

PUBLIC NOTICE

NOTICE OF DECISION OF NORTHWOODS REGIONAL ATV TRAIL PHASE 1A & 1B Malmo, Jewett, White Pine and Millward Townships Aitkin County, Minnesota

On May 13, 2025 the Aitkin County Board of Commissioners determined that an Environmental Impact Statement for the Northwoods Regional ATV Trail Phase 1A & 1B is not required. The justification for this determination is contained in the Record of Decision. The Record of Decision also contains the responses to all substantive written comments received on the EAW during the 30 day public review and comment period.

Issuing this Record of Decision concludes the state environmental review process for this project according to Minn. 4410.1000 to 4410.1700.

The Record of Decision is posted on the Aitkin County website at:
<https://www.co.aitkin.mn.us/notices/> . Hard copies are available upon request or can be viewed at the Aitkin County Planning & Zoning office during normal business hours at 307 2nd Street NW Room 219, Aitkin MN 56431.

Aitkin County Planning and Zoning

CERTIFIED COPY OF RESOLUTION OF COUNTY BOARD OF AITKIN COUNTY, MINNESOTA

ADOPTED May 13, 2025

By Commissioner: Sample

20250513-062

EAW Record of Decision - Aitkin County Northwoods Regional ATV Trail Phase 1A & 1B

BE IT RESOLVED, the Aitkin County Board of Commissioners agrees to approve the Record of Decision for the Aitkin County Northwoods Regional ATV Trail Phase 1A & 1 B, noting that an Environmental Impact Statement is not required for the project.

Commissioner Kearney seconded the adoption of the resolution and it was declared adopted upon the following vote

FIVE MEMBERS PRESENT

All Members Voting Yes

**STATE OF MINNESOTA}
COUNTY OF AITKIN}**

I, John Welle, County Engineer, Aitkin County, Minnesota do hereby certify that I have compared the foregoing with the original resolution filed in the Administration Office of Aitkin County in Aitkin, Minnesota as stated in the minutes of the proceedings of said Board on the 13th day of May 2025, and that the same is a true and correct copy of the whole thereof.

Witness my hand and seal this 13th day of May 2025

John Welle Digitally signed by John Welle
Date: 2025.05.14 06:39:19 -0500

John Welle
County Engineer



Board of County Commissioners Agenda Request



Requested Meeting Date: May 13, 2025

Title of Item: Approve Northwoods Regional ATV Trail Phase 1A & 1B EAW

<input checked="" type="checkbox"/> REGULAR AGENDA <input type="checkbox"/> CONSENT AGENDA	Action Requested: <input checked="" type="checkbox"/> Approve/Deny Motion <input type="checkbox"/> Adopt Resolution (attach draft) <input type="checkbox"/> Hold Public Hearing <i>*provide copy of hearing notice that was published</i>	<input type="checkbox"/> Direction Requested <input type="checkbox"/> Discussion Item <input type="checkbox"/> Information Only
Submitted by: Andrew Carlstrom		Department: Environmental Services
Presenter (Name and Title): Andrew Carlstrom, Environmental Services Director		Estimated Time Needed: 5 Minutes
Summary of Issue: An Environmental Assessment Worksheet is required for the Northwoods Regional ATV Trail Phase 1A & 1B in accordance with MN Statute 4410.4300 Subpart 27(B)- Public Waters, Public Water wetlands, and wetlands. the assessment has been completed, published, and reviewed by the EAW Committee. Attached are the public notices, public comments, the Findings of Fact, and Record of Decision for Board approval.		
Alternatives, Options, Effects on Others/Comments:		
Recommended Action/Motion: Motion to approve EIS Record of Decision.		
Financial Impact: <i>Is there a cost associated with this request?</i> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>What is the total cost, with tax and shipping? \$</i> <i>Is this budgeted?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No <i>Please Explain:</i>		

Legally binding agreements must have County Attorney approval prior to submission.

RECORD OF DECISION

In the matter of determination of need for an Environmental Impact Statement for the Northwoods Regional ATV Trail Phase 1A & 1B. Aitkin County, Minnesota

**Findings of Fact,
Conclusions, and
Order**

Findings Of Fact

- 1) The Aitkin County Land Department prepared an Environmental Assessment Worksheet (EAW) for the proposed phases 1A & 1B of the Northwoods Regional Trail, pursuant to Minnesota Rules 4410.4300, Subpart. 37-A.
- 2) The EAW was filed with the Environmental Quality Board (EQB) and notice of availability was published in the EQB Monitor on March 25, 2025. The EAW was made available on the Aitkin County website: <https://www.co.aitkin.mn.us/notices/pdf/public-notice/Northwoods%20ATV%20Trail%20EAW.pdf>. A press release announcing the availability of the EAW was published in the Aitkin Age March 26, 2025 and the Mille Lacs Messenger on March 26, 2025.
- 3) The 30 day EAW public review and comment period began March 25, 2025 and ended on April 25, 2025.
- 4) The EAW is incorporated by reference into this Record of Decision on the Determination of Need for an Environmental Impact Statement.
- 5) The proposed project is to construct an ATV trail on 40.95 acres between Malmo and Millward Township in Aitkin County. 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).
- 6) During the 30 day public review and comment period, the Aitkin County Planning and Zoning Department received comments on the EAW from the MPCA, MNDOT, and MN DNR.
- 7) The EAW Committee reviewed and discussed the comments on May 5, 2025. Their findings and comments are below in red.
- 8) The following summarized comments were submitted by **Chris Green of the MPCA**:
A. Project will require a NPDES Construction Storm Water Permit to include volume reduction practices such as infiltration.

Understood. In the final plan a NPDES CSW Permit will be required for the project and volume reduction practices, which includes addressing infiltration.

- 9) The following summarized comments were submitted by **Tom Cruikshank (District 3) of MNDOT**:
A. District 3 staff have not yet been provided construction engineering plans for MNDOT highway ROW.

Construction engineering plans will be included in final plan.

B. District 3 staff will need to review any proposed trail construction within MNDOT ROW and be authorized with either Limited Use Permit and/or Maintenance Agreement.

Noted by staff.

The following summarized comments were submitted by **Maren Webb (District 1) of MNDOT:**

A. Trails constructed within trunk highway ROW should be located as close to ROW lines as possible and on backslope beyond ditch section.

Noted. Not applicable.

B. Screening may be required in ROW to reduce glare from headlights at night.

Noted.

C. Any water crossings within ROW must not interfere with existing drainage patterns.

Noted.

D. Wetland impacts will need permitting and be mitigated prior to land use permit issue by MPCA.

Noted.

10) The following summarized comments were submitted by **Jessica Parson of the MN DNR:**

A. Solana State Forest Trail Planning: DNR currently reviewing potential user conflicts. Ensure sufficient communication and coordination for long-term compatibility and sustainability.

Noted. Aitkin County staff to coordinate with the DNR on potential user conflicts.

B. Forest Roads: Increased ATV/OHV use will result in more needed maintenance. Recommend avoiding state forest roads if possible and proposer must pay for poor road conditions. Describe a plan on how to address maintenance costs. Maintenance needs are grossly underestimated in EAW and should be discussed more.

Noted. Aitkin County conducts annual trail assessments, and maintenance needs of the trail are included in that.

1. Figures and Maps in EAW. Item 6b table totals inaccurate and needs updates recommended by DNR.

Noted.

2. Post construction plan. Update maps as recommended by DNR.

Noted.

C. Safety Concerns: DNR recommends trail intersection markings for navigation and emergency vehicles. Logging and hauling leases on West & East White Pine State Forest Roads.

All trails will be flagged and marked.

D. Use Considerations: Increased signage, barriers, and additional monitoring to protect multi-recreational uses. Malmo and Millward Townships should be kept up-to-date. Items 20b & 20c contradictions on number of trailheads. Anticipated increased public use resulting in further planned operations.

All GIA funding require annual trail assessments which Aitkin County will conduct yearly. Malmo and Millward Townships will be kept up-to-date on developments. Items 20b and 20c figures will be updated in final plans. Trails will be monitored often, and annual trail damage assessments will be conducted.

E. Mineral Concerns: Access to minerals must be preserved.

No trails will be blocked by Aitkin County as all lands and mineral rights belong to the State of Minnesota.

F. Invasive Species Prevention and Soil Concerns: Increased ATV/OHV may contribute to additional invasive species and soil concerns.

1. Invasive Species: DNR requests additional invasive species and prevention and management plan be presented.

Performance of annual trail maintenance checks, integrated pest management, and educational information provided on ATV trail kiosks will contribute to deterring the spreading of invasive species.

2. Soils: DNR requesting more detail in excavated estimated volume and acreage impacted as well as construction methods.

Noted. Will be included in final construction plan.

G. Wetlands and Waterbodies: DNR concerns of proposed trails through public water wetlands and public ditch (Map 23 & Map 54). Determine if public water works permit needed for wetlands and if altered watercourse permit is needed for ditching alteration. DNR requests more information via more wetland delineations in Phase 1A, as well as impacts in Phase 1B. DNR requests cumulative potential effects for wetland impacts.

A Wetland Replacement Plan for Phase 1A is currently in-progress. A separate Wetland Replacement Plan will be completed for Phase 1B once the wetland delineation is completed. No altered watercourses are planned. Phase 1B will include minor re-routing, wetland public permitting, and proposed construction will be included I final plan.

H. Rare Features & Wildlife:

1. 14a: DNR requests impacts to S1-S3 plant communities. Archeological survey?

Proposer has contracted with Midwest Natural Resources and Duluth Archeology for rare plant and archeology surveys.

2. 14b: DNR requests a rare plant survey.

See above. The results of the rare plant survey will be shared with the DNR and recommendations on potential changes to the existing route will be discussed.

3. 14d: Tree removal avoidance from November 15 to March 31. Avoid impacting the long-eared bat and little brown myotis. Concerns of noise disturbance. Avoidance of vernal pools.

Tree removal will be avoided to the extent practical, from March 31 to November 15 each year. However, there are no know hibernaculum or bat nesting areas within the Project Area and Aitkin County has a Habitat Conservation Plan and an Incidental Take Permit. Therefore, if needed some tree removal may take place during the avoidance timeframe indicated above.

I. Next Steps: DNR recommends more discussion and planning as to how this project fits into the Solana State Forest Trail Planning effort. Additional information on proposed route and additional route segments are needed.

On-going discussions will be held with DNR Forest Planner.

CONCLUSIONS

- 1) The Aitkin County Planning and Zoning Department has fulfilled all the procedural requirements of law and rule applicable to the need for an Environmental Impact Statement on the proposed Northwoods Regional ATV Trail Phase 1A & 1B.
- 2) The identified environmental effects of the project are minor.
- 3) There are no elements of the project that pose the potential for significant environmental effects that cannot be addressed through permit and regulatory processes.
- 4) Based on consideration of the criteria and factors specified in the Minnesota Environmental Review Program Rules to determine whether a project has the potential for significant environmental effects, and on the findings and record in this matter, Aitkin

County determines that the proposed Northwoods Regional ATV Trail Phase 1A & 1B does not have the potential for significant environmental effects.

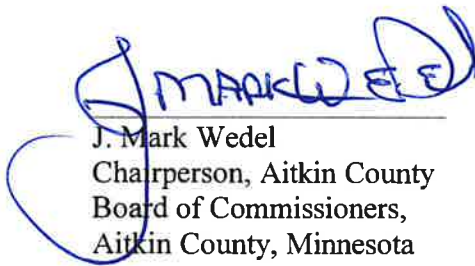
- 5) An Environmental Impact Statement on the proposed Northwoods Regional ATV Trail Phase 1A & 1B is not required.
- 6) That any Findings that might properly be termed Conclusions and any Conclusions that might properly be termed Findings are hereby adopted as such.

ORDER

Based on the above Findings of Fact and Conclusions:

Aitkin County determines that an Environmental Impact Statement is not required for the Northwoods Regional ATV Trail Phase 1A & 1B.

Dated 13th day of May, 2025.


J. Mark Wedel
Chairperson, Aitkin County
Board of Commissioners,
Aitkin County, Minnesota

Public Notice

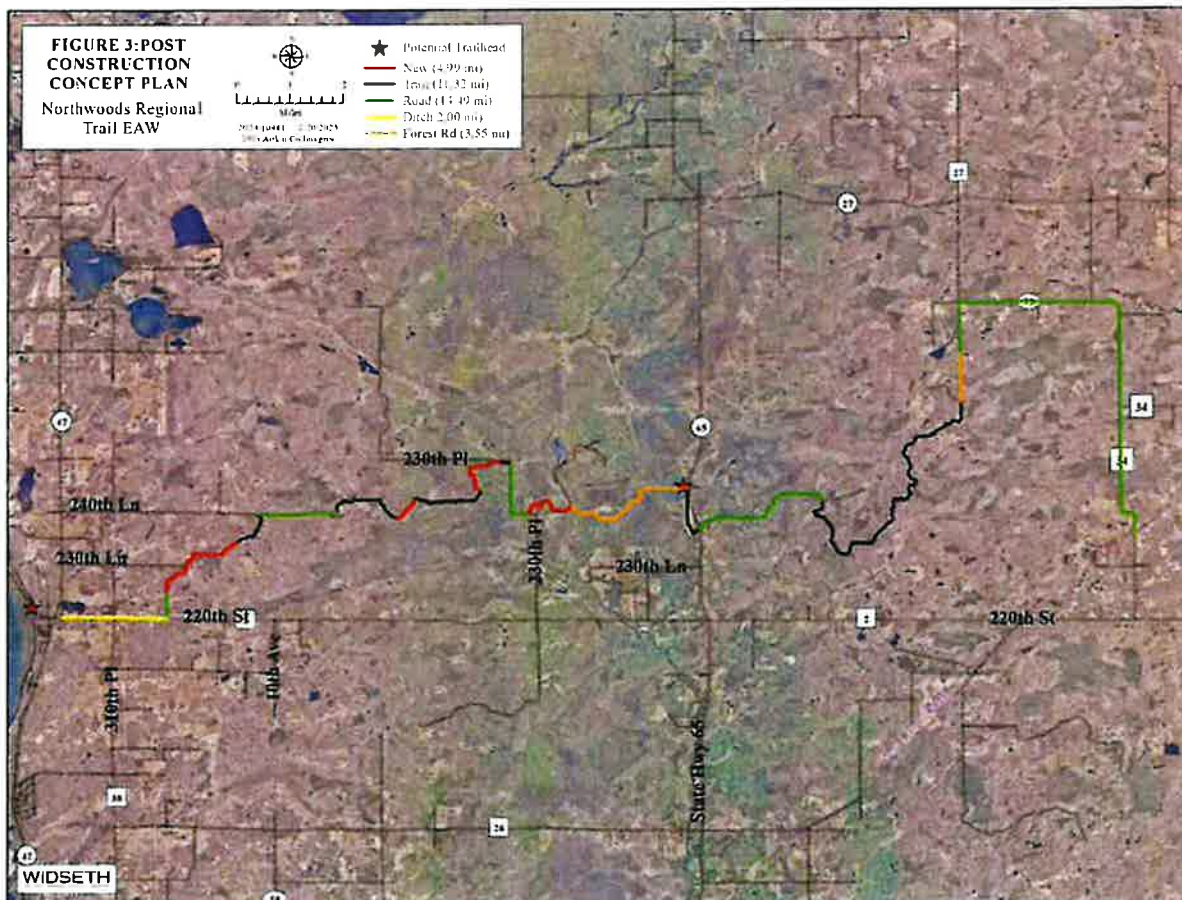
Environmental Assessment Worksheet (EAW) Available for Comment Northwoods Regional Trail Phase 1A & 1B Malmo, Jewett, White Pine and Millward Townships Aitkin County, Minnesota

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





EAST CENTRAL MINNESOTA

Ad Proof
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-Public Notice Ad Proof-

This is the proof of your ad scheduled to run on the dates indicated below. Please proof read carefully. If changes are needed, please contact us prior to deadline at Cambridge (763) 691-6000 or email at publicnotice@apgecm.com

Date: 03/19/25

Account #: 485996

Customer: AITKIN COUNTY PLANNING &
ZONING

Address: 307 2ND ST NW, ROOM 219
AITKIN

Telephone: (218) 927-3761

Fax: (218) 927-4372

Publications:

Mille Lacs Messenger

Ad ID: 1458892

Copy Line: March 25 EAW Public Comment

PO Number:

Start: 03/26/25

Stop: 03/26/2025

Total Cost: \$186.00

of Lines: 67

Total Depth: 7.556

of Inserts: 1

Ad Class: 120

Phone # (763) 691-6000

Email: publicnotice@apgecm.com

Rep No: ML700

**AITKIN COUNTY
PUBLIC NOTICE**

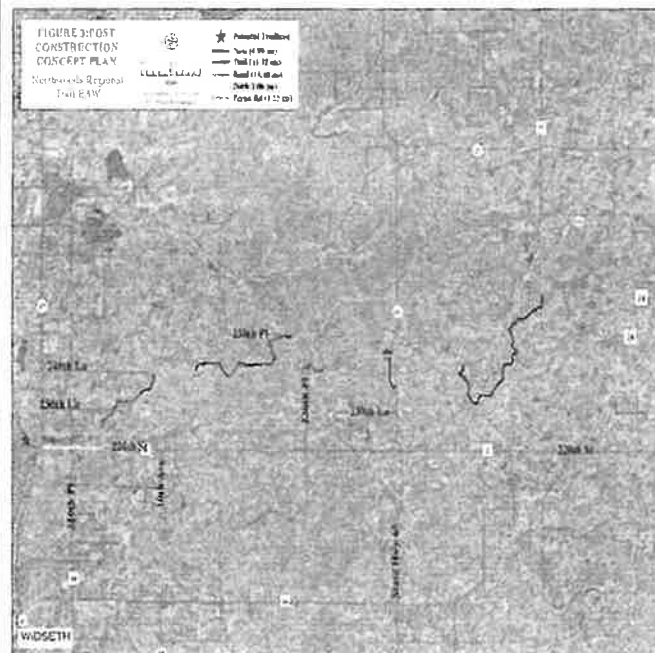
**ENVIRONMENTAL ASSESSMENT WORKSHEET
(EAW) AVAILABLE FOR COMMENT
NORTHWOODS REGIONAL TRAIL PHASE 1A & 1B
MALMO, JEWETT, WHITE PINE AND
MILLWARD TOWNSHIPS
AITKIN COUNTY, MINNESOTA**

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andrew.carlstrom@aitkingcountymn.gov



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Mille Lacs Messenger
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Ad: 1

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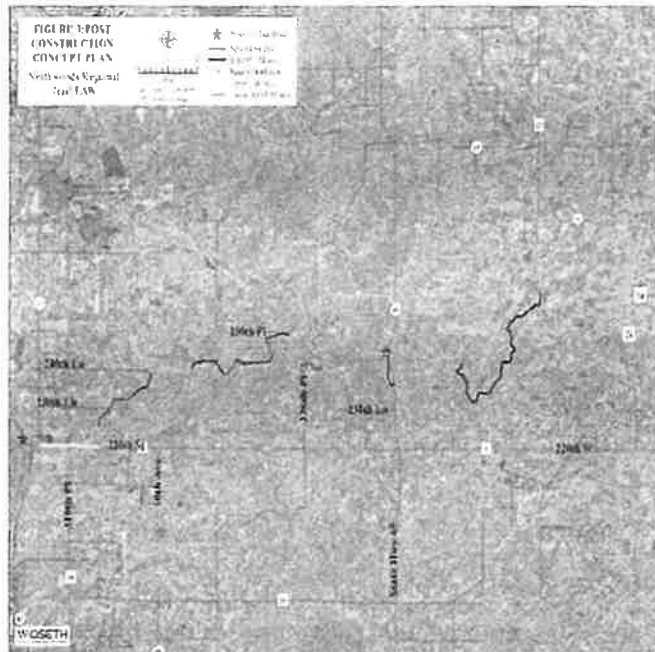
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Account #: 485996

Customer: AITKIN COUNTY PLANNING &
ZONING

Address: 307 2ND ST NW, ROOM 219
AITKIN

Telephone: (218) 927-3761

Fax: (218) 927-4372

Publications:

Aitkin Independent Age

Ad ID: 1458415

Copy Line: March 25 EAW Public Comment

PO Number:

Start: 03/26/25

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Total Cost: \$139.50

of Lines: 67

Total Depth: 7.556

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PUBLIC NOTICE**

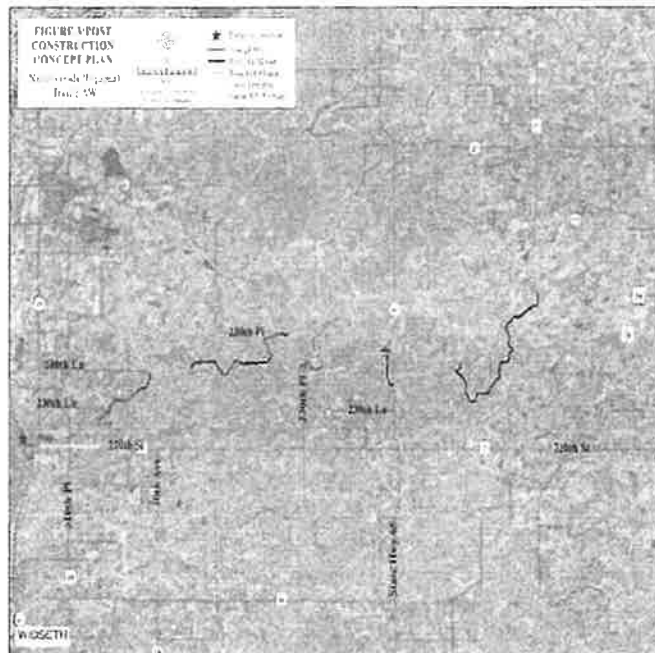
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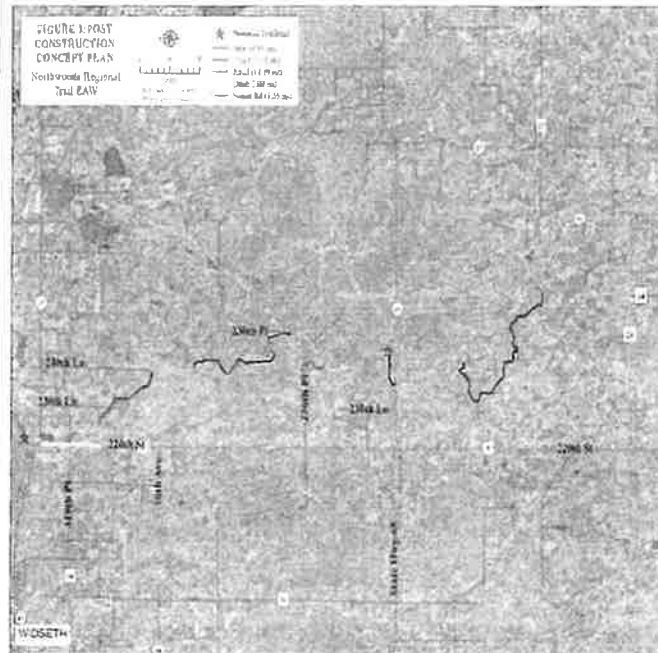
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307 2nd St NW
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Published in the
Aitkin Independent Age
March 26, 2025
1458415

Andrew Carlstrom

From: Webb, Maren (She/Her/Hers) (DOT) <Maren.Webb@state.mn.us>
Sent: Friday, April 25, 2025 2:55 PM
To: Andrew Carlstrom
Cc: Anderson, Bryan (DOT); Lind, Katherine (DOT); Voss, Steven (DOT); Erickson, Tad (DOT); Cruikshank, Thomas (DOT)
Subject: RE: MnDOT D3 Comments_RE: Aitkin County- EAW Available for Comment-Northwoods Regional ATV Trail

[**NOTICE:** This message originated outside of the Aitkin County Mail System -- **DO NOT CLICK** on links or open **attachments** unless you are sure the content is safe.]

Good afternoon, Andrew,

Thank you for the opportunity to comment on the Northwoods Regional ATV Trail EAW. While the proposer will be required to go through the limited use permit (LUP) process for any trail development within MnDOT right of way (ROW), it is helpful to provide feedback proactively before a LUP application is developed. The comments provided below are focused on proposed use of MnDOT ROW, as the transportation impacts (section 20. Transportation) are expected to be minor and dispersed in regards to impacts to the trunk highway. As District 3 mentioned in their comments, this proposed trail does impact MnDOT ROW within District 1 and District 3.

For instances when the trail may be proposed within MnDOT ROW:

- Any trail located within the trunk highway ROW should be located as close to the ROW line as possible. At a minimum it should be located on the backslope beyond the ditch section.
- Screening may be required for some or all of the trail within the ROW. The trail will be a two way trail that can be used at night. Screening addresses headlight glare and alleviates driver confusion with oncoming headlights being on the wrong side of the road.
- If there are water crossings needed as part of the trail development within ROW, they will need to be designed to not interfere with existing drainage patterns. In general, existing drainage patterns should be maintained.
- Wetland impacts will need to be permitted and mitigated prior to an LUP being issued by MnDOT.

Please reach out with any questions.

Thank you,
Maren Webb

Maren Webb, MPP
she/her/hers
Principal Planner | District 1

Minnesota Department of Transportation
1123 Mesaba Avenue
Duluth, MN 55811
218-725-2742
maren.webb@state.mn.us
mndot.gov/



DRIVING TRANSPORTATION RESEARCH
TECHNICAL ADVISORY PANEL MEMBER

From: Anderson, Bryan (DOT) <bryan.anderson@state.mn.us>
Sent: Monday, March 24, 2025 11:02 AM
To: Webb, Maren (She/Her/Hers) (DOT) <Maren.Webb@state.mn.us>
Subject: FW: MnDOT D3 Comments_RE: Aitkin County- EAW Available for Comment- Northwoods Regional ATV Trail

FYI

From: Cruikshank, Thomas (DOT) <Thomas.Cruikshank@state.mn.us>
Sent: Monday, March 24, 2025 11:01 AM
To: andrew.carlstrom@aitkincountymn.gov
Cc: Lind, Katherine (DOT) <Katherine.Lind@state.mn.us>; Voss, Steven (DOT) <steve.voss@state.mn.us>; Anderson, Bryan (DOT) <bryan.anderson@state.mn.us>; Erickson, Tad (DOT) <Tad.Erickson@state.mn.us>
Subject: MnDOT D3 Comments_RE: Aitkin County- EAW Available for Comment- Northwoods Regional ATV Trail

Hello Andrew,

MnDOT District 3 staff received this EAW notice for review and comment. As you probably know this trail traverses two MnDOT District planning areas – District 3 and 1. Bryan Anderson and D1 staff may also wish to provide comment. District 3 staff would like to provide comment pertaining more to the Malmo end of the trail. For the past couple of years our District functional area staff members have been involved in meetings with Aitkin County staff and trail supporters on extension of the Northwoods trail south from Malmo along the east side of Mille Lacs Lake between the lake and Highway 47 to the Mille Lacs County line. No recent conversations or meetings on this proposed trail have occurred. Also, MnDOT District 3 staff have not been provided construction engineering plans for review in MnDOT ROW which would be necessary to determine constructability.

This EAW for the east/west Northwoods Trail would ideally be included in a county wide motorized trail plan to include connections at the ends to adjoining trails within the county or neighboring counties. In addition, any work within MnDOT ROW would need to be reviewed by District staff and any trail construction within MnDOT ROW would need to be authorized by either Limited Use Permit and/or Maintenance Agreement.

Reach out with any questions or if we can be of any assistance.

Tom Cruikshank
Principal Planner | District 3
3725 12th Street North, St. Cloud, MN 56303-2107
Phone: (320) 223-6526 | Cell: (320) 267-9859
Email: thomas.cruikshank@state.mn.us



From: Lind, Katherine (DOT) <Katherine.Lind@state.mn.us>

Sent: Wednesday, March 19, 2025 9:53 AM

To: Anderson, Bryan (DOT) <bryan.anderson@state.mn.us>; Cruikshank, Thomas (DOT) <Thomas.Cruikshank@state.mn.us>; Voss, Steven (DOT) <steve.voss@state.mn.us>; Erickson, Tad (DOT) <Tad.Erickson@state.mn.us>

Subject: FW: Aitkin County- EAW Available for Comment- Northwoods Regional ATV Trail

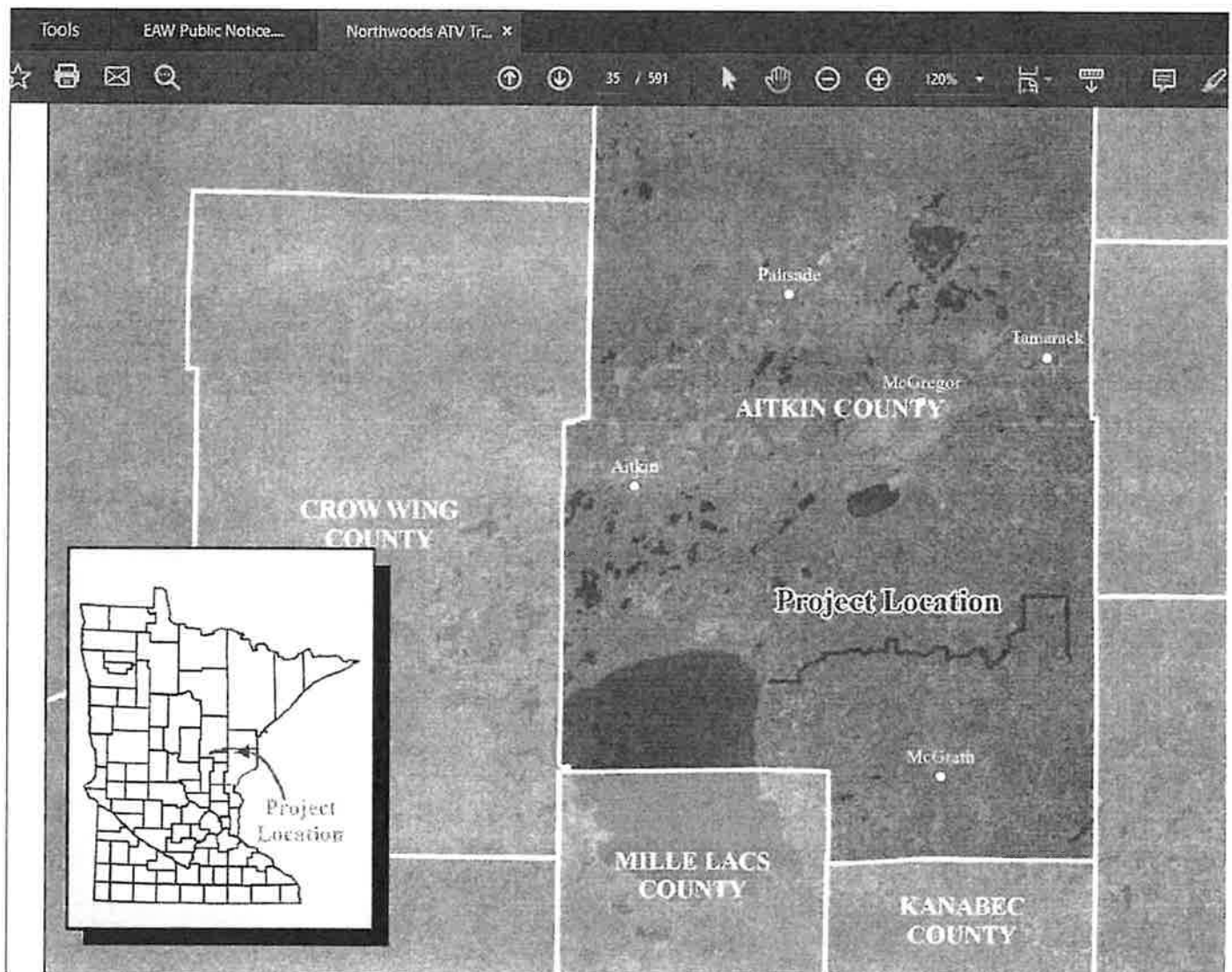
The following Environmental Assessment Worksheet (EAW) has been forwarded for your District's possible review and comment.

Due to large file size, the EAW document has been forward to you via the MnDOT MFT.

Any transportation or MnDOT right of way concerns the District may have should be provided directly to the Responsible Governmental Unit (RGU) indicated on the transmittal (see forwarded email below and attached Notice).

PS - It does look like (EAW, electronic pg 15/591) coordination with MnDOT is already occurring.

Please note the comment period for this EAW closes on: April 25, 2025



Katherine Lind

Environmental Review Specialist
Minnesota Department of Transportation
Central Office | Office of Environmental Stewardship (OES)
395 John Ireland Blvd, Mail Stop 620
St Paul, MN 55155

From: Shannon Wiebusch <shannon.wiebusch@aitkincountymn.gov>

Sent: Monday, March 17, 2025 10:20 AM

Subject: Aitkin County- EAW Available for Comment- Northwoods Regional ATV Trail

You don't often get email from shannon.wiebusch@aitkincountymn.gov. [Learn why this is important](#)

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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

Thank you,

Shannon Wiebusch
Office Assistant
Aitkin County Planning & Zoning
307 2nd Street NW Room 219
Aitkin, MN 56431
218-927-7342

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Andrew Carlstrom

From: Andrew Carlstrom
Sent: Thursday, March 27, 2025 9:41 AM
To: Shannon Wiebusch
Subject: FW: MnDOT D3 Comments_RE: Aitkin County- EAW Available for Comment- Northwoods Regional ATV Trail

Shannon –

Can you create a Drop Box for EAW Comments. Thank you.

Respectfully,

Andrew Carlstrom
Aitkin County, Minnesota
Environmental Services Director
307 2nd Street NW Room 219
Aitkin, MN 56431
Phone: 218-927-7342
Cell: 218-513-9451
andrew.carlstrom@aitkincountymn.gov



From: Cruikshank, Thomas (DOT) <Thomas.Cruikshank@state.mn.us>
Sent: Monday, March 24, 2025 11:01 AM
To: Andrew Carlstrom <andrew.carlstrom@aitkincountymn.gov>
Cc: Lind, Katherine (DOT) <Katherine.Lind@state.mn.us>; Voss, Steven (DOT) <steve.voss@state.mn.us>; Anderson, Bryan (DOT) <bryan.anderson@state.mn.us>; Erickson, Tad (DOT) <Tad.Erickson@state.mn.us>
Subject: MnDOT D3 Comments_RE: Aitkin County- EAW Available for Comment- Northwoods Regional ATV Trail

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Hello Andrew,

MnDOT District 3 staff received this EAW notice for review and comment. As you probably know this trail traverses two MnDOT District planning areas – District 3 and 1. Bryan Anderson and D1 staff may also wish to provide comment. District 3 staff would like to provide comment pertaining more to the Malmo end of the trail. For the past couple of years our District functional area staff members have been involved in meetings with Aitkin County staff and trail supporters on extension of the Northwoods trail south from Malmo along the east side of Mille Lacs Lake between the lake and Highway 47 to the Mille Lacs County line. No recent conversations or meetings on this proposed trail have

occurred. Also, MnDOT District 3 ~~staff have not been provided construction engineering plans for review in MnDOT ROW which would be necessary to determine constructability.~~

This EAW for the east/west Northwoods Trail would ideally be included in a county wide motorized trail plan to include connections at the ends to adjoining trails within the county or neighboring counties. In addition, any work within MnDOT ROW would need to be reviewed by District staff and any trail construction within MnDOT ROW would need to be authorized by either Limited Use Permit and/or Maintenance Agreement.

Reach out with any questions or if we can be of any assistance.

Tom Cruikshank

Principal Planner | District 3

3725 12th Street North, St. Cloud, MN 56303-2107

Phone: (320) 223-6526 | Cell: (320) 267-9859

Email: thomas.cruikshank@state.mn.us



From: Lind, Katherine (DOT) <Katherine.Lind@state.mn.us>

Sent: Wednesday, March 19, 2025 9:53 AM

To: Anderson, Bryan (DOT) <bryan.anderson@state.mn.us>; Cruikshank, Thomas (DOT) <Thomas.Cruikshank@state.mn.us>; Voss, Steven (DOT) <steve.voss@state.mn.us>; Erickson, Tad (DOT) <Tad.Erickson@state.mn.us>

Subject: FW: Aitkin County- EAW Available for Comment- Northwoods Regional ATV Trail

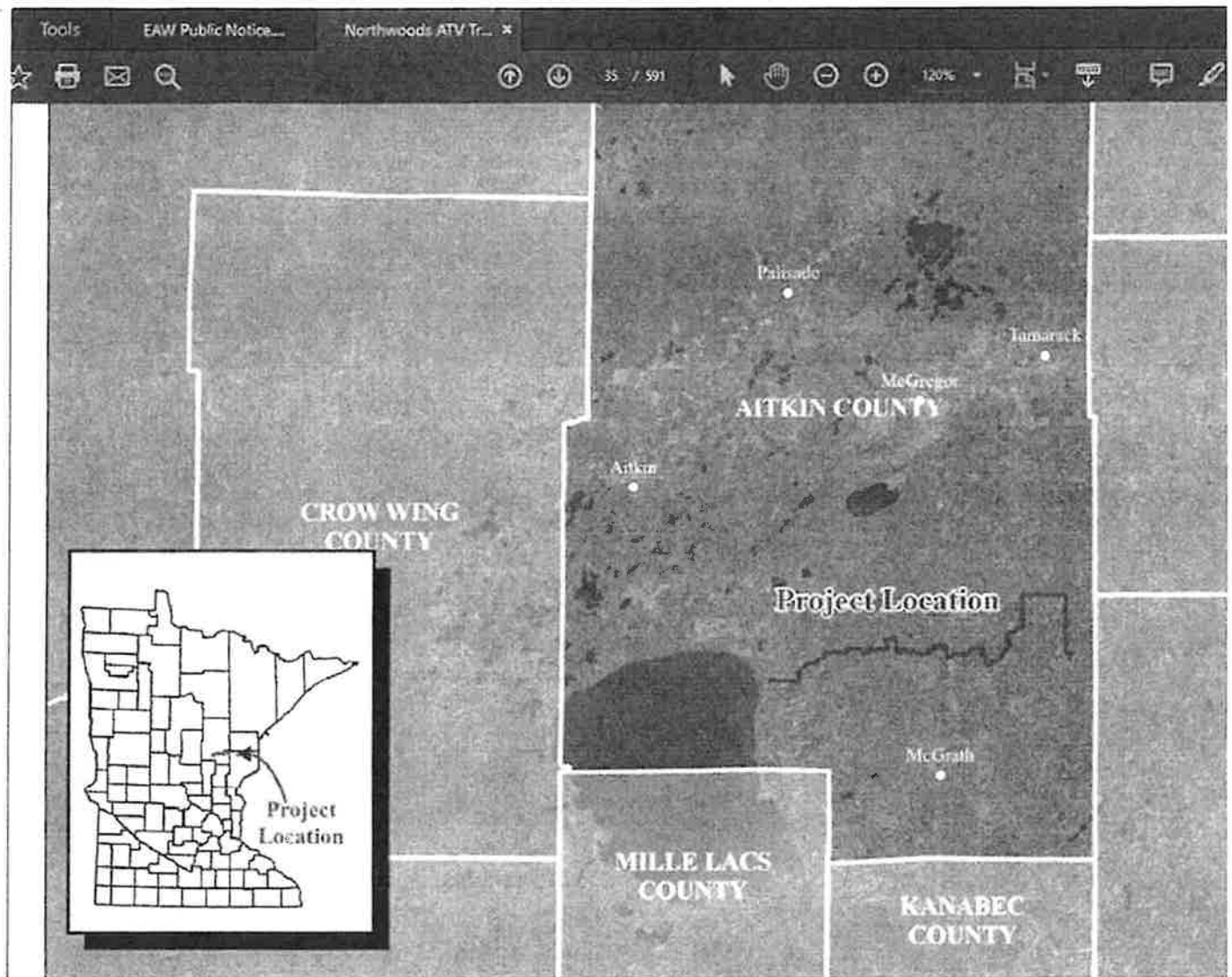
The following Environmental Assessment Worksheet (EAW) has been forwarded for your District's possible review and comment.

Due to large file size, the EAW document has been forward to you via the MnDOT MFT.

Any transportation or MnDOT right of way concerns the District may have should be provided directly to the Responsible Governmental Unit (RGU) indicated on the transmittal (see forwarded email below and attached Notice).

PS - It does look like (EAW, electronic pg 15/591) coordination with MnDOT is already occurring.

Please note the comment period for this EAW closes on: April 25, 2025



Katherine Lind

Environmental Review Specialist
Minnesota Department of Transportation
Central Office | Office of Environmental Stewardship (OES)
395 John Ireland Blvd, Mail Stop 620
St Paul, MN 55155

From: Shannon Wiebusch <shannon.wiebusch@aitkincountymn.gov>

Sent: Monday, March 17, 2025 10:20 AM

Subject: Aitkin County- EAW Available for Comment- Northwoods Regional ATV Trail

You don't often get email from shannon.wiebusch@aitkincountymn.gov. [Learn why this is important](#)

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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

Thank you,

Shannon Wiebusch
Office Assistant
Aitkin County Planning & Zoning
307 2nd Street NW Room 219
Aitkin, MN 56431
218-927-7342

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Minnesota Department of Natural Resources
Northeast Regional Headquarters
1201 East Highway 2, Grand Rapids, MN 55744

April 24, 2025

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

RE: Northwoods Regional ATV Trail Phase 1A and 1B Environmental Assessment Worksheet (EAW)

Dear Mr. Carlstrom,

The Minnesota Department of Natural Resources (MNDNR) has conducted a review of the **Northwoods Regional ATV Trail Phase 1A and 1B EAW**. We appreciate the opportunity to review this project and encourage project proposers to continue their coordination with MN DNR and other agencies to protect natural resources. Additional information on the natural resources in the project area, surrounding area, and how they pertain to the Environmental Assessment Worksheet (EAW) may help enhance those efforts; see applicable sections below.

Environmental Review

We recommend proposers engage in a thorough and complete early coordination effort prior to the publication of an EAW to ensure viable and considered project segment options can be considered within the document. Including all segment options can prevent unanticipated alterations to the project that could have the potential to require a new EAW as required by [Minn. R. 4410.1000 Subpart 5](#), Change in proposed project; new EAW,

“If, after a negative declaration has been issued but before the proposed project has received all approvals or been implemented, the RGU determines that a substantial change has been made in the proposed project or has occurred in the project's circumstances, which change may affect the potential for significant adverse environmental effects that were not addressed in the existing EAW, a new EAW is required.”

Completion of the EAW process as required by MEPA, including the development and distribution of the Record of Decision (ROD) does not guarantee that a trail will be approved into the Off-Highway Vehicle (OHV) Grant-in-aid (GIA) program. Such projects still must undergo a separate review process

Northwoods Regional ATV Trail Phase 1A and 1B EAW

Andrew Carlstrom

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to be considered for OHV GIA program eligibility. If concerns arise during the GIA review process and the route segments evaluated in the EAW encounter permitting challenges, the project could change.

The EAW indicates that it was prepared due to a mandatory category under [Minnesota Rule 4410.4300 Subpart 27\(B\)](#) – Public Waters, Public Water wetlands, and wetlands. However, it appears that other categories could have also applied to this project, such as Minn. R. 4410.4300 Subpart 37(B). For reference, when a project may exceed thresholds in two or more categories, [Minnesota Rules 4410.0500 Subpart 5](#) directs governmental units on the Responsible Governmental Unit (RGU) selection procedure. Often this procedure can be completed via a conversation among RGU representatives and occurs to agree upon the most appropriate RGU for a given project. DNR Environmental Review staff are happy to be available for conversations regarding RGU selection or whether other categories may apply where DNR has RGU responsibilities.

Solana State Forest Trail Planning

MN DNR is currently undergoing State Forest Trail Planning in the Solana State Forest which includes assessing trails to determine appropriate designation statuses for existing and proposed trails within Solana State Forest. Through the trail planning process MN DNR has identified multiple locations with potential user conflicts that are being reviewed. We are not at the point of making decisions on the routes/uses; *please provide additional route segment options* and evaluate them as part of the ROD.

Item 21 of the EAW should reference MN DNR's ongoing Solana State Forest Trail Planning project. Please note that outcomes from this effort may include closure of unsustainable motorized trails, development of new motorized trails to promote connectivity, addition of designated Hunter Walking Trails (HWT), reconstruction or rehabilitation of existing trails including the introduction of new motorized uses where appropriate. MN DNR recommends following best trail building and maintenance practices as outlined in the following resources: USFS Trail Maintenance and Construction Notebook, MNDNR Trail Planning, Design, and Development Guidelines, NOHVCC Great Trails Guidebook.

With this trail planning effort currently underway, it may have implications for the long-term compatibility and sustainability of the proposed trail alignment.

Forest Roads

This proposed trail utilizes the East and West White Pine Forest roads. The following are some key points about Forest Roads and GIA trails.

ATV/OHV use on Forest Roads

- 1) Forest system roads in the Solana State Forest are currently open to OHV/ATV traffic.
 - a) There are existing designated ATV trails on Forestry lands but there is no maintenance on them at this time, and the usage is limited to local traffic due to lack of connectivity.
- 2) The MN DNR Forestry Land Manual recommends that GIA trails avoid state forest roads, if possible.

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- 3) When GIA permits are issued, traffic on the routes typically increases. An increase in use will result in an increased need for maintenance. A plan for how to plan, pay for, and execute this additional maintenance should be clearly identified.

Maintenance of State Forest Roads

- 1) MN DNR's Division of Forestry is required to maintain the forest roads system to a low ground clearance vehicle standard. GIA/ATV trails are typically only required to be maintained to an ATV use standard.
 - a) Any GIA trail designated on a State Forest Road must be maintained to the higher standard of a state forest road.
 - b) On State Forest Roads, MN DNR will require maintenance at the proposer's expense if it is evident that OHV/ATV use contributed to the poor condition of the road.
 - c) Increased ATV traffic on State Forest Roads may deteriorate their condition below the standard of low ground clearance vehicles, but above that of the OHV/ATV standard, and as a result increase overall maintenance cost. Please describe plans on how to address the additional maintenance costs and adherence to the required maintenance standards.
- 2) Statewide, the Forest Roads program is underfunded. Due to this funding shortage, the program is not able to complete all essential maintenance activities across the state. The maintenance needs of the proposed route are grossly underestimated in the EAW and should be discussed more in depth and with greater accuracy in the ROD.

Figures and Maps in EAW

- 1) In Item 6b:
 - a) Table totals are inaccurate and should be revised. The 1.12-mile trail segment extending from West White Pine Road in Solana State Forest south along Highway 65 is currently designated as a snowmobile trail. As the proposal introduces ATV use in this segment, it constitutes a *new motorized use* and should be classified as "New Trail."
 - b) All corresponding maps, figures and text in the EAW should be updated with the most current information and be consistent throughout.
 - c) Table totals should also be corrected to reflect that East White Pine is a designated Forest Road, not a general Road.
- 2) Figure 3: Post Construction Concept Plan:
 - a) Update to show East White Pine as a *Forest Road* (orange), not a general Road (green).
 - b) Update to reflect that the 1.12-mile segment south of West White Pine Road is currently a snowmobile trail. The proposed addition of ATV use in this segment constitutes a new motorized use and should be identified as "New Trail."

Northwoods Regional ATV Trail Phase 1A and 1B EAW

Andrew Carlstrom

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- c) The figure appears to be corrupted, and the text is illegible. Please provide a corrected version and ensure legibility.

Safety Concerns

MN DNR recommends using trail intersection markings on public maps with corresponding location signage on the ground, to be able to communicate location accurately. This can help users navigate the system and communicate their location with emergency services should the need arise.

West White Pine State Forest Road and East White Pine State Forest Road are used as summer haul roads for logging operations. Additionally, an active gravel lease is located on the West White Pine Forest Road. These roads have narrow winding curves with blind spots, which should be a consideration for this project regarding safety for all user groups. Additional route segment options that reduce these interactions should be explored and evaluated in the ROD.

Use Considerations

MN DNR supports a variety of recreational uses across the state. Non-motorized uses on hunter walking trail systems are another priority for MN DNR to develop, maintain, and protect. Signage, barriers, and frequent monitoring will be needed to protect these resources. Please highlight how this will be addressed across the proposed project, and additional route segment options.

Malmo and Millward Townships should be informed about this project and kept up to date as plans develop. Additionally, the logging and forestry industry has a vested interest in the state of the road system and has frequently taken on the road maintenance responsibilities, often covering the costs themselves.

Items 20 b. and 20 c. of the EAW include maps that seem to contradict each other regarding the number of planned trailheads. Additionally, there is no mention of shelters or other facilities in the narrative of the proposal.

Facilities attract increased public use and may warrant further considerations to planned operations. Please clarify how many trailheads and other infrastructure/facilities are planned as part of this project. Any additional infrastructure may not be covered under a forthcoming GIA permit and may require a separate lease agreement through MN DNR Lands and Minerals, in addition to permission from the land administrator.

Mineral Concerns

There are parcels with state owned aggregate and metallic mineral potential. Additional information is available upon request. Access to minerals must be preserved in case of future exploration and/or development. For example, funding sources used for the project should not encumber the mineral resources. Any lease(s) or agreements would include language to preserve access to mineral resources, meaning the infrastructure would need to be removed/moved at the trail operator's expense.

Northwoods Regional ATV Trail Phase 1A and 1B EAW

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Invasive Species Prevention and Soil Concerns

Invasive Species

Invasive species prevention and management is a priority for the MN DNR. The increased trail use resulting from this project is likely to contribute to additional invasive species populations. A plan for how these infestations will be addressed on state lands in the future is essential. Please provide a proposal for an invasive species prevention and management plan. Item 21. c states: "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."

Soils

Item 11 (b) provides limited soils information and does not include estimated volume and acreage of soil excavation and/or grading. More detail is needed in identifying measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Please describe in greater detail the construction methods and approaches addressing erosion, soil stabilization, increased runoff, and mitigation for problems; please refer to guidance where applicable.

The soils of this area are extremely wet and sensitive to even light traffic. Keeping traffic on the trail and off non-motorized trails will be important to maintaining soil health, plant communities, and wildlife populations.

Wetlands and Waterbodies

A portion of the proposed trail runs through public water wetland (DOW# 01029800), located in more detail in map number 23 within the EAW. Any fill or excavation (or structure installation) within the public water wetland requires an approved public water works permit from MN DNR and must show avoidance and two alternatives to the proposal, as well as a statement of purpose and need for choosing that area and ensuring that the type of crossing chosen is the least environmentally impactful way to cross the public water body.

A portion of the proposed trail runs through a public ditch, which is also an altered watercourse, located in more detail in map number 54 within the EAW. If the Aitkin County Highway Department determines in writing that any proposed alteration (i.e., excavation or fill) within the ditch is under their ditch authority and that the activities conducted within it are agreeable for their purposes of ditch management, then no MN DNR public water works permit shall be required to be submitted for the ditch. However, if no affirmation from the Aitkin County Highway Department is presented, then any impacts to the ditch will require an approved permit from MN DNR prior to any proposed development work. A statement of purpose and need, and two alternatives, would be applicable at this location as well.

Phase 1A crosses 73 wetlands, 5 wetland ditches and 6 streams, and wetland delineations have not been completed for the entire project and will be required. Please clarify and describe if any streams, surface waters, or wetlands will be impacted as a result of Phase 1B.

Northwoods Regional ATV Trail Phase 1A and 1B EAW

Andrew Carlstrom

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Cumulative potential effects should include estimates for wetland impacts and further discussion on avoidance and mitigation measures to be employed. Inclusion of a design typical diagram for wetland crossings would be helpful to demonstrate construction proposed for wetland crossings.

Additionally, a conservative approach to opening trails in the spring should be adopted as opening trails too early in spring can cause unwanted damage to the soils, roads, trails, and increase the risk of erosion into wetlands, ultimately causing resource damage and increasing maintenance costs.

Rare Features & Wildlife

Limited information is provided on plant communities and sensitive ecological resources (rare features) in item 14 (a), the document primarily refers to NHIS response. This information should be summarized and discuss native plant communities and explain any impacts to S1-S3 plant communities. The summary should also include quantity of impacts to high sites of biodiversity significance. Additionally, indicate if or how recommendations given will be implemented in the project. In addition, it appears that a phase 1 archeological survey is intended. Please provide the results of the phase 1 archeological survey, as this could impact routing.

Item 14b of the EAW reads, “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.” As described in the NHIS Letters (attached) issued (June 7th 2024, March 26th, 2025). A rare plant survey is to be conducted for state-listed plant species in the project activity area. Survey results should be used so that the project is in compliance with Minnesota’s Endangered Species Statute and associated Rules. 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. Please note that the survey needs to be conducted by an individual with demonstrated experience identifying Botrychium/Sceptridium species and needs to be conducted during the appropriate portion of the growing season, depending on the phenology of the species. Survey proposals should be submitted to Reports.NHIS@state.mn.us to initiating survey work. Please consult with the NH Review Team at Review.NHIS@state.mn.us if you have any questions regarding this process.

Item 14 (d) states: “Tree removal will be avoided during the NLEB inactive season (November 15 – March 31).” The November through March dates indicated are generally understood to be the dates where tree removal is encouraged to avoid northern long-eared bat (NLEB) roosting timeframes which is opposite of what is stated in the EAW. The Lake States Forest Management Bat Habitat Conservation Implementation Policy (HCP) does not cover roads and trails that are not on DNR lands unless they are

Northwoods Regional ATV Trail Phase 1A and 1B EAW

Andrew Carlstrom

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temporary access routes associated with forest management that the DNR administers. Roads and trails that are built by third parties on DNR lands for purposes outside of supporting forestry operations or public recreational use, are not included under the Bat HCP (e.g., county road projects that cross DNR lands, using an easement or access route for a gravel lease).

We recognize that no known roost trees are located along the trail; however, there are northern long-eared bat and little brown myotis observations that directly overlap with the proposed trail. The metadata for these observations show pregnant females were captured along the trail route. Tree removal should be kept to a minimum during the active season (April 15 – October 15) and would be preferred entirely outside of the active season. Noise disturbance (anything greater than 85 decibels at a distance of 50 feet) should also be kept to a minimum from June 1 to July 31. This would protect bats, and would benefit other nongame species (e.g., breeding birds, reptiles, and amphibians).

Coordination with the United States Fish and Wildlife Service (USFWS) will be needed to achieve avoidance and ensure compliance with the federal endangered species laws.

Vernal pools are important landscape features that are vital for four-toed salamanders, and state threatened *Botrychium* and *Sceptridium* species are often associated with these types of habitats (mature northern hardwoods with interspersed vernal pools). These salamanders have been documented in this area of the state. Gravel trails inhibit movement for this species as they travel to and from vernal pools for nesting. Additionally, runoff from the trail construction and recreational traffic could enter the vernal pool, making it unsuitable for salamanders and other amphibians that are sensitive to changes in water quality/chemistry. Efforts should be made to identify and avoid vernal pools within the proposed trail corridor (at minimum of 50' no-impact buffer from vernal pool edge).

Next Steps

Currently, permitting challenges exist with the current information available for this project on the state forest lands and roads as proposed in the EAW. The proposed route requires more discussion to determine locations, feasibility, and how this project fits into the Solana State Forest Trail Planning effort. Additional information on the proposed route and additional route segment options are needed to determine the investment required to improve/maintain these roads and trails to the level needed to support increased use. We look forward to receiving further details on the additional route segment options and are available for discussions as they are developed

Thank you for the opportunity to review the **Northwoods Regional ATV Trail Phase 1A and 1B EAW**. Please contact our MN DNR Northeast Regional Environmental Assessment Ecologist, Jessica Parson, with any questions. Jessica can be reached at (218) 328-8826 or via email at:

jessica.parson@state.mn.us.

Northwoods Regional ATV Trail Phase 1A and 1B EAW

Andrew Carlstrom

April 24, 2025

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Sincerely,

A handwritten signature in cursive script that reads "Jessica Parson".

Jessica Parson

Northeast Regional Environmental Assessment Ecologist, MN DNR

CC:

Jill Townley

Lisa Joyal

Darrell Schindler

Greg Root

Clarissa Spicer



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



Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

March 26, 2025

Daniel McInnis
Widseth Smith and Nolting and Associates, Inc.

RE: Natural Heritage Review of the proposed **Northwoods Regional Trail - Phases 1A & 1B**,

County	Township	Range	Section
Aitkin	45N	22W	7, 8, 17, 18, 19
Aitkin	45N	23W	13, 19, 20, 23, 24, 25, 26, 29, 30
Aitkin	45N	24W	20, 21, 22, 23, 24, 26, 28, 29
Aitkin	45N	25W	25, 26, 33, 34, 35

Dear Daniel McInnis,

For all correspondence regarding the Natural Heritage Review of this project please include the project ID **MCE-2024-01049** 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 Sites of Biodiversity Significance within the vicinity of the proposed project. Sites of Biodiversity Significance (MBS Sites) 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 ranked *High* or *Outstanding*.** A Conservation Planning Report, which includes a list of MBS Sites in the proposed project area, has been created and uploaded to the project page (2024-01049-CPR).

DNR Native Plant Communities (NPCs) have been documented within the vicinity of the proposed project. 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. Native plant communities are classified and described by considering vegetation, hydrology, landforms, soils, and natural disturbance regimes. DNR NPC 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*); NPCs with a Conservation Status Rank of S1 through S3 are considered rare in Minnesota. **The DNR recommends avoidance of rare NPCs (ranked S1-S3).** A Conservation Planning Report, which includes a list of NPCs in the proposed project area, has been created and uploaded to the project page (2024-01049-CPR).

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 rare NPCS (ranked S1-S3).
- 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.

Ecologically Significant Areas can be viewed using the Explore page in [Minnesota Conservation Explorer](#) (MCE) or their GIS shapefiles can be downloaded from the [MN Geospatial Commons](#). Reference the [MBS Site Biodiversity Significance](#) and [Native Plant Community](#) websites for information on interpreting the data. To receive a list of Ecologically Significant Areas in the vicinity of your project, create a Conservation Planning Report using the Explore page in MCE. **A Conservation Planning Report has been created and uploaded to the project page for reference (2024-01049-CPR).**

- 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 [RNC 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. Habitat for these species includes mesic hardwood forest with loam soils. 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. **Please note that the survey needs to be conducted by an individual with demonstrated experience identifying *Botrychium*/*Sceptridium* species** and needs to be conducted during the appropriate portion of the growing season, depending on the phenology of the species. Survey proposals should be submitted to Reports.NHIS@state.mn.us prior to initiating survey work. Please consult with the NH Review Team at Review.NHIS@state.mn.us if you have any questions regarding this process.

- [St. Lawrence grapefern](#) (*Sceptridium rugulosum*) and [least moonwort](#) (*Botrychium simplex*), both state-listed plant species of special concern, have been documented in the vicinity of the proposed project. Habitat for St. Lawrence grapefern includes fire dependent forests with sandy loam soils. Habitat for least moonwort includes mesic hardwood forest and upland prairie. **Minimize disturbance in these areas as much as feasible. Indirect impacts from surface runoff or the spread of invasive species, especially non-native earthworms, should be considered and minimized during project construction and operation.** We strongly encourage inclusion of species of special concern during survey efforts as they are also rare and an important component of Minnesota's natural heritage.
- [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.

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Environmental Review and Permitting

- 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 permit to take will be needed for any of the above protected species.
- 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.

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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: 2025.03.26 08:38:03 -05'00'

Natural Heritage Review Specialist

molly.barrett@state.mn.us

Cc: [Jessica Parson](#), Regional Environmental Assessment Ecologist, Northeast (Region 2)

Cc: [Sophia Musiak](#), Assistant Regional Environmental Assessment Ecologist, Northeast (Region 2)

Cc: [Ryan T. Anderson](#), Assistant Plant Ecologist, Northeast (Region 2)

Cc: [Jennie Skancke](#), Wetlands Program Coordinator



Marshall Office | 504 Fairgrounds Road | Suite 200 | Marshall, MN 56258-1688 | 507-537-7146

800-657-3864 | Use your preferred relay service | info.pca@state.mn.us | Equal Opportunity Employer

April 14, 2025

VIA EMAIL

Andrew Carlstrom
Aitkin County
307 2nd Street Northwest
Aitkin, Minnesota 56431
andrew.carlstrom@aitkincountymn.gov

RE: Northwoods Regional Trail Phase 1A and 1B – Environmental Assessment
Worksheet/Environmental Impact Statement/Alternative Urban Areawide Review

Dear: Andrew Carlstrom

Thank you for the opportunity to review and comment on the Environmental Assessment Worksheet (EAW) for the Northwoods Regional Trail Phase 1A and 1B project (Project) located in Aitkin County, Minnesota. The Project consists of Aitkin County proposing to construct an All-Terrain Vehicle (ATV) trail on 40.95 acres between Malmo and Millward Township in Aitkin County, Minnesota. 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. Regarding matters for which the Minnesota Pollution Control Agency (MPCA) has regulatory responsibility and other interests, the MPCA staff has the following comments for consideration.

Construction Stormwater

Since the Project will result in an increase of one acre of new impervious surface, a permanent stormwater treatment system is required under the National Pollutant Discharge Elimination System and State Discharge System (NPDES/SDS) Construction Stormwater Permit. Volume reduction practices, such as infiltration, must be considered first unless prohibited for reasons outlined in the permit.

We appreciate the opportunity to review this Project. Please be aware that this letter does not constitute approval by the MPCA of any or all elements of the Project for the purpose of pending or future permit actions by the MPCA.

Andrew Carlstrom
Page 2
April 14, 2025

Ultimately, it is the responsibility of the Project Proposer to secure any required permits and to comply with any requisite permit conditions. If you have any questions concerning our review of this EAW, please contact me by email at chris.green@state.mn.us or by telephone at 507-476-4258.

Sincerely,

Chris Green

This document has been electronically signed.

Chris Green, Project Manager
Environmental Review Unit
Resource Management and Assistance Division

CG:rs

Attachment

cc: Dan Card, MPCA
Bonnie Goshey, MPCA
Nicole Peterson, MPCA
Lauren Dickerson, MPCA
Deepa deAlwis, MPCA
Innocent Eyoh, MPCA
Theresa Haugen, MPCA

Public Notice

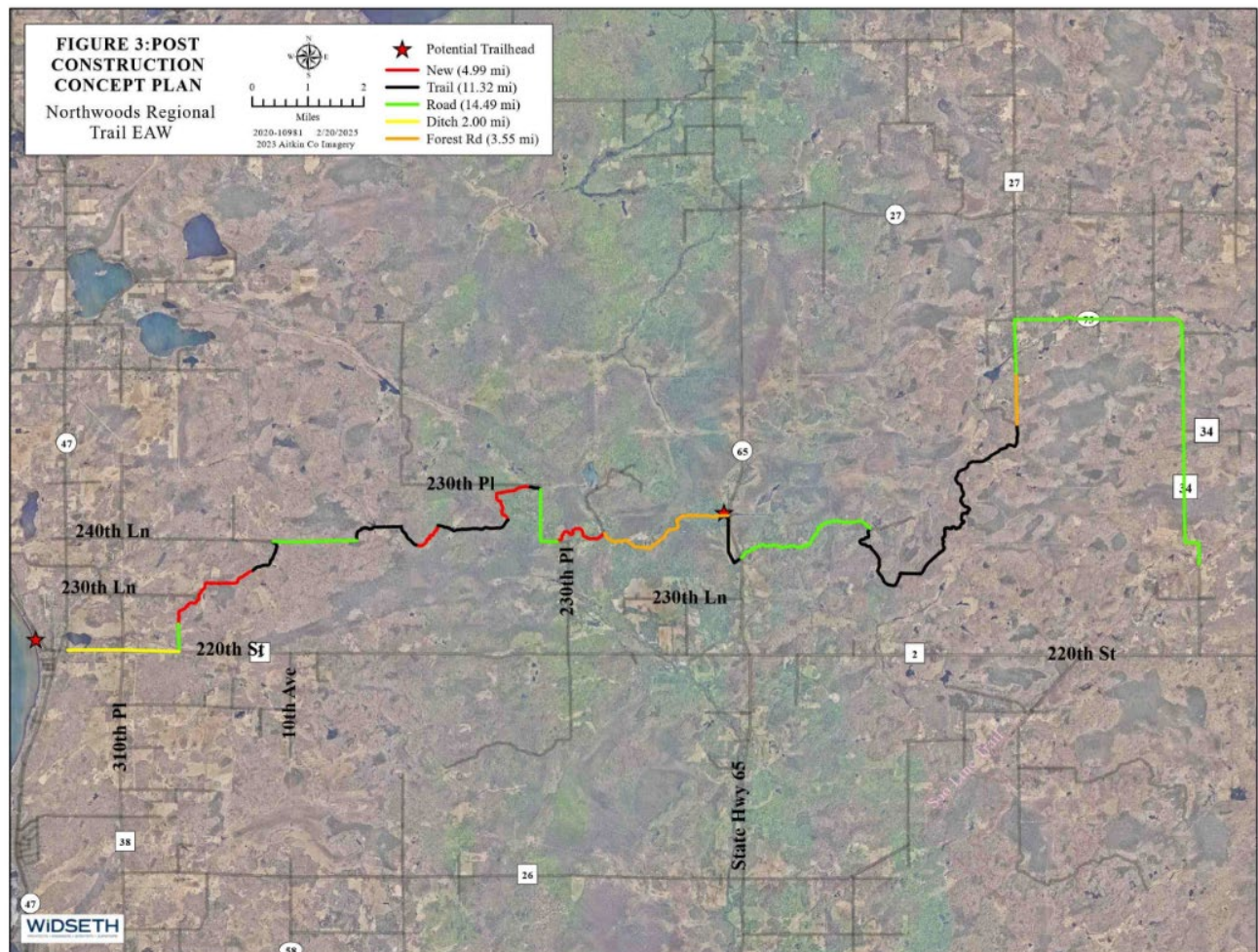
Environmental Assessment Worksheet (EAW) Available for Comment Northwoods Regional Trail Phase 1A & 1B Malmo, Jewett, White Pine and Millward Townships Aitkin County, Minnesota

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



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

3. RGU: 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

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 Plan¹, 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 cropland². 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 2023³. 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 1901-2000⁴. 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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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.	<p>nutrient loading, and potential flooding.</p> <ul style="list-style-type: none"> 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

<u>Trees</u>	<u>Percent</u>	<u>Number</u>
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 Plan⁶, 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 Plan⁷ 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 area⁸. 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 varia*), 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 Plan¹⁰ 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 (CO₂). 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 (CO₂), methane (CH₄), and nitrous oxide (N₂O). 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 CO₂-equivalents (CO₂e) 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 CO₂, CH₄, and N₂O emissions/removals from drained inland organic soils and off-site CO₂ 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 CO₂e per year. The estimated post-construction GHG emissions for the project total 97.1 tons CO₂e per year.

Table 2 – Greenhouse Gas Emissions Summary						
Construction Emissions						
Scope	Type of Emission	Emission Sub-type	Project-related CO ₂ e 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 ₂ e Emissions (tons/year)	Project-related CO ₂ e Emissions (tons/year)	Total CO ₂ e 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 CO₂e 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 Minnesota¹¹. 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 
ANDREW L. CARLSTROM

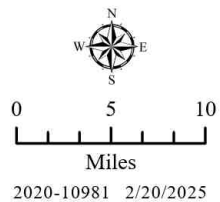
Date MARCH 17, 2025

Title ANOKA COUNTY ENVIRONMENTAL
SERVICES DIRECTOR

Figures

**FIGURE 1:
COUNTY MAP**

Northwoods Regional
Trail EAW
Aitkin County



CASS COUNTY

ITASCA COUNTY

ST. LOUIS
COUNTY

Hill City

Palisade

Tamarack

McGregor

AITKIN COUNTY

Aitkin

CARLTON
COUNTY

CROW WING
COUNTY

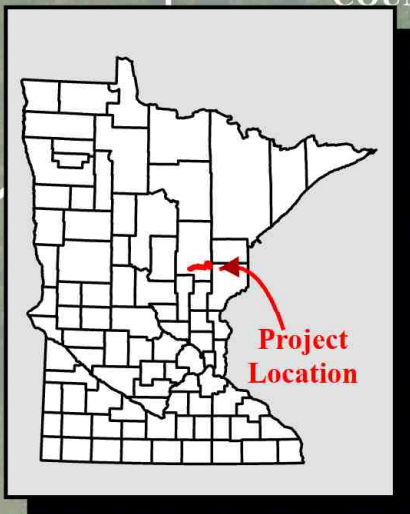
Project Location

McGrath

PINE COUNTY

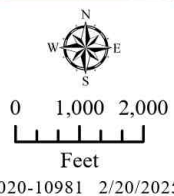
MILLE LACS
COUNTY

KANABEC
COUNTY



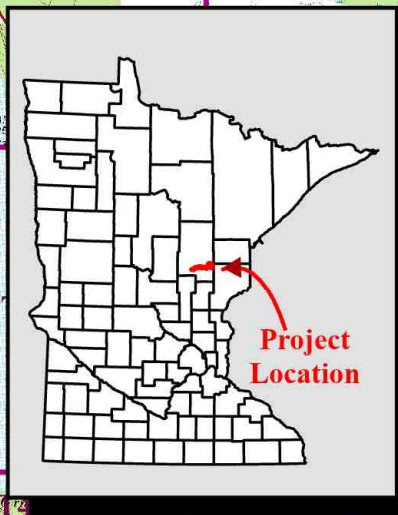
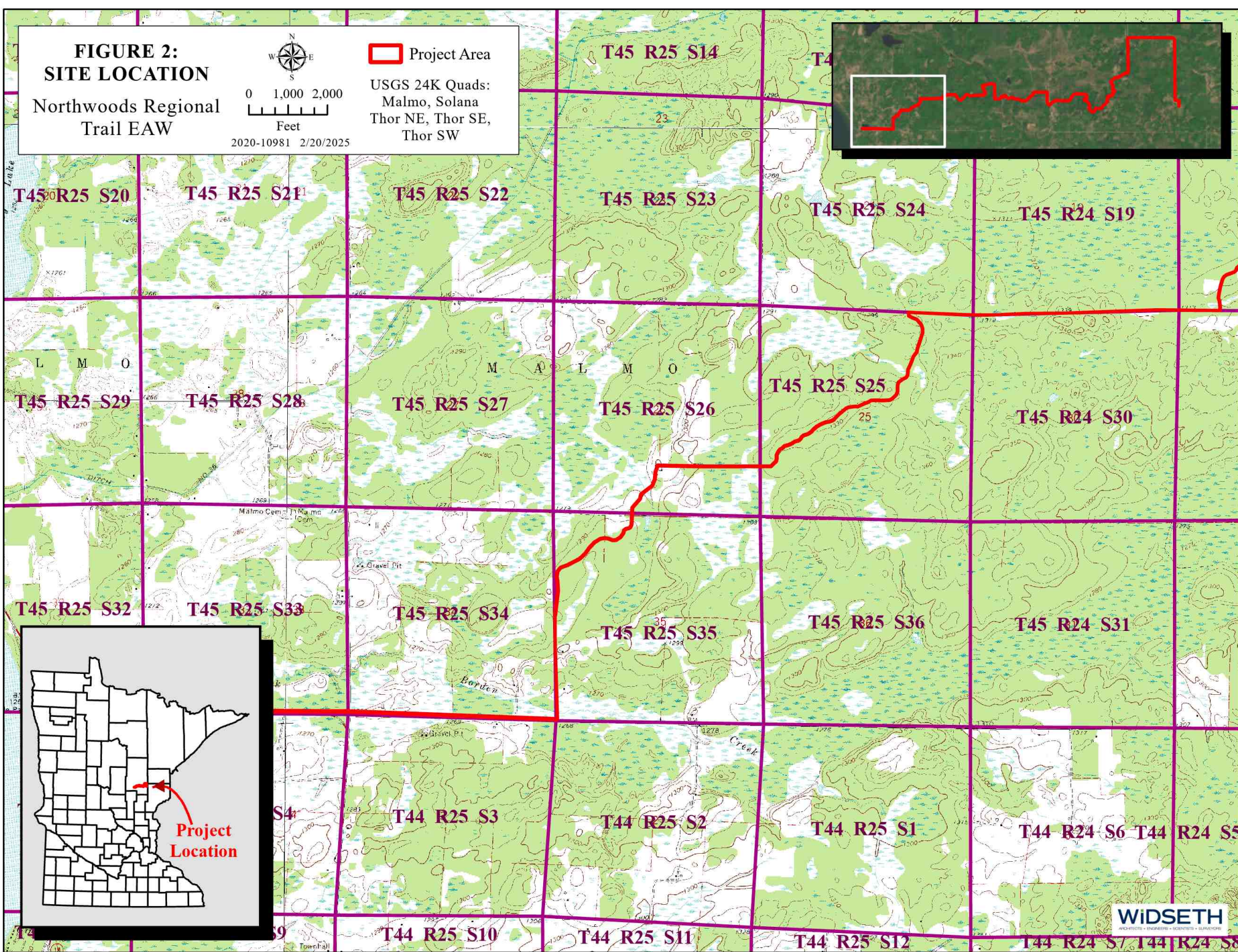
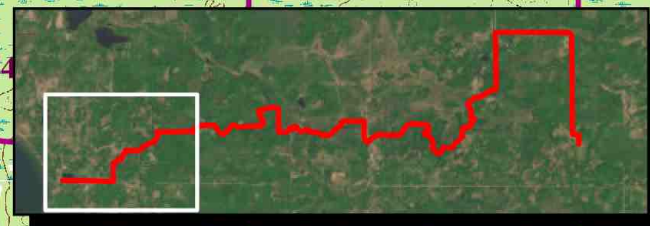
**FIGURE 2:
SITE LOCATION**

Northwoods Regional
Trail EAW



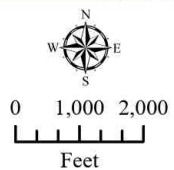
Project Area

USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW



**FIGURE 2:
SITE LOCATION**

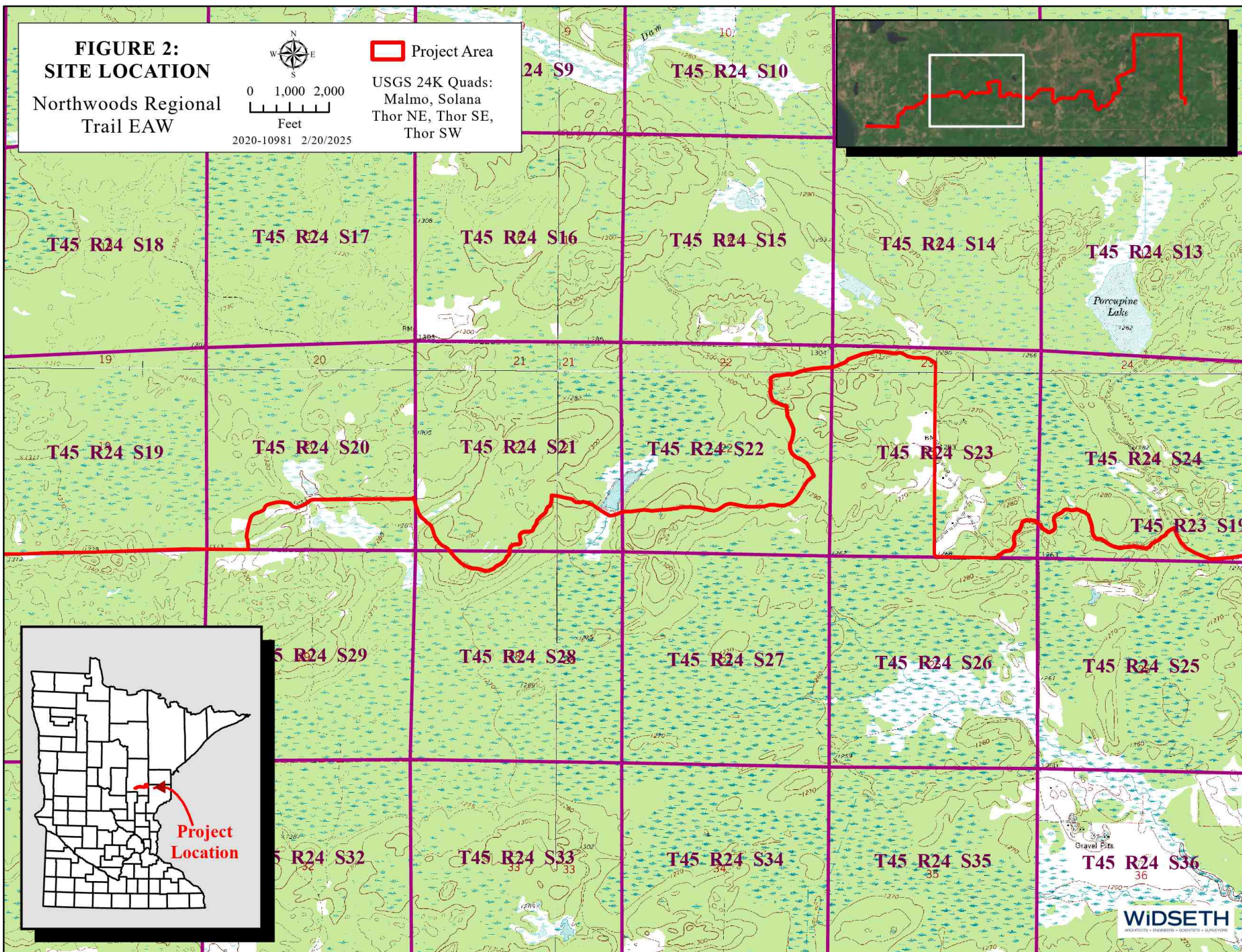
Northwoods Regional
Trail EAW



2020-10981 2/20/2025

Project Area

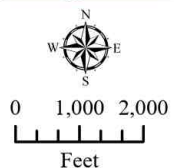
USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW



WIDSETH
ARCHITECTS • ENGINEERS • SCIENTISTS • SURVEYORS

**FIGURE 2:
SITE LOCATION**

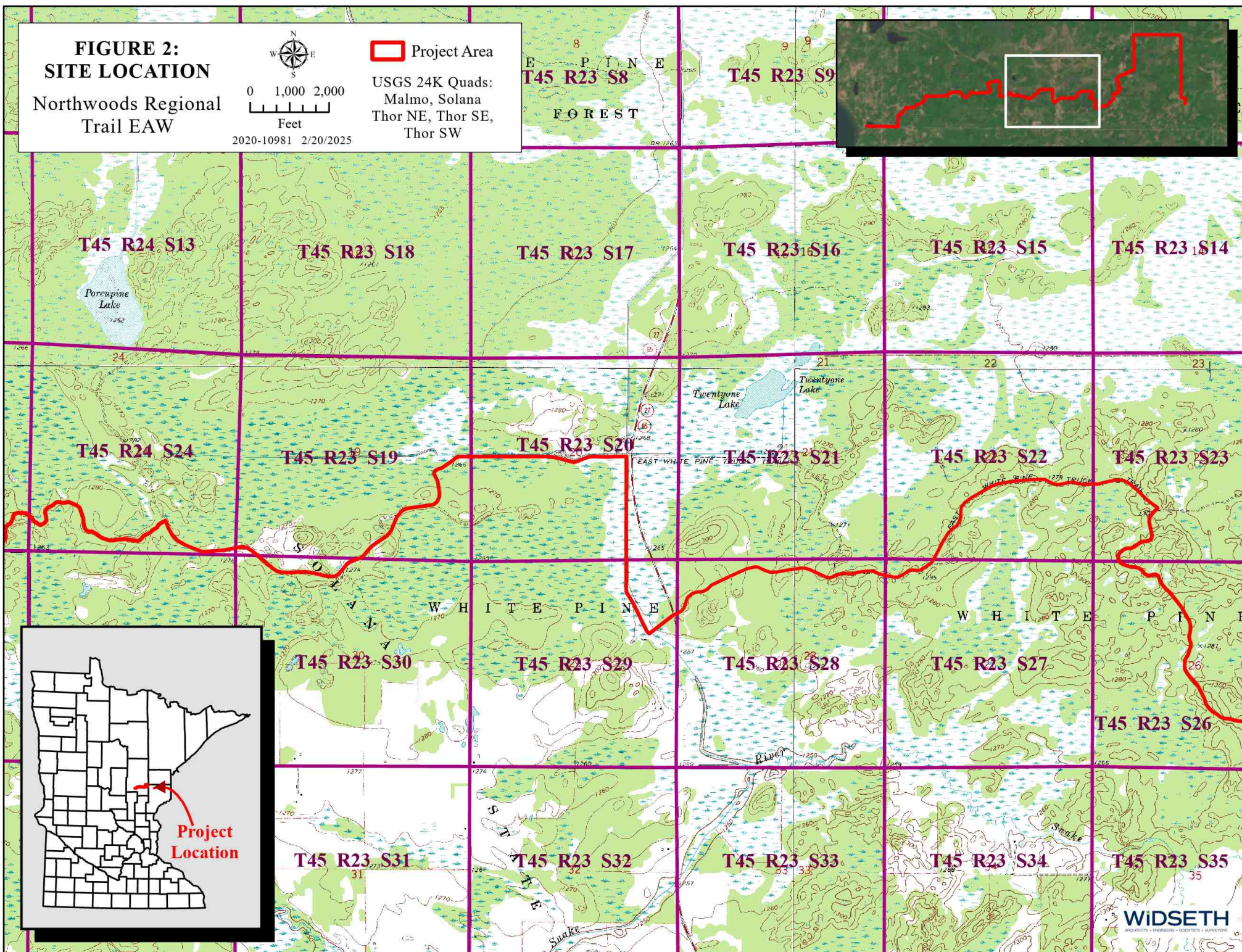
Northwoods Regional
Trail EAW



2020-10981 2/20/2025

Project Area

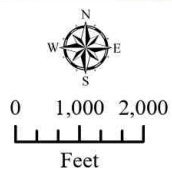
USGS 24K Quads:
Malmö, Solana
Thor NE, Thor SE,
Thor SW



WIDSETH
ARCHITECTS • ENGINEERS • SCIENTISTS • SURVEYORS

**FIGURE 2:
SITE LOCATION**

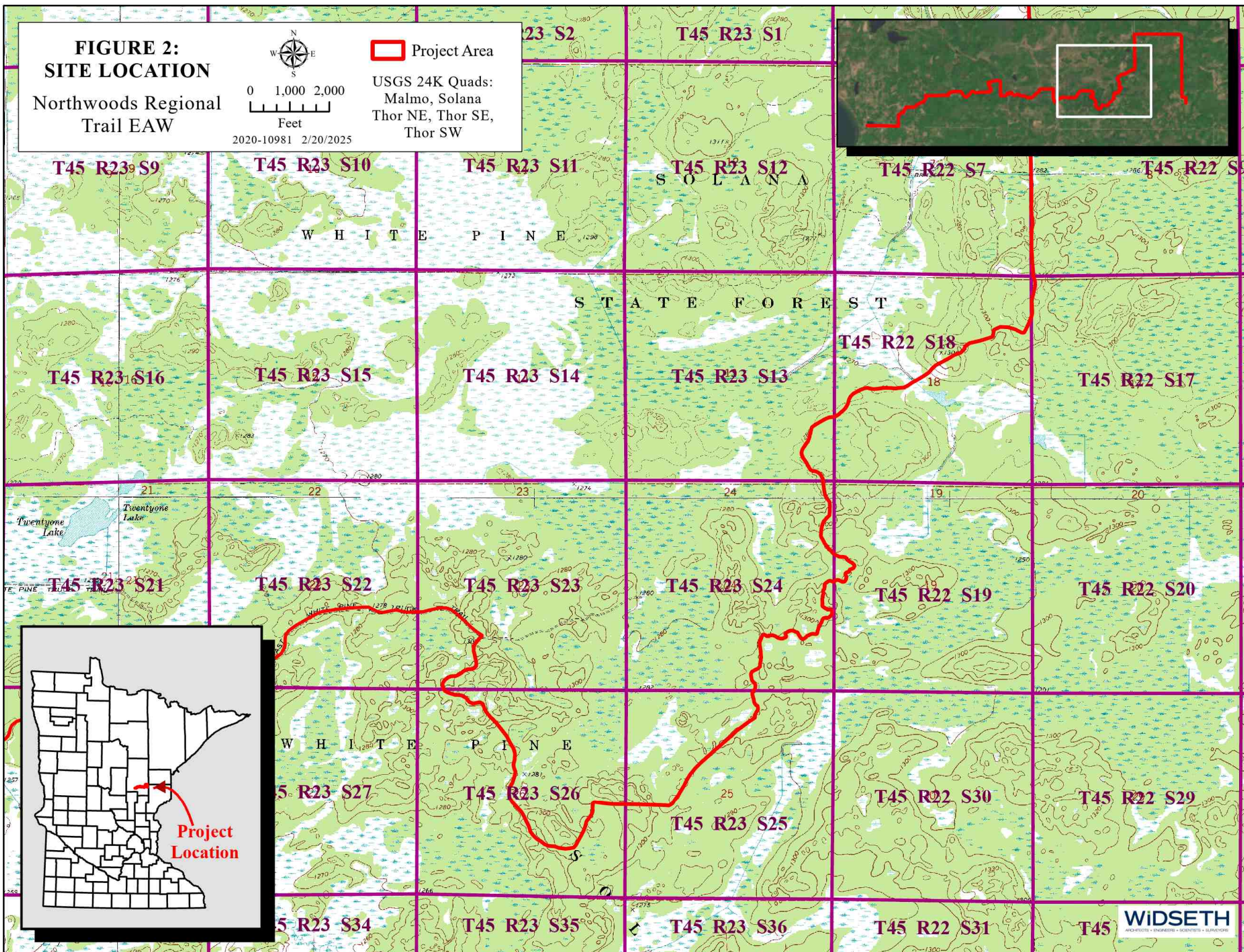
Northwoods Regional
Trail EAW



2020-10981 2/20/2025

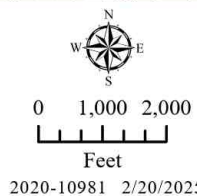
Project Area

USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW



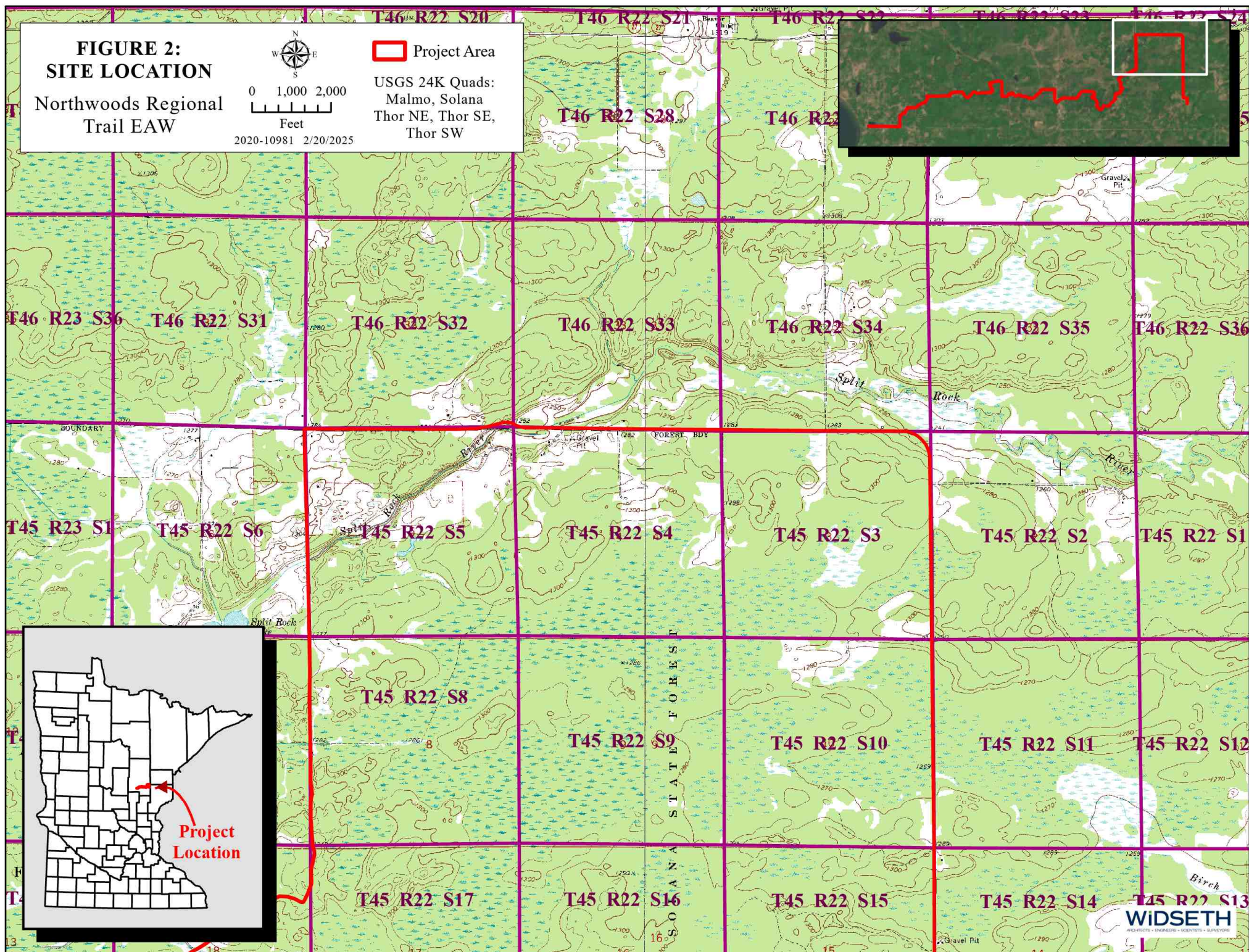
**FIGURE 2:
SITE LOCATION**

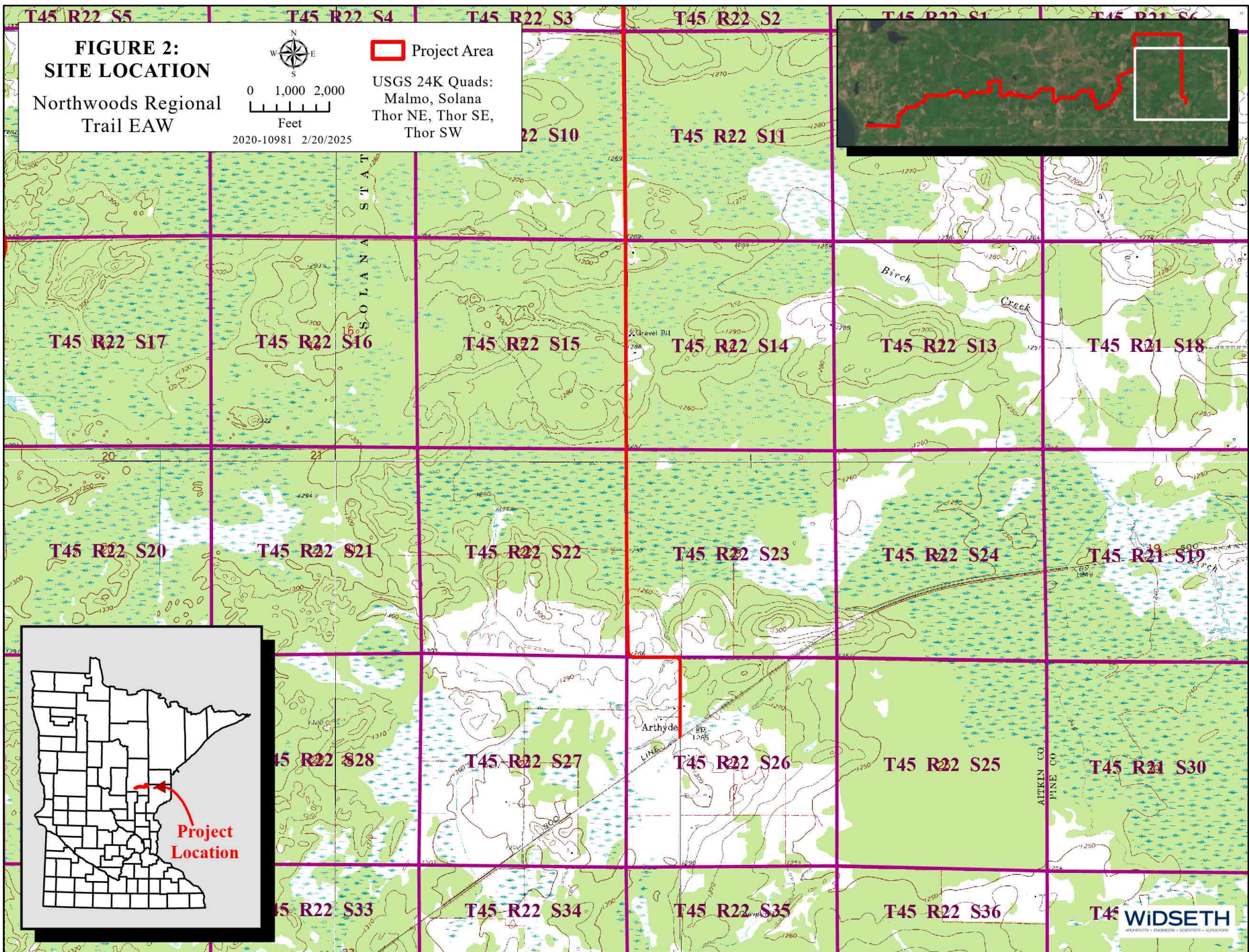
Northwoods Regional
Trail EAW



Project Area

USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW





**FIGURE 3: POST
CONSTRUCTION
CONCEPT PLAN**

Northwoods Regional
Trail EAW



- ★ Potential Trailhead
- New (4.99 mi)
- Trail (11.32 mi)
- Road (14.49 mi)
- Ditch 2.00 mi)
- Forest Rd (3.55 mi)

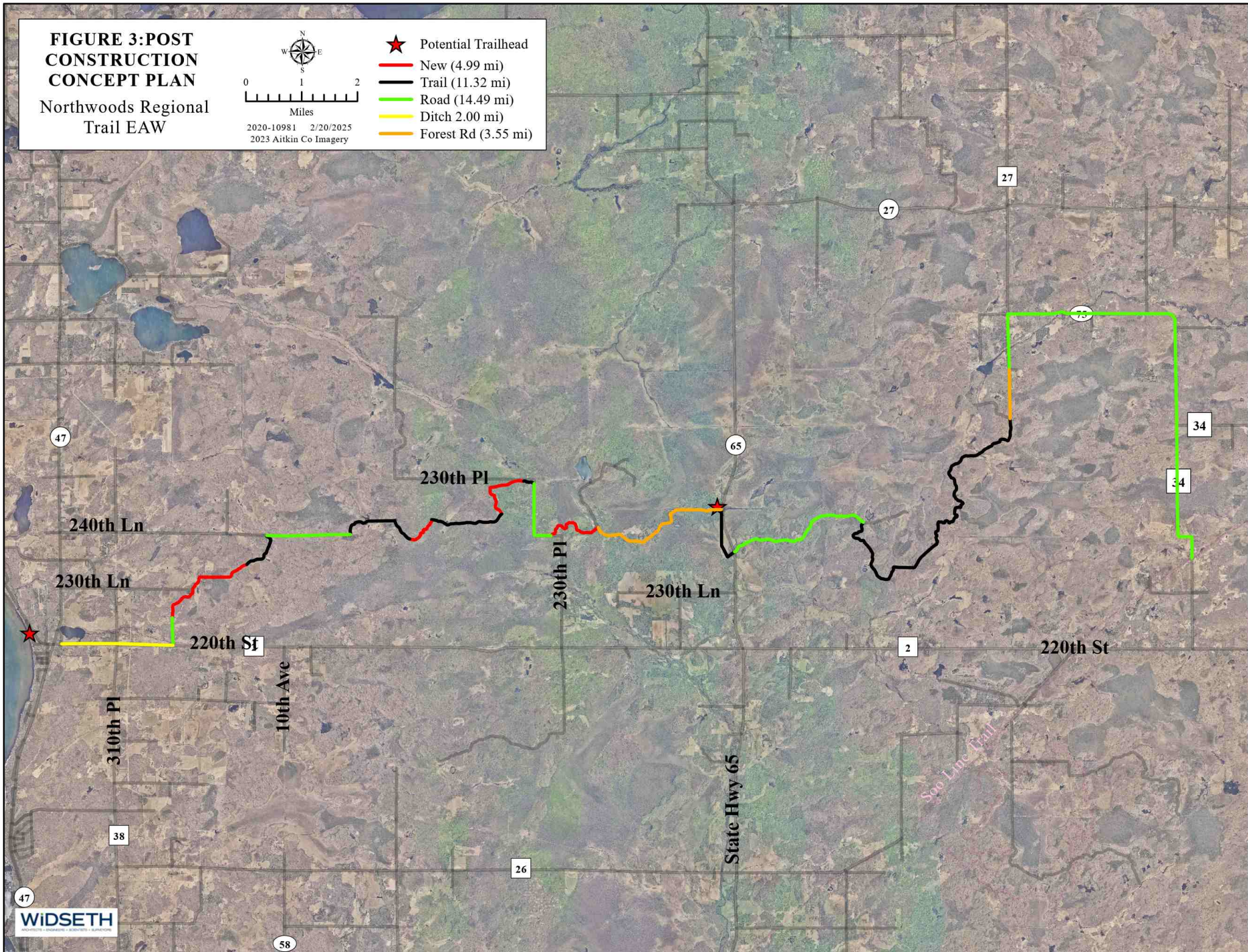
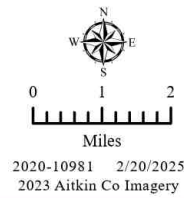


FIGURE 4: FUTURE TRAIL EXPANSION

Northwoods Regional Trail EAW



- ★ 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)

