat HCP feature. The results below indicate if the defined area of interest overlaps a Bat HCP feature. For more information on how to enroll in the LEP, please visit the Landowner Enrollment Program (LEP).

SEARCH RESULTS: No Bat HCP features were found within the area of interest. Landowners are only eligible to apply for the Landowner Enrollment Program if they are a county land administrator or they own more than 10,000 acres.

USFWS Regulatory Layers

To ensure compliance with federal law, conduct a federal regulatory review using the U.S. Fish and Wildlife Service's (USFWS) online Information for Planning and Consultation (IPaC) tool. This report is not a substitution for a Section 7 review.

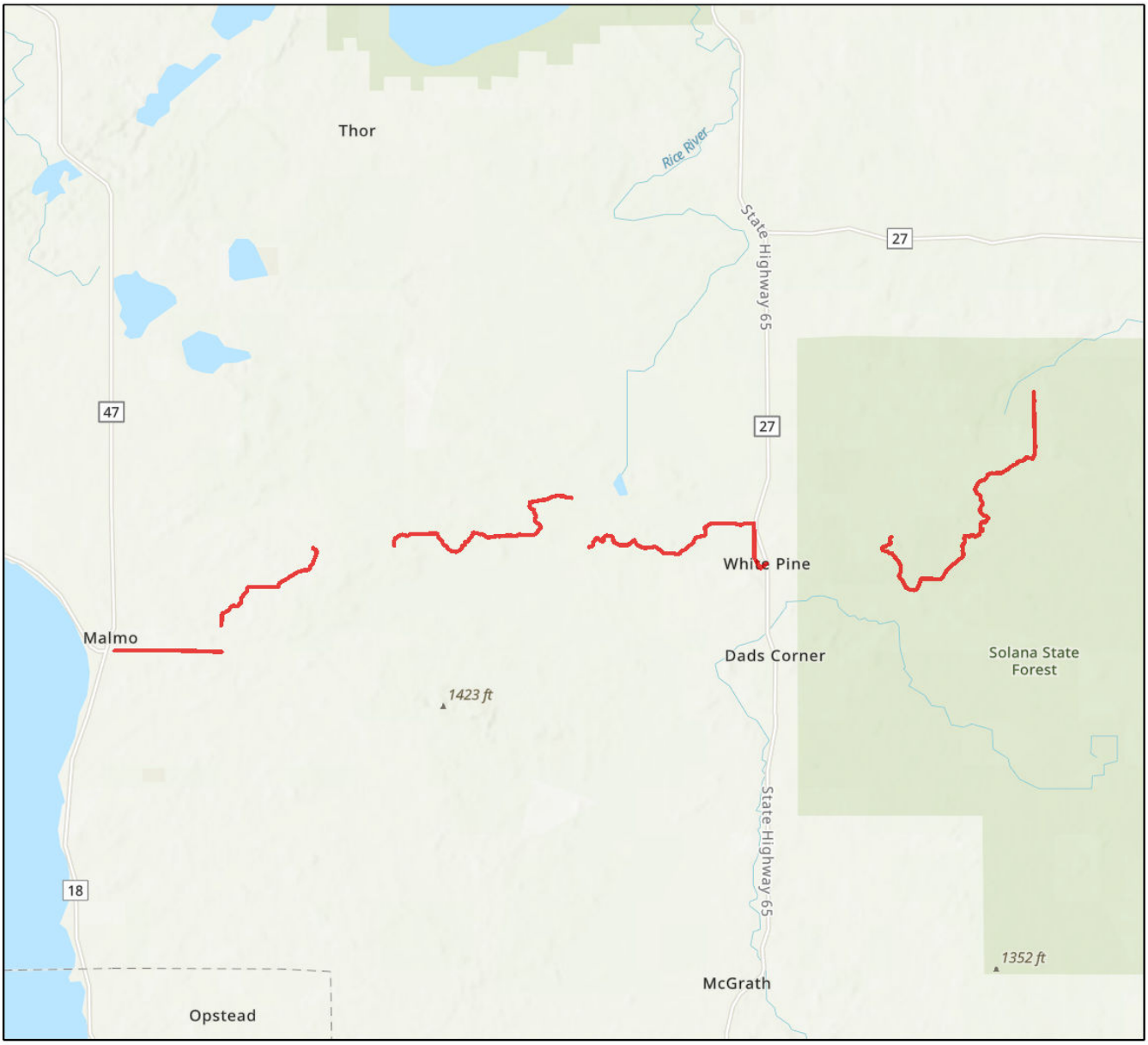
For informational purposes only, this tool currently checks the following USFWS Regulatory Layers:

Rusty Patched Bumblebee High Potential Zones: (*search distance = 0; within area of interest only*) The rusty patched bumble bee (*Bombus affinis*), federally listed as endangered, is likely to be present in suitable habitat within the high potential zones. From April through October this species uses underground nests in upland grasslands, shrublands, and forest edges, and forages where nectar and pollen are available. From October through April the species overwinters under tree litter in upland forests and woodlands. The rusty patched bumble bee may be impacted by a variety of land management activities including, but not limited to, prescribed fire, tree-removal, haying, grazing, herbicide use, pesticide use, land-clearing, soil disturbance or compaction, or use of non-native bees. The USFWS RPBB guidance provides guidance on avoiding impacts to rusty patched bumble bee and a key for determining if actions are likely to affect the species; the determination key can be found in the appendix. Please visit the USFWS Rusty Patched Bumble Bee Map for the most current locations of High Potential Zones.

SEARCH RESULTS: No features were found within the search area.

Northwoods Regional Trail

Conservation Planning Map



N
W E
S

0 1 2 4 6 8 Miles

Area of Interest

Size (acres): 40.91

County(s): Aitkin

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
Esri, NASA, NGA, USGS
Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA,

APPENDIX F

IPaC Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793

In Reply Refer To: 03/05/2025 19:51:46 UTC
Project code: 2025-0064578
Project Name: Aitkin County ATV Trail

Subject: Technical Assistance letter for 'Aitkin County ATV Trail' for specified threatened and endangered species that may occur in your proposed project location consistent with the Minnesota-Wisconsin Endangered Species Determination Key (Minnesota-Wisconsin DKey).

Dear Ella Kohls:

The U.S. Fish and Wildlife Service (Service) received on **March 05, 2025** your effect determination(s) for the 'Aitkin County ATV Trail' (Action) using the Minnesota-Wisconsin DKey within the Information for Planning and Consultation (IPaC) system. You have submitted this key to satisfy requirements under Section 7(a)(2). The Service developed this system in accordance of with the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C 1531 et seq.).

Based on your answers and the assistance of the Service's Minnesota-Wisconsin DKey, you made the following effect determination(s) for the proposed Action:

Species	Listing Status	Determination
Canada Lynx (*Lynx canadensis*)	Threatened	NLAA
Gray Wolf (*Canis lupus*)	Threatened	NLAA
Monarch Butterfly (*Danaus plexippus*)	Proposed Threatened	No effect
Whooping Crane (*Grus americana*)	Experimental Population, Non-Essential	No effect

Determination Information
Thank you for informing the Service of your "NLAA" determination(s). No further coordination is necessary for the species you determined may be affected, but not likely to be adversely affected, by the Action.

Additional Information

Sufficient project details: Please provide sufficient project details on your project homepage in IPaC (Define Project, Project Description) to support your conclusions. Failure to disclose important aspects of your project that would influence the outcome of your effects determinations may negate your determinations and invalidate this letter. If you have site-specific information that leads you to believe a different determination is more appropriate for your project than what the Dkey concludes, you can and should proceed based on the best available information.