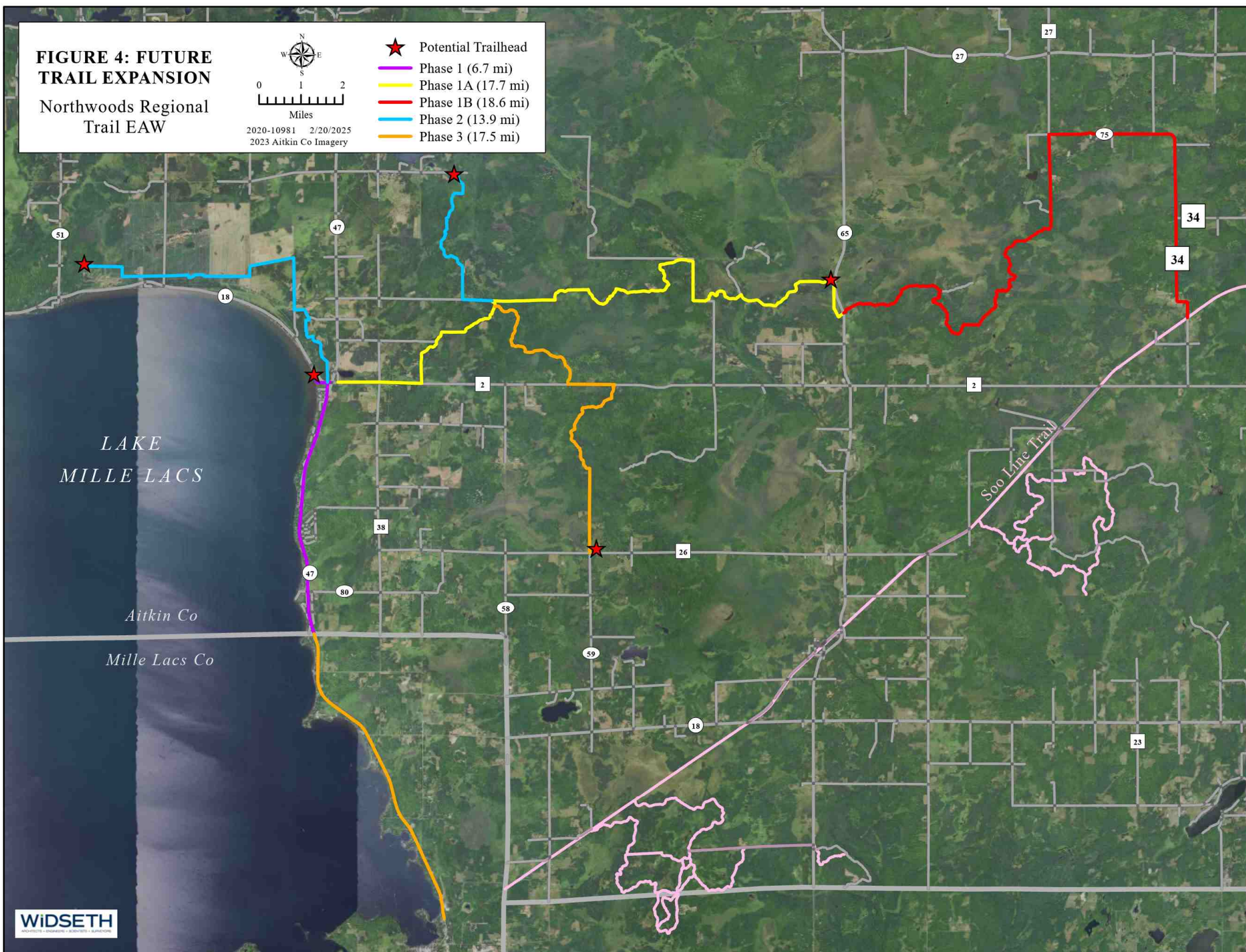
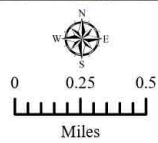


FIGURE 5: PROPOSED TRAIL EXPANSION

Northwoods Regional Trail EAW



- ★ Potential Trailhead
- Phase 1 Trail
- Phase 1A Trail

2020-10981 3/10/2025
2023 Aitkin Co Imagery

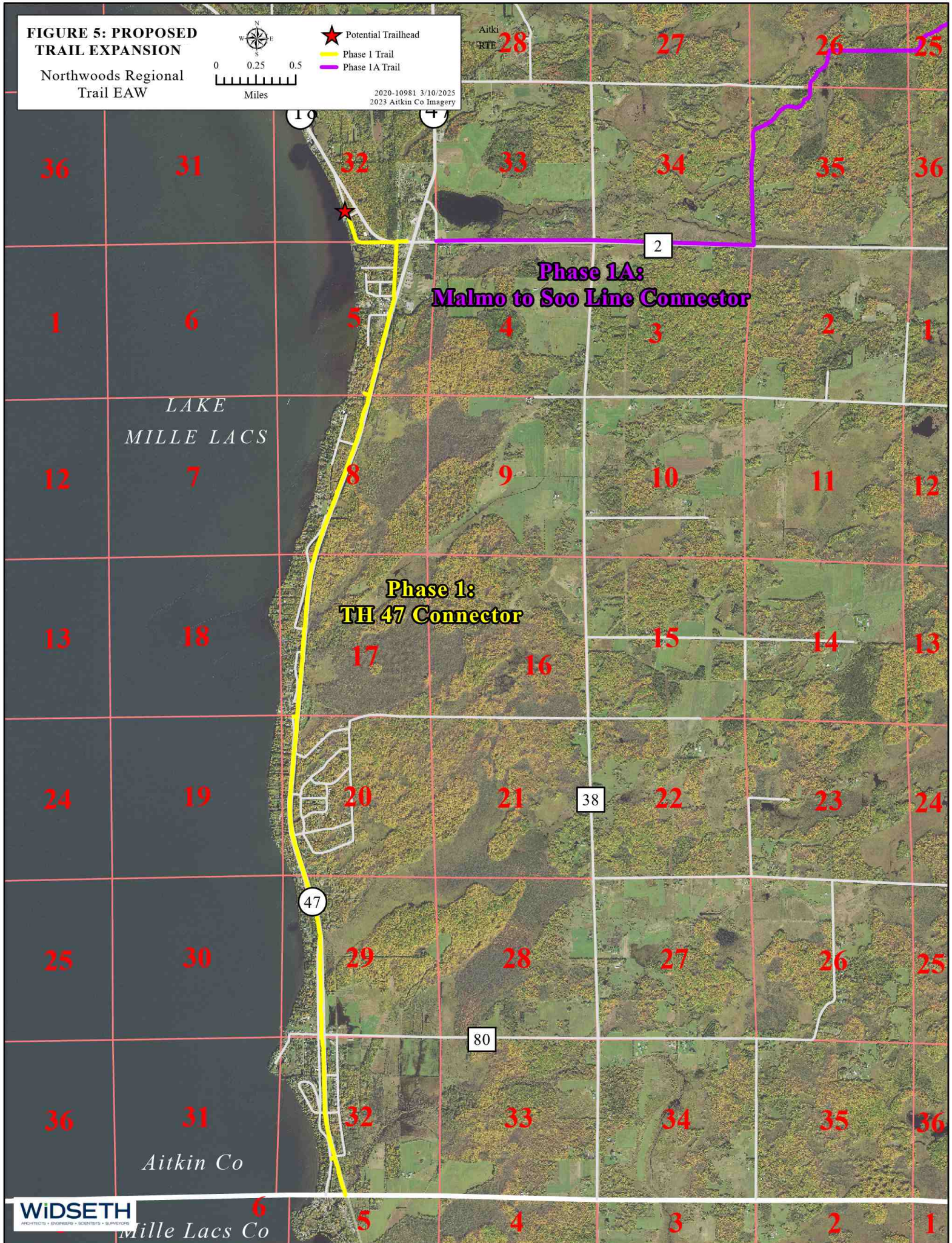


FIGURE 6: FLOODPLAIN HAZARDS

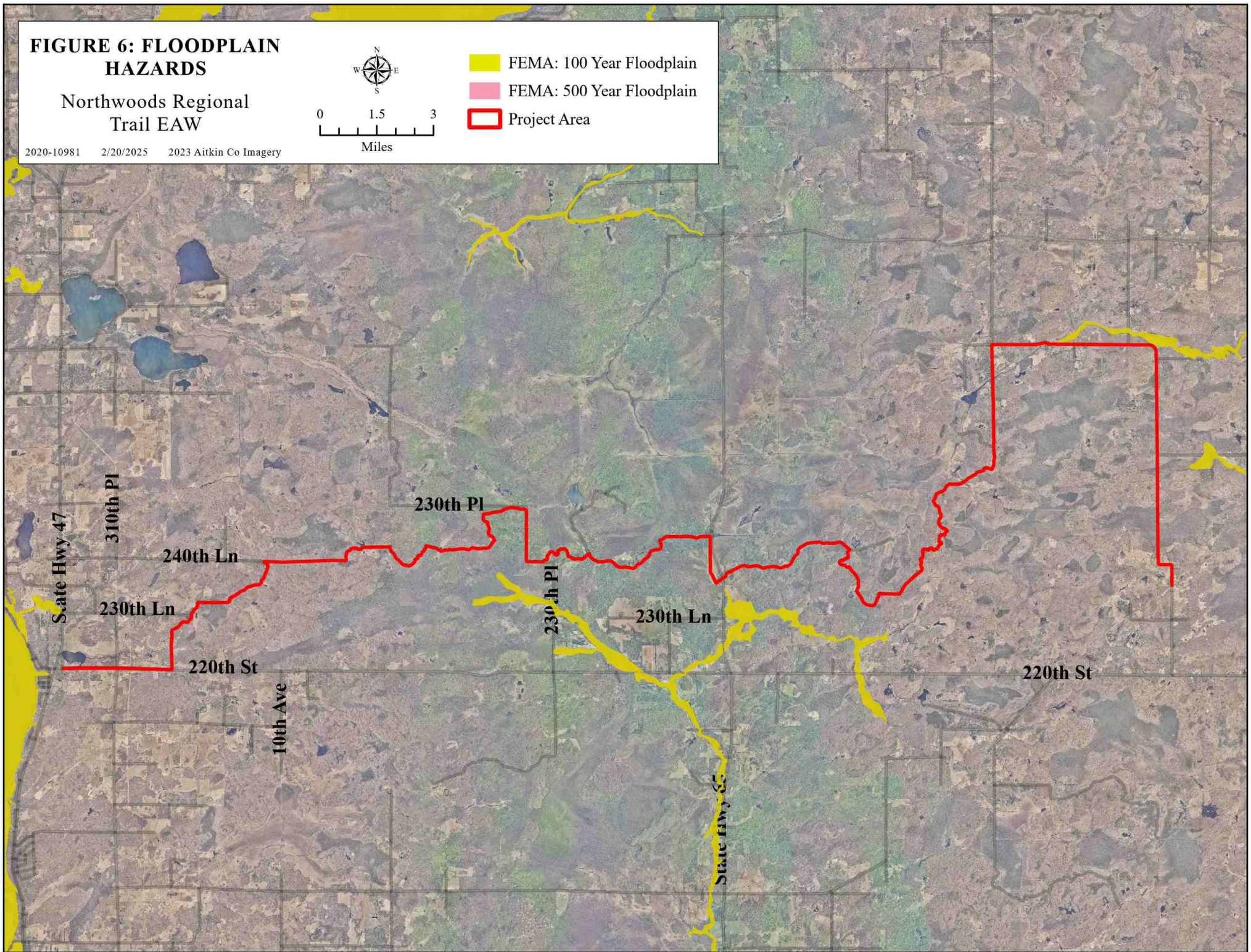
Northwoods Regional
Trail EAW

2020-10981 2/20/2025 2023 Aitkin Co Imagery



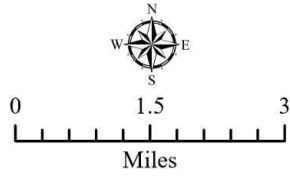
0 1.5 3
Miles

- FEMA: 100 Year Floodplain
- FEMA: 500 Year Floodplain
- Project Area



**FIGURE 7:
LAND USE & COVER**

Northwoods Regional
Trail EAW



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

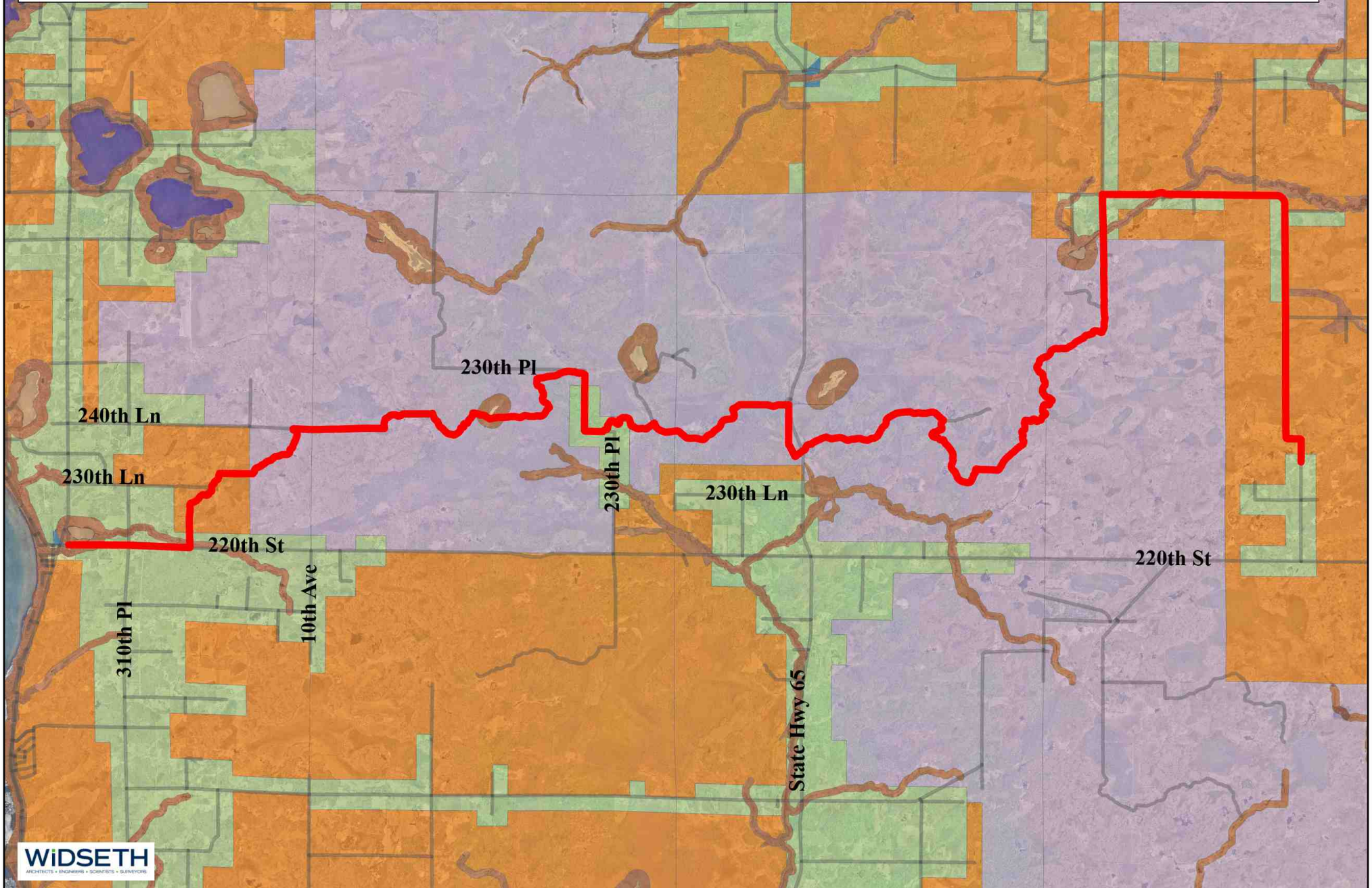
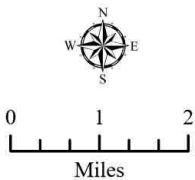


FIGURE 8: WELLHEAD PROTECTION AREAS & DRINKING WATER SUPPLY MANAGEMENT AREAS

Northwoods Regional Trail EAW



- Drinking Water Supply Management Area
- Wellhead Protection Area
- Project Area

2020-10981
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2023 Aitkin Co Imagery

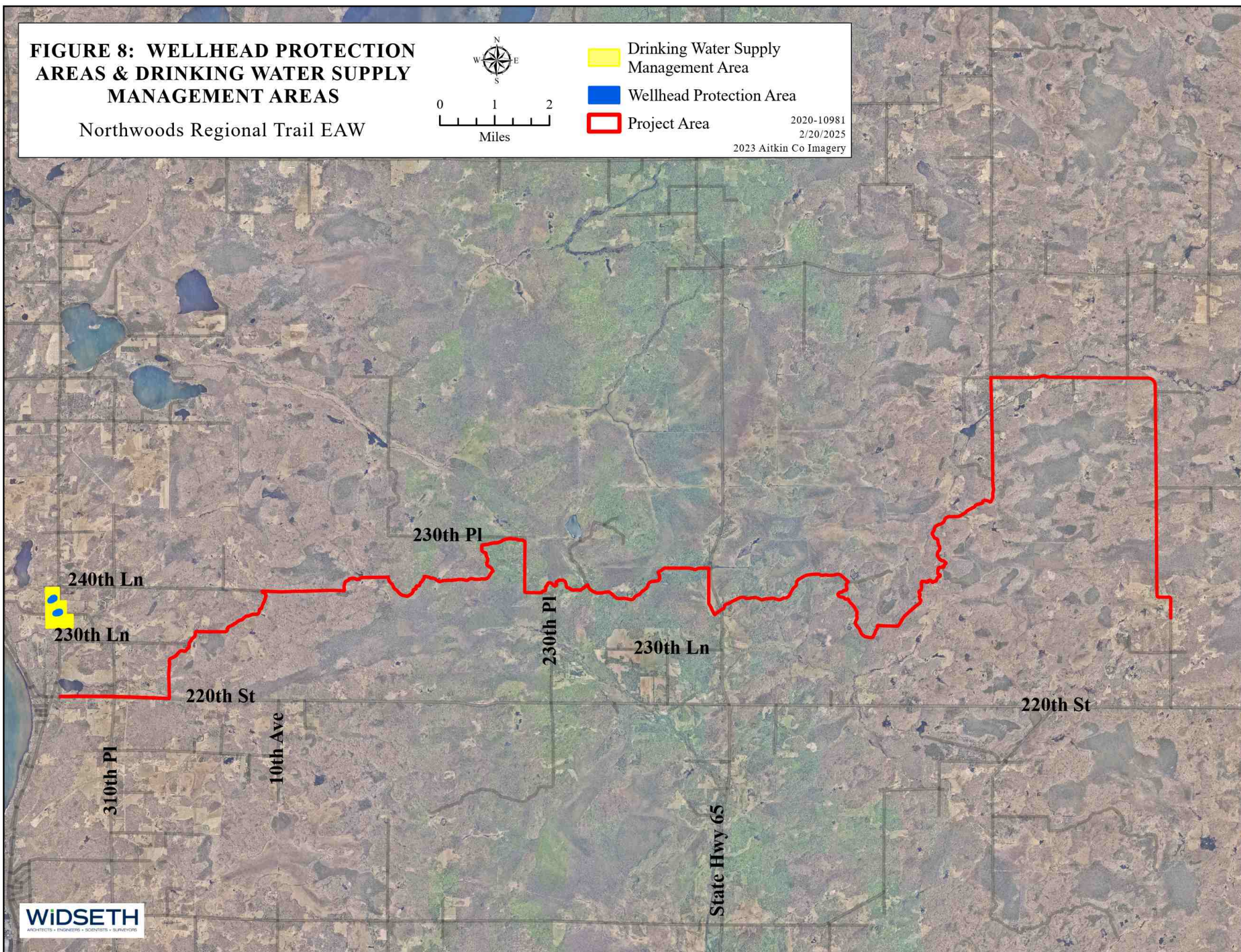
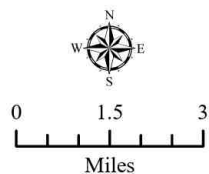


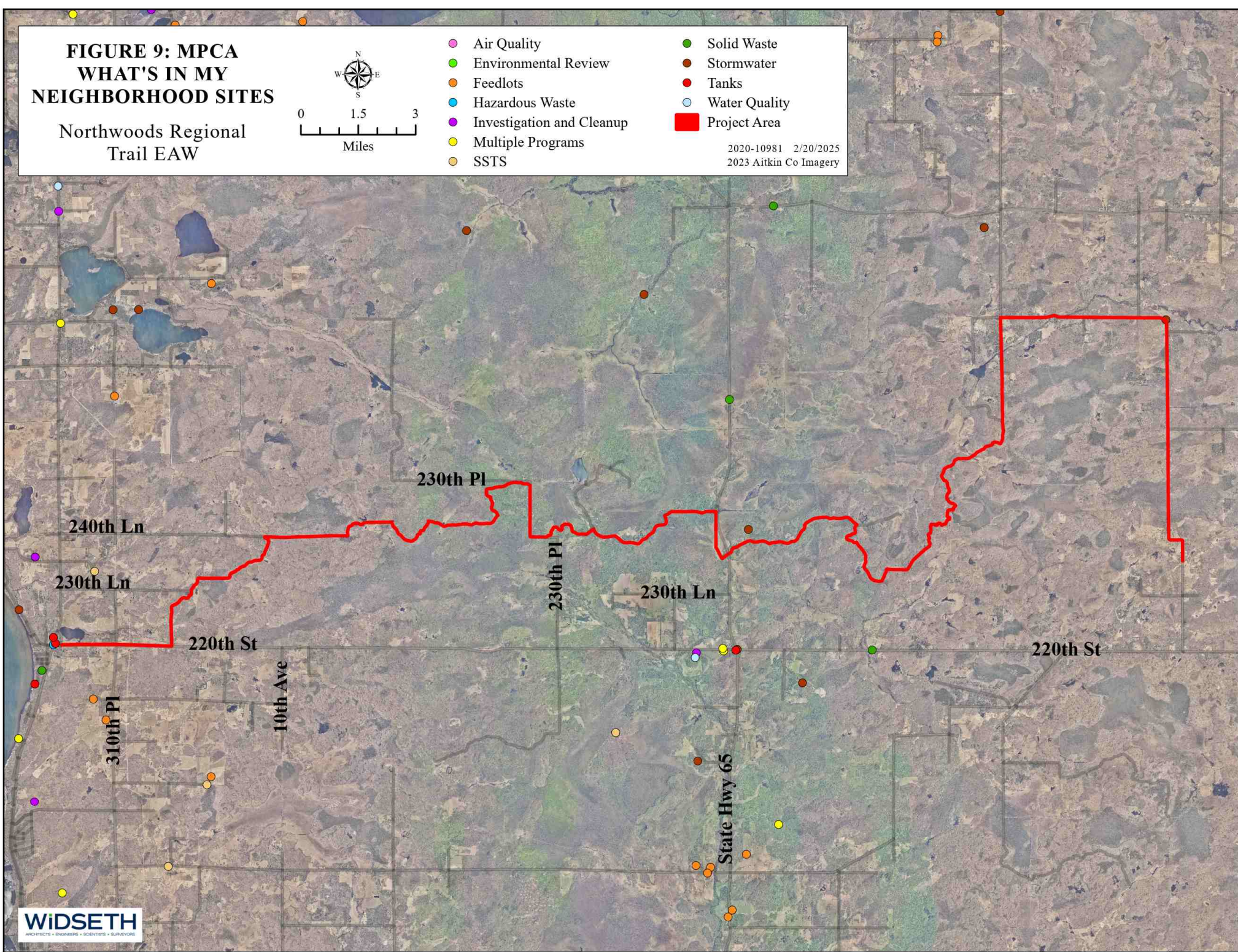
FIGURE 9: MPCA WHAT'S IN MY NEIGHBORHOOD SITES

Northwoods Regional
Trail EAW



- | | |
|-----------------------------|-----------------|
| ● Air Quality | ● Solid Waste |
| ● Environmental Review | ● Stormwater |
| ● Feedlots | ● Tanks |
| ● Hazardous Waste | ● Water Quality |
| ● Investigation and Cleanup | ■ Project Area |
| ● Multiple Programs | |
| ● SSTS | |

2020-10981 2/20/2025
2023 Aitkin Co Imagery



APPENDIX A

Economic Development Plan

AITKIN COUNTY ECONOMIC DEVELOPMENT STRATEGIC PLAN 2022-2027

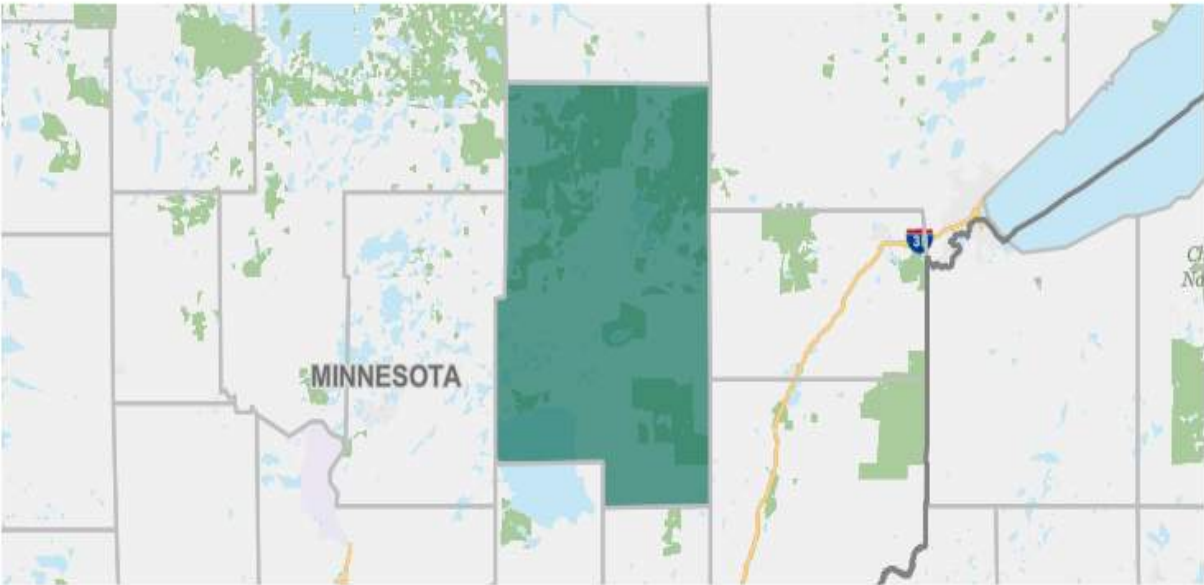


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1. Aitkin County Statistics (pg. 2-12)
2. SWOT Analysis (pg. 13)
3. Aitkin County Mission-Vision-Values (pg. 14)
4. Economic Development Mission-Vision-Values (pg. 15)
5. Foundations for Growth (pg. 16-20)
6. Priorities, Plan and Goals (pg. 21-24)
7. Appendix (pg. 25-29)

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
15,697



Median Household Income
\$49,351



Bachelor's Degree or Higher
18.1%



Employment Rate
46.3%



Total Housing Units
13,944



Without Health Care Coverage
4.1%



Total Employer Establishments
400



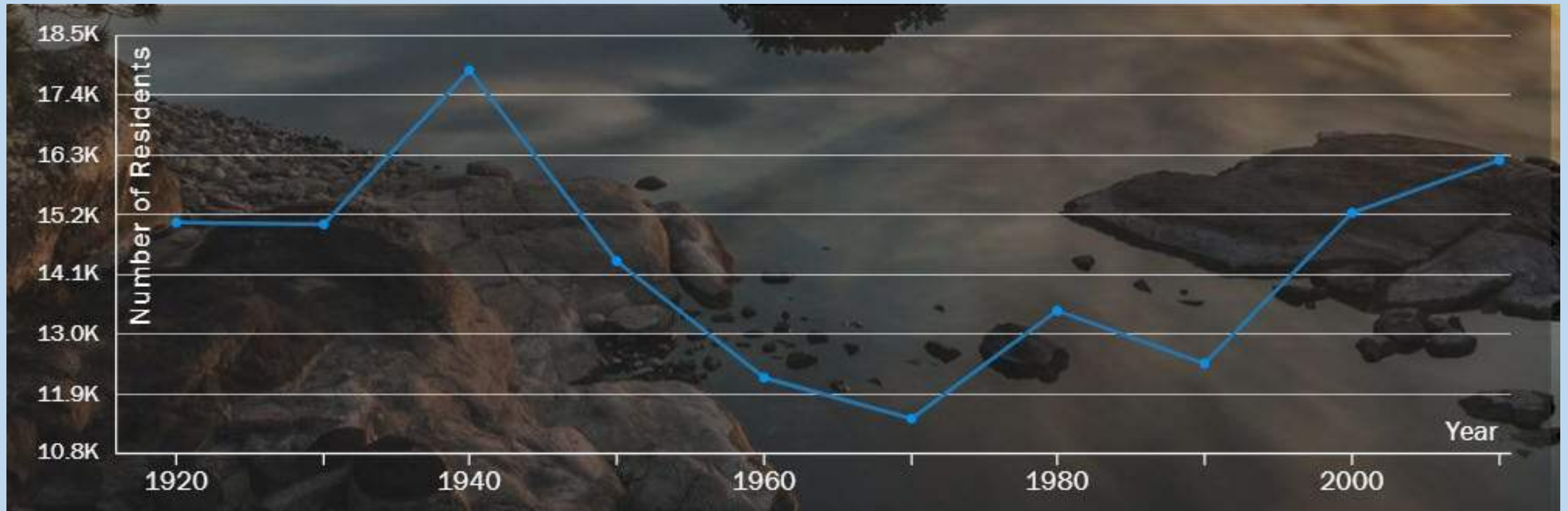
Total Households
7,681



Hispanic or Latino (of any race)
220

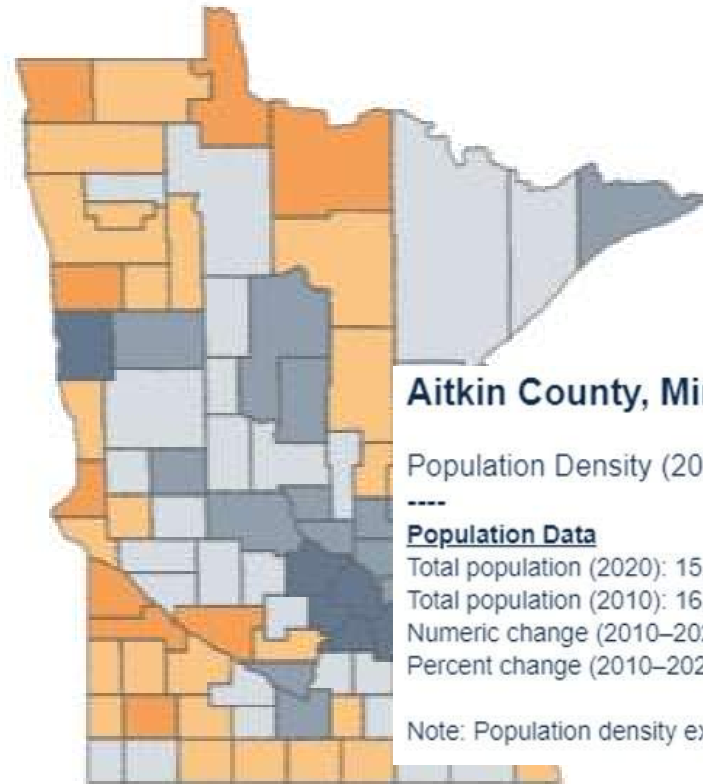


AITKIN COUNTY HISTORICAL POPULATION



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

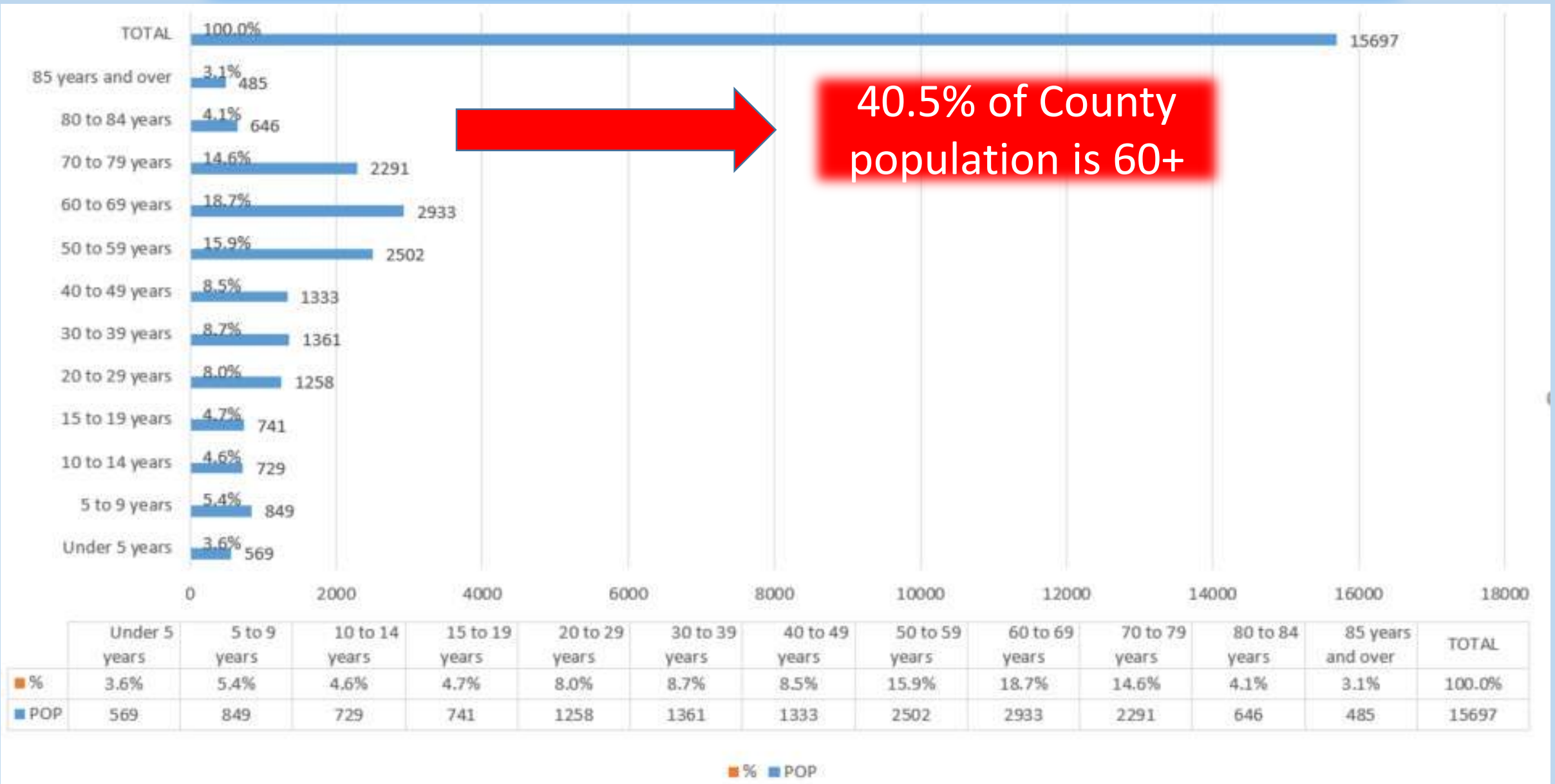
0.0 to 4.9

-4.9 to -0.1

-5.0 or less



AITKIN COUNTY POP BY AGE RANGE



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

Families - \$60,765



Married-couple families - \$67,265



Nonfamily households - \$27,559



\$0 \$10,000 \$20,000 \$30,000 \$40,000 \$50,000 \$60,000 \$70,000

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

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

Employee of private company workers - 59.0%



Self-employed in own incorporated business workers - 4.6%



Private not-for-profit wage and salary workers - 10.6%



Local, state, and federal government workers - 16.4%



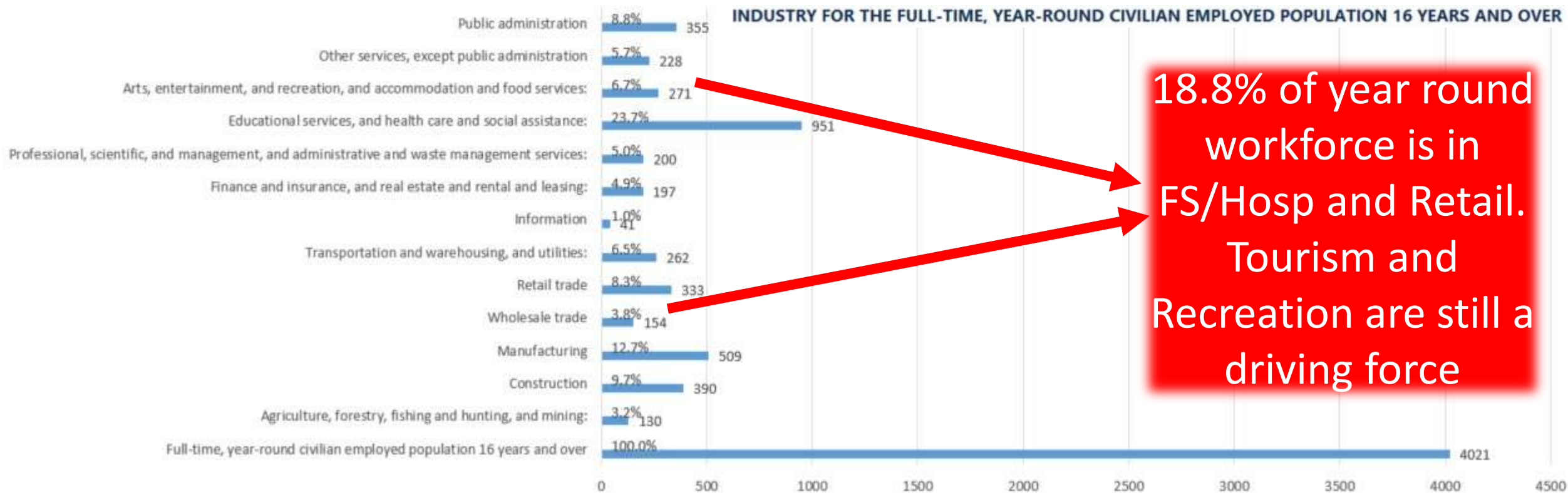
Self-employed in own not incorporated business workers and unpaid family workers - 9.3%



0% 10% 20% 30% 40% 50% 60%

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

BUSINESS & ECONOMY



	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

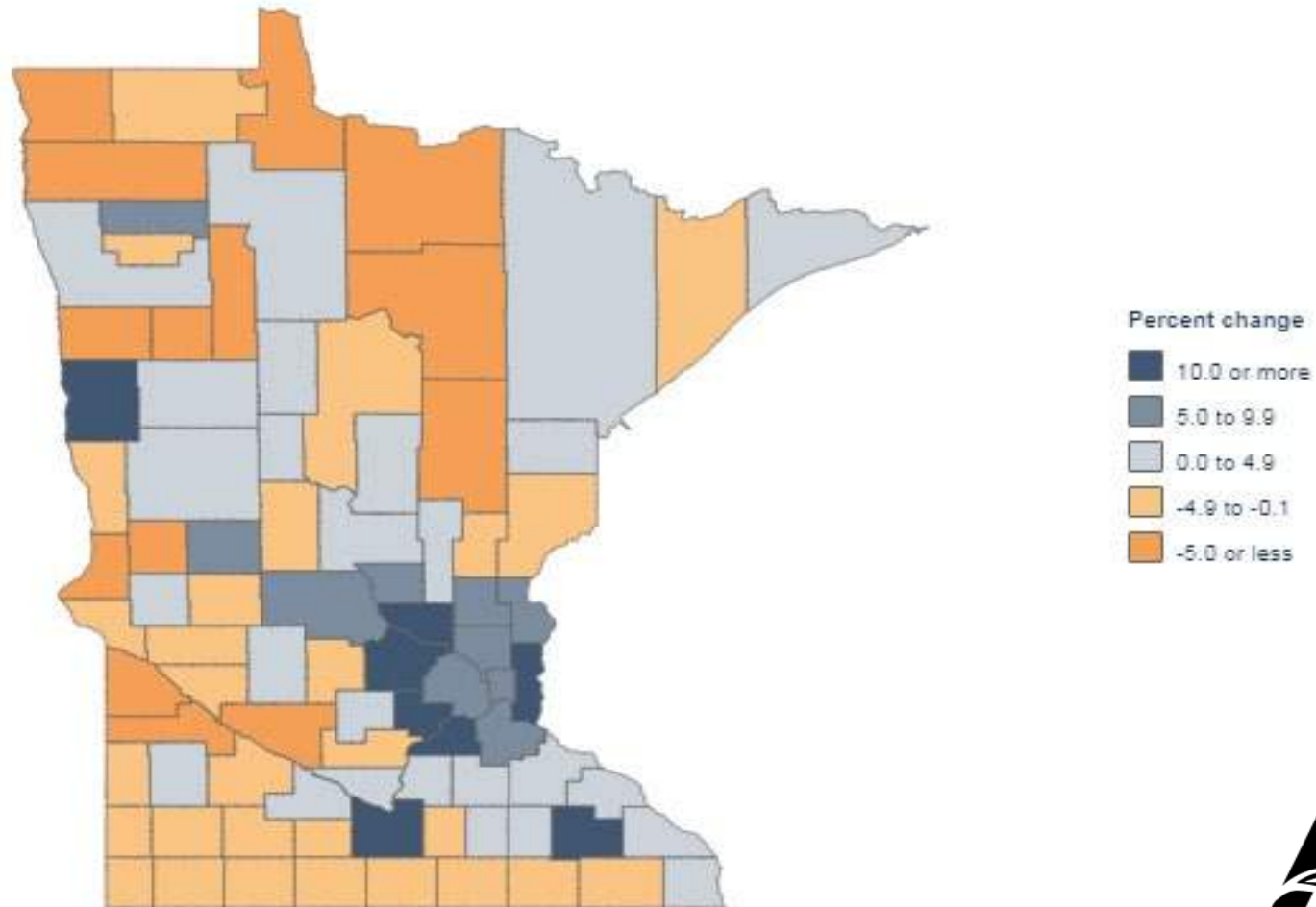
Table:

[DP04](#)

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

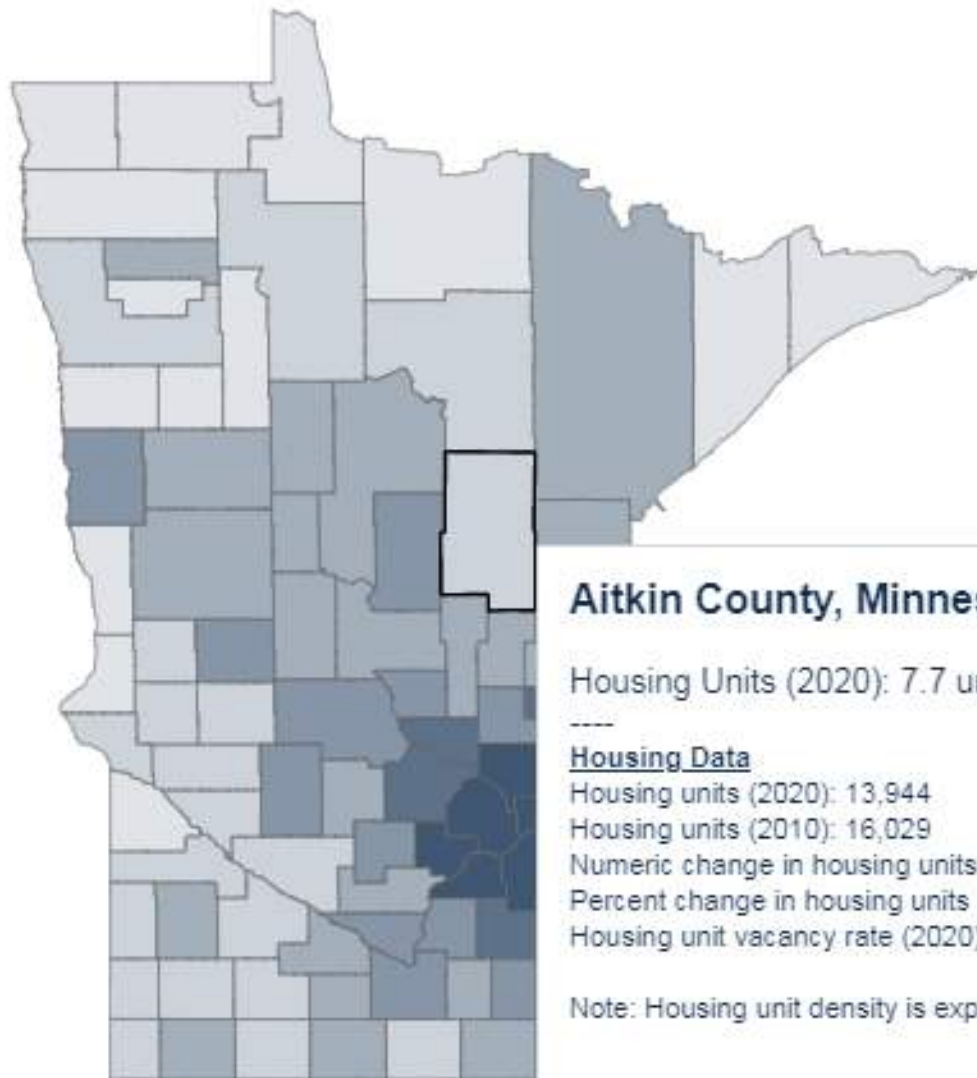
MN COUNTIES 2020 HOUSING UNITS % CHANGE +/-

Percent Change in Housing Units for Minnesota
Counties: 2010–2020



AITKIN COUNTY 2020 HOUSING UNIT DENSITY CHANGE +/-

Housing Unit Density in Minnesota Counties: 2020



Units per square mile

100.0 or more

50.0 to 99.9

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 mile of land area.

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
		8,731
		8,354
		8,191
		8,157



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

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.



FOUNDATION FOR GROWTH



WORKFORCE
ATTRACTION



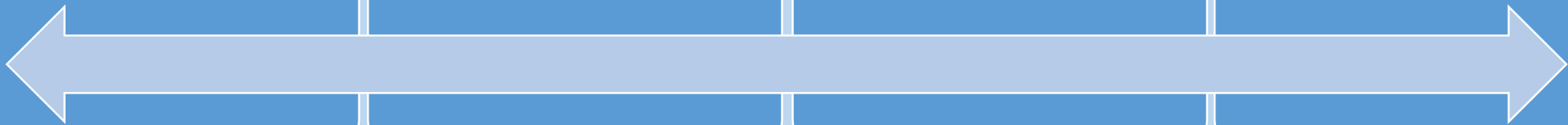
AGGRESSIVE
ECONOMIC
DEVELOPMENT



COMMUNITY
RESOURCES



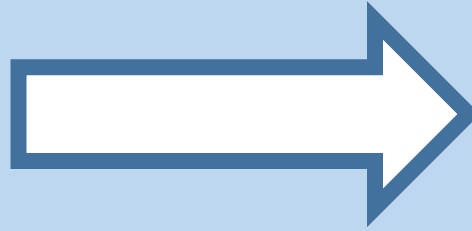
FOUNDATIONAL
ASSETS



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

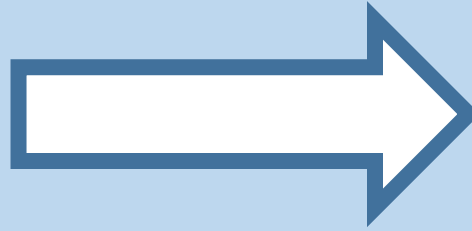
FOUNDATIONAL ASSETS:

- Housing
- Broadband

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

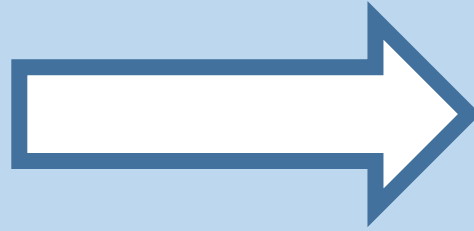
FOUNDATIONAL ASSETS:

- Housing
- Broadband

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

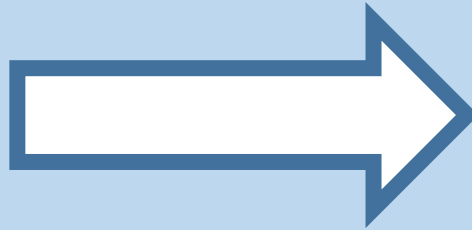
FOUNDATIONAL ASSETS:

- Housing
- Broadband

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 initiatives and focus for Telemedicine	2022-2027
	Support local initiatives 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 initiatives and focus for Telemedicine	2022-2027
	Support local initiatives 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=05000000US27001>



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
16,089



MEDIAN HOUSEHOLD INCOME
\$57,163



POVERTY RATE
10.0%



BACHELOR'S DEGREE OR HIGHER
14.7%



EMPLOYMENT RATE
59.9%



TOTAL HOUSING UNITS
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
29,223



MEDIAN HOUSEHOLD INCOME
\$53,422



POVERTY RATE
11.0%



BACHELOR'S DEGREE OR HIGHER
14.9%



EMPLOYMENT RATE
53.1%



TOTAL HOUSING UNITS
17,596

People and Population

Age and Sex

45.0 +/- 0.3

Median age in Pine County, Minnesota

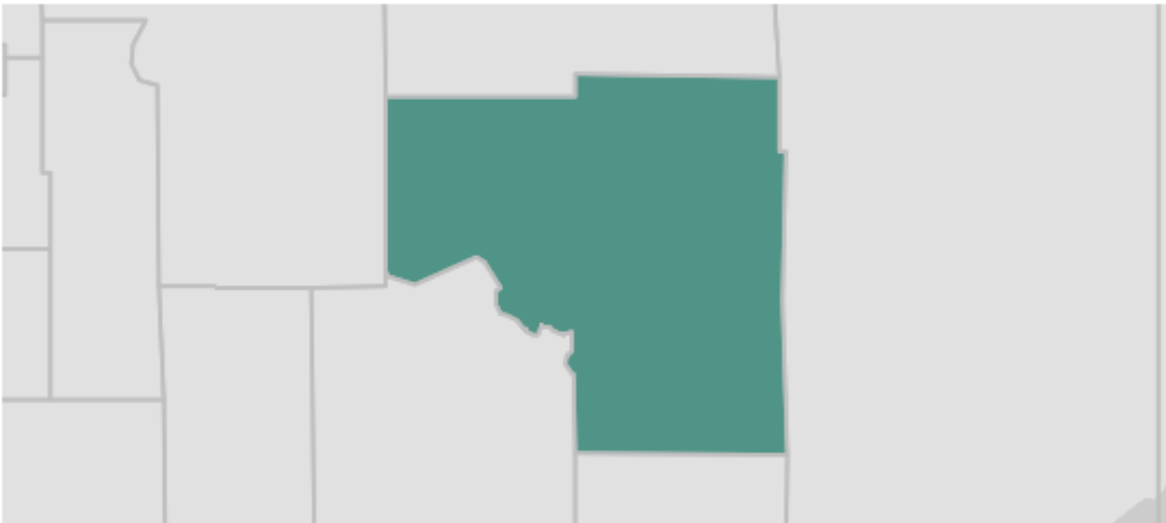
Population by Age Range in Pine County, Minnesota

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
45,141



MEDIAN HOUSEHOLD INCOME
\$55,139



POVERTY RATE
12.2%



BACHELOR'S DEGREE OR HIGHER
23.1%



EMPLOYMENT RATE
54.0%



TOTAL HOUSING UNITS
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
64,217



MEDIAN HOUSEHOLD INCOME
\$56,549



POVERTY RATE
10.8%



BACHELOR'S DEGREE OR HIGHER
24.7%



EMPLOYMENT RATE
59.5%



TOTAL HOUSING UNITS
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

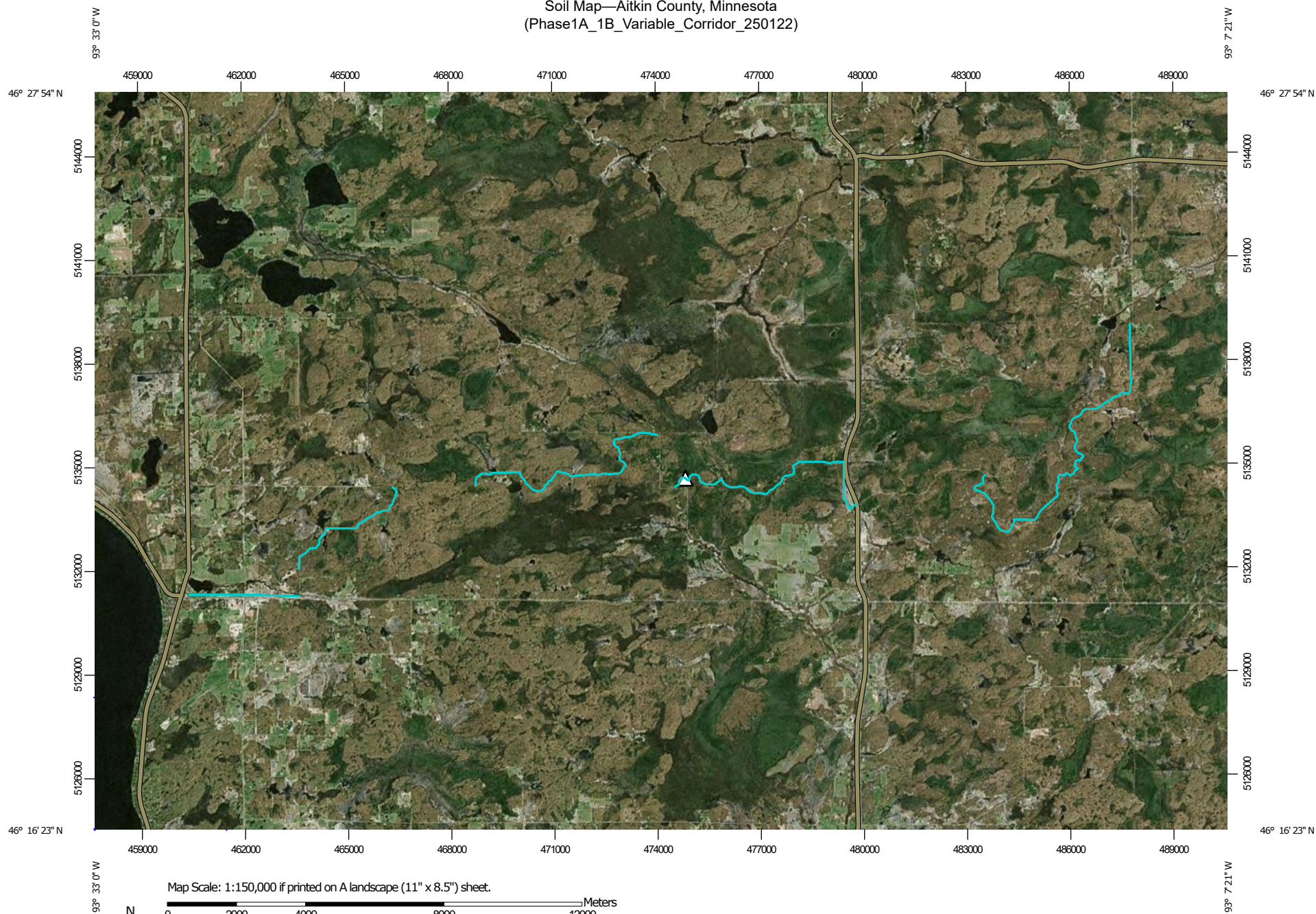
Under 5 years - 5.5%



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.

0 2000 4000 8000 12000 Meters

0 5000 10000 20000 30000 Feet

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



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

3/5/2025
Page 1 of 3

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	Seelyville, 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

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**

I. INTRODUCTION	1
II. METHODOLOGY	1
III. OFFSITE EXAMINATION.....	2
IV. DELINEATION RESULTS.....	3
V. DISCUSSION AND CONCLUSIONS	3
VI. STANDARD OF CARE	4

TABLES

TABLE 1	SUMMARY OF SOILS WITHIN THE PROJECT AREA
TABLE 2	SUMMARY OF WETLANDS WITHIN THE PROJECT AREA
TABLE 3	SUMMARY OF WETLANDS IN DITCHES WITHIN THE PROJECT AREA
TABLE 4	SUMMARY OF WATERWAYS WITHIN THE PROJECT AREA

FIGURES

FIGURE 1	SITE LOCATION
FIGURE 2	PROJECT OVERVIEW
FIGURE 3	NATIONAL WETLANDS INVENTORY
FIGURE 4	PUBLIC WATERS INVENTORY
FIGURE 5	SOILS
FIGURE 6	WETLAND DELINEATION

APPENDICES

APPENDIX A	WETLAND DETERMINATION DATA FORMS
APPENDIX B	PRECIPITATION DATA
APPENDIX C	SITE PHOTOGRAPHS

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

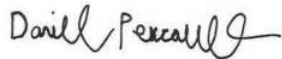
Widseth conducted an aquatic resources delineation of a 112.4-acre Project Area located in Aitkin County, Minnesota. The objective of the wetland delineation survey was to identify the extent and spatial arrangement of aquatic resources located within the Project Area.

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.



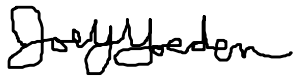
9-23-2024

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

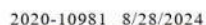
Table 4. Summary of Waterways within the Project Area

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

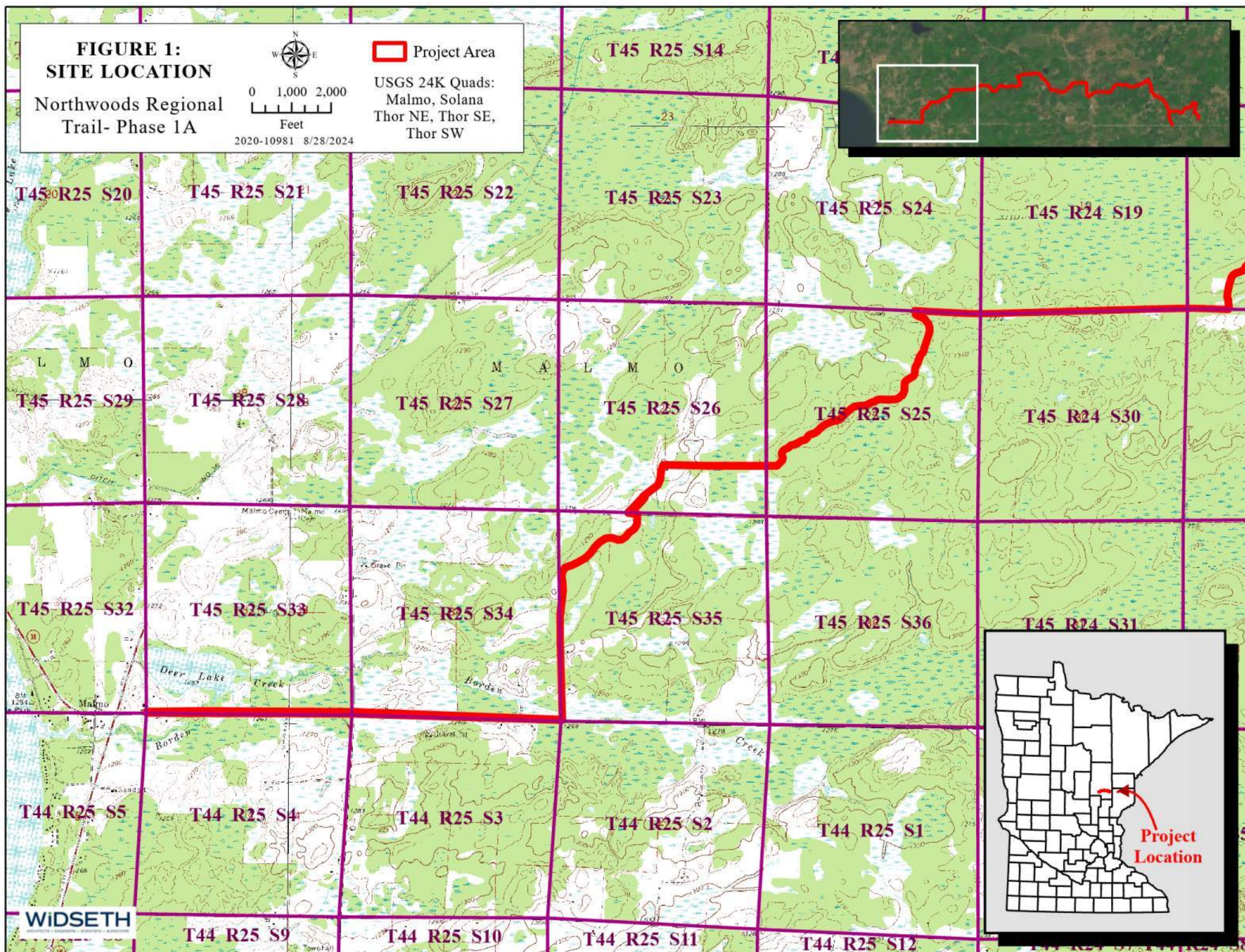
*Square feet and acreage may vary slightly due to rounding

FIGURES

Northwoods Regional Trail- Phase 1A

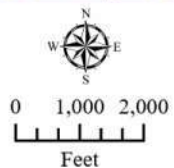


USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW



**FIGURE 1:
SITE LOCATION**

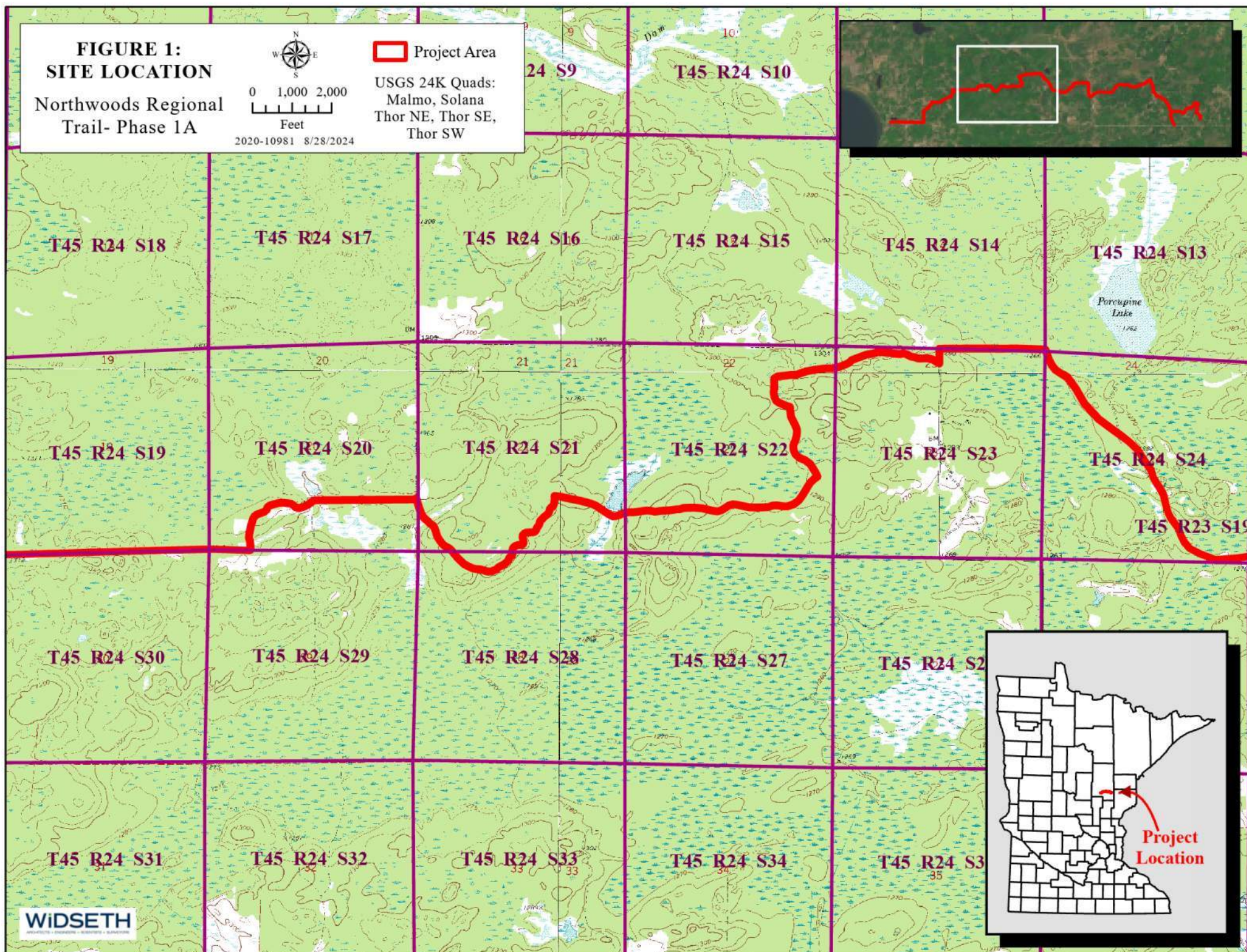
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Trail- Phase 1A



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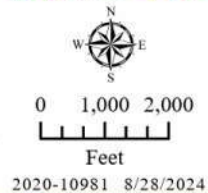
Project Area

USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW

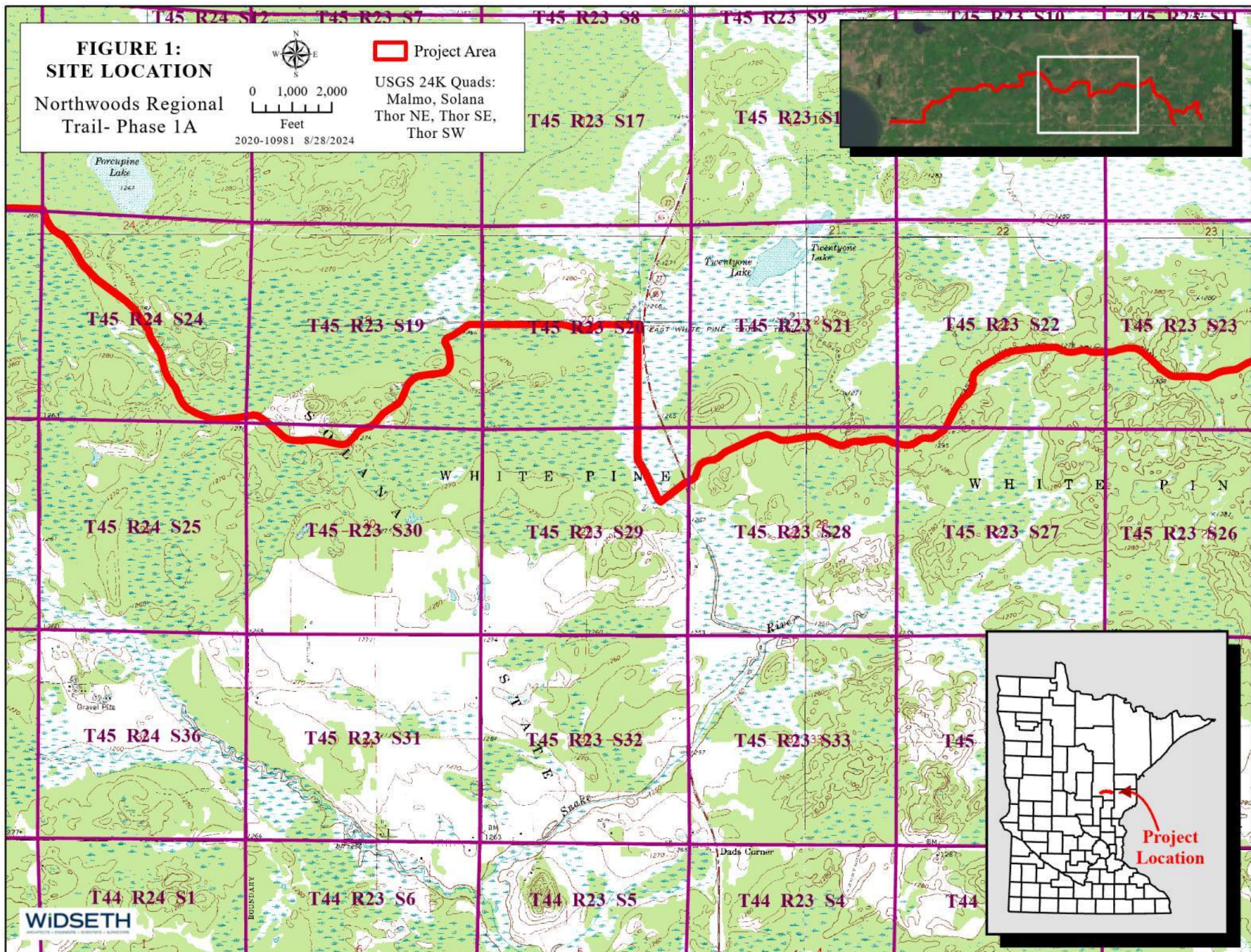


**FIGURE 1:
SITE LOCATION**

Northwoods Regional
Trail- Phase 1A



Project Area
USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW

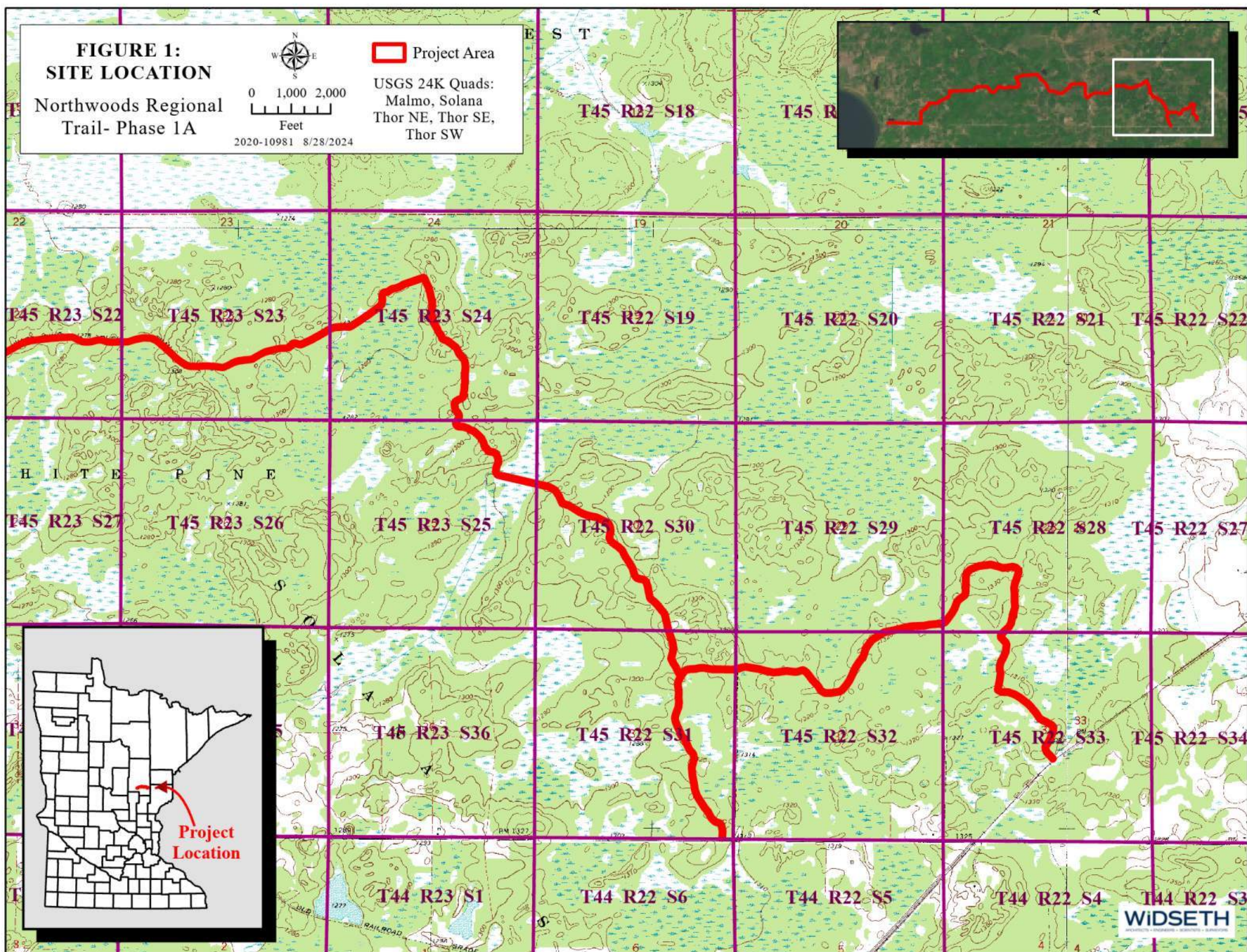


**FIGURE 1:
SITE LOCATION**

Northwoods Regional
Trail- Phase 1A



Project Area
USGS 24K Quads:
Malmo, Solana
Thor NE, Thor SE,
Thor SW



**FIGURE 2:
PROJECT
OVERVIEW**

Northwoods
Regional
Trail- Phase 1A

2020-10981

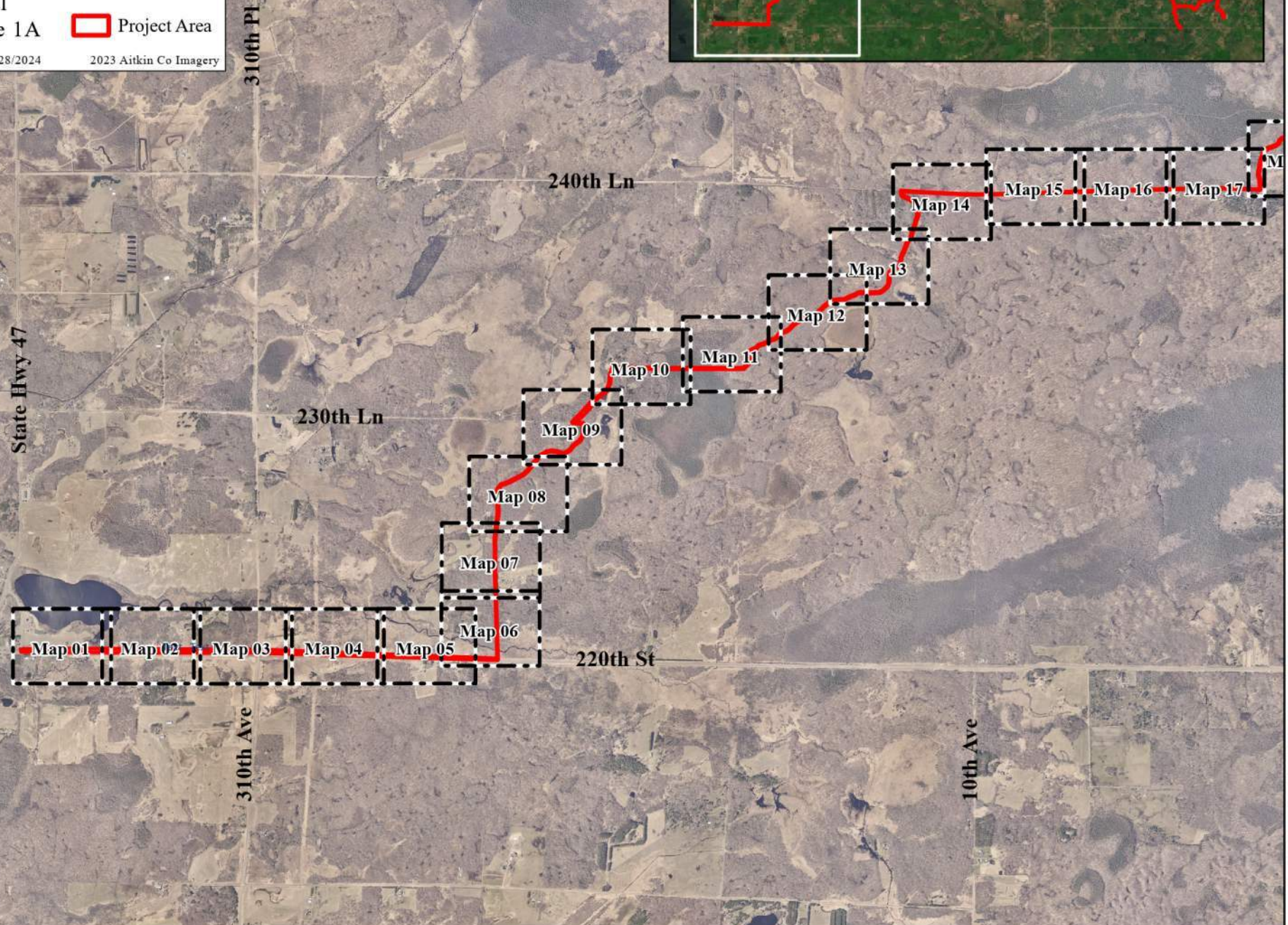
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0 1,000 2,000
Feet

 Project Area



**FIGURE 2:
PROJECT
OVERVIEW**

Northwoods
Regional
Trail- Phase 1A

2020-10981

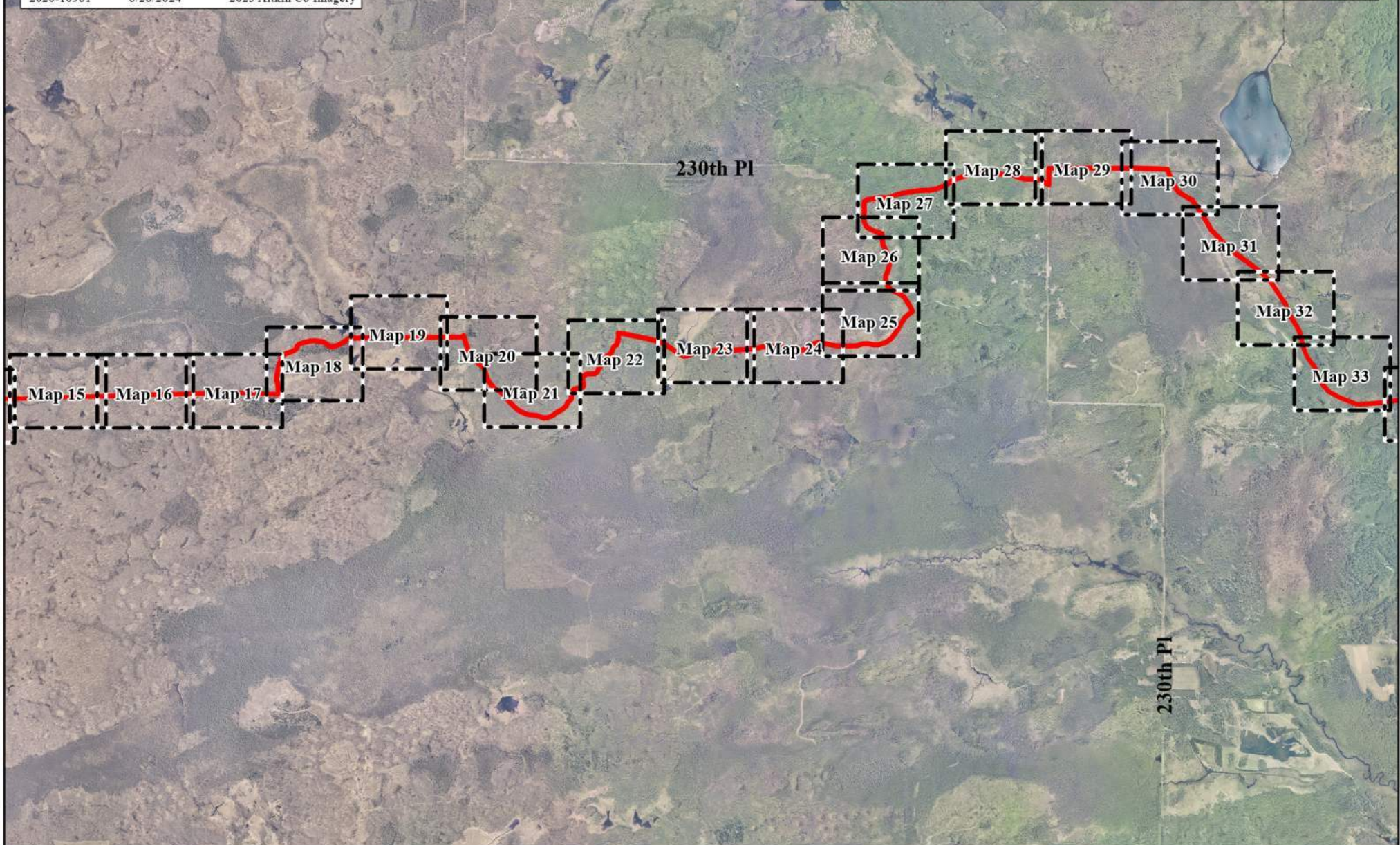
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0 1,000 2,000
Feet

 Project Area



**FIGURE 2:
PROJECT
OVERVIEW**

Northwoods
Regional
Trail- Phase 1A

2020-10981

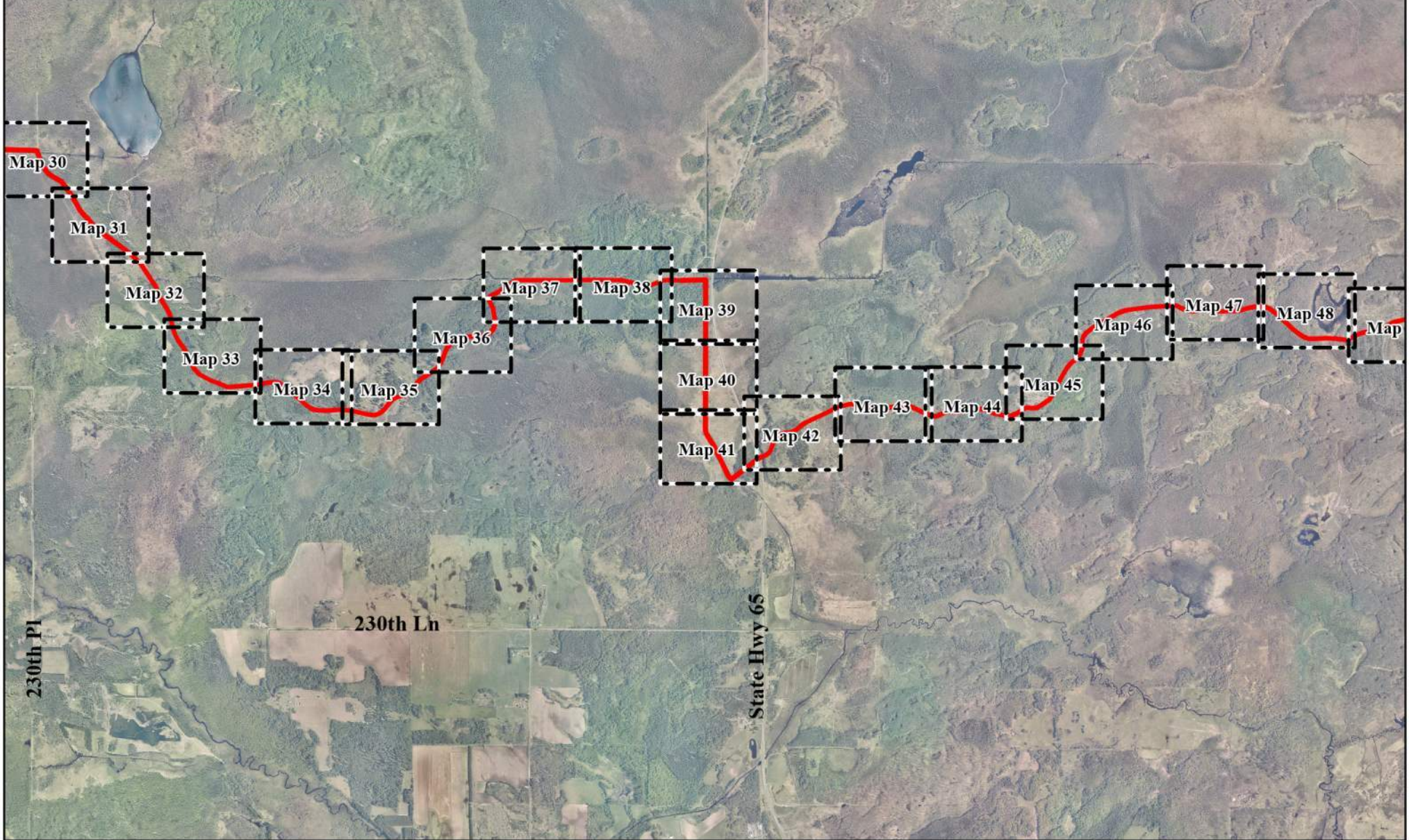
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0 1,000 2,000
Feet

 Project Area



**FIGURE 2:
PROJECT
OVERVIEW**

Northwoods
Regional
Trail- Phase 1A

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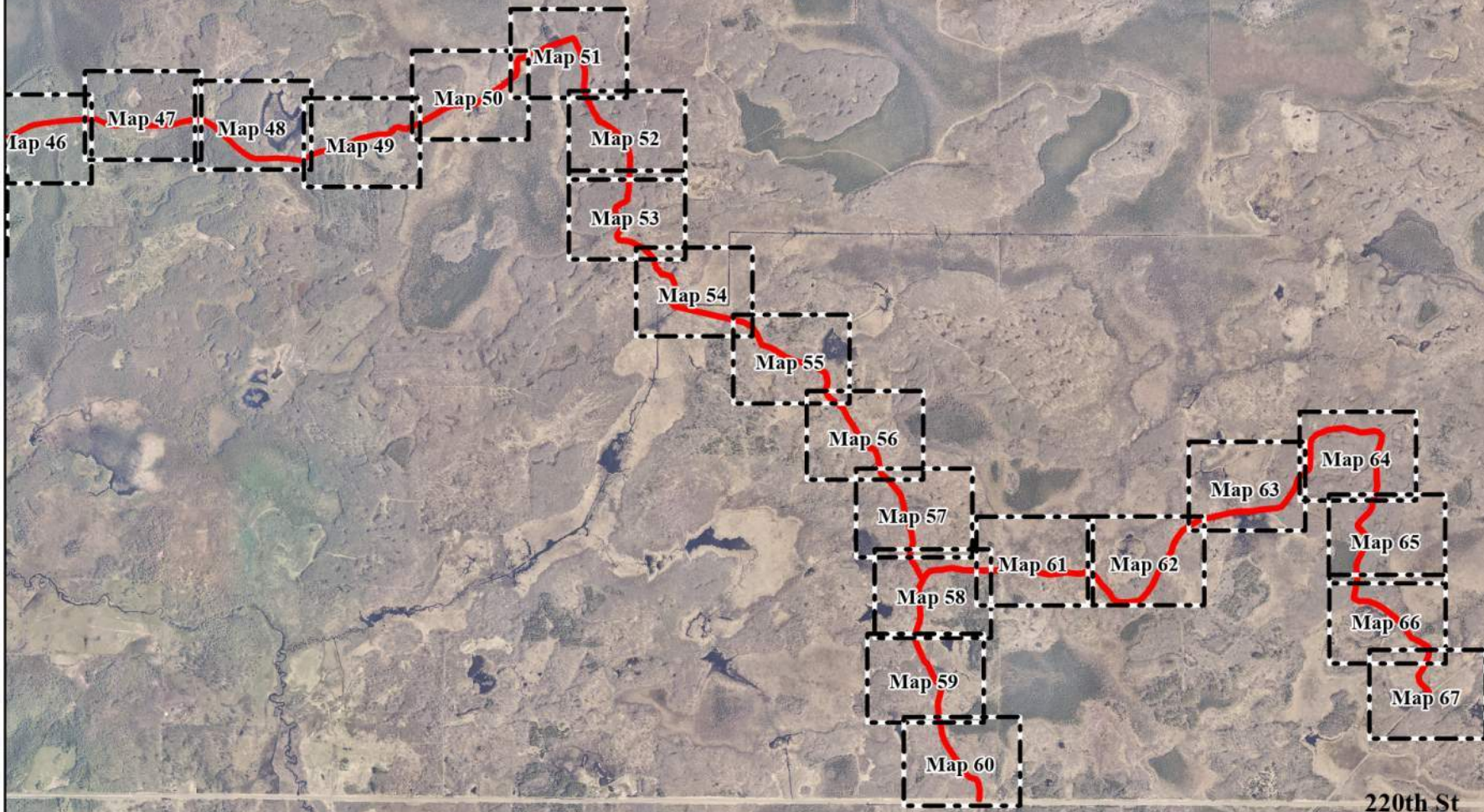
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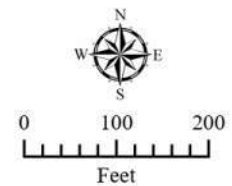
0 1,000 2,000
Feet


 Project Area



**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 01)**

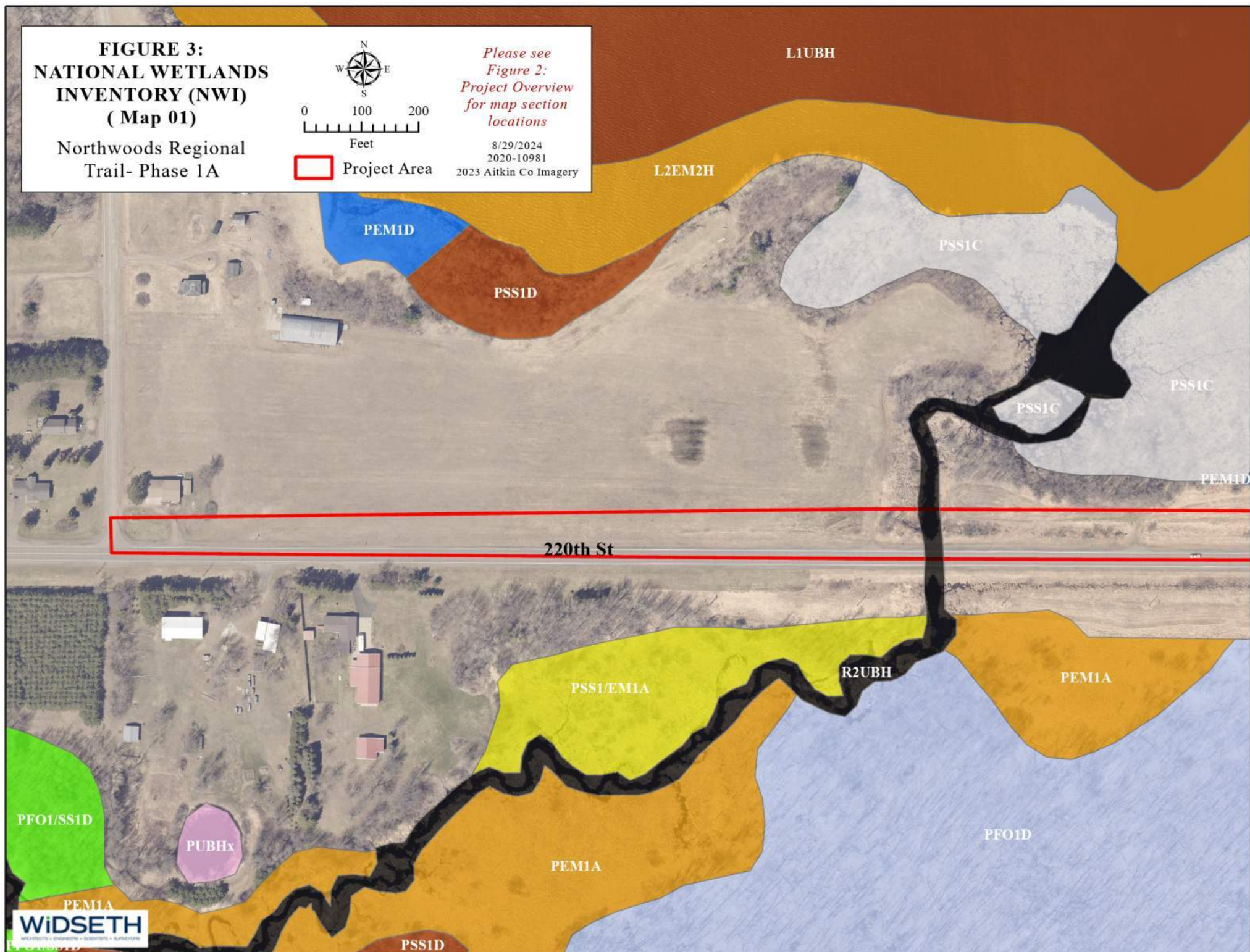
Northwoods Regional
Trail- Phase 1A



 Project Area

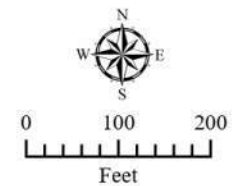
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for map section
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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 02)**

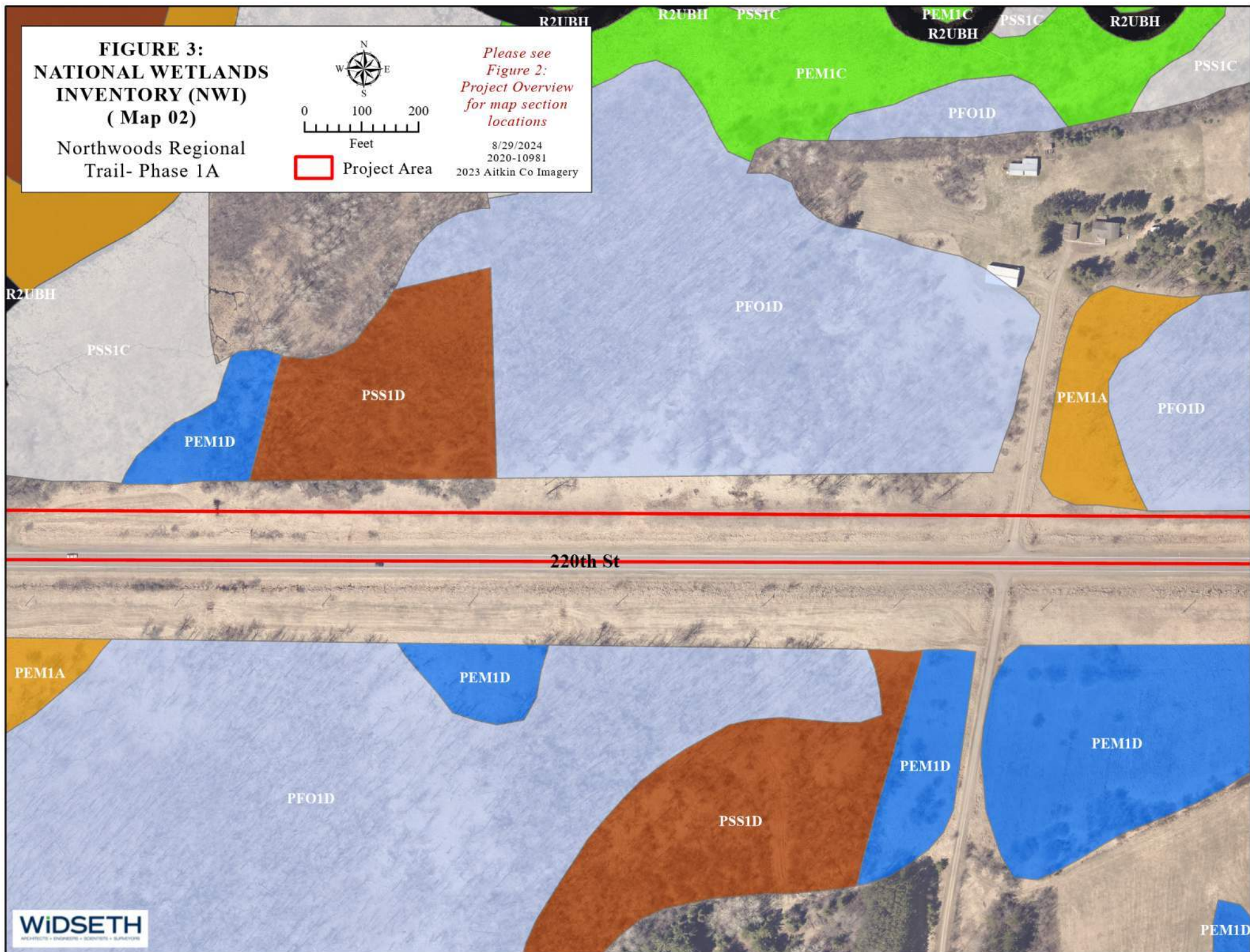
Northwoods Regional
Trail- Phase 1A



 Project Area

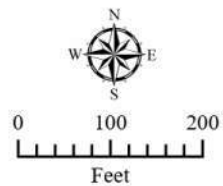
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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 03)**

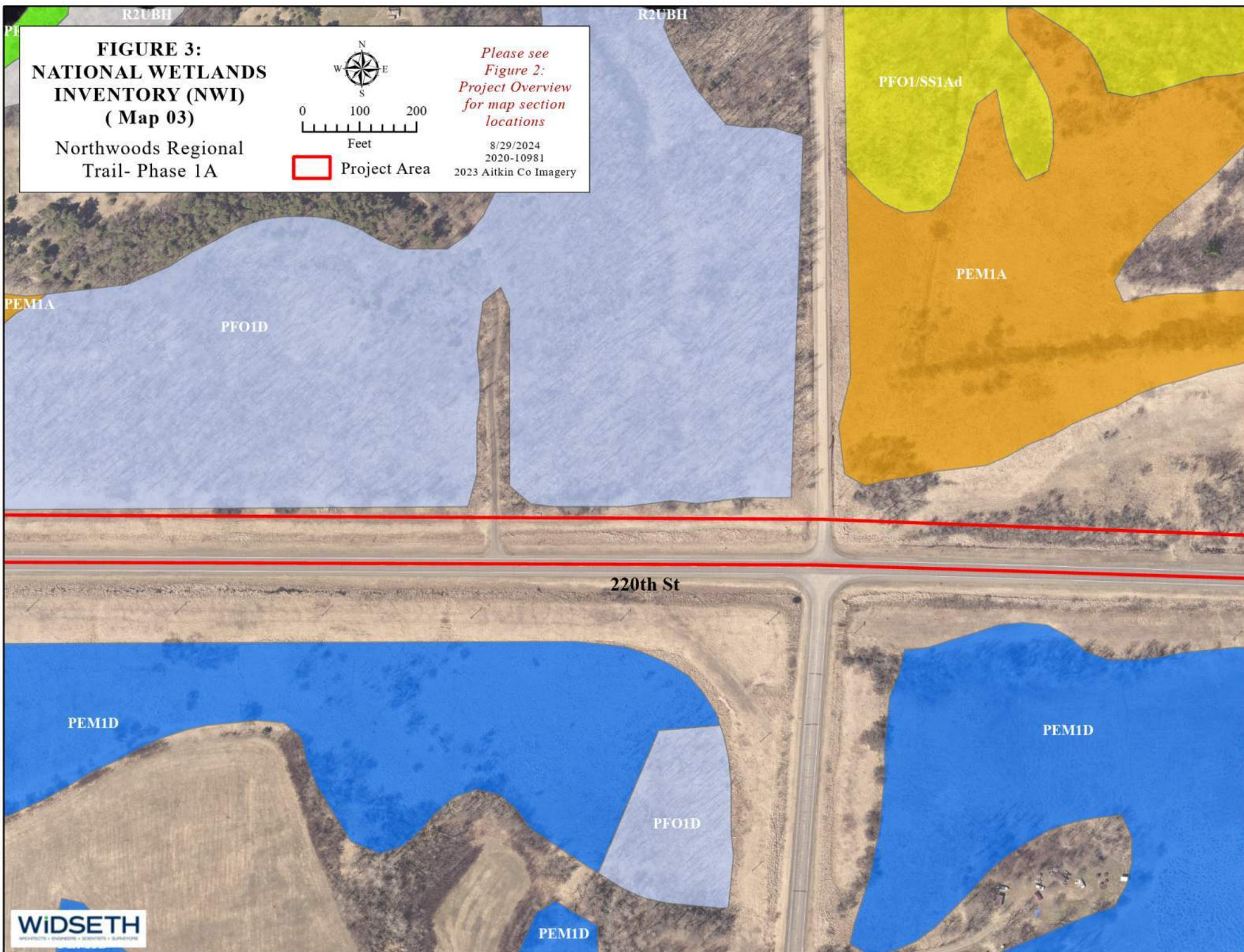
Northwoods Regional
Trail- Phase 1A



 Project Area

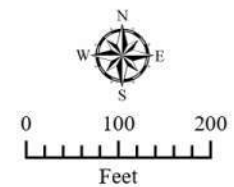
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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 04)**