Future project changes: The Service recommends that you contact the Minnesota-Wisconsin Ecological Services Field Office or re-evaluate the project in IPaC if: 1) the scope or location of the proposed Action is changed; 2) new information reveals that the action may affect listed species or designated critical habitat in a manner or to an extent not previously considered; 3) the Action is modified in a manner that causes effects to listed species or designated critical habitat; or 4) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Service should take place before project changes are final or resources committed.

For non-Federal representatives: Please note that when a project requires consultation under section 7 of the Act, the Service must consult directly with the Federal action agency unless that agency formally designates a non-Federal representative (50 CFR 402.08). Non-Federal representatives may prepare analyses or conduct informal consultations; however, the ultimate responsibility for section 7 compliance under the Act remains with the Federal agency. Please include the Federal action agency in additional correspondence regarding this project.

Species-specific information

Gray Wolf: Please notify the Service if there is observed gray wolf activity during project implementation that could indicate a den or rendezvous site in close proximity (e.g., multiple wolves observed).

Bald and Golden Eagles: Bald eagles, golden eagles, and their nests are protected under the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended, 16 U.S.C. 668a-d) (Eagle Act). The Eagle Act prohibits, except when authorized by an Eagle Act permit, the “taking” of bald and golden eagles and defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” The Eagle Act’s implementing regulations define disturb as “… to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

The following species and/or critical habitats may also occur in your project area and **are not** covered by this conclusion:

- Northern Long-eared Bat *Myotis septentrionalis* Endangered
- Suckley's Cuckoo Bumble Bee *Bombus suckleyi* Proposed Endangered

Coordination with the Service is not complete if additional coordination is advised above for any species.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Aitkin County ATV Trail

2. Description

The following description was provided for the project 'Aitkin County ATV Trail':

> Aitkin County is proposing to construct a Class 1 ATV trail to connect the east side of Mille Lacs Lake to the existing Northwoods ATV trail system. Due to the length of the trail and complexity of wetlands and other concerns, the project is being completed in phases. The proposed alignment for Phase 1 runs from Malmo to Highway 65, including 12 miles along existing trails, roadways, ditches, and 4.9 miles of new construction. The proposed alignment for Phae 2 runs from Highway 65, follows 150th Place and Kestral Ave, and meets with the existing Soo Line Trail. Major portions of this loop would be located on county and state lands. Work will include clearing, grading, water and wet soil crossings, and placement of tread materials. Construction would begin in 2025.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@46.3338715,-93.48326673955174,14z

QUALIFICATION INTERVIEW

1. This determination key is intended to assist the user in evaluating the effects of their actions on Federally listed species in Minnesota and Wisconsin. It does not cover other prohibited activities under the Endangered Species Act (e.g., for wildlife: import/export, Interstate or foreign commerce, possession of illegally taken wildlife, etc.; for plants: import/export, reduce to possession, malicious destruction on Federal lands, commercial sale, etc.) or other statutes. Additionally, this key DOES NOT cover wind development, purposeful take (e.g., for research or surveys), communication towers that have guy wires or are over 450 feet in height, aerial or other large-scale application of any chemical (such as insecticide or herbicide), and approval of long-term permits or plans (e.g., FERC licenses, HCP's).

   Click **YES** to acknowledge that you must consider other prohibitions of the ESA or other statutes outside of this determination key.

   Yes
2. Is the action being funded, authorized, or carried out by a Federal agency?

   No
3. Are you the Federal agency or designated non-federal representative?

   No
4. Does the action involve the installation or operation of wind turbines?

   No
5. Does the action involve purposeful take of a listed animal?

   No
6. Does the action involve a new communications tower?

   No
7. Does the activity involve aerial or other large-scale application of ANY chemical, including pesticides (insecticide, herbicide, fungicide, rodenticide, etc)?

   No
8. Will your action permanently affect local hydrology?

   No
9. Will your action temporarily affect local hydrology?

   Yes
10. Will your project have any direct impacts to a stream or river (e.g., Horizontal Directional Drilling (HDD), hydrostatic testing, stream/road crossings, new stormwater outfall discharge, dams, other in-stream work, etc.)?

    Yes

11. Does your project have the potential to impact the riparian zone or indirectly impact a stream/river (e.g., cut and fill; horizontal directional drilling; construction; vegetation removal; pesticide or fertilizer application; discharge; runoff of sediment or pollutants; increase in erosion, etc.)?

    Note: Consider all potential effects of the action, including those that may happen later in time and outside and downstream of the immediate area involved in the action.

    Endangered Species Act regulation defines "effects of the action" to include all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (50 CFR 402.02).

    Yes

12. Will your action disturb the ground or existing vegetation?

    Note: This includes any off-road vehicle access, soil compaction (enough to collapse a rodent burrow), digging, seismic survey, directional drilling, heavy equipment, grading, trenching, placement of fill, pesticide application (herbicide, fungicide), vegetation management (including removal or maintenance using equipment or prescribed fire), cultivation, development, etc.

    Yes

13. Will your action include spraying insecticides?

    No

14. Does your action area occur entirely within an already developed area?

    Note: Already developed areas are already paved, covered by existing structures, manicured lawns, industrial sites, or cultivated cropland, AND do not contain trees that could be roosting habitat. Be aware that listed species may occur in areas with natural, or semi-natural, vegetation immediately adjacent to existing utilities (e.g. roadways, railways) or within utility rights-of-way such as overhead transmission line corridors, and can utilize suitable trees, bridges, or culverts for roosting even in urban dominated landscapes (so these are not considered "already developed areas" for the purposes of this question). If unsure, select NO..

    No

15. Is there any potential for this action to harm Canada lynx directly (e.g., mammal trapping, poison bait, broadcasting disease control agents for wild animals, capturing animals for research projects, or regular human activity that may exclude lynx from forested habitat including blasting or explosives)?

    No

16. Is your action associated with the U.S. Forest Service?

    No

17. Is there any potential for this action to harm Canada lynx indirectly (e.g., increased traffic volume and speed that may result in vehicle strikes, regular human activity that may disturb or exclude lynx from forested habitat, blasting or explosives)?

    No

18. Will the action result in changes to Canada lynx or snowshoe hare habitat quality, quantity, or availability that is greater than 10 acres?
    E.g., thinning and/or other timber management and logging practices; residential and commercial development; road, railroad and utility corridors development; mining activities; prescribed fire; trail development; winter activities that compact snow such as winter road use, snowmobiling, cross country skiing, and dog sledding.

    No

19. Is there any potential for the action to harm wolves directly (e.g., mammal trapping, poison bait), or indirectly (e.g., increasing vehicle use that may result in vehicle strikes, exposure to potential human persecution)?

    No

20. [Hidden Semantic] Does the action area intersect the Threatened gray wolf AOI?

    Automatically answered
    Yes

21. [Hidden Semantic] Does the action area intersect the monarch butterfly species list area?

    Automatically answered
    Yes

22. Under the ESA, monarchs remain warranted but precluded by listing actions of higher priority. The monarch is a candidate for listing at this time. The Endangered Species Act does not establish protections or consultation requirements for candidate species. Some Federal and State agencies may have policy requirements to consider candidate species in planning. We encourage implementing measures that will remove or reduce threats to these species and possibly make listing unnecessary.

    If your project will have no effect on monarch butterflies (for example, if your project won't affect their habitat or individuals), then you can make a "no effect" determination for this project.

    Are you making a "no effect" determination for monarch?

    Yes

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Ella Kohls
Address:	5368 266th St
Address Line 2:	PO Box 730
City:	Wyoming
State:	MN
Zip:	55092
Email	ella.kohls@widseth.com
Phone:	6126156966

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793

In Reply Refer To: 03/05/2025 20:06:27 UTC
Project code: 2025-0064578
Project Name: Aitkin County ATV Trail

Federal Nexus: no
Federal Action Agency (if applicable):

Subject: Technical assistance for 'Aitkin County ATV Trail'

Dear Ella Kohls:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on March 05, 2025, for 'Aitkin County ATV Trail' (here forward, Project). This project has been assigned Project Code 2025-0064578 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not bbe complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (Dkey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid. Note that conservation measures for northern long-eared bat and tricolored bat may differ. If both bat species are present in the action area and the key suggests more conservative measures for one of the species for your project, the Project may need to apply the most conservative measures in order to avoid adverse effects. If unsure which conservation measures should be applied, please contact the appropriate Ecological Services Field Office***

Determination for the Northern Long-Eared Bat and Tricolored Bat

Based upon your IPaC submission and a standing analysis completed by the Service, your project has reached the following effect determination(s):

Species	Listing Status	Determination
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	NLAA

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Canada Lynx *Lynx canadensis* Threatened
- Gray Wolf *Canis lupus* Threatened
- Monarch Butterfly *Danaus plexippus* Proposed Threatened
- Suckley's Cuckoo Bumble Bee *Bombus suckleyi* Proposed Endangered
- Whooping Crane *Grus americana* Experimental Population, Non-Essential

You may coordinate with our Office to determine whether the Action may cause prohibited take of the animal species and/or critical habitat listed above. Note that if a new species is listed that may be affected by the identified action before it is complete, additional review is recommended to ensure compliance with the Endangered Species Act.

Next Steps

Coordination with the Service is complete. This letter serves as technical assistance. All conservation measures should be implemented as proposed. Thank you for considering federally listed species during your project planning.

If no changes occur with the Project or there are no updates on listed species, no further consultation/coordination for this project is required for the northern long-eared bat. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place before project implements any changes which are final or commits additional resources.

If you have any questions regarding this letter or need further assistance, please contact the Minnesota-Wisconsin Ecological Services Field Office and reference Project Code 2025-0064578 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Aitkin County ATV Trail

2. Description

The following description was provided for the project 'Aitkin County ATV Trail':

> Aitkin County is proposing to construct a Class 1 ATV trail to connect the east side of Mille Lacs Lake to the existing Northwoods ATV trail system. Due to the length of the trail and complexity of wetlands and other concerns, the project is being completed in phases. The proposed alignment for Phase 1 runs from Malmo to Highway 65, including 12 miles along existing trails, roadways, ditches, and 4.9 miles of new construction. The proposed alignment for Phae 2 runs from Highway 65, follows 150th Place and Kestral Ave, and meets with the existing Soo Line Trail. Major portions of this loop would be located on county and state lands. Work will include clearing, grading, water and wet soil crossings, and placement of tread materials. Construction would begin in 2025.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@46.3338715,-93.48326673955174,14z

DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for a least one species covered by this determination key.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

   Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   No

6. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum?

   Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

   Automatically answered
   No

7. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

   No

8. Does the action area contain (1) talus or (2) anthropogenic or naturally formed rock shelters or crevices in rocky outcrops, rock faces or cliffs?

   No

9. Will the action cause effects to a bridge?

   Note: Covered bridges should be considered as bridges in this question.

   No

10. Will the action result in effects to a culvert or tunnel at any time of year?

    No

11. Are trees present within 1000 feet of the action area?

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

12. Does the action include the intentional exclusion of bats from a building or structure?

    Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

    No

13. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

14. Will the action cause construction of one or more new roads open to the public?

    For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    Yes

15. Will any new road go through any area of contiguous forest that is greater than or equal to 10 acres in total extent?

    Note: "Contiguous forest" of 10 acres or more may includes areas where multiple forest patches are separated by less than 1,000 feet of non-forest if the forested patches, added together, comprise at least 10 acres.

    Yes

16. For every 1,000 feet of new road that crosses between contiguous forest patches, will there be at least one place where bats could cross the road corridor by flying less than 33 feet (10 meters) between trees whose tops are at least 66 feet (20 meters) higher than the road surface?

    Yes

17. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

    Note: For information regarding NSF/ANSI 60 please visit https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects

    No

18. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

19. Will the action include drilling or blasting?

    No

20. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

    No

21. Will the proposed action involve the use of herbicides or other pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?

    No

22. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

    Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

23. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

24. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    Yes

25. Will the proposed action occur exclusively in an already established and currently maintained utility right-of-way?

    No

26. Does the action include emergency cutting or trimming of hazard trees in order to remove an imminent threat to human safety or property? See hazard tree note at the bottom of the key for text that will be added to response letters

    Note: A "hazard tree" is a tree that is an immediate threat to lives, public health and safety, or improved property.

    No

27. Does the project intersect with the 0- 9.9% forest density category?

    Automatically answered
    No

28. Does the project intersect with the 10.0- 19.9% forest density category map?

    Automatically answered
    No

29. Does the project intersect with the 20.0- 29.9% forest density category map?

    Automatically answered
    Yes

30. Does the project intersect with the 30.0- 100% forest density category map?

    Automatically answered
    Yes

31. Will the action cause trees to be cut, knocked down, or otherwise brought down across an area greater than 40 acres in total extent?

    No

32. Will the proposed action result in the use of prescribed fire?

    Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

    No

33. Does the action area intersect the northern long-eared bat species list area?

    Automatically answered
    Yes

34. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

    Automatically answered
    No

35. [Semantic] Is the action area located within 150 feet of a documented northern long-eared bat roost site?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

36. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?
    If unsure, answer "Yes."

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

37. Are any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming suitable for northern long-eared bat roosting (i.e., live trees and/or snags ≥3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities)?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

38. Will any tree cutting/trimming or other knocking or bringing down of trees occur during the **Summer Occupancy season** for northern long-eared bats in the action area?

    Note: Bat activity periods for your state can be found in Appendix L of the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines.

    No

39. Do you have any documents that you want to include with this submission?

    No

PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

1

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Ella Kohls
Address:	5368 266th St
Address Line 2:	PO Box 730
City:	Wyoming
State:	MN
Zip:	55092
Email	ella.kohls@widseth.com
Phone:	6126156966

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793

In Reply Refer To: 03/05/2025 19:48:55 UTC
Project Code: 2025-0064578
Project Name: Aitkin County ATV Trail

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*).

Threatened and Endangered Species

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance

Please refer to refer to our Section 7 website for guidance and technical assistance, including step-by-step instructions for making effects determinations for each species that might be present and for specific guidance on the following types of projects: projects in developed areas, HUD, CDBG, EDA, USDA Rural Development projects, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

We recommend running the project (if it qualifies) through our **Minnesota-Wisconsin Federal Endangered Species Determination Key (Minnesota-Wisconsin ("D-key"))**. A demonstration video showing how-to access and use the determination key is available. Please note that the Minnesota-Wisconsin D-key is the third option of 3 available d-keys. D-keys are tools to help Federal agencies and other project proponents determine if their proposed action has the potential to adversely affect federally listed species and designated critical habitat. The Minnesota-Wisconsin D-key includes a structured set of questions that assists a project proponent in determining whether a proposed project qualifies for a certain predetermined consultation outcome for all federally listed species found in Minnesota and Wisconsin (except for the northern long-eared bat- see below), which includes determinations of “no effect” or “may affect, not likely to adversely affect." In each case, the Service has compiled and analyzed the best available information on the species’ biology and the impacts of certain activities to support these determinations.

If your completed d-key output letter shows a "No Effect" (NE) determination for all listed species, print your IPaC output letter for your files to document your compliance with the Endangered Species Act.

For Federal projects with a “Not Likely to Adversely Affect” (NLAA) determination, our concurrence becomes valid if you do not hear otherwise from us after a 30-day review period, as indicated in your letter.