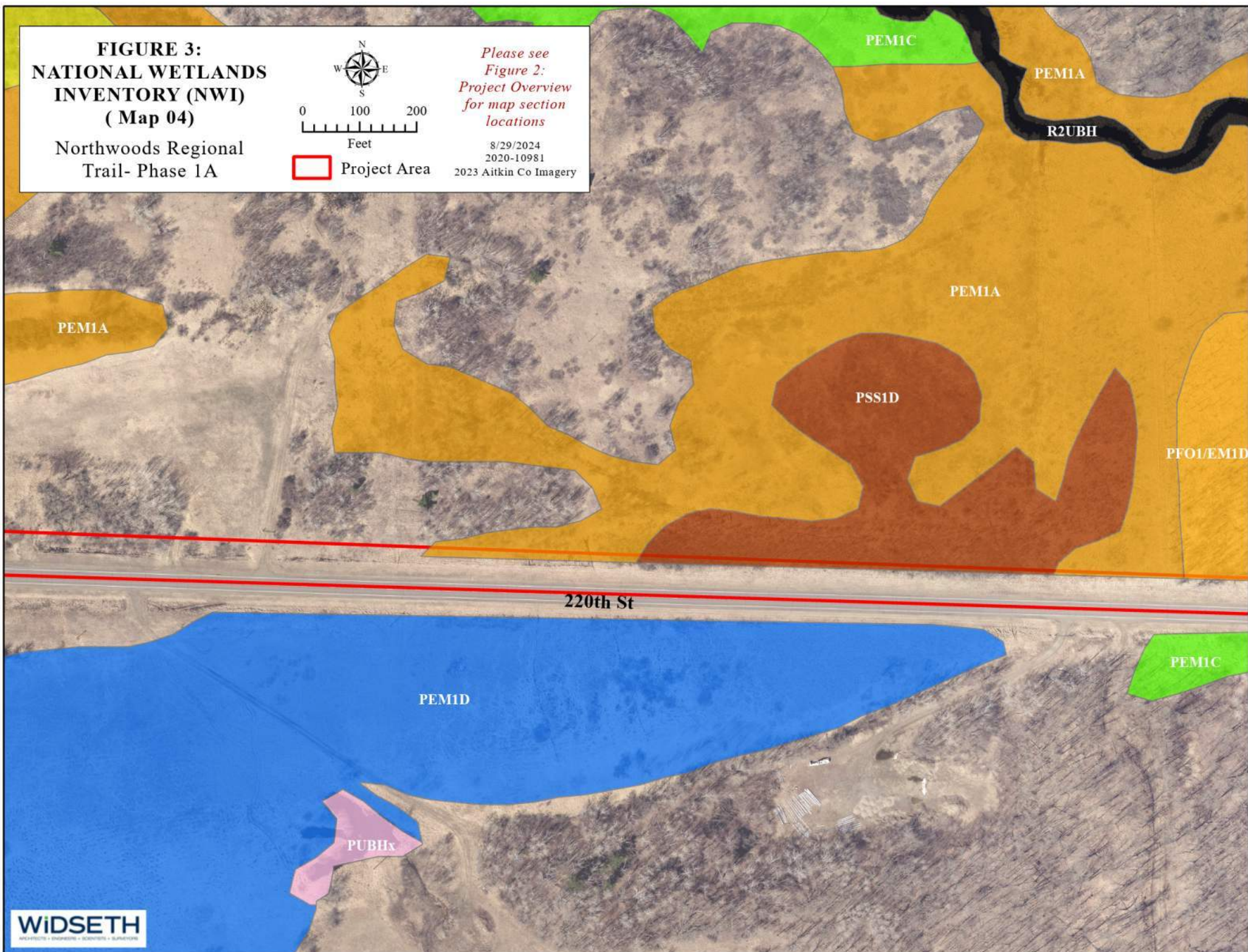
Northwoods Regional
Trail- Phase 1A



 Project Area

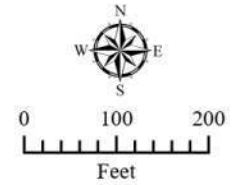
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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 05)**

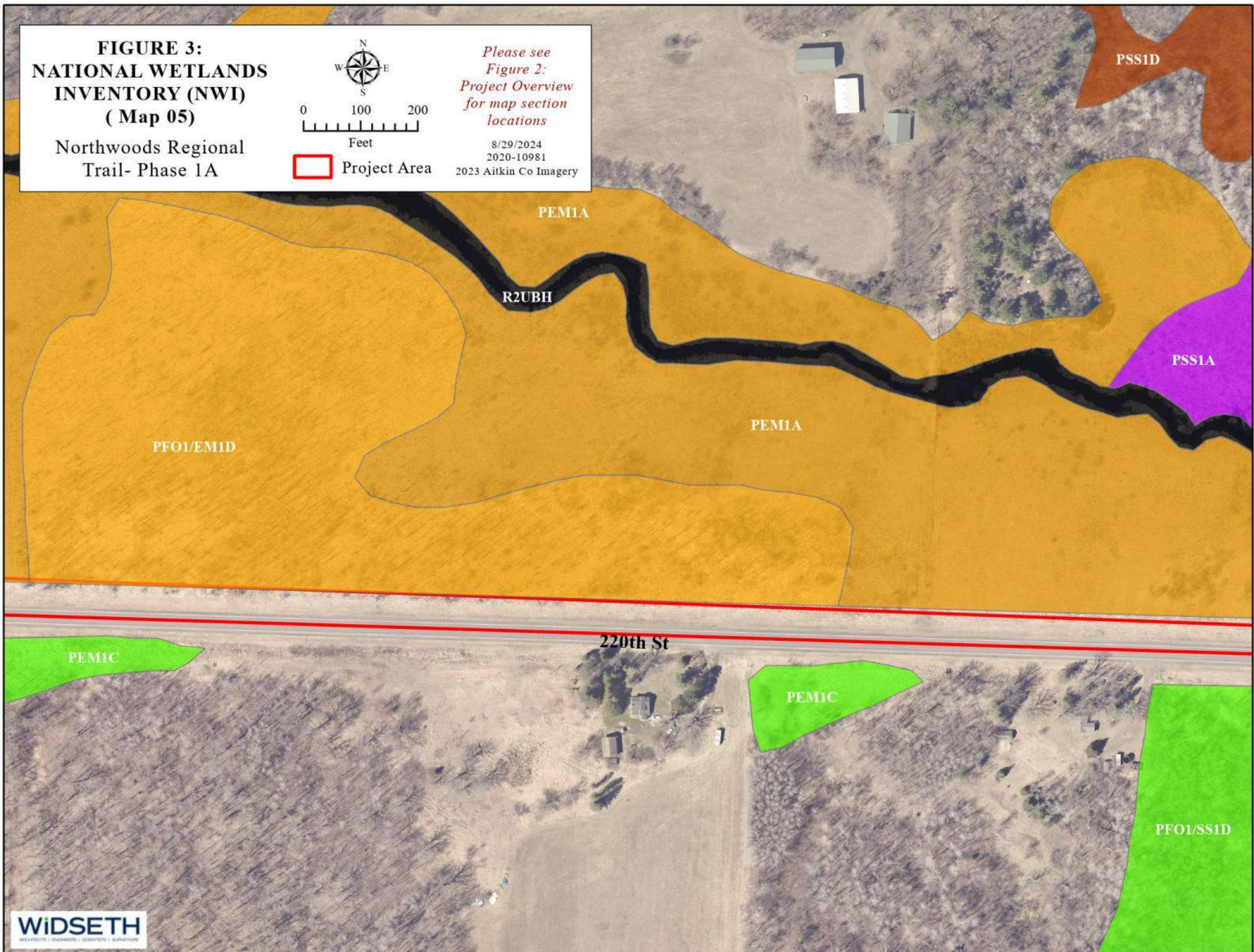
Northwoods Regional
Trail- Phase 1A



 Project Area

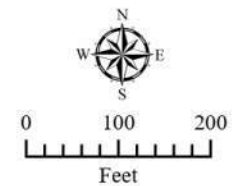
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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 06)**

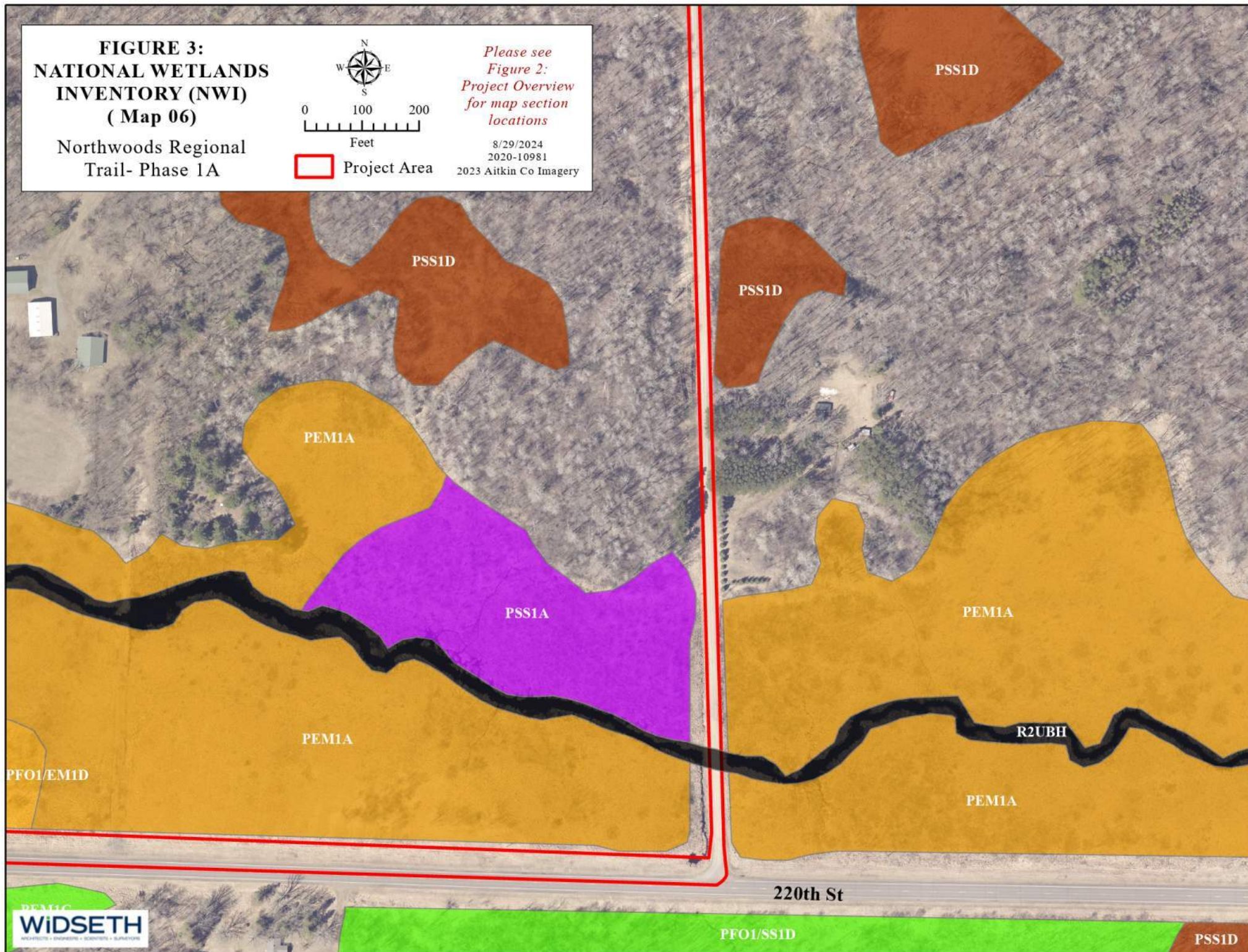
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Trail- Phase 1A



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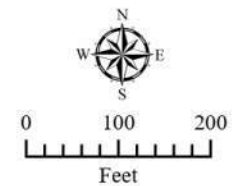
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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 07)**

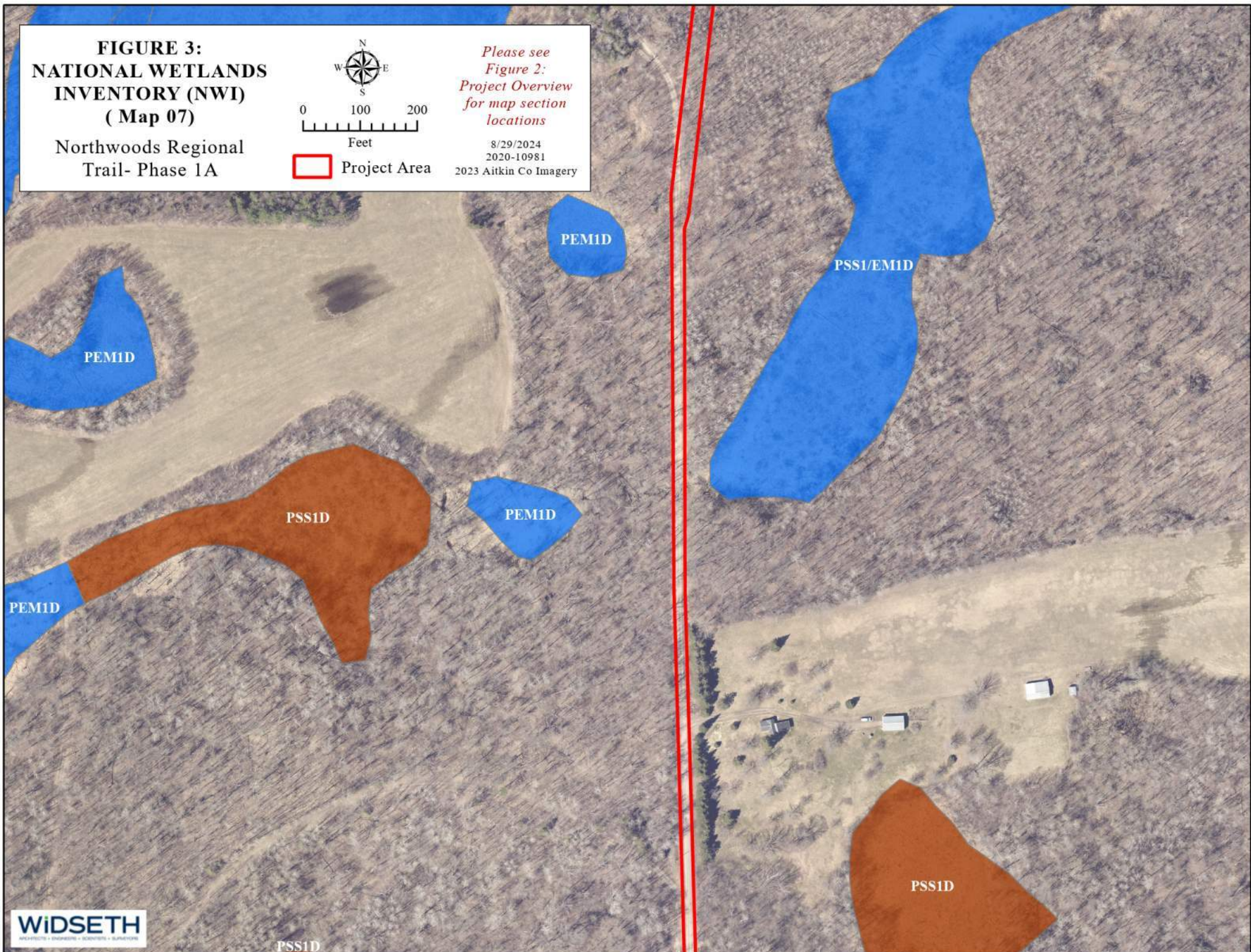
Northwoods Regional
Trail- Phase 1A



 Project Area

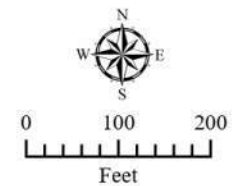
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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 08)**

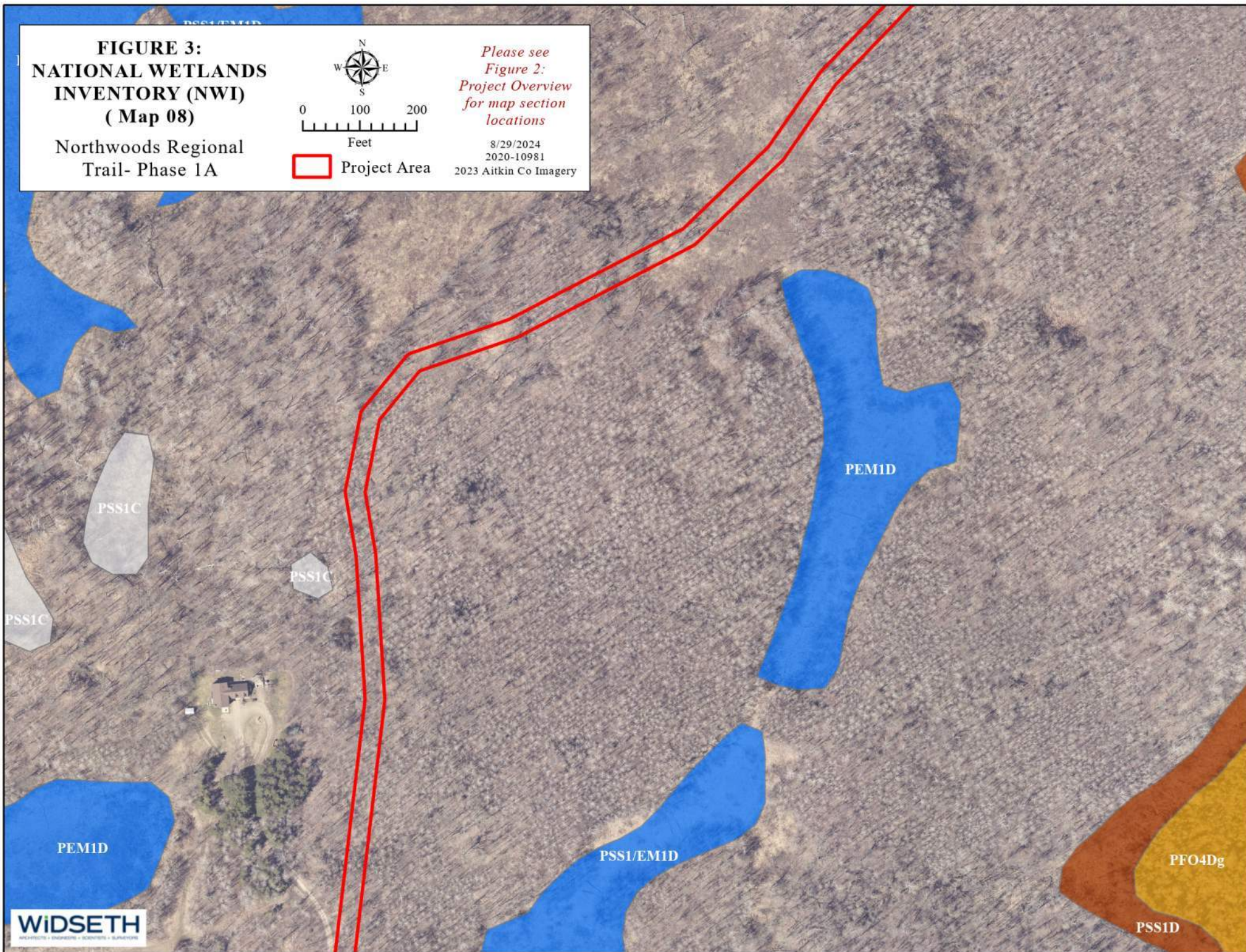
Northwoods Regional
Trail- Phase 1A



 Project Area

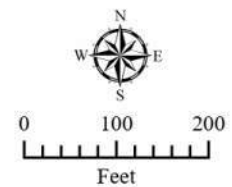
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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 09)**

Northwoods Regional
Trail- Phase 1A



 Project Area

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PSS1D

PSS1D

PUBHb

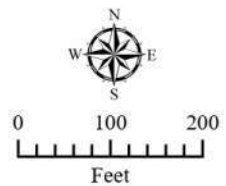
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PEM1Db

PSS1D

**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 10)**

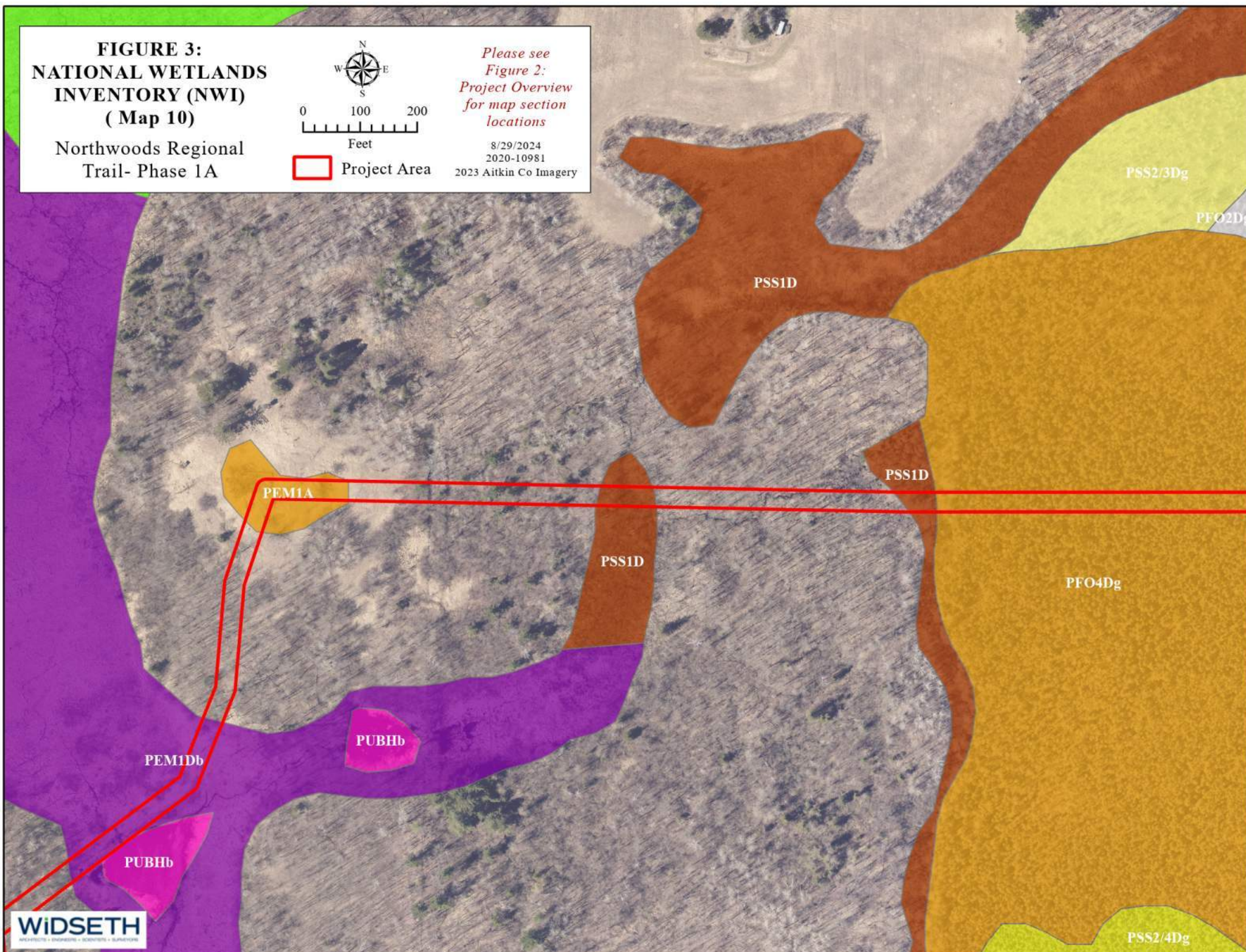
Northwoods Regional
Trail- Phase 1A



 Project Area

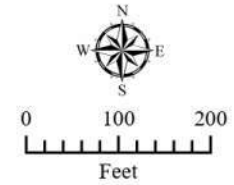
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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 11)**

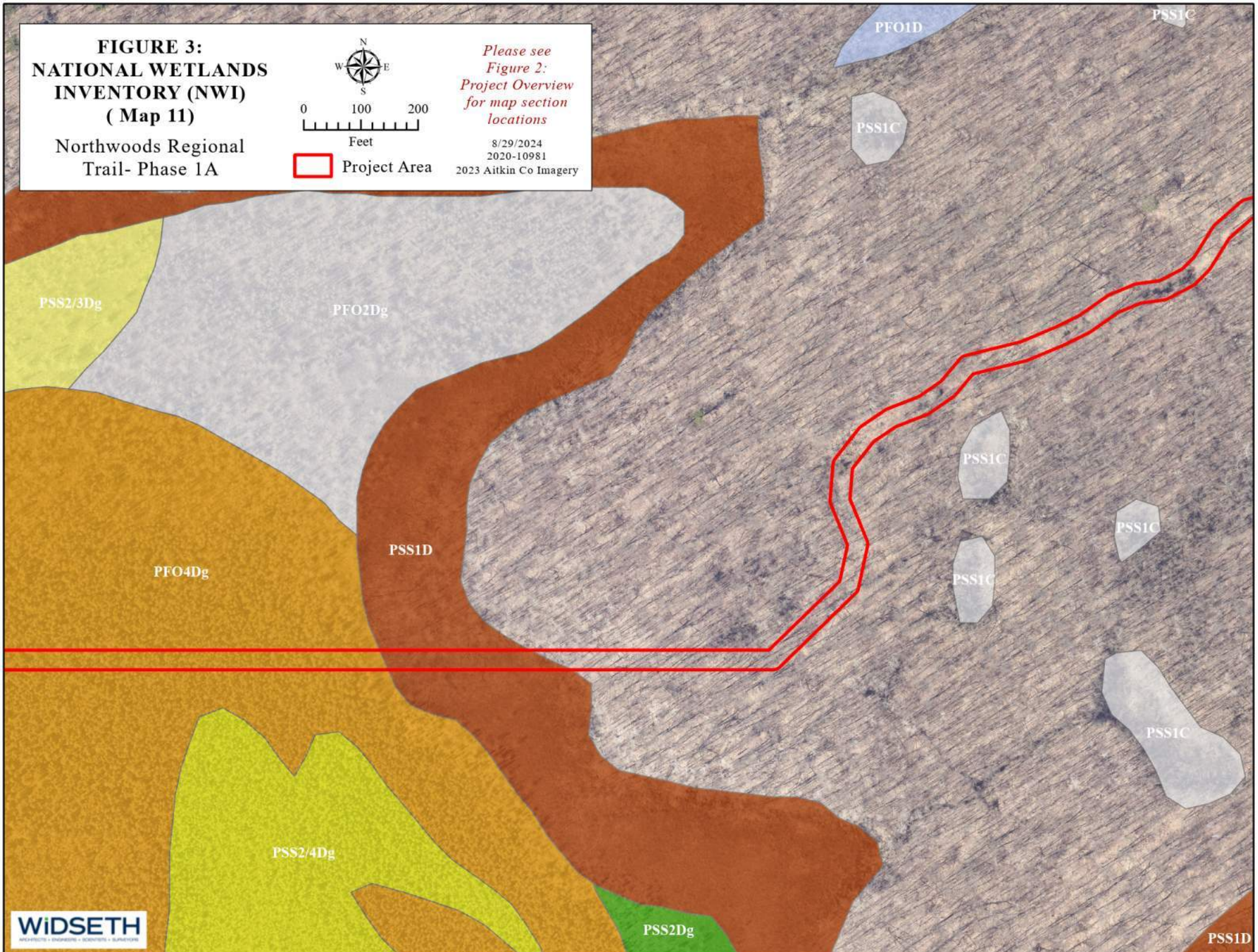
Northwoods Regional
Trail- Phase 1A



 Project Area

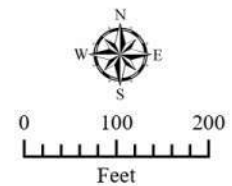
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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 12)**

Northwoods Regional
Trail- Phase 1A



 Project Area

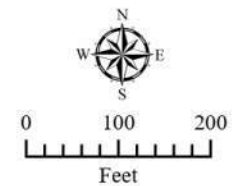
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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 13)**

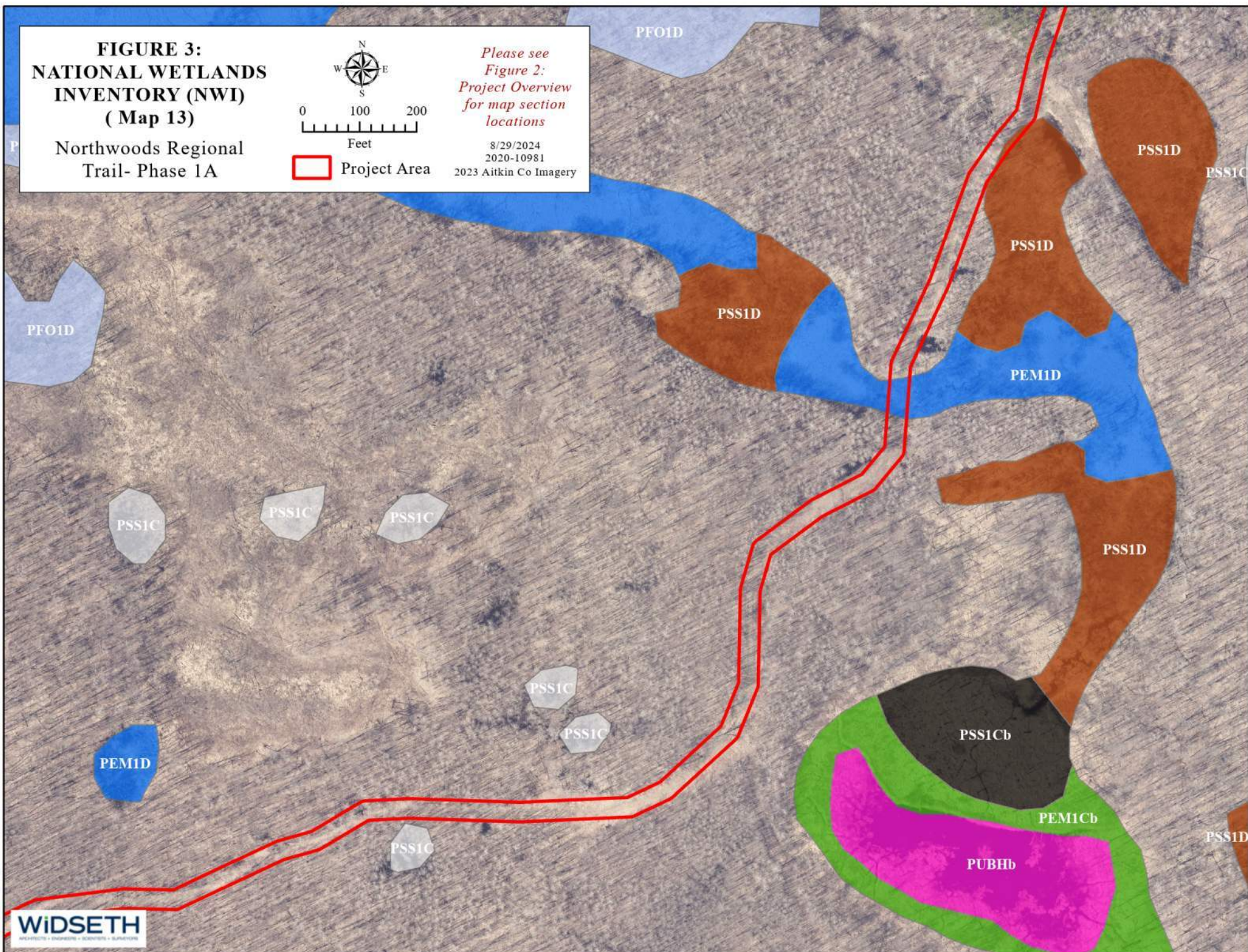
Northwoods Regional
Trail- Phase 1A



Project Area

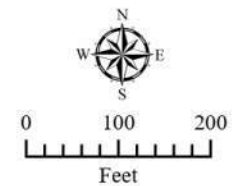
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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 14)**

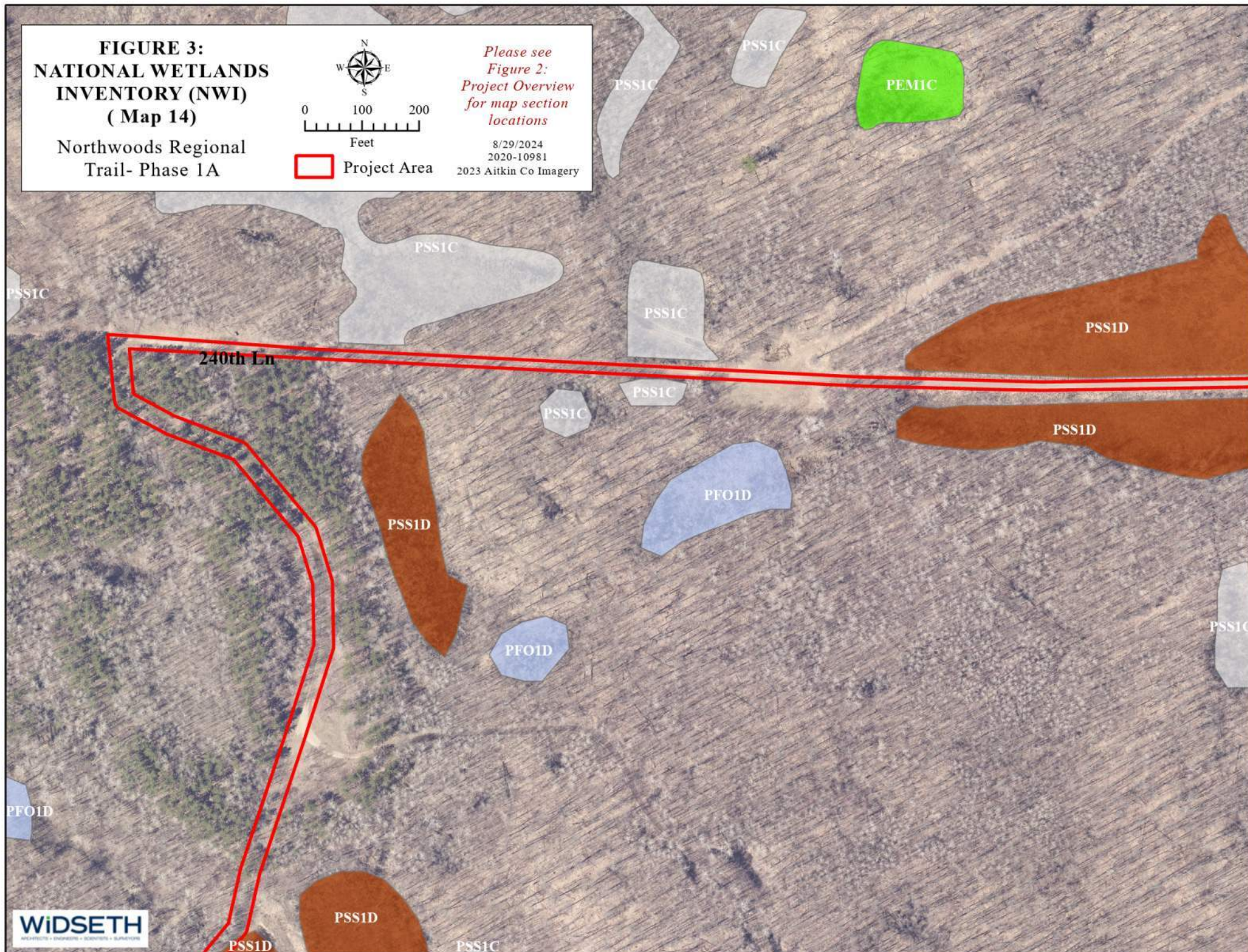
Northwoods Regional
Trail- Phase 1A



 Project Area

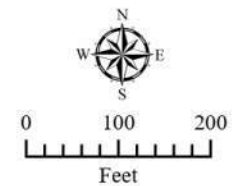
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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 15)**

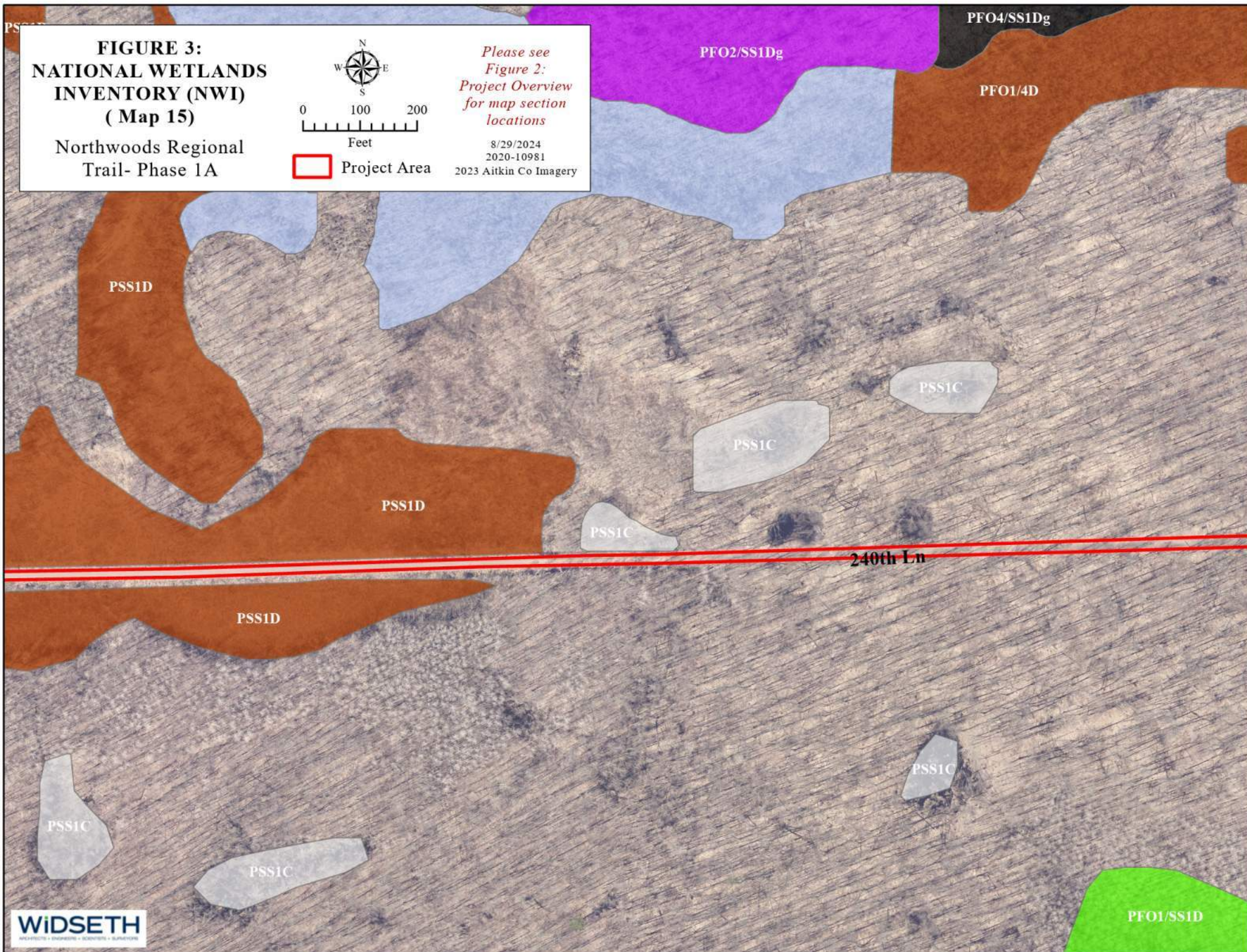
Northwoods Regional
Trail- Phase 1A



 Project Area

*Please see
Figure 2:
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for map section
locations*

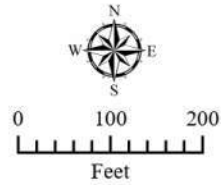
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PFO4/SS1Dg

**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 16)**

Northwoods Regional
Trail- Phase 1A



 Project Area

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for map section
locations*

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PFO4Dg

PFO1D

PSS1C

PFO2/4Dg

PFO2/SS1Dg

PFO1D

240th Ln

PSS1C

PSS1C

PFO1D

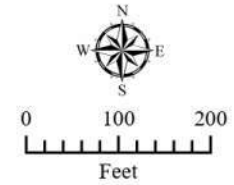
PSS1C


PSS1C

PSS1C

**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 17)**

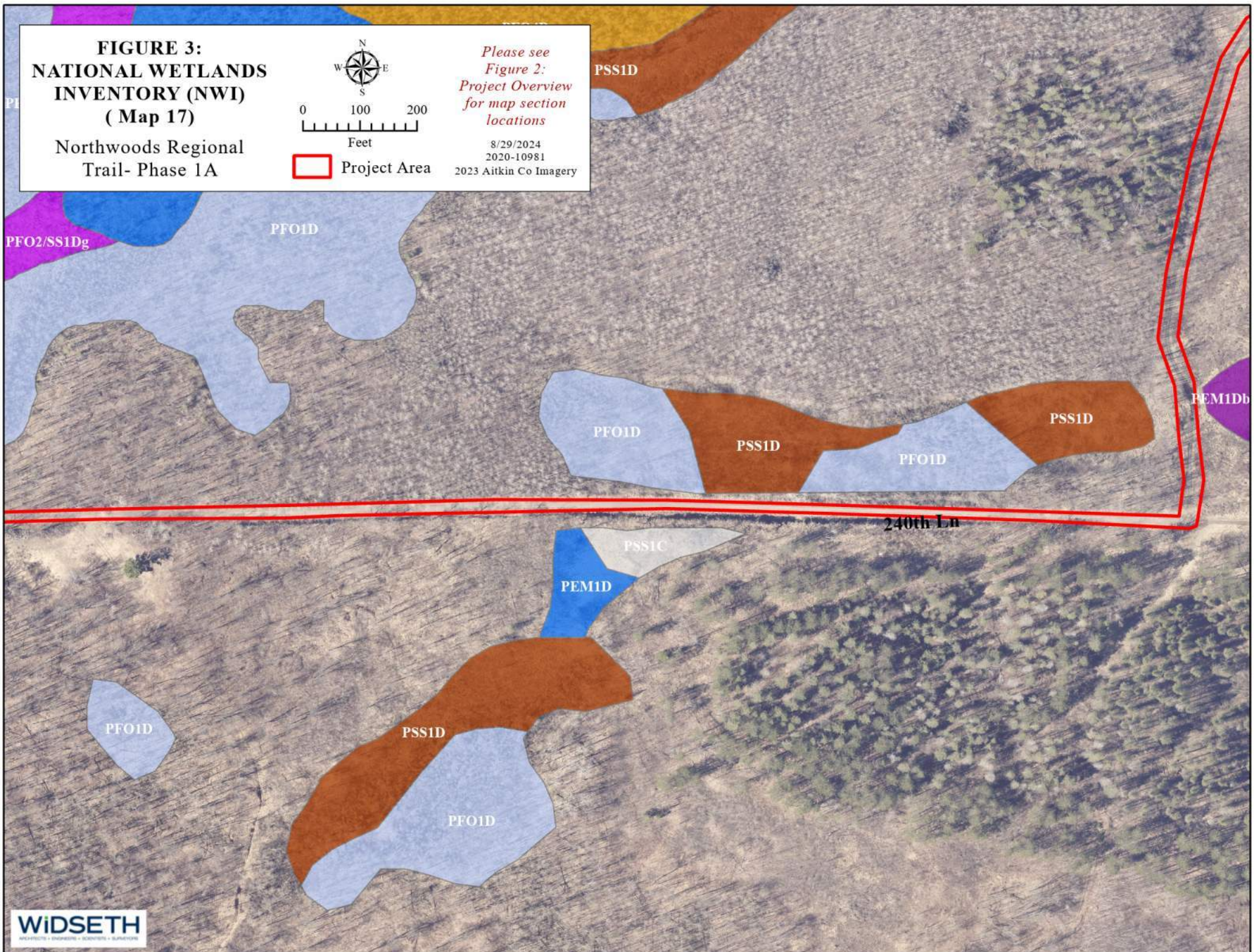
Northwoods Regional
Trail- Phase 1A



 Project Area

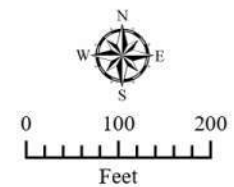
*Please see
Figure 2:
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for map section
locations*

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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 18)**

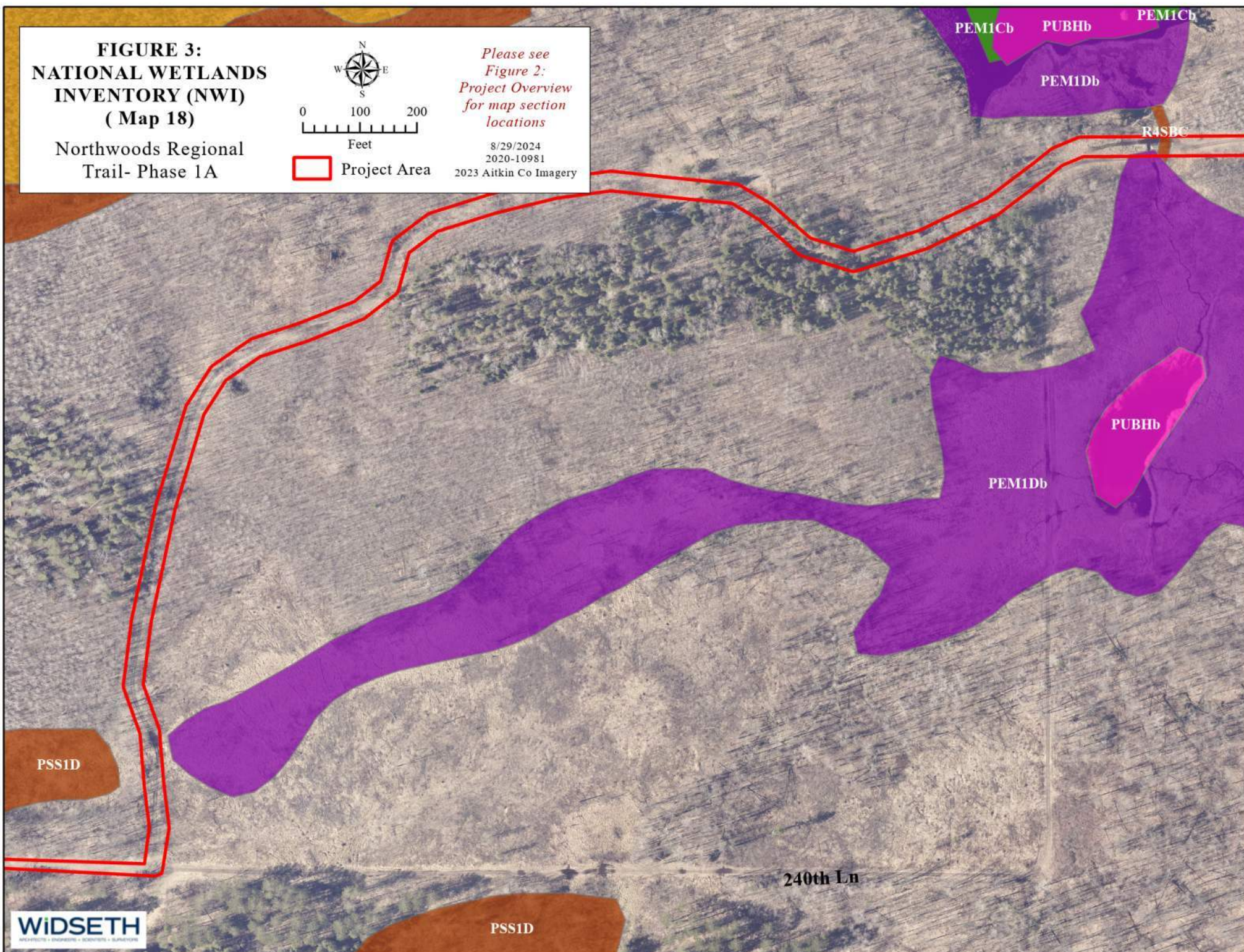
Northwoods Regional
Trail- Phase 1A



Project Area

*Please see
Figure 2:
Project Overview
for map section
locations*

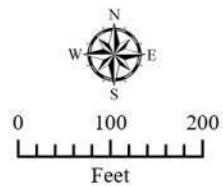
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PSS1/EM1D

**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 19)**

Northwoods Regional
Trail- Phase 1A



 Project Area

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locations*

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PFO2/SS1Dg

PSS1C

PEM1Cb

PUBHb

R4SBC

PSS1D

PUBHb

PUBHb

PEM1Db

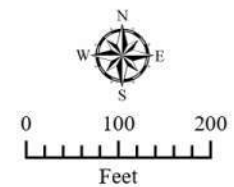
PFO1/EM1D

PSS1D

PSS1D

**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 20)**

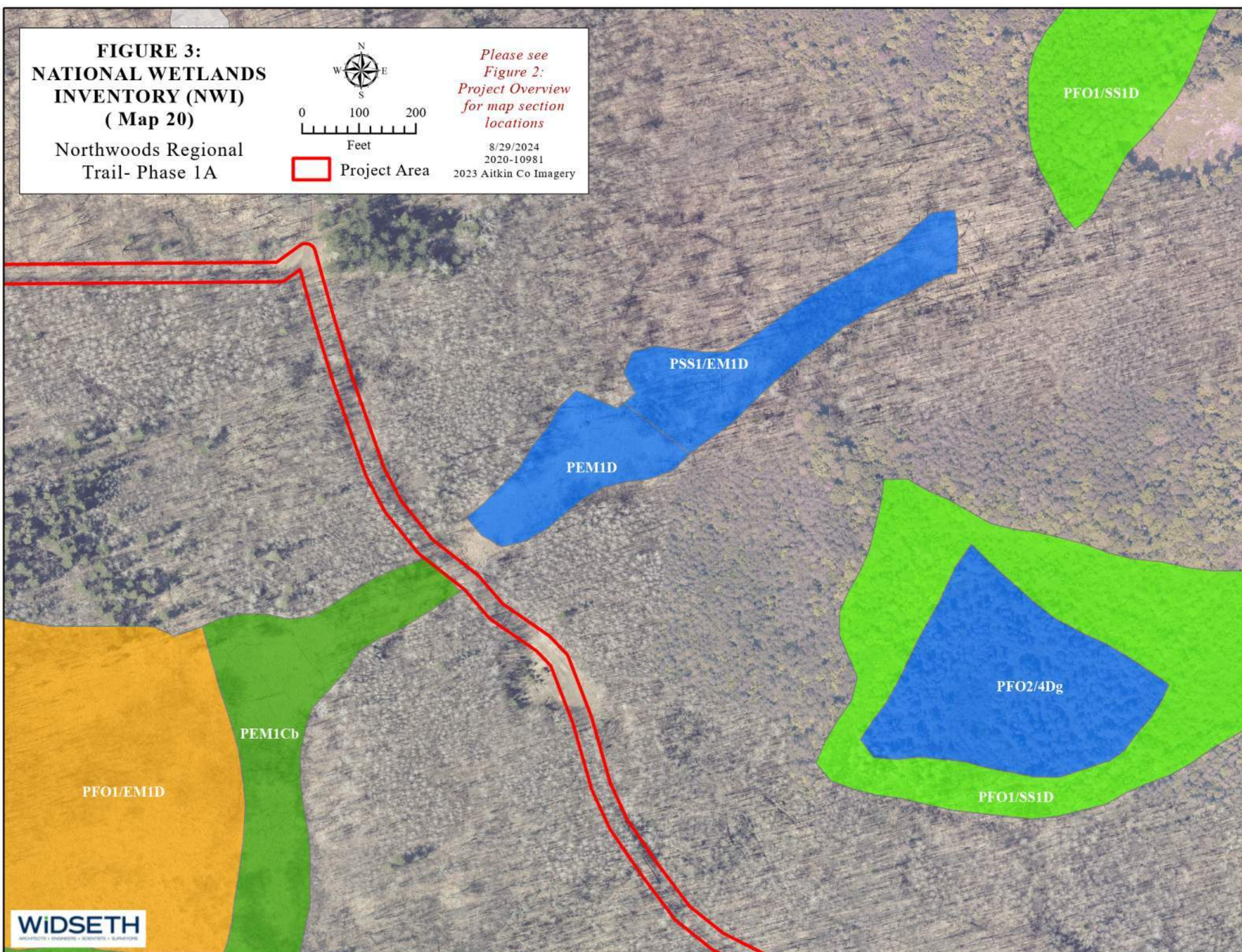
Northwoods Regional
Trail- Phase 1A



0 100 200
Feet
Project Area

*Please see
Figure 2:
Project Overview
for map section
locations*

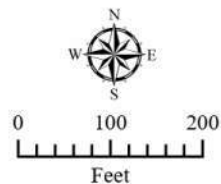
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PEM1D

**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 21)**

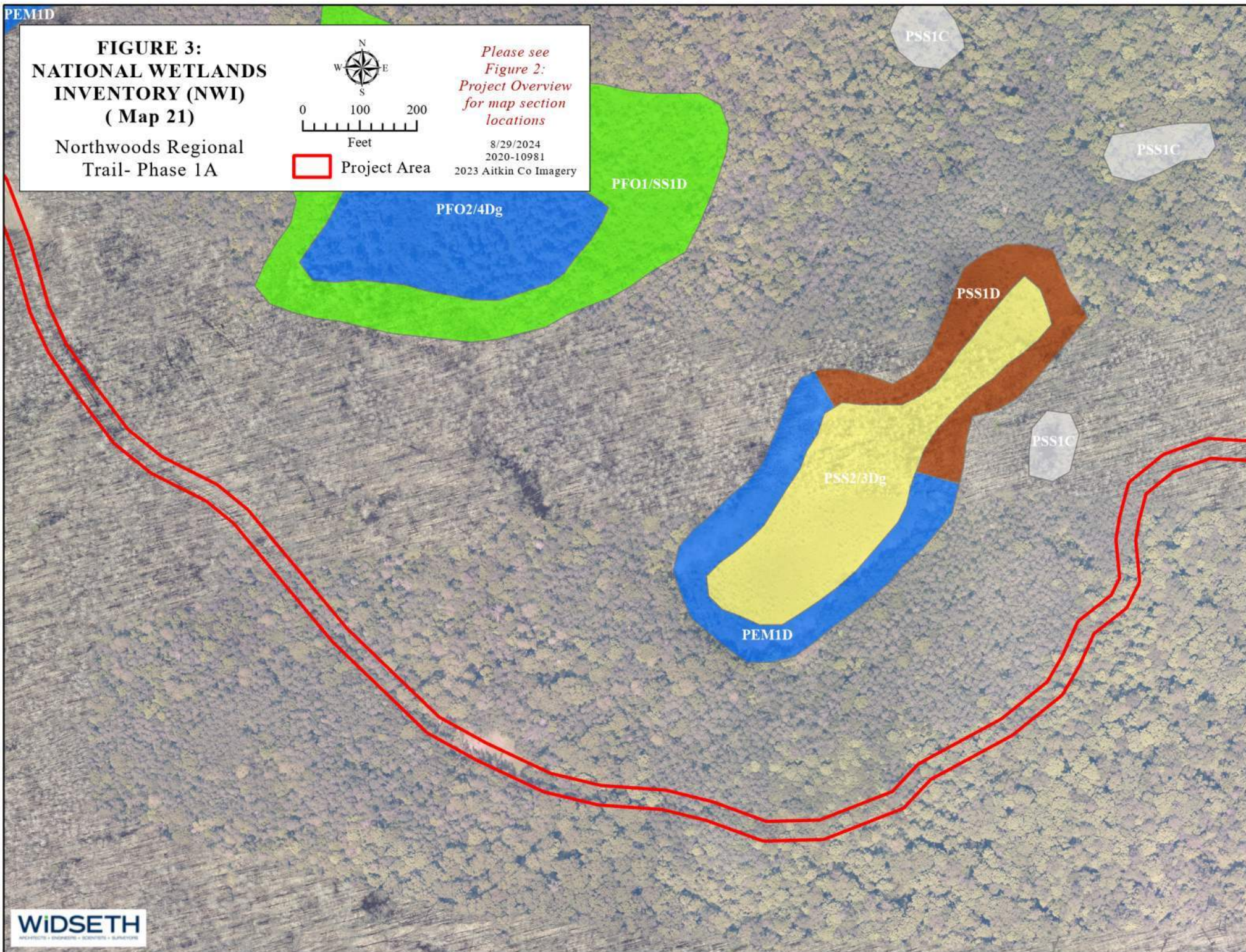
Northwoods Regional
Trail- Phase 1A



 Project Area

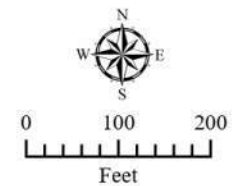
*Please see
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locations*


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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 22)**

Northwoods Regional
Trail- Phase 1A



 Project Area

*Please see
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locations*

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PSS1/3D

PSS1C

PSS1D

PSS1C

PFO1D

PFO1D

PSS1D

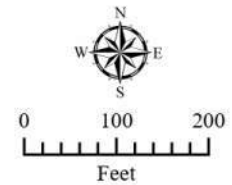
PEM1Db


PUBHb

PSS1Db

**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 23)**

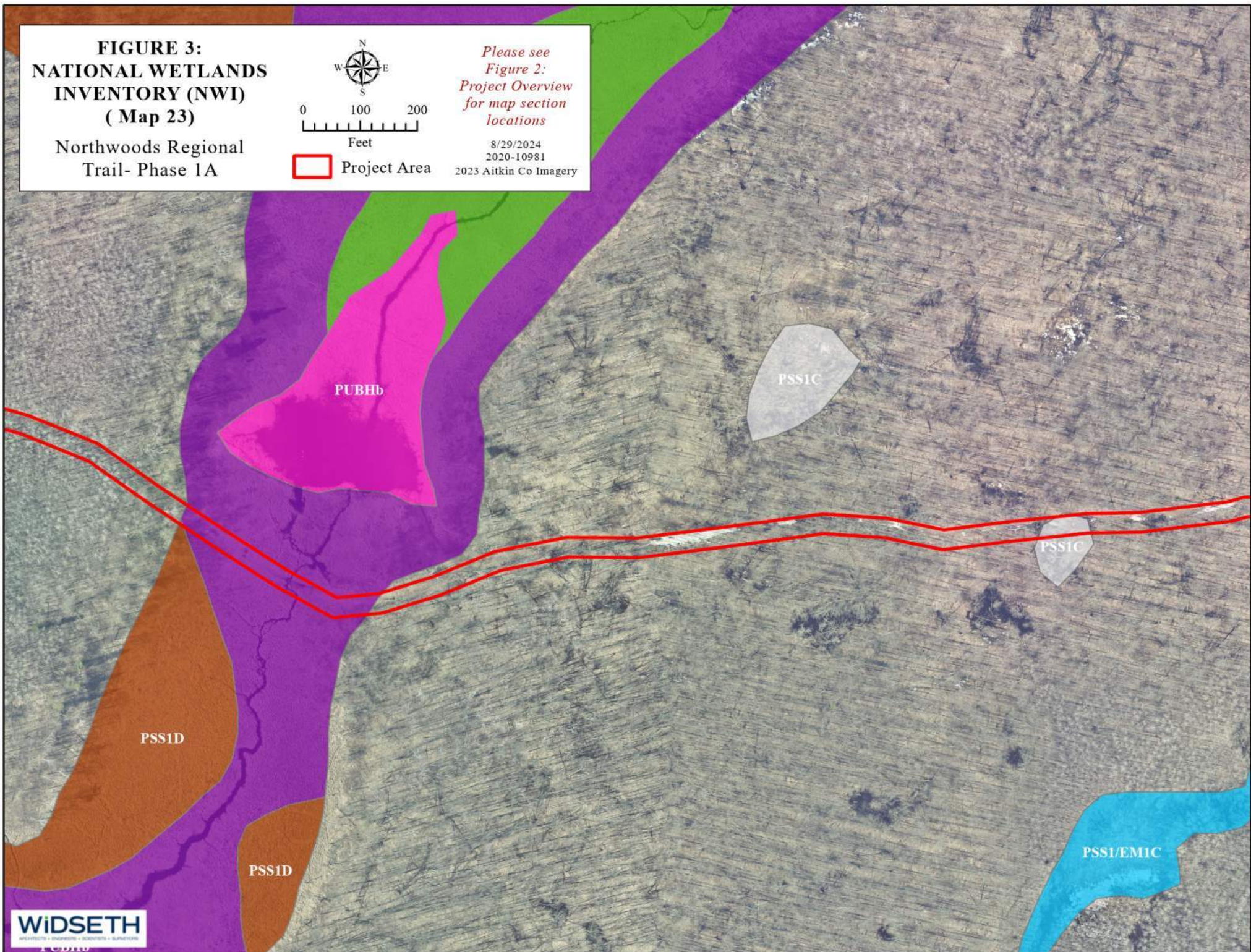
Northwoods Regional
Trail- Phase 1A



 Project Area

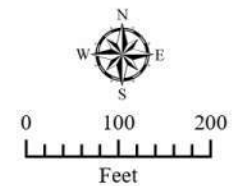
*Please see
Figure 2:
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for map section
locations*


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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 24)**

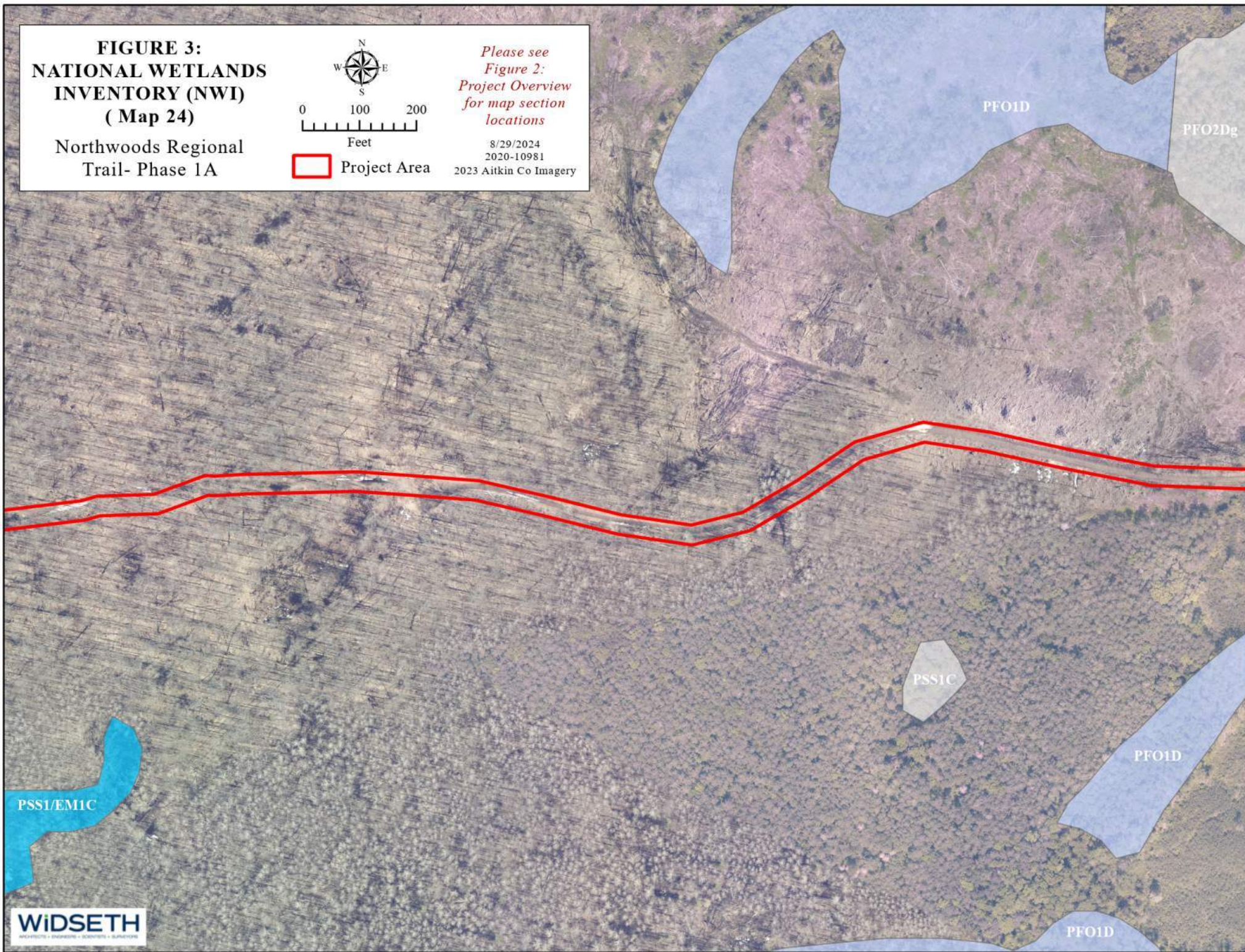
Northwoods Regional
Trail- Phase 1A



 Project Area

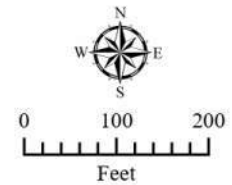
*Please see
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locations*


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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 25)**

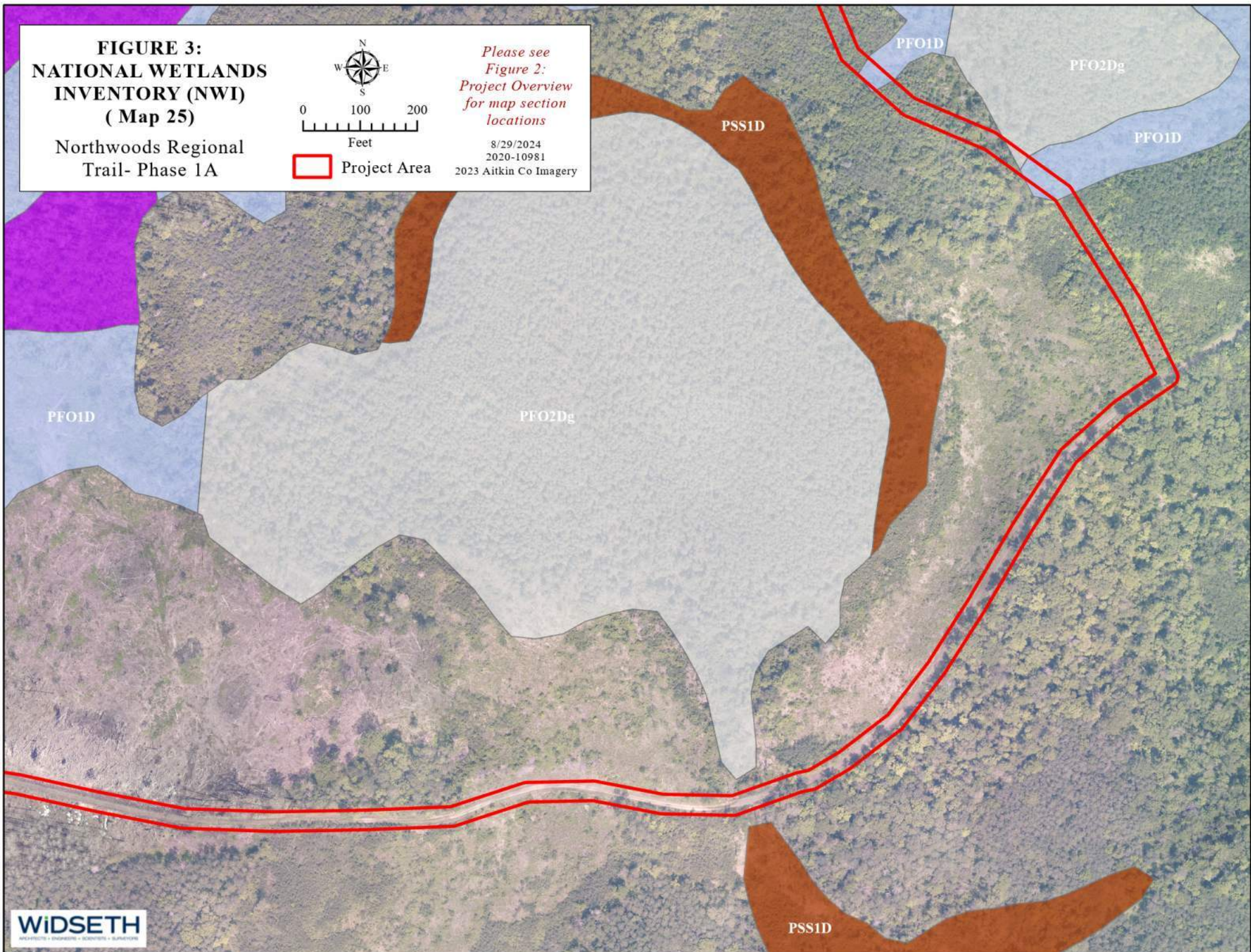
Northwoods Regional
Trail- Phase 1A



 Project Area

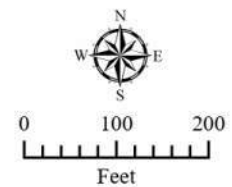
*Please see
Figure 2:
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locations*


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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 26)**

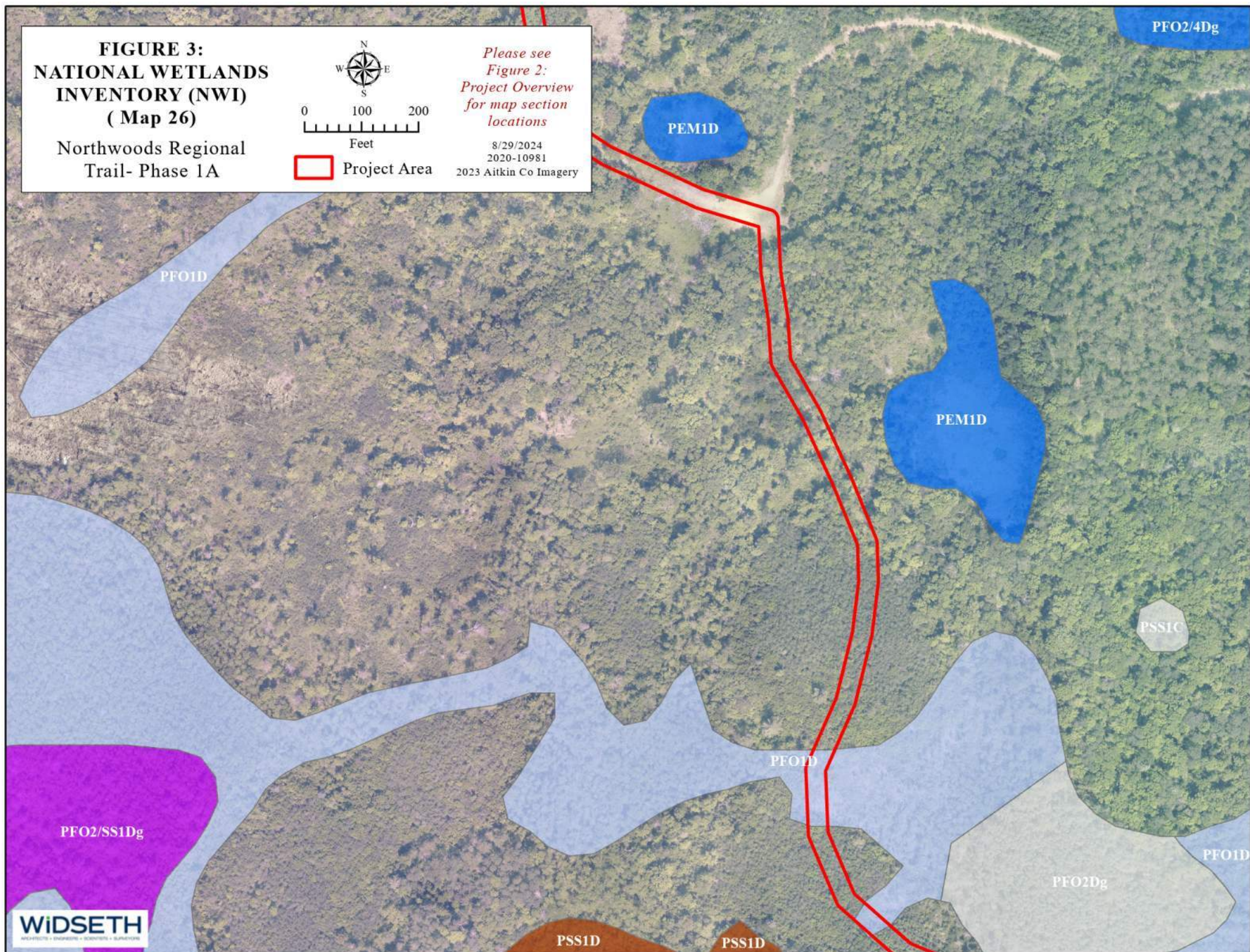
Northwoods Regional
Trail- Phase 1A



 Project Area

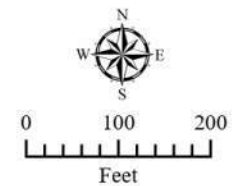
*Please see
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locations*


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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 27)**

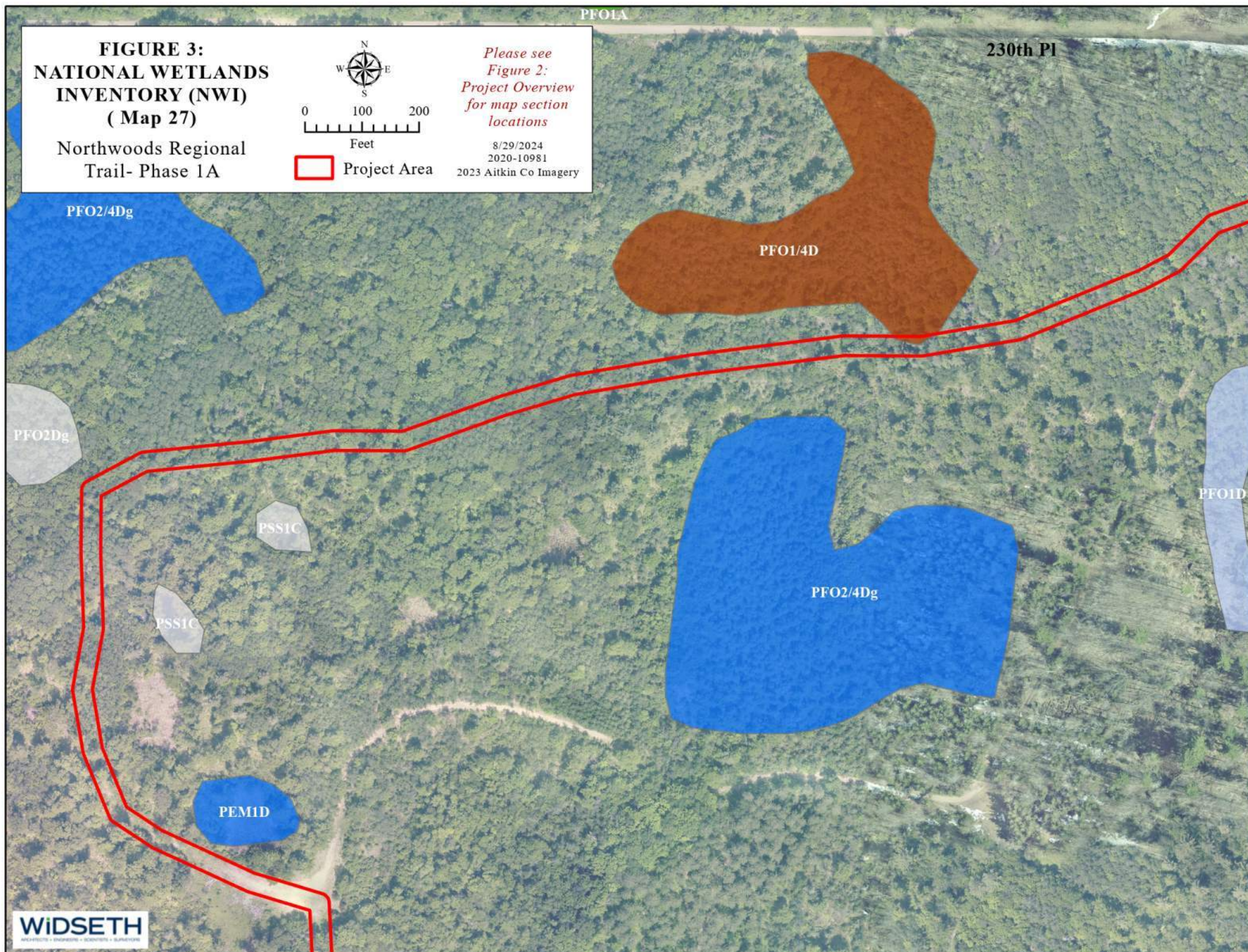
Northwoods Regional
Trail- Phase 1A



 Project Area

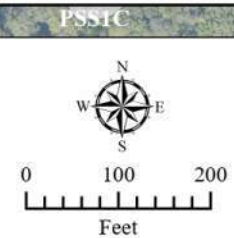
*Please see
Figure 2:
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locations*


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

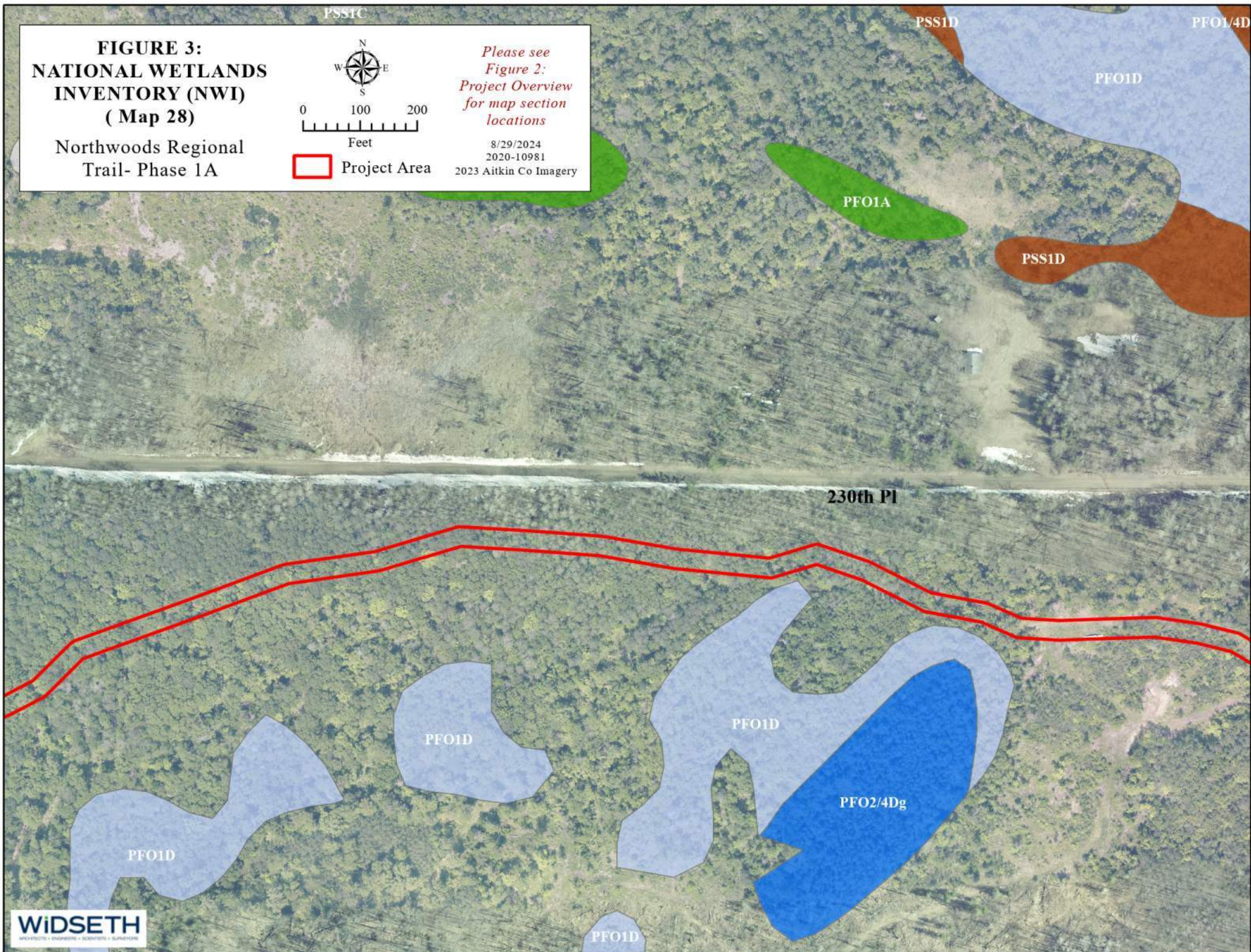
Northwoods Regional
Trail- Phase 1A



 Project Area

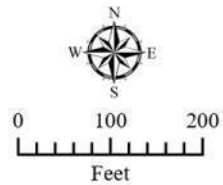
*Please see
Figure 2:
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for map section
locations*


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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 29)**

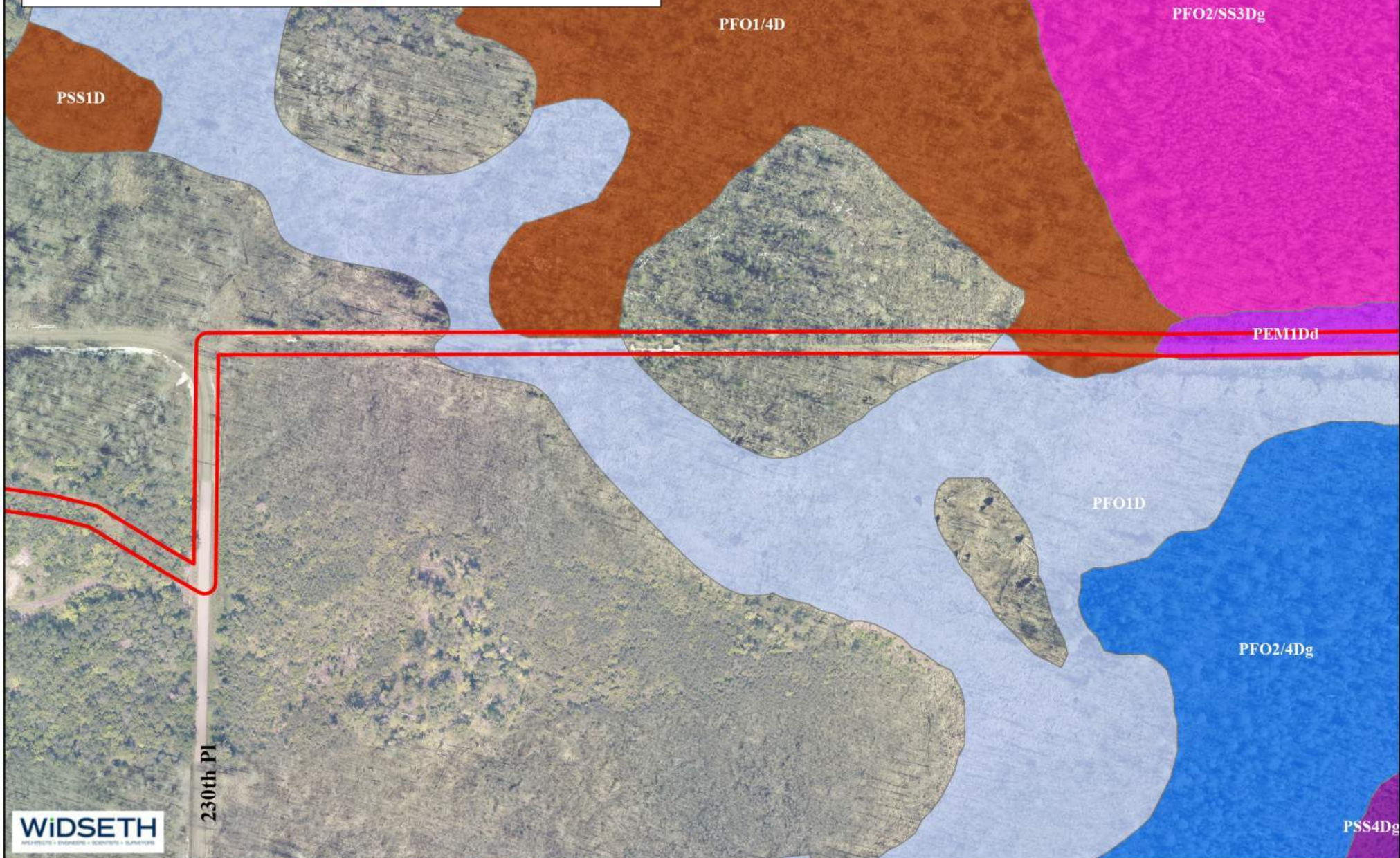
Northwoods Regional
Trail- Phase 1A



 Project Area

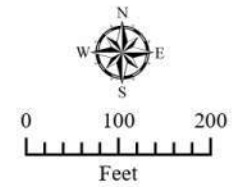
*Please see
Figure 2:
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for map section
locations*


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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 30)**

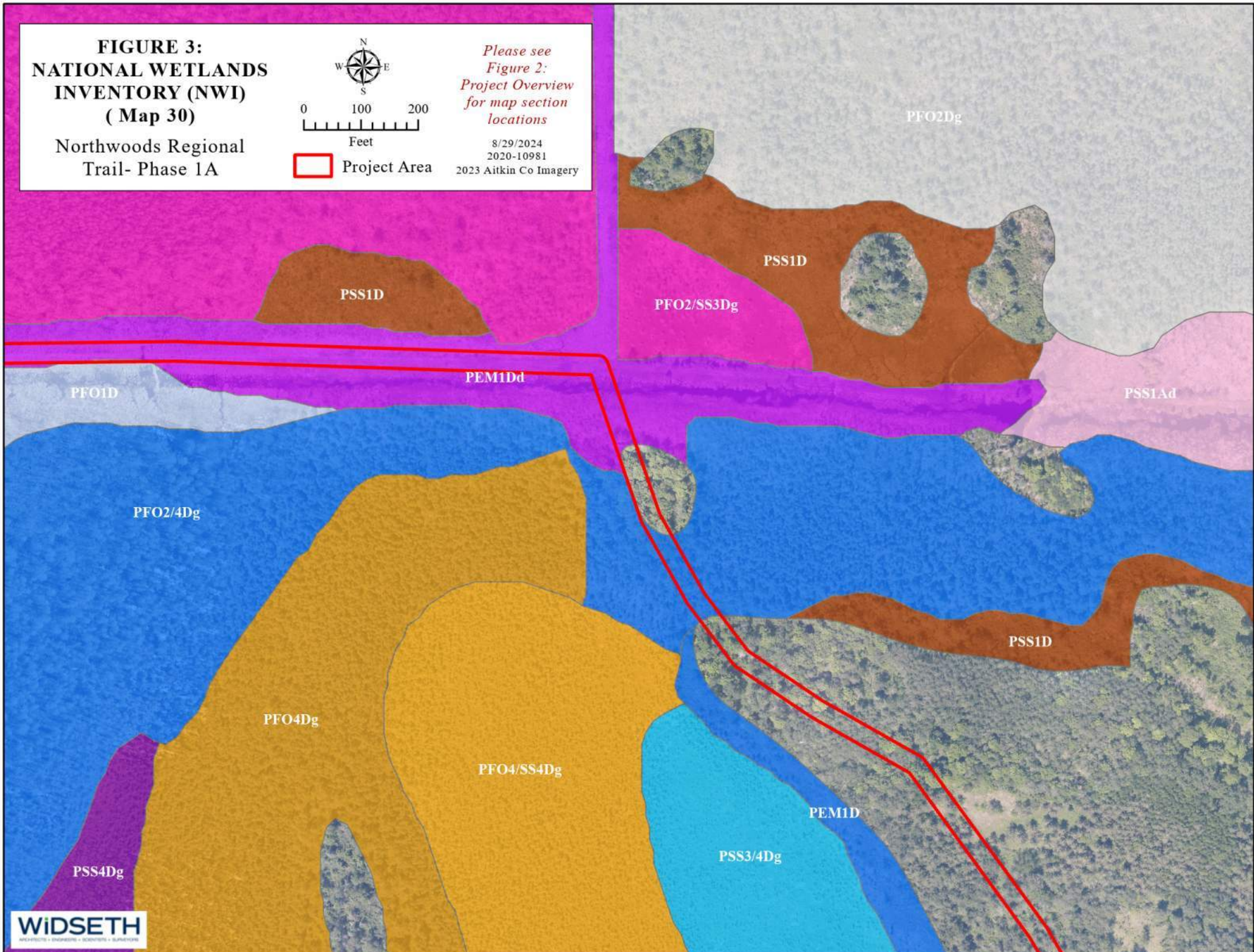
Northwoods Regional
Trail- Phase 1A



 Project Area

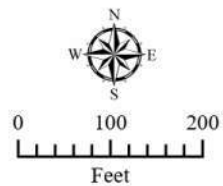
*Please see
Figure 2:
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locations*


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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 31)**

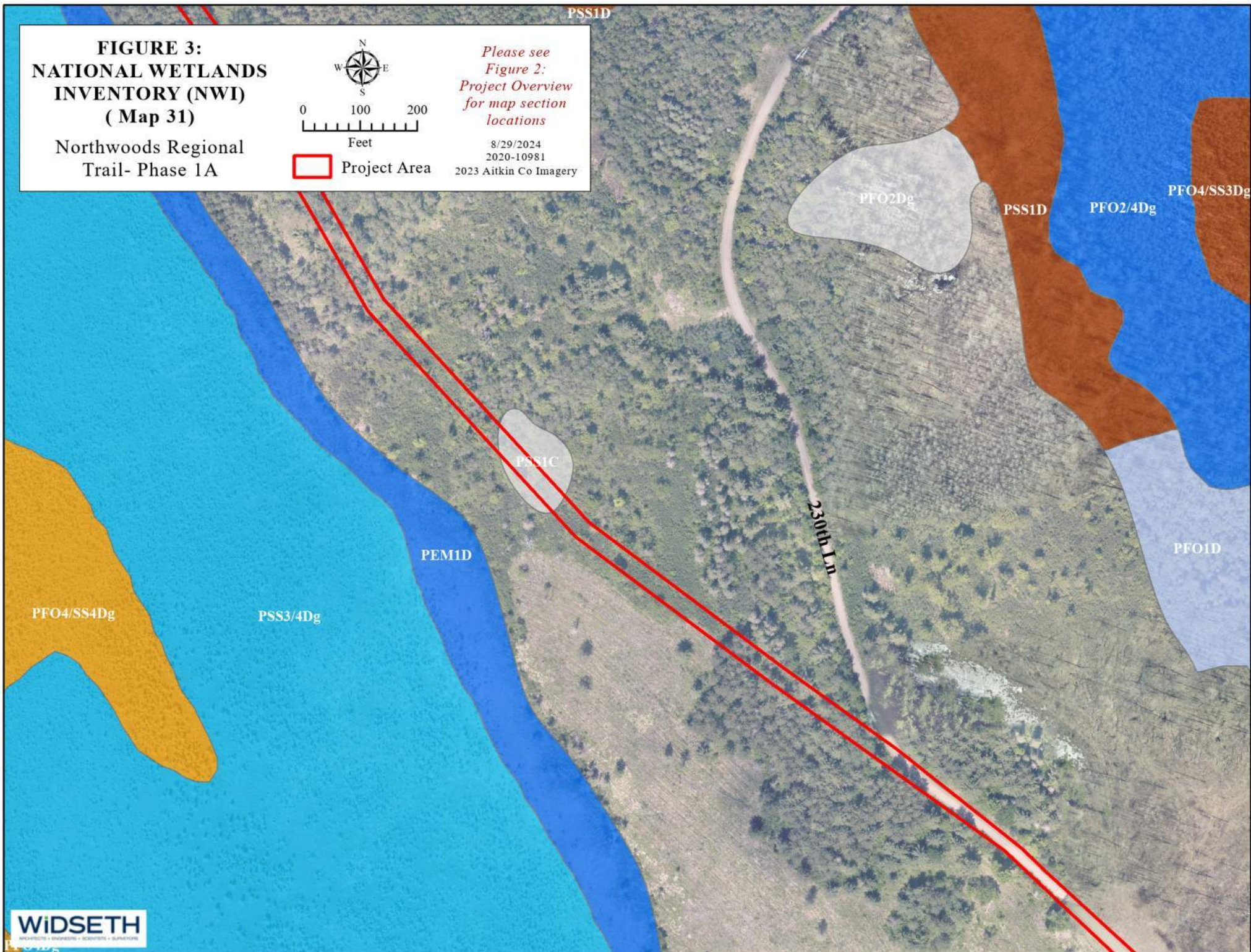
Northwoods Regional
Trail- Phase 1A



 Project Area

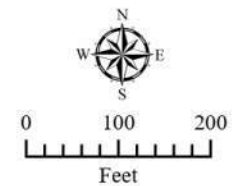
*Please see
Figure 2:
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for map section
locations*

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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 32)**

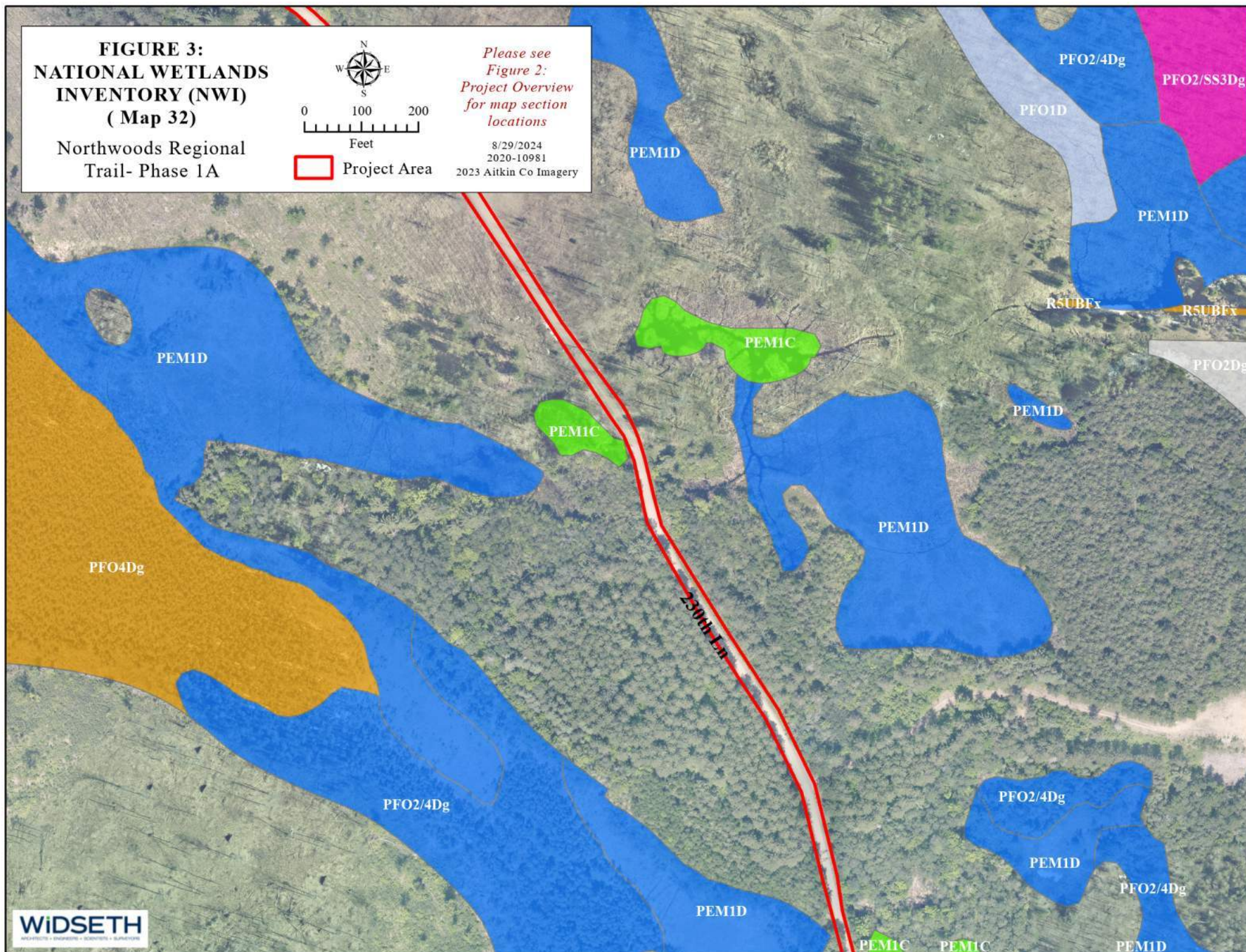
Northwoods Regional
Trail- Phase 1A



Project Area

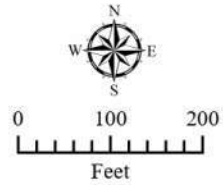
*Please see
Figure 2:
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locations*


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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 33)**

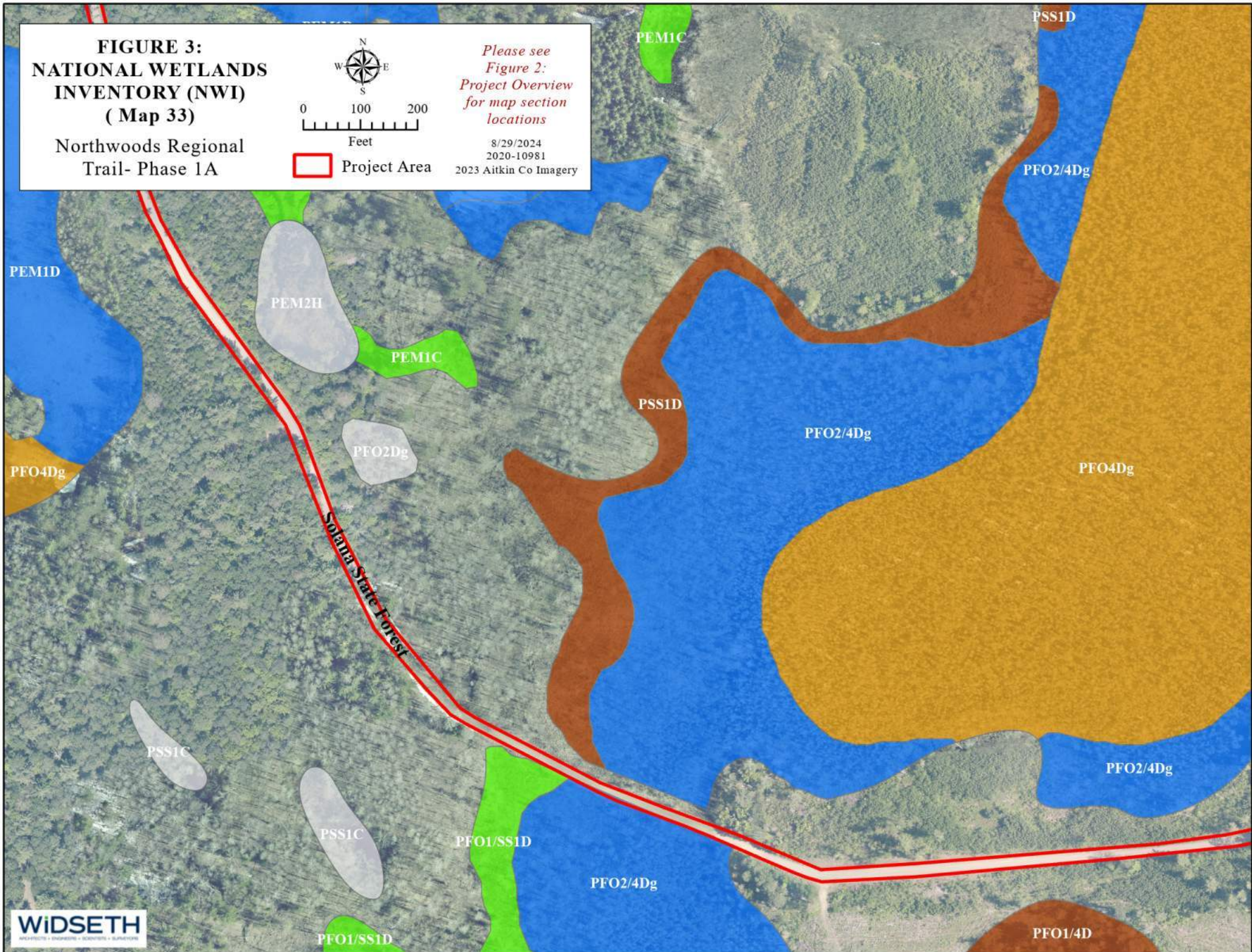
Northwoods Regional
Trail- Phase 1A



 Project Area

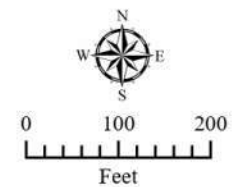
*Please see
Figure 2:
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for map section
locations*

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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 34)**

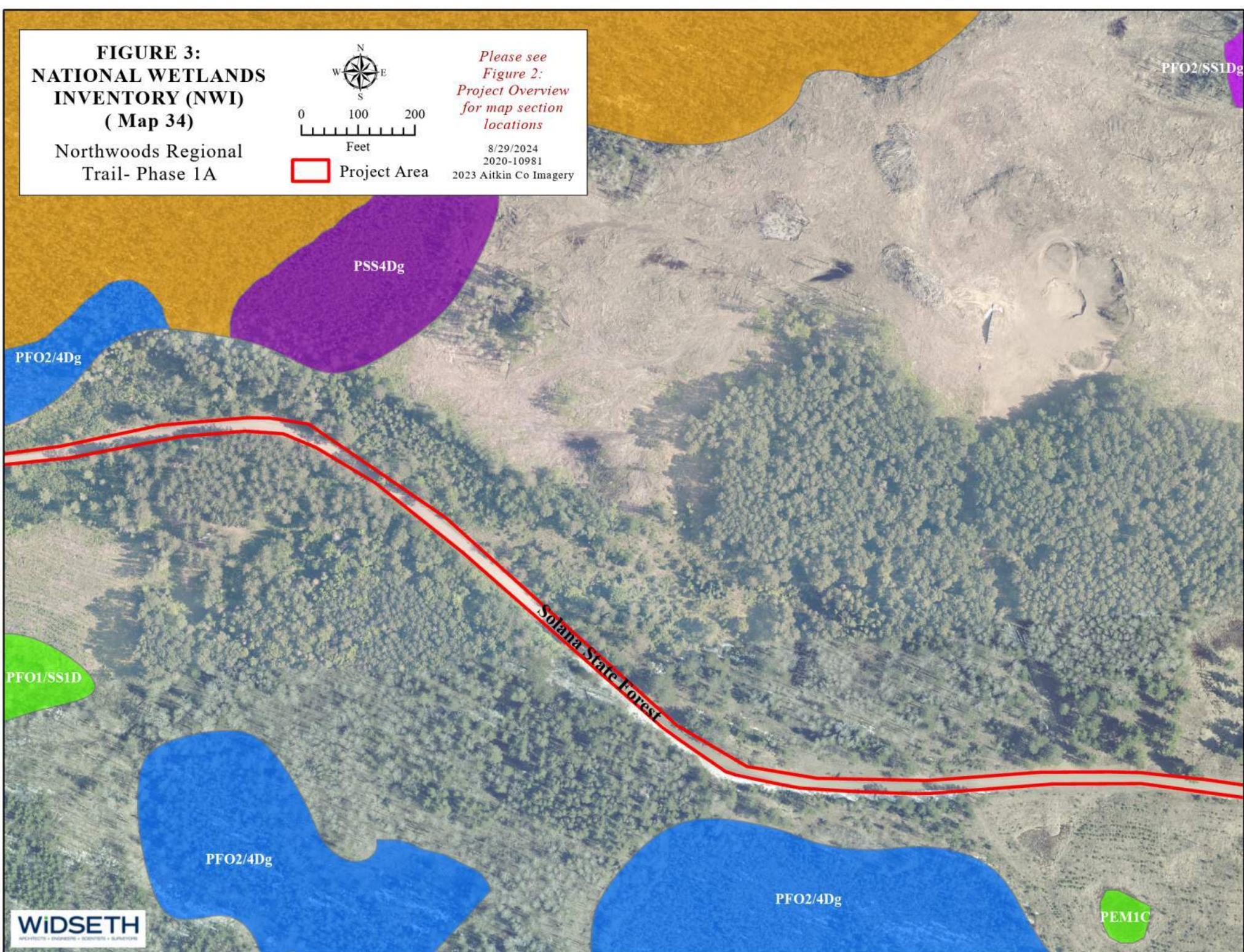
Northwoods Regional
Trail- Phase 1A



0 100 200
Feet
Project Area

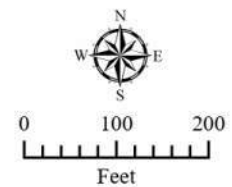
*Please see
Figure 2:
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locations*

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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 35)**

Northwoods Regional
Trail- Phase 1A



Project Area

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locations*

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PEM1C

PUBH

Solana State Forest

PEM1C

PUBH

PSS1C

PEM2H

PSS1D

PSS1D

PFO2/4Dg

PSS1/EM1D

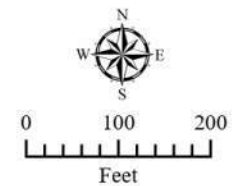
PFO2/4Dg

PSS2/4Dg

PFO4Dg

**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 36)**

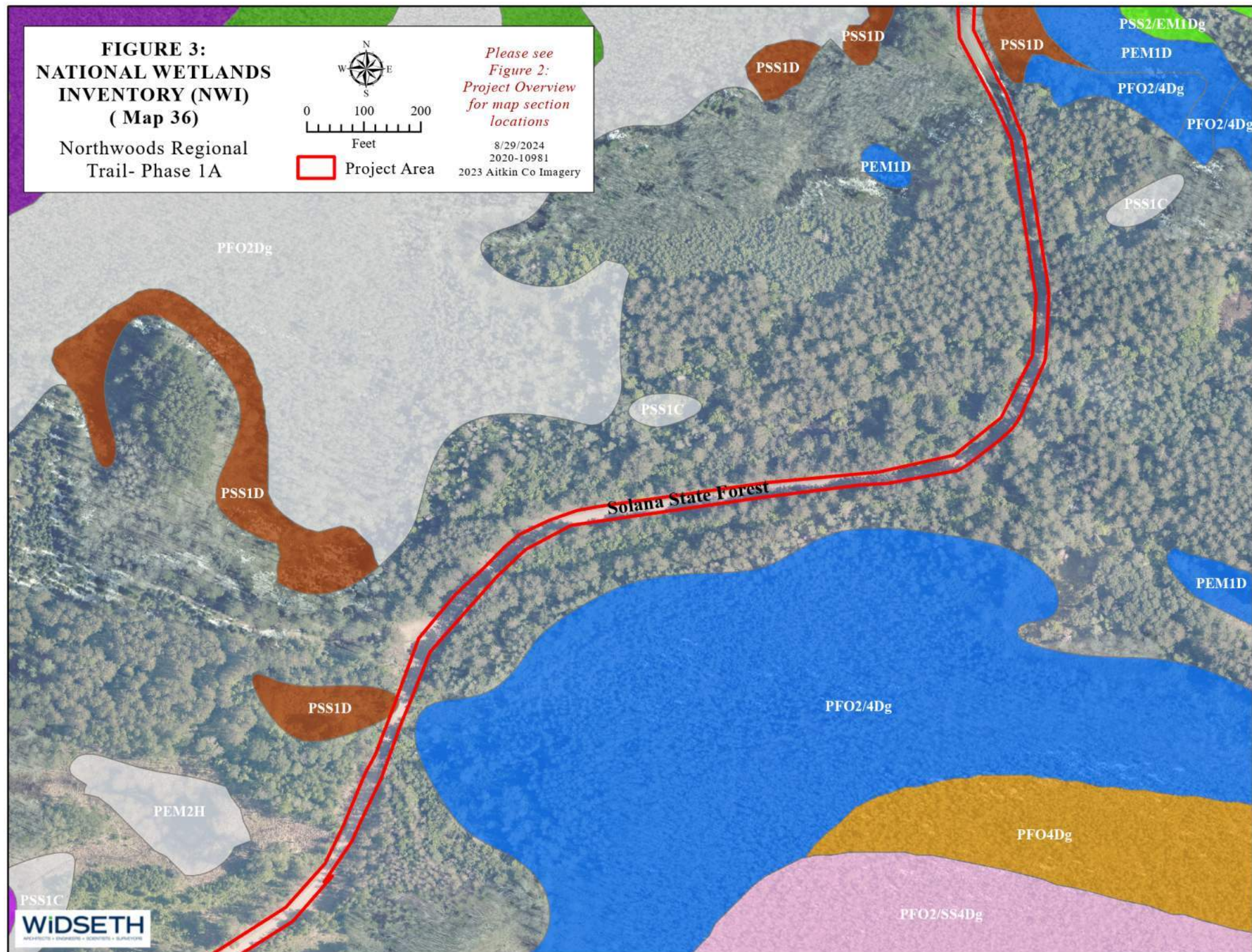
Northwoods Regional
Trail- Phase 1A



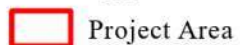
Project Area

*Please see
Figure 2:
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for map section
locations*

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Northwoods Regional
Trail- Phase 1A

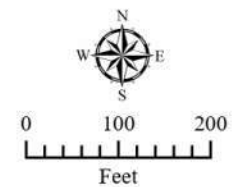



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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 38)**

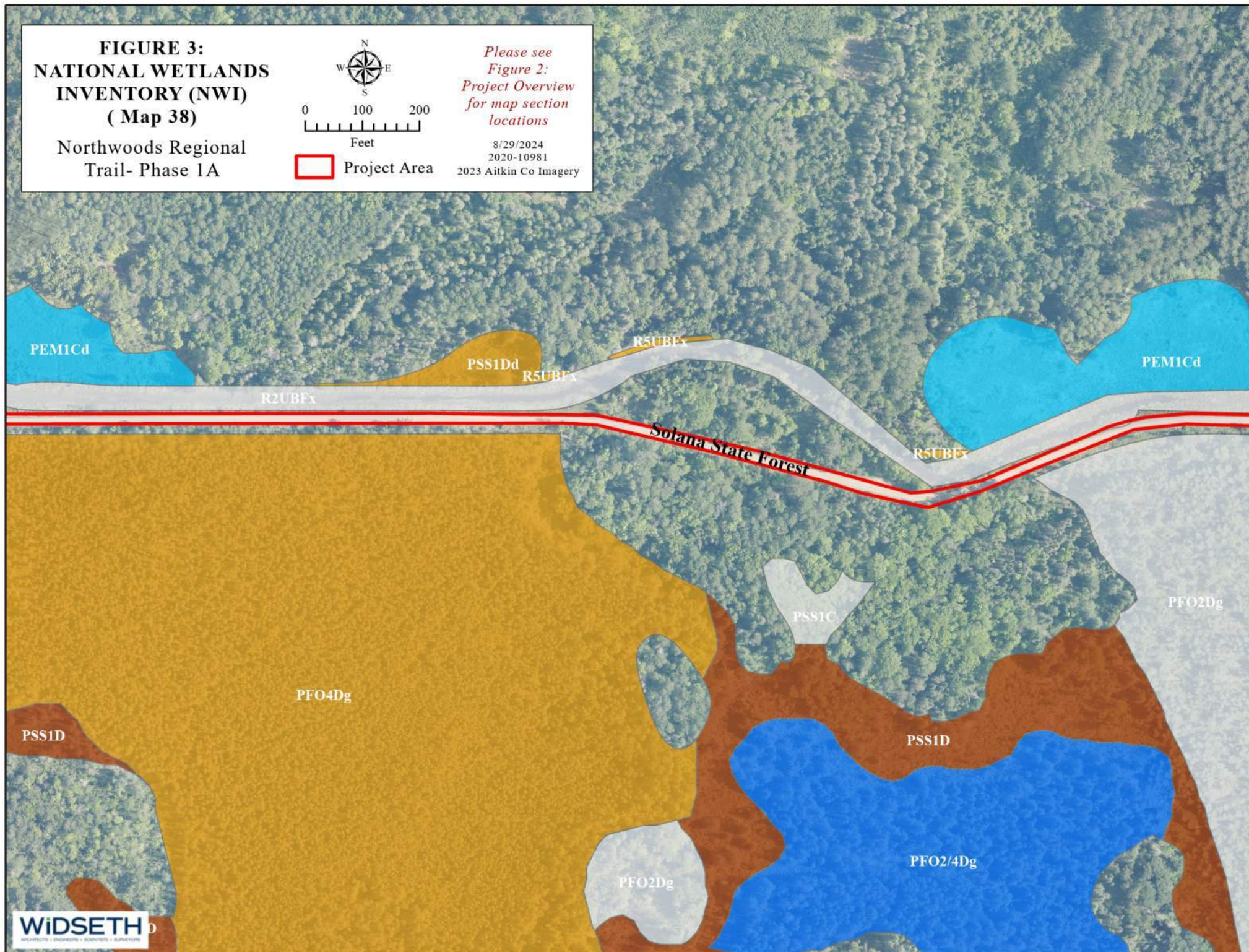
Northwoods Regional
Trail- Phase 1A



 Project Area

*Please see
Figure 2:
Project Overview
for map section
locations*

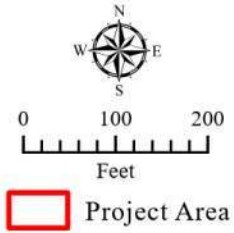
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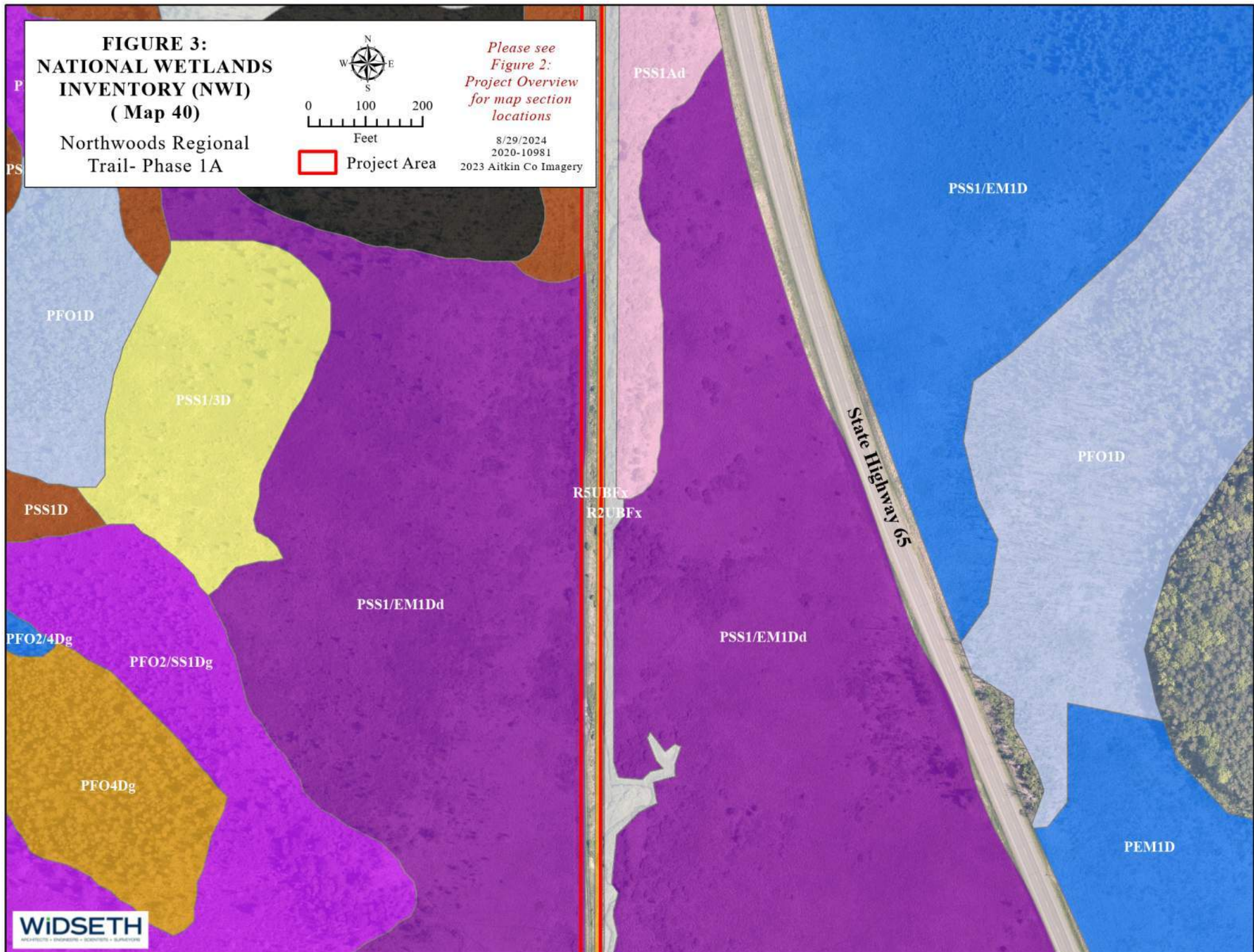
**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 40)**

Northwoods Regional
Trail- Phase 1A



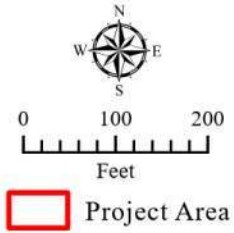
*Please see
Figure 2:
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for map section
locations*

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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 41)**

Northwoods Regional
Trail- Phase 1A



*Please see
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for map section
locations*

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PFO4/SS3Dg

PFO1D

PSS1/EM1Dd

R2UBFx

PSS1/EM1Dd

PEM1D

State Highway 65

PEM1C

PEM1A

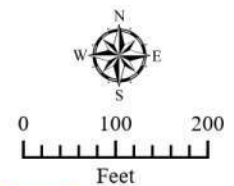
PSS1C


PSS1/EM1Ad

PSS1/EM1Ad

**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 42)**

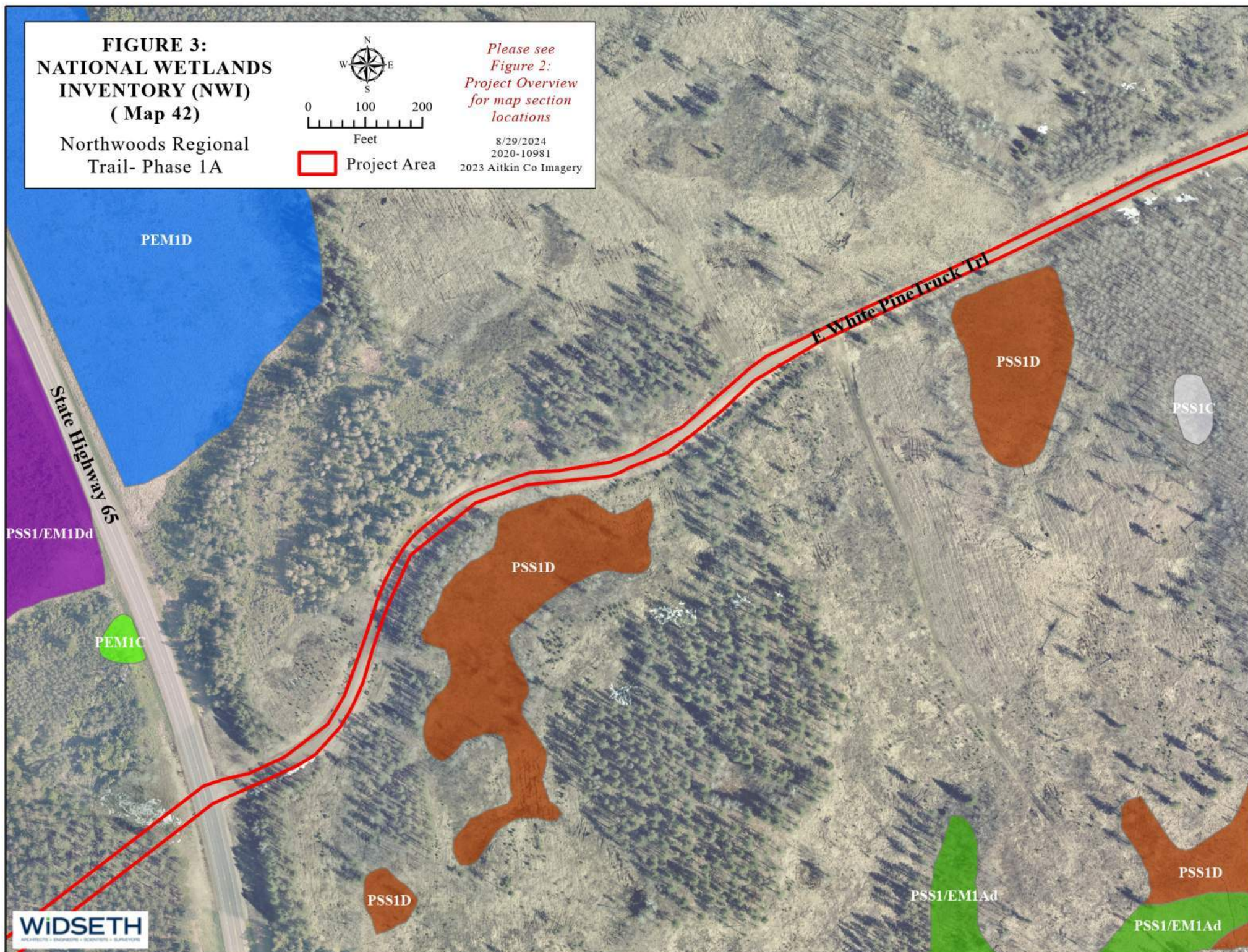
Northwoods Regional
Trail- Phase 1A



 Project Area

*Please see
Figure 2:
Project Overview
for map section
locations*

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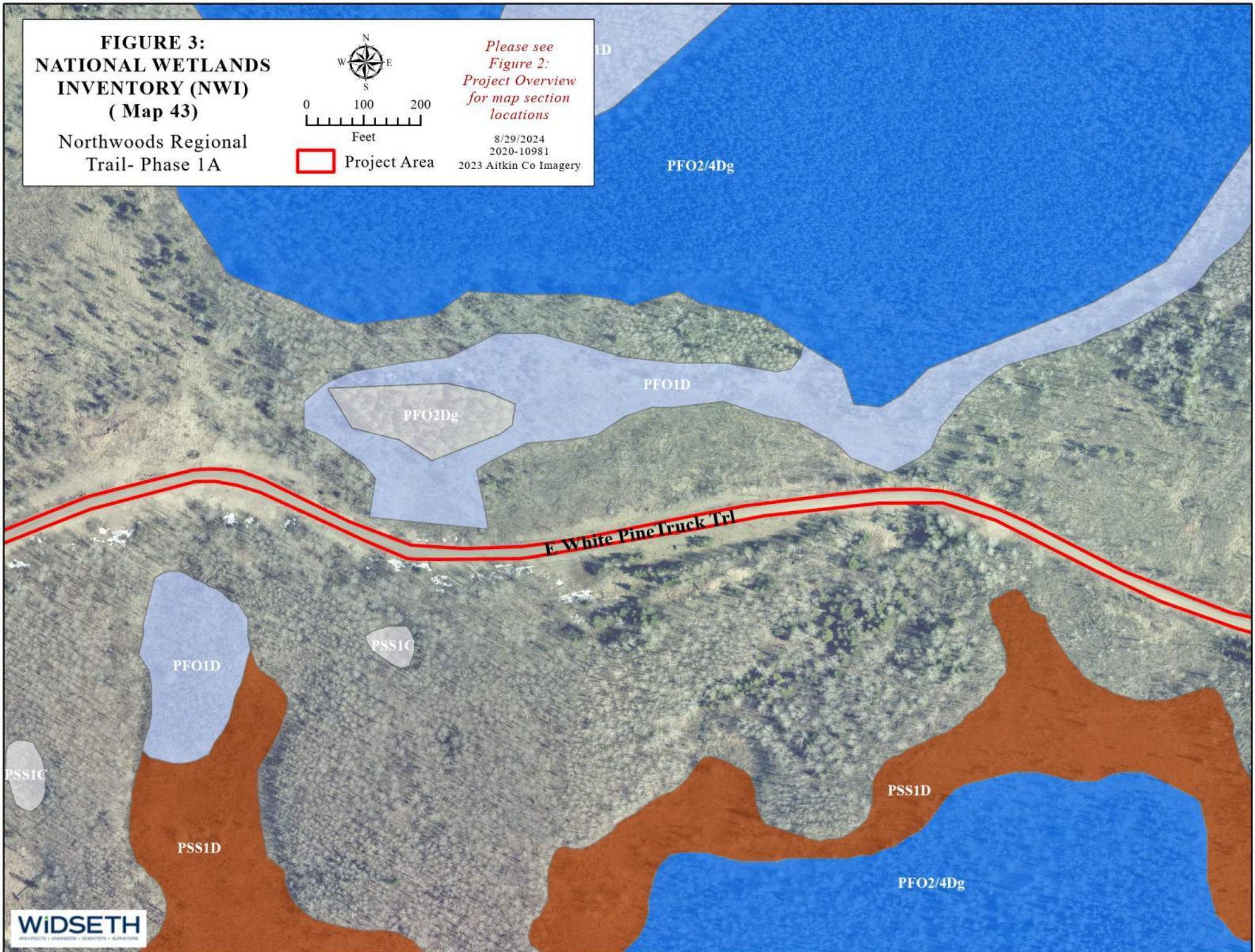
**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 43)**

Northwoods Regional
Trail- Phase 1A



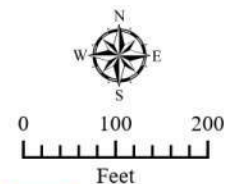
*Please see
Figure 2:
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for map section
locations*


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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 44)**

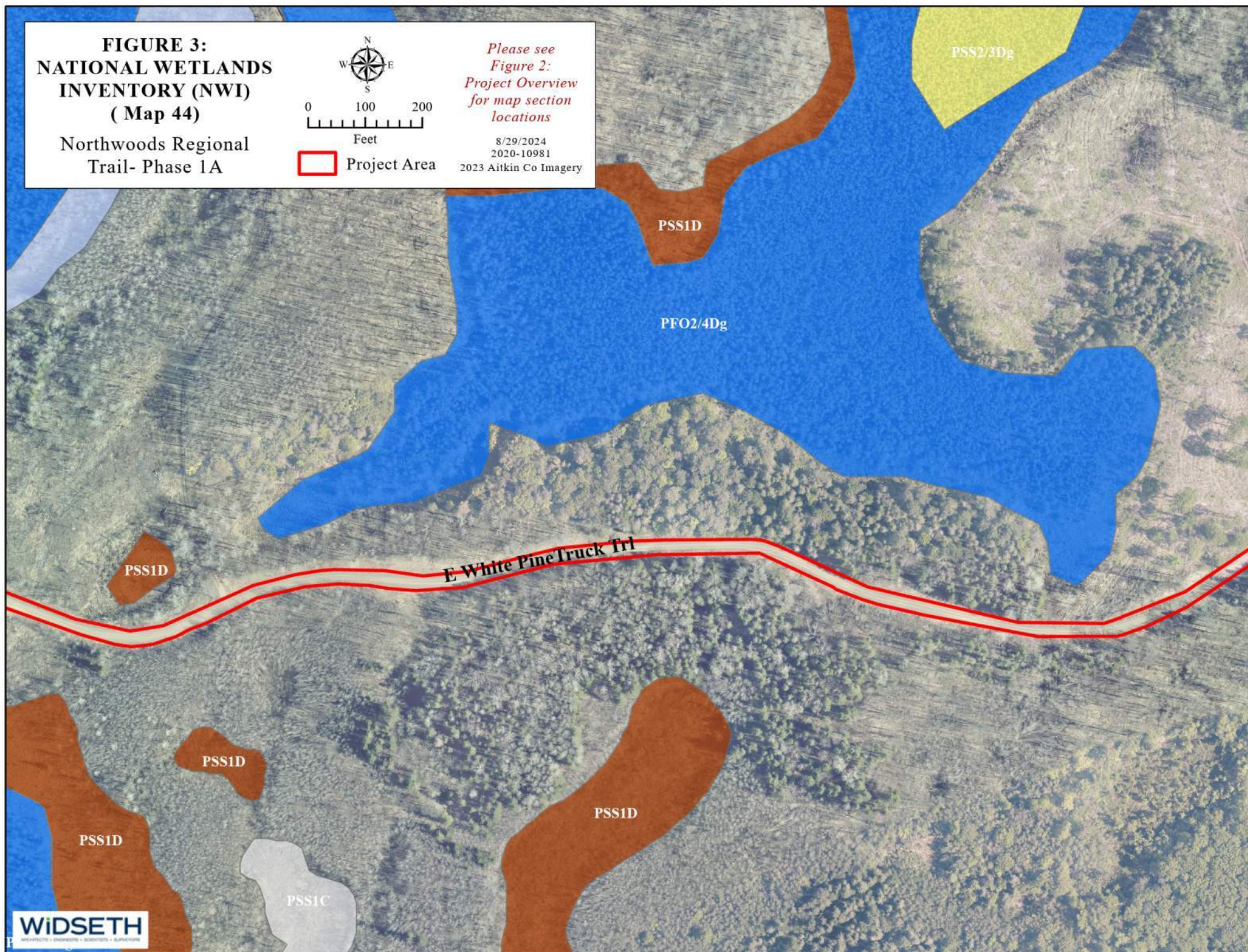
Northwoods Regional
Trail- Phase 1A



 Project Area

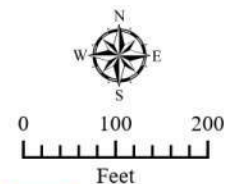
*Please see
Figure 2:
Project Overview
for map section
locations*


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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 45)**

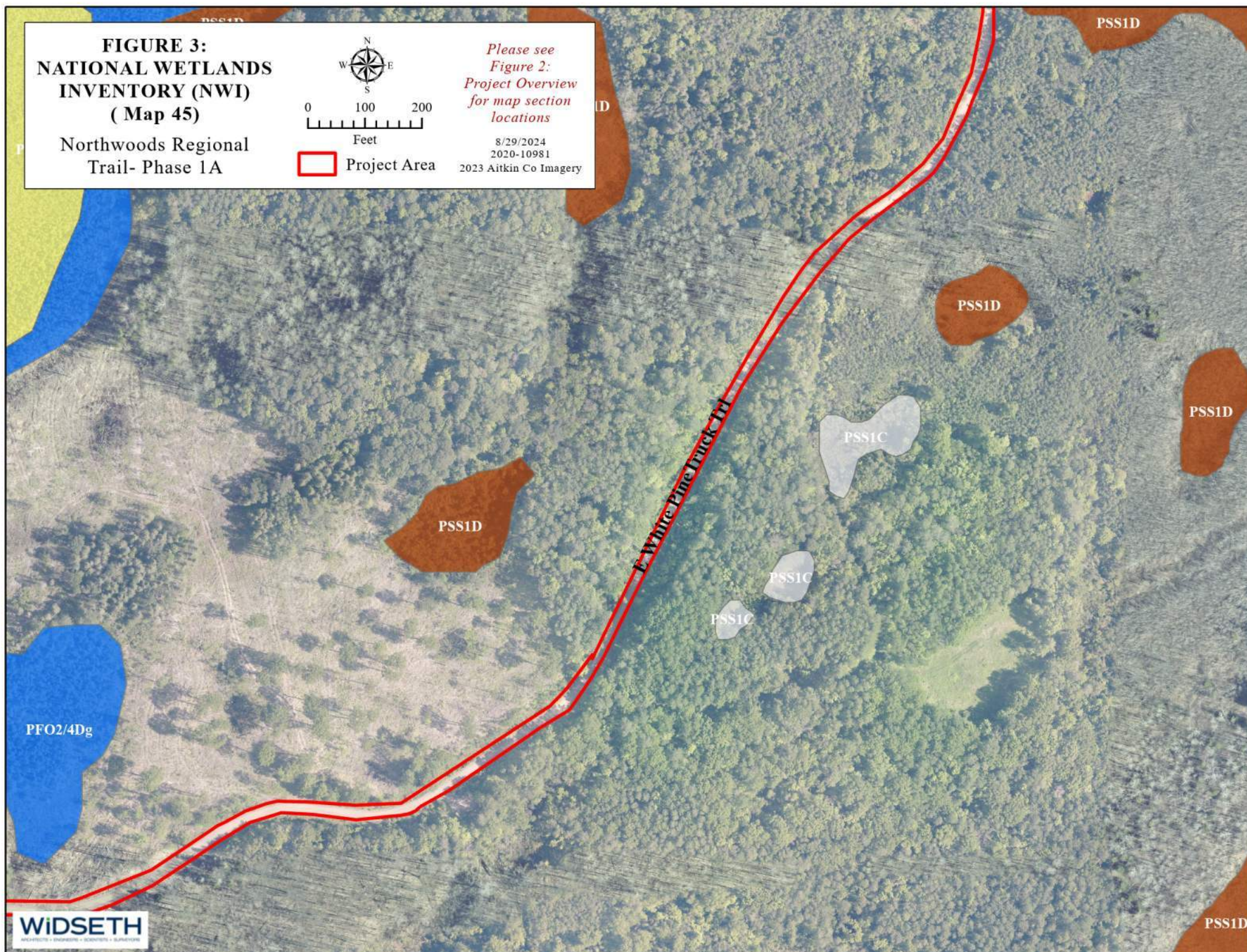
Northwoods Regional
Trail- Phase 1A



 Project Area

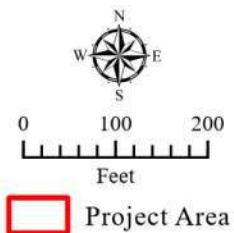
*Please see
Figure 2:
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for map section
locations*

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**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 46)**

Northwoods Regional
Trail- Phase 1A



*Please see
Figure 2:
Project Overview
for map section
locations*

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PSS1D

PSS1D

E White Pine Truck Trl

PSS1D

PFO2/4Dg

PEM1D

PSS1D

PFO4Dg

PSS4Dg

**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 47)**

Northwoods Regional
Trail- Phase 1A



*Please see
Figure 2:
Project Overview
for map section
locations*

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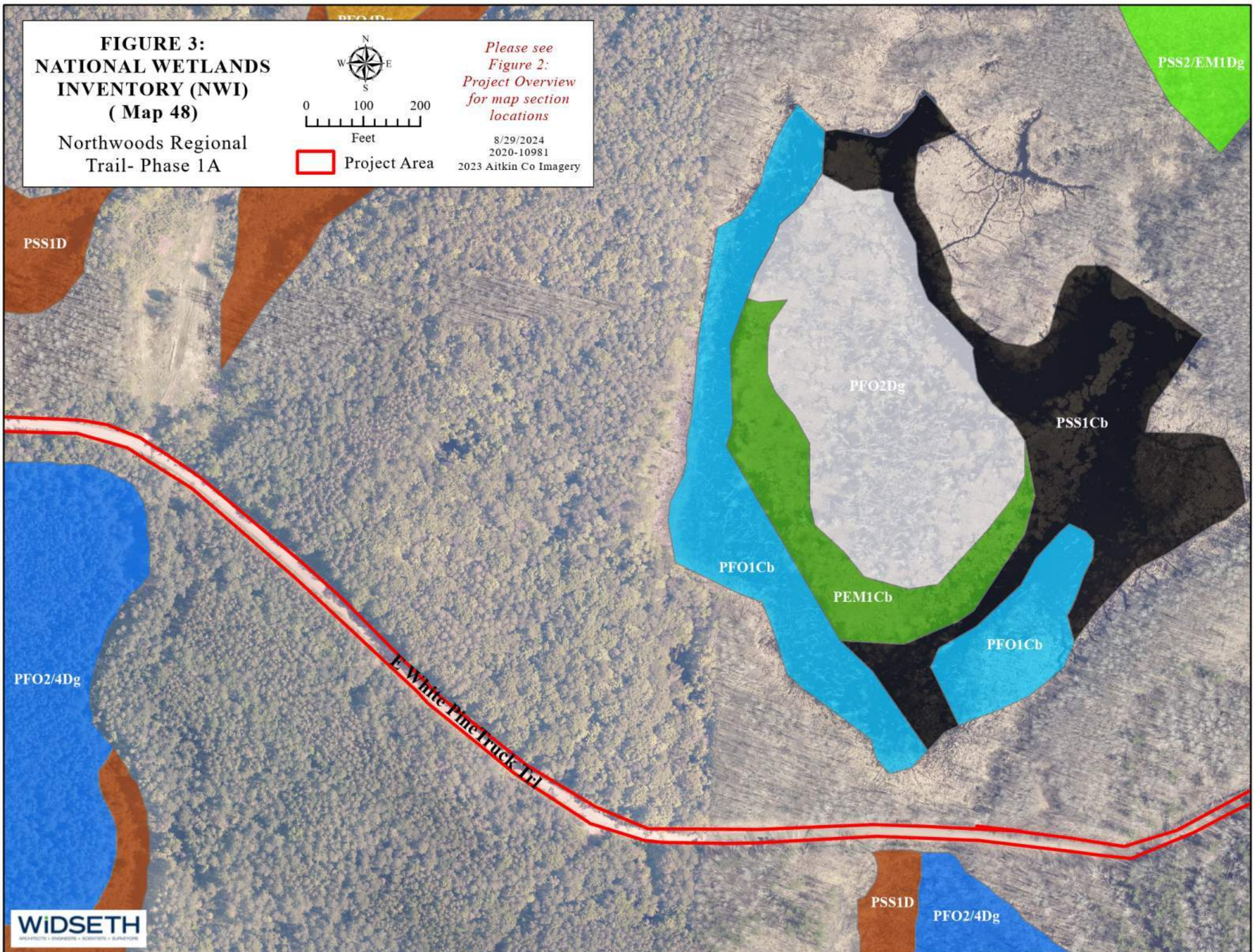
**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 48)**

Northwoods Regional
Trail- Phase 1A



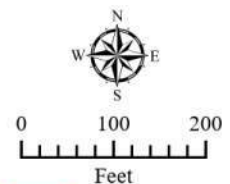
*Please see
Figure 2:
Project Overview
for map section
locations*


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



**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 49)**

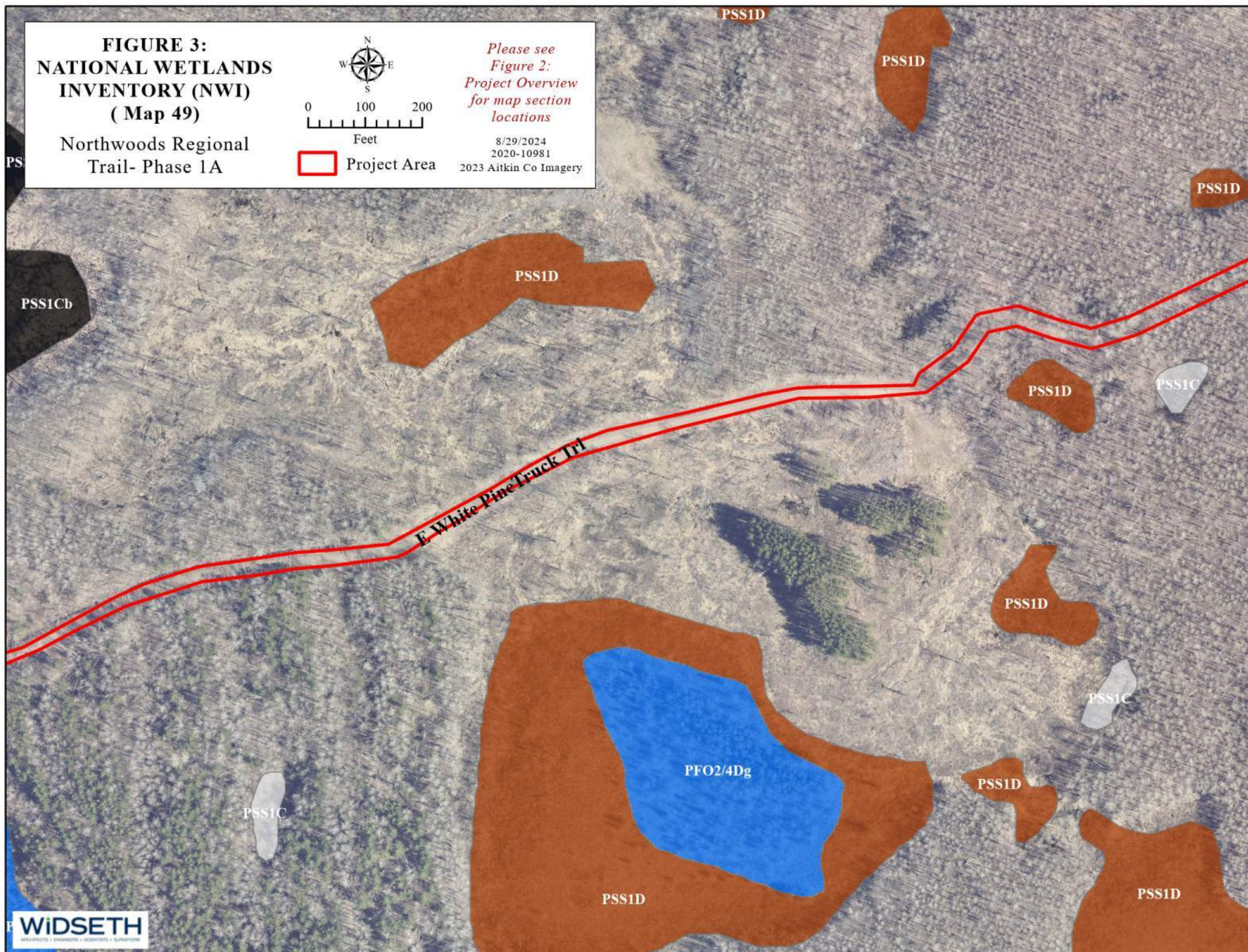
Northwoods Regional
Trail- Phase 1A



 Project Area

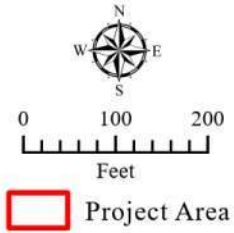
*Please see
Figure 2:
Project Overview
for map section
locations*

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



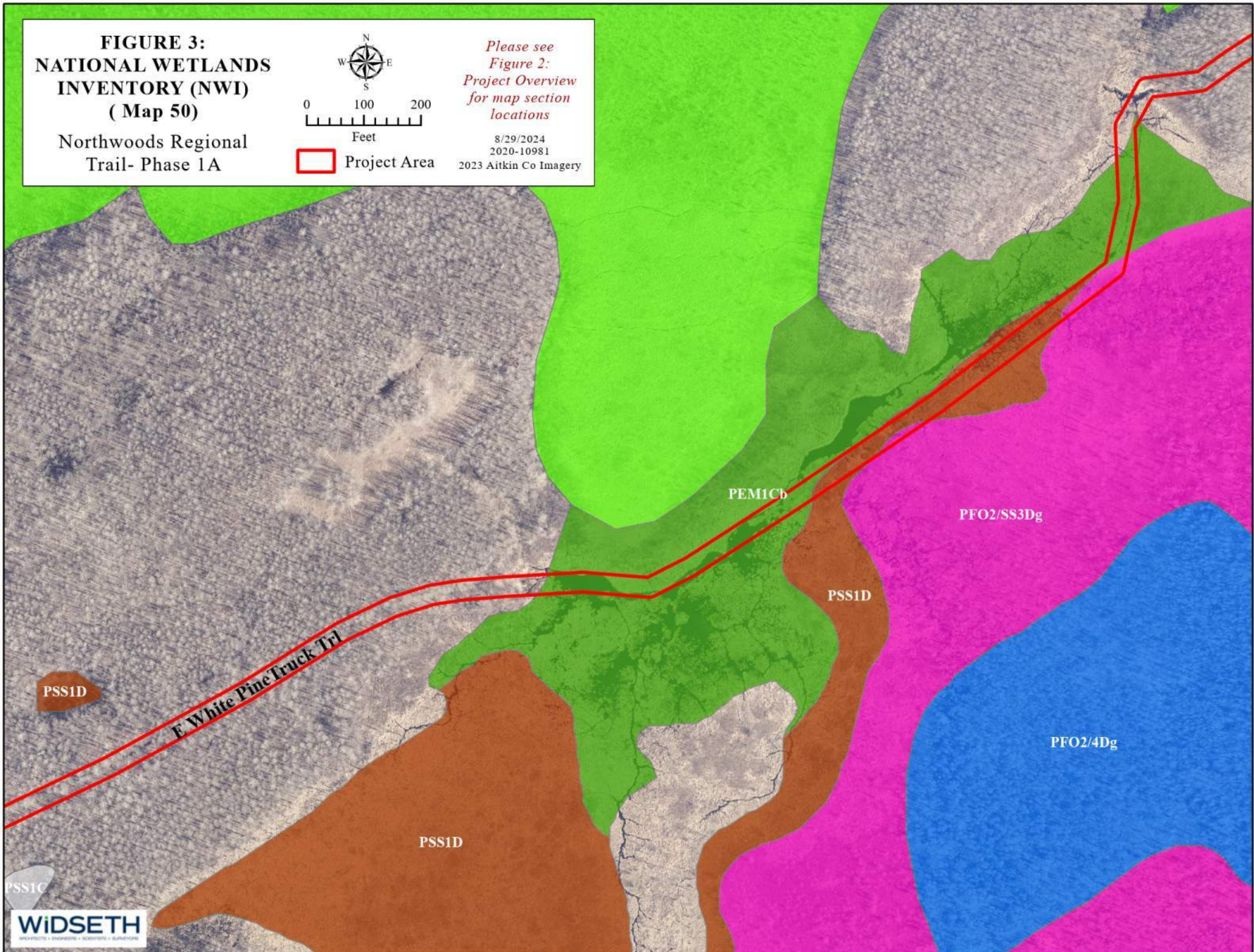
**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 50)**

Northwoods Regional
Trail- Phase 1A



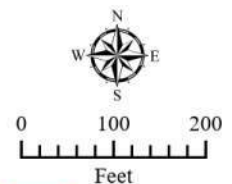
*Please see
Figure 2:
Project Overview
for map section
locations*


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



**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 51)**

Northwoods Regional
Trail- Phase 1A



 Project Area

*Please see
Figure 2:
Project Overview
for map section
locations*

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2020-10981
2023 Aitkin Co Imagery

PSS2/EM1Dg

PFO4Dg

PSS1D

PSS1/EM1D

PEM1Cb

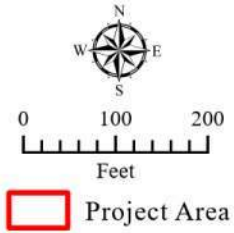
PFO2/SS3Dg

PSS1D

PSS1/EM1D

**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 52)**

Northwoods Regional
Trail- Phase 1A



*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

PSS1/3D

PSS1D

PSS1D

PSS3/4Dg

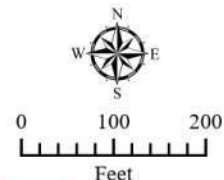
PSS3/4Dg

PSS1D

PSS1D

**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 53)**

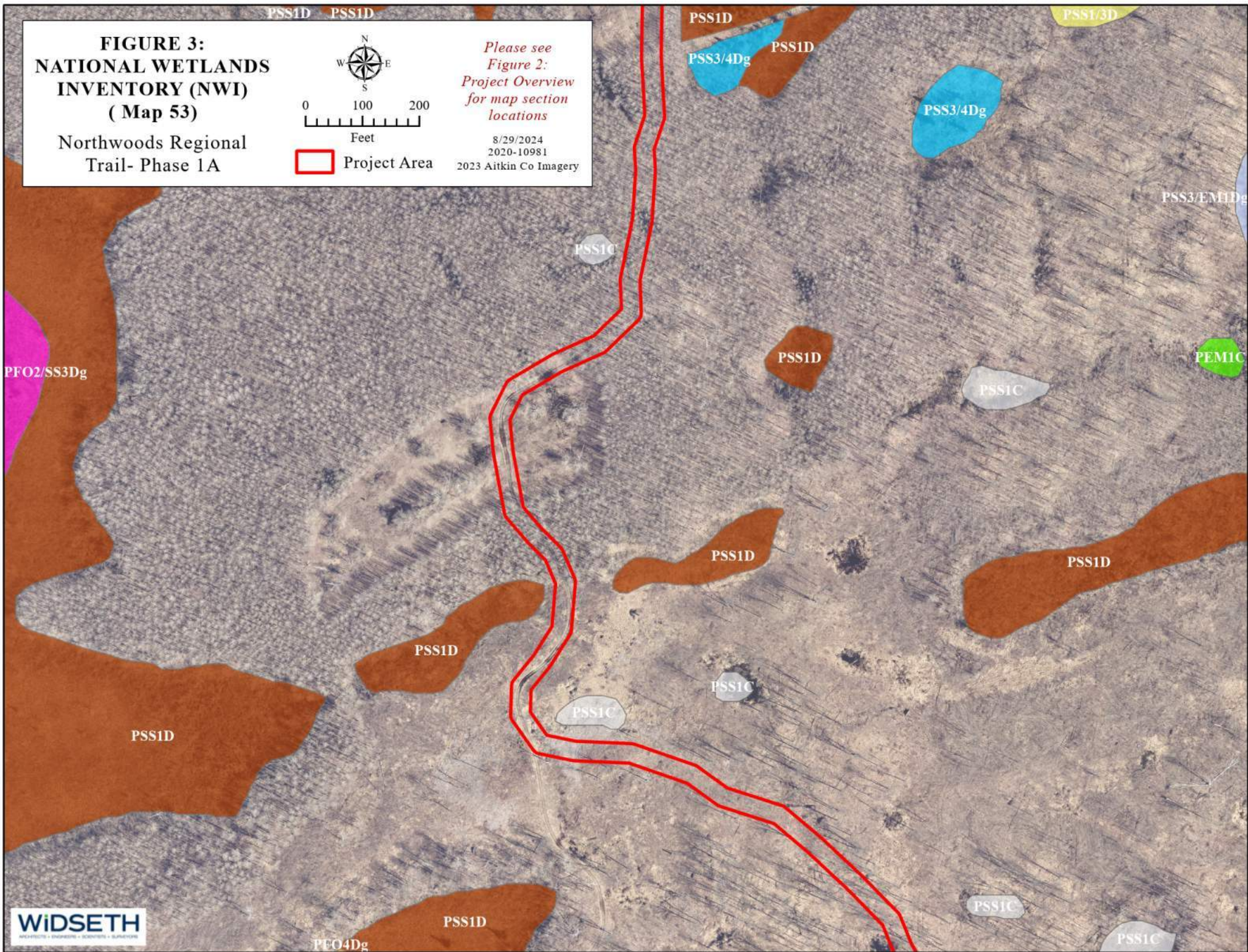
Northwoods Regional
Trail- Phase 1A



Project Area

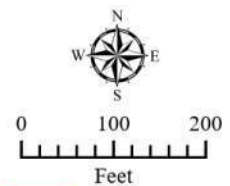
*Please see
Figure 2:
Project Overview
for map section
locations*


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



**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 54)**

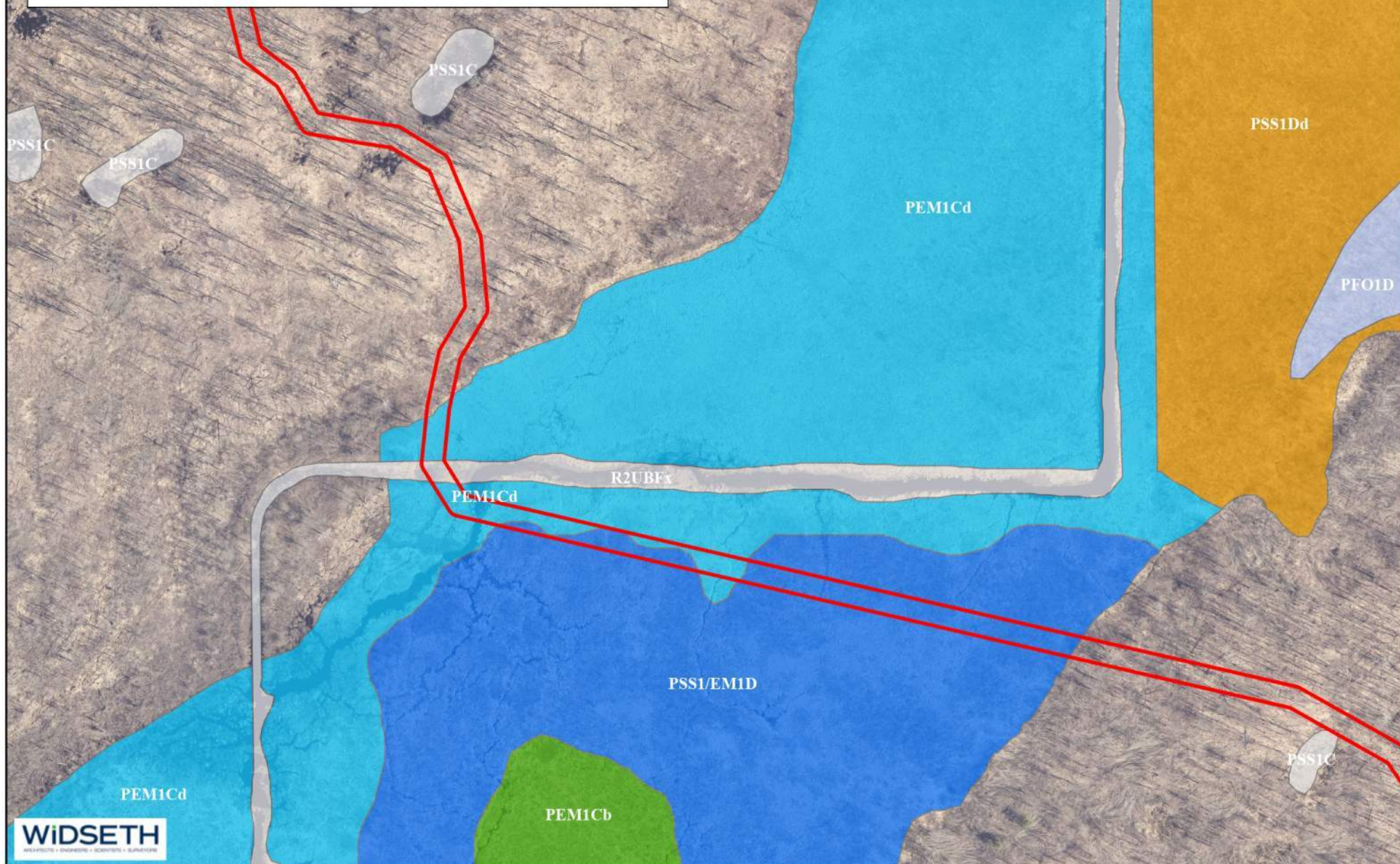
Northwoods Regional
Trail- Phase 1A



 Project Area

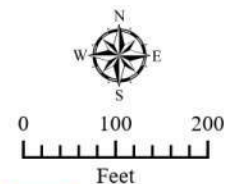
*Please see
Figure 2:
Project Overview
for map section
locations*


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2020-10981
2023 Aitkin Co Imagery



**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 55)**

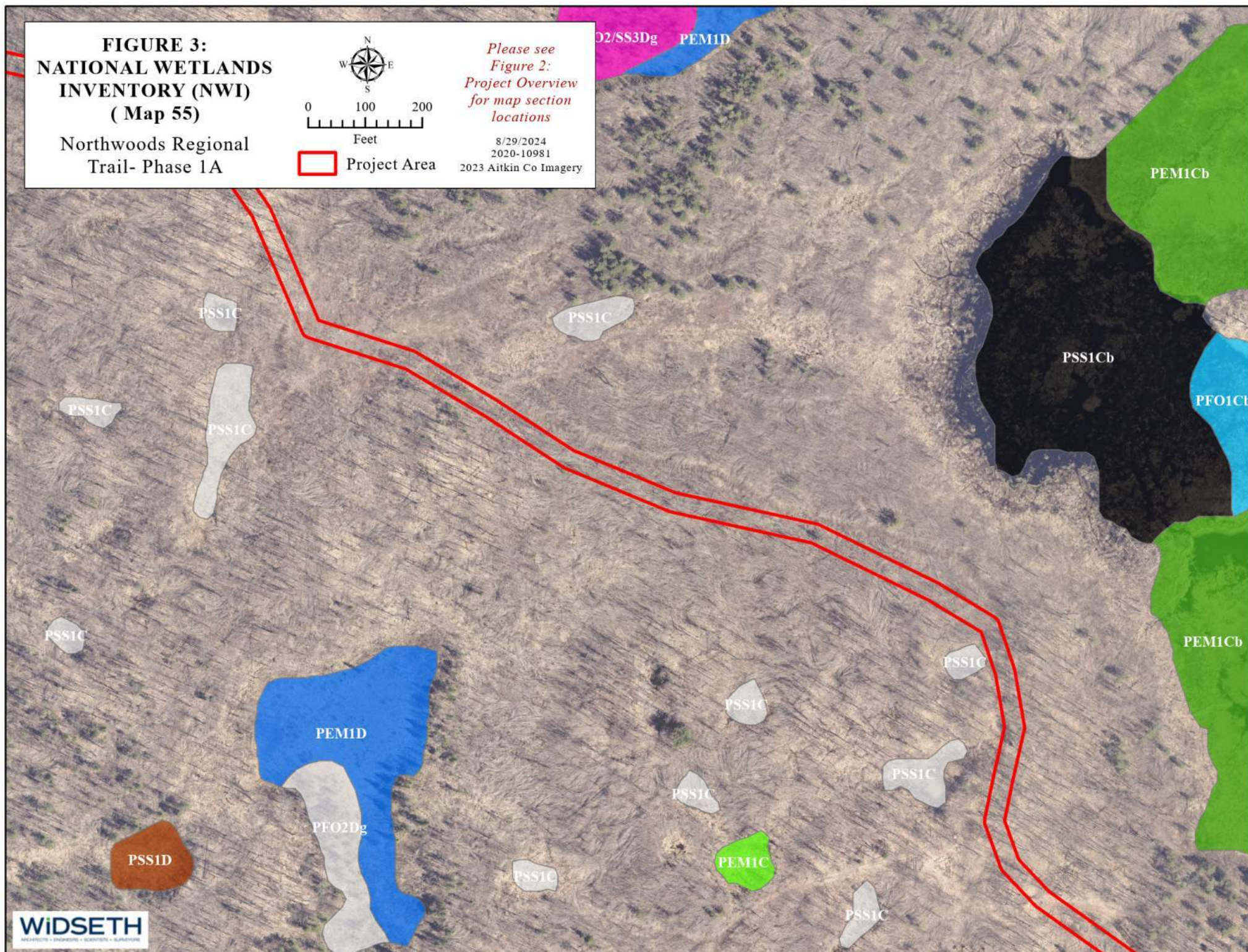
Northwoods Regional
Trail- Phase 1A



 Project Area

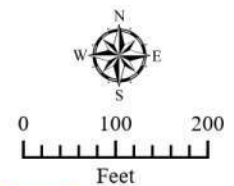
*Please see
Figure 2:
Project Overview
for map section
locations*


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



**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 56)**

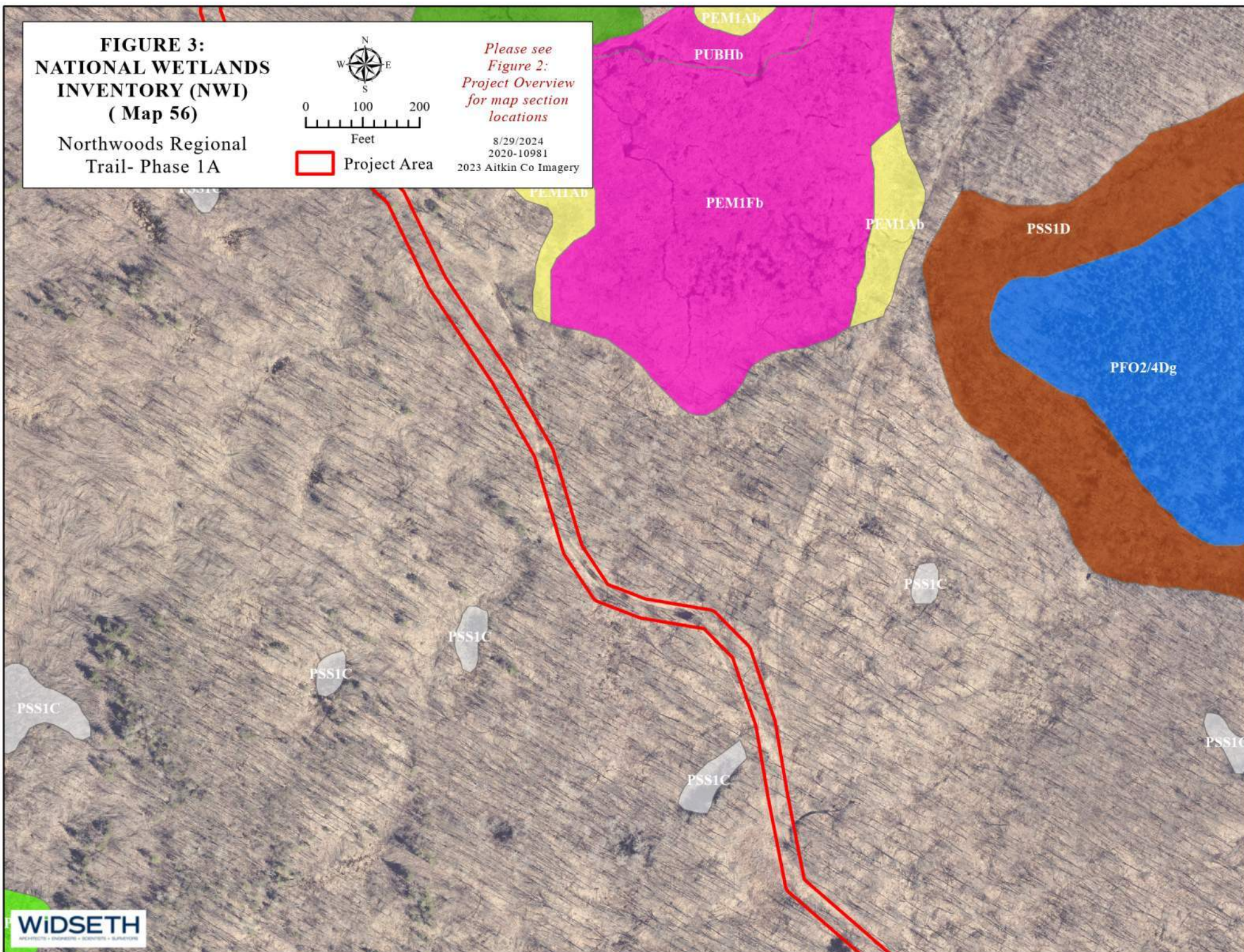
Northwoods Regional
Trail- Phase 1A



 Project Area

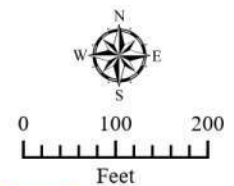
*Please see
Figure 2:
Project Overview
for map section
locations*


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



**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 57)**

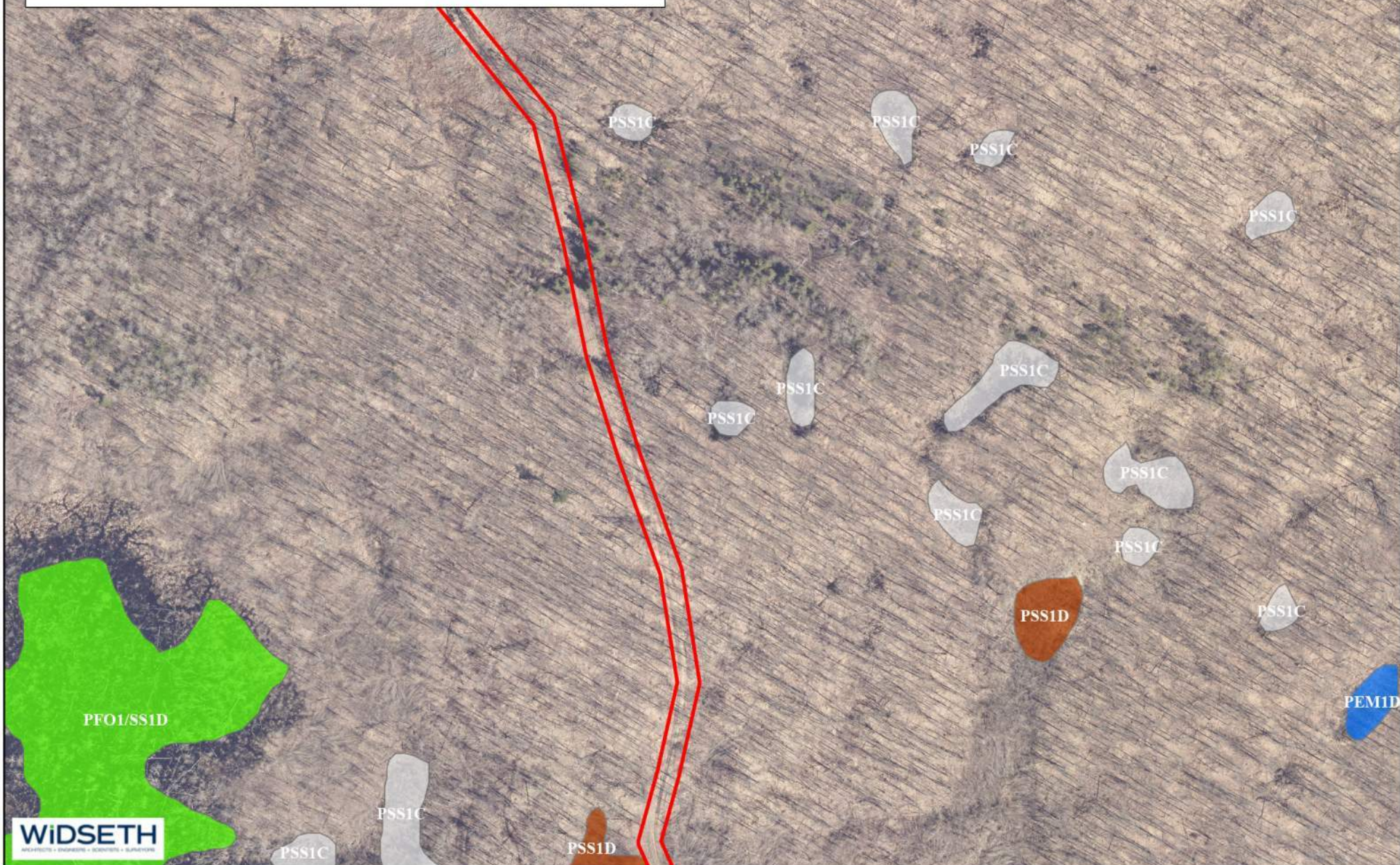
Northwoods Regional
Trail- Phase 1A



 Project Area

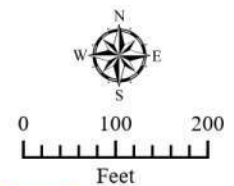
*Please see
Figure 2:
Project Overview
for map section
locations*


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2020-10981
2023 Aitkin Co Imagery



**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 58)**

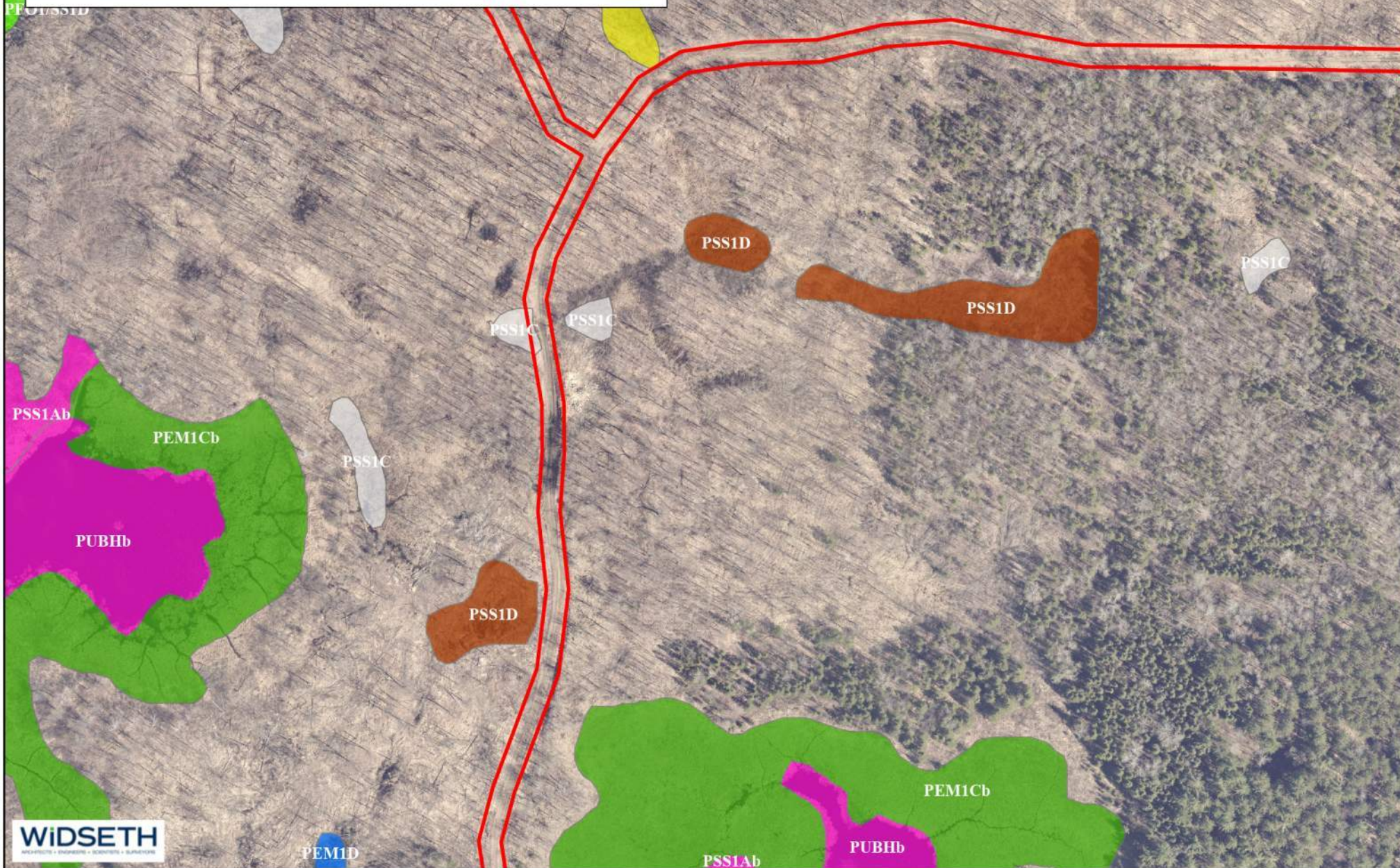
Northwoods Regional
Trail- Phase 1A



 Project Area

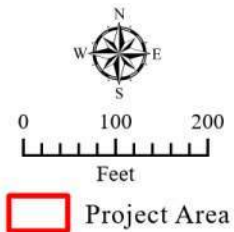
*Please see
Figure 2:
Project Overview
for map section
locations*

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



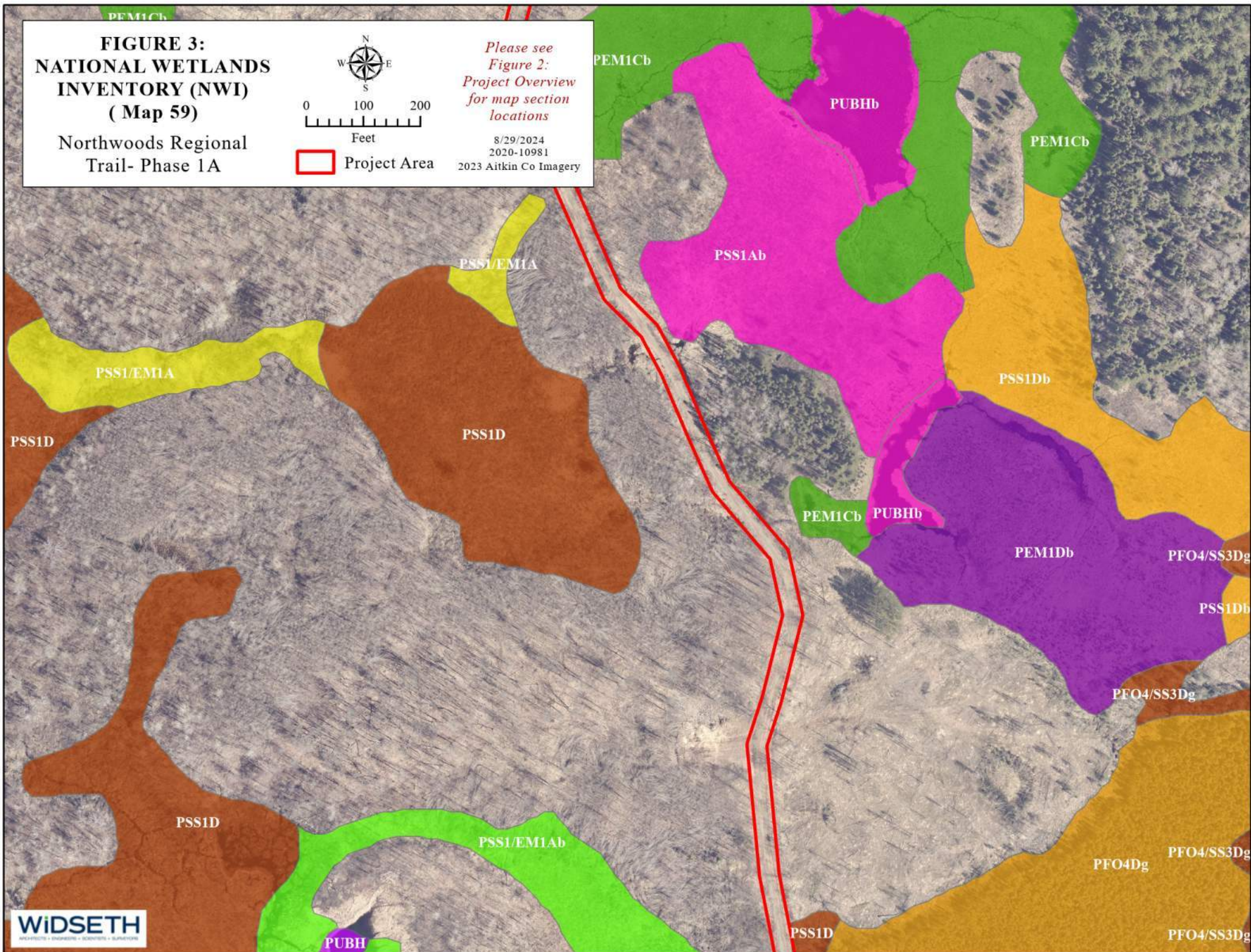
**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 59)**

Northwoods Regional
Trail- Phase 1A



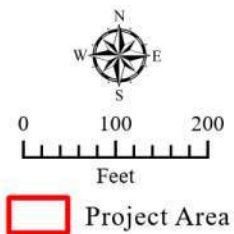
*Please see
Figure 2:
Project Overview
for map section
locations*

8/29/2024
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2023 Aitkin Co Imagery



**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 60)**

Northwoods Regional
Trail- Phase 1A



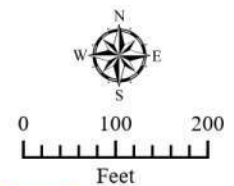
*Please see
Figure 2:
Project Overview
for map section
locations*


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



**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 61)**

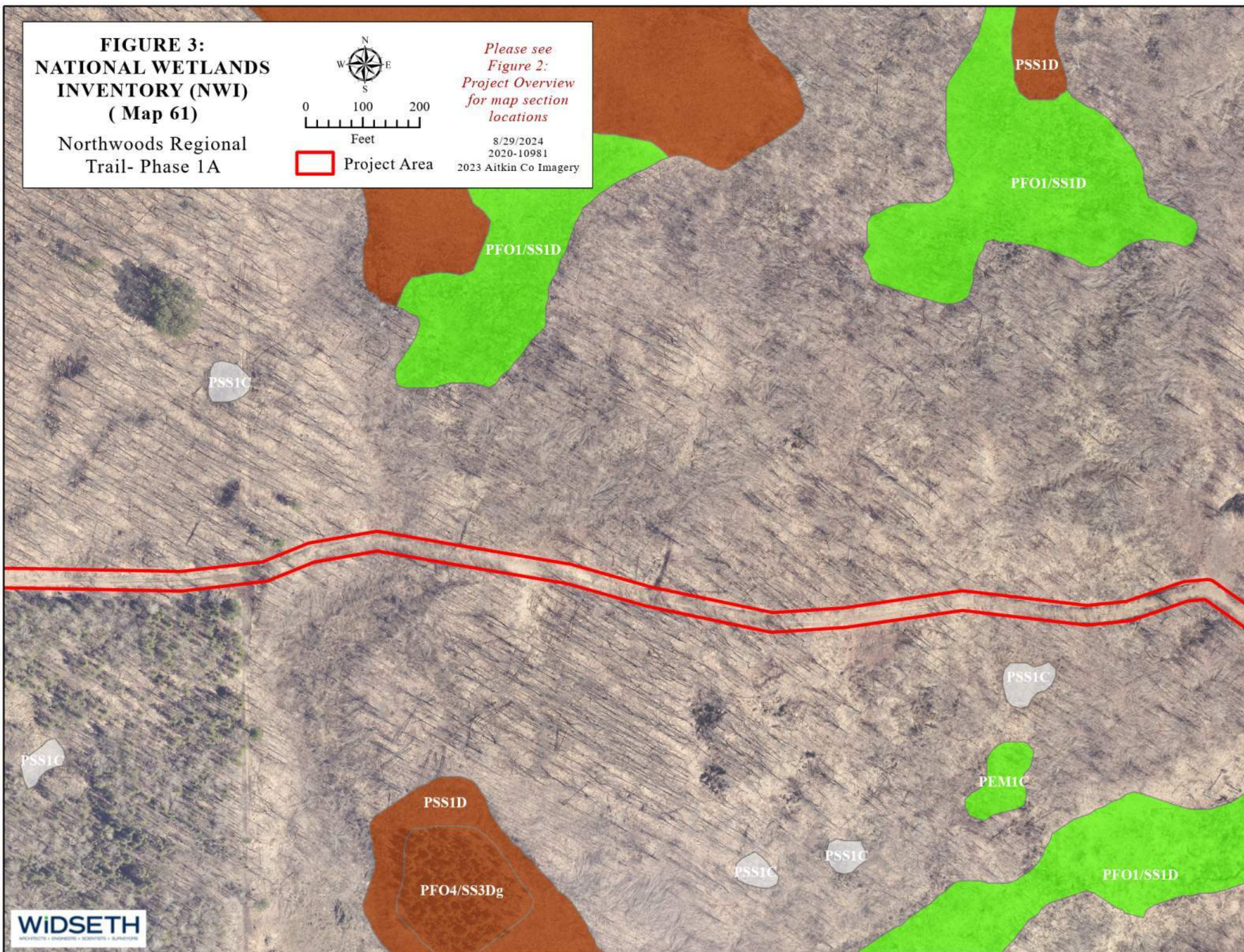
Northwoods Regional
Trail- Phase 1A



 Project Area

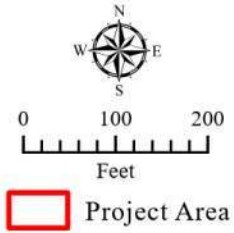
*Please see
Figure 2:
Project Overview
for map section
locations*

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2020-10981
2023 Aitkin Co Imagery



**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 62)**

Northwoods Regional
Trail- Phase 1A



*Please see
Figure 2:
Project Overview
for map section
locations*

8/29/2024
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2023 Aitkin Co Imagery

PFO1/SS1D

PEM1C

PEM1Cb

PEM1A

PSS1Db

PSS1/EM1A

PFO1/SS1D

PFO2/SS1Dg

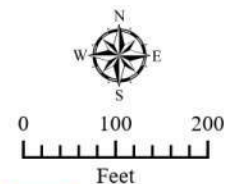
PSS1D


PEM1D

PFO2/EM1Dg

**FIGURE 3:
NATIONAL WETLANDS
INVENTORY (NWI)
(Map 63)**

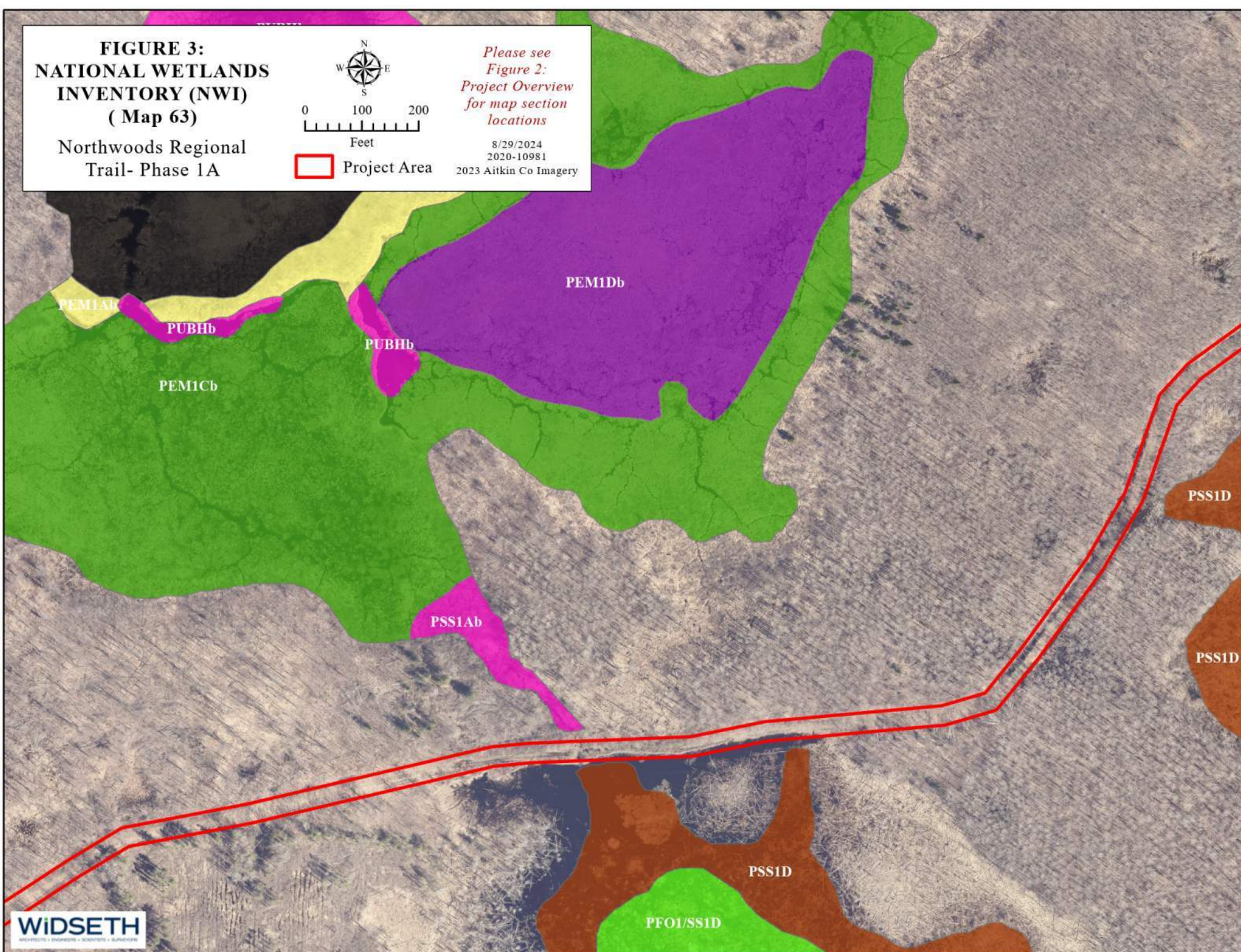
Northwoods Regional
Trail- Phase 1A

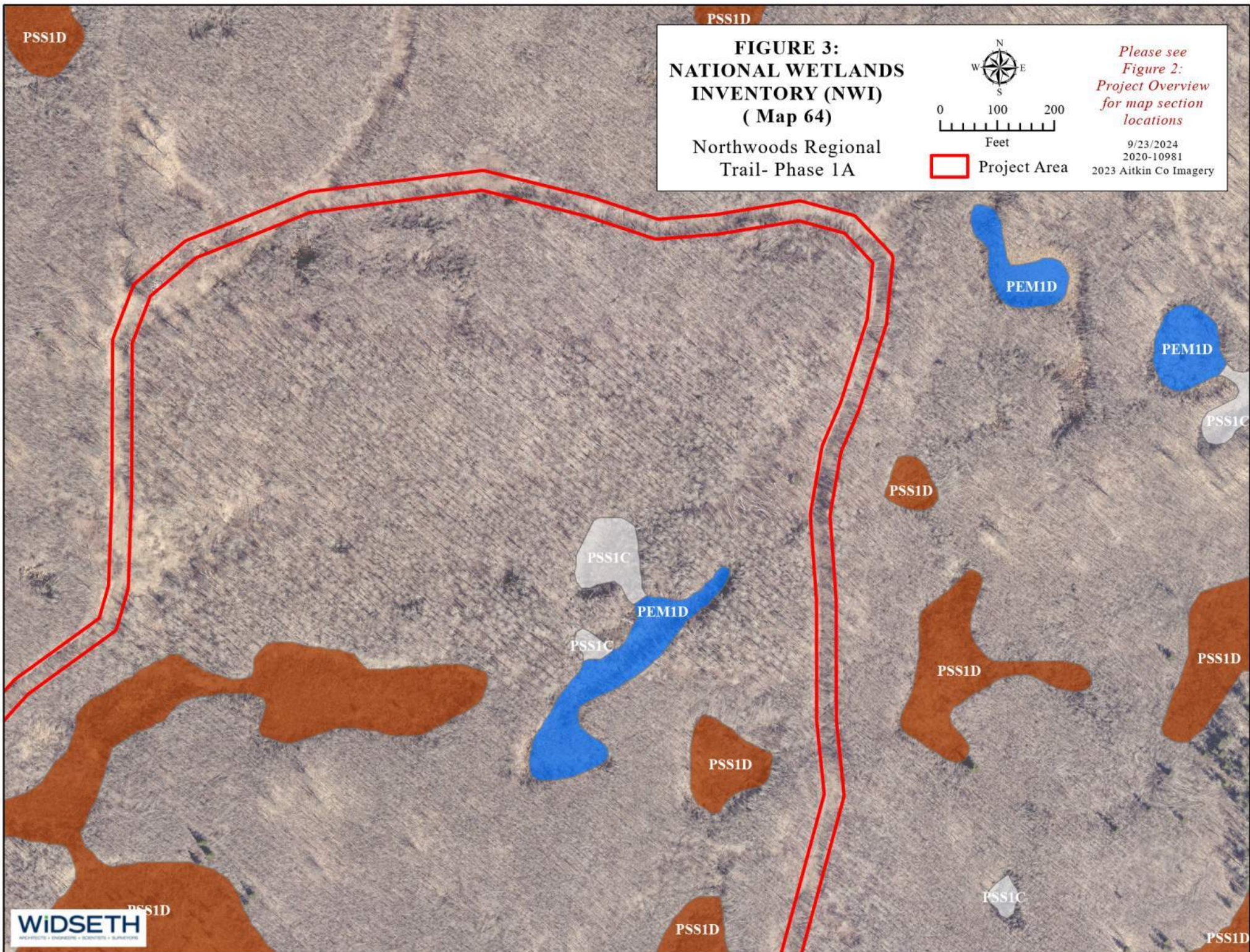


 Project Area

*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 65)**

Northwoods Regional
Trail- Phase 1A

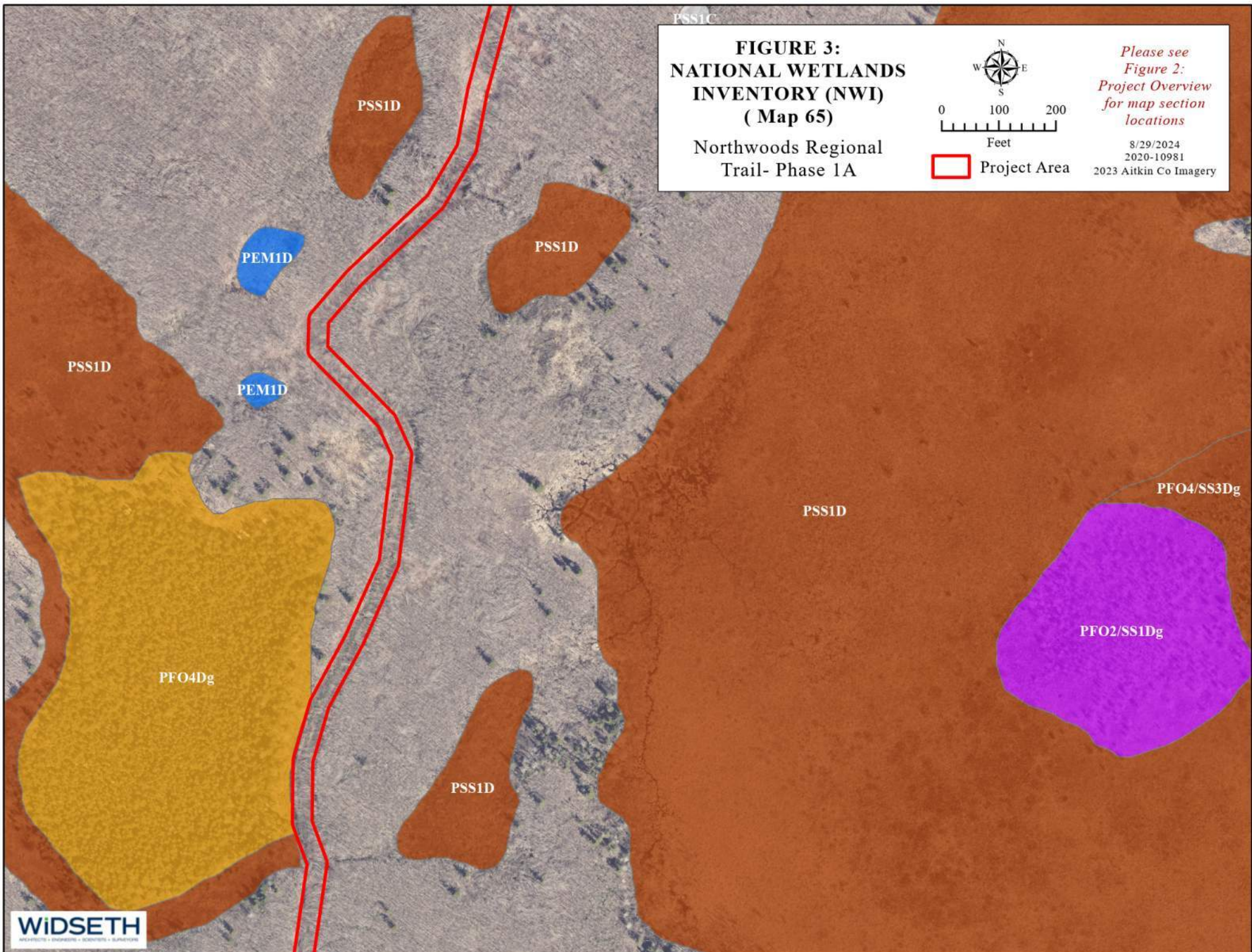


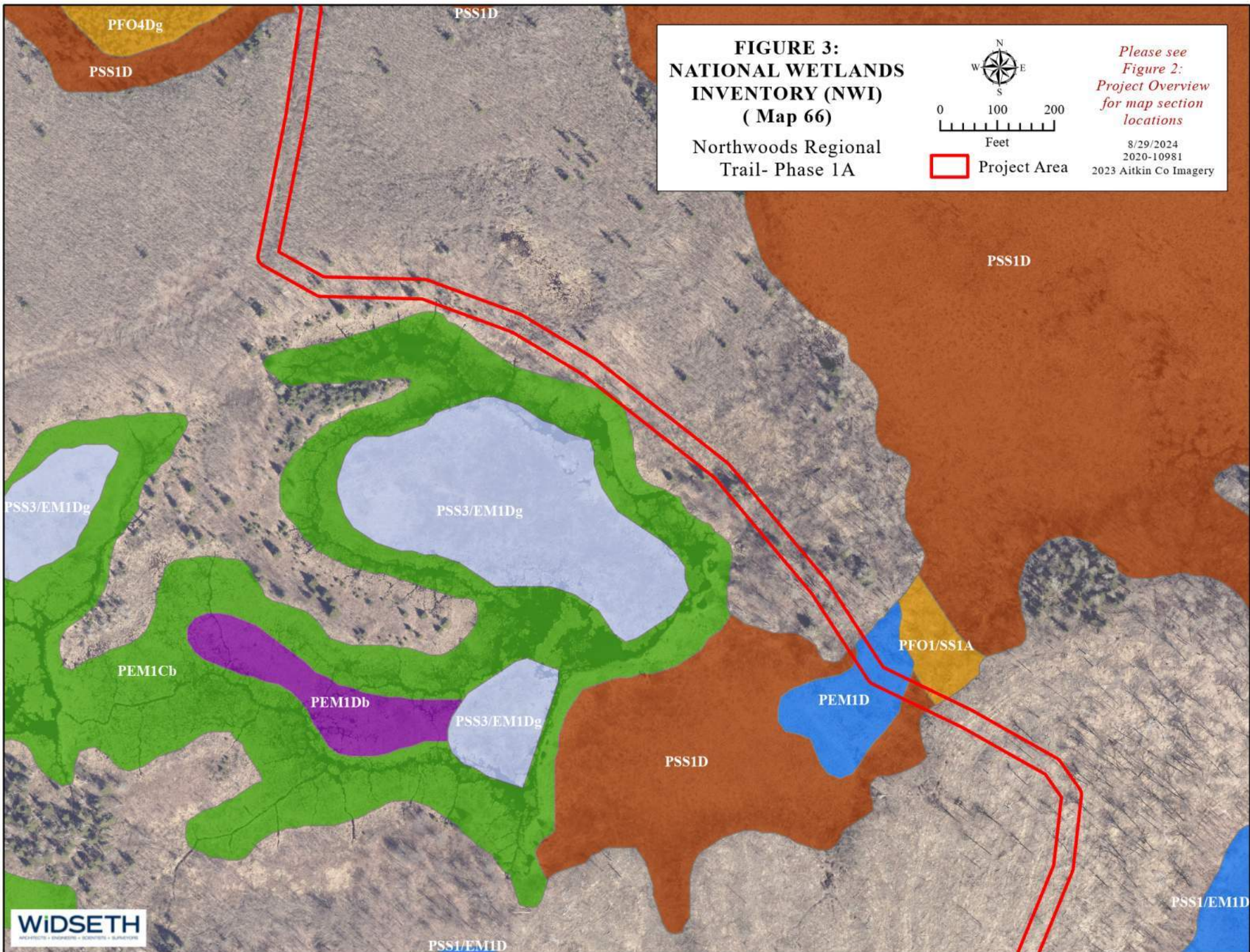
0 100 200
Feet

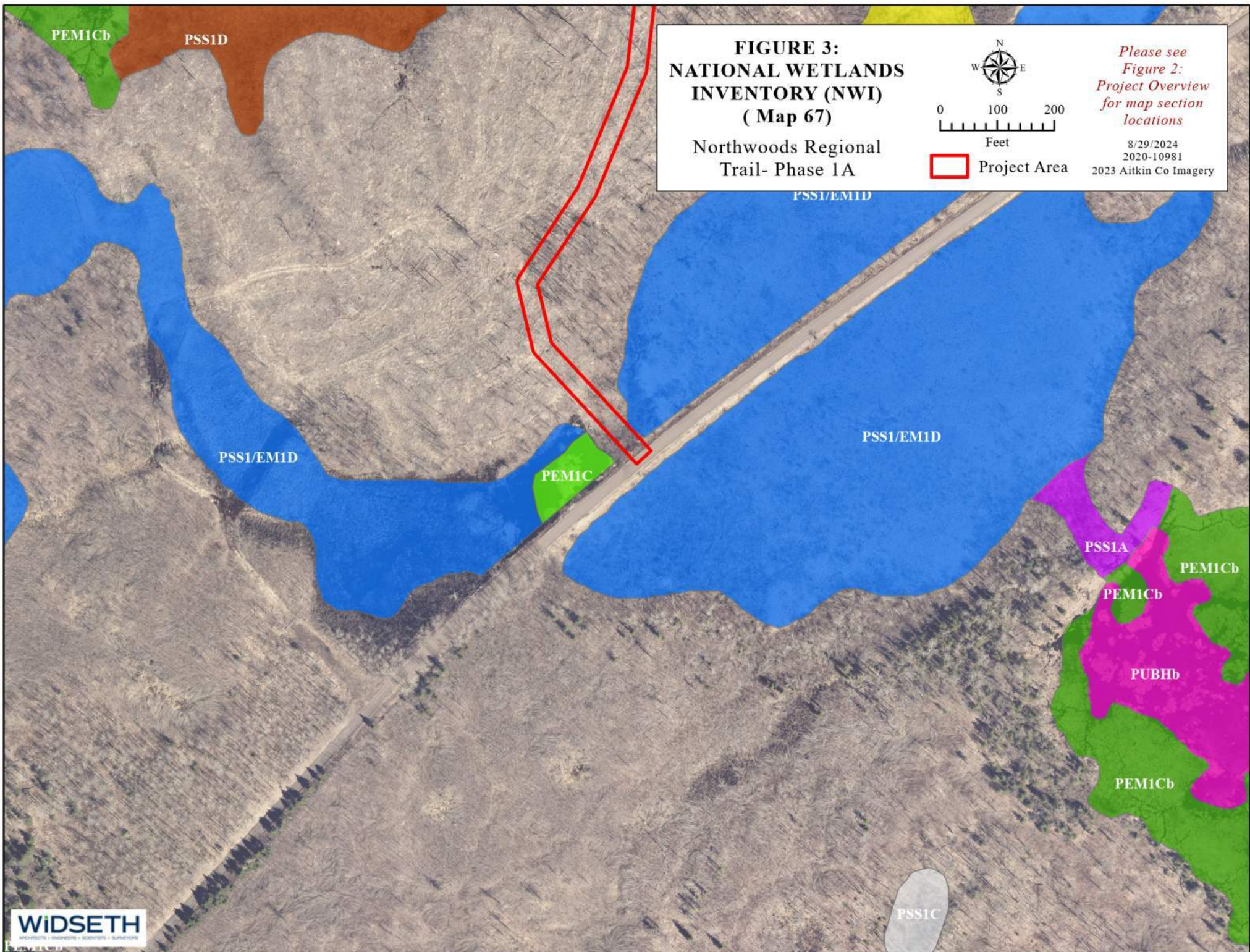
 Project Area

*Please see
Figure 2:
Project Overview
for map section
locations*

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2023 Aitkin Co Imagery







**FIGURE 4: (PWI)
PUBLIC WATERS
INVENTORY**

Northwoods
Regional
Trail- Phase 1A



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*



State Hwy 47

Deer Lake
DNR Hydro
ID #51877

230th Ln

240th Ln

Unnamed stream DNR Hydro ID #124455

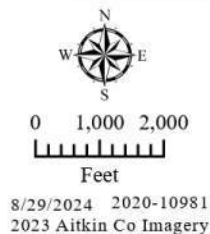
220th St

310th Ave

10th Ave

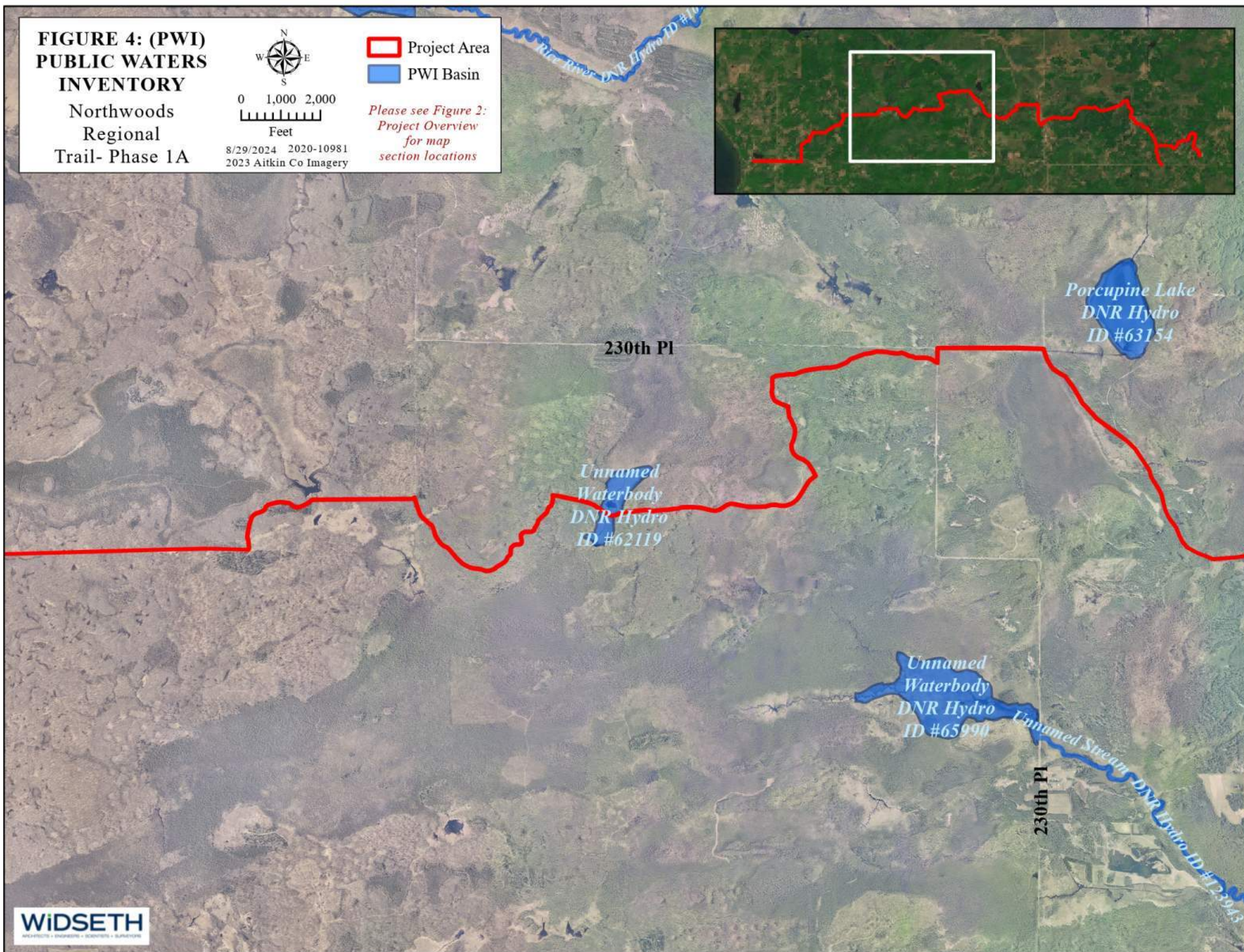
**FIGURE 4: (PWI)
PUBLIC WATERS
INVENTORY**