If your d-key output letter indicates additional coordination with the Minnesota-Wisconsin Ecological Services Field Office is necessary (i.e., you get a “May Affect” determination), you will be provided additional guidance on contacting the Service to continue ESA coordination outside of the key; ESA compliance cannot be concluded using the key for “May Affect” determinations unless otherwise indicated in your output letter.

Note: Once you obtain your official species list, you are not required to continue in IPaC with d-keys, although in most cases these tools should expedite your review. If you choose to make an effects determination on your own, you may do so. If the project is a Federal Action, you may want to review our section 7 step-by-step instructions before making your determinations.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of “There are no listed species found within the vicinity of the project,” then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **no effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.
2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project – other than bats (see below) – then project proponents must determine if proposed activities will have **no effect** on or **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species on our office website. If no impacts will occur to a species on the IPaC species list (e.g., there is no habitat present in the project area), the appropriate determination is **no effect**. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.

3. Should you determine that project activities **may affect** any federally listed, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

Northern Long-Eared Bats
Northern long-eared bats occur throughout Minnesota and Wisconsin and the information below may help in determining if your project may affect these species.

Suitable summer habitat for northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches dbh for northern long-eared bat that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, northern long-eared bats could be affected. For bat activity dates, please review Appendix L in the Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines.

Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas,
- Trees found in highly developed urban areas (e.g., street trees, downtown areas),
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees, and
- A monoculture stand of shrubby vegetation with no potential roost trees.

If IPaC returns a result that northern long-eared bats are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** this species **IF** one or more of the following activities are proposed:

- Clearing or disturbing suitable roosting habitat, as defined above, at any time of year,
- Any activity in or near the entrance to a cave or mine,
- Mining, deep excavation, or underground work within 0.25 miles of a cave or mine,
- Construction of one or more wind turbines, or
- Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on the northern long-eared bat. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC

species list report for your records.

If any of the above activities are proposed, and the northern long-eared bat appears on the user's species list, the federal project user will be directed to either the northern long-eared bat and tricolored bat range-wide D-key or the Federal Highways Administration, Federal Railways Administration, and Federal Transit Administration Indiana bat/Northern long-eared bat D-key, depending on the type of project and federal agency involvement. Similar to the Minnesota-Wisconsin D-key, these d-keys helps to determine if prohibited take might occur and, if not, will generate an automated verification letter. Additional information about available tools can be found on the Service's northern long-eared bat website.

Whooping Crane
Whooping crane is designated as a non-essential experimental population in Wisconsin and consultation under Section 7(a)(2) of the Endangered Species Act is only required if project activities will occur within a National Wildlife Refuge or National Park. If project activities are proposed on lands outside of a National Wildlife Refuge or National Park, then you are not required to consult. For additional information on this designation and consultation requirements, please review "Establishment of a Nonessential Experimental Population of Whooping Cranes in the Eastern United States."

Other Trust Resources and Activities
Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. It is the responsibility of the project proponent to survey the area for any migratory bird nests. If there is an eagle nest on-site while work is on-going, eagles may be disturbed. We recommend avoiding and minimizing disturbance to eagles whenever practicable. If you cannot avoid eagle disturbance, you may seek a permit. A nest take permit is always required for removal, relocation, or obstruction of an eagle nest. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's Wind Energy Guidelines. In addition, please refer to the Service's Eagle Conservation Plan Guidance, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

State Department of Natural Resources Coordination
While it is not required for your Federal section 7 consultation, please note that additional state endangered or threatened species may also have the potential to be impacted. **Please contact the Minnesota or Wisconsin Department of Natural Resources for information on state listed species that may be present in your proposed project area.**

Minnesota
Minnesota Department of Natural Resources - Endangered Resources Review Homepage
Email: Review.NHIS@state.mn.us

Wisconsin
Wisconsin Department of Natural Resources - Endangered Resources Review Homepage
Email: DNRERReview@wi.gov

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
(952) 858-0793

PROJECT SUMMARY

Project Code: 2025-0064578
Project Name: Aitkin County ATV Trail
Project Type: Recreation - New Construction
Project Description: Aitkin County is proposing to construct a Class 1 ATV trail to connect the east side of Mille Lacs Lake to the existing Northwoods ATV trail system. Due to the length of the trail and complexity of wetlands and other concerns, the project is being completed in phases. The proposed alignment for Phase 1 runs from Malmo to Highway 65, including 12 miles along existing trails, roadways, ditches, and 4.9 miles of new construction. The proposed alignment for Phae 2 runs from Highway 65, follows 150th Place and Kestral Ave, and meets with the existing Soo Line Trail. Major portions of this loop would be located on county and state lands. Work will include clearing, grading, water and wet soil crossings, and placement of tread materials. Construction would begin in 2025.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@46.3338715,-93.48326673955174,14z

Counties: Aitkin County, Minnesota

ENDANGERED SPECIES ACT SPECIES

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Canada Lynx *Lynx canadensis* Population: Wherever Found in Contiguous U.S. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Gray Wolf *Canis lupus* Population: MN There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4488	Threatened
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

BIRDS

NAME	STATUS
Whooping Crane *Grus americana* Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Suckley's Cuckoo Bumble Bee *Bombus suckleyi* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10885	Proposed Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

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1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information

on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

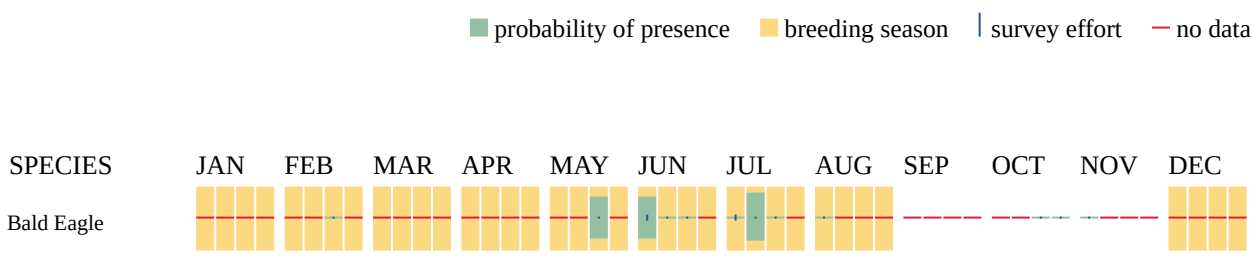
Probability of Presence (▪)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Non-BCC
Vulnerable

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10

NAME	BREEDING SEASON
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9643	Breeds May 20 to Aug 10
Golden-winged Warbler *Vermivora chrysoptera* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8745	Breeds May 1 to Jul 20
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Veery *Catharus fuscescens fuscescens* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11987	Breeds May 15 to Jul 15
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