Northwoods
Regional
Trail- Phase 1A



- Project Area
- PWI Basin

*Please see Figure 2:
Project Overview
for map
section locations*



**FIGURE 4: (PWI)
PUBLIC WATERS
INVENTORY**

Northwoods
Regional
Trail- Phase 1A



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

State Hwy 65

Snake River DNR Hydro ID #104032

Snake Ri

**FIGURE 4: (PWI)
PUBLIC WATERS
INVENTORY**

Northwoods
Regional
Trail- Phase 1A

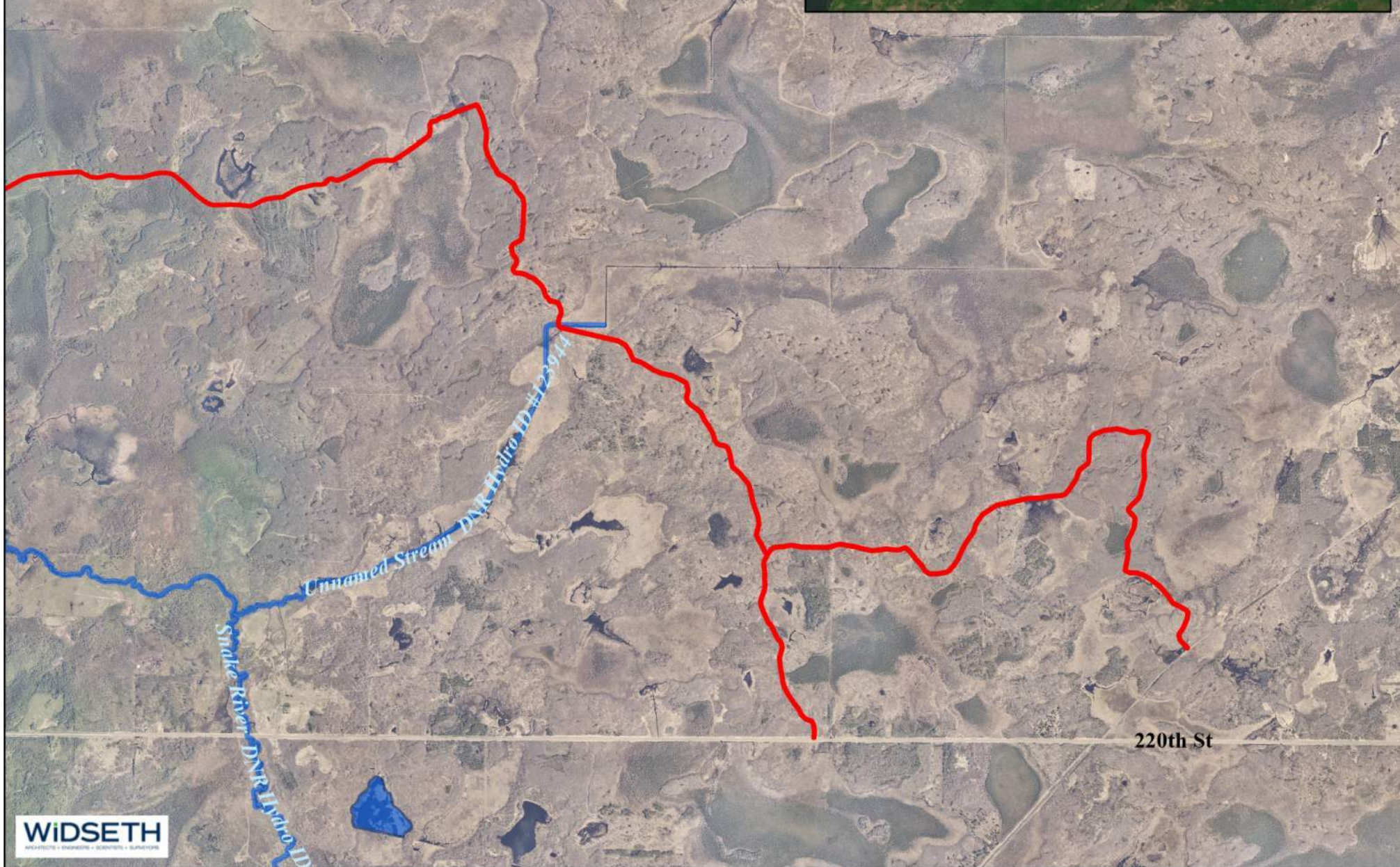


0 1,000 2,000
Feet

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

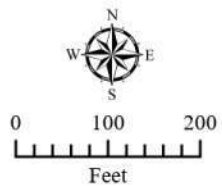
 Project Area
 PWI Basin

*Please see Figure 2:
Project Overview
for map
section locations*

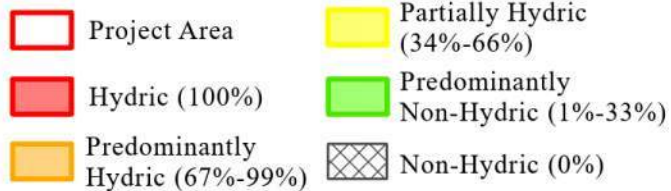


**FIGURE 5:
SOILS
(Map 01)**

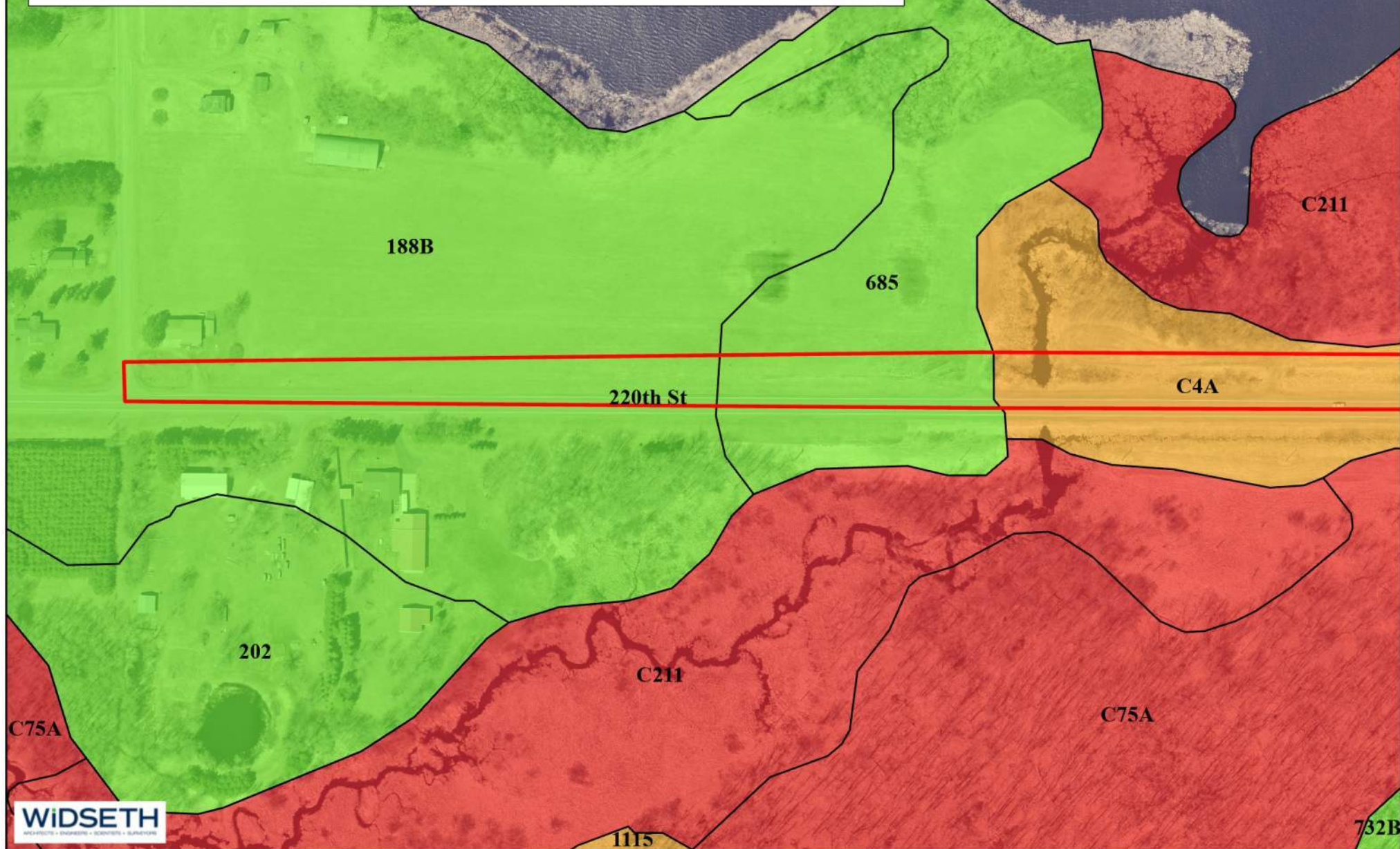
Northwoods
Regional Trail-
Phase 1A



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Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 02)**

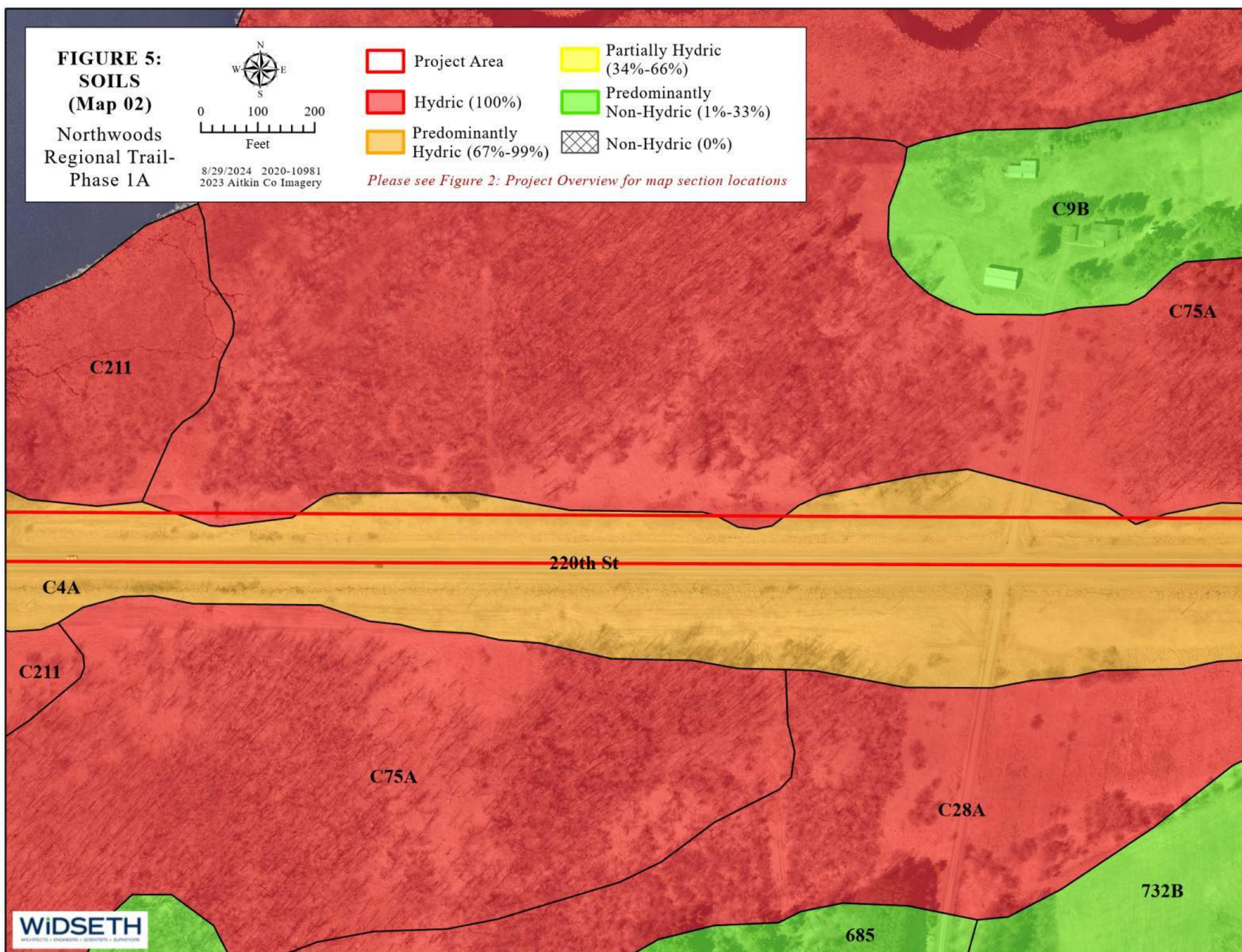
Northwoods
Regional Trail-
Phase 1A



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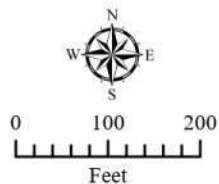
- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 03)**

Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

Project Area

Hydric (100%)

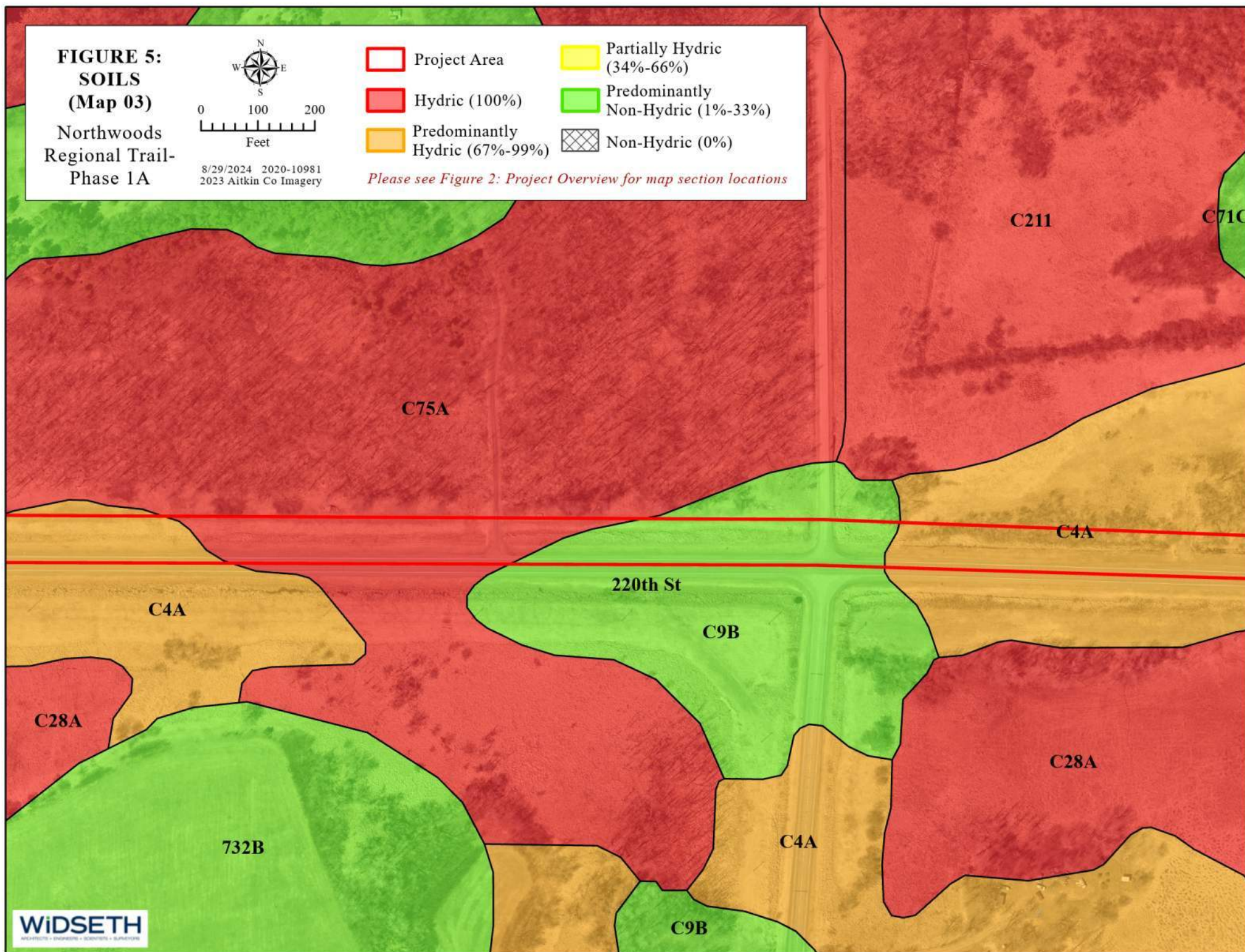
Predominantly
Hydric (67%-99%)

Partially Hydric
(34%-66%)

Predominantly
Non-Hydric (1%-33%)

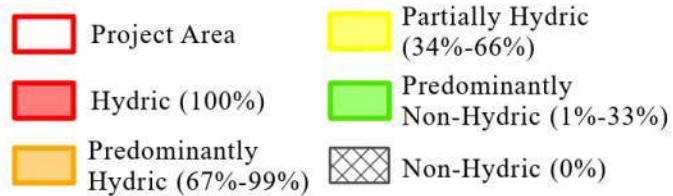
Non-Hydric (0%)

Please see Figure 2: Project Overview for map section locations

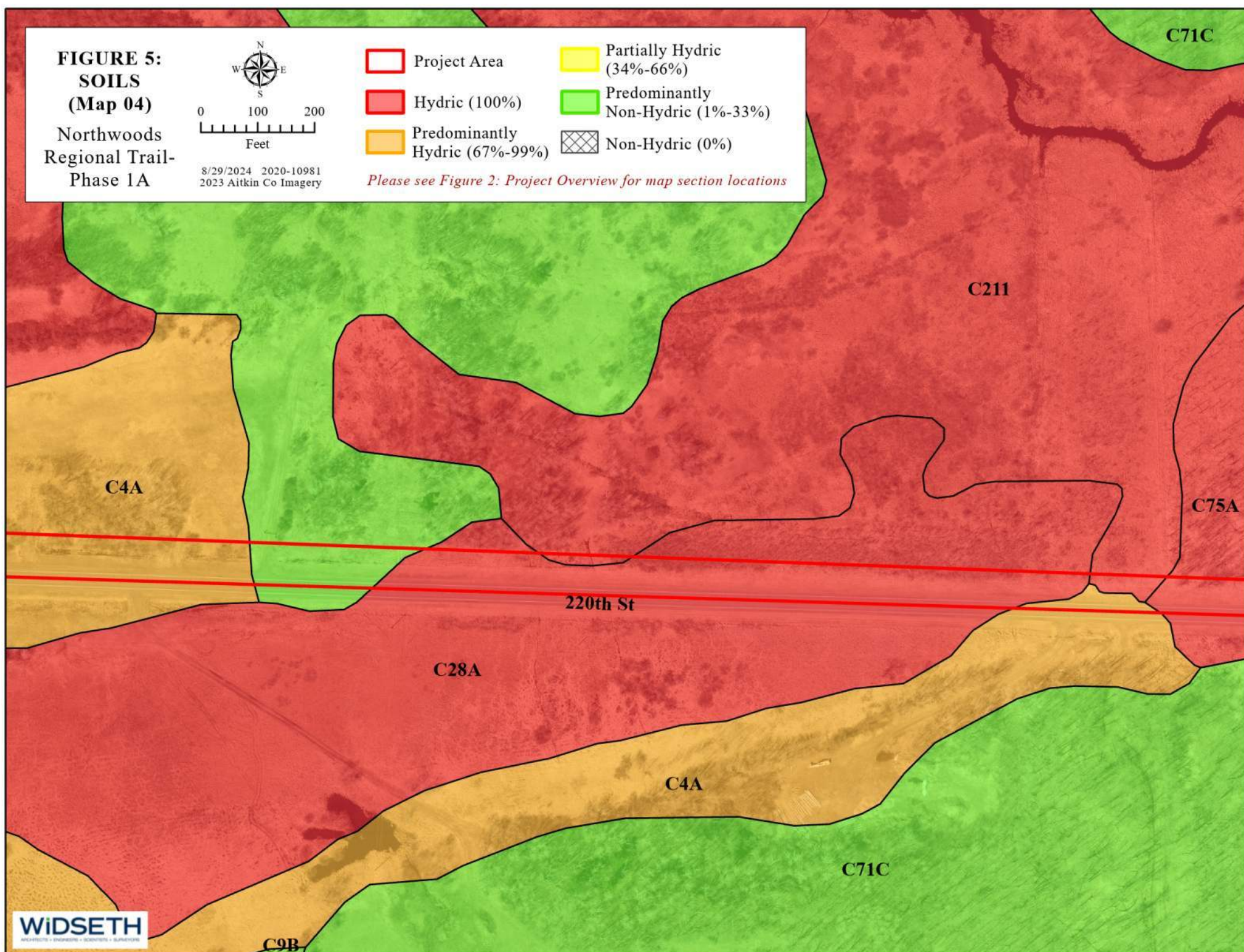


**FIGURE 5:
SOILS
(Map 04)**

Northwoods
Regional Trail-
Phase 1A



Please see Figure 2: Project Overview for map section locations



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5 H J L R Q D O 7 U D L O
3 K D V H \$



3 U R M H F W \$ U H D



+ \ G U L F



3 U H G R P L Q D Q W O \
+ \ G U L F



3 U H G R P L Q D Q W O \
1 R Q + \ G U L F



1 R Q + \ G U L F

3 D U W L D O O \ + \ G U L F

\$ L W N L Q & R , P D 3 H

3 K D V H V H H) L J X U H

3 U R M H F W 2 Y H U Y L H Z I R U P D S V H F W L R Q O R F D W L R Q V

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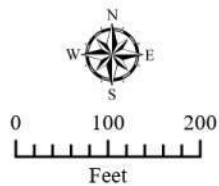
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& \$

**FIGURE 5:
SOILS
(Map 06)**

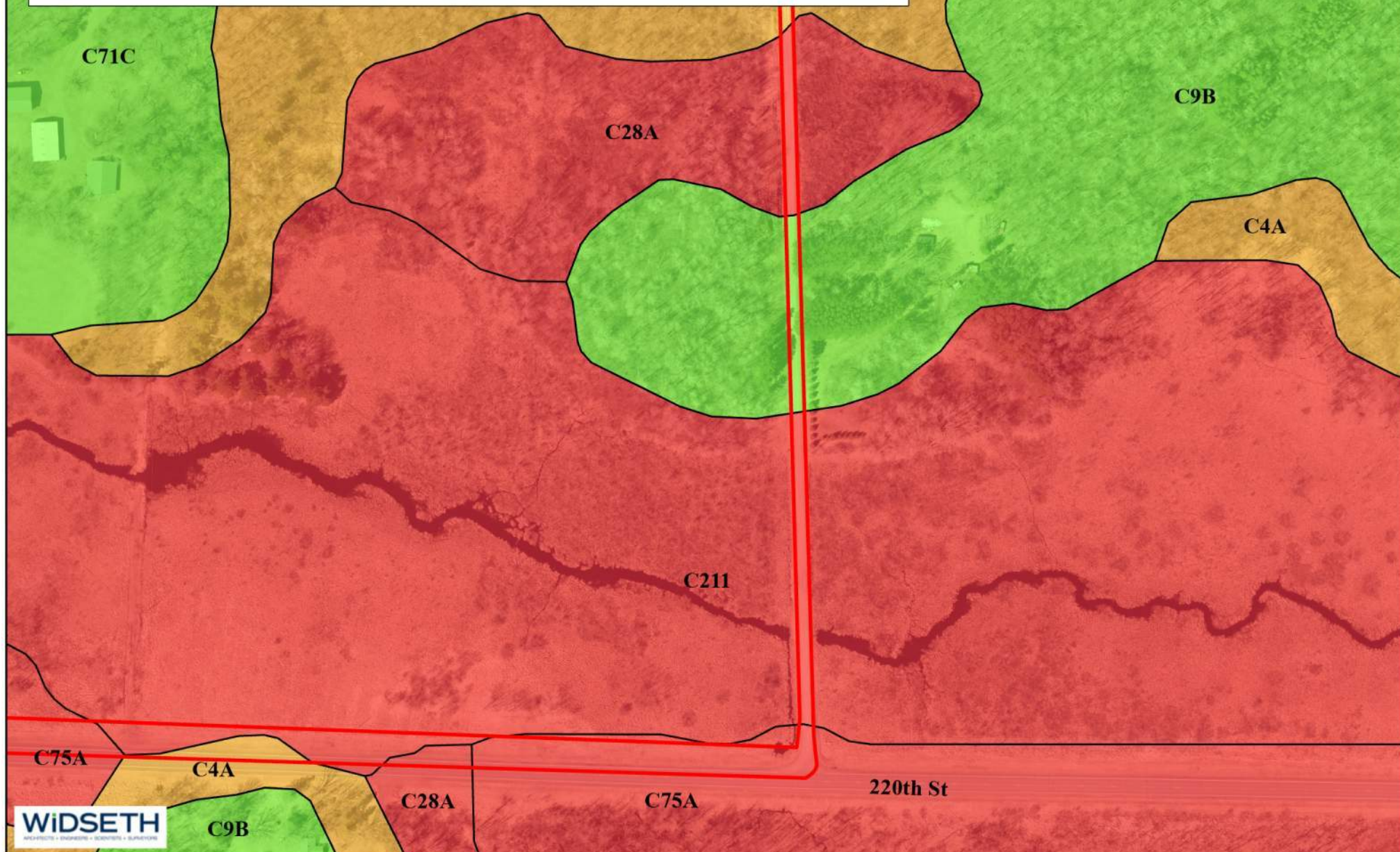
Northwoods
Regional Trail-
Phase 1A



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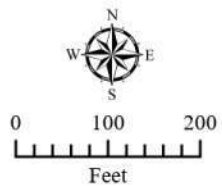
- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations

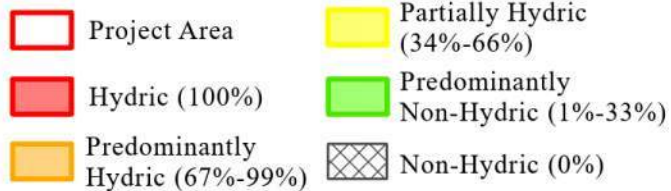


**FIGURE 5:
SOILS
(Map 07)**

Northwoods
Regional Trail-
Phase 1A



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Please see Figure 2: Project Overview for map section locations

1354A

C9B

C28A

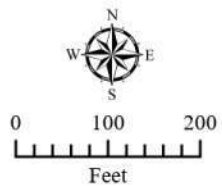
C4A

C71C

C4A

**FIGURE 5:
SOILS
(Map 08)**

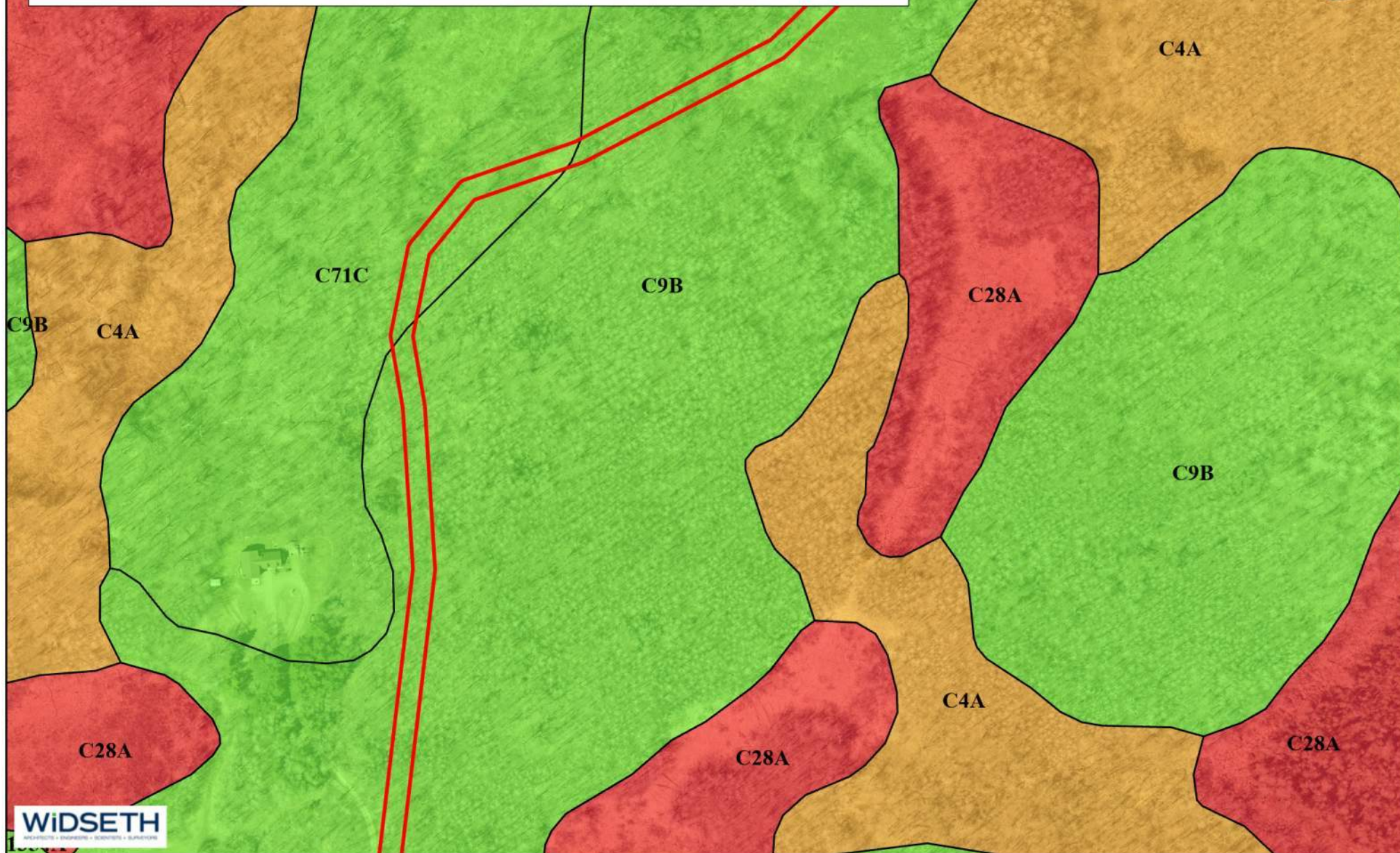
Northwoods
Regional Trail-
Phase 1A



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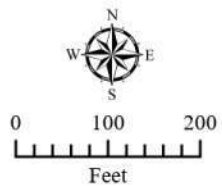
- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations

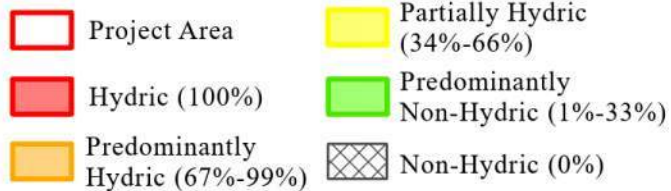


**FIGURE 5:
SOILS
(Map 09)**

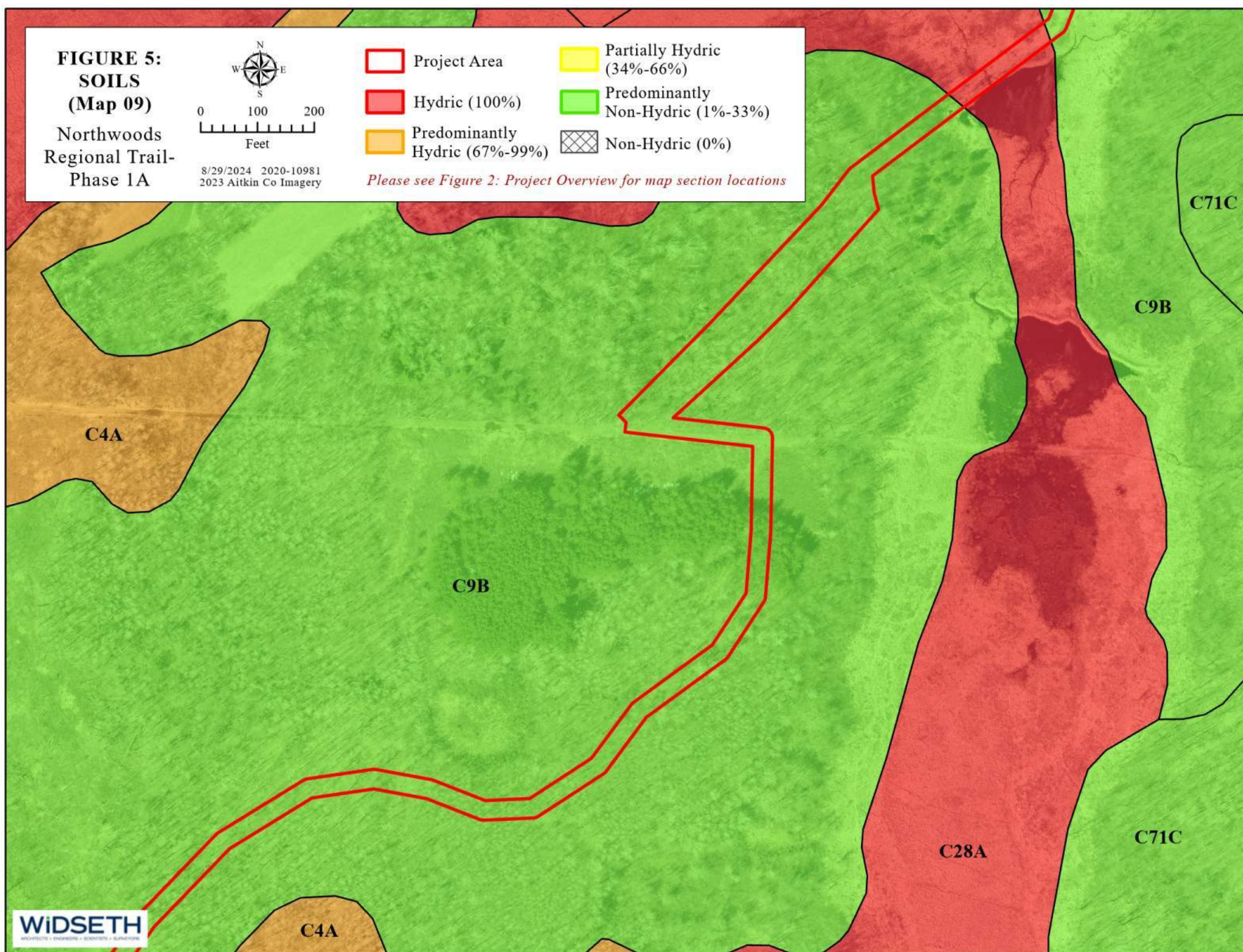
Northwoods
Regional Trail-
Phase 1A



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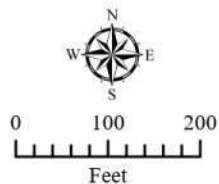


Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 10)**

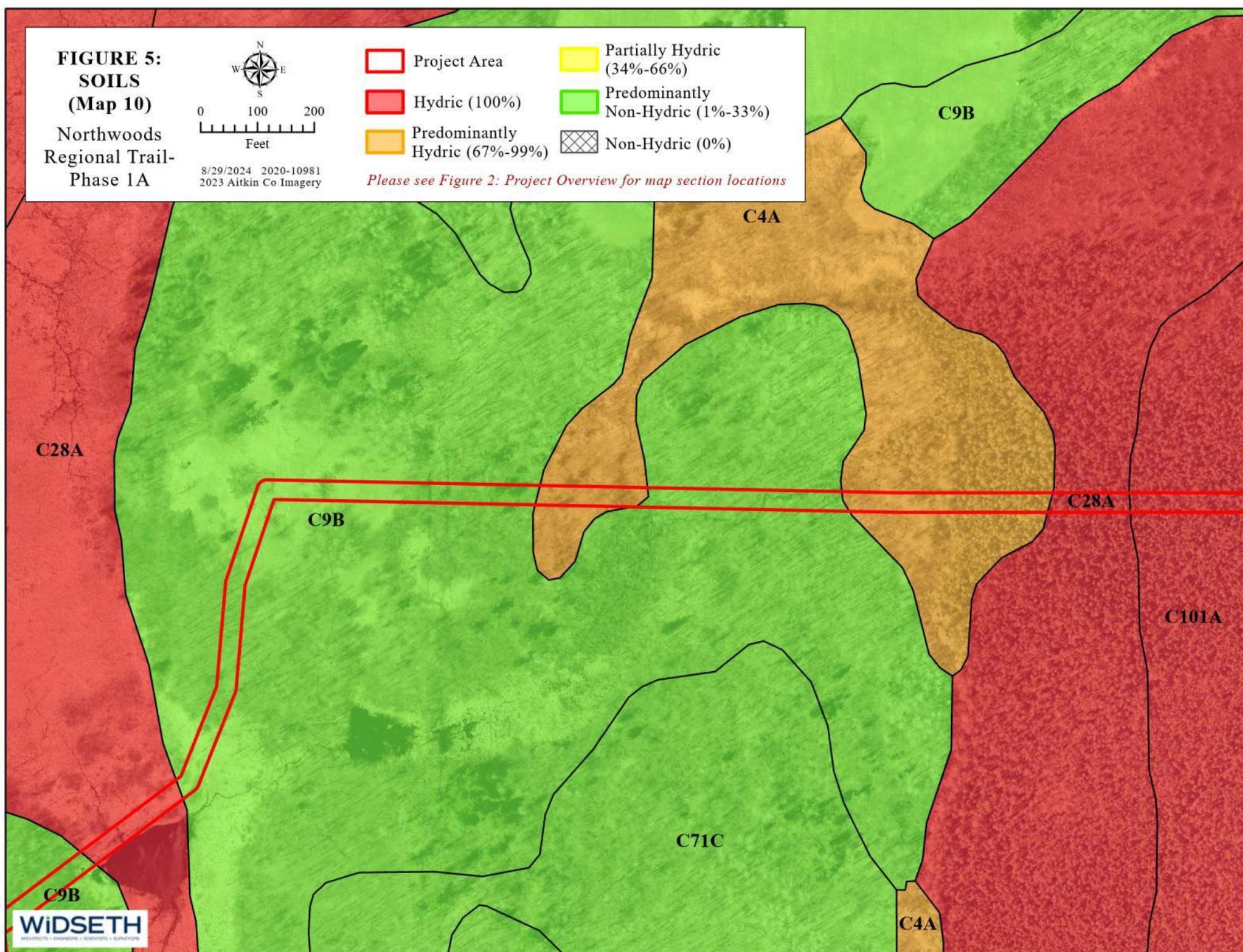
Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations




**FIGURE 5:
SOILS
(Map 11)**


Northwoods
Regional Trail-
Phase 1A





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2023 Aitkin Co Imagery


 Project Area

 Hydric (100%)

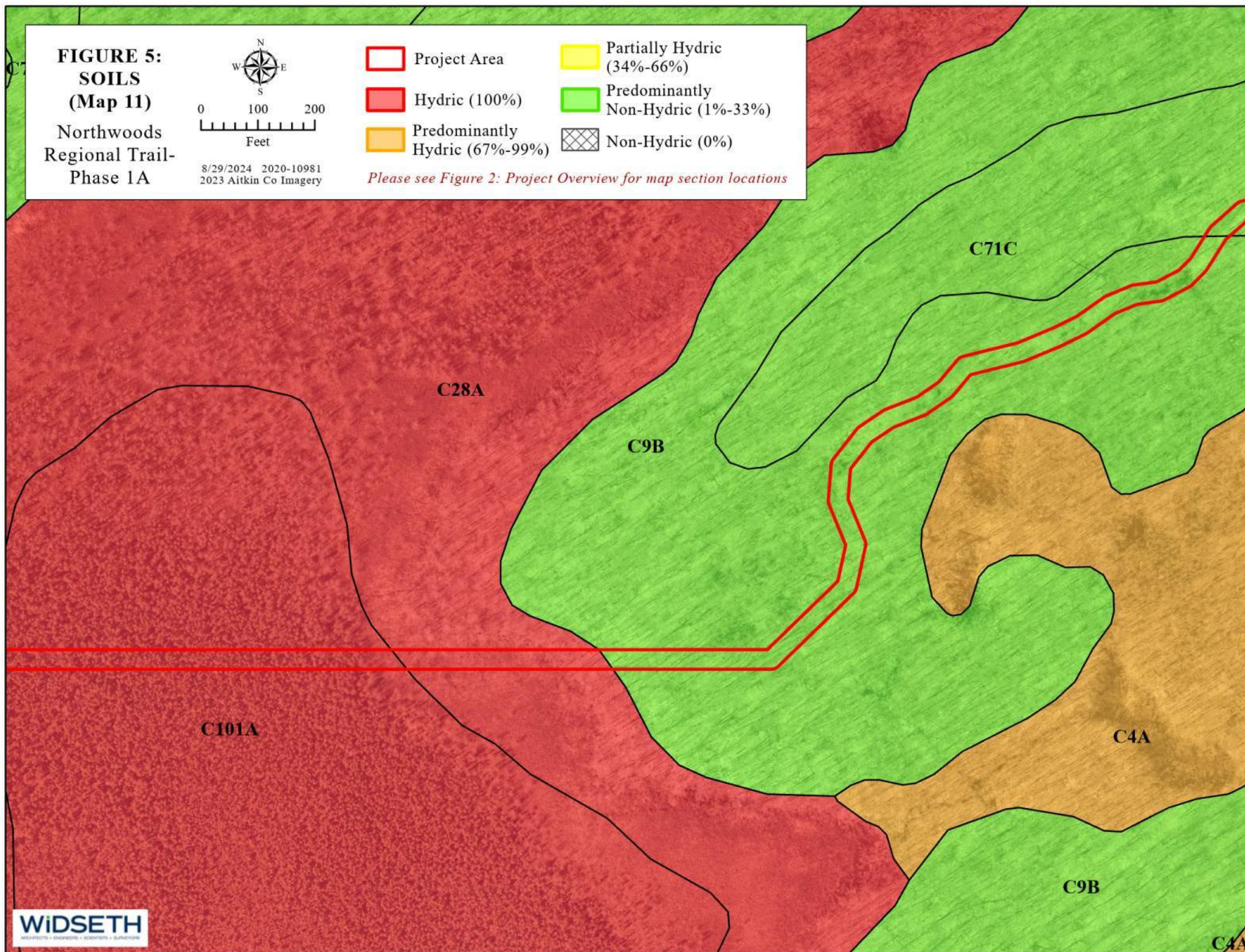
 Predominantly
Hydric (67%-99%)

 Partially Hydric
(34%-66%)

 Predominantly
Non-Hydric (1%-33%)

 Non-Hydric (0%)

Please see Figure 2: Project Overview for map section locations



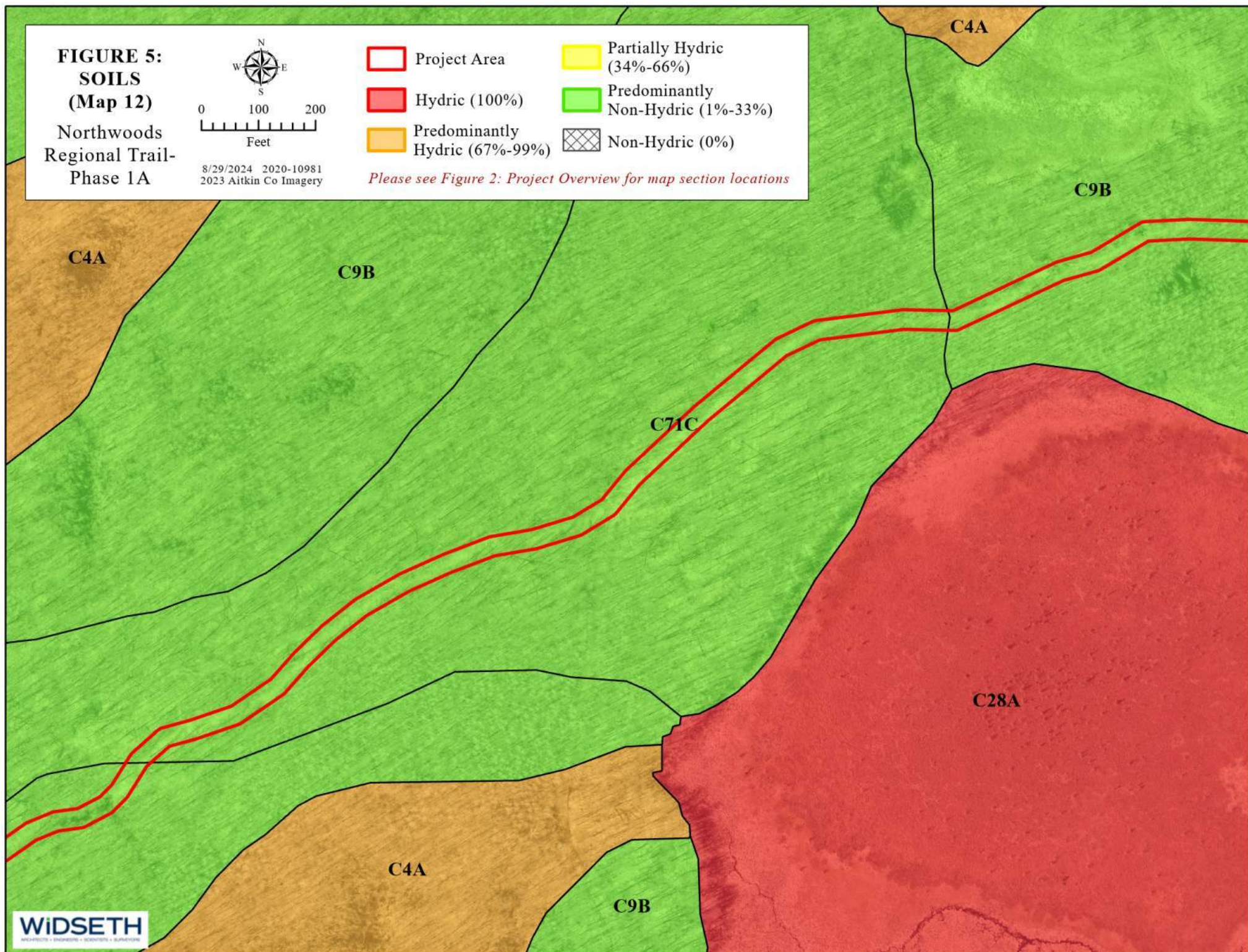
**FIGURE 5:
SOILS
(Map 12)**

Northwoods
Regional Trail-
Phase 1A



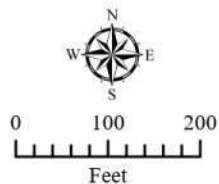
- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 13)**

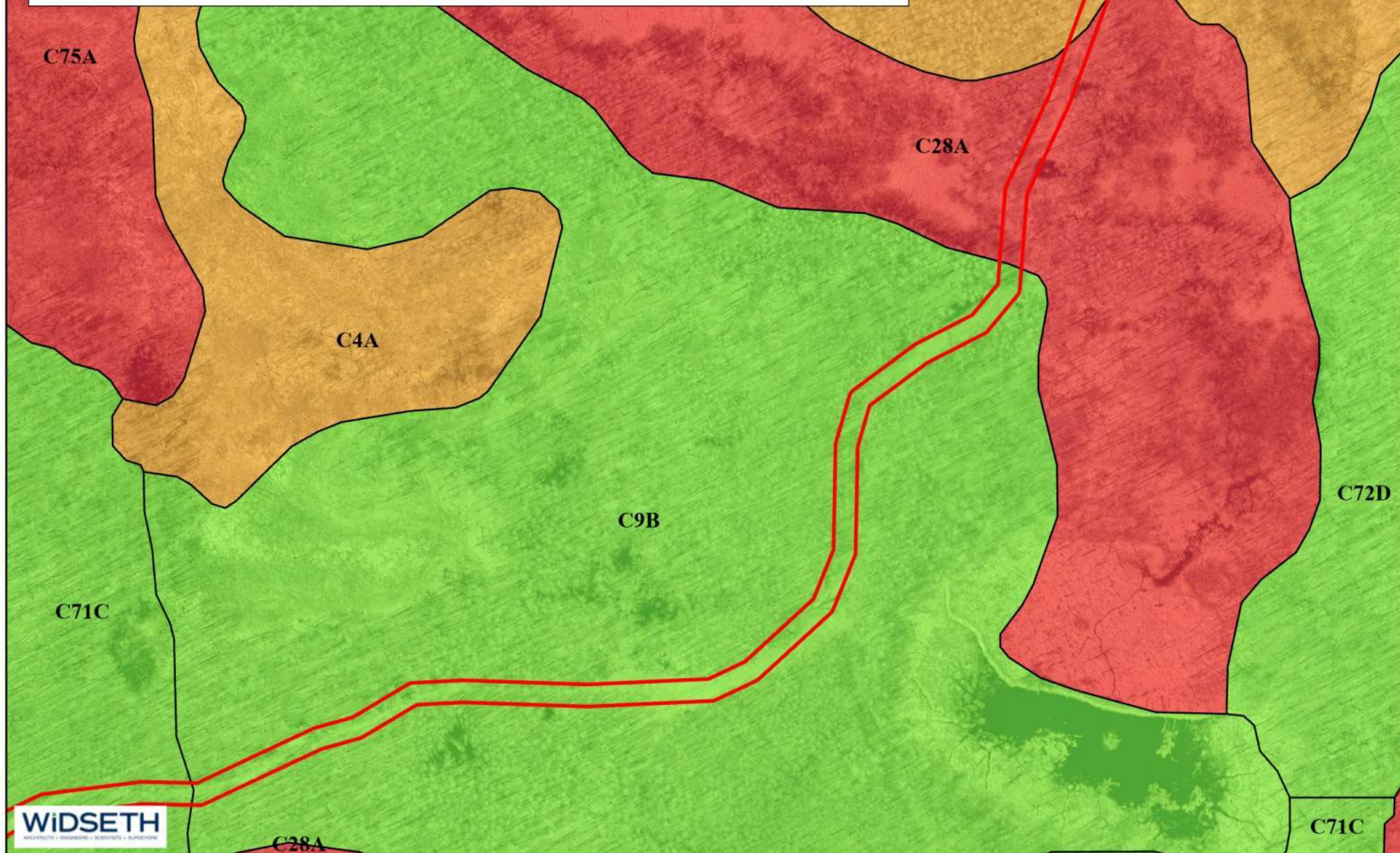
Northwoods
Regional Trail-
Phase 1A



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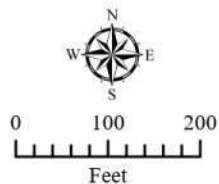
- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 14)**

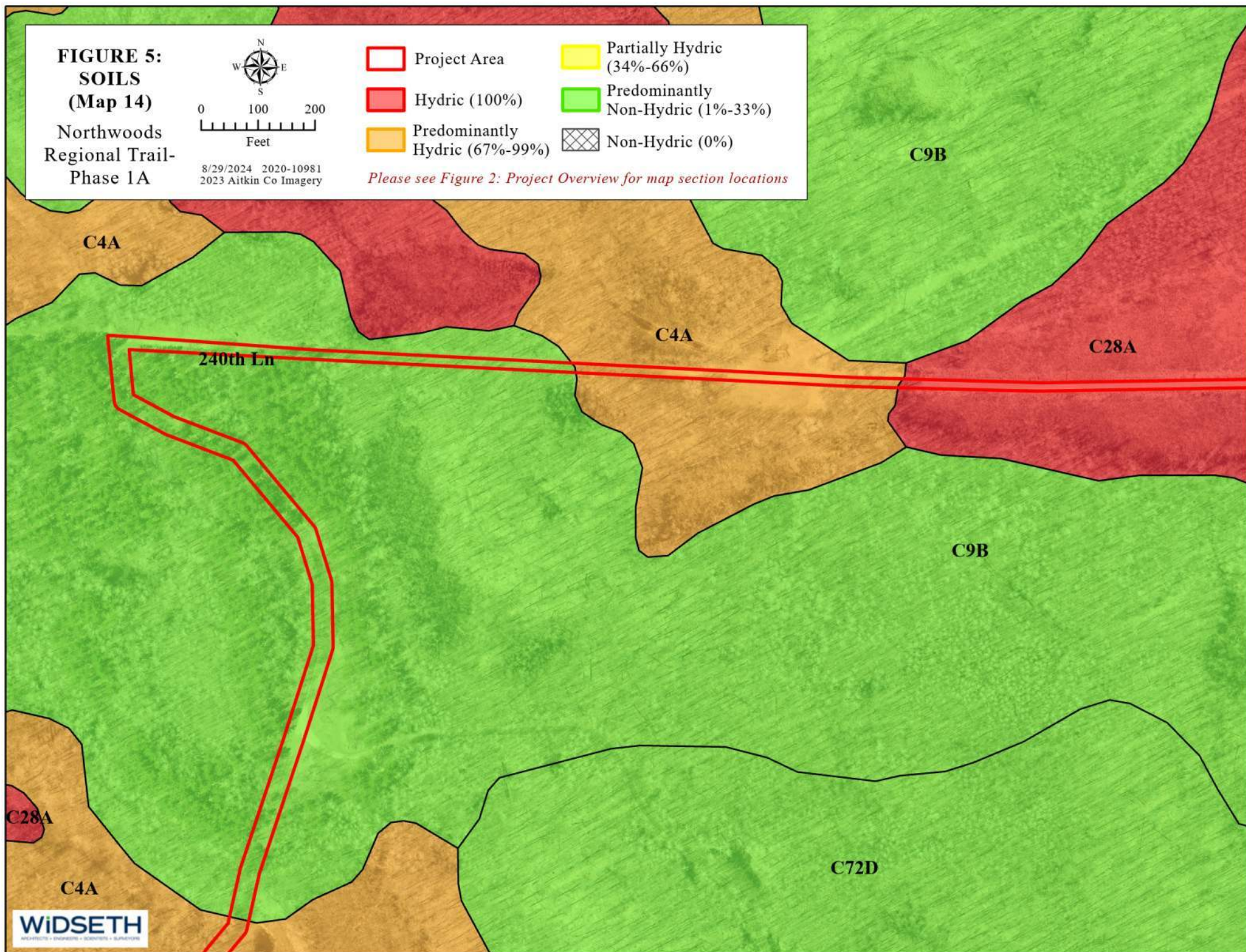
Northwoods
Regional Trail-
Phase 1A



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- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations

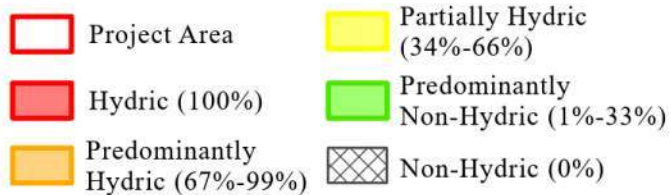


**FIGURE 5:
SOILS
(Map 15)**

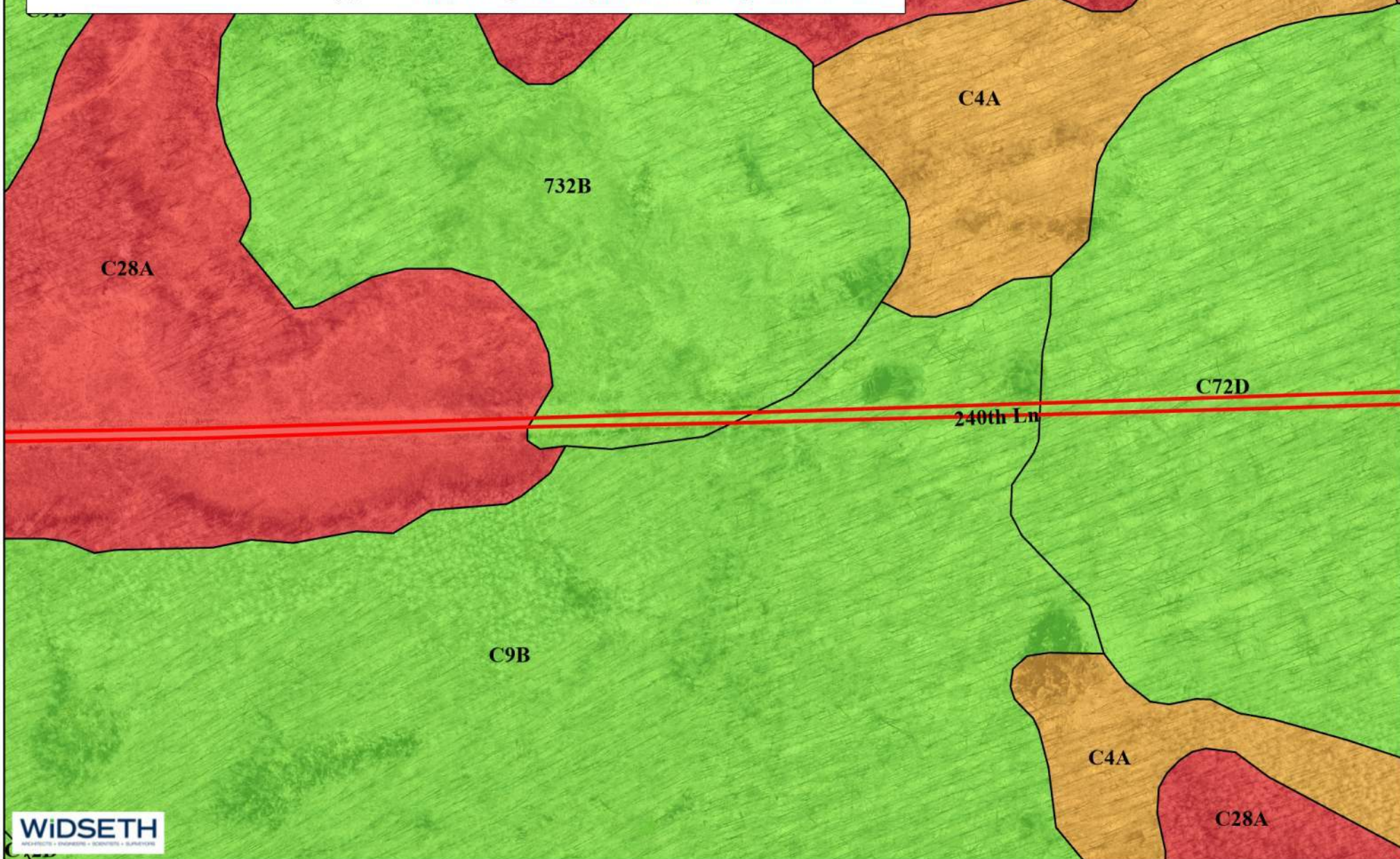
Northwoods
Regional Trail-
Phase 1A



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Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 16)**

Northwoods
Regional Trail-
Phase 1A



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Project Area



Hydric (100%)



Predominantly
Hydric (67%-99%)



Partially Hydric
(34%-66%)

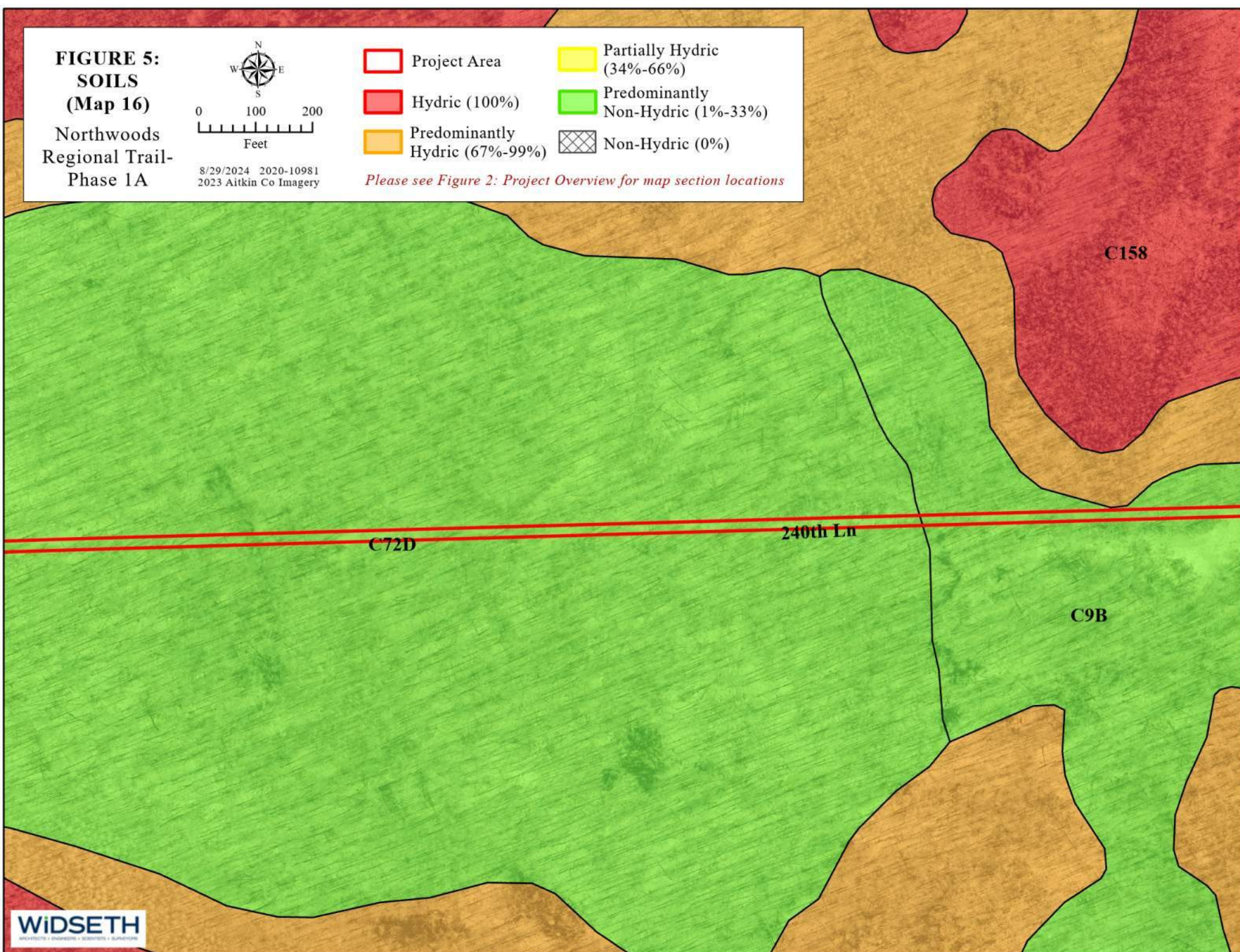


Predominantly
Non-Hydric (1%-33%)



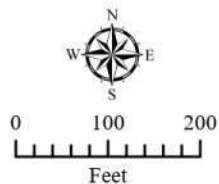
Non-Hydric (0%)

Please see Figure 2: Project Overview for map section locations

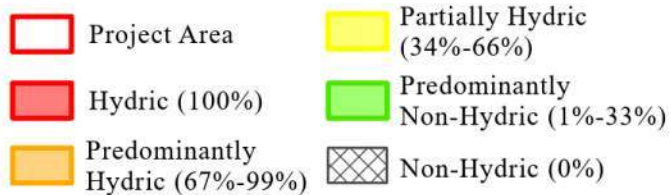


**FIGURE 5:
SOILS
(Map 17)**

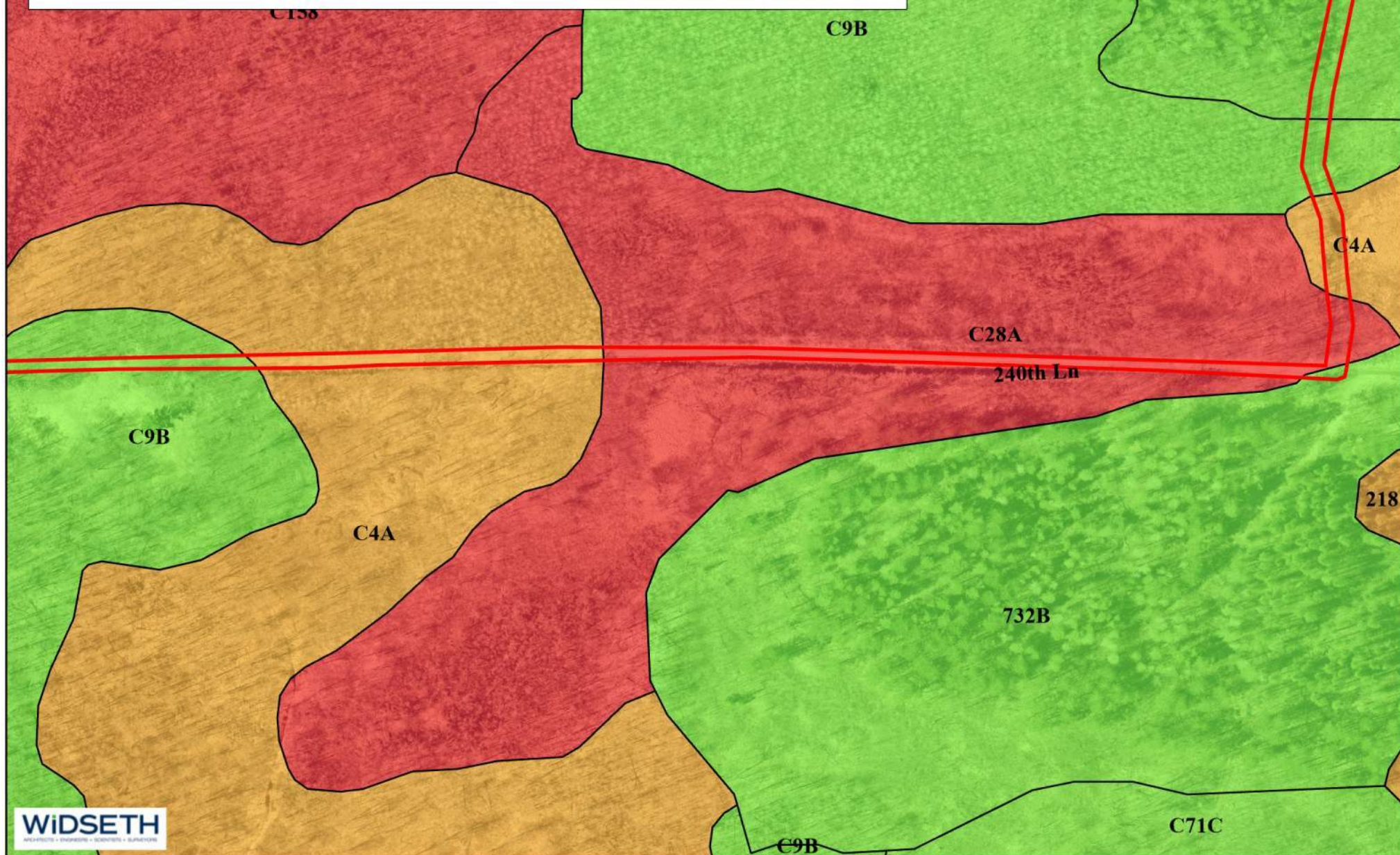
Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery



Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 18)**

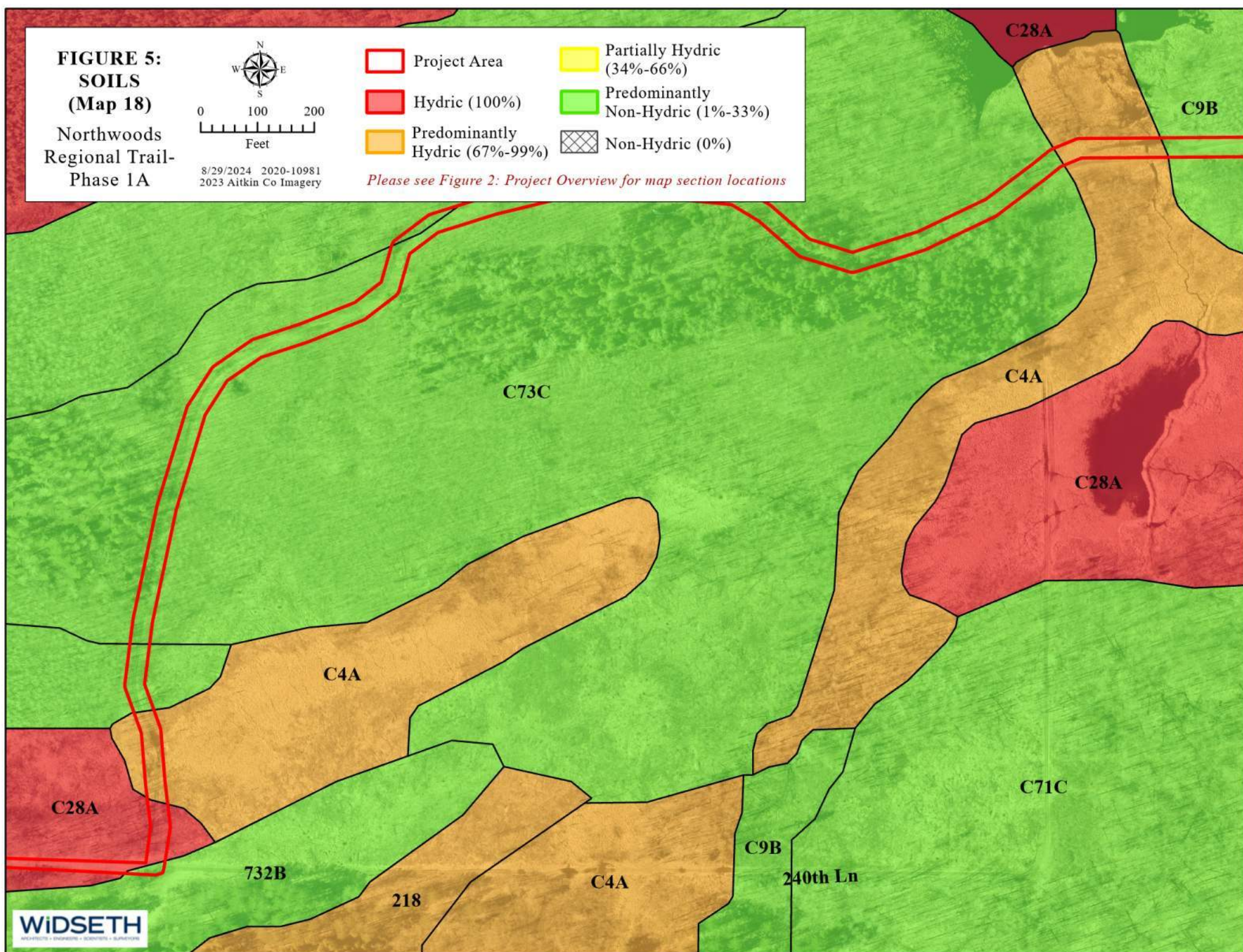
Northwoods
Regional Trail-
Phase 1A



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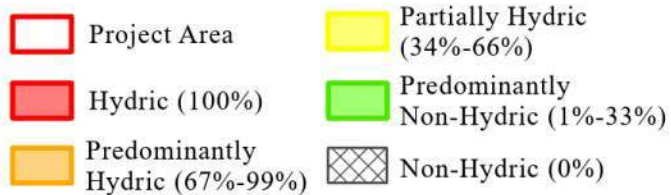
- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations

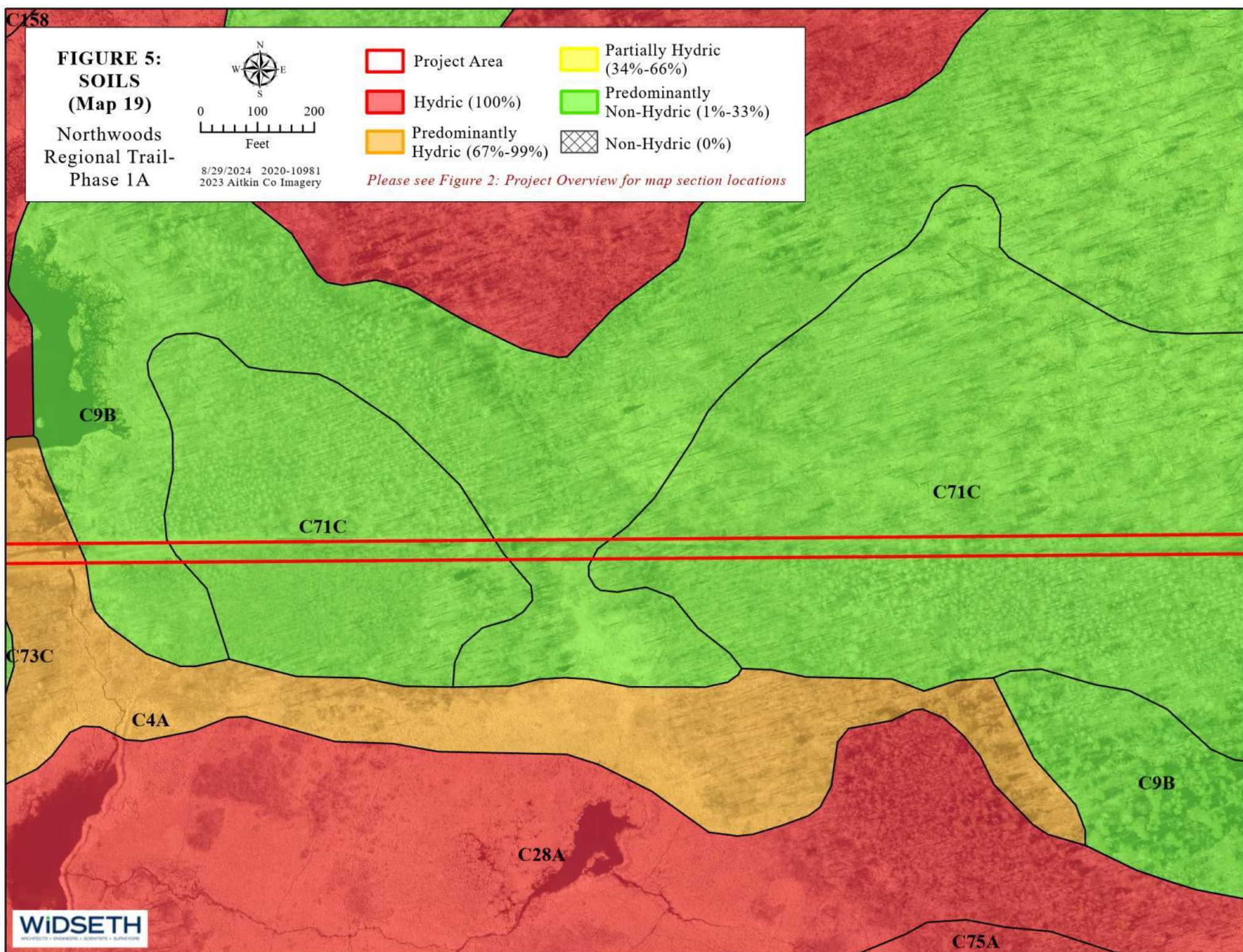


**FIGURE 5:
SOILS
(Map 19)**

Northwoods
Regional Trail-
Phase 1A

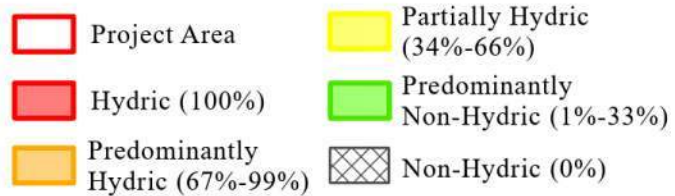


Please see Figure 2: Project Overview for map section locations

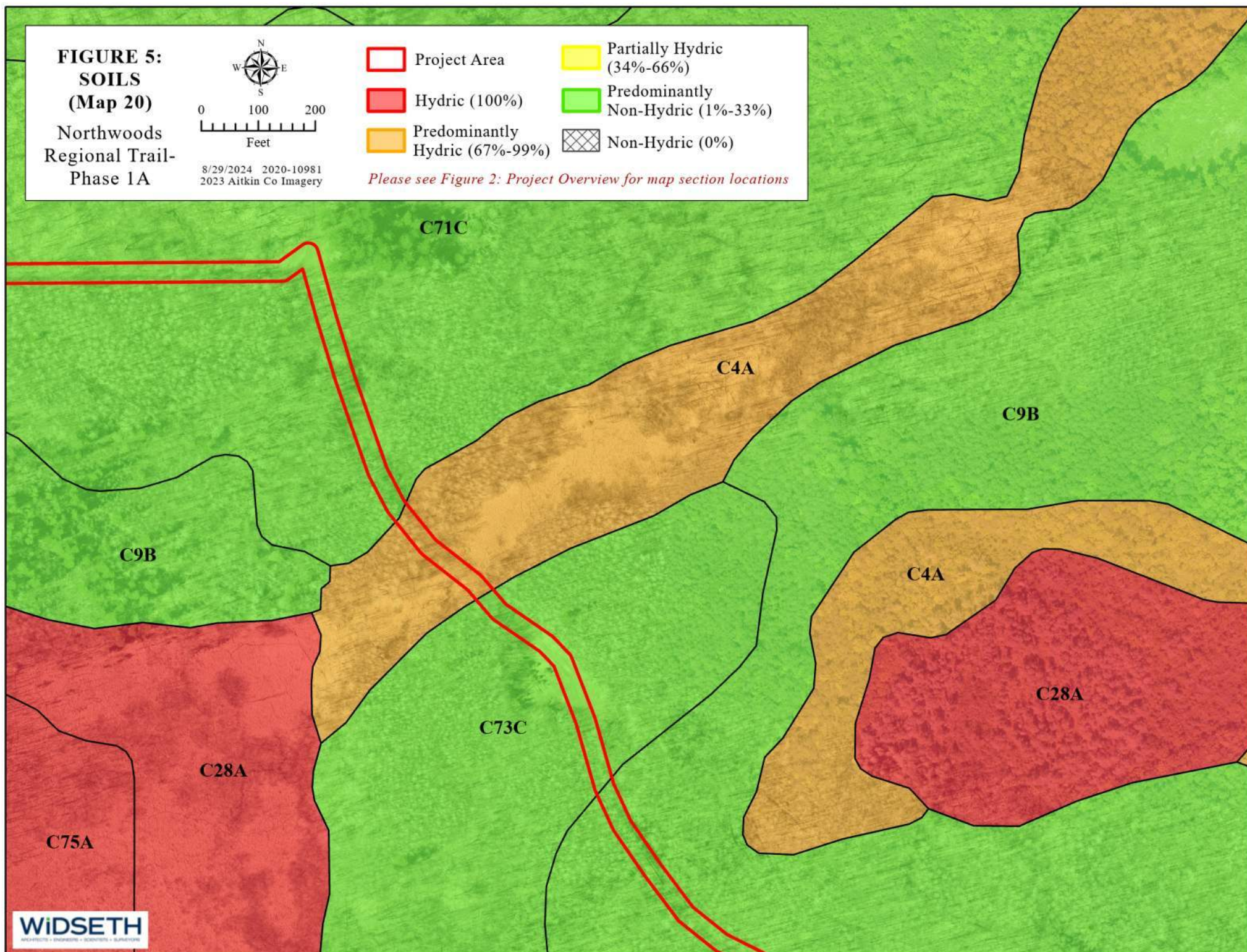


**FIGURE 5:
SOILS
(Map 20)**

Northwoods
Regional Trail-
Phase 1A



Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 21)**

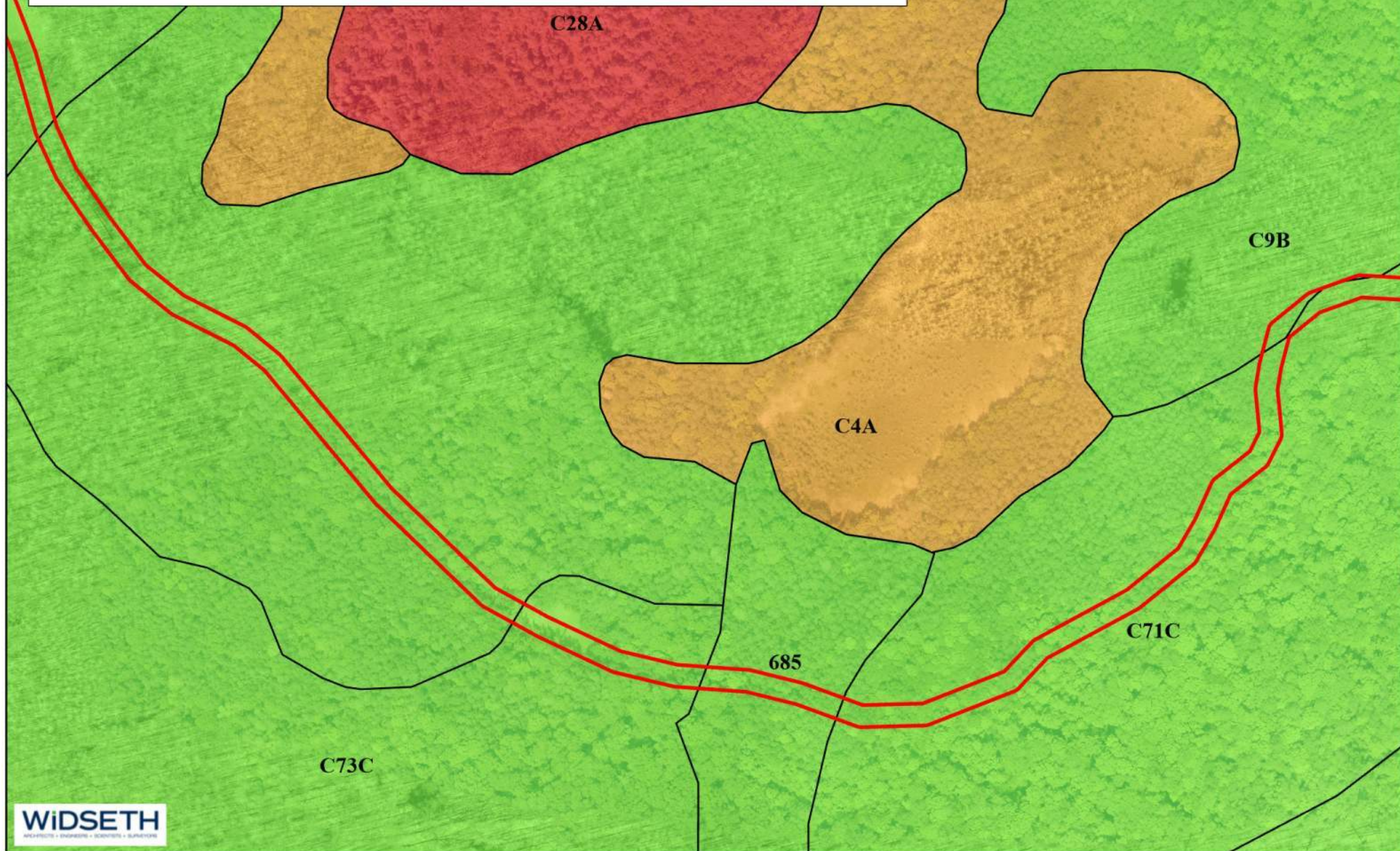
Northwoods
Regional Trail-
Phase 1A



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- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations

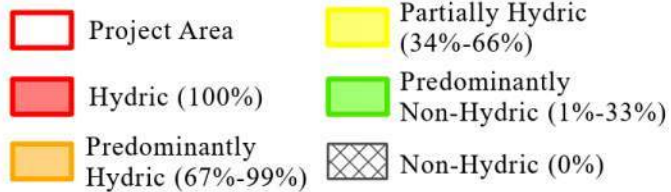


**FIGURE 5:
SOILS
(Map 22)**

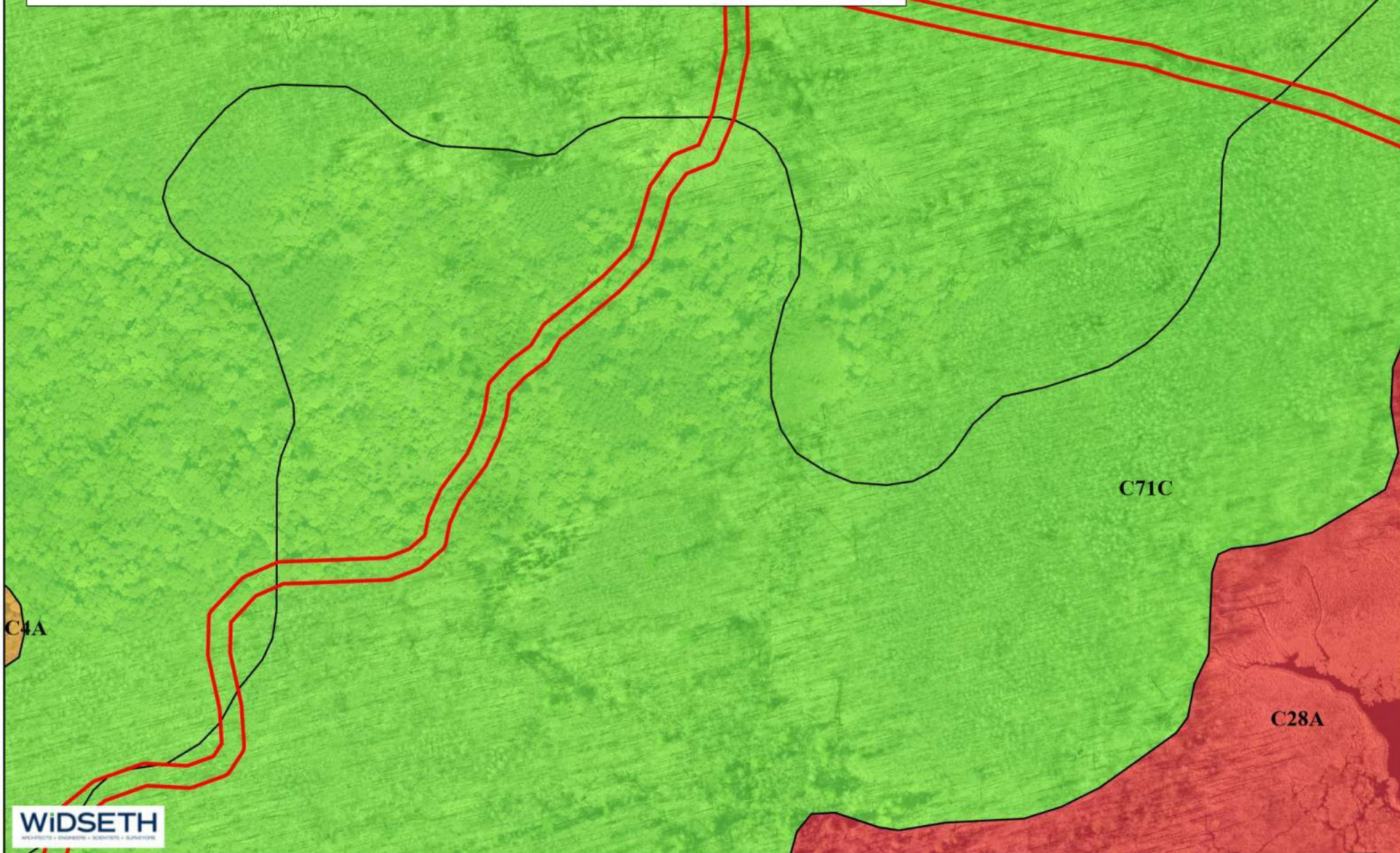
Northwoods
Regional Trail-
Phase 1A



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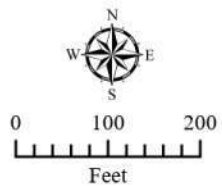


Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 23)**

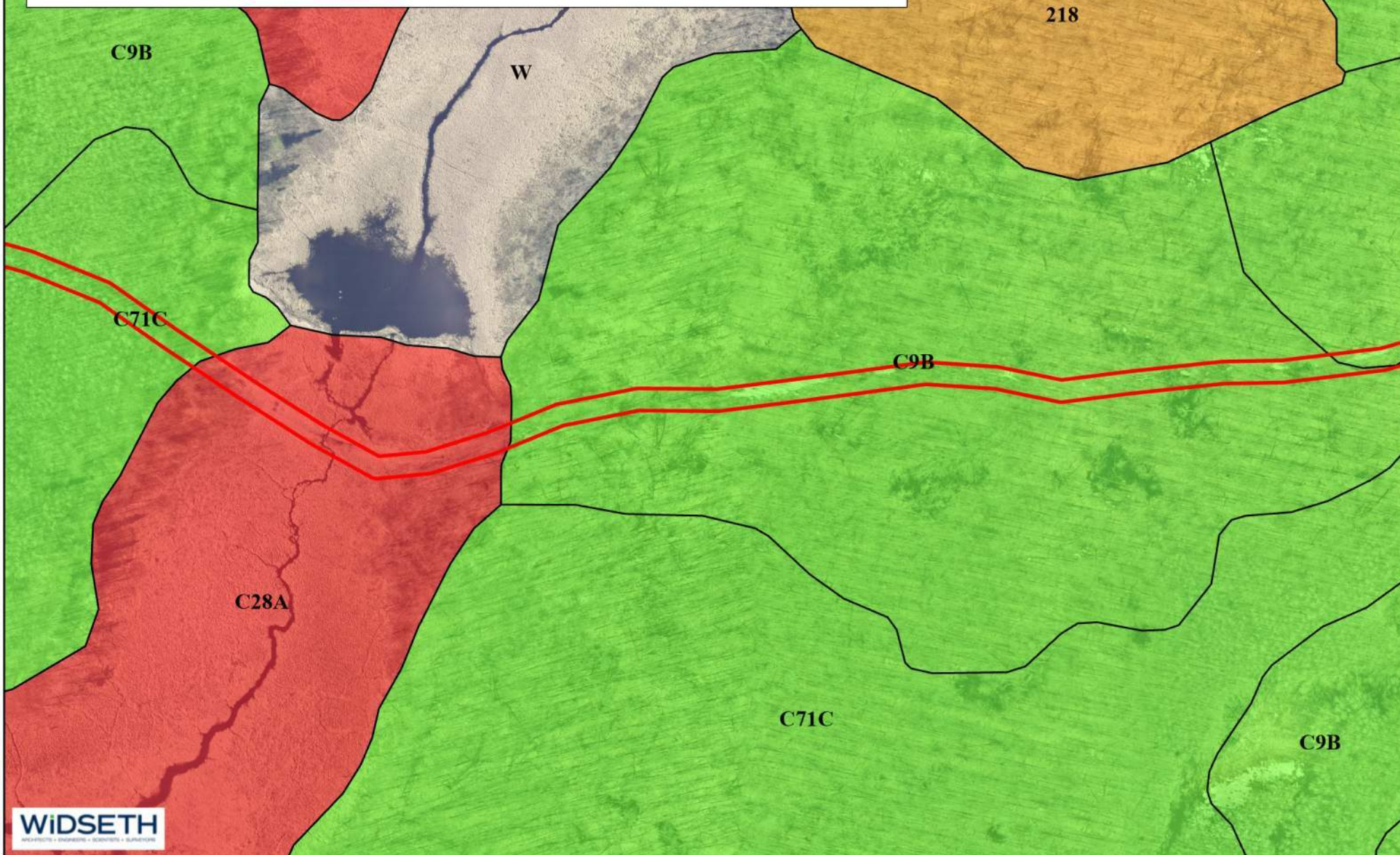
Northwoods
Regional Trail-
Phase 1A



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- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 24)**

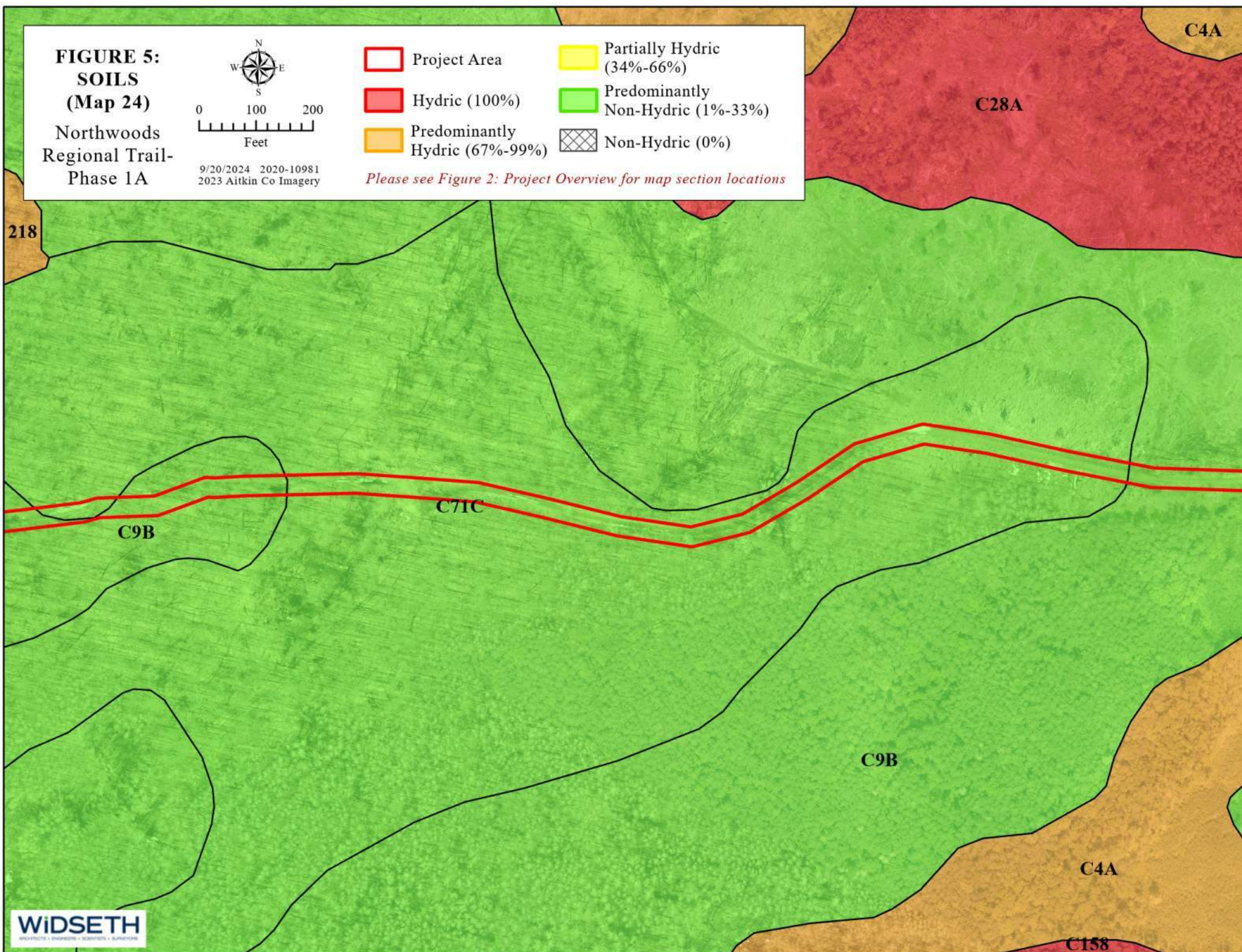
Northwoods
Regional Trail-
Phase 1A



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- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 25)**

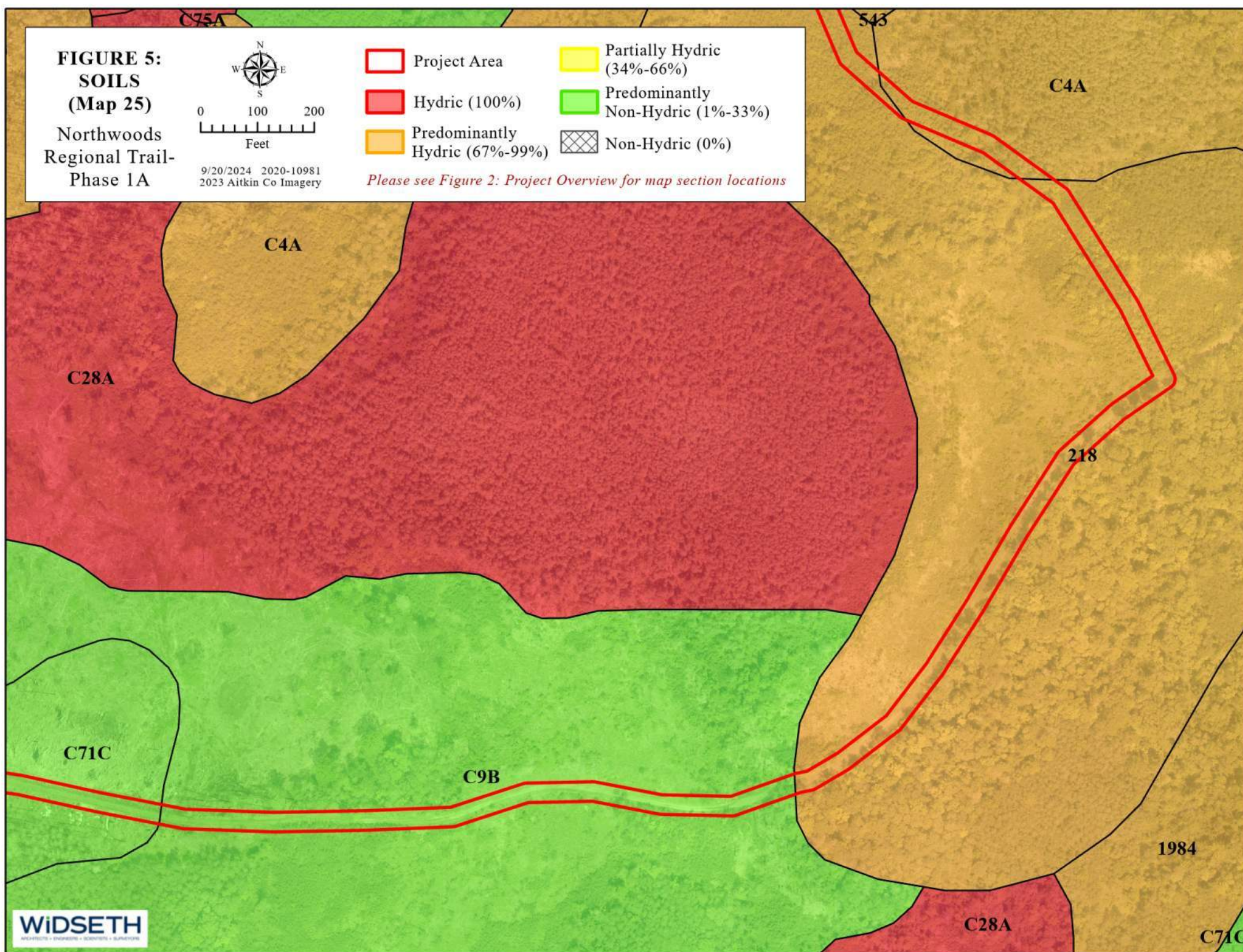
Northwoods
Regional Trail-
Phase 1A



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- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 26)**

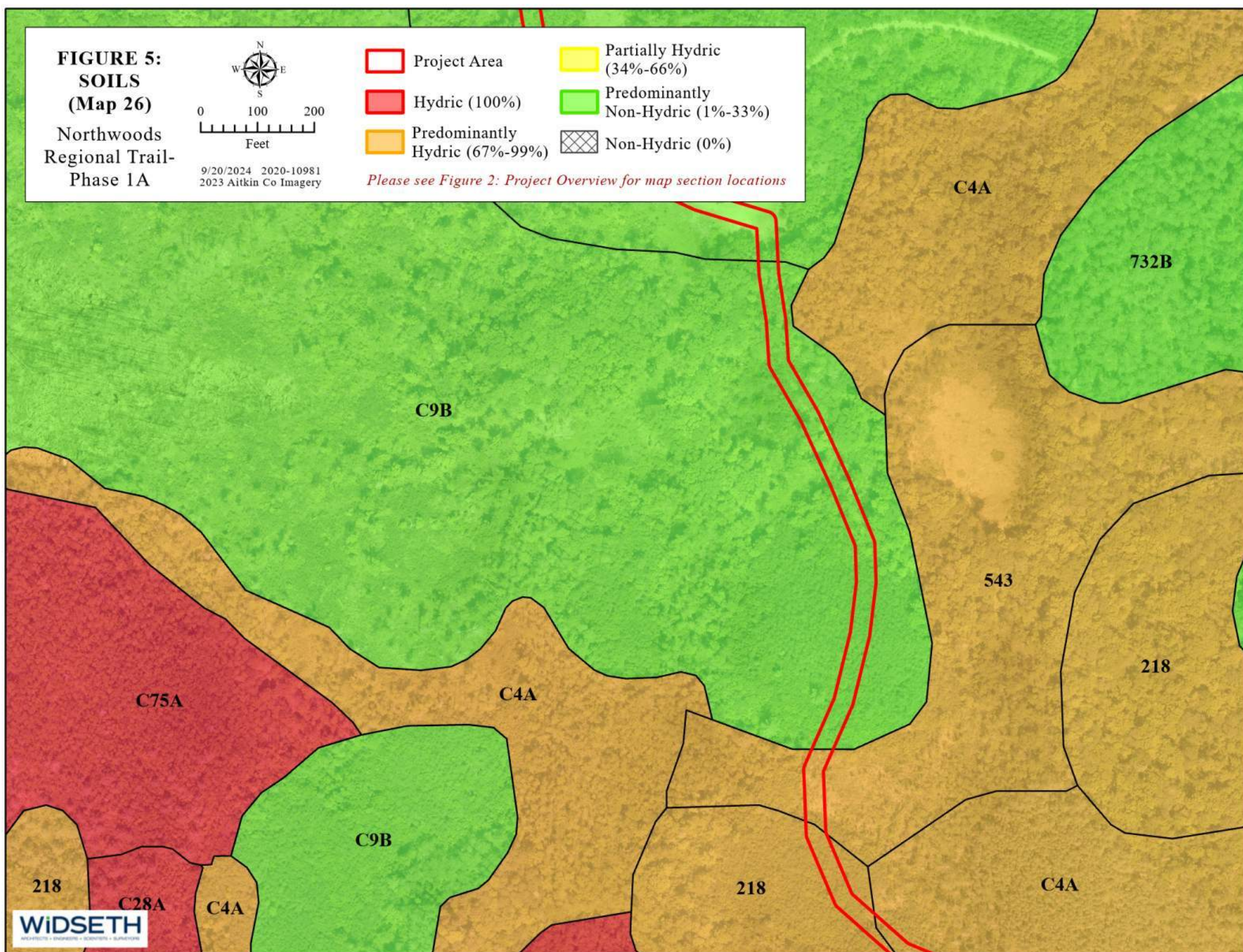
Northwoods
Regional Trail-
Phase 1A



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- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 27)**

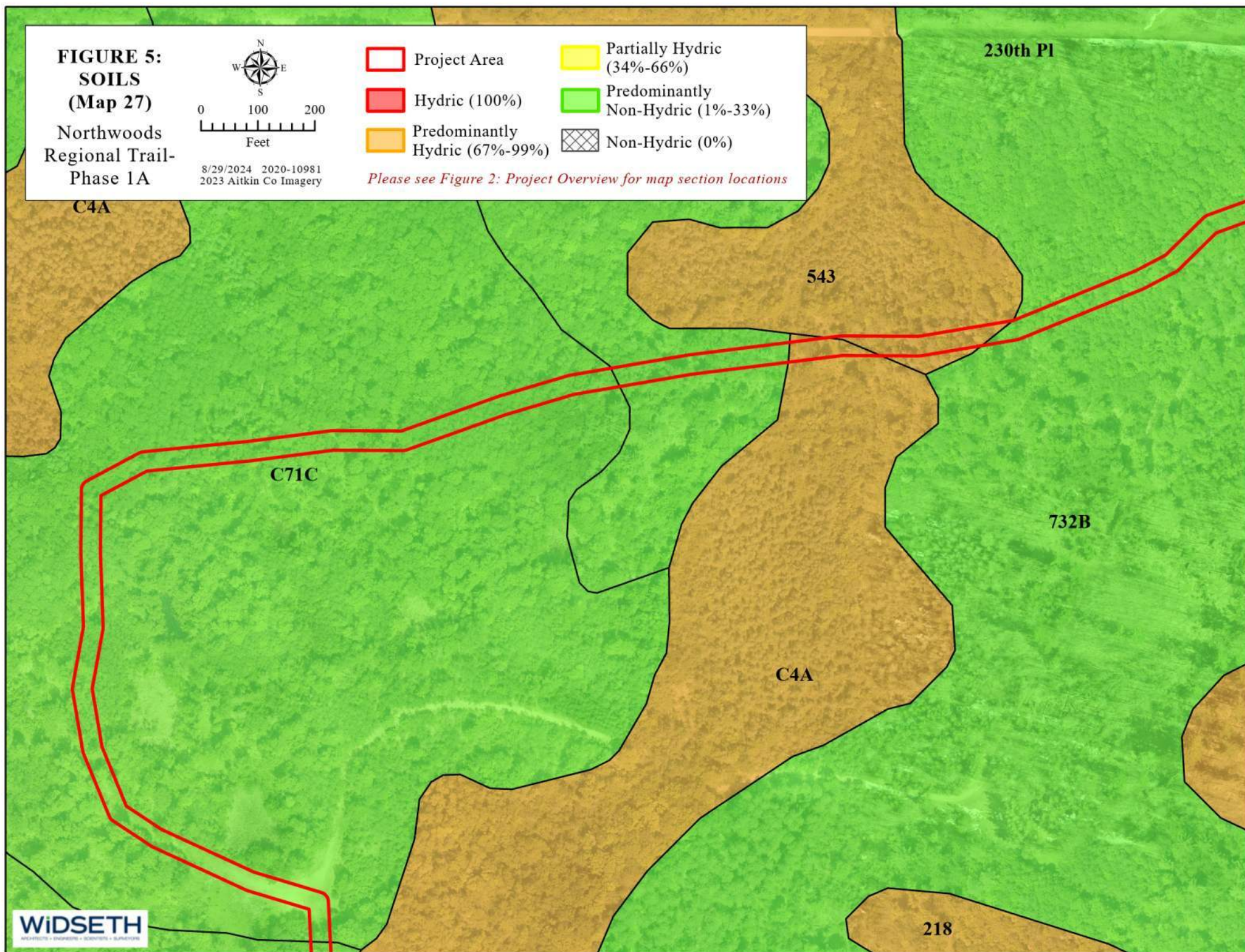
Northwoods
Regional Trail-
Phase 1A



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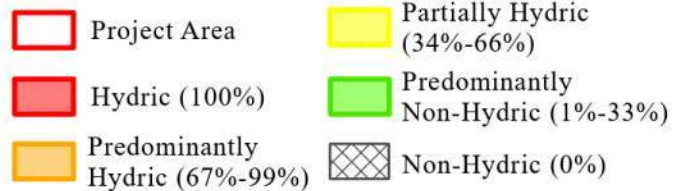
- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations

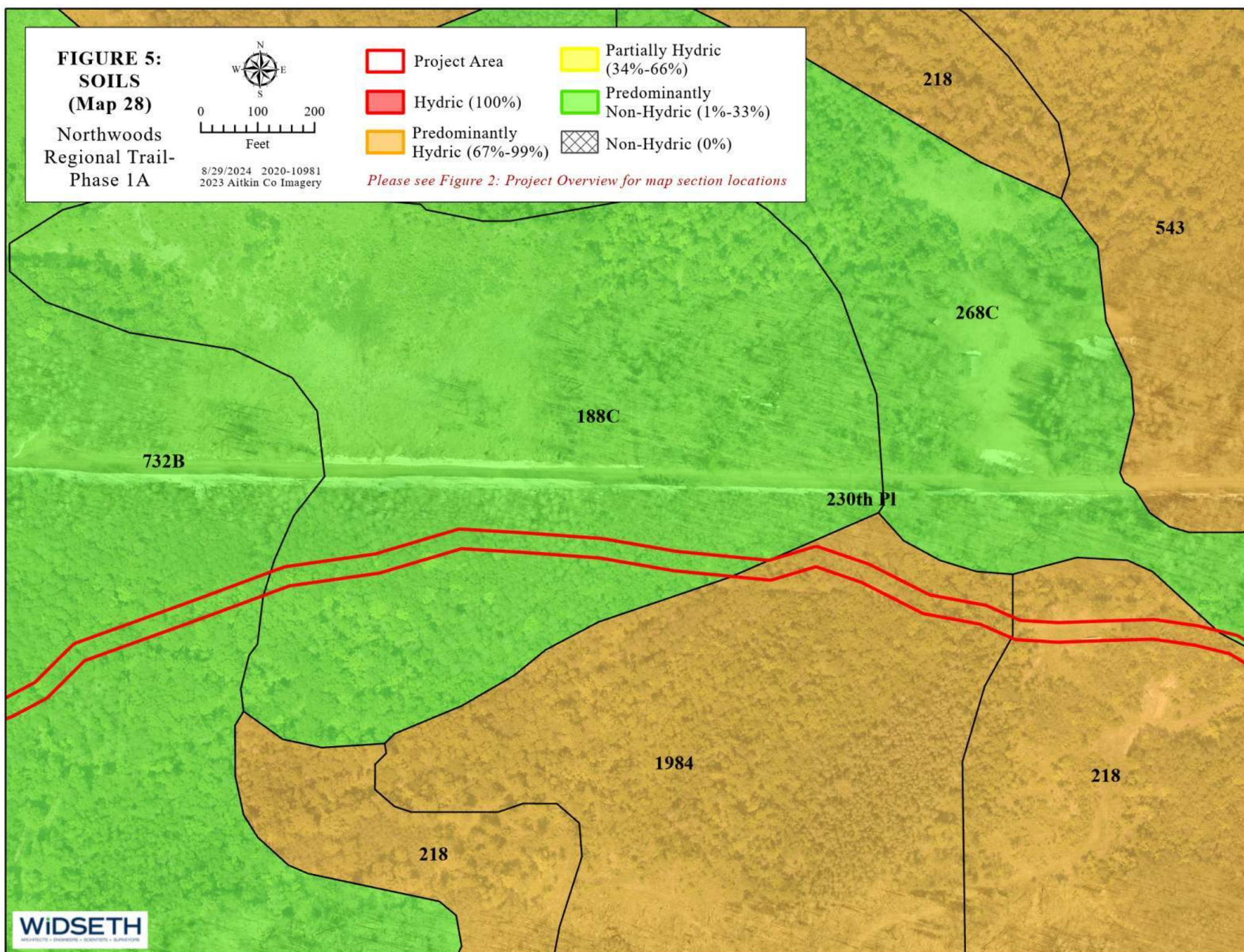


**FIGURE 5:
SOILS
(Map 28)**

Northwoods
Regional Trail-
Phase 1A

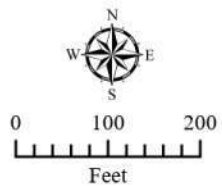


Please see Figure 2: Project Overview for map section locations

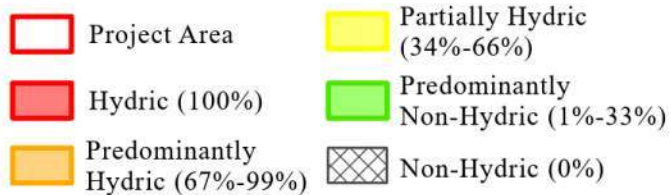


**FIGURE 5:
SOILS
(Map 29)**

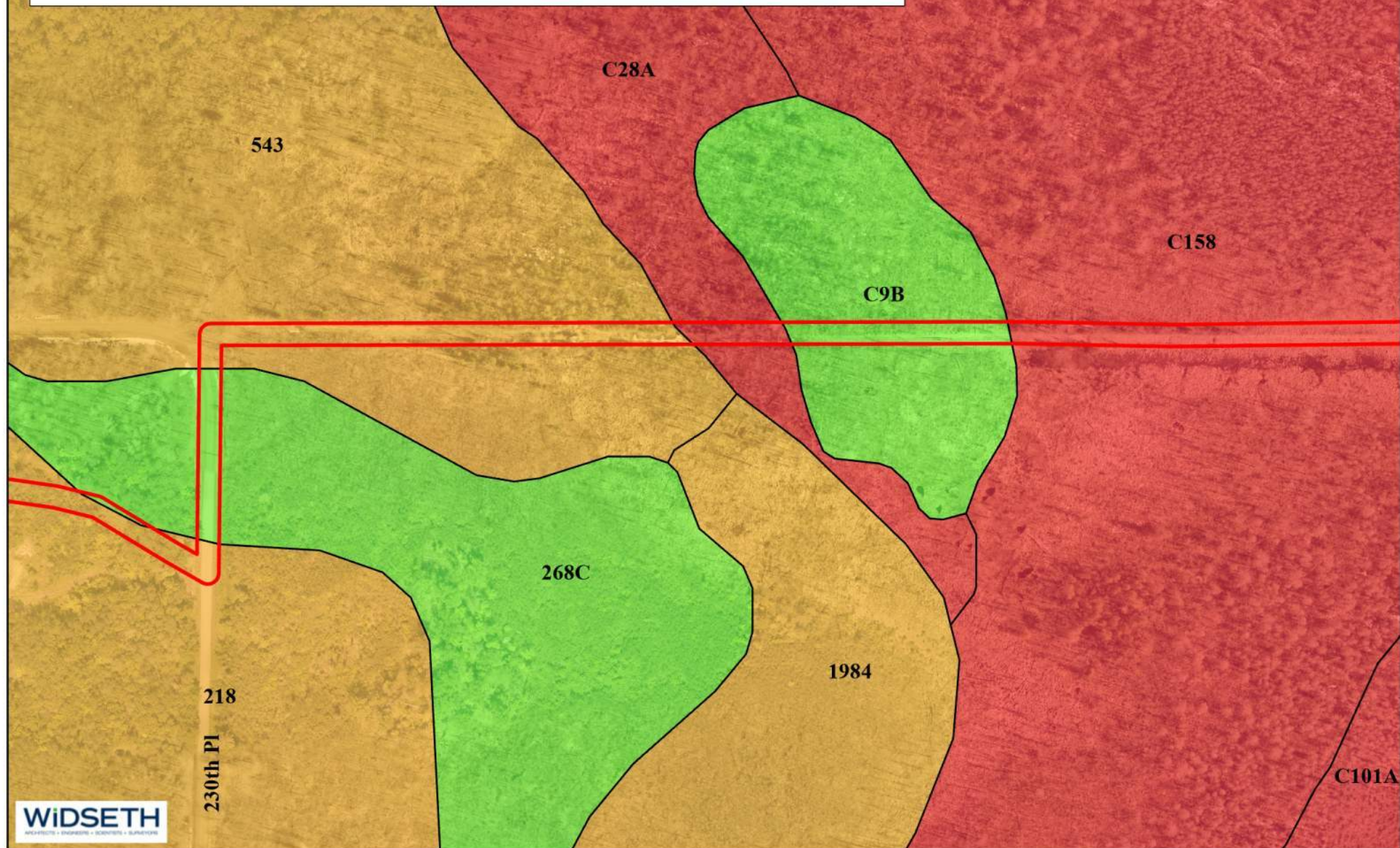
Northwoods
Regional Trail-
Phase 1A



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Please see Figure 2: Project Overview for map section locations



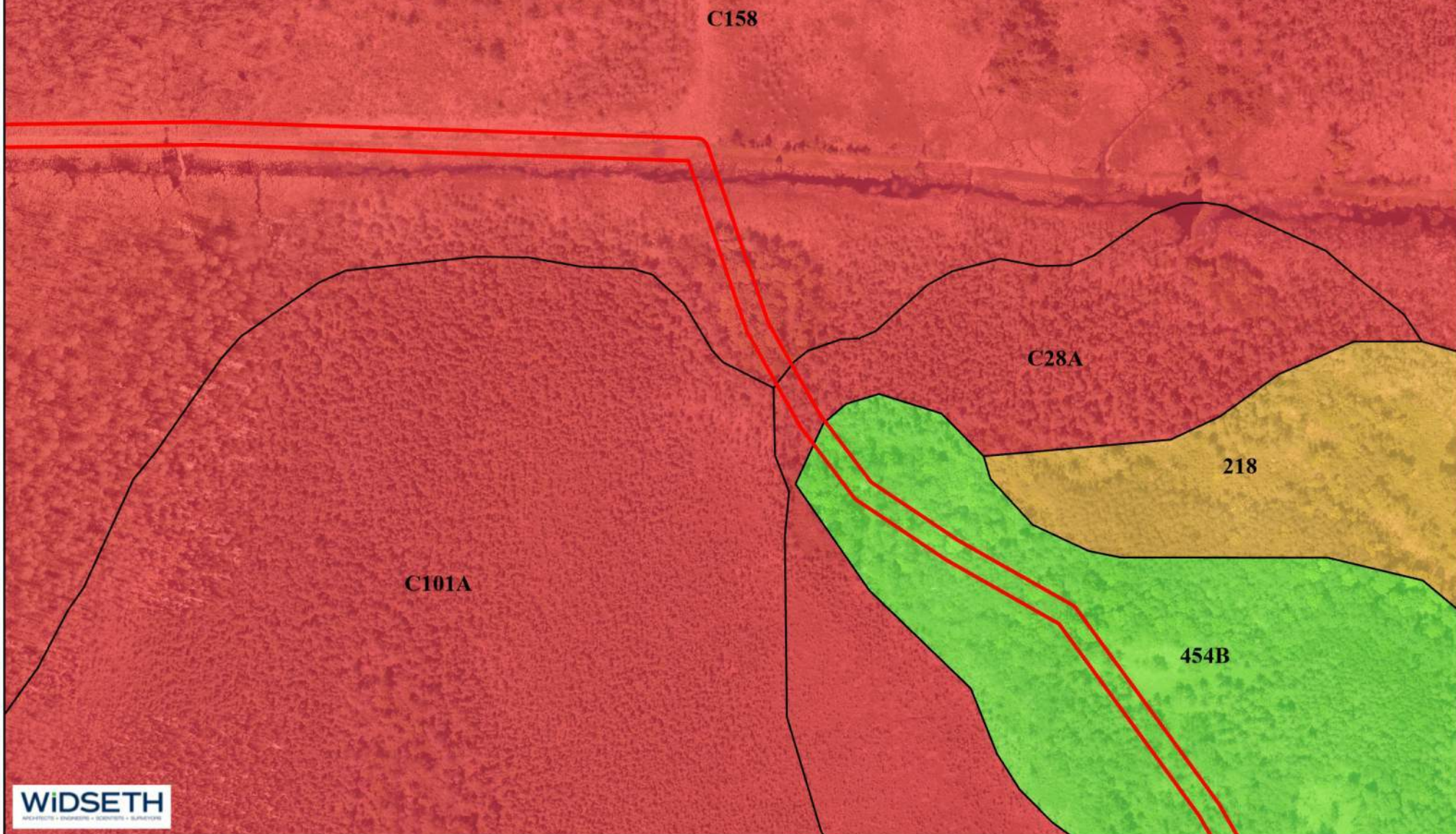
**FIGURE 5:
SOILS
(Map 30)**

Northwoods
Regional Trail-
Phase 1A



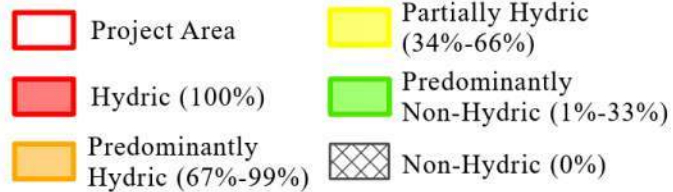
- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations

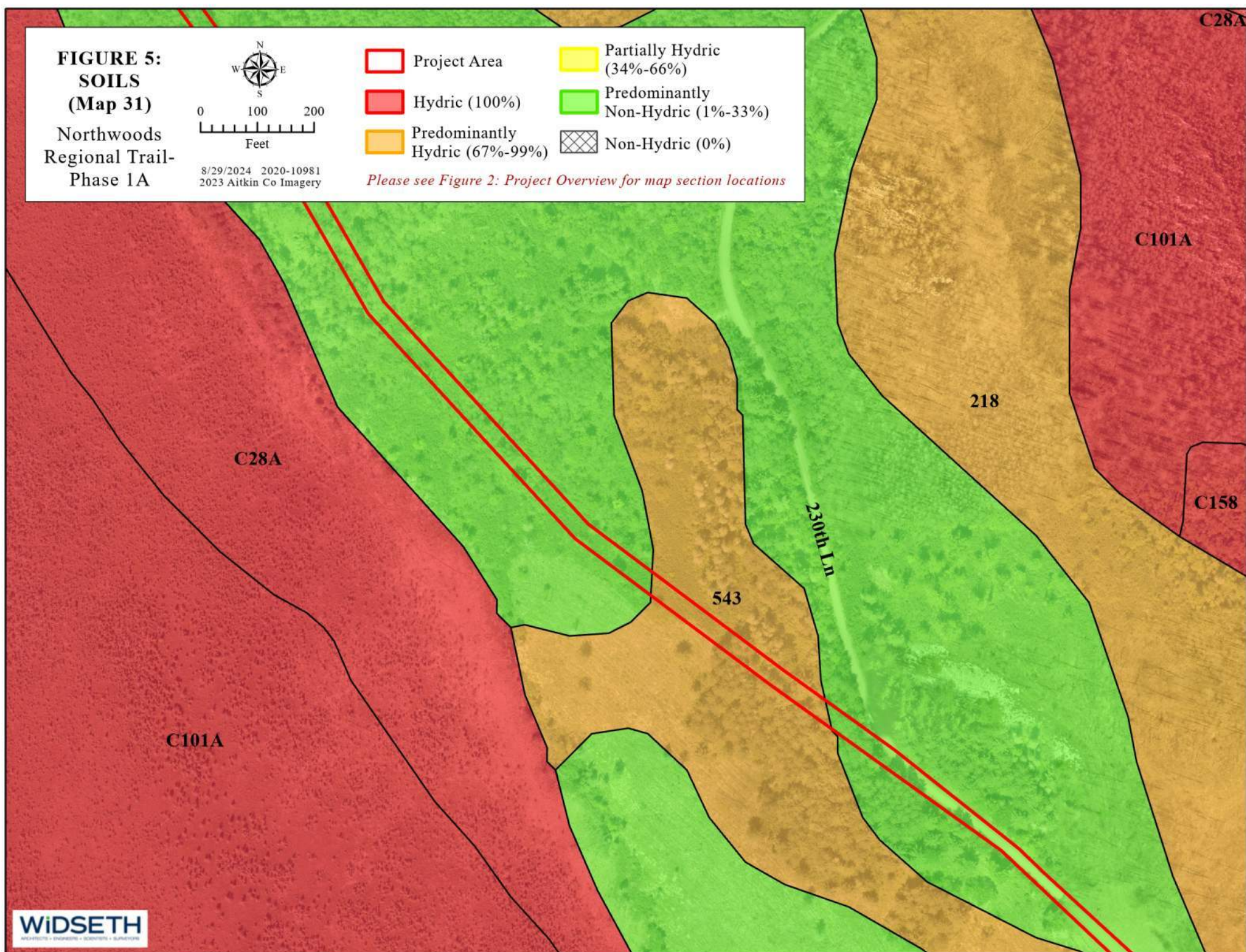


**FIGURE 5:
SOILS
(Map 31)**

Northwoods
Regional Trail-
Phase 1A

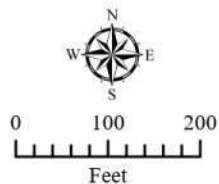


Please see Figure 2: Project Overview for map section locations

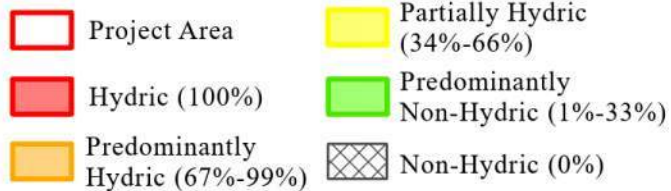


**FIGURE 5:
SOILS
(Map 32)**

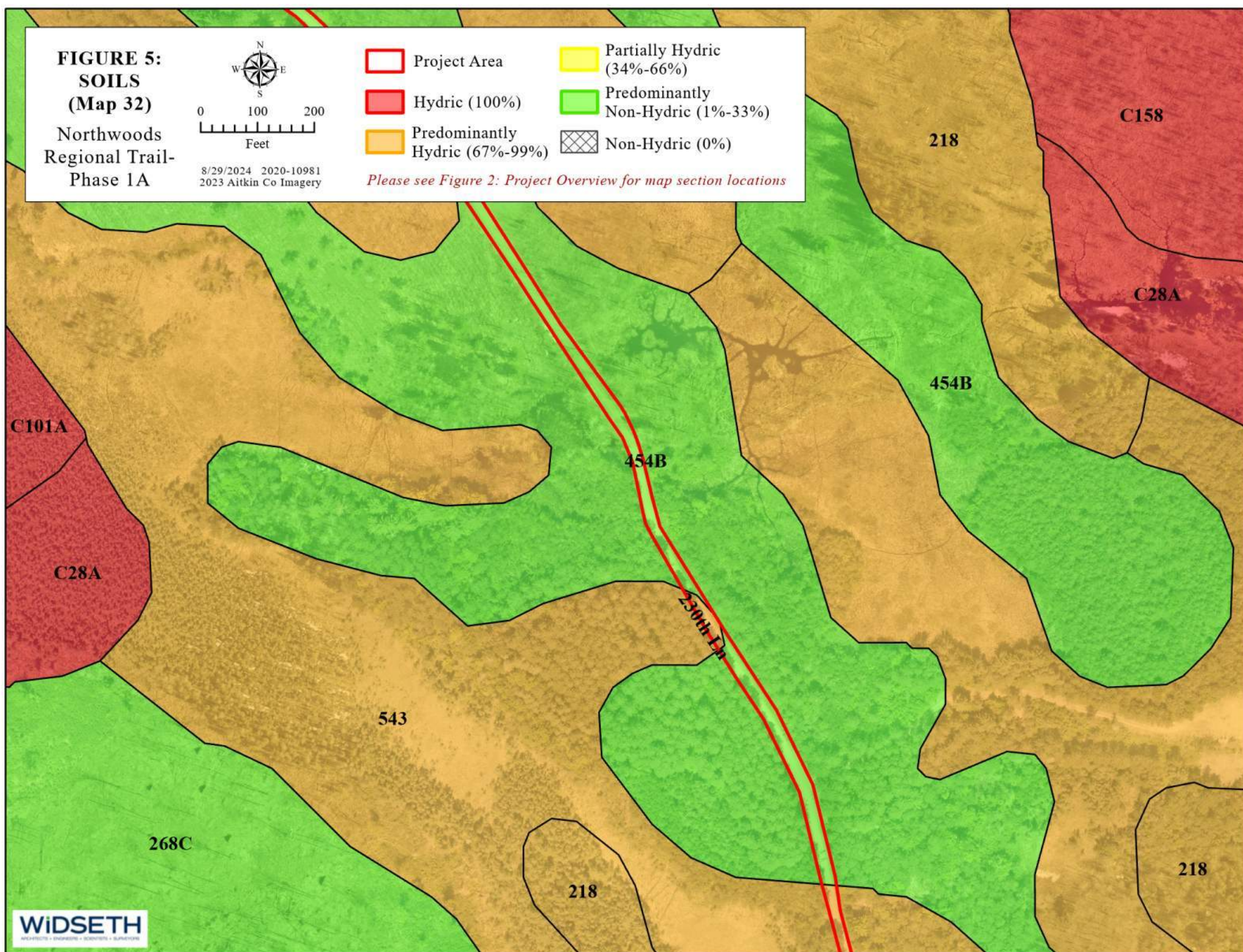
Northwoods
Regional Trail-
Phase 1A



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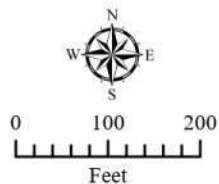


Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 33)**

Northwoods
Regional Trail-
Phase 1A



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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

268C

454B

218

C28A

C101A

543

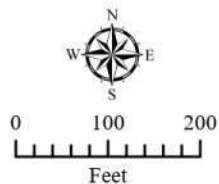
188B

188C

543

**FIGURE 5:
SOILS
(Map 34)**

Northwoods
Regional Trail-
Phase 1A



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Project Area

Hydric (100%)

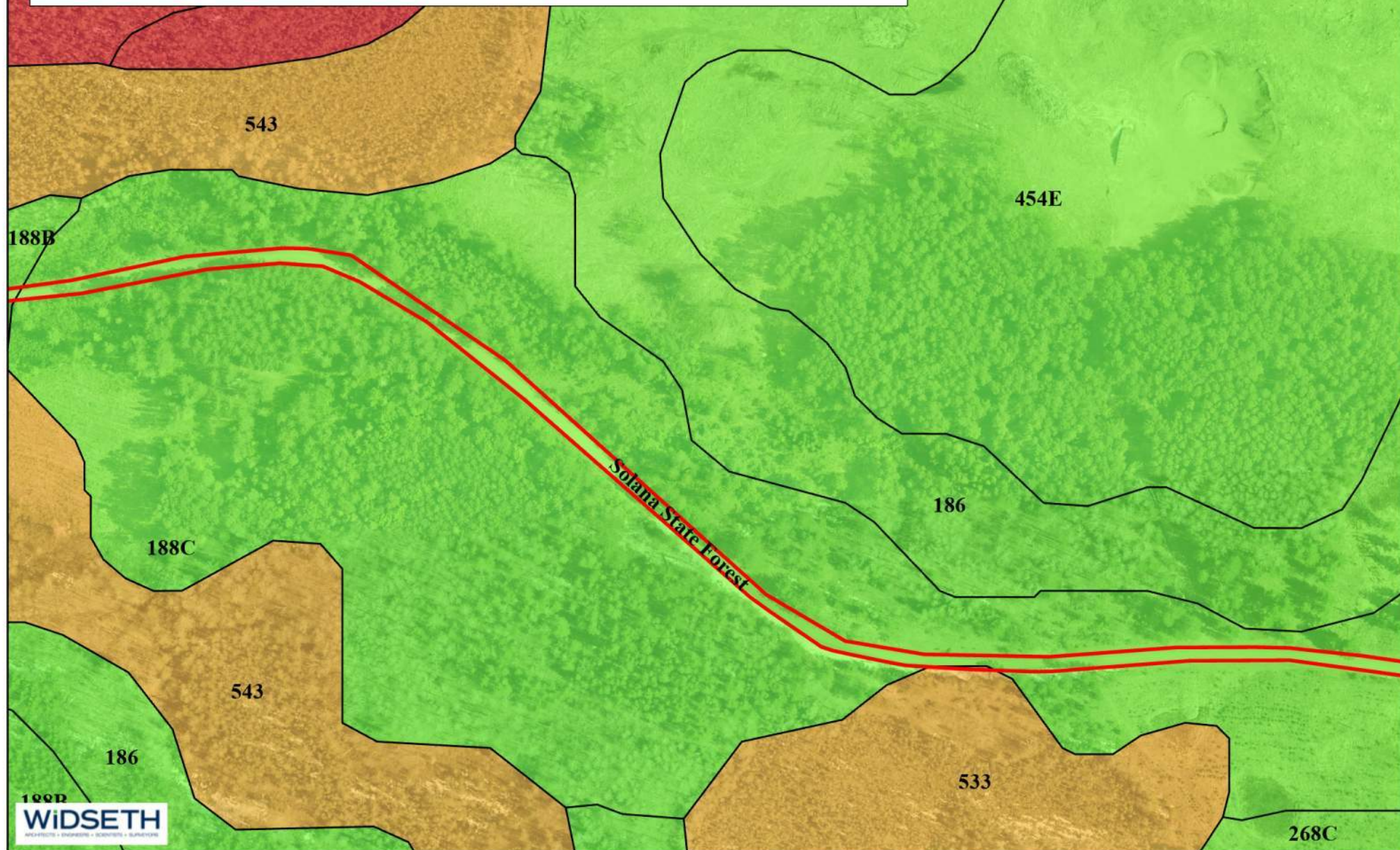
Predominantly
Hydric (67%-99%)

Partially Hydric
(34%-66%)

Predominantly
Non-Hydric (1%-33%)

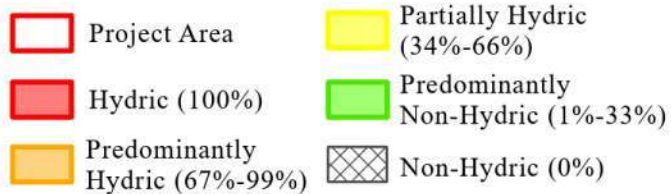
Non-Hydric (0%)

Please see Figure 2: Project Overview for map section locations

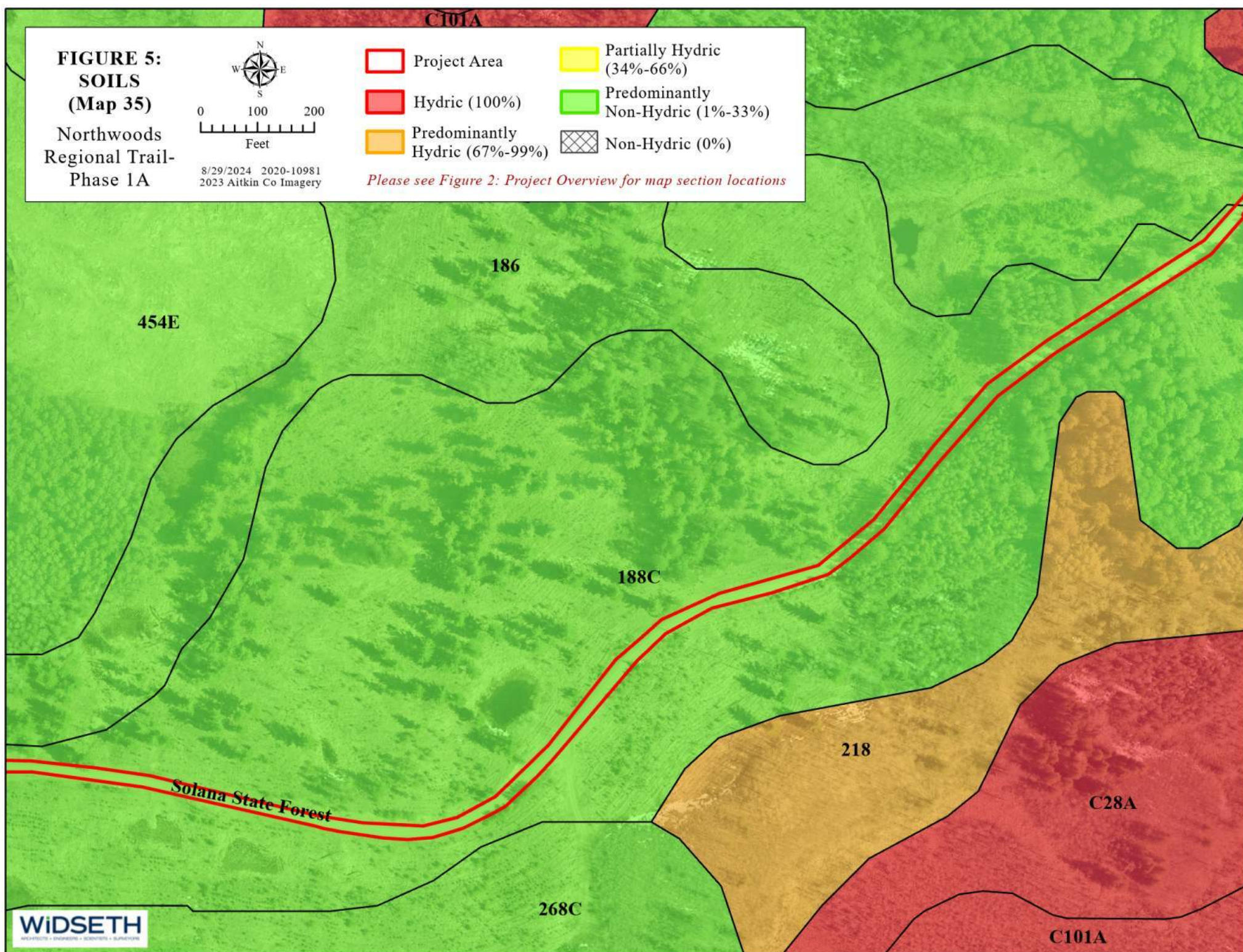


**FIGURE 5:
SOILS
(Map 35)**

Northwoods
Regional Trail-
Phase 1A



Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 36)**

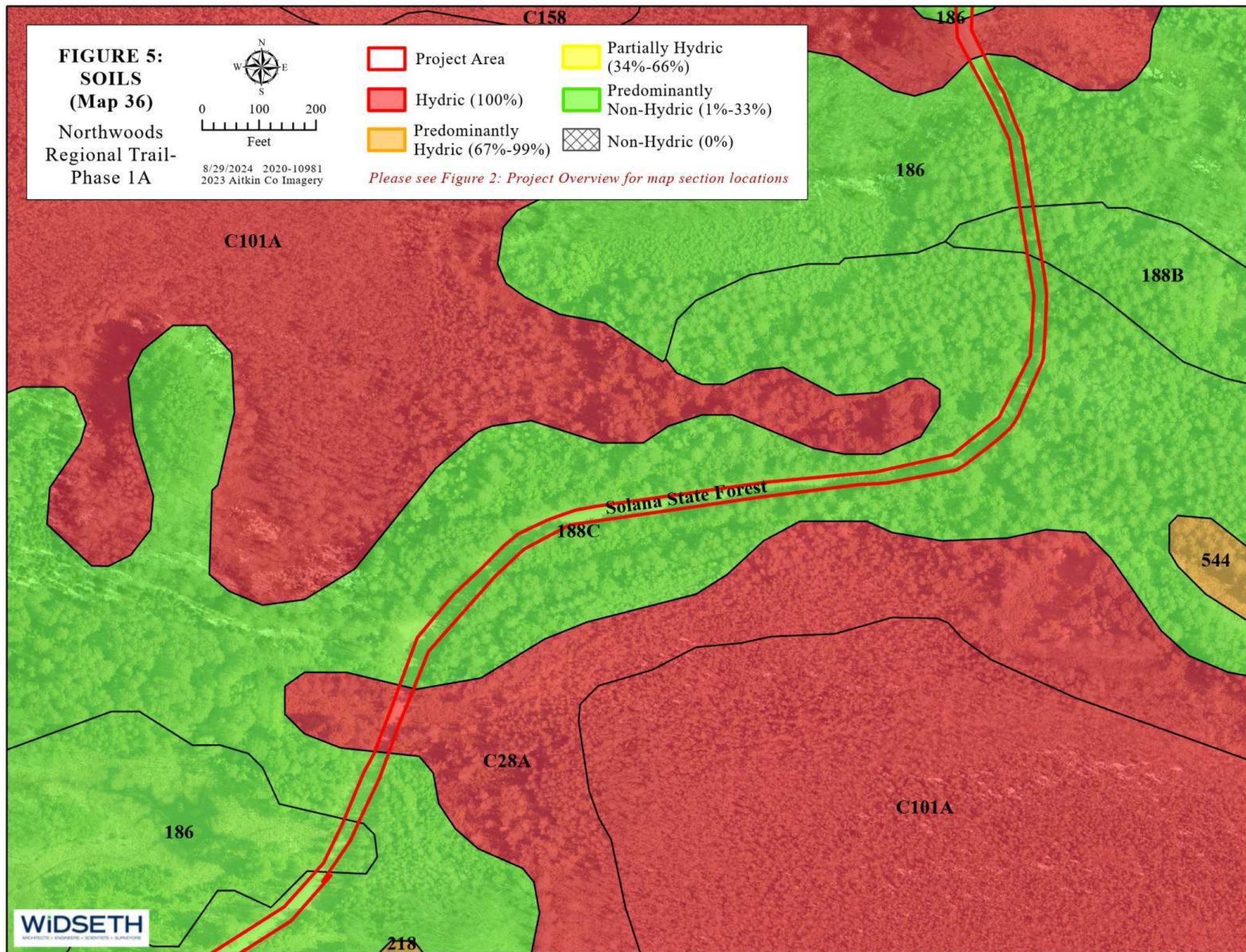
Northwoods
Regional Trail-
Phase 1A



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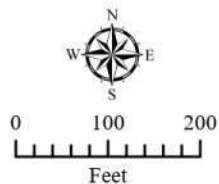
- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 37)**

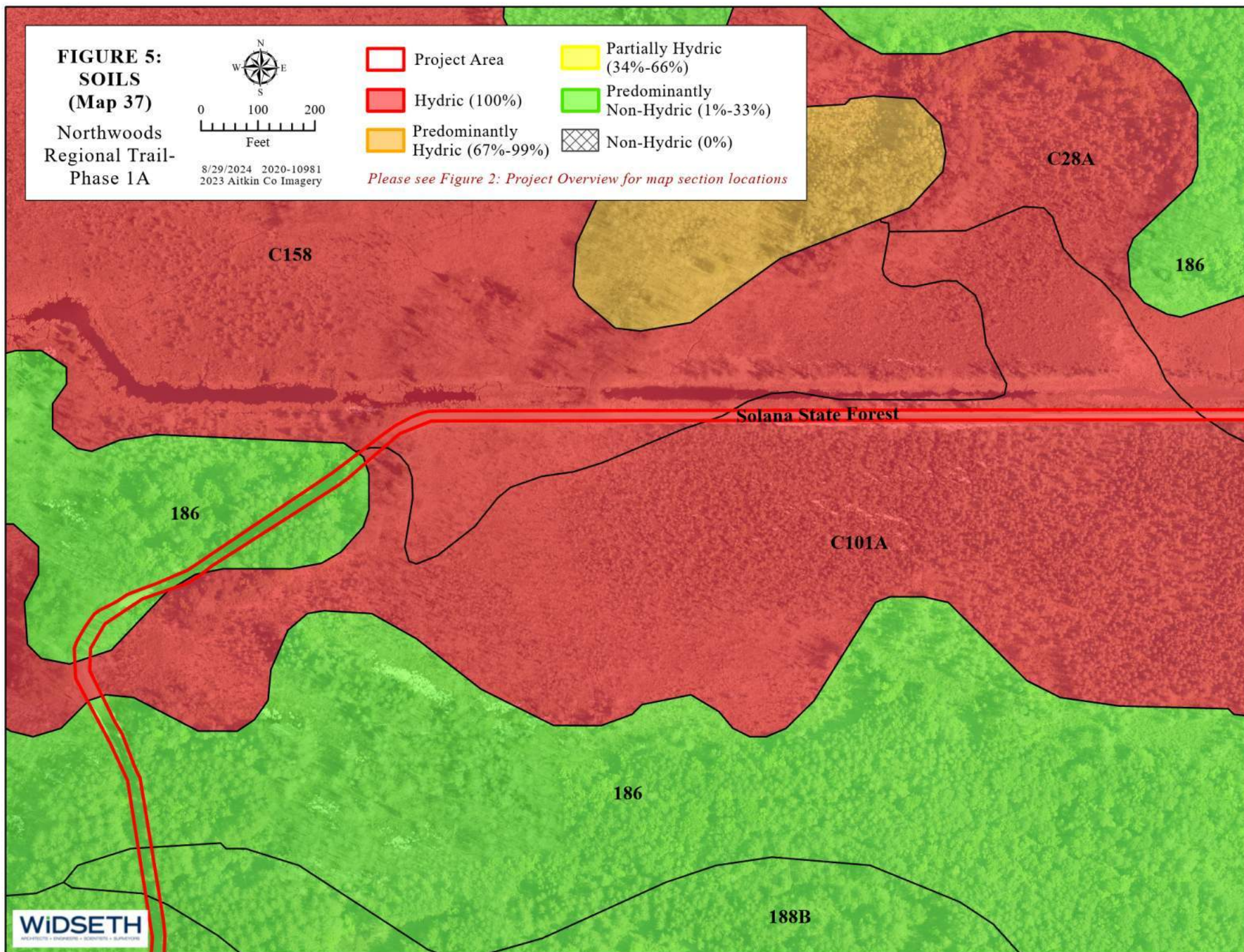
Northwoods
Regional Trail-
Phase 1A



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- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 38)**

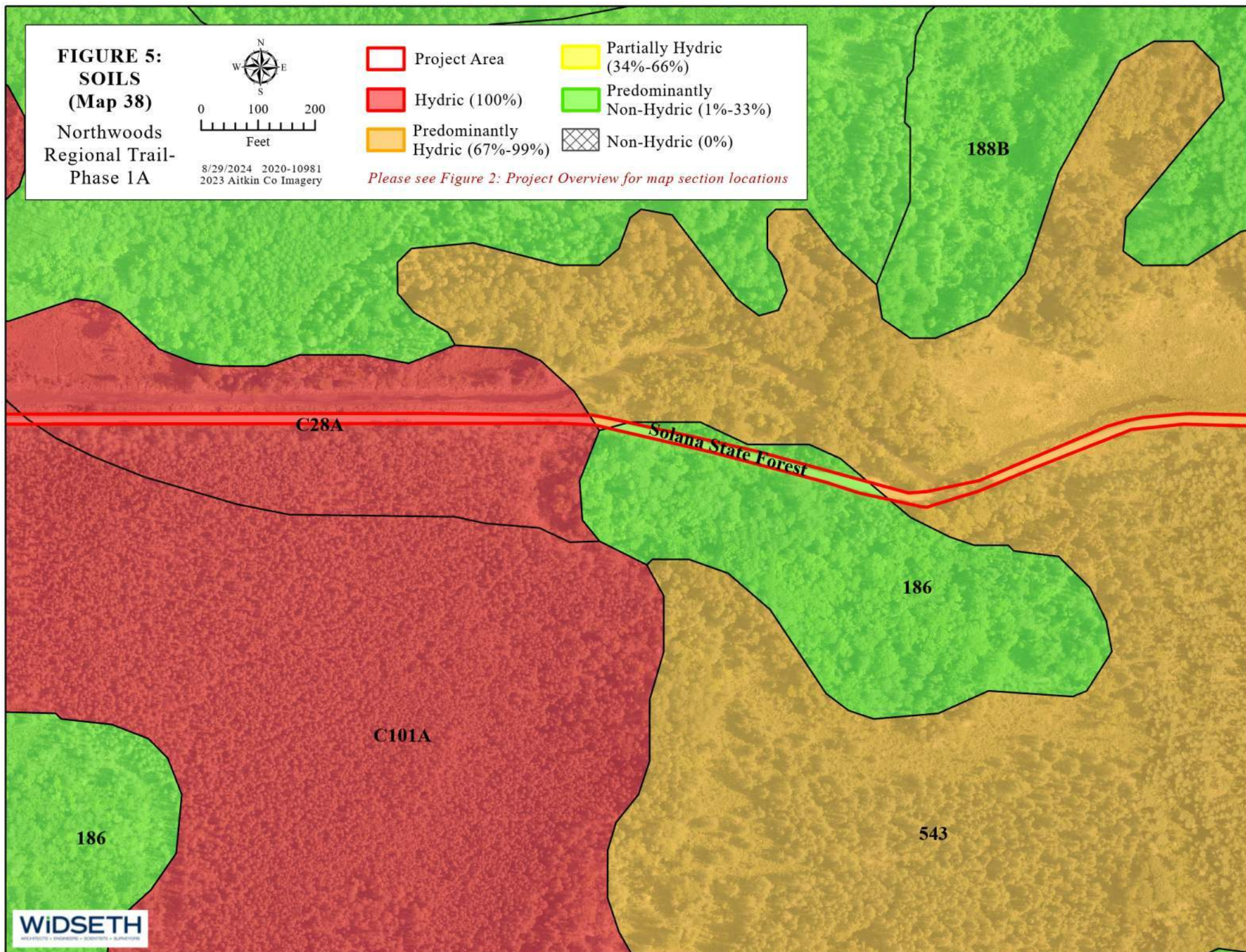
Northwoods
Regional Trail-
Phase 1A



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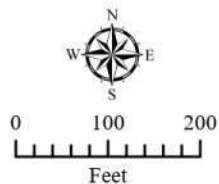
- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations




**FIGURE 5:
SOILS
(Map 39)**


Northwoods
Regional Trail-
Phase 1A





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 Project Area

 Hydric (100%)

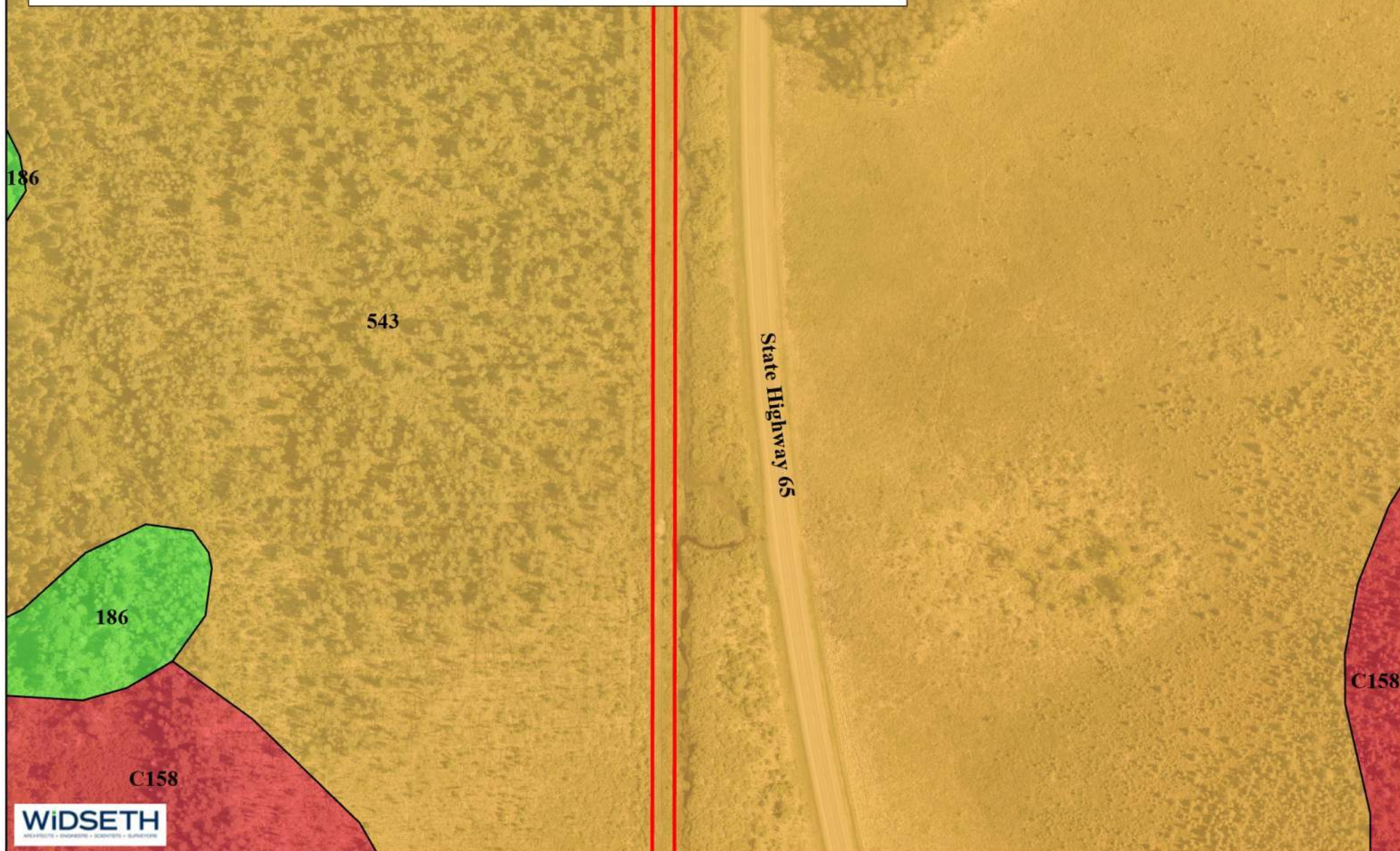
 Predominantly
Hydric (67%-99%)

 Partially Hydric
(34%-66%)

 Predominantly
Non-Hydric (1%-33%)

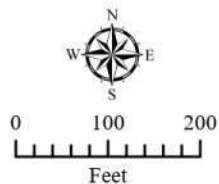
 Non-Hydric (0%)

Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 40)**

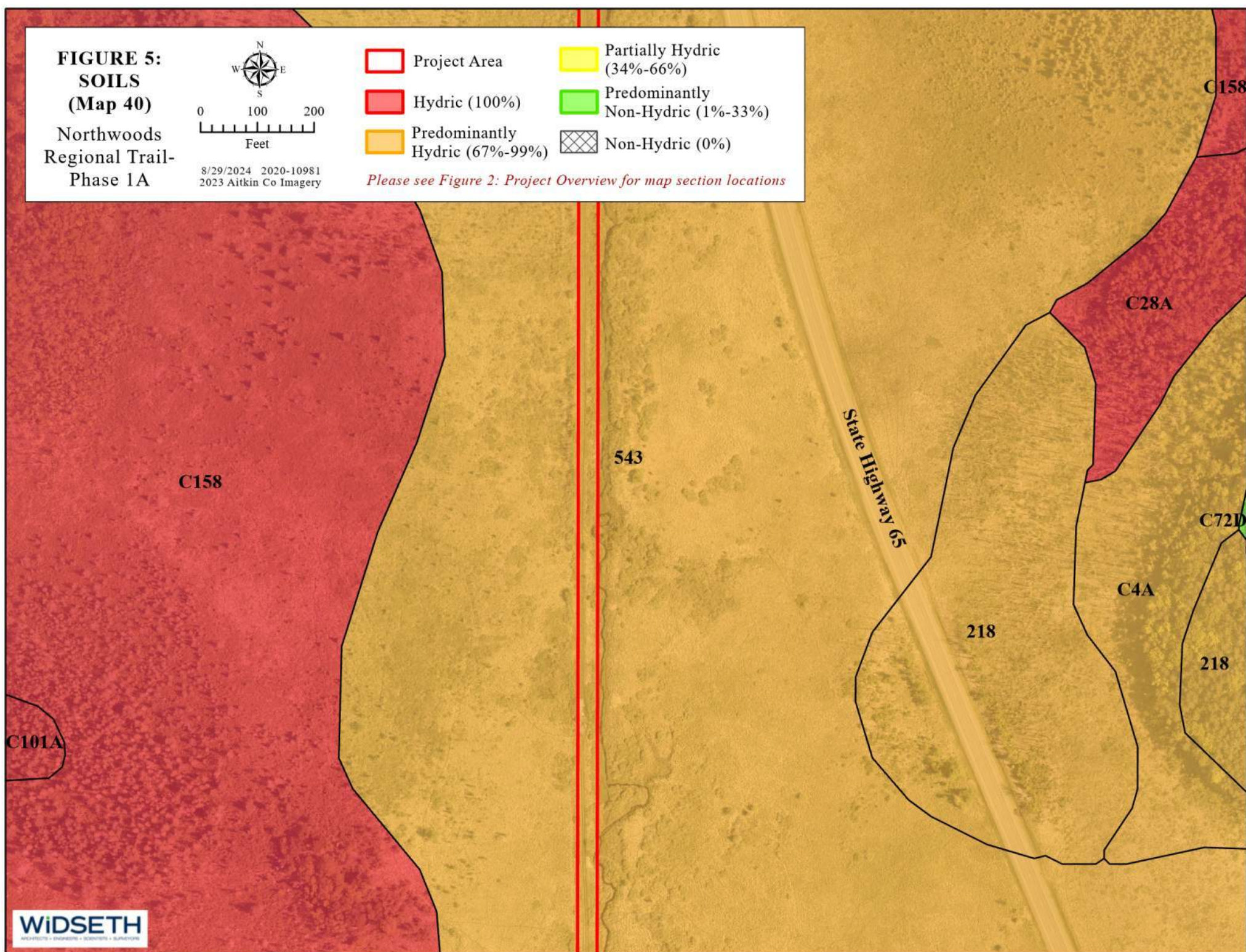
Northwoods
Regional Trail-
Phase 1A



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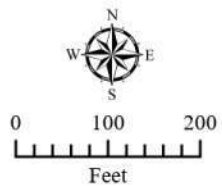
- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations

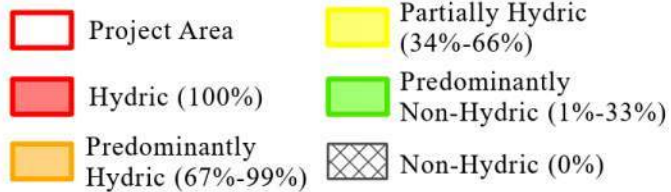


**FIGURE 5:
SOILS
(Map 41)**

Northwoods
Regional Trail-
Phase 1A



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Please see Figure 2: Project Overview for map section locations

C158

C28A

C72D

C4A

543

186

188B

State Highway 65

**FIGURE 5:
SOILS
(Map 42)**

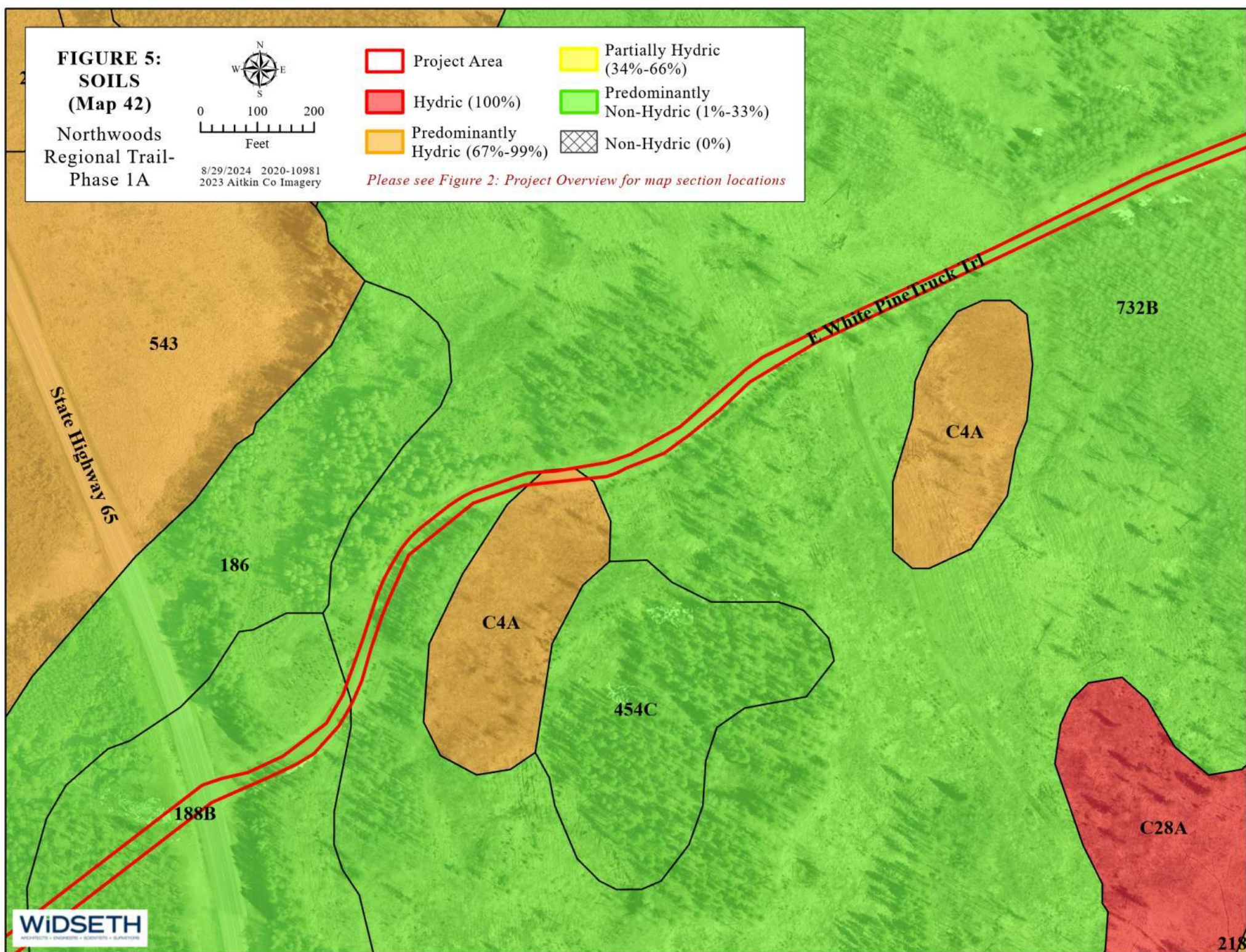
Northwoods
Regional Trail-
Phase 1A



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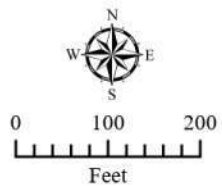
- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations

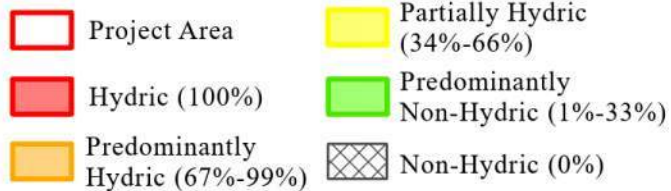


**FIGURE 5:
SOILS
(Map 43)**

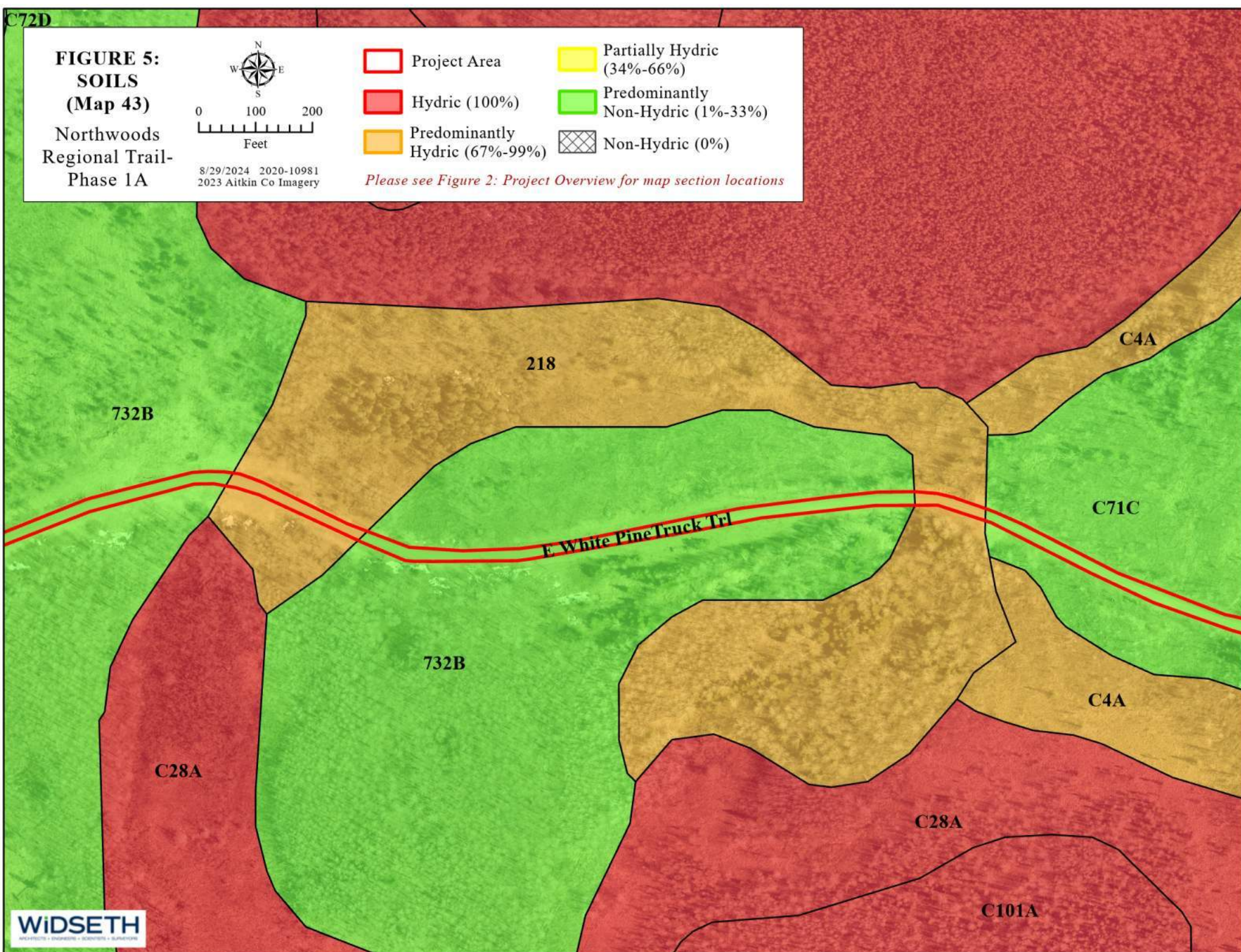
Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

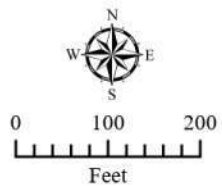


Please see Figure 2: Project Overview for map section locations

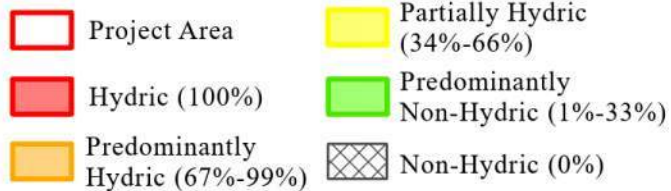


**FIGURE 5:
SOILS
(Map 44)**

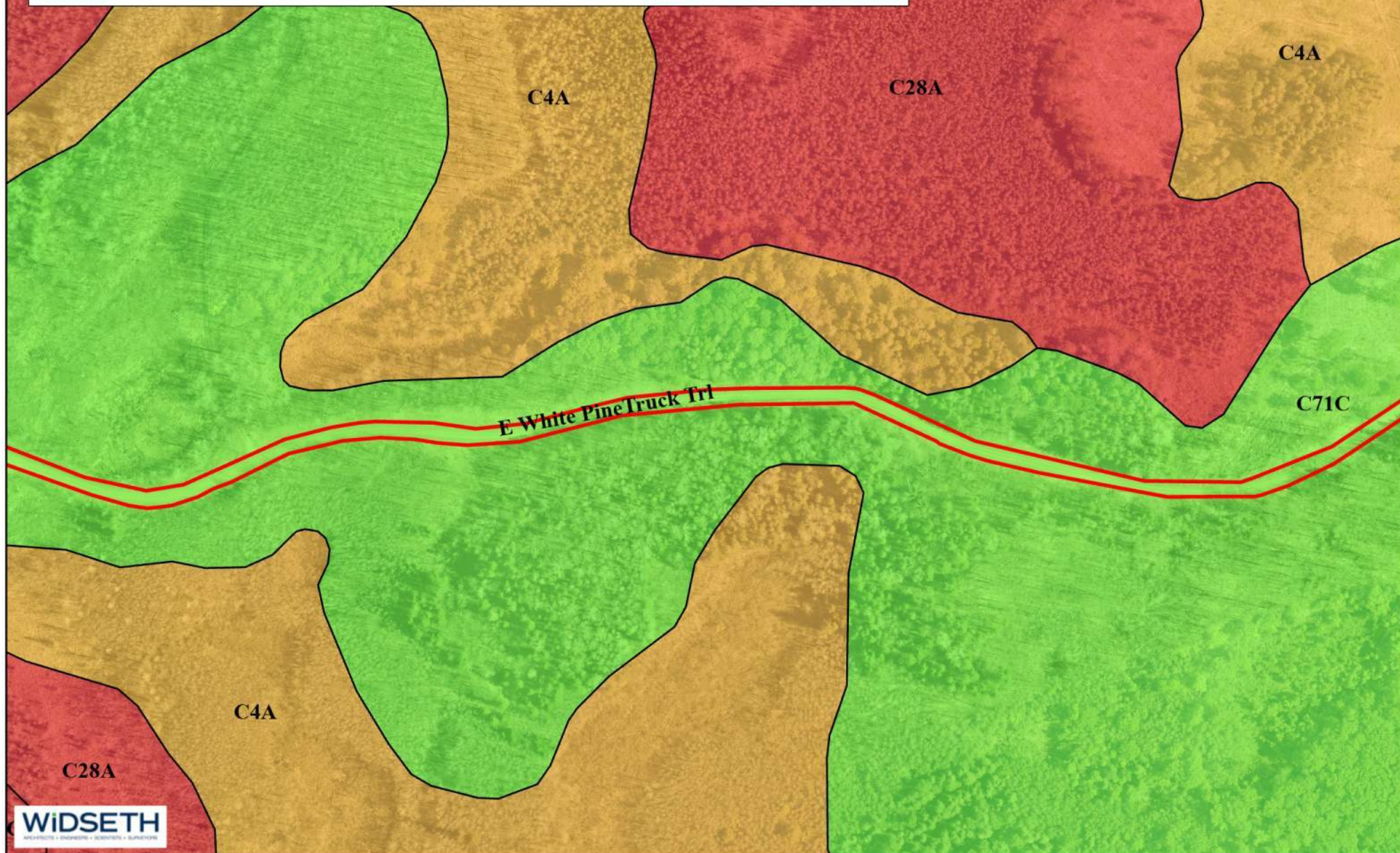
Northwoods
Regional Trail-
Phase 1A



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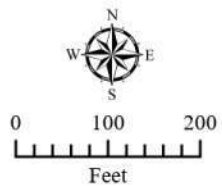


Please see Figure 2: Project Overview for map section locations

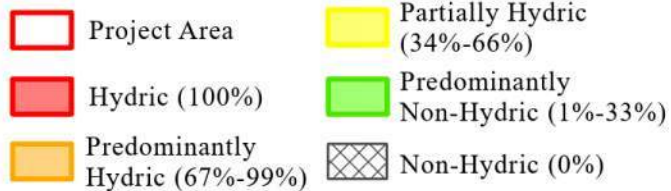


**FIGURE 5:
SOILS
(Map 45)**

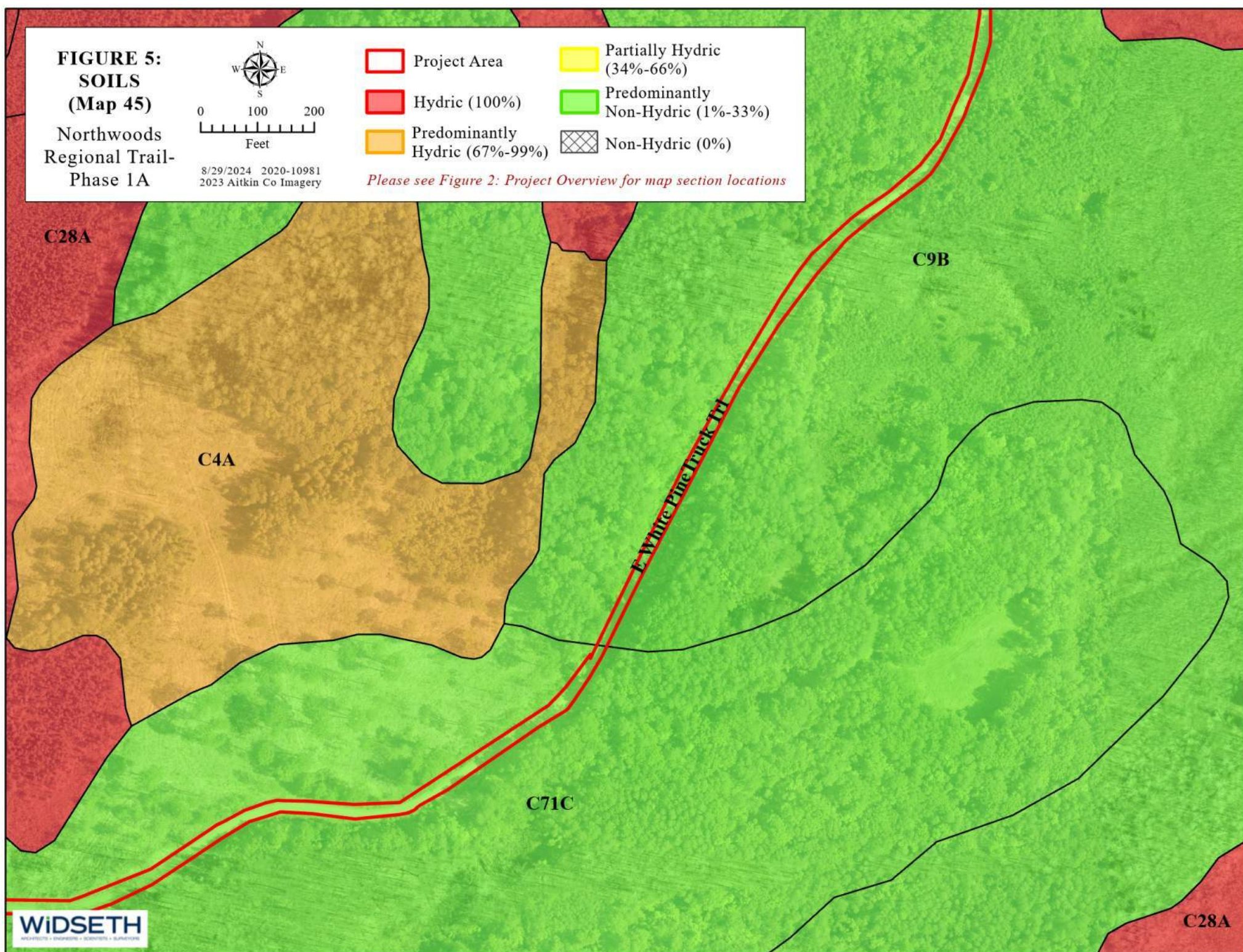
Northwoods
Regional Trail-
Phase 1A



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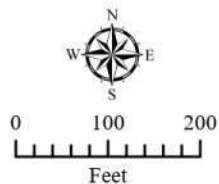


Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 46)**

Northwoods
Regional Trail-
Phase 1A



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- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations

C9B

E White Pine Truck Rd

C71C

C4A

C9B

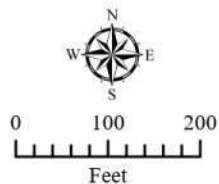
C28A

C73C

C101A

**FIGURE 5:
SOILS
(Map 47)**

Northwoods
Regional Trail-
Phase 1A



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- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations

C28A

C9B

C4A

C9B

C71C

C4A

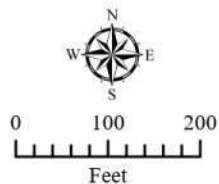
E. White Pine Truck Trl

C28A

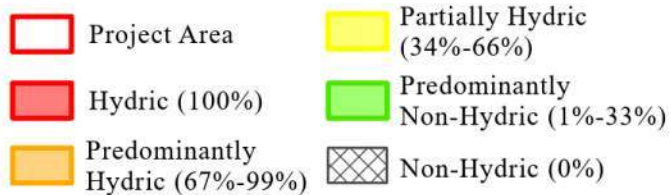
C73C

**FIGURE 5:
SOILS
(Map 48)**

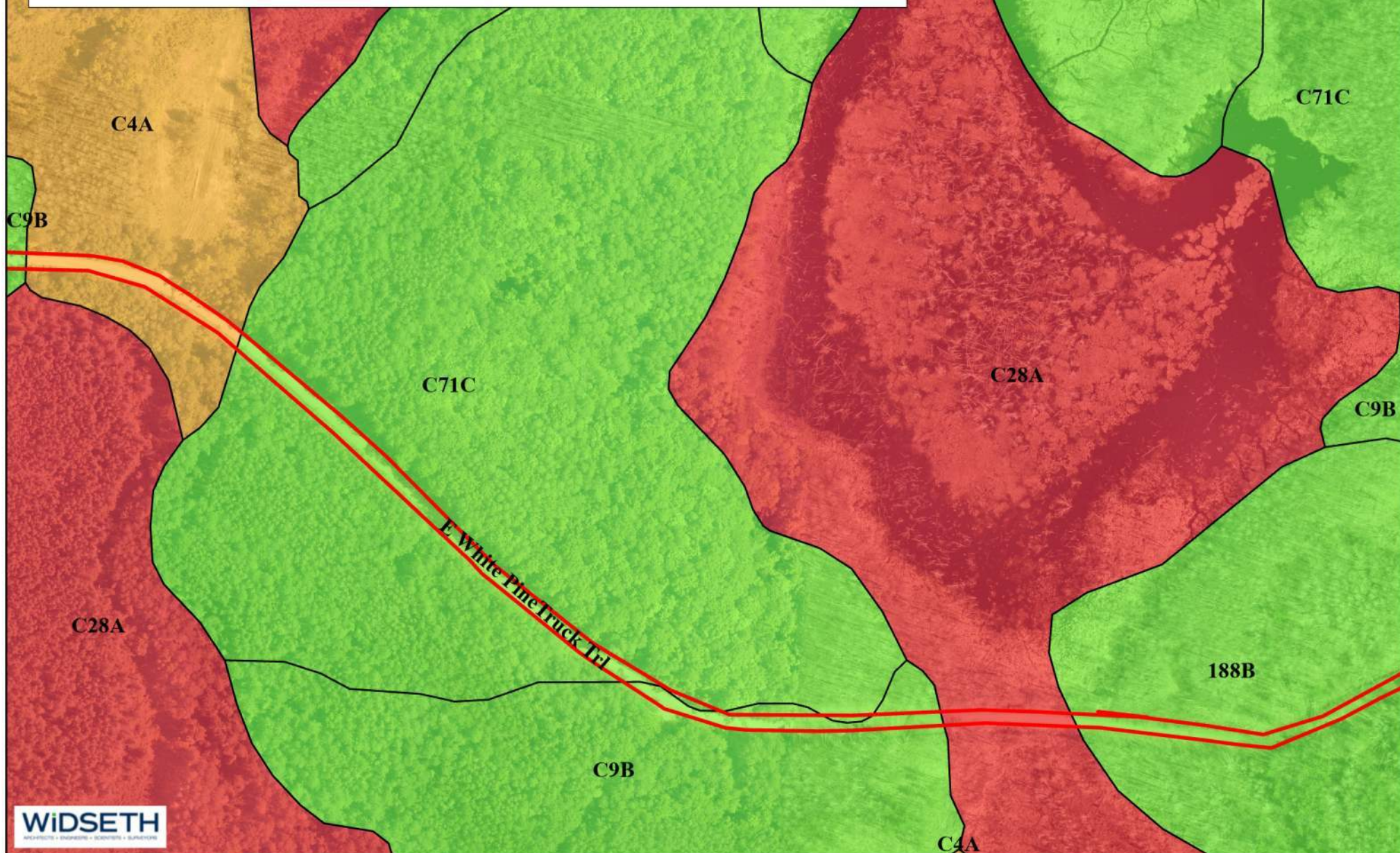
Northwoods
Regional Trail-
Phase 1A



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Please see Figure 2: Project Overview for map section locations

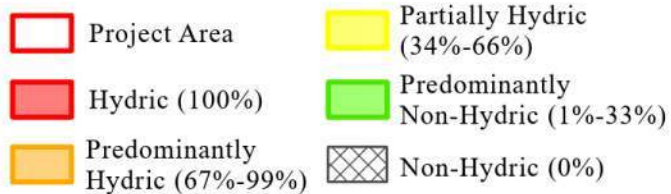


**FIGURE 5:
SOILS
(Map 49)**

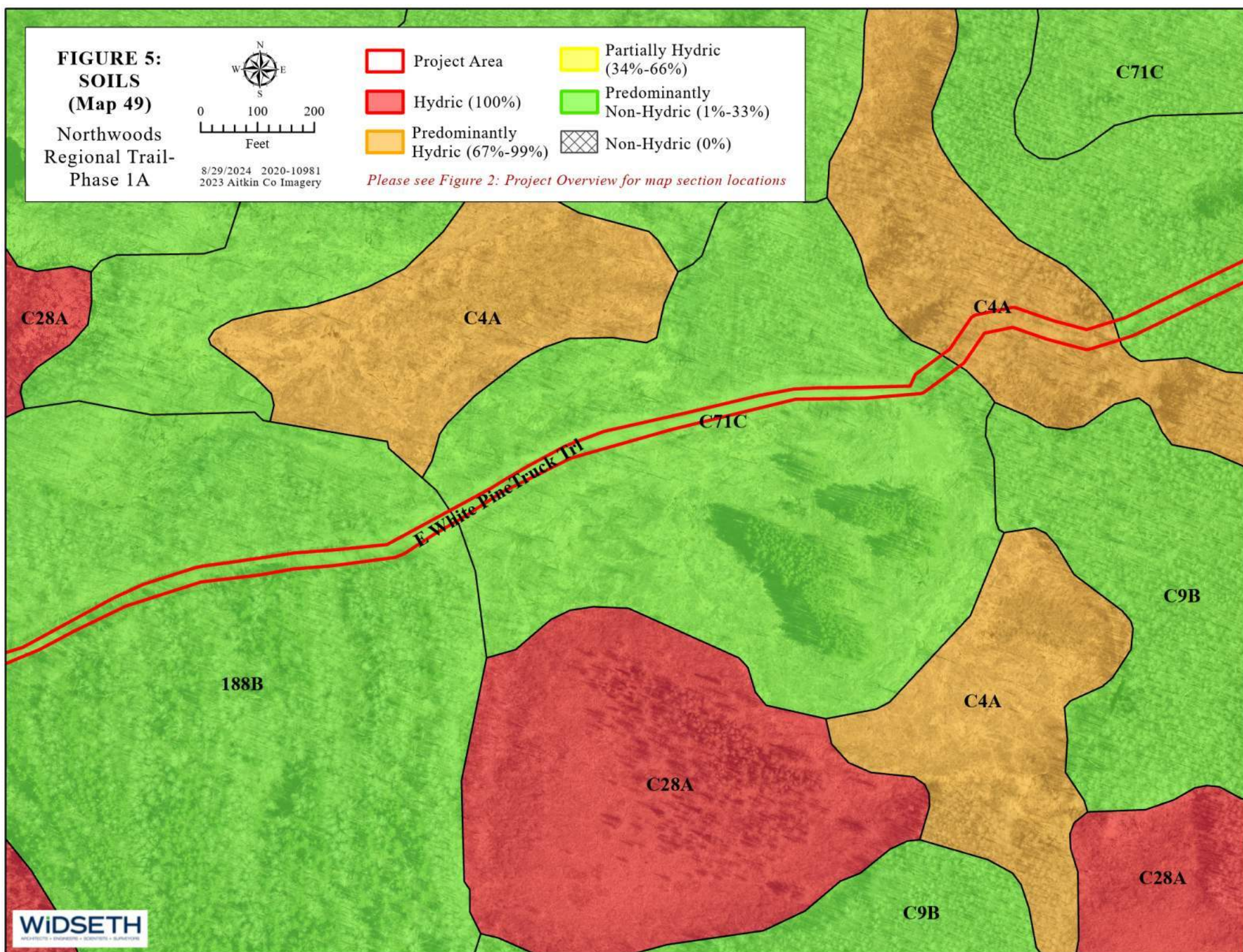
Northwoods
Regional Trail-
Phase 1A



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Please see Figure 2: Project Overview for map section locations



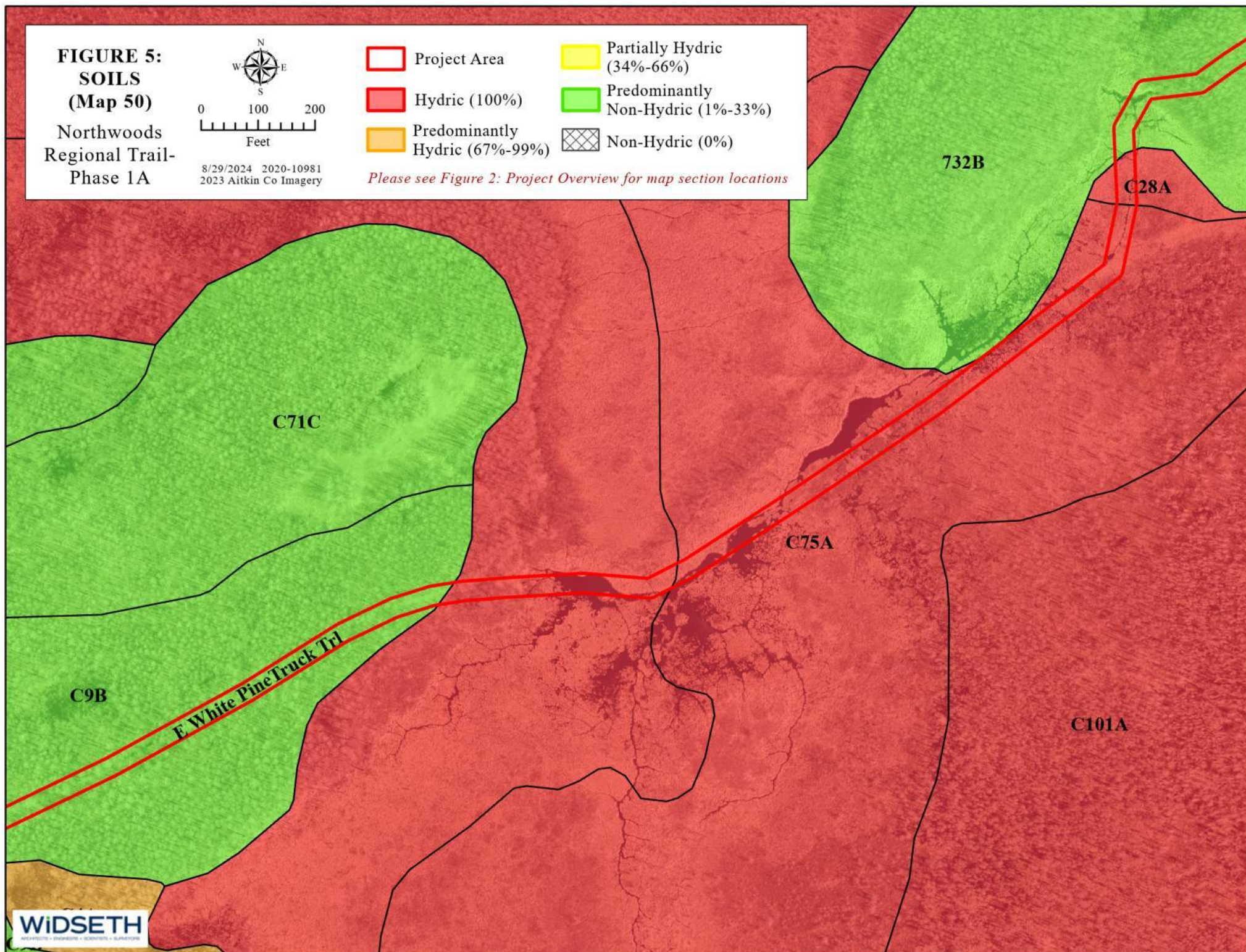
**FIGURE 5:
SOILS
(Map 50)**

Northwoods
Regional Trail-
Phase 1A



- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations

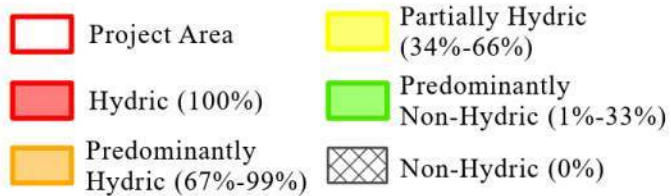


**FIGURE 5:
SOILS
(Map 51)**

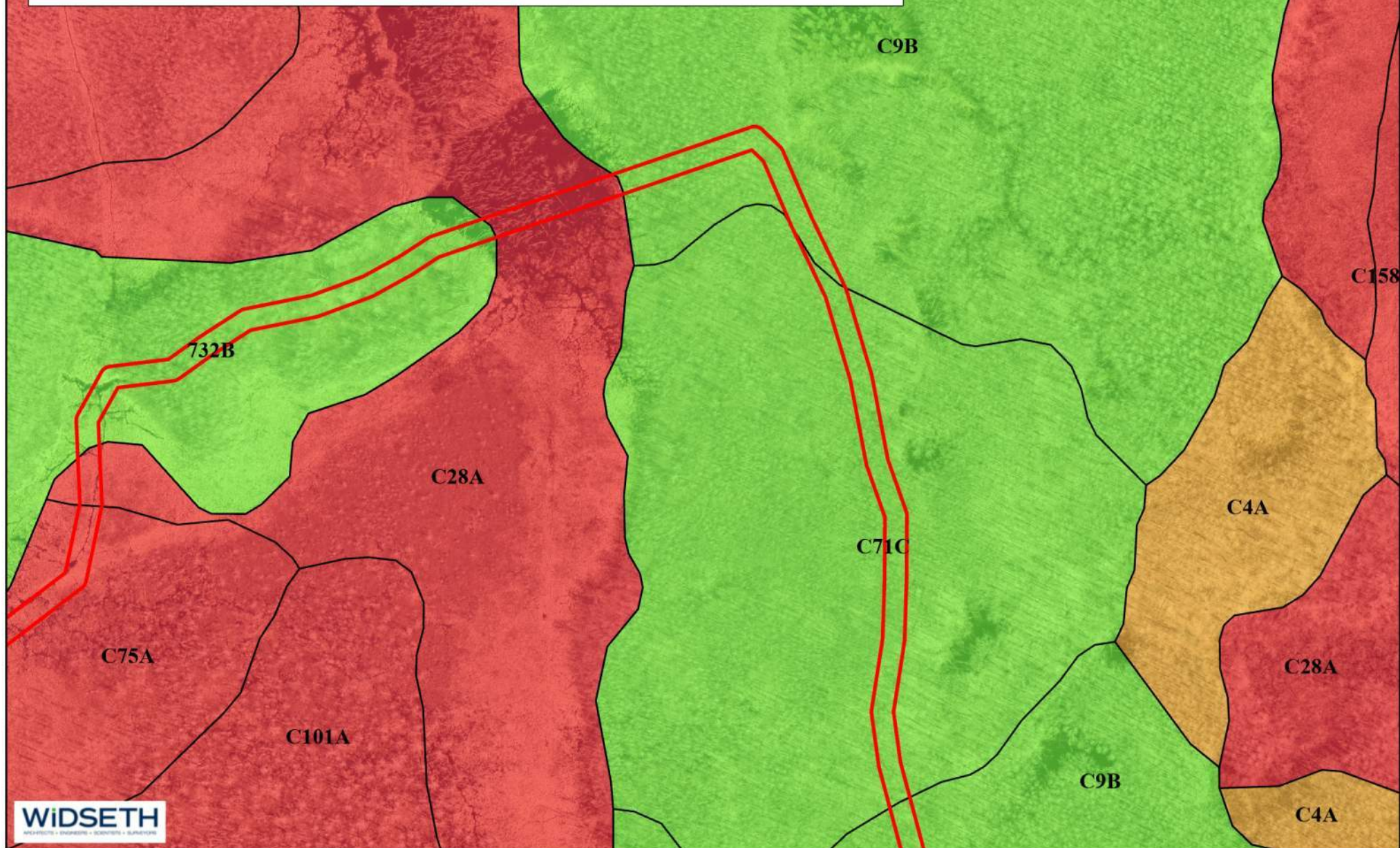
Northwoods
Regional Trail-
Phase 1A



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Please see Figure 2: Project Overview for map section locations



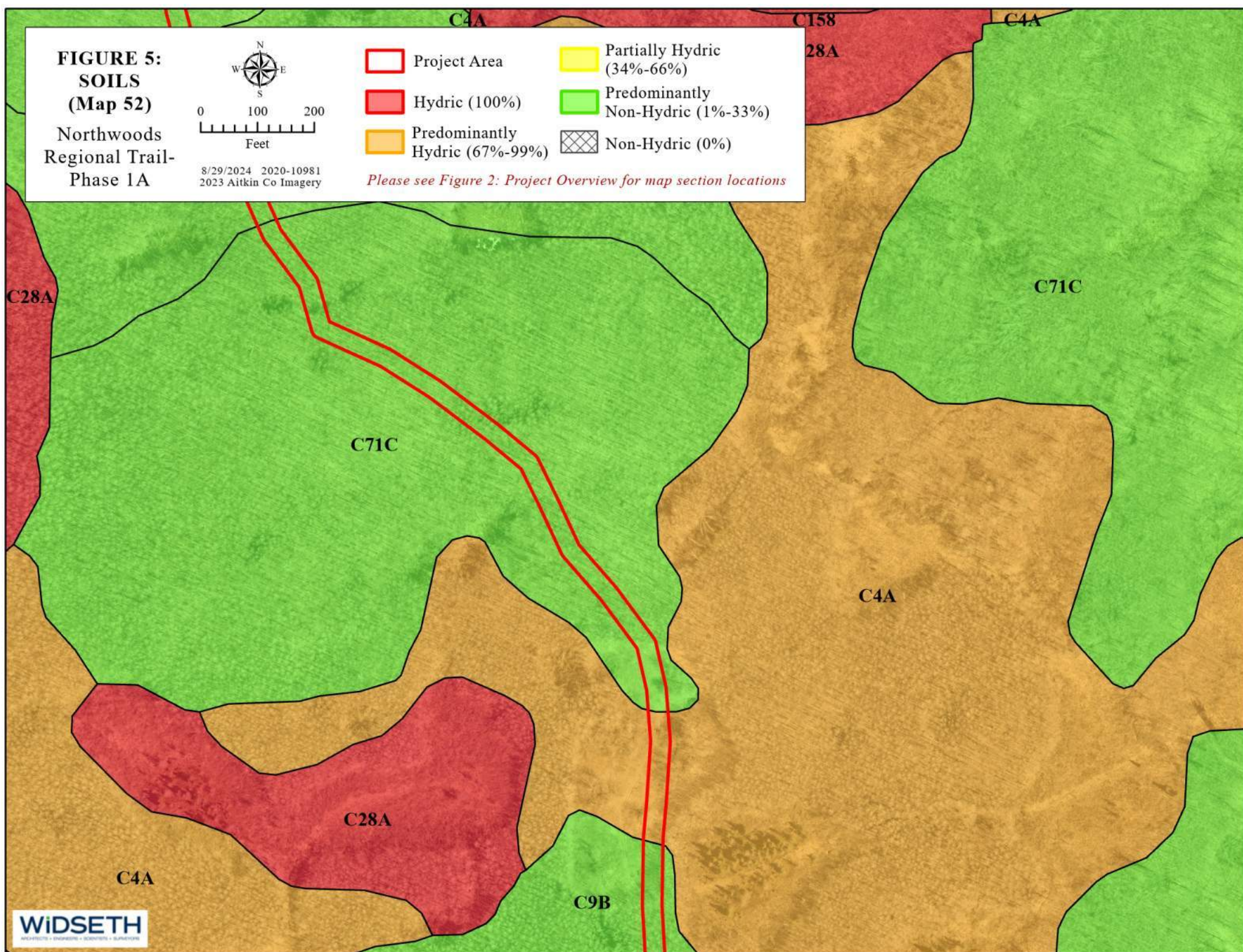
**FIGURE 5:
SOILS
(Map 52)**

Northwoods
Regional Trail-
Phase 1A



- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 53)**

Northwoods
Regional Trail-
Phase 1A



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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