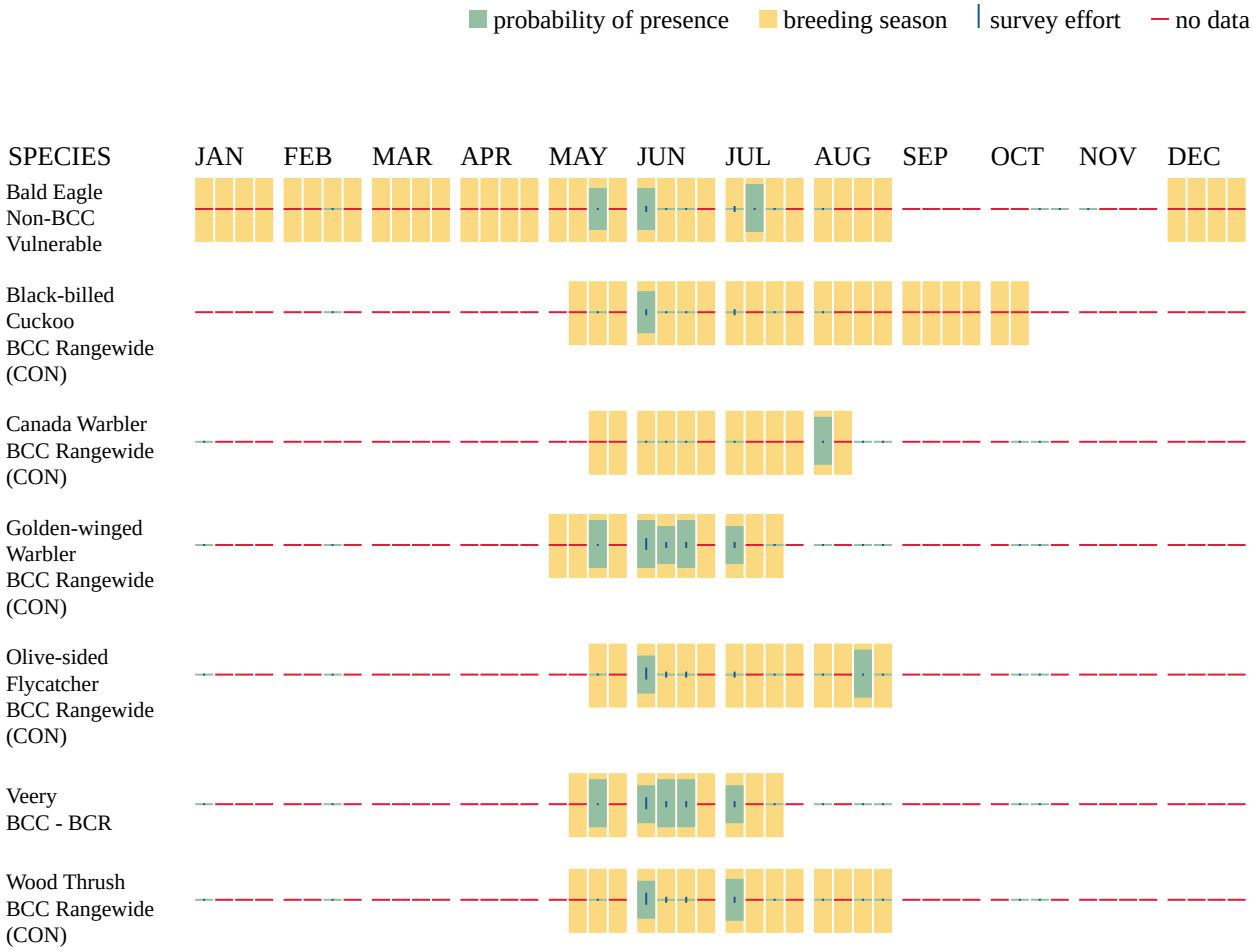
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER FORESTED/SHRUB WETLAND

- PFO2/4Dg
- PSS1C
- PFO1/EM1D
- PFO1/4D
- PFO1/SS1D
- PFO4Dg
- PFO2Dg
- PFO1D
- PSS1/EM1Dd
- PSS1D
- PSS1/EM1Ad

FRESHWATER EMERGENT WETLAND

- PEM1A
- PEM1D
- PEM1Db
- PEM1Cx

RIVERINE

- R5UBFx
- R4SBC
- R2UBH
- R2UBFx

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Ella Kohls
Address:	5368 266th St
Address Line 2:	PO Box 730
City:	Wyoming
State:	MN
Zip:	55092
Email	ella.kohls@widseth.com
Phone:	6126156966

APPENDIX G

GHG Emissions Calculations

Scope 1 Emissions from Mobile Sources

CLIMATE LEADERSHIP
U.S. Environmental Protection Agency

Guidance

(A) Enter annual data for each vehicle or group of vehicles (grouped by vehicle type, vehicle year, and fuel type) in ORANGE cells in **Table 1**. Example entry is shown in first row (GREEN *Italics*). Only enter vehicles owned or leased by your organization on this sheet. All other vehicle use such as employee commuting or business travel is considered a scope 3 emissions source and should be reported in the corresponding scope 3 sheets.

- *Note: The latest mobile combustion factors reflect year 2021 data. Therefore, for all vehicle model years 2022 onward, the 2021 year factor is used.*
- *Select "On-Road" or "Non-Road" from the drop down box to determine the Vehicle Types available. You* ***must make this selection before picking the vehicle type.***
- Select "Vehicle Type" from drop down box (closest type available).
- Enter "Fuel Usage" in appropriate units (units appear when vehicle type is selected).
  - If mileage or fuel usage is unknown, estimate using approximate fuel economy values from the manufacturer, www.fueleconomy.gov, or the Reference Table below.
  - Vehicle year and Miles traveled are not necessary for non-road equiment.

(B) When using biofuels, typically the biofuel (biodiesel or ethanol) is mixed with a petroleum fuel (diesel or gasoline) for use in vehicles. Enter the biodiesel and ethanol percentages of the fuel if known, or leave default values shown below.

Biodiesel Percent:	20	%
Ethanol Percent:	80	%

(C) Biomass CO_2 emissions from biodiesel and ethanol are not reported in the total emissions, but are reported separately at the bottom of the sheet.

Table 1. Mobile Source Fuel Combustion and Miles Traveled

Source ID	Source Description	On-Road or Non-Road?	Vehicle Type	Vehicle Year	Fuel Usage	Units	Miles Traveled
Excavator	Equipment	NonRoad	Construction/Mining Equipment - Diesel Equipment	2020	120	gal	1,200
Grader	Equipment	NonRoad	Construction/Mining Equipment - Diesel Equipment	2020	120	gal	1,200
Skid loader	Equipment	NonRoad	Construction/Mining Equipment - Diesel Equipment	2020	150	gal	1,200
Roller compactor	Equipment	NonRoad	Construction/Mining Equipment - Diesel Equipment	2020	150	gal	1,200
Vehicle 1	Equipment	OnRoad	Light-Duty Trucks - Diesel	2020	390	gal	7,800
Vehicle 2	Equipment	OnRoad	Light-Duty Trucks - Diesel	2020	390	gal	7,800
Vehicle 3	Equipment	OnRoad	Light-Duty Trucks - Diesel	2020	390	gal	7,800
ATV 1	Equipment	NonRoad	Recreational Equipment - Gasoline (4 stroke)	2020	80	gal	1,200
ATV 2	Equipment	NonRoad	Recreational Equipment - Gasoline (4 stroke)	2020	80	gal	1,200
ATV 3	Equipment	NonRoad	Recreational Equipment - Gasoline (4 stroke)	2020	80	gal	1,200
Vehicle 4	Equipment	OnRoad	Passenger Cars - Gasoline	2020	260	gal	7,800
Vehicle 5	Equipment	OnRoad	Passenger Cars - Gasoline	2020	260	gal	7,800
Vehicle 6	Equipment	OnRoad	Passenger Cars - Gasoline	2020	260	gal	7,800

Reference Table: Average Fuel Economy by Vehicle Type

Vehicle Type	Average Fuel Economy (mpg)
Passenger Cars	24.8
Other 2-Axle, 4-Tire Vehicles	18.1
Motorcycles	44.0
Single unit 2-Axle 6-Tire or More Trucks	7.9
Combination Trucks	6.9
Diesel Buses (Diesel Heavy-Duty Vehicles)	7.4

Average mpg values from the U.S. Department of Transportation, Federal Highway Administration, Highway Statistics 2022 (Updated February 2024), Table VM-1.

GHG Emissions

Total Organization-Wide Mobile Source Fuel Usage and CO_2 Emissions (On-Road and Off-Road Vehicles)

Fuel Type	Fuel Usage	Units	CO_2 (kg)
Motor Gasoline	1,020	gallons	8,956
Diesel Fuel	1,710	gallons	17,459
Residual Fuel Oil	0	gallons	0
Aviation Gasoline	0	gallons	0
Kerosene-Type Jet Fuel	0	gallons	0
Liquefied Petroleum Gases (LPG)	0	gallons	0
Ethanol	0	gallons	0
Biodiesel	0	gallons	0
Liquefied Natural Gas (LNG)	0	gallons	0
Compressed Natural Gas (CNG)	0	scf	0

Note: emissions here are only for the gasoline portion of the fuel, biogenic CO_2 emissions are reported below (note different formula)

Note: emissions here are only for the diesel portion of the fuel, biogenic CO_2 emissions are reported below (note different formula)

Total Organization-Wide On-Road Gasoline Mobile Source Mileage and CH_4/N_2O Emissions

Vehicle Type	Vehicle Year	Mileage (miles)	CH_4 (g)	N_2O (g)
Passenger Cars - Gasoline	1984-93	0	0.0	0.0
	1994	0	0.0	0.0
	1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	0	0.0	0.0
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
	2019	0	0.0	0.0
	2020	23,400	117.0	31.6
	2021	0	0.0	0.0
	2022	0	0.0	0.0
	2023	0	0.0	0.0
	2024	0	0.0	0.0
Light-Duty Trucks - Gasoline (Vans, Pickup Trucks, SUVs)	1987-93	0	0.0	0.0
	1994	0	0.0	0.0
	1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0

	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	0	0.0	0.0
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
	2019	0	0.0	0.0
	2020	0	0.0	0.0
	2021	0	0.0	0.0
	2022	0	0.0	0.0
	2023	0	0.0	0.0
	2024	0	0.0	0.0
Heavy-Duty Vehicles - Gasoline	1985-86	0	0.0	0.0
	1987	0	0.0	0.0
	1988-1989	0	0.0	0.0
	1990-1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	0	0.0	0.0
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0

		2019	0	0.0	0.0
		2020	0	0.0	0.0
		2021	0	0.0	0.0
		2022	0	0.0	0.0
		2023	0	0.0	0.0
		2024	0	0.0	0.0
Motorcycles - Gasoline		1960-1995	0	0.0	0.0
		1996-2005	0	0.0	0.0
		2006-2024	0	0.0	0.0

Total Organization-Wide On-Road Non-Gasoline Mobile Source Mileage and CH_4/N_2O Emissions

Vehicle Type	Fuel Type	Vehicle Year	Mileage (miles)	CH_4 (g)	N_2O (g)
Passenger Cars - Diesel	Diesel	1960-1982	0	0.0	0.0
		1983-2006	0	0.0	0.0
		2007-2024	0	0.0	0.0
Light-Duty Trucks - Diesel	Diesel	1960-1982	0	0.0	0.0
		1983-2006	0	0.0	0.0
		2007-2024	23,400	678.6	500.8
Medium- and Heavy-Duty Vehicles -	Diesel	1960-2006	0	0.0	0.0
		2007-2024	0	0.0	0.0
Light-Duty Cars	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Light-Duty Trucks	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Medium-Duty Trucks	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Heavy-Duty Trucks	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Buses	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0

Total Organization-Wide Non-Road Mobile Source Fuel Usage and CH_4/N_2O Emissions

Vehicle Type	Fuel Type	Fuel Usage (gallons)	CH_4 (g)	N_2O (g)
Ships and Boats	Residual Fuel Oil	0	0.0	0.0
	Gasoline (2 stroke)	0	0.0	0.0
	Gasoline (4 stroke)	0	0.0	0.0

	Diesel	0	0.0	0.0
Locomotives	Diesel	0	0.0	0.0
Aircraft	Jet Fuel	0	0.0	0.0
	Aviation Gasoline	0	0.0	0.0
Agricultural Equipment	Gasoline (2 stroke)	0	0.0	0.0
	Gasoline (4 stroke)	0	0.0	0.0
	Gasoline Off-Road Trucks	0	0.0	0.0
	Diesel Equipment	0	0.0	0.0
	Diesel Off-Road Trucks	0	0.0	0.0
	LPG	0	0.0	0.0
Construction/Mining Equipment	Gasoline (2 stroke)	0	0.0	0.0
	Gasoline (4 stroke)	0	0.0	0.0
	Gasoline Off-Road Trucks	0	0.0	0.0
	Diesel Equipment	540	546.3	508.4
	Diesel Off-Road Trucks	0	0.0	0.0
	LPG	0	0.0	0.0
Lawn and Garden Equipment	Gasoline (2 stroke)	0	0.0	0.0
	Gasoline (4 stroke)	0	0.0	0.0
	Diesel	0	0.0	0.0
	LPG	0	0.0	0.0
Airport Equipment	Gasoline	0	0.0	0.0
	Diesel	0	0.0	0.0
	LPG	0	0.0	0.0
Industrial/Commercial Equipment	Gasoline (2 stroke)	0	0.0	0.0
	Gasoline (4 stroke)	0	0.0	0.0
	Diesel	0	0.0	0.0
	LPG	0	0.0	0.0
Logging Equipment	Gasoline (2 stroke)	0	0.0	0.0
	Gasoline (4 stroke)	0	0.0	0.0
	Diesel	0	0.0	0.0
Railroad Equipment	Gasoline	0	0.0	0.0
	Diesel	0	0.0	0.0
	LPG	0	0.0	0.0
Recreational Equipment	Gasoline (2 stroke)	0	0.0	0.0
	Gasoline (4 stroke)	240	653.1	355.7
	Diesel	0	0.0	0.0
	LPG	0	0.0	0.0

Total CO_2 Equivalent Emissions (metric tons) - Mobile Sources	**26.8**
Total Biomass CO_2 Equivalent Emissions (metric tons) - Mobile Sources	**0.0**

Post-construction

Back to Intro | Back to Summary | Help

EPA CENTER FOR CORPORATE CLIMATE LEADERSHIP
U.S. Environmental Protection Agency

Scope 1 Emissions from Mobile Sources

Guidance

(A) Enter annual data for each vehicle or group of vehicles (grouped by vehicle type, vehicle year, and fuel type) in ORANGE cells in **Table 1**. Example entry is shown in first row (GREEN *Italics*). Only enter vehicles owned or leased by your organization on this sheet. All other vehicle use such as employee commuting or business travel is considered a scope 3 emissions source and should be reported in the corresponding scope 3 sheets.

- *Note: The latest mobile combustion factors reflect year 2021 data. Therefore, for all vehicle model years 2022 onward, the 2021 year factor is used.*
- *Select "On-Road" or "Non-Road" from the drop down box to determine the Vehicle Types available. You* ***must make this selection before picking the vehicle type.***
- Select "Vehicle Type" from drop down box (closest type available).
- Enter "Fuel Usage" in appropriate units (units appear when vehicle type is selected).
  - If mileage or fuel usage is unknown, estimate using approximate fuel economy values from the manufacturer, www.fueleconomy.gov, or the Reference Table below.
  - Vehicle year and Miles traveled are not necessary for non-road equiment.

(B) When using biofuels, typically the biofuel (biodiesel or ethanol) is mixed with a petroleum fuel (diesel or gasoline) for use in vehicles. Enter the biodiesel and ethanol percentages of the fuel if known, or leave default values shown below.

Biodiesel Percent:	20	%
Ethanol Percent:	80	%

(C) Biomass CO_2 emissions from biodiesel and ethanol are not reported in the total emissions, but are reported separately at the bottom of the sheet.

Table 1. Mobile Source Fuel Combustion and Miles Traveled

Source ID	Source Description	On-Road or Non-Road?	Vehicle Type	Vehicle Year	Fuel Usage	Units	Miles Traveled
ATV 1	Equipment	NonRoad	Recreational Equipment - Gasoline (4 stroke)	2020	2,520	gal	20

Reference Table: Average Fuel Economy by Vehicle Type

Vehicle Type	Average Fuel Economy (mpg)
Passenger Cars	24.8
Other 2-Axle, 4-Tire Vehicles	18.1
Motorcycles	44.0
Single unit 2-Axle 6-Tire or More Trucks	7.9
Combination Trucks	6.9
Diesel Buses (Diesel Heavy-Duty Vehicles)	7.4

Average mpg values from the U.S. Department of Transportation, Federal Highway Administration, Highway Statistics 2022 (Updated February 2024), Table VM-1.

GHG Emissions

Total Organization-Wide Mobile Source Fuel Usage and CO_2 Emissions (On-Road and Off-Road Vehicles)

Fuel Type	Fuel Usage	Units	CO_2 (kg)	
Motor Gasoline	2,520	gallons	22,126	
Diesel Fuel	0	gallons	0	
Residual Fuel Oil	0	gallons	0	
Aviation Gasoline	0	gallons	0	
Kerosene-Type Jet Fuel	0	gallons	0	
Liquefied Petroleum Gases (LPG)	0	gallons	0	
Ethanol	0	gallons	0	*Note: emissions here are only for the ga*
Biodiesel	0	gallons	0	*Note: emissions here are only for the di*
Liquefied Natural Gas (LNG)	0	gallons	0	
Compressed Natural Gas (CNG)	0	scf	0	

Total Organization-Wide On-Road Gasoline Mobile Source Mileage and CH_4/N_2O Emissions

Vehicle Type	Vehicle Year	Mileage (miles)	CH_4 (g)	N_2O (g)
Passenger Cars - Gasoline	1984-93	0	0.0	0.0
	1994	0	0.0	0.0
	1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	0	0.0	0.0
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
	2019	0	0.0	0.0
	2020	0	0.0	0.0
	2021	0	0.0	0.0
	2022	0	0.0	0.0
	2023	0	0.0	0.0
	2024	0	0.0	0.0
Light-Duty Trucks - Gasoline	1987-93	0	0.0	0.0
(Vans, Pickup Trucks, SUVs)	1994	0	0.0	0.0
	1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	0	0.0	0.0
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
	2019	0	0.0	0.0
	2020	0	0.0	0.0
	2021	0	0.0	0.0

		2022	0	0.0	0.0
		2023	0	0.0	0.0
		2024	0	0.0	0.0
Heavy-Duty Vehicles - Gasoline		1985-86	0	0.0	0.0
		1987	0	0.0	0.0
		1988-1989	0	0.0	0.0
		1990-1995	0	0.0	0.0
		1996	0	0.0	0.0
		1997	0	0.0	0.0
		1998	0	0.0	0.0
		1999	0	0.0	0.0
		2000	0	0.0	0.0
		2001	0	0.0	0.0
		2002	0	0.0	0.0
		2003	0	0.0	0.0
		2004	0	0.0	0.0
		2005	0	0.0	0.0
		2006	0	0.0	0.0
		2007	0	0.0	0.0
		2008	0	0.0	0.0
		2009	0	0.0	0.0
		2010	0	0.0	0.0
		2011	0	0.0	0.0
		2012	0	0.0	0.0
		2013	0	0.0	0.0
		2014	0	0.0	0.0
		2015	0	0.0	0.0
		2016	0	0.0	0.0
		2017	0	0.0	0.0
		2018	0	0.0	0.0
		2019	0	0.0	0.0
		2020	0	0.0	0.0
		2021	0	0.0	0.0
		2022	0	0.0	0.0
		2023	0	0.0	0.0
		2024	0	0.0	0.0
Motorcycles - Gasoline		1960-1995	0	0.0	0.0
		1996-2005	0	0.0	0.0
		2006-2024	0	0.0	0.0

Total Organization-Wide On-Road Non-Gasoline Mobile Source Mileage and CH_4/N_2O Emissions

Vehicle Type	Fuel Type	Vehicle Year	Mileage (miles)	CH_4 (g)	N_2O (g)
Passenger Cars - Diesel	Diesel	1960-1982	0	0.0	0.0
		1983-2006	0	0.0	0.0
		2007-2024	0	0.0	0.0
Light-Duty Trucks - Diesel	Diesel	1960-1982	0	0.0	0.0
		1983-2006	0	0.0	0.0
		2007-2024	0	0.0	0.0
Medium- and Heavy-Duty Vehicles -	Diesel	1960-2006	0	0.0	0.0
		2007-2024	0	0.0	0.0
Light-Duty Cars	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Light-Duty Trucks	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Medium-Duty Trucks	CNG		0	0.0	0.0
	LPG		0	0.0	0.0

Medium-Duty Trucks	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Heavy-Duty Trucks	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Buses	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0

Total Organization-Wide Non-Road Mobile Source Fuel Usage and CH_4/N_2O Emissions

Vehicle Type	Fuel Type	Fuel Usage (gallons)	CH_4 (g)	N_2O (g)
Ships and Boats	Residual Fuel Oil	0	0.0	0.0
	Gasoline (2 stroke)	0	0.0	0.0
	Gasoline (4 stroke)	0	0.0	0.0
	Diesel	0	0.0	0.0
Locomotives	Diesel	0	0.0	0.0
Aircraft	Jet Fuel	0	0.0	0.0
	Aviation Gasoline	0	0.0	0.0
Agricultural Equipment	Gasoline (2 stroke)	0	0.0	0.0
	Gasoline (4 stroke)	0	0.0	0.0
	Gasoline Off-Road Trucks	0	0.0	0.0
	Diesel Equipment	0	0.0	0.0
	Diesel Off-Road Trucks	0	0.0	0.0
	LPG	0	0.0	0.0
Construction/Mining Equipment	Gasoline (2 stroke)	0	0.0	0.0
	Gasoline (4 stroke)	0	0.0	0.0
	Gasoline Off-Road Trucks	0	0.0	0.0
	Diesel Equipment	0	0.0	0.0
	Diesel Off-Road Trucks	0	0.0	0.0
	LPG	0	0.0	0.0
Lawn and Garden Equipment	Gasoline (2 stroke)	0	0.0	0.0
	Gasoline (4 stroke)	0	0.0	0.0
	Diesel	0	0.0	0.0
	LPG	0	0.0	0.0
Airport Equipment	Gasoline	0	0.0	0.0
	Diesel	0	0.0	0.0
	LPG	0	0.0	0.0
Industrial/Commercial Equipment	Gasoline (2 stroke)	0	0.0	0.0
	Gasoline (4 stroke)	0	0.0	0.0
	Diesel	0	0.0	0.0
	LPG	0	0.0	0.0
Logging Equipment	Gasoline (2 stroke)	0	0.0	0.0
	Gasoline (4 stroke)	0	0.0	0.0
	Diesel	0	0.0	0.0
Railroad Equipment	Gasoline	0	0.0	0.0
	Diesel	0	0.0	0.0
	LPG	0	0.0	0.0
Recreational Equipment	Gasoline (2 stroke)	0	0.0	0.0
	Gasoline (4 stroke)	2520	6857.4	3734.7
	Diesel	0	0.0	0.0
	LPG	0	0.0	0.0

Total CO_2 Equivalent Emissions (metric tons) - Mobile Sources	**23.3**

Total Biomass CO_2 Equivalent Emissions (metric tons) - Mobile Sources	0.0

APPENDIX H

Northwoods Regional Trail System ATV Traffic Counts

Northwoods ATV Regional Trail system: Traffic counts 2019-2022

Year	Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Season Total	AVG. Monthly use		
2019	Axtell					**2,420**	**1,322**	**1,507**	**1,895**	**977**	**1,130**		9,251	**1,542**		
	Berglund Soo Line										*688*	*122*	810	**405**		
	Blind Lake Connector					*558*	244	313	410	308	207		2,040	340		
	Hill City Connector					*1,339*	1,496	862	1,434	827	597		6,555	1,092		
	Lawler Loops					*450*	325	423	472	*495*			2,165	433		
	Lawler Soo Line										*111*	*58*	169	85		
	Rabey Line					*298*	535	285	404	376	219		2,117	353		
	Solona Loop					*1,381*	803	906	1,045	*1,433*			5,568	1,114		
	Solona Soo Line										*1,013*	*345*	1,358	679		
	Swatara Soo Line										*558*	*403*	961	480	***30,994***	**All trails year total**

Year	Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Season Total	AVG. Monthly use		
2020	Axtell					**2,065**	**2,207**	**2,619**	**2,497**	**2,471**	**1,384**		13,241	**2,207**		
	Berglund Soo Line				*360*	*1,005*	*1,142*	1,415	1,122	1,163	*1,178*		7,024	**1,171**		
	Blind Lake Connector					*515*	*450*	*581*					1,546	515		
	Hill City Connector					*93*	*1,548*	1,385	*1,946*	*2,075*	996	24	8,066	1,152		
	Lawler Loops						*579*	*531*	*667*	*1,067*	*804*		3,647	729		
	Lawler Soo Line				*75*	371	429	492	*448*				1,740	435		
	Rabey Line					*429*	624	537	*735*	*738*	*495*		3,558	593		
	Red Top					*4,079*	2,542	2,421	*2,866*				11,907	2,977		
	Red Top Soo Line					*2,040*	1,491	1,629	1,883	2,010	*1,269*		10,322	1,720		
	Solona Loop					*1,648*	2,201	*1,744*	2,104	2,438	*1,884*		12,019	2,003		
	Solona Soo Line					*1,608*		*1,729*	*1,645*	2,154	*1,366*		8,502	1,700	***81,573***	**All trails year total**
													81,573			

Year	Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Season Total	AVG. Monthly use
2021	Axtell					**2,455**	**1,069**	**2,442**	**1,133**	**1,705**	**1,163**	**170**	10,137	1,448
	Berglund Soo Line						*966*	1,105	1,112	937	658	*163*	4,941	824
	Blind Lake Connector						*420*	*531*	*604*	1,737	*3,599*		6,891	1,378
	Hill City Connector					1,552	*1,374*	1,376	1,371	2,126	1,788	*22*	9,608	1,373
	Lawler Loops					*835*	*389*	*596*	*276*	*105*		*3,142*	5,343	891
	Lawler Soo Line						*383*	540	*389*	*406*	419	*53*	2,190	365
	Rabey Line					*792*	*413*						1,206	603
	Rat Lake ATV							*0*	1	707	*2,467*		3,175	794
	Red Top						*1,776*	*3,482*	*2,044*	*3,643*			10,944	2,736
	Red Top Soo Line						*450*	*1,587*	1,252	1,840	1,239	*287*	6,655	1,109
	Solona Loop						*1,101*	1,781	1,388	1,866	1,367	*377*	7,879	1,313

Northwoods ATV Regional Trail system: Traffic counts 2019-2022

	Solona Soo Line					1,991	885	1,562	*1,746*	2,006	1,499	*403*	10,093	1,442		
	Swatara Soo Line						*1,830*	874	805	1,187	1,304	*150*	6,150	1,025	***85,213***	**All trails year total**
													85,213			

Year	Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov				
2022	Axtell					*1,895*		*1,932*	1,883	*1,850*			7,559	**1,890**		
	Berglund Soo Line					*966*	726	2,217	1,234	1,173	745	*195*	7,256	1,037		
	Blind Lake Connector					*2,155*	646	2,534	2,429	3,478	2,660	*265*	14,167	2,024		
	Hill City Connector					*1,710*	*1,256*						2,966	1,483		
	Lawler Loops					*579*	*335*						914	457		
	Lawler Soo Line					*671*	279	488	439	*541*			2,418	484		
	Rabey Line					*460*	543	630	612	620	*1,039*		3,904	651		
	Rat Lake ATV					*372*	557	*1,222*	680	559	629	*520*	4,539	648		
	Red Top					*4,981*	3,540	*5,041*	*4,040*	3,929	3,787	*465*	25,783	3,683		
	Red Top Soo Line					*1,219*	878	1,301	*1,297*	1,000	979	*220*	6,893	985		
	Solona Loop					*2,098*	1,007	1,438	1,259	1,775	1,674	*675*	9,926	1,418		
	Solona Soo Line					*1,939*	989	1,524	*1,424*	1,689	1,581	*405*	9,551	1,364		
	Swatara Soo Line					*1,541*	1,529	2,630	*2,418*				8,118	2,030	***103,994***	**All trails year total**
													103,994			

Year	Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Season Total	AVG. Monthly use
2023	Axtell					*2,466*	*420*	2,295	1,691	2,087	*1,322*		10,281	**1,713**
	Berglund Soo Line					*1,533*	*654*	1,769	1,857	563	*1,381*		7,757	1,293
	Blind Lake Connector					*2,297*	1,686	2,983	1,817	2,411	*2,545*		13,740	2,290
	Emily Blind Lake						*1,512*	*2,075*	1,443	2,003	*1,488*		8,522	1,704
	Hill City Connector					*2,049*	1,311	2,042	1,257	1,540	*1,310*		9,510	1,585
	Lawler Loops						*368*	620	480	*945*			2,413	603
	Lawler Soo Line						*503*	553	458	592	*408*		2,514	503
	Rabey Line						*599*	366	457	673	*657*		2,751	550
	Rat Lake ATV					*731*	487	820	589	1,019	*671*		4,317	719

Northwoods ATV Regional Trail system: Traffic counts 2019-2022

	Red Top				*5,701*	3,289	4,244	*3,329*				16,563	4,141		
	Red Top Soo Line					*925*	1,804	*1,340*				4,069	1,356	***117,614***	**All trails year total**
	Solona Loop				*2,536*	1,142	*1,947*	*1,335*	1,479	*1,465*		9,904	1,651		
	Solona Soo Line				*2,379*	1,101	*2,652*	1,099	*1,578*			8,810	1,762		
	Swatara Soo Line				*3,087*	2,315	5,594	2,399	1,678	*1,392*		16,465	2,744		
												117,614			

Year	Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Total	use		
2024	Axtell					2,177	1,291	2,149	2,299	2,020	*1,838*		11,774	**1,962**		
	Berglund Soo Line					*3,904*	1,744	2,339	*1,754*	1,518	*1,771*		13,030	2,172		
	Blind Lake Connector					*4,259*	1,968	2,296	1,824	2,595	*3,561*		16,503	2,750		
	Emily Blind Lake					*1,229*	1,680	*1,841*					4,750	1,583		
	Hill City Connector					1,351	*2,188*	*1,218*	1,392	1,565	*2,046*		9,760	1,627		
	Lawler Loops					*1,034*	*1,791*	*474*	*389*				3,688	922		
	Lawler Soo Line					*671*	377	410	*517*				1,975	494		
	Rabey Line					562	689	725	597	1,012	*1,058*		4,643	774		
	Rat Lake ATV					573	480	852	458	939	*1,120*		4,422	737		
	Red Top					2,728	3,301	*4,224*	*3,038*				13,291	3,323		
	Red Top Soo Line					*3,841*	1,628	1,810	1,715	1,782	*1,705*		12,481	2,080	***127,508***	**All trails year total**
	Solona Loop					1,261	1,220	1,287	1,593	1,585	*1,289*		8,235	1,372		
	Solona Soo Line					2,090	1,538	*1,532*	1,580	1,685	*1,408*		9,834	1,639		
	Swatara Soo Line					*4,778*	1,299	1,448	1,900	1,768	*1,930*		13,123	2,187		
													127,508			