C4A

C4A

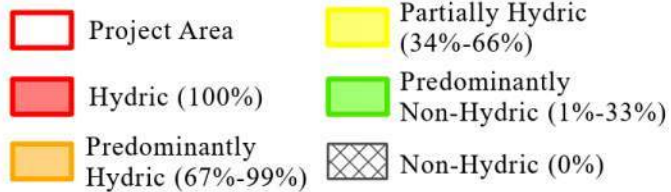
C71C

**FIGURE 5:
SOILS
(Map 54)**

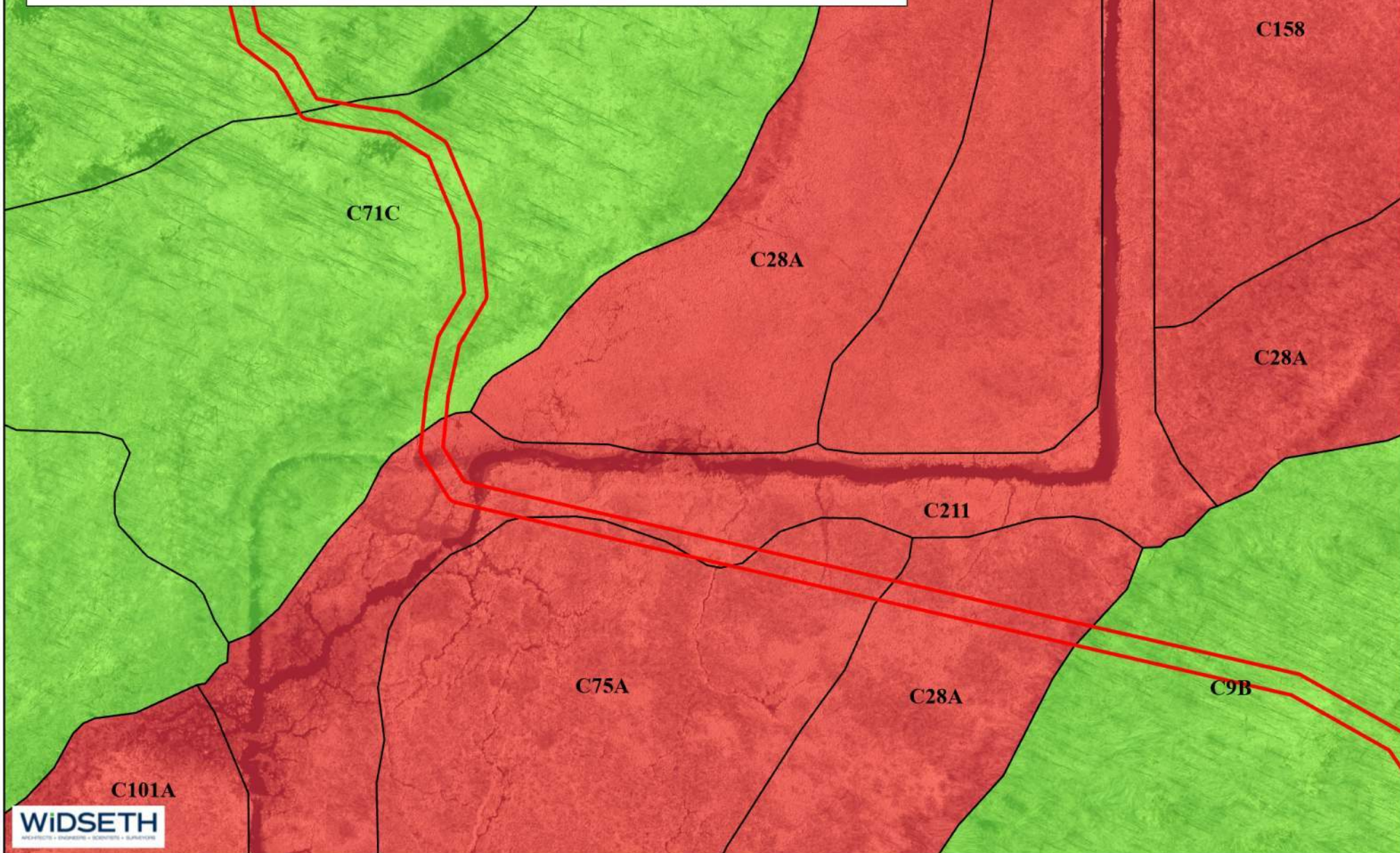
Northwoods
Regional Trail-
Phase 1A



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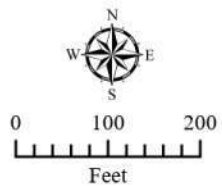


Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 55)**

Northwoods
Regional Trail-
Phase 1A



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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

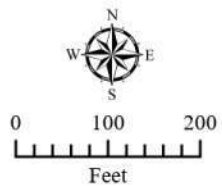
C4A

C28A

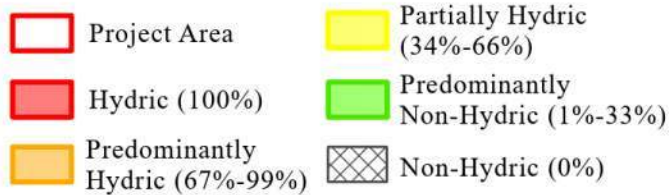
C71C

**FIGURE 5:
SOILS
(Map 56)**

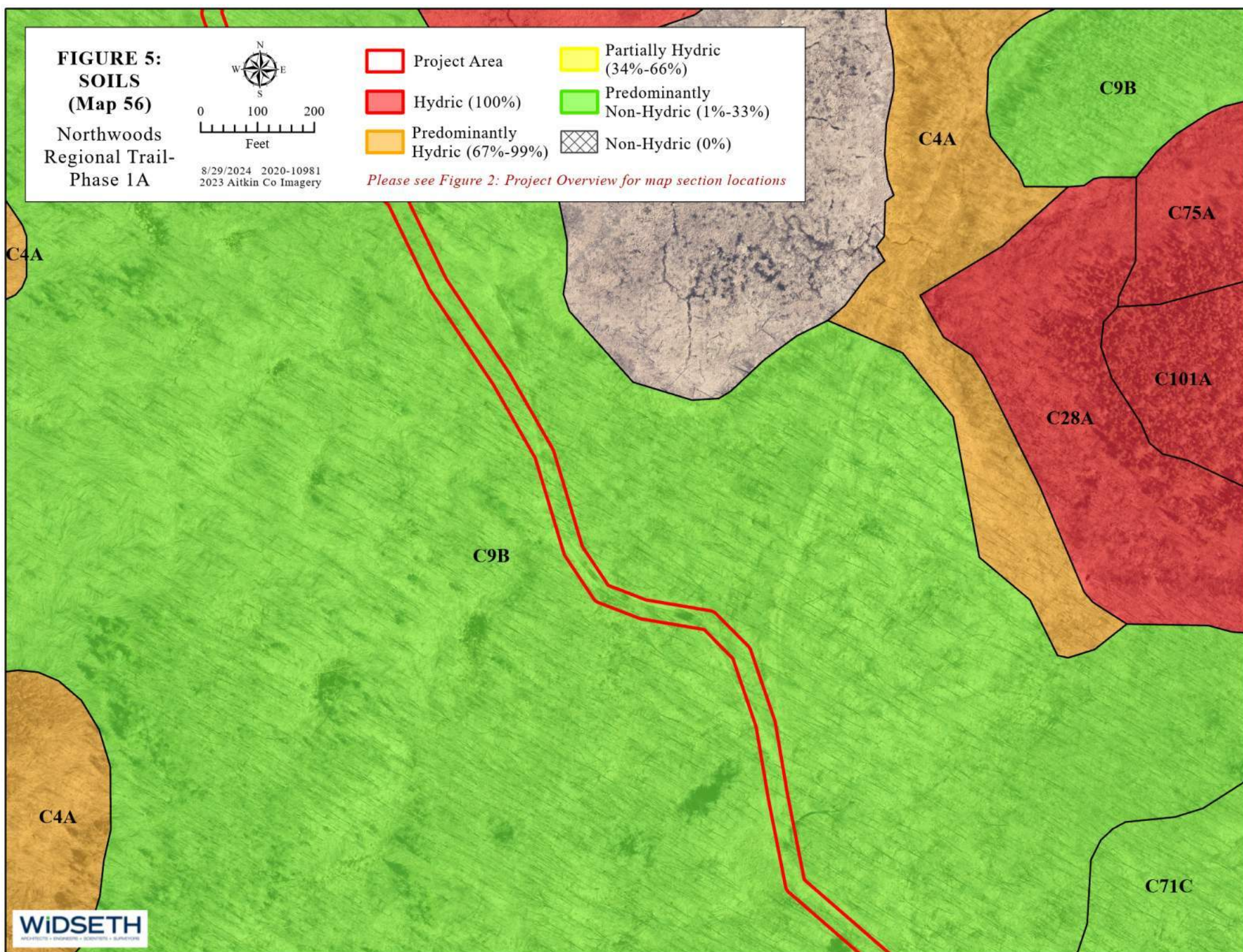
Northwoods
Regional Trail-
Phase 1A



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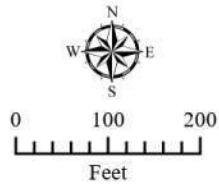


Please see Figure 2: Project Overview for map section locations

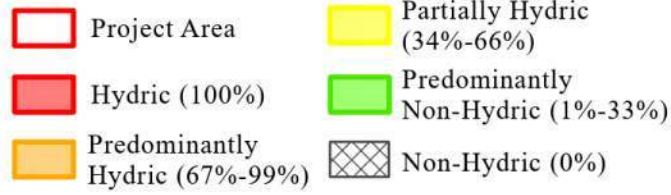


**FIGURE 5:
SOILS
(Map 57)**

Northwoods
Regional Trail-
Phase 1A



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Please see Figure 2: Project Overview for map section locations

C9B

C71C

C73C

C4A

C75A

**FIGURE 5:
SOILS
(Map 58)**

Northwoods
Regional Trail-
Phase 1A



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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

C4A

C71C

C9B


**FIGURE 5:
SOILS
(Map 59)**


Northwoods
Regional Trail-
Phase 1A





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 Project Area

 Hydric (100%)

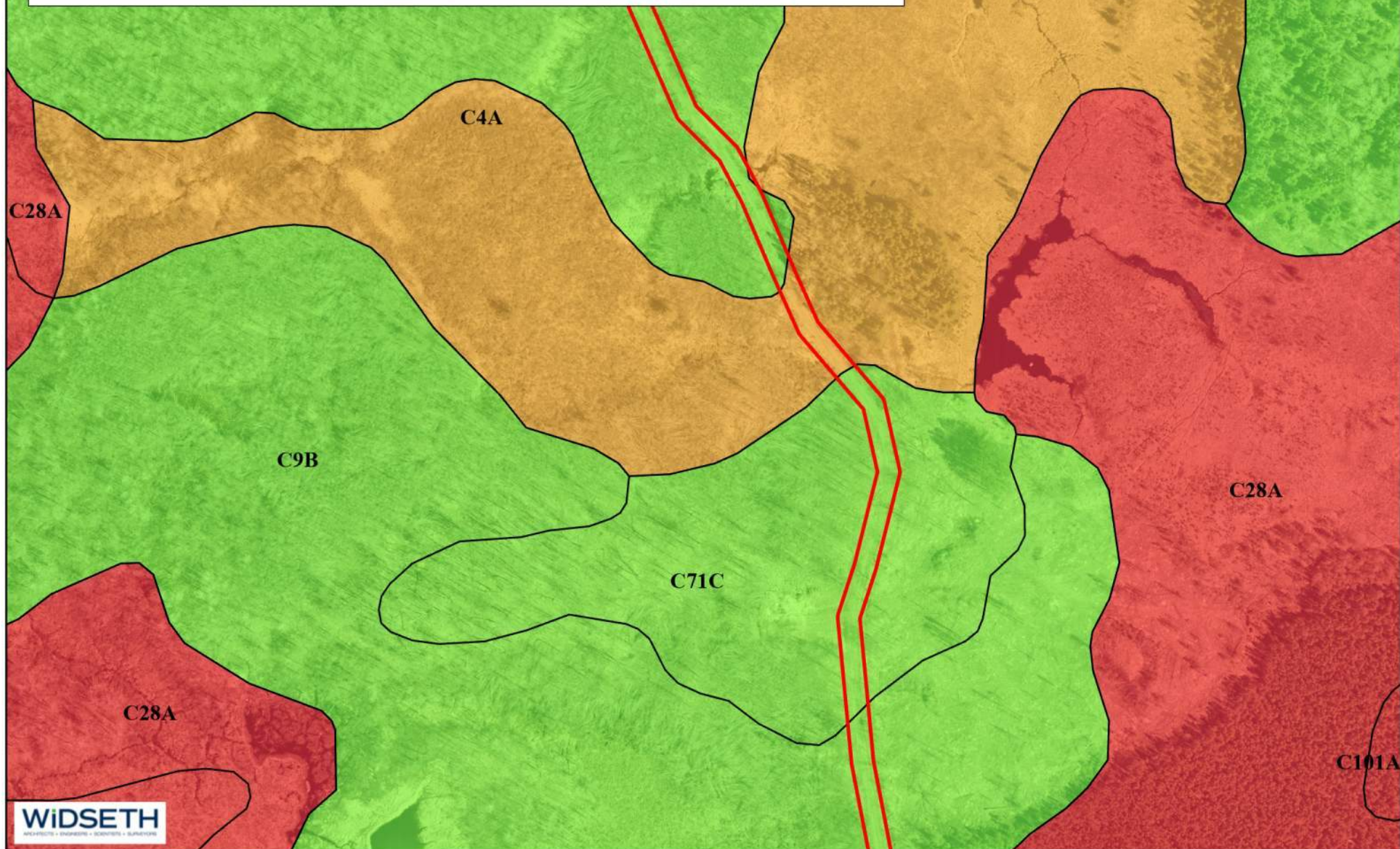
 Predominantly
Hydric (67%-99%)

 Partially Hydric
(34%-66%)

 Predominantly
Non-Hydric (1%-33%)

 Non-Hydric (0%)

Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 60)**

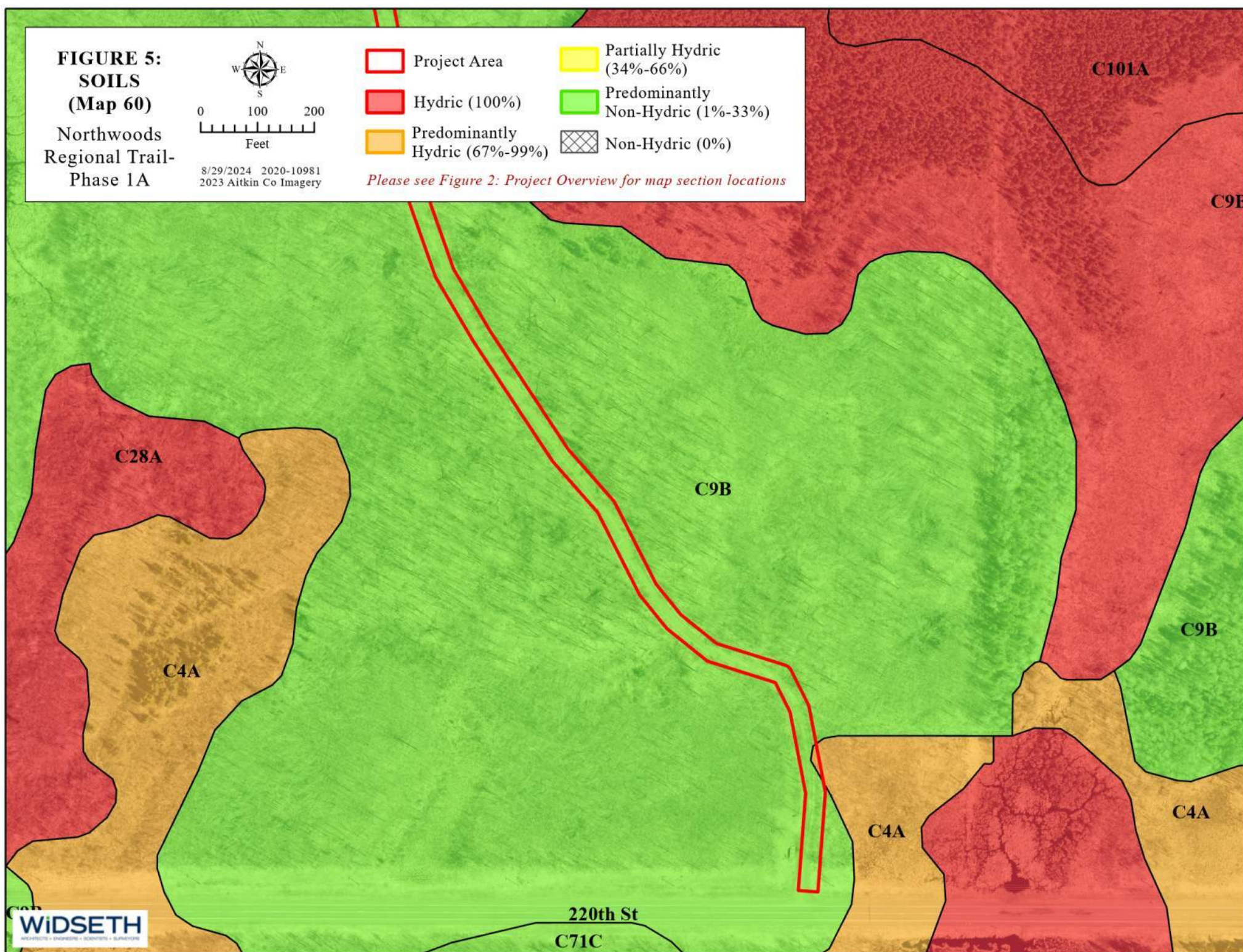
Northwoods
Regional Trail-
Phase 1A



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- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations



**FIGURE 5:
SOILS
(Map 61)**

Northwoods
Regional Trail-
Phase 1A



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

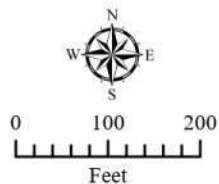
C9B

C28A

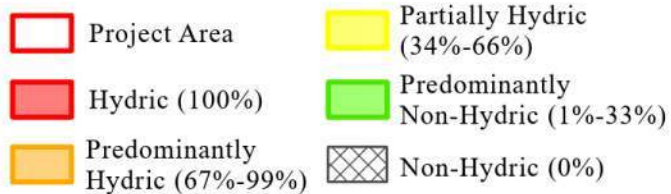
C28A

**FIGURE 5:
SOILS
(Map 62)**

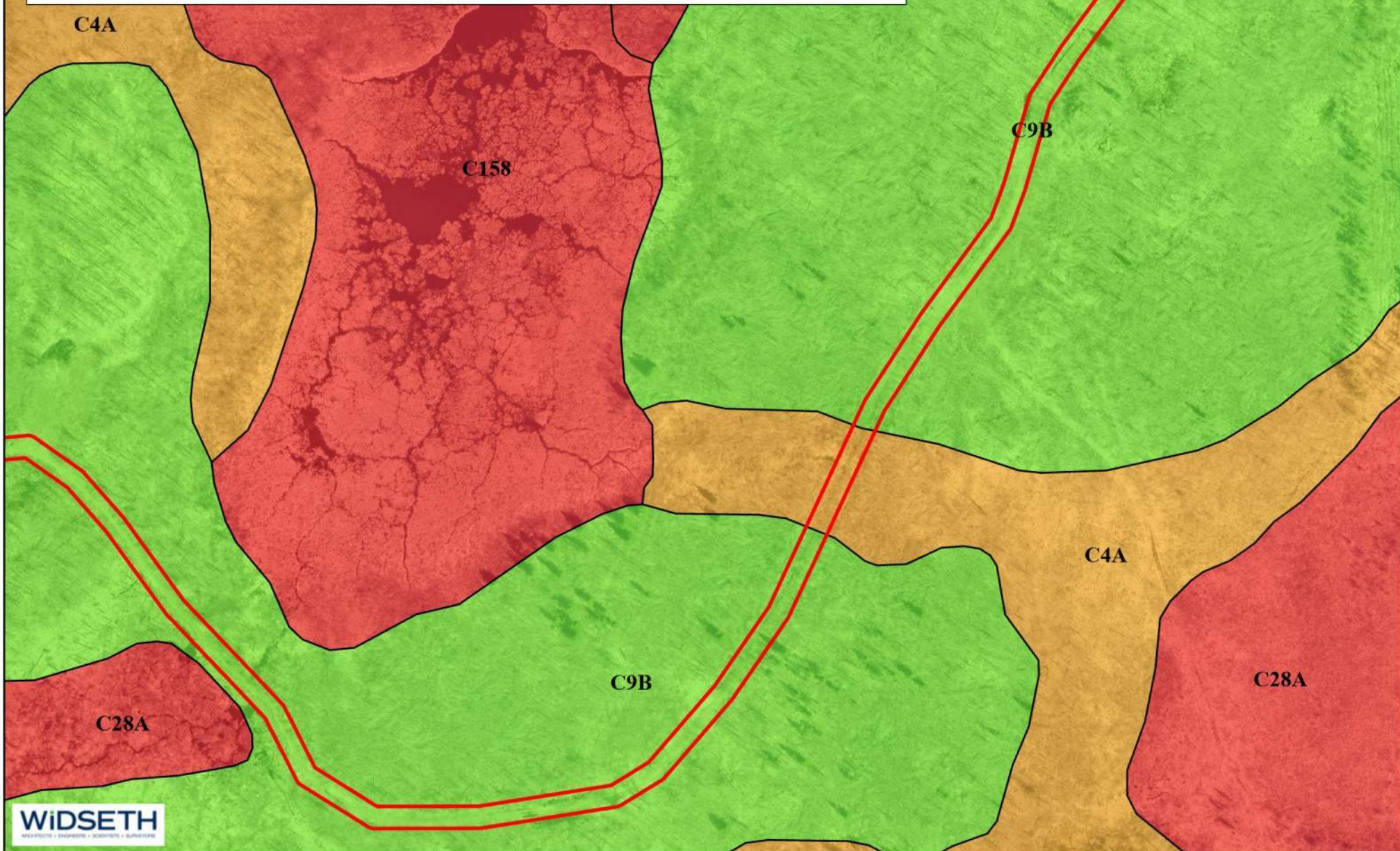
Northwoods
Regional Trail-
Phase 1A



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Please see Figure 2: Project Overview for map section locations



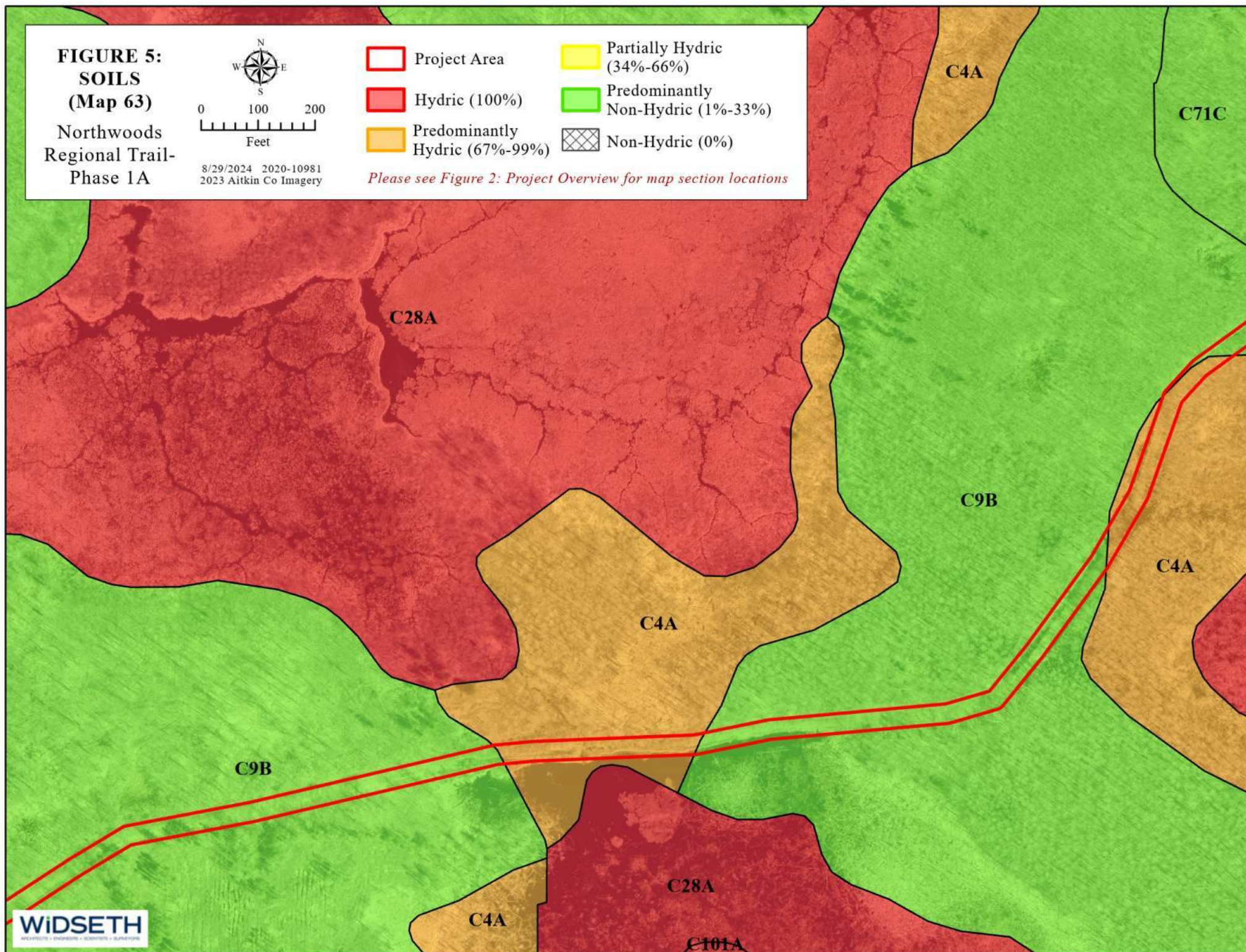
**FIGURE 5:
SOILS
(Map 63)**

Northwoods
Regional Trail-
Phase 1A



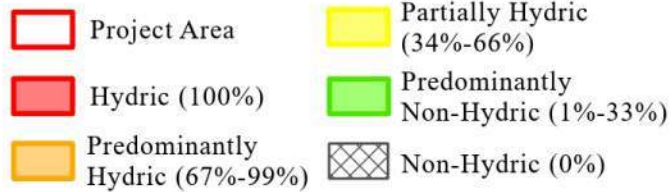
- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations

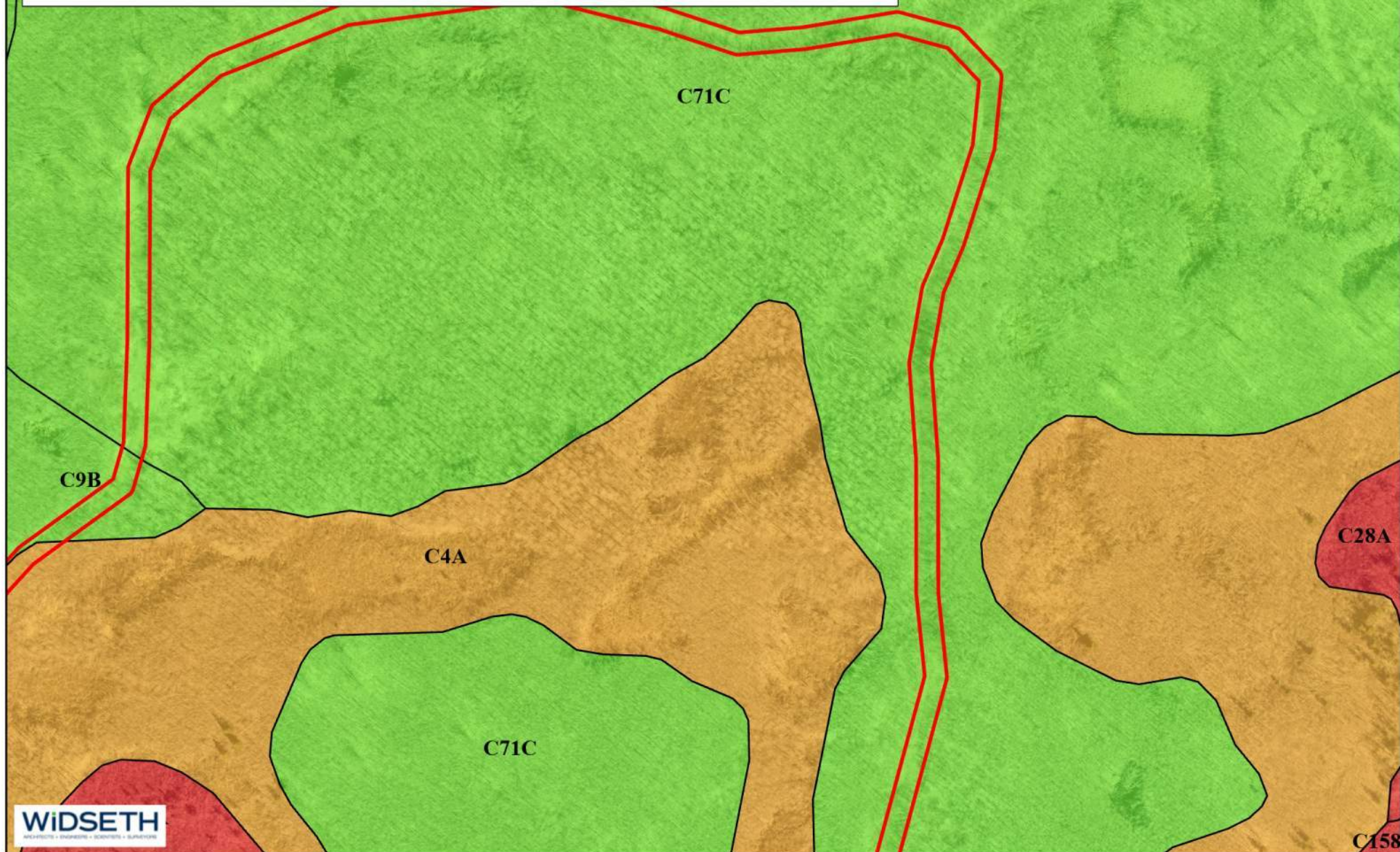


**FIGURE 5:
SOILS
(Map 64)**

Northwoods
Regional Trail-
Phase 1A



Please see Figure 2: Project Overview for map section locations

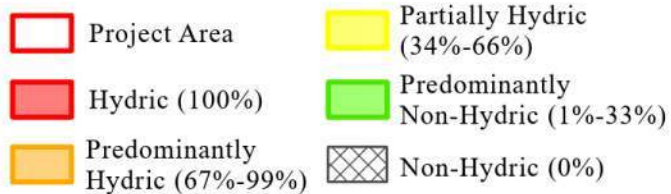


**FIGURE 5:
SOILS
(Map 65)**

Northwoods
Regional Trail-
Phase 1A



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Please see Figure 2: Project Overview for map section locations

C28A

C4A

C9B

C158

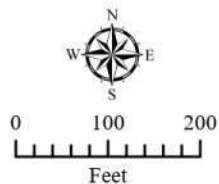
C4A

C28A

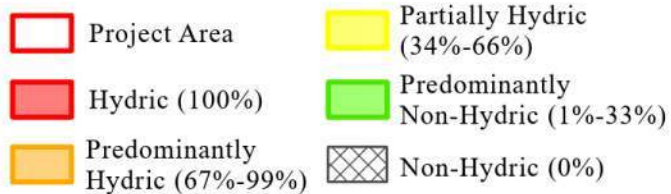
C9B

**FIGURE 5:
SOILS
(Map 66)**

Northwoods
Regional Trail-
Phase 1A



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Please see Figure 2: Project Overview for map section locations

C4A

C158

C28A

C71C

**FIGURE 5:
SOILS
(Map 67)**

Northwoods
Regional Trail-
Phase 1A



- | | |
|--------------------------------|-----------------------------------|
| Project Area | Partially Hydric (34%-66%) |
| Hydric (100%) | Predominantly Non-Hydric (1%-33%) |
| Predominantly Hydric (67%-99%) | Non-Hydric (0%) |

Please see Figure 2: Project Overview for map section locations

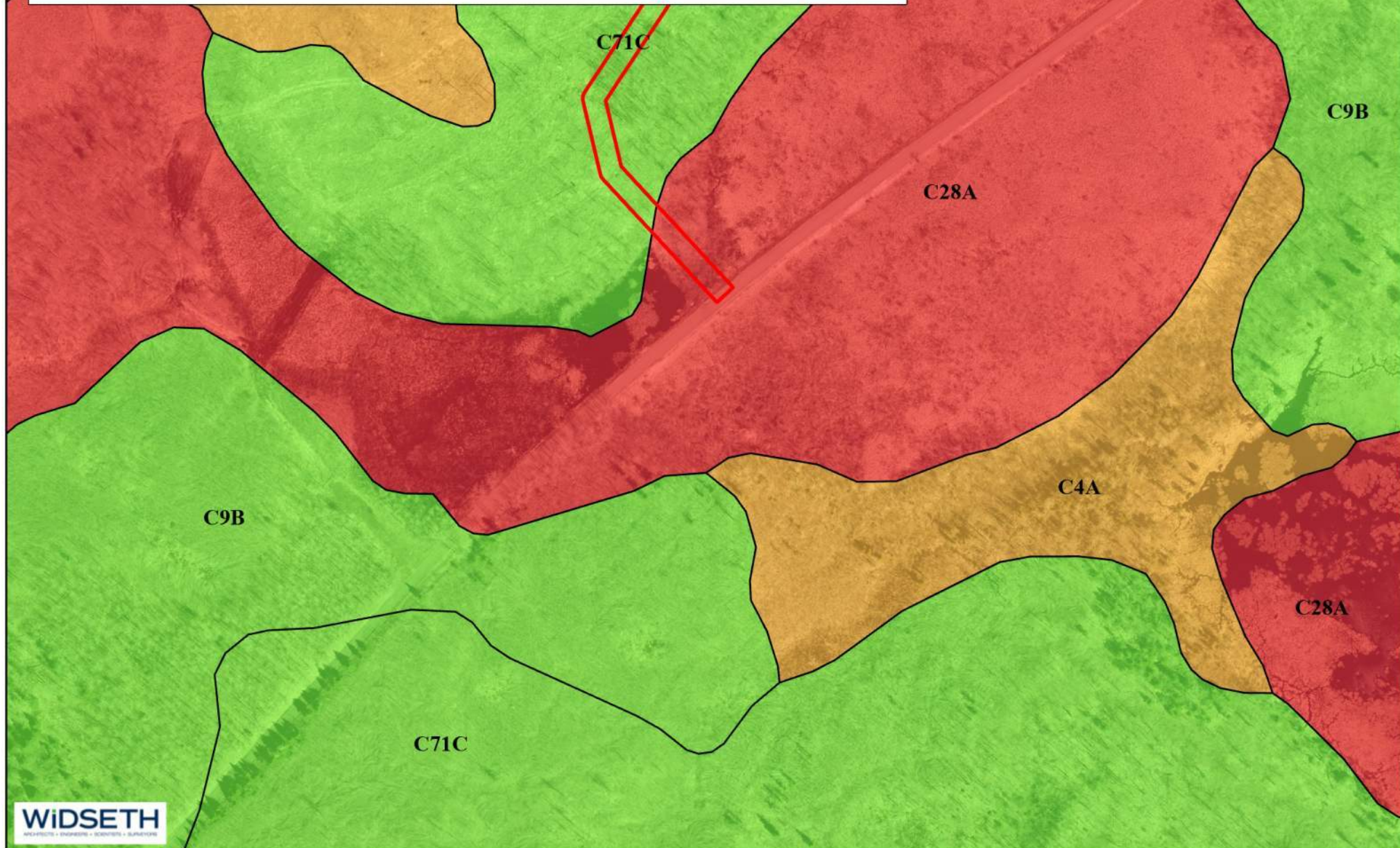
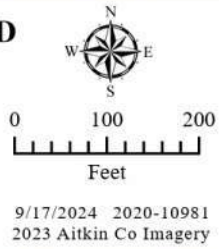


FIGURE 6: WETLAND DELINEATION (Map 01)

Northwoods
Regional Trail-
Phase 1A

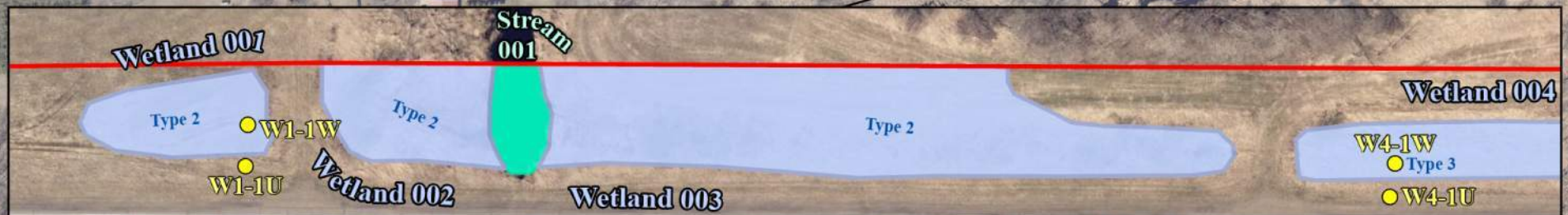


- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

Please see Figure 2: Project Overview for map section locations

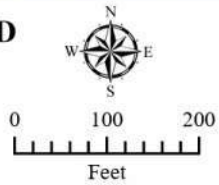
Deer Lake

220th St



**FIGURE 6: WETLAND
DELINEATION
(Map 02)**

Northwoods
Regional Trail-
Phase 1A



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

*Please see Figure 2: Project Overview for map
section locations*

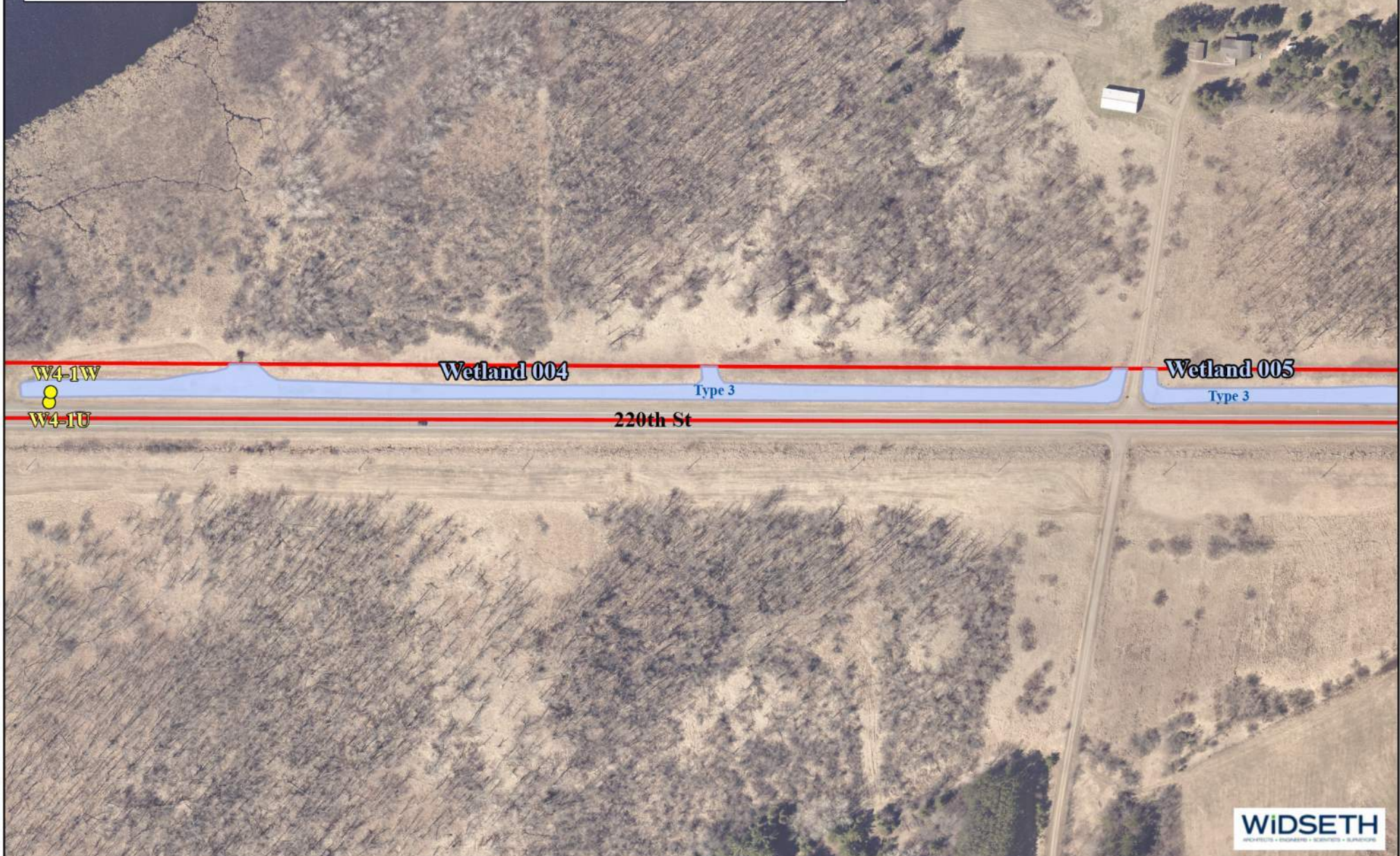
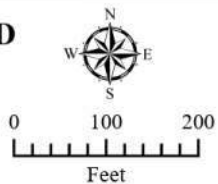


FIGURE 6: WETLAND DELINEATION (Map 03)

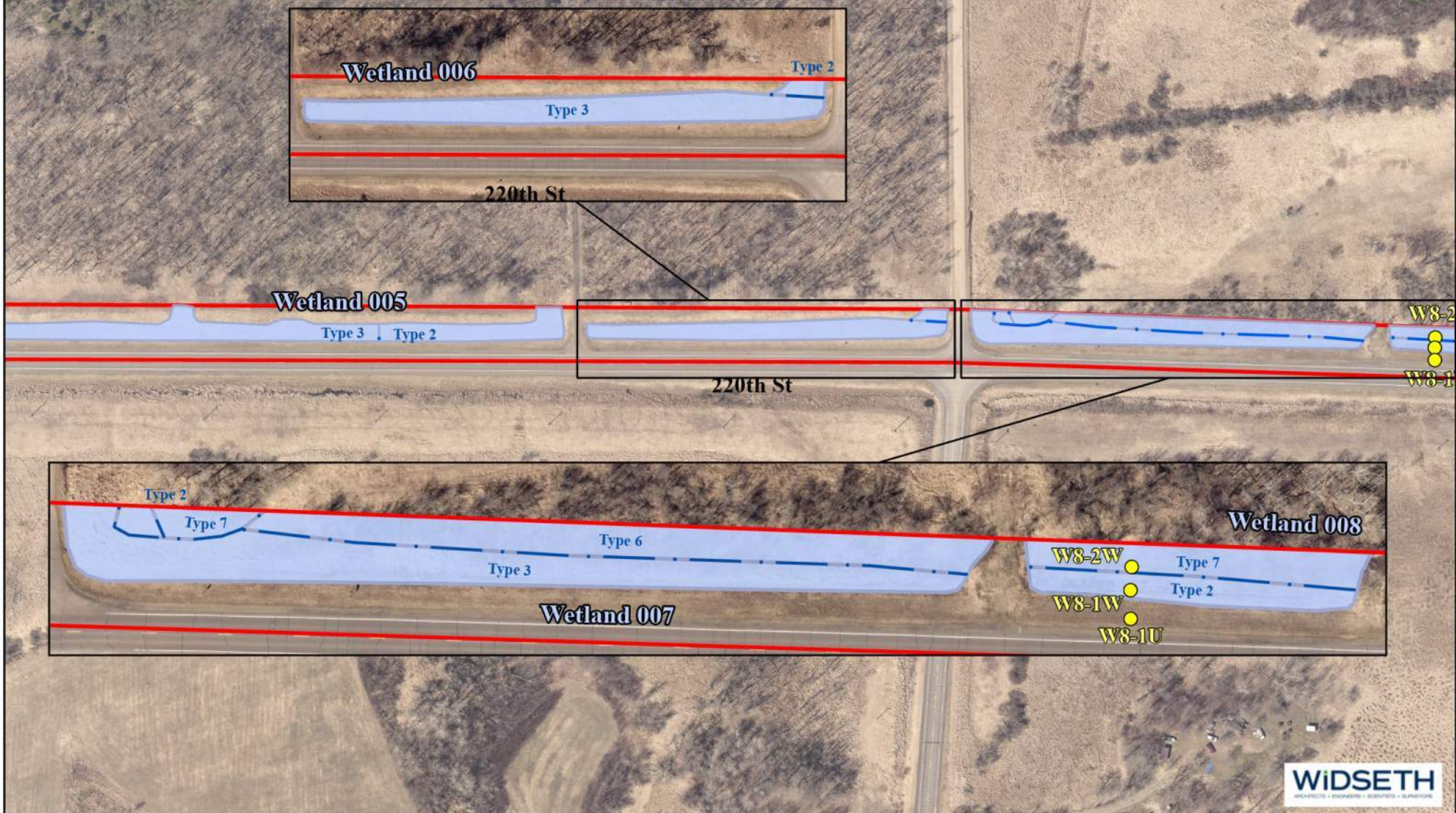
Northwoods
Regional Trail-
Phase 1A



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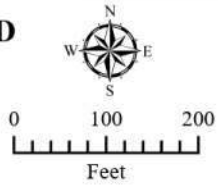
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

Please see Figure 2: Project Overview for map section locations



**FIGURE 6: WETLAND
DELINEATION
(Map 04)**

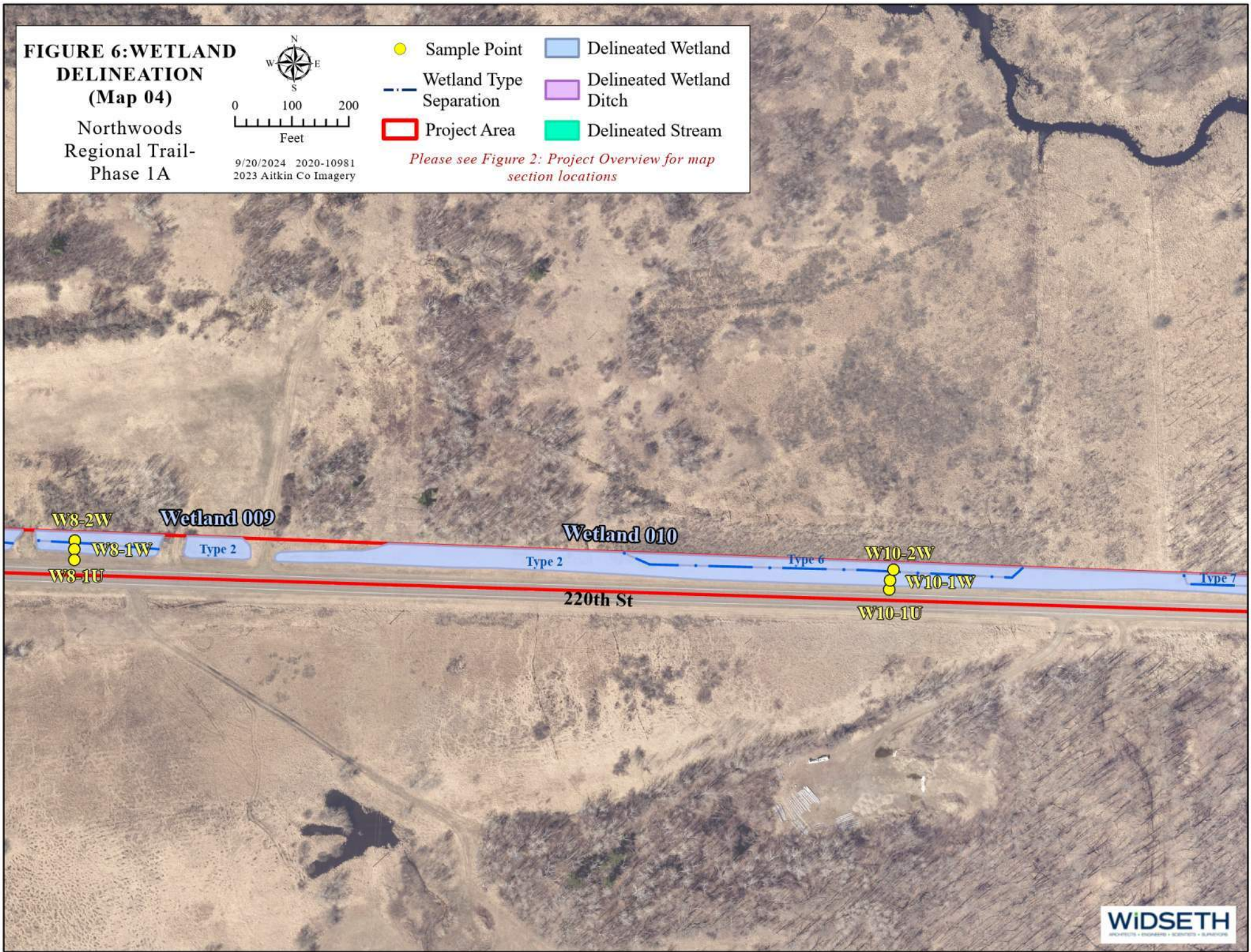
Northwoods
Regional Trail-
Phase 1A



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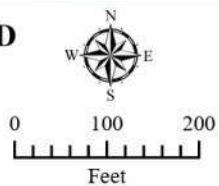
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*









**FIGURE 6:WETLAND
DELINEATION
(Map 05)**

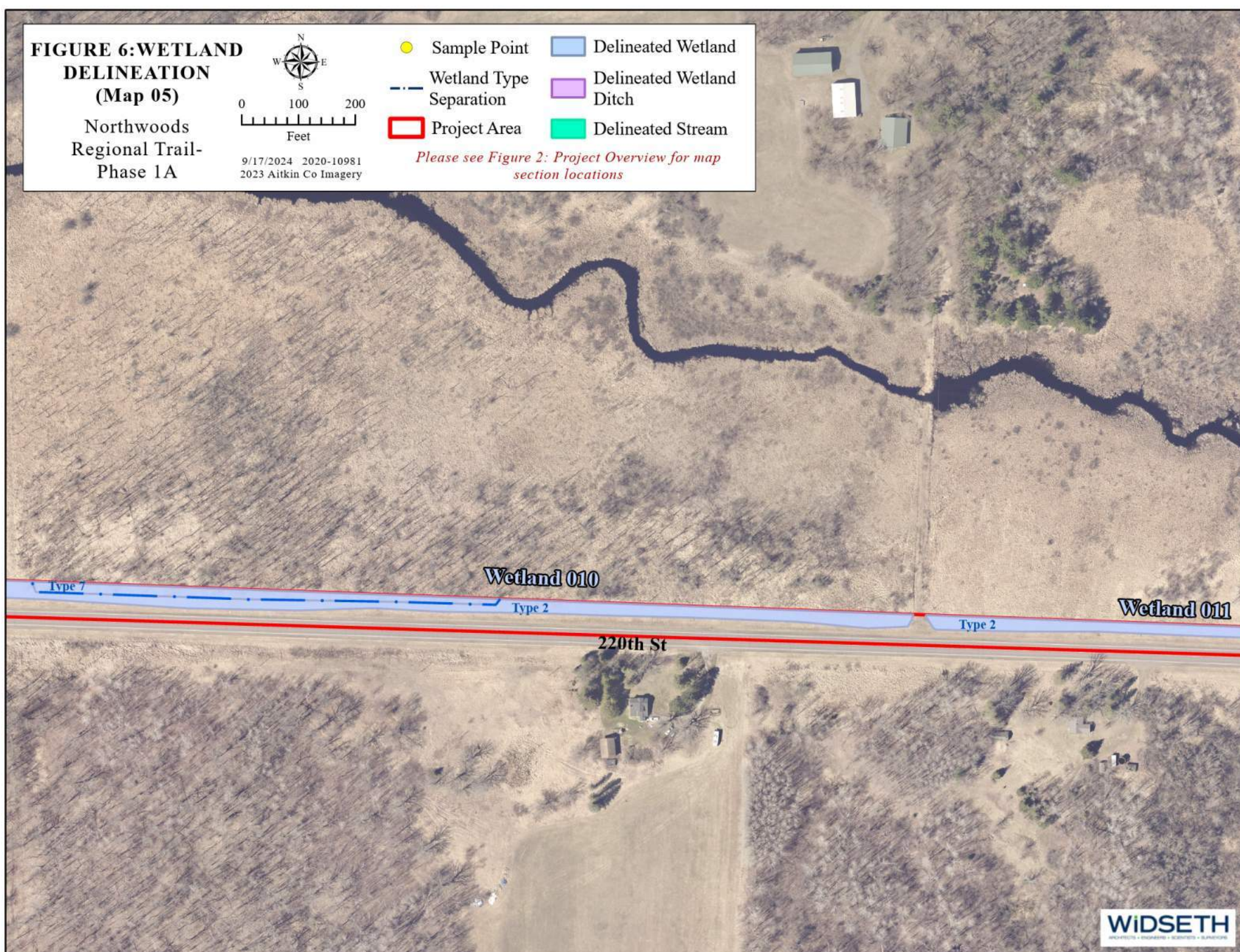
Northwoods
Regional Trail-
Phase 1A



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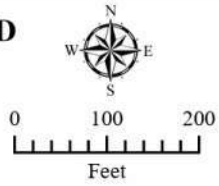
-  Sample Point  Delineated Wetland
 Wetland Type Separation  Delineated Wetland Ditch
 Project Area  Delineated Stream

Please see Figure 2: Project Overview for map section locations



**FIGURE 6: WETLAND
DELINEATION
(Map 06)**

Northwoods
Regional Trail-
Phase 1A



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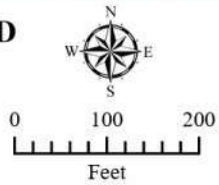
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 07)**

Northwoods
Regional Trail-
Phase 1A



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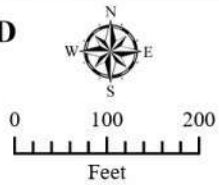
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 08)**

Northwoods
Regional Trail-
Phase 1A



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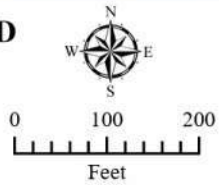
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

Please see Figure 2: Project Overview for map section locations



**FIGURE 6: WETLAND
DELINEATION
(Map 09)**

Northwoods
Regional Trail-
Phase 1A



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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*

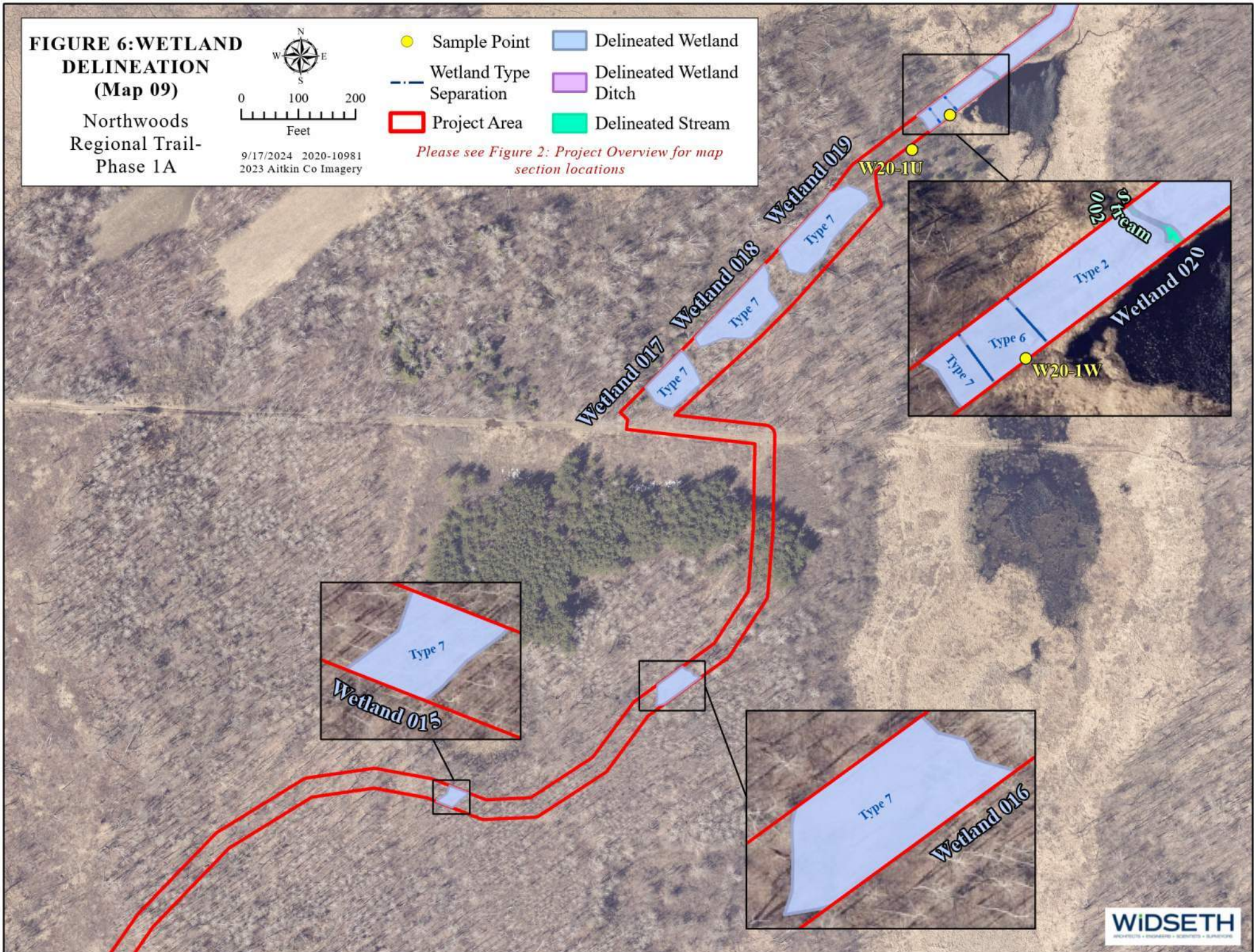
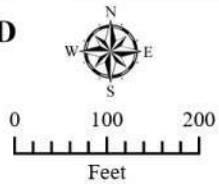


FIGURE 6: WETLAND DELINEATION (Map 10)

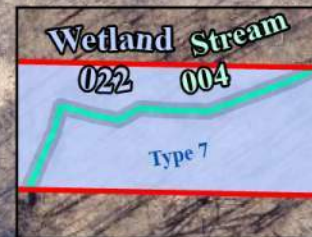
Northwoods
Regional Trail-
Phase 1A



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

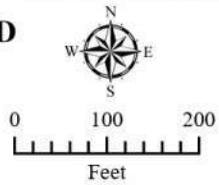
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

Please see Figure 2: Project Overview for map section locations



**FIGURE 6:WETLAND
DELINEATION
(Map 11)**

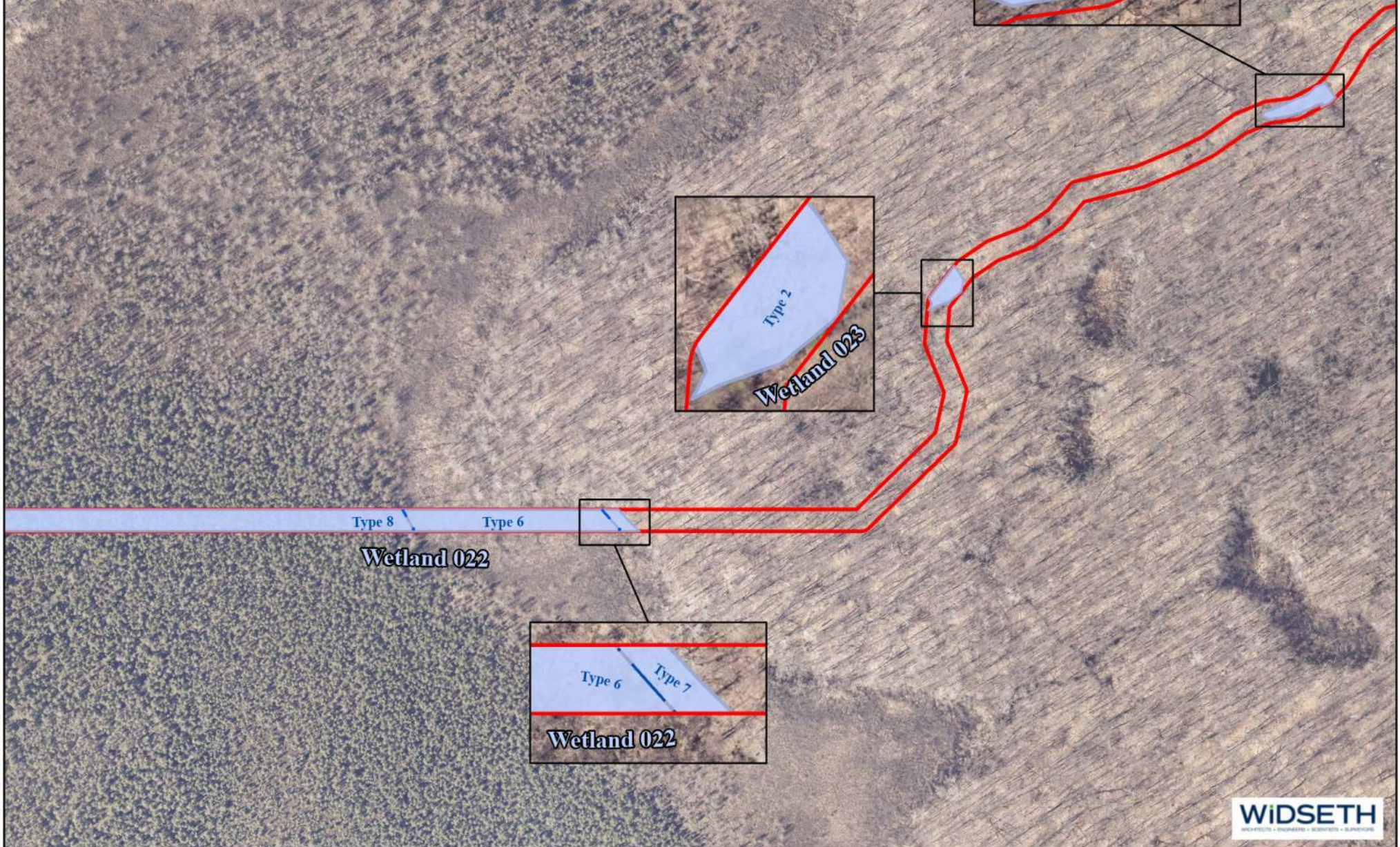
Northwoods
Regional Trail-
Phase 1A



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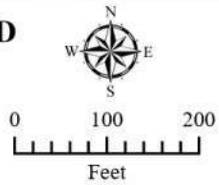
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 12)**

Northwoods
Regional Trail-
Phase 1A



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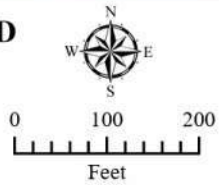
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 13)**

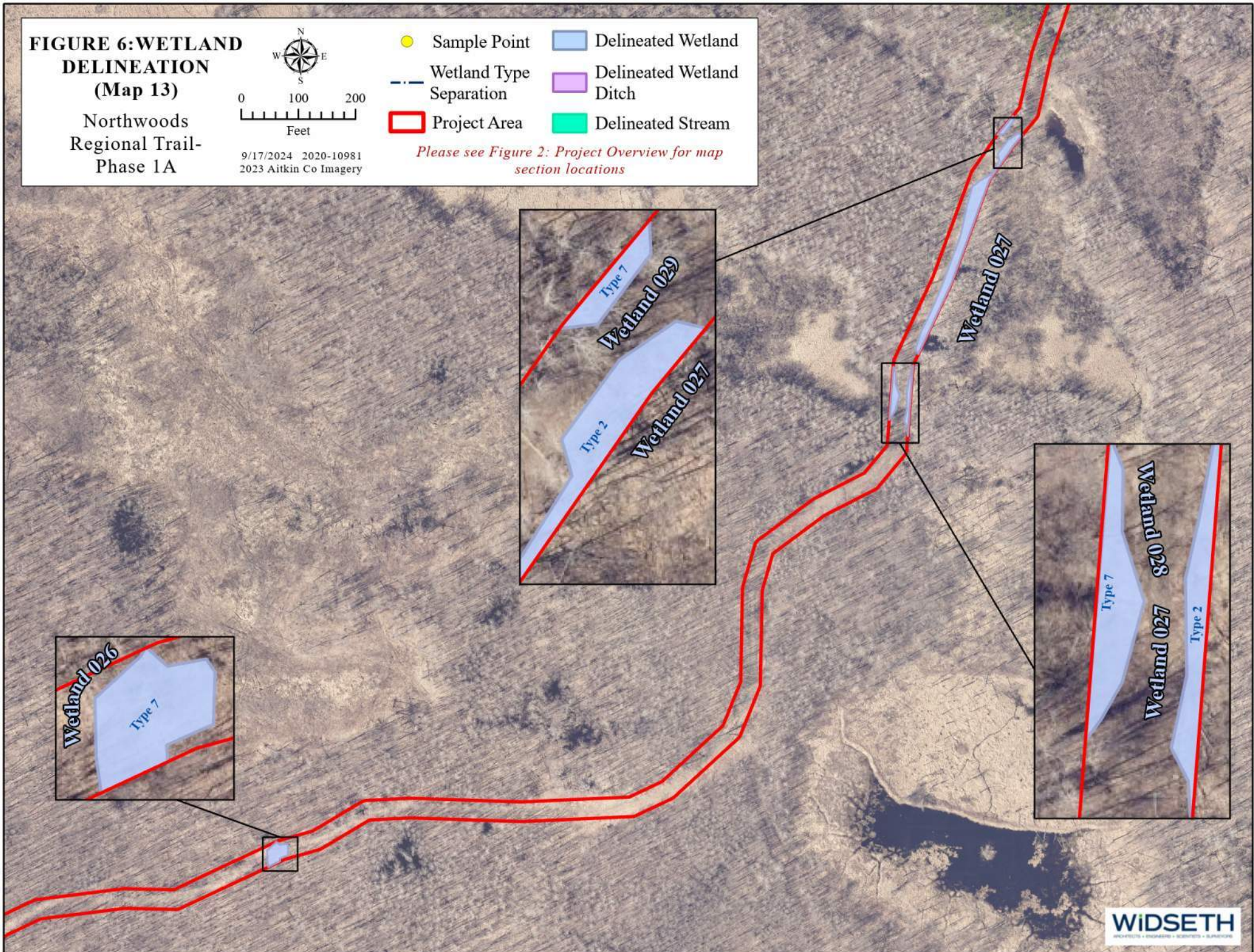
Northwoods
Regional Trail-
Phase 1A



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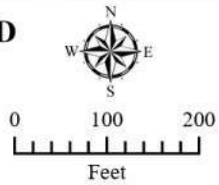
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6:WETLAND
DELINEATION
(Map 14)**

Northwoods
Regional Trail-
Phase 1A



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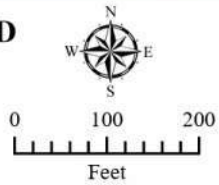
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*

240th Ln

**FIGURE 6: WETLAND
DELINEATION
(Map 15)**

Northwoods
Regional Trail-
Phase 1A



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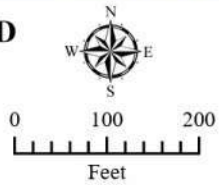
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*

240th Ln

**FIGURE 6:WETLAND
DELINEATION
(Map 16)**

Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

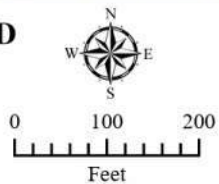
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*

240th Ln

**FIGURE 6:WETLAND
DELINEATION
(Map 17)**

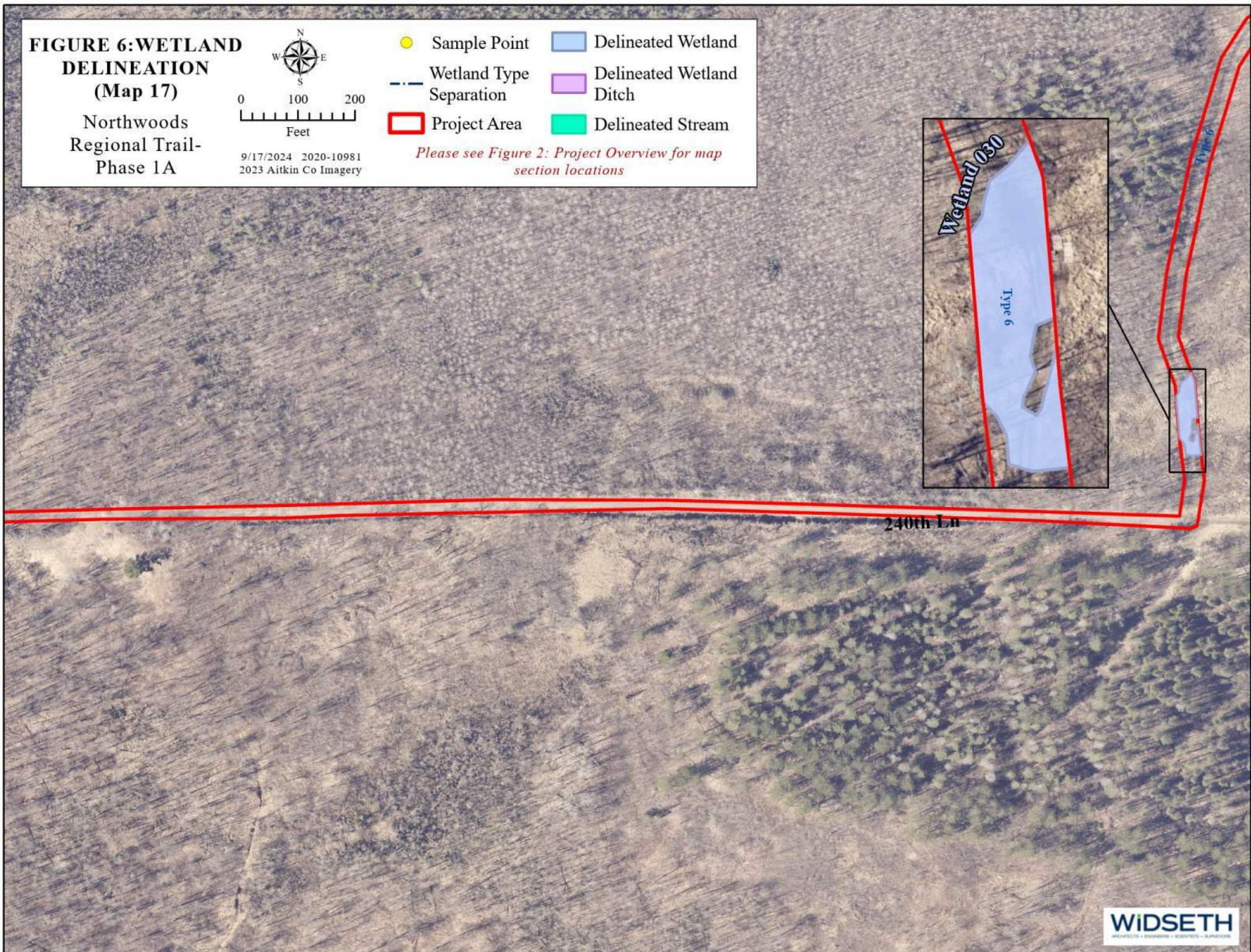
Northwoods
Regional Trail-
Phase 1A



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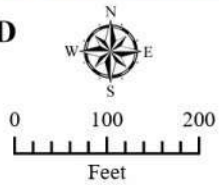
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 18)**

Northwoods
Regional Trail-
Phase 1A



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

*Please see Figure 2: Project Overview for map
section locations*

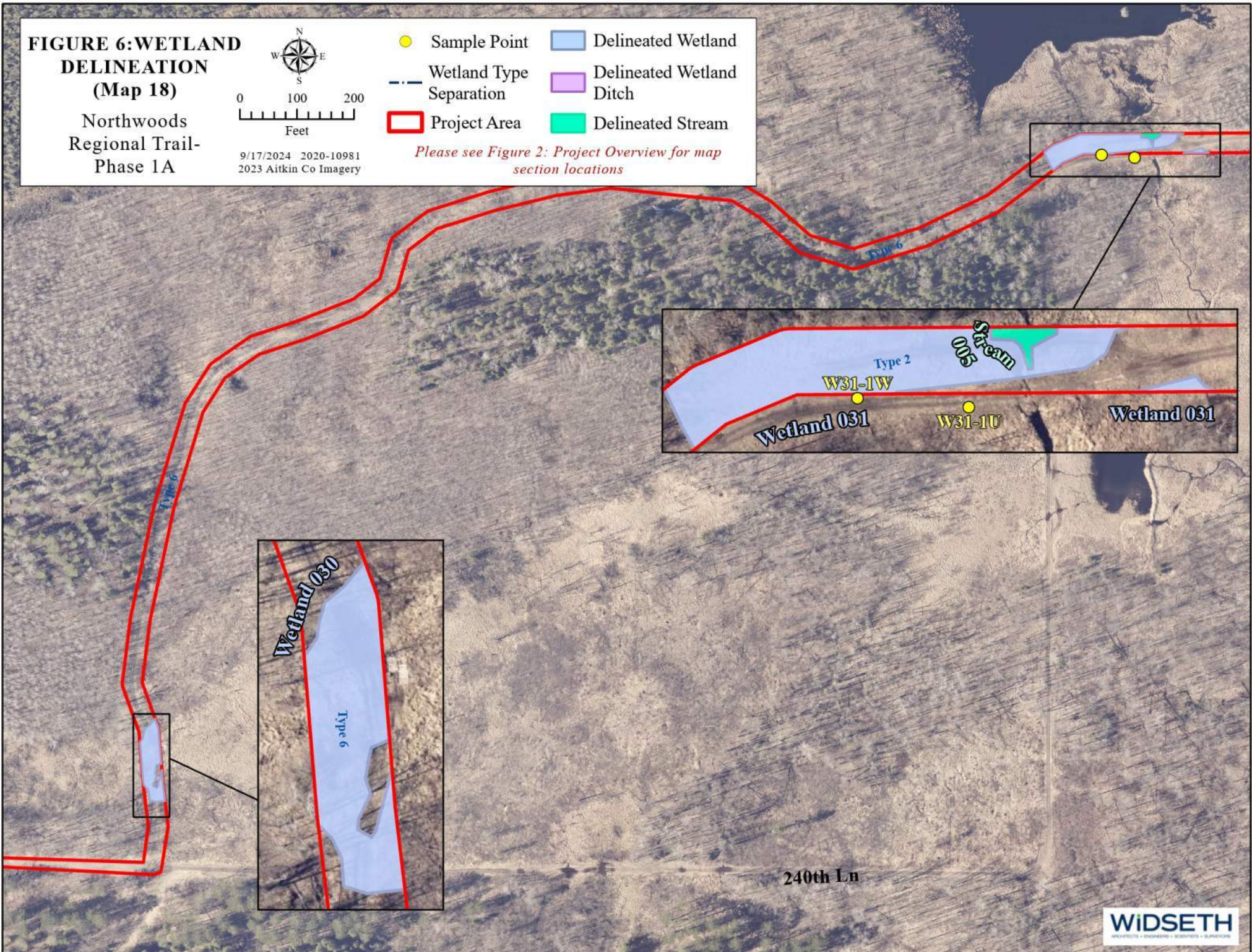
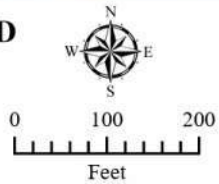


FIGURE 6: WETLAND DELINEATION (Map 19)

Northwoods
Regional Trail-
Phase 1A



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

Please see Figure 2: Project Overview for map section locations

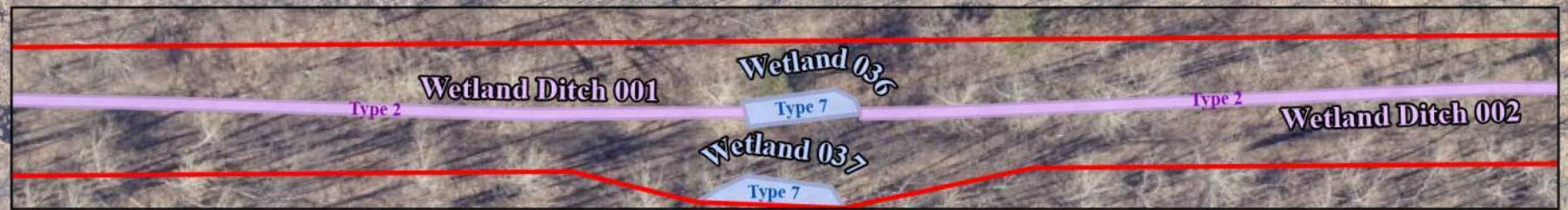
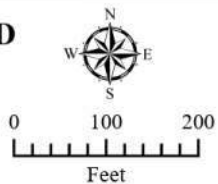


FIGURE 6: WETLAND DELINEATION (Map 20)

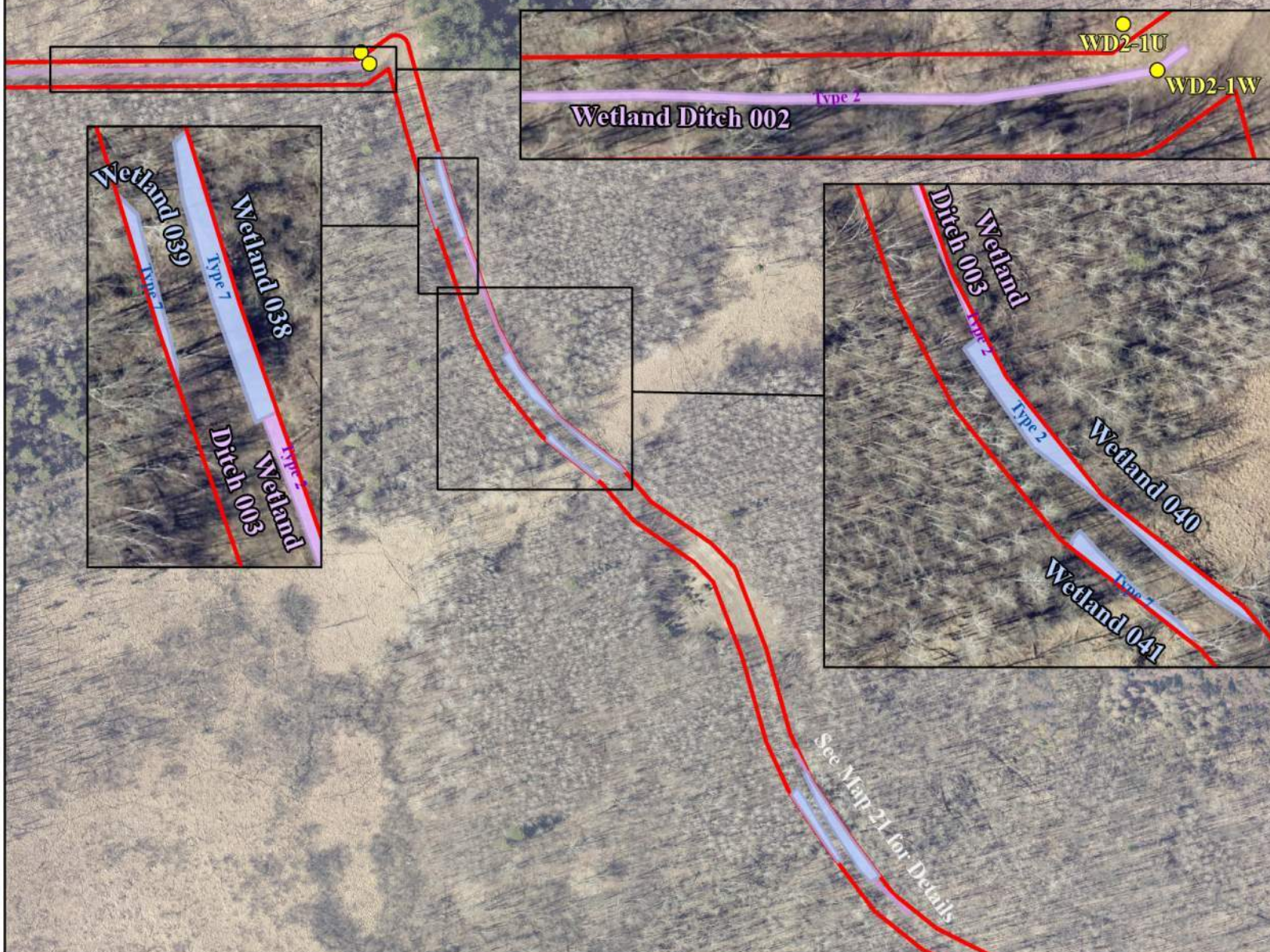
Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

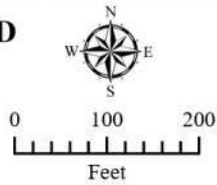
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 21)**

Northwoods
Regional Trail-
Phase 1A

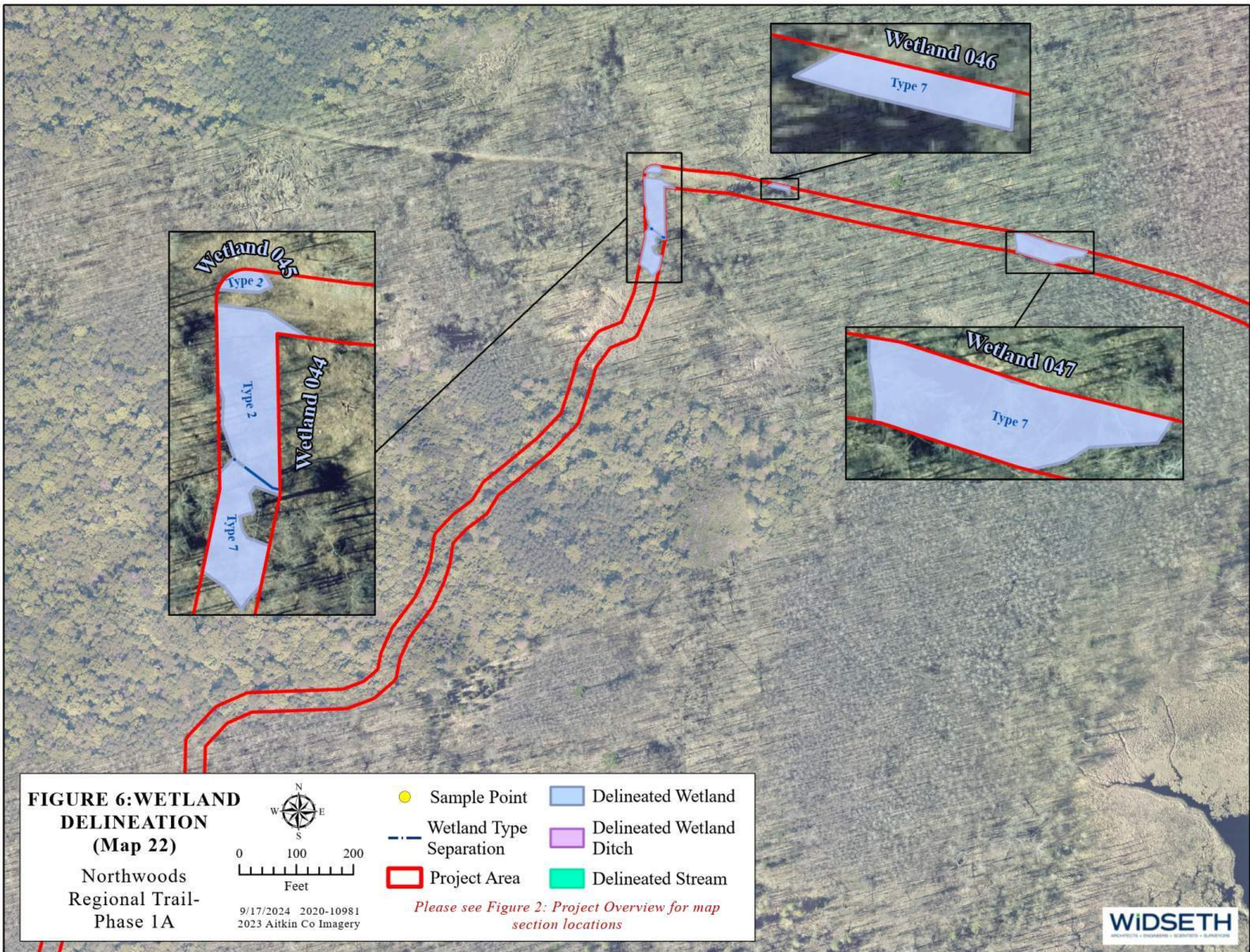


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- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

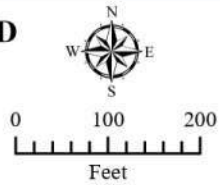
*Please see Figure 2: Project Overview for map
section locations*





**FIGURE 6: WETLAND
DELINEATION
(Map 23)**

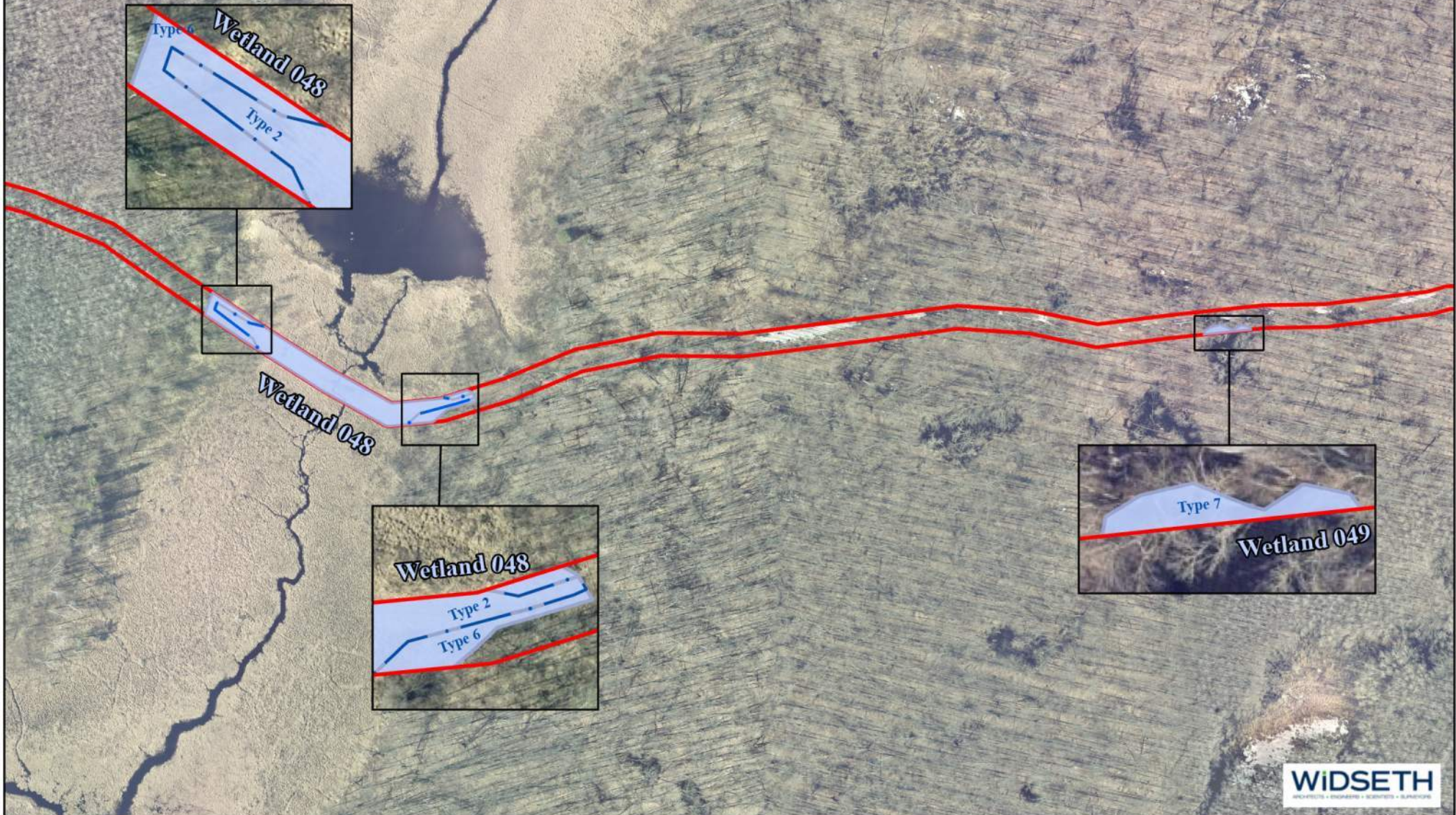
Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

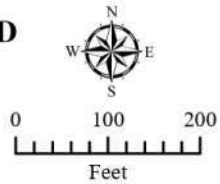
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 24)**

Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

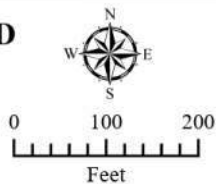
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

*Please see Figure 2: Project Overview for map
section locations*



FIGURE 6: WETLAND DELINEATION (Map 25)

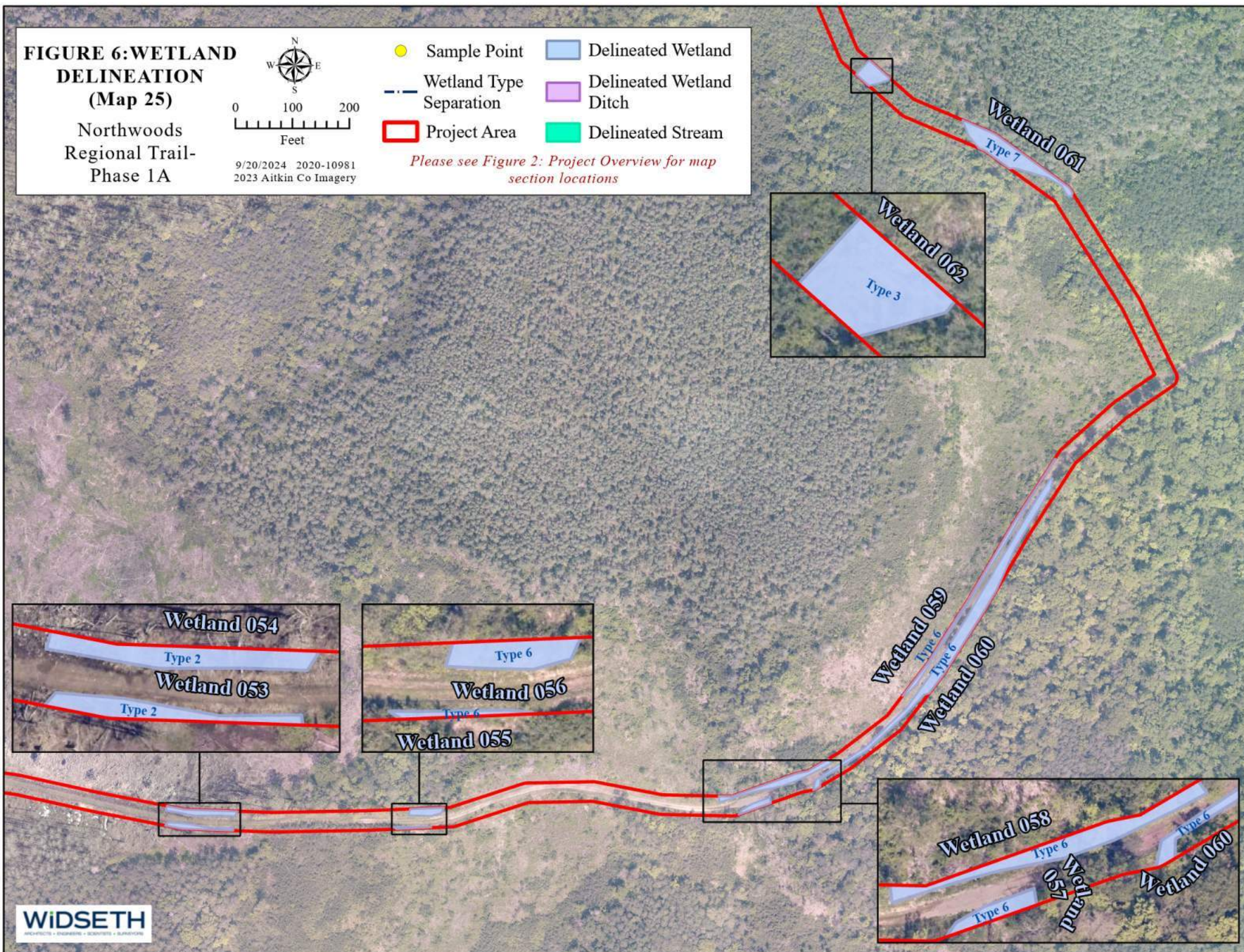
Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

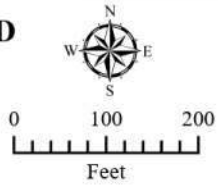
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

Please see Figure 2: Project Overview for map section locations



**FIGURE 6: WETLAND
DELINEATION
(Map 26)**

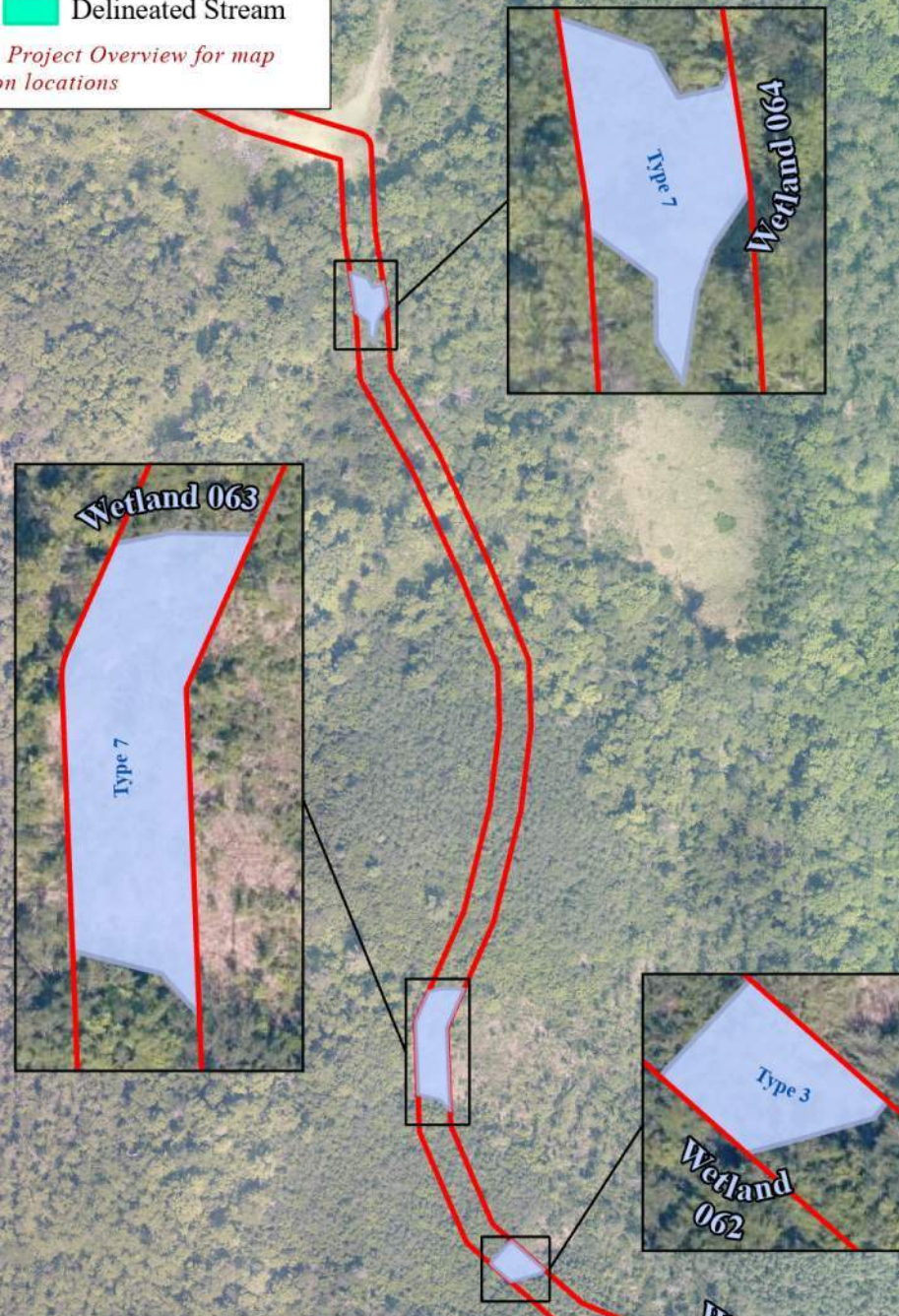
Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

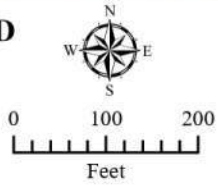
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 27)**

Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

*Please see Figure 2: Project Overview for map
section locations*

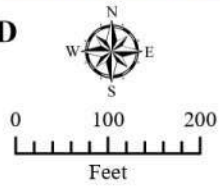
230th PI

SP-01



**FIGURE 6: WETLAND
DELINEATION
(Map 28)**

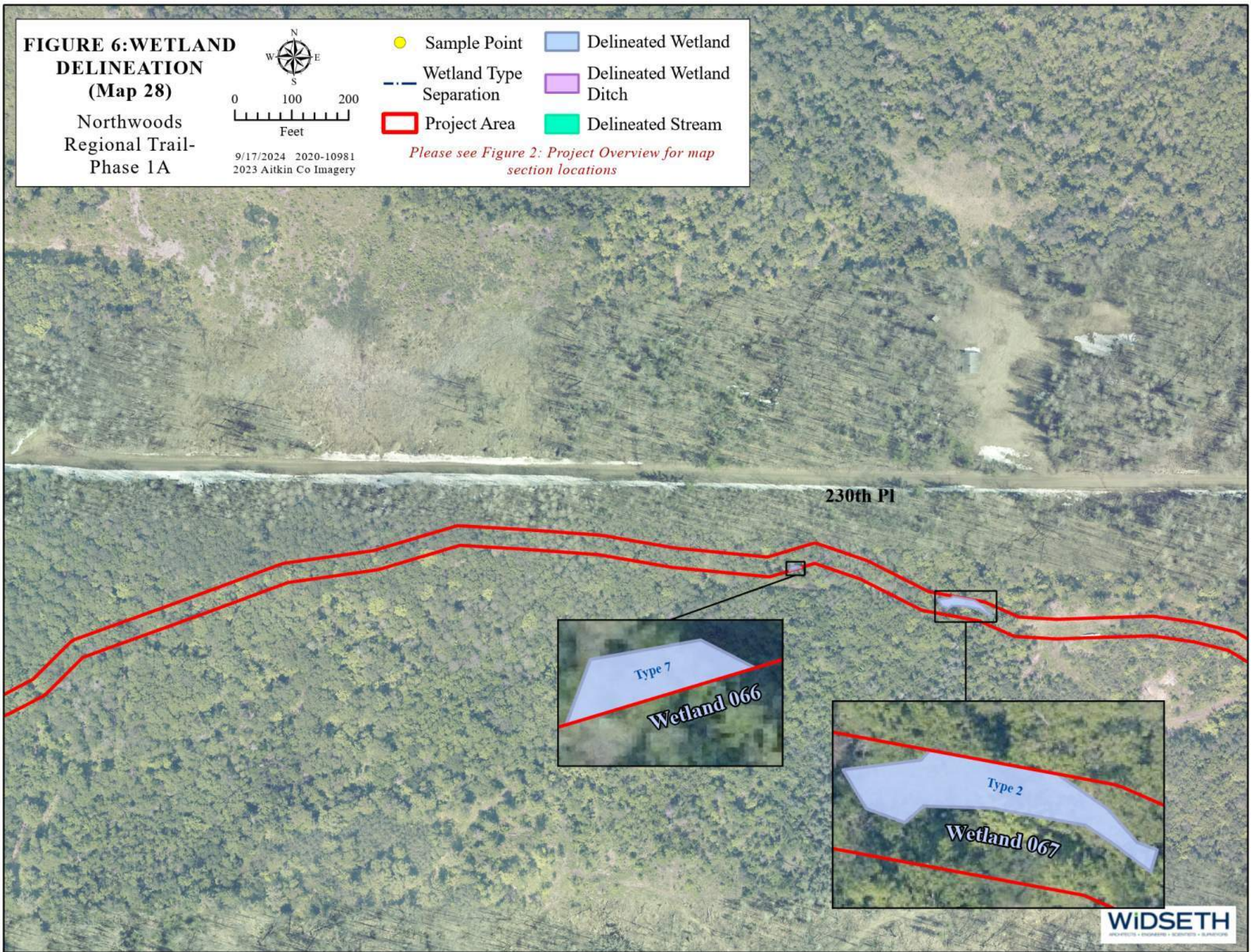
Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

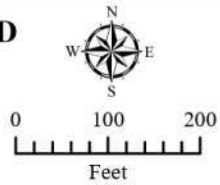
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

Please see Figure 2: Project Overview for map section locations



**FIGURE 6: WETLAND
DELINEATION
(Map 29)**

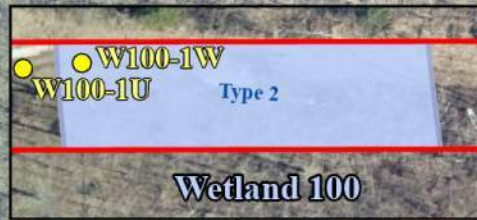
Northwoods
Regional Trail-
Phase 1A



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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 100

230th Pl

Type 2

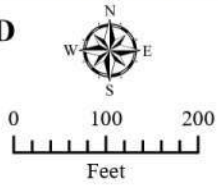
Type 7

Type 2

Wetland 101

**FIGURE 6: WETLAND
DELINEATION
(Map 30)**

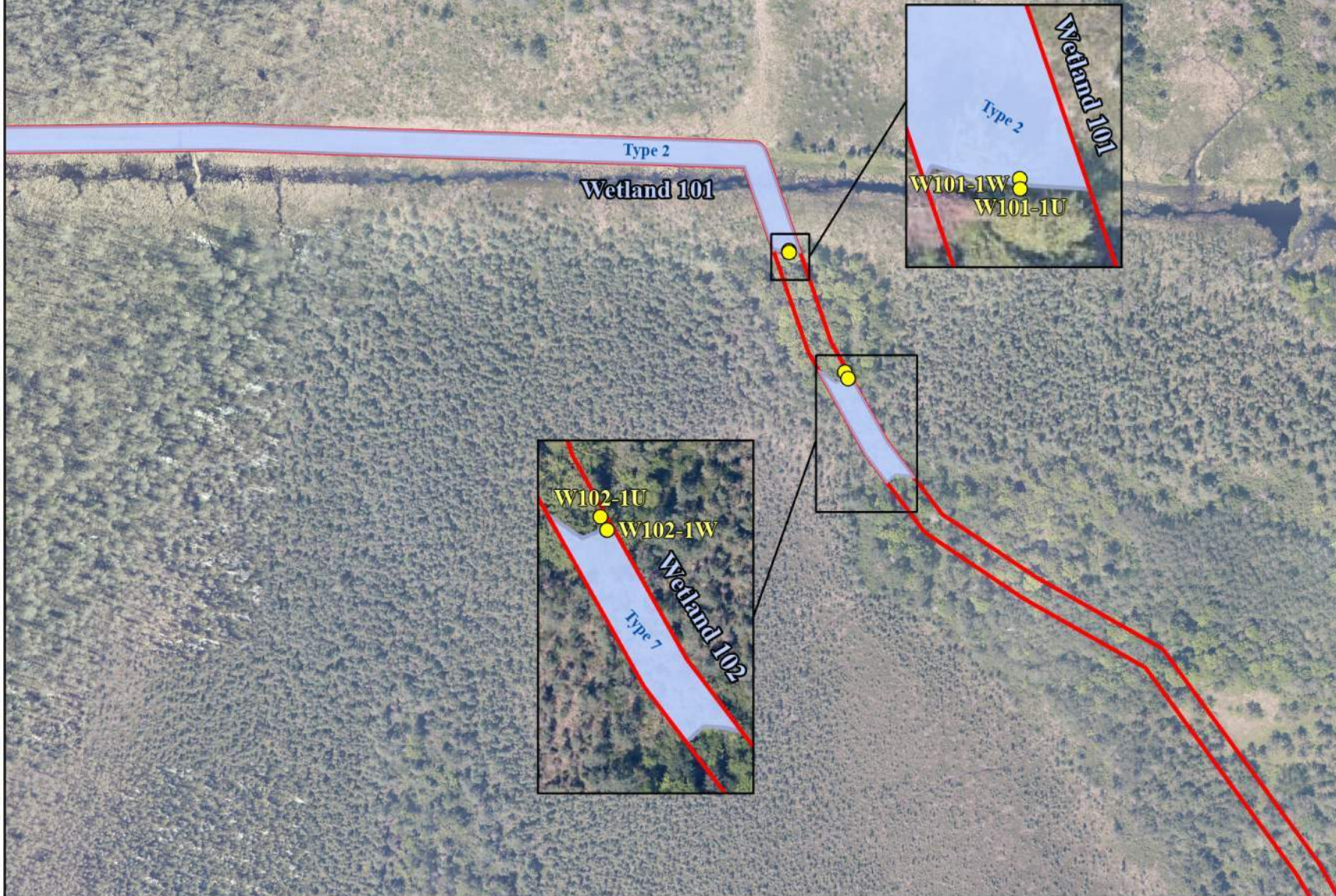
Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

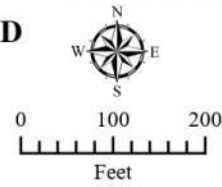
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 31)**

Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

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

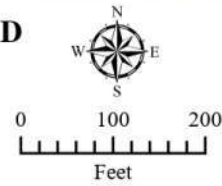
*Please see Figure 2: Project Overview for map
section locations*

SP-02

230th Ln

**FIGURE 6: WETLAND
DELINEATION
(Map 32)**

Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

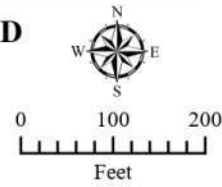
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

Please see Figure 2: Project Overview for map section locations

250th Ln

**FIGURE 6: WETLAND
DELINEATION
(Map 33)**

Northwoods
Regional Trail-
Phase 1A



9/19/2024 2020-10981
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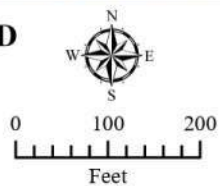
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

Please see Figure 2: Project Overview for map section locations

Solana State Forest

**FIGURE 6: WETLAND
DELINEATION
(Map 34)**

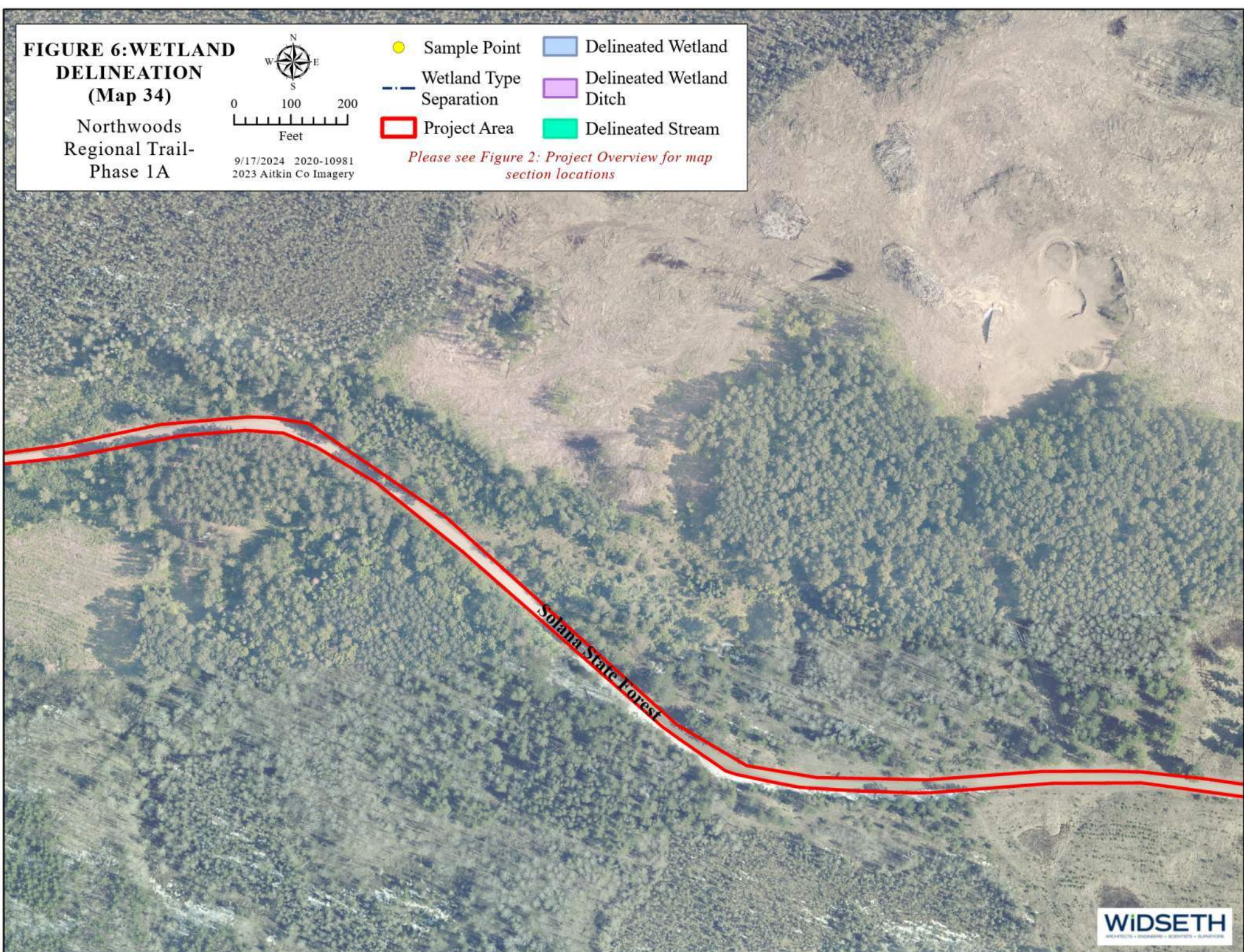
Northwoods
Regional Trail-
Phase 1A



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

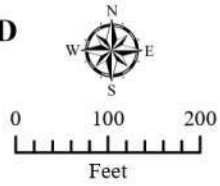
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 35)**

Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

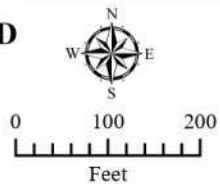
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 36)**

Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

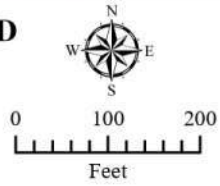
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

Please see Figure 2: Project Overview for map section locations

Solana State Forest

**FIGURE 6: WETLAND
DELINEATION
(Map 37)**

Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

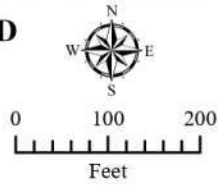
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

*Please see Figure 2: Project Overview for map
section locations*

Solana State Forest

**FIGURE 6: WETLAND
DELINEATION
(Map 38)**

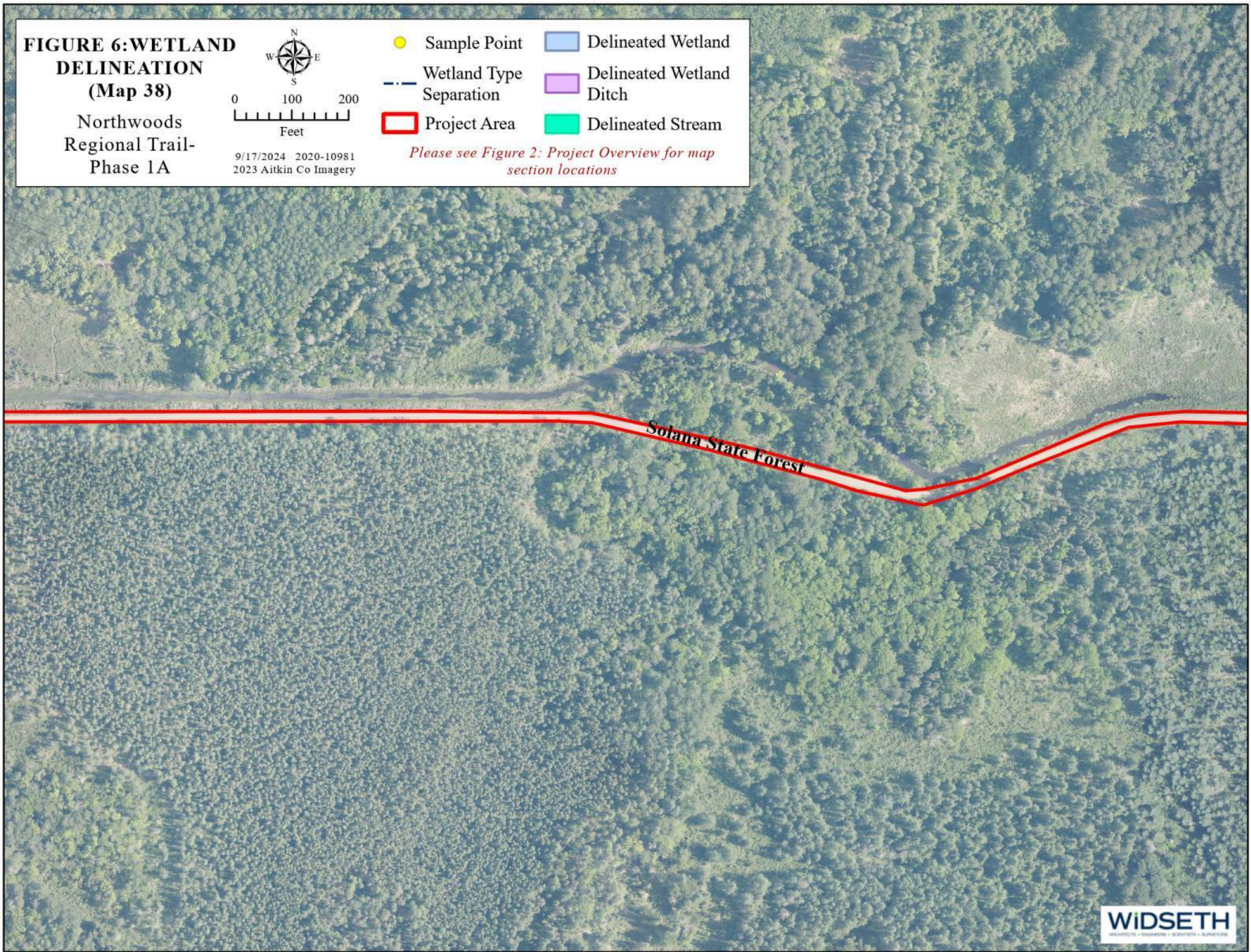
Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

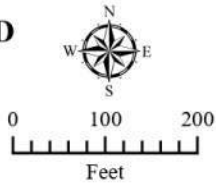
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 40)**

Northwoods
Regional Trail-
Phase 1A



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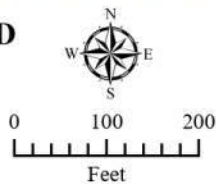
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*

State Highway 65

FIGURE 6: WETLAND DELINEATION (Map 41)

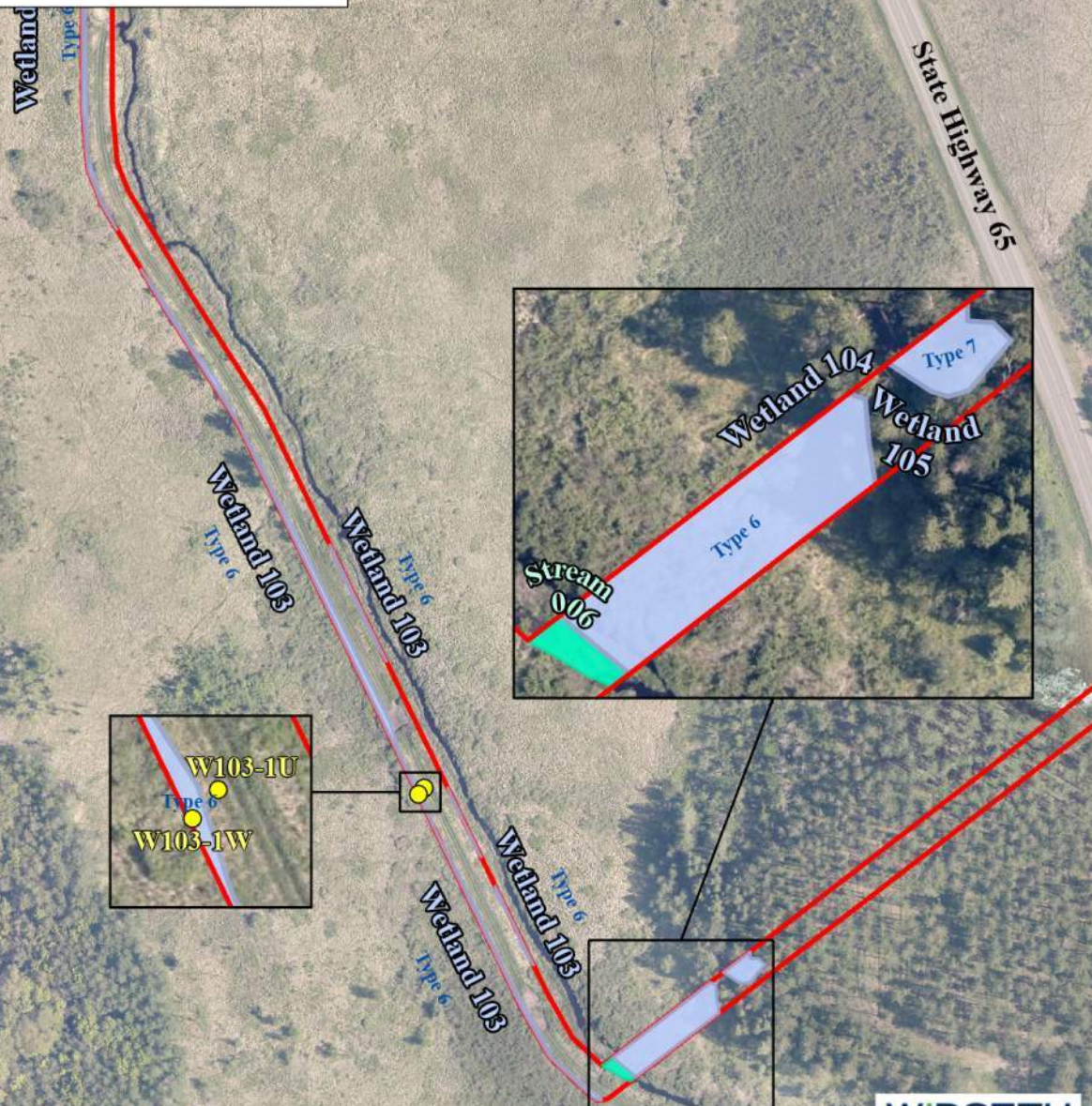
Northwoods
Regional Trail-
Phase 1A



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

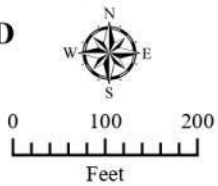
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

Please see Figure 2: Project Overview for map section locations



**FIGURE 6: WETLAND
DELINEATION
(Map 42)**

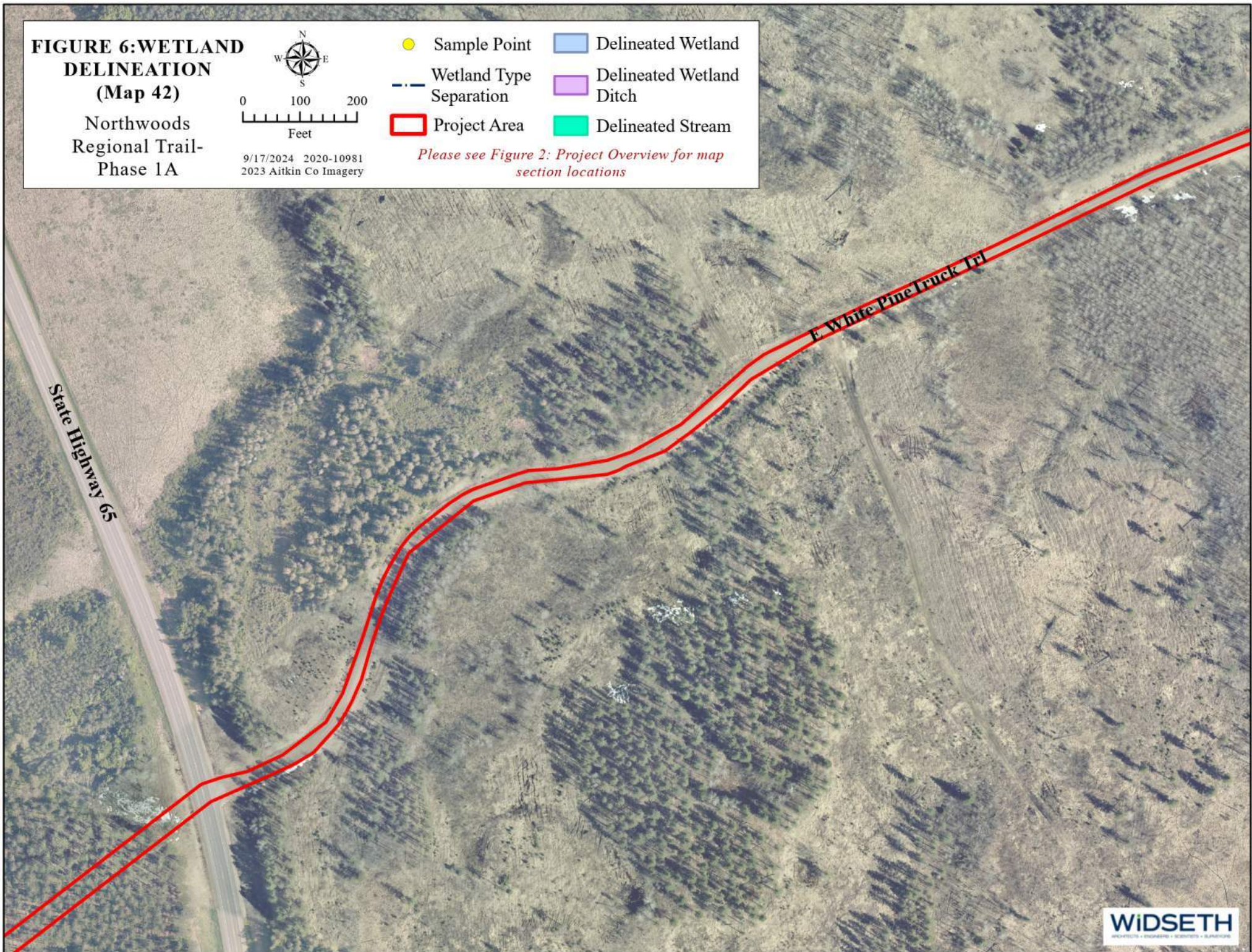
Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

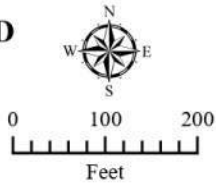
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 43)**

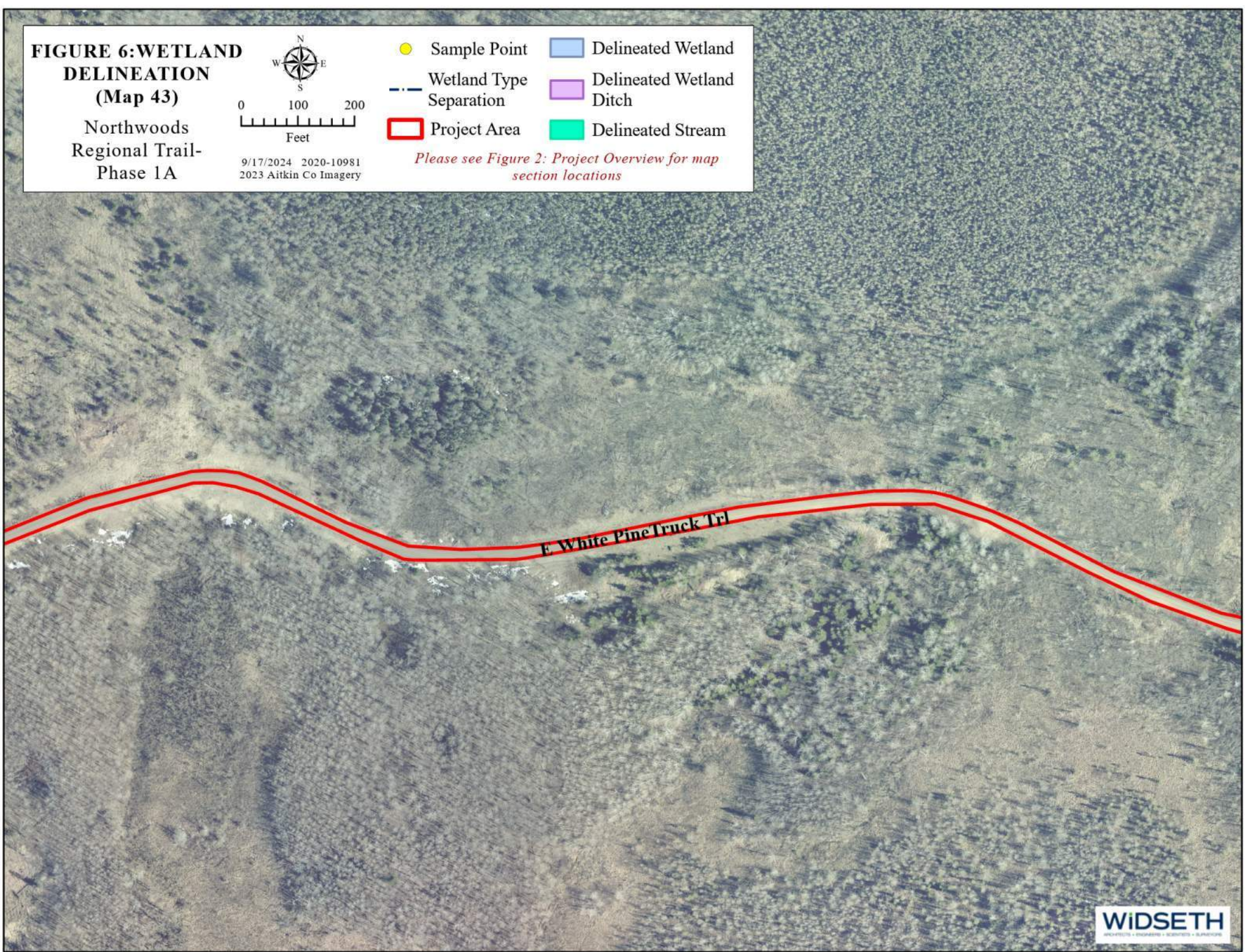
Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

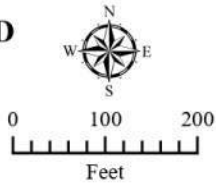
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 44)**

Northwoods
Regional Trail-
Phase 1A



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

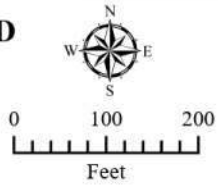
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*

E White Pine Truck Trl

**FIGURE 6: WETLAND
DELINEATION
(Map 45)**

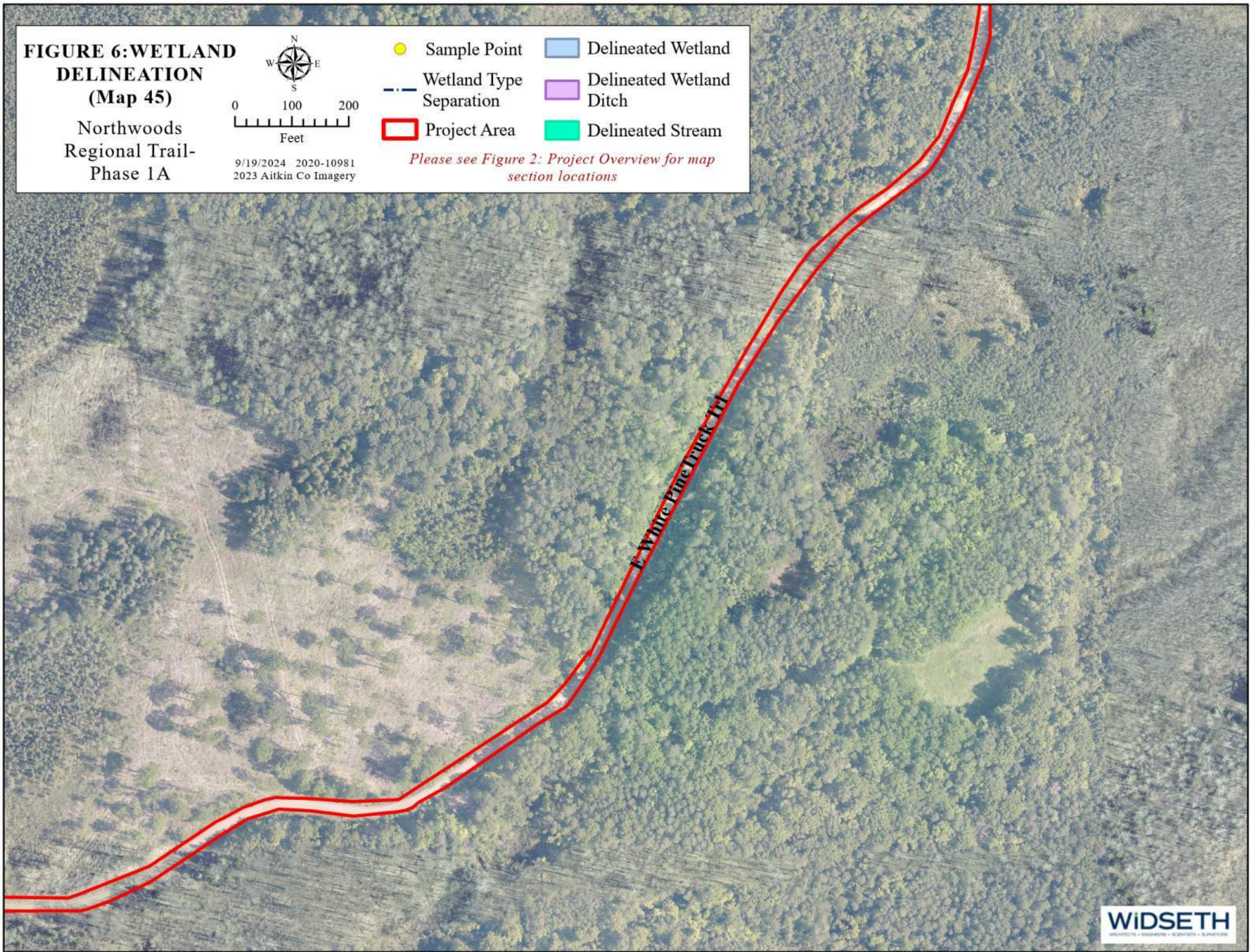
Northwoods
Regional Trail-
Phase 1A



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

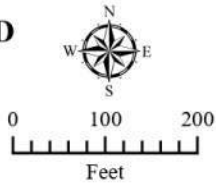
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 46)**

Northwoods
Regional Trail-
Phase 1A



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2023 Aitkin Co Imagery

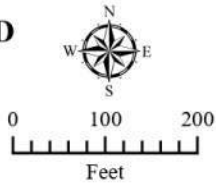
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*

E White Pine Truck Trl

**FIGURE 6: WETLAND
DELINEATION
(Map 47)**

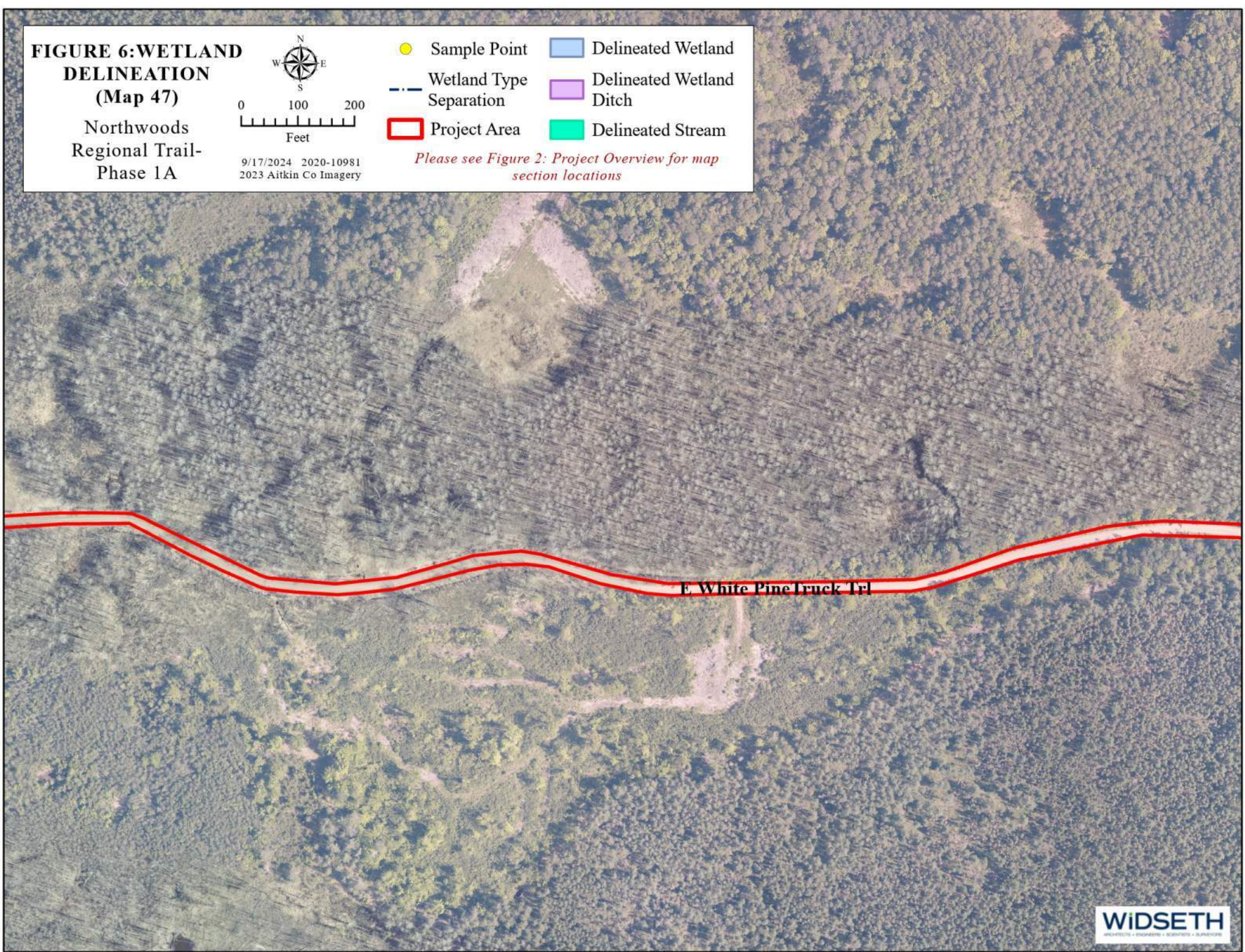
Northwoods
Regional Trail-
Phase 1A



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

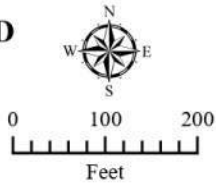
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 48)**

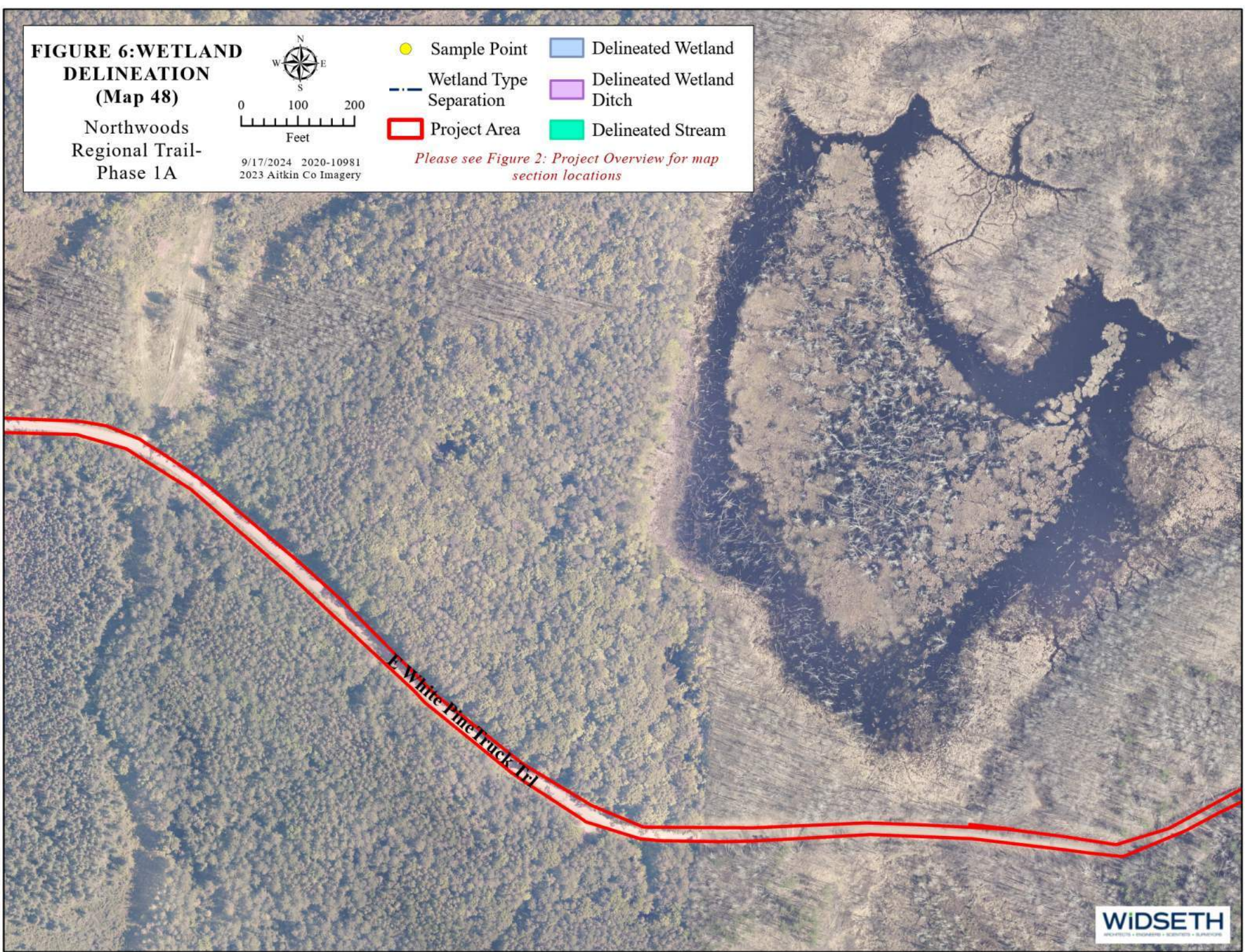
Northwoods
Regional Trail-
Phase 1A



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

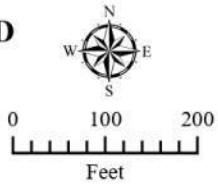
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 49)**

Northwoods
Regional Trail-
Phase 1A



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

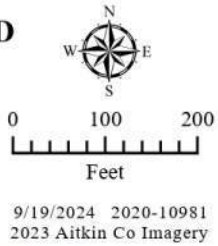
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



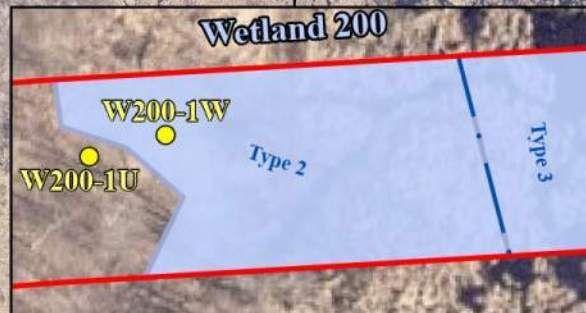
**FIGURE 6: WETLAND
DELINEATION
(Map 50)**

Northwoods
Regional Trail-
Phase 1A



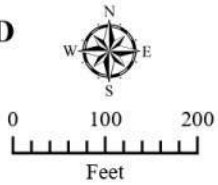
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

Please see Figure 2: Project Overview for map section locations



**FIGURE 6: WETLAND
DELINEATION
(Map 51)**

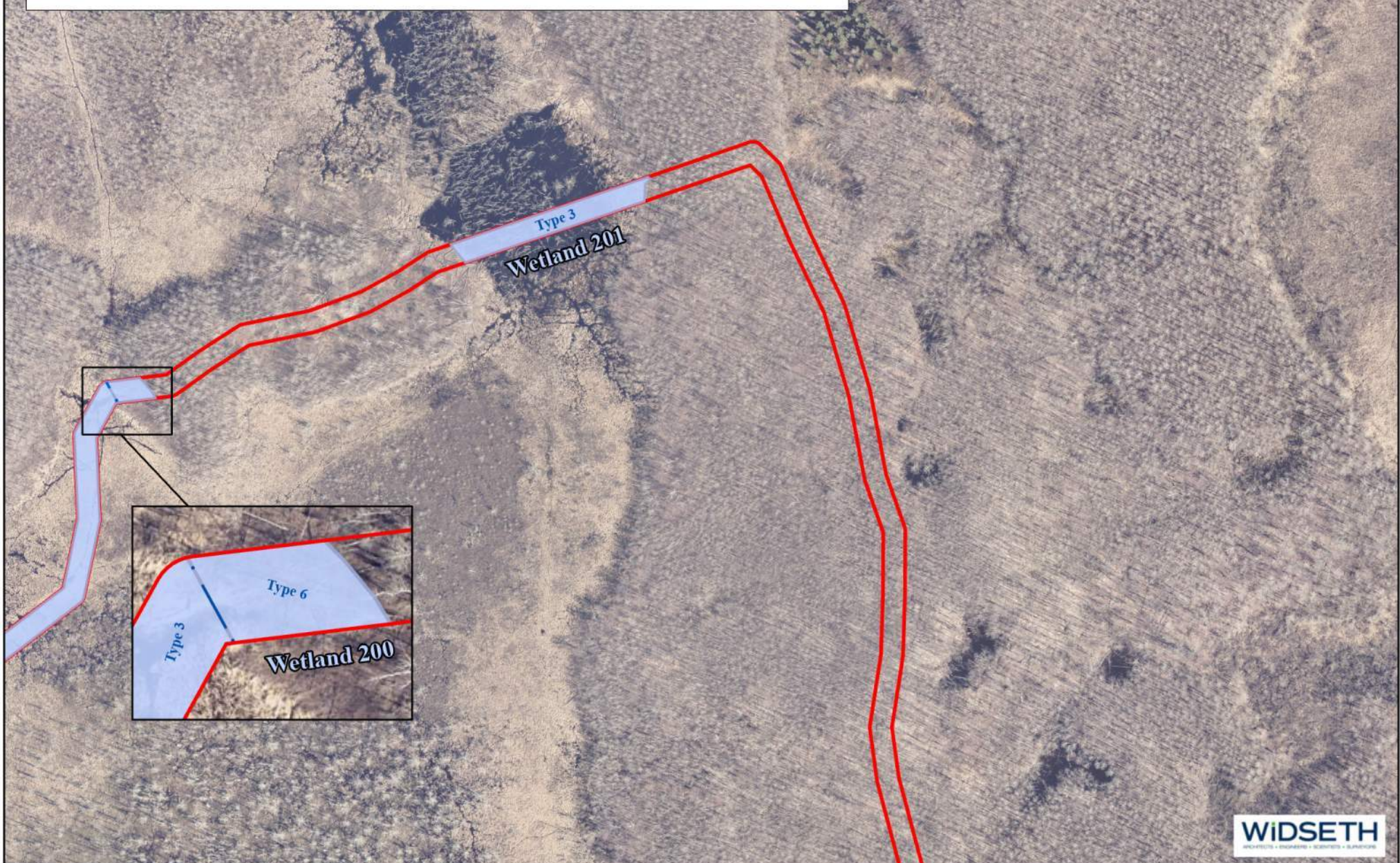
Northwoods
Regional Trail-
Phase 1A



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

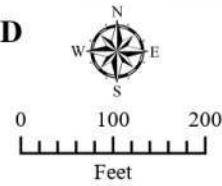
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 52)**

Northwoods
Regional Trail-
Phase 1A



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

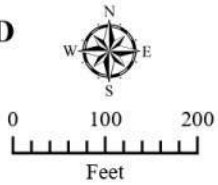
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 53)**

Northwoods
Regional Trail-
Phase 1A



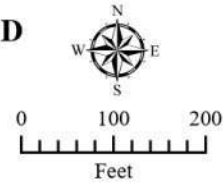
9/19/2024 2020-10981
2023 Aitkin Co Imagery

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

*Please see Figure 2: Project Overview for map
section locations*

**FIGURE 6: WETLAND
DELINEATION
(Map 54)**

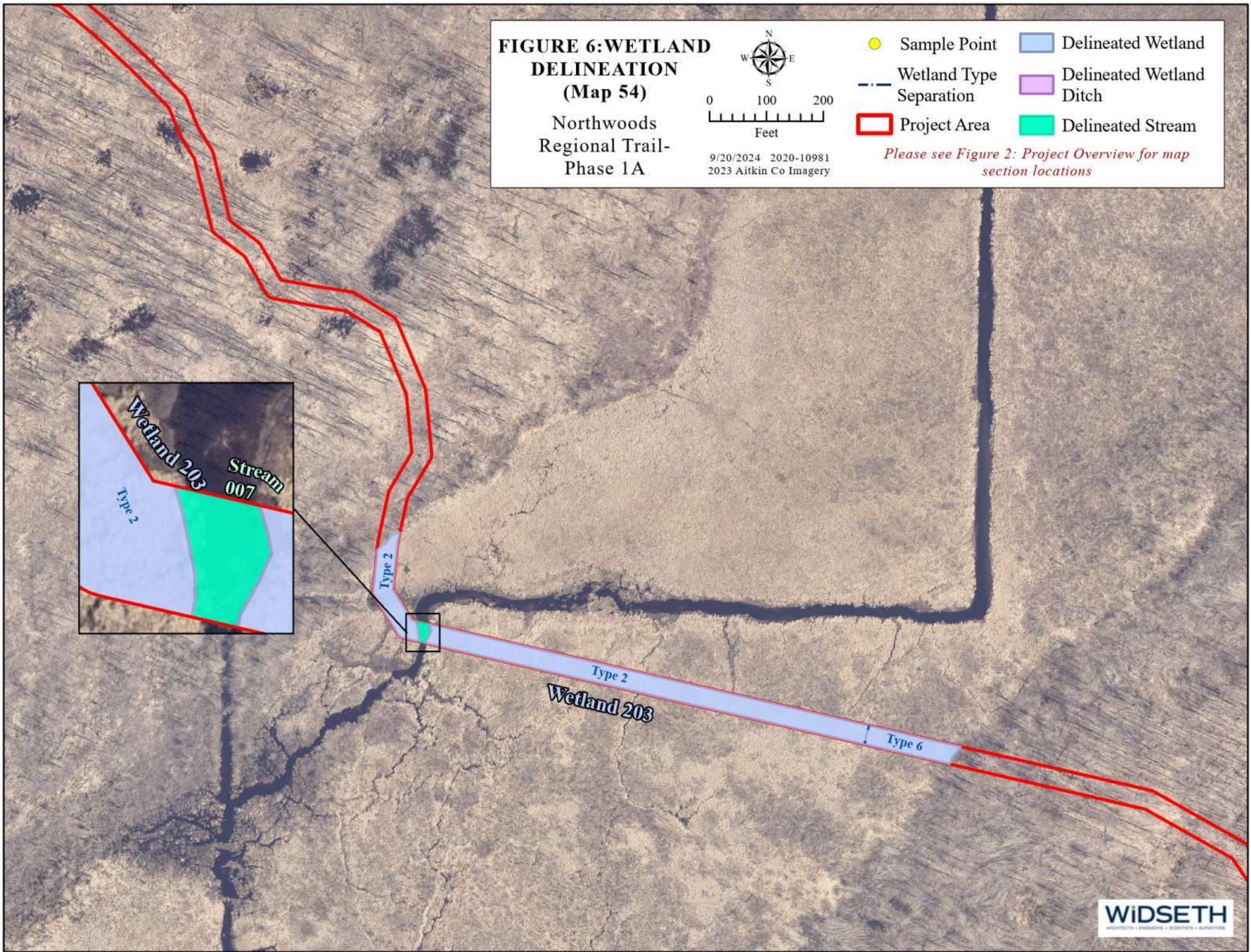
Northwoods
Regional Trail-
Phase 1A



9/20/2024 2020-10981
2023 Aitkin Co Imagery

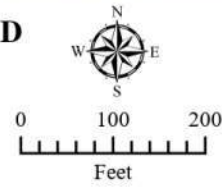
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 55)**

Northwoods
Regional Trail-
Phase 1A



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

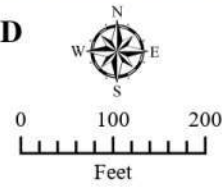
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

Please see Figure 2: Project Overview for map section locations



**FIGURE 6: WETLAND
DELINEATION
(Map 56)**

Northwoods
Regional Trail-
Phase 1A



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

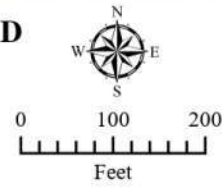
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

*Please see Figure 2: Project Overview for map
section locations*

Type 7
Wetland 205

**FIGURE 6: WETLAND
DELINEATION
(Map 57)**

Northwoods
Regional Trail-
Phase 1A



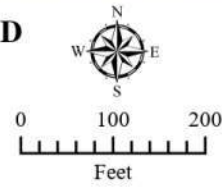
9/19/2024 2020-10981
2023 Aitkin Co Imagery

- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

Please see Figure 2: Project Overview for map section locations

**FIGURE 6: WETLAND
DELINEATION
(Map 58)**

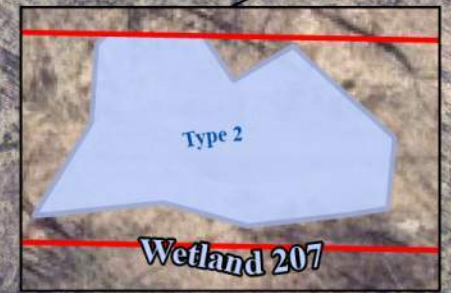
Northwoods
Regional Trail-
Phase 1A



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

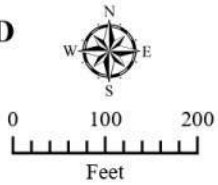
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

Please see Figure 2: Project Overview for map section locations



**FIGURE 6: WETLAND
DELINEATION
(Map 59)**

Northwoods
Regional Trail-
Phase 1A



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

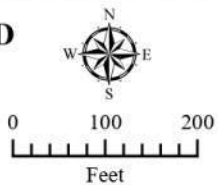
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 61)**

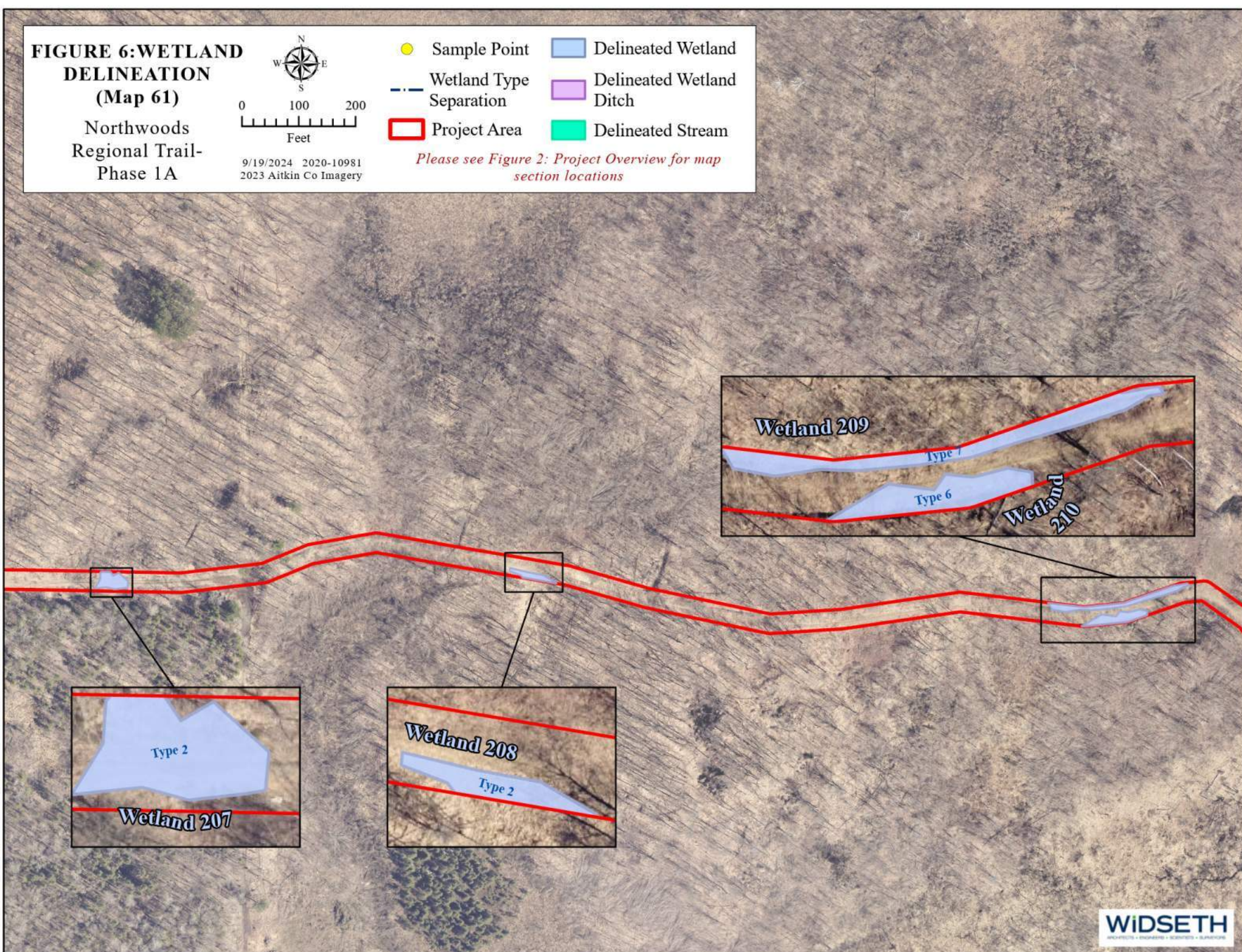
Northwoods
Regional Trail-
Phase 1A



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

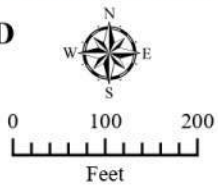
- Sample Point
- Wetland Type Separation
- Project Area
- Delineated Wetland
- Delineated Wetland Ditch
- Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 62)**

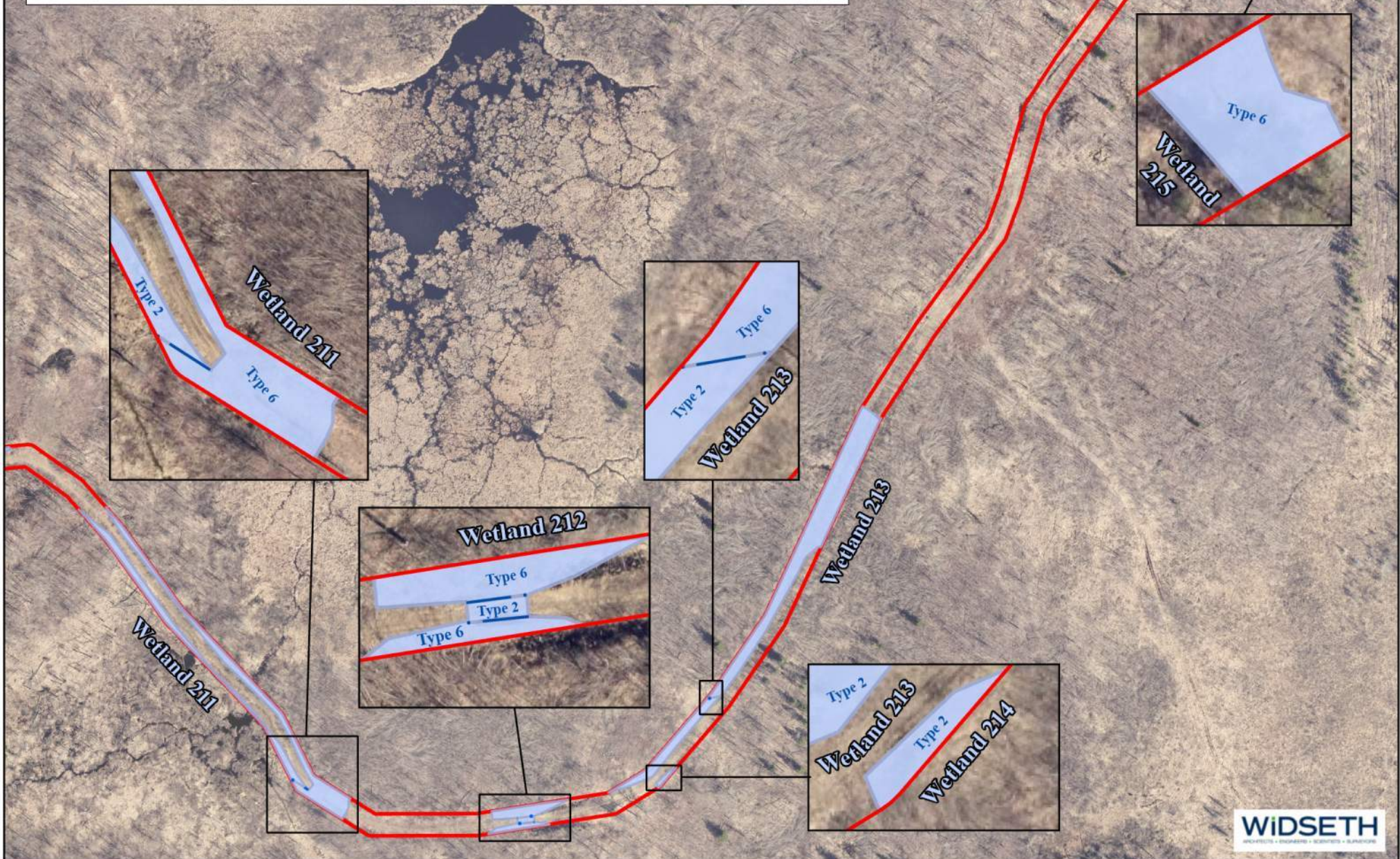
Northwoods
Regional Trail-
Phase 1A



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

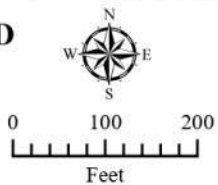
- Sample Point
- Wetland Type Separation
- ▭ Project Area
- ▭ Delineated Wetland
- ▭ Delineated Wetland Ditch
- ▭ Delineated Stream

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 63)**

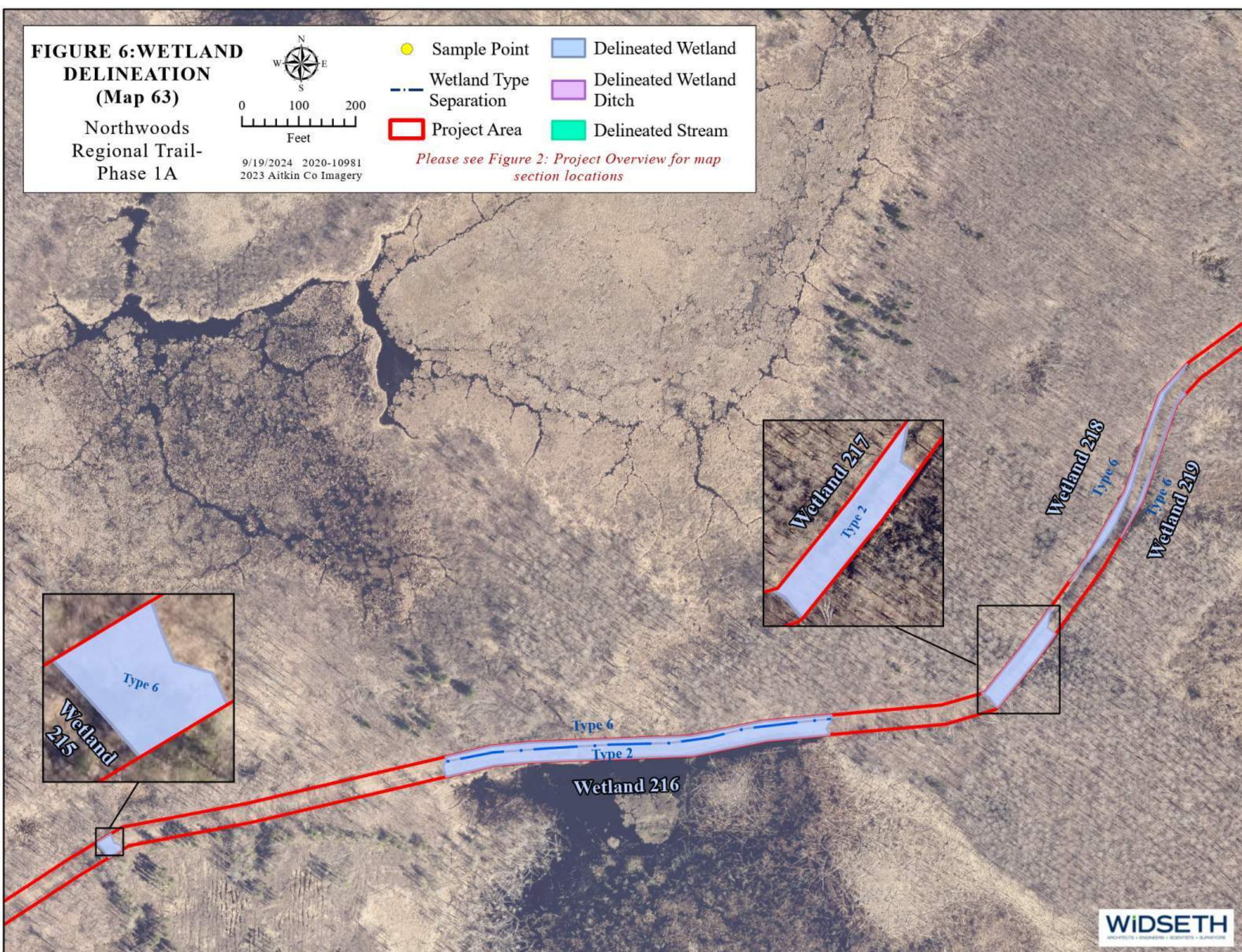
Northwoods
Regional Trail-
Phase 1A

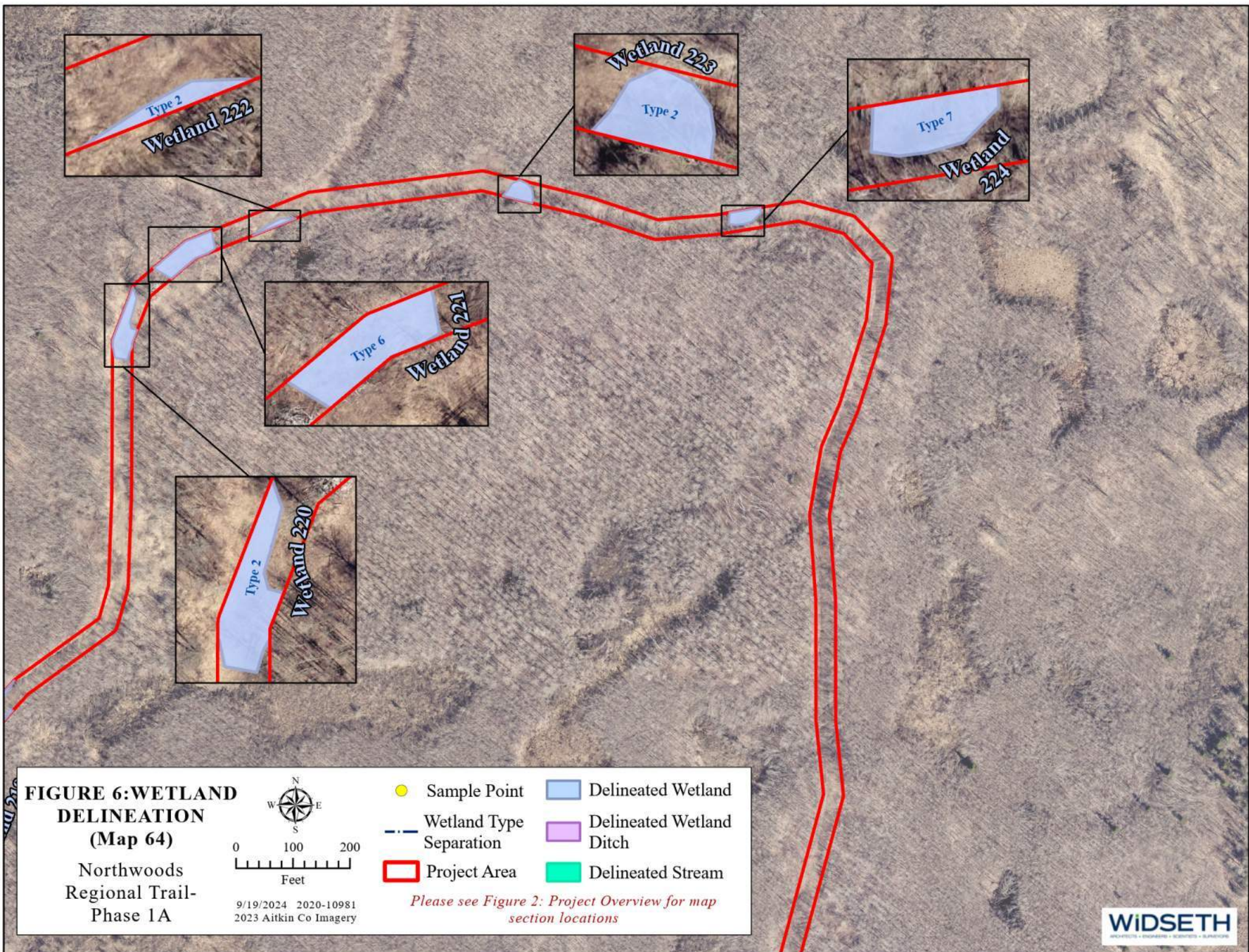


9/19/2024 2020-10981
2023 Aitkin Co Imagery

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

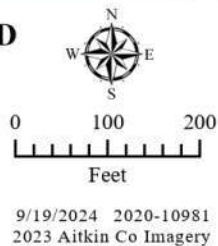
*Please see Figure 2: Project Overview for map
section locations*





**FIGURE 6: WETLAND
DELINEATION
(Map 64)**

Northwoods
Regional Trail-
Phase 1A

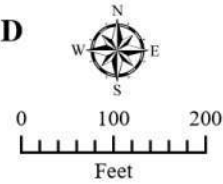


- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

*Please see Figure 2: Project Overview for map
section locations*

**FIGURE 6: WETLAND
DELINEATION
(Map 65)**

Northwoods
Regional Trail-
Phase 1A



9/20/2024 2020-10981
2023 Aitkin Co Imagery

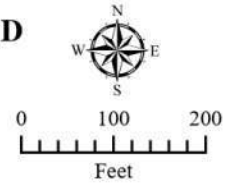
- | | |
|-----------------------------|----------------------------|
| ● Sample Point | ■ Delineated Wetland |
| --- Wetland Type Separation | ■ Delineated Wetland Ditch |
| □ Project Area | ■ Delineated Stream |

*Please see Figure 2: Project Overview for map
section locations*



**FIGURE 6: WETLAND
DELINEATION
(Map 66)**

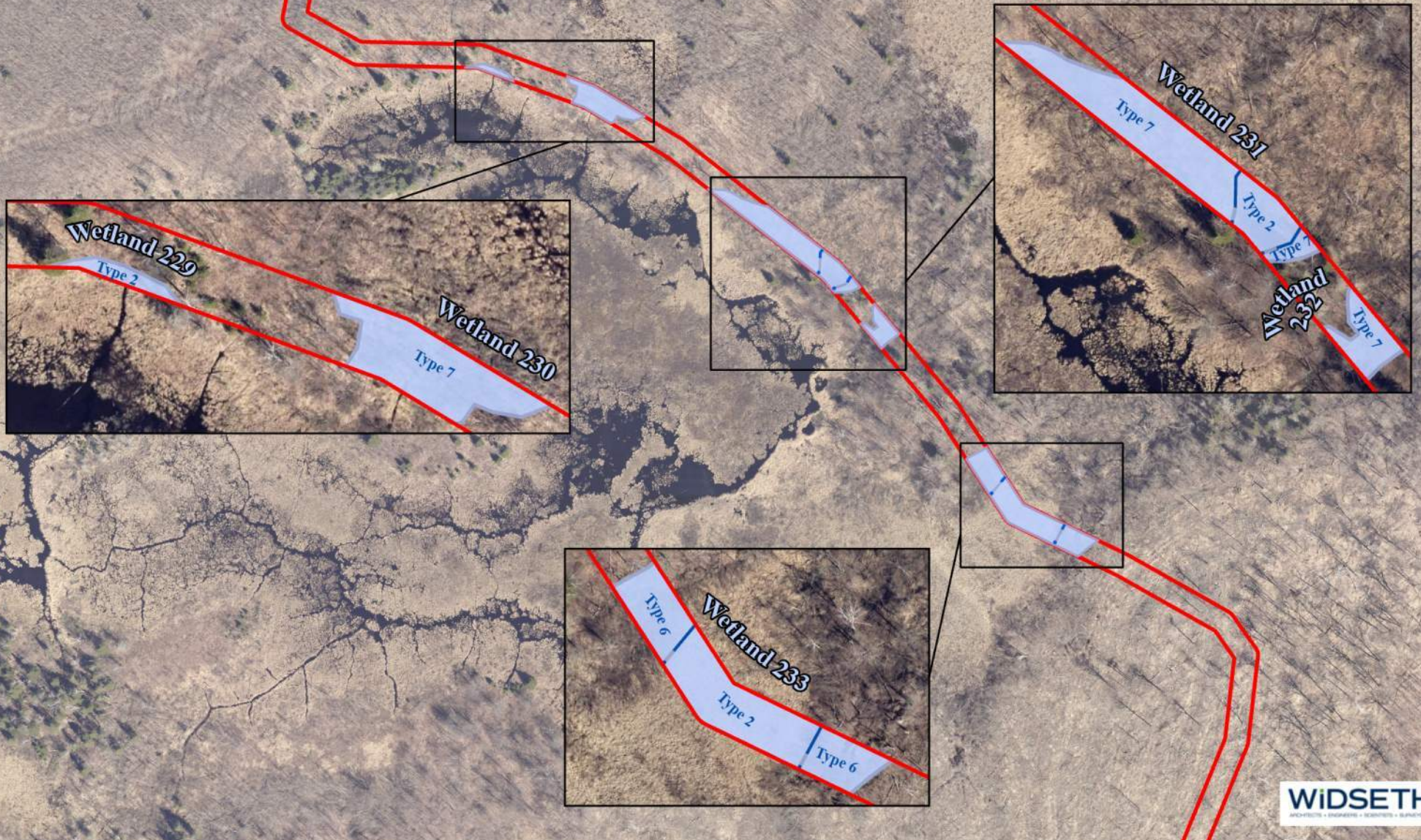
Northwoods
Regional Trail-
Phase 1A

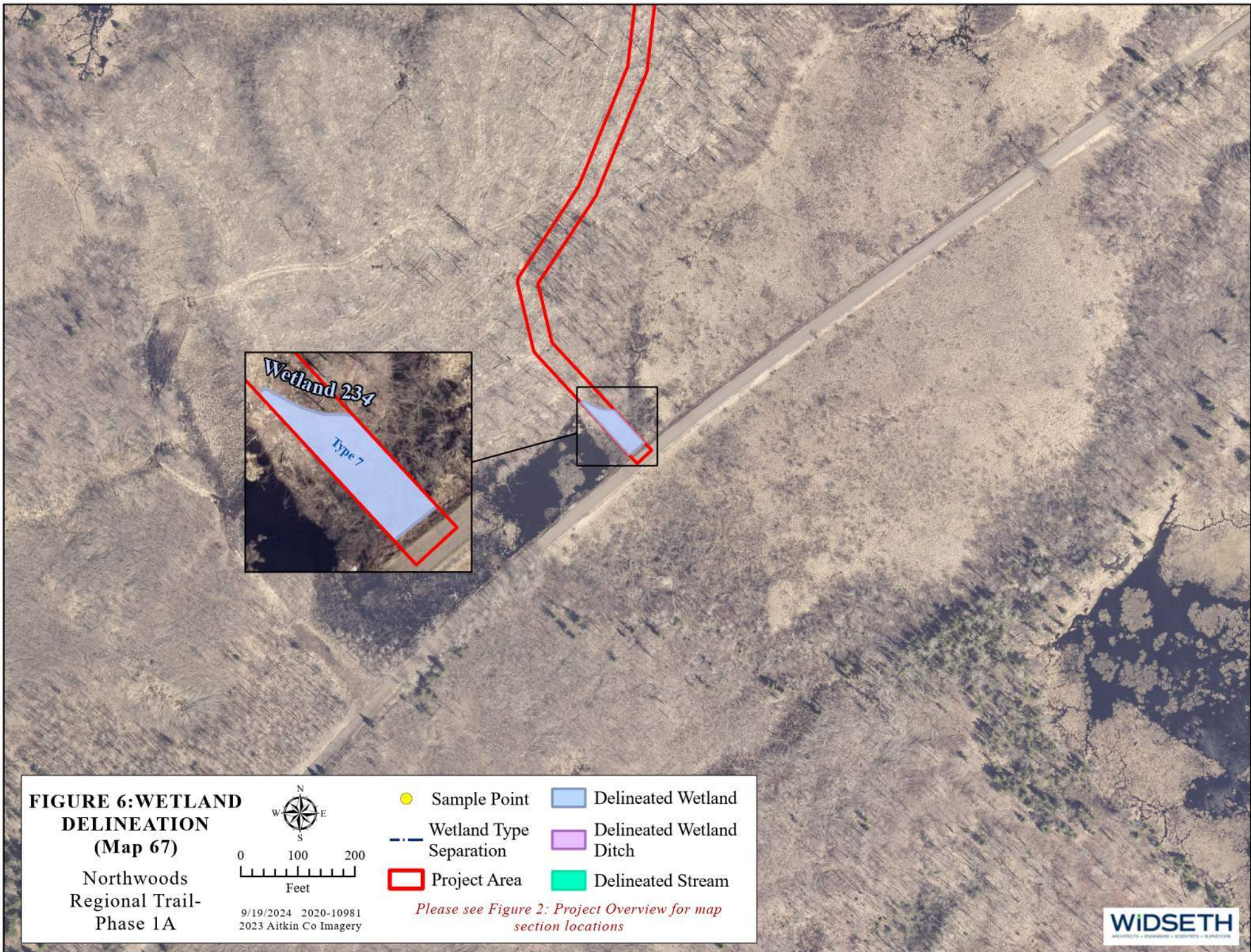


9/20/2024 2020-10981
2023 Aitkin Co Imagery

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

*Please see Figure 2: Project Overview for map
section locations*





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.

<table><tr><td>Hydrophytic Vegetation Present?</td><td>Yes <u> </u></td><td>No <u> X </u></td></tr><tr><td>Hydric Soil Present?</td><td>Yes <u> </u></td><td>No <u> X </u></td></tr><tr><td>Wetland Hydrology Present?</td><td>Yes <u> </u></td><td>No <u> X </u></td></tr></table>	Hydrophytic Vegetation Present?	Yes <u> </u>	No <u> X </u>	Hydric Soil Present?	Yes <u> </u>	No <u> X </u>	Wetland Hydrology Present?	Yes <u> </u>	No <u> X </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u> X </u> If yes, optional Wetland Site ID: <u> </u>
Hydrophytic Vegetation Present?	Yes <u> </u>	No <u> X </u>								
Hydric Soil Present?	Yes <u> </u>	No <u> X </u>								
Wetland Hydrology Present?	Yes <u> </u>	No <u> X </u>								
<p>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.</p>										

HYDROLOGY

Wetland Hydrology Indicators:		<u>Secondary Indicators (minimum of two required)</u>
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u> </u> Surface Soil Cracks (B6)
<u> </u> Surface Water (A1)	<u> </u> Water-Stained Leaves (B9)	<u> </u> Drainage Patterns (B10)
<u> </u> High Water Table (A2)	<u> </u> Aquatic Fauna (B13)	<u> </u> Moss Trim Lines (B16)
<u> </u> Saturation (A3)	<u> </u> Marl Deposits (B15)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Water Marks (B1)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Crayfish Burrows (C8)
<u> </u> Sediment Deposits (B2)	<u> </u> Oxidized Rhizospheres on Living Roots (C3)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Drift Deposits (B3)	<u> </u> Presence of Reduced Iron (C4)	<u> </u> Stunted or Stressed Plants (D1)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Geomorphic Position (D2)
<u> </u> Iron Deposits (B5)	<u> </u> Thin Muck Surface (C7)	<u> </u> Shallow Aquitard (D3)
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Other (Explain in Remarks)	<u> </u> Microtopographic Relief (D4)
<u> </u> Sparsely Vegetated Concave Surface (B8)		<u> </u> FAC-Neutral Test (D5)
Field Observations:		Wetland Hydrology Present? Yes <u> </u> No <u> X </u>
Surface Water Present?	Yes <u> </u> No <u> X </u> Depth (inches): <u> </u>	
Water Table Present?	Yes <u> </u> No <u> X </u> Depth (inches): <u> </u>	
Saturation Present?	Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> (includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>30</u></td> <td>x 2 = <u>60</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>75</u></td> <td>x 4 = <u>300</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>105</u> (A)</td> <td><u>360</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.43</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>30</u>	x 2 = <u>60</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>75</u>	x 4 = <u>300</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>105</u> (A)	<u>360</u> (B)	Prevalence Index = B/A = <u>3.43</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>30</u>	x 2 = <u>60</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>75</u>	x 4 = <u>300</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>105</u> (A)	<u>360</u> (B)																			
Prevalence Index = B/A = <u>3.43</u>																				
_____ = Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>_____</u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Poa pratensis</u>	<u>60</u>	<u>Yes</u>	<u>FACU</u>																	
2. <u>Phalaris arundinacea</u>	<u>20</u>	<u>No</u>	<u>FACW</u>																	
3. <u>Melilotus officinalis</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
4. <u>Solidago gigantea</u>	<u>10</u>	<u>No</u>	<u>FACW</u>																	
5. <u>Taraxacum officinale</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
_____ = Total Cover				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.																
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____ = Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present? Yes <u>_____</u> No <u>X</u>																

SOIL

Sampling Point: W1-1U

[illegible]

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)
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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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u> If yes, optional Wetland Site ID: <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

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

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <u>X</u> Surface Water (A1) <u> </u> Water-Stained Leaves (B9) <u>X</u> High Water Table (A2) <u> </u> Aquatic Fauna (B13) <u>X</u> Saturation (A3) <u> </u> Marl Deposits (B15) <u> </u> Water Marks (B1) <u> </u> Hydrogen Sulfide Odor (C1) <u> </u> Sediment Deposits (B2) <u> </u> Oxidized Rhizospheres on Living Roots (C3) <u> </u> Drift Deposits (B3) <u> </u> Presence of Reduced Iron (C4) <u> </u> Algal Mat or Crust (B4) <u> </u> Recent Iron Reduction in Tilled Soils (C6) <u> </u> Iron Deposits (B5) <u> </u> Thin Muck Surface (C7) <u> </u> Inundation Visible on Aerial Imagery (B7) <u> </u> Other (Explain in Remarks) <u> </u> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> <u> </u> Surface Soil Cracks (B6) <u> </u> Drainage Patterns (B10) <u> </u> Moss Trim Lines (B16) <u> </u> Dry-Season Water Table (C2) <u> </u> Crayfish Burrows (C8) <u> </u> Saturation Visible on Aerial Imagery (C9) <u> </u> Stunted or Stressed Plants (D1) <u>X</u> Geomorphic Position (D2) <u> </u> Shallow Aquitard (D3) <u> </u> Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>1</u> Water Table Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0</u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>50</u></td> <td>x 1 = <u>50</u></td> </tr> <tr> <td>FACW species <u>51</u></td> <td>x 2 = <u>102</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>101</u> (A)</td> <td><u>152</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>1.50</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>50</u>	x 1 = <u>50</u>	FACW species <u>51</u>	x 2 = <u>102</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>101</u> (A)	<u>152</u> (B)	Prevalence Index = B/A = <u>1.50</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>50</u>	x 1 = <u>50</u>																			
FACW species <u>51</u>	x 2 = <u>102</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>101</u> (A)	<u>152</u> (B)																			
Prevalence Index = B/A = <u>1.50</u>																				
_____ = Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Juncus balticus</u>	<u>50</u>	<u>Yes</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Phalaris arundinacea</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u>Equisetum pratense</u>	<u>15</u>	<u>No</u>	<u>FACW</u>																	
4. <u>Solidago gigantea</u>	<u>3</u>	<u>No</u>	<u>FACW</u>																	
5. <u>Eupatorium perfoliatum</u>	<u>2</u>	<u>No</u>	<u>FACW</u>																	
6. <u>Fraxinus pennsylvanica</u>	<u>1</u>	<u>No</u>	<u>FACW</u>																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>101</u> = Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ = Total Cover																				
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 <u>X</u> No _____																
Remarks: (Include photo numbers here or on a separate sheet.) 																				

SOIL

Sampling Point: W1-1W

[illegible]

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>70</u></td> <td>x 4 = <u>280</u></td> </tr> <tr> <td>UPL species <u>30</u></td> <td>x 5 = <u>150</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>430</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.30</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>70</u>	x 4 = <u>280</u>	UPL species <u>30</u>	x 5 = <u>150</u>	Column Totals: <u>100</u> (A)	<u>430</u> (B)	Prevalence Index = B/A = <u>4.30</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>70</u>	x 4 = <u>280</u>																			
UPL species <u>30</u>	x 5 = <u>150</u>																			
Column Totals: <u>100</u> (A)	<u>430</u> (B)																			
Prevalence Index = B/A = <u>4.30</u>																				
_____ = Total Cover																				
Sapling/Shrub Stratum (Plot size: 15')																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover																				
Herb Stratum (Plot size: 5')																				
1. <i>Poa pratensis</i>	60	Yes	FACU	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <i>Bromus inermis</i>	30	Yes	UPL																	
3. <i>Lolium perenne</i>	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																				
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 <u>X</u>																
Remarks: (Include photo numbers here or on a separate sheet.) 																				

SOIL

Sampling Point: W4-1U

[illegible]

Sampling Point: W4-1W

[illegible]

SOIL

Sampling Point: W4-1W

[illegible]

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>45</u></td> <td>x 4 = <u>180</u></td> </tr> <tr> <td>UPL species <u>50</u></td> <td>x 5 = <u>250</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>440</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.40</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>5</u>	x 2 = <u>10</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>45</u>	x 4 = <u>180</u>	UPL species <u>50</u>	x 5 = <u>250</u>	Column Totals: <u>100</u> (A)	<u>440</u> (B)	Prevalence Index = B/A = <u>4.40</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>5</u>	x 2 = <u>10</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
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UPL species <u>50</u>	x 5 = <u>250</u>																			
Column Totals: <u>100</u> (A)	<u>440</u> (B)																			
Prevalence Index = B/A = <u>4.40</u>																				
_____ = Total Cover																				
Sapling/Shrub Stratum (Plot size: 15')																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover																				
Herb Stratum (Plot size: 5')																				
1. <i>Bromus inermis</i>	50	Yes	UPL	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <i>Poa pratensis</i>	30	Yes	FACU																	
3. <i>Achillea millefolium</i>	10	No	FACU																	
4. <i>Lotus corniculatus</i>	5	No	FACU																	
5. <i>Solidago gigantea</i>	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																				
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				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>																
Remarks: (Include photo numbers here or on a separate sheet.) 																				

SOIL

Sampling Point: W8-1U

[illegible]

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

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.)

Hydrophytic Vegetation Present?	Yes	<u>X</u>	No	<u> </u>	Is the Sampled Area within a Wetland?	Yes	<u>X</u>	No	<u> </u>
Hydric Soil Present?	Yes	<u>X</u>	No	<u> </u>		If yes, optional Wetland Site ID:	<u> </u>		
Wetland Hydrology Present?	Yes	<u>X</u>	No	<u> </u>					
Remarks: (Explain alternative procedures here or in a separate report.) Climatic conditions are wet for this time of year.									

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)					
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)			
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)			
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="text" value="1"/> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="text" value="0"/> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="text" value="0"/> (includes capillary fringe)				Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
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: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>5</u></td> <td>x 1 = <u>5</u></td> </tr> <tr> <td>FACW species <u>95</u></td> <td>x 2 = <u>190</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>195</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>1.95</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>5</u>	x 1 = <u>5</u>	FACW species <u>95</u>	x 2 = <u>190</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>100</u> (A)	<u>195</u> (B)	Prevalence Index = B/A = <u>1.95</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>5</u>	x 1 = <u>5</u>																			
FACW species <u>95</u>	x 2 = <u>190</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
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UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>100</u> (A)	<u>195</u> (B)																			
Prevalence Index = B/A = <u>1.95</u>																				
_____ = Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Phalaris arundinacea</u>	<u>95</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Carex lacustris</u>	<u>5</u>	<u>No</u>	<u>OBL</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
_____ = Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ = Total Cover																				
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 <u>X</u> No _____																
Remarks: (Include photo numbers here or on a separate sheet.) 																				

SOIL

Sampling Point: W8-1W

[illegible]

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

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

Hydrophytic Vegetation Present?	Yes <u> X </u>	No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> X </u> No <u> </u> If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes <u> X </u>	No <u> </u>	
Wetland Hydrology Present?	Yes <u> X </u>	No <u> </u>	
Remarks: (Explain alternative procedures here or in a separate report.) Climatic conditions are wet for this this time of year.			

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)				<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="checkbox"/> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="checkbox"/> 2 Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="checkbox"/> 0 (includes capillary fringe)				Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:							
Remarks:							

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																									
1. <u>Populus tremuloides</u>	<u>45</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																								
2. <u>Populus balsamifera</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>																									
3. _____	_____	_____	_____																									
4. _____	_____	_____	_____																									
5. _____	_____	_____	_____																									
6. _____	_____	_____	_____																									
7. _____	_____	_____	_____																									
		<u>60</u>	=Total Cover	Prevalence Index worksheet: <table style="width: 100%;"> <thead> <tr> <th style="width: 40%;">Total % Cover of:</th> <th style="width: 20%;">Multiply by:</th> <th style="width: 40%;"></th> </tr> </thead> <tbody> <tr> <td>OBL species <u>5</u></td> <td>x 1 =</td> <td><u>5</u></td> </tr> <tr> <td>FACW species <u>110</u></td> <td>x 2 =</td> <td><u>220</u></td> </tr> <tr> <td>FAC species <u>60</u></td> <td>x 3 =</td> <td><u>180</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 =</td> <td><u>0</u></td> </tr> <tr> <td>UPL species <u>10</u></td> <td>x 5 =</td> <td><u>50</u></td> </tr> <tr> <td>Column Totals: <u>185</u></td> <td>(A)</td> <td><u>455</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A =</td> <td><u>2.46</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:		OBL species <u>5</u>	x 1 =	<u>5</u>	FACW species <u>110</u>	x 2 =	<u>220</u>	FAC species <u>60</u>	x 3 =	<u>180</u>	FACU species <u>0</u>	x 4 =	<u>0</u>	UPL species <u>10</u>	x 5 =	<u>50</u>	Column Totals: <u>185</u>	(A)	<u>455</u> (B)	Prevalence Index = B/A =		<u>2.46</u>
Total % Cover of:	Multiply by:																											
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FACW species <u>110</u>	x 2 =	<u>220</u>																										
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Column Totals: <u>185</u>	(A)	<u>455</u> (B)																										
Prevalence Index = B/A =		<u>2.46</u>																										
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																												
1. <u>Populus tremuloides</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>																									
2. <u>Salix discolor</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>																									
3. _____	_____	_____	_____																									
4. _____	_____	_____	_____																									
5. _____	_____	_____	_____																									
6. _____	_____	_____	_____																									
7. _____	_____	_____	_____																									
		<u>25</u>	=Total Cover	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																								
Herb Stratum (Plot size: <u>5'</u>)																												
1. <u>Phalaris arundinacea</u>	<u>40</u>	<u>Yes</u>	<u>FACW</u>																									
2. <u>Onoclea sensibilis</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>																									
3. <u>Solidago gigantea</u>	<u>15</u>	<u>No</u>	<u>FACW</u>																									
4. <u>Athyrium filix-femina</u>	<u>10</u>	<u>No</u>	<u>UPL</u>																									
5. <u>Carex lacustris</u>	<u>5</u>	<u>No</u>	<u>OBL</u>																									
6. _____	_____	_____	_____																									
7. _____	_____	_____	_____																									
8. _____	_____	_____	_____																									
9. _____	_____	_____	_____																									
10. _____	_____	_____	_____																									
11. _____	_____	_____	_____																									
12. _____	_____	_____	_____																									
		<u>100</u>	=Total Cover	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 <u>X</u> No <u> </u>																								
Woody Vine Stratum (Plot size: <u>30'</u>)																												
1. _____	_____	_____	_____																									
2. _____	_____	_____	_____																									
3. _____	_____	_____	_____																									
4. _____	_____	_____	_____																									
		_____	=Total Cover																									
Remarks: (Include photo numbers here or on a separate sheet.)																												

SOIL

Sampling Point: W8-2W

[illegible]

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>30</u></td> <td>x 1 = <u>30</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>65</u></td> <td>x 4 = <u>260</u></td> </tr> <tr> <td>UPL species <u>5</u></td> <td>x 5 = <u>25</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>315</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.15</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>30</u>	x 1 = <u>30</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>65</u>	x 4 = <u>260</u>	UPL species <u>5</u>	x 5 = <u>25</u>	Column Totals: <u>100</u> (A)	<u>315</u> (B)	Prevalence Index = B/A = <u>3.15</u>	
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Prevalence Index = B/A = <u>3.15</u>																				
_____ = Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Poa pratensis</u>	<u>60</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Carex lacustris</u>	<u>30</u>	<u>Yes</u>	<u>OBL</u>																	
3. <u>Bromus inermis</u>	<u>5</u>	<u>No</u>	<u>UPL</u>																	
4. <u>Achillea millefolium</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
_____ = Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____	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.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <u> </u> No <u> X </u>																

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

SOIL

Sampling Point: W10-1U

[illegible]

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>40</u></td> <td>x 1 = <u>40</u></td> </tr> <tr> <td>FACW species <u>60</u></td> <td>x 2 = <u>120</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u></td> <td>(A) <u>160</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>1.60</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>40</u>	x 1 = <u>40</u>	FACW species <u>60</u>	x 2 = <u>120</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>100</u>	(A) <u>160</u> (B)	Prevalence Index = B/A = <u>1.60</u>	
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_____ = Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
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4. _____	_____	_____	_____																	
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_____ = Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Carex scoparia</u>	<u>50</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Carex lacustris</u>	<u>40</u>	<u>Yes</u>	<u>OBL</u>																	
3. <u>Phalaris arundinacea</u>	<u>10</u>	<u>No</u>	<u>FACW</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
_____ 100 = Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ = Total Cover																				
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 <u>X</u> No _____																
Remarks: (Include photo numbers here or on a separate sheet.) 																				

SOIL

Sampling Point: W10-1W

[illegible]

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>77</u></td> <td>x 1 = <u>77</u></td> </tr> <tr> <td>FACW species <u>100</u></td> <td>x 2 = <u>200</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>20</u></td> <td>x 5 = <u>100</u></td> </tr> <tr> <td>Column Totals: <u>197</u> (A)</td> <td><u>377</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>1.91</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>77</u>	x 1 = <u>77</u>	FACW species <u>100</u>	x 2 = <u>200</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>20</u>	x 5 = <u>100</u>	Column Totals: <u>197</u> (A)	<u>377</u> (B)	Prevalence Index = B/A = <u>1.91</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>77</u>	x 1 = <u>77</u>																			
FACW species <u>100</u>	x 2 = <u>200</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>20</u>	x 5 = <u>100</u>																			
Column Totals: <u>197</u> (A)	<u>377</u> (B)																			
Prevalence Index = B/A = <u>1.91</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Salix discolor</u>	<u>80</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Salix pentandra</u>	<u>20</u>	<u>Yes</u>	<u>UPL</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Carex stricta</u>	<u>70</u>	<u>Yes</u>	<u>OBL</u>																	
2. <u>Onoclea sensibilis</u>	<u>15</u>	<u>No</u>	<u>FACW</u>																	
3. <u>Carex lacustris</u>	<u>7</u>	<u>No</u>	<u>OBL</u>																	
4. <u>Equisetum pratense</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
_____ = Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ = Total Cover																				
Hydrophytic Vegetation Present? Yes <u>X</u> No _____																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: W10-2W

[illegible]

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

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> 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.	

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)			
		<input type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)				Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Betula papyrifera</u>			FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75.0%</u> (A/B)																
2. <u>Acer rubrum</u>			FAC																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
_____ =Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <thead> <tr> <th style="width: 40%;">Total % Cover of:</th> <th style="width: 60%;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>65</u></td> <td>x 2 = <u>130</u></td> </tr> <tr> <td>FAC species <u>65</u></td> <td>x 3 = <u>195</u></td> </tr> <tr> <td>FACU species <u>35</u></td> <td>x 4 = <u>140</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>165</u> (A)</td> <td><u>465</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.82</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>65</u>	x 2 = <u>130</u>	FAC species <u>65</u>	x 3 = <u>195</u>	FACU species <u>35</u>	x 4 = <u>140</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>165</u> (A)	<u>465</u> (B)	Prevalence Index = B/A = <u>2.82</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>65</u>	x 2 = <u>130</u>																			
FAC species <u>65</u>	x 3 = <u>195</u>																			
FACU species <u>35</u>	x 4 = <u>140</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>165</u> (A)	<u>465</u> (B)																			
Prevalence Index = B/A = <u>2.82</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Viburnum lentago</u>	30	Yes	FAC																	
2. <u>Frangula alnus</u>	25	Yes	FAC																	
3. <u>Acer rubrum</u>	10	No	FAC																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
_____ =Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Impatiens capensis</u>	40	Yes	FACW	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Plantago major</u>	20	Yes	FACU																	
3. <u>Rubus pubescens</u>	15	No	FACW																	
4. <u>Solidago canadensis</u>	15	No	FACU																	
5. <u>Solidago gigantea</u>	10	No	FACW																	
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
_____ =Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____				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.																
2. _____																				
3. _____																				
4. _____																				
_____ =Total Cover																				
Hydrophytic Vegetation Present? Yes <u>X</u> No _____																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: W20-1U

[illegible]

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

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 the year.									

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)			
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)			
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="checkbox"/> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="checkbox"/> 14 Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="checkbox"/> 8 (includes capillary fringe)				Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>105</u></td> <td>x 2 = <u>210</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>23</u></td> <td>x 4 = <u>92</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>128</u> (A)</td> <td><u>302</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.36</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>105</u>	x 2 = <u>210</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>23</u>	x 4 = <u>92</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>128</u> (A)	<u>302</u> (B)	Prevalence Index = B/A = <u>2.36</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>105</u>	x 2 = <u>210</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>23</u>	x 4 = <u>92</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>128</u> (A)	<u>302</u> (B)																			
Prevalence Index = B/A = <u>2.36</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Alnus incana</u>	<u>25</u>	<u>Yes</u>	<u>FACW</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Onoclea sensibilis</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Solidago gigantea</u>	<u>25</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u>Rubus pubescens</u>	<u>25</u>	<u>Yes</u>	<u>FACW</u>																	
4. <u>Galium aparine</u>	<u>20</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Phleum pratense</u>	<u>3</u>	<u>No</u>	<u>FACU</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
=Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
=Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present?																
				Yes <u>X</u> No _____																

SOIL

Sampling Point: W20-1W

[illegible]

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

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

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Remarks: (Explain alternative procedures here or in a separate report.) Climatic conditions are wet for this time of the year.			

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)		
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)			Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>30</u></td> <td>x 2 = <u>60</u></td> </tr> <tr> <td>FAC species <u>1</u></td> <td>x 3 = <u>3</u></td> </tr> <tr> <td>FACU species <u>10</u></td> <td>x 4 = <u>40</u></td> </tr> <tr> <td>UPL species <u>68</u></td> <td>x 5 = <u>340</u></td> </tr> <tr> <td>Column Totals: <u>109</u> (A)</td> <td><u>443</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.06</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>30</u>	x 2 = <u>60</u>	FAC species <u>1</u>	x 3 = <u>3</u>	FACU species <u>10</u>	x 4 = <u>40</u>	UPL species <u>68</u>	x 5 = <u>340</u>	Column Totals: <u>109</u> (A)	<u>443</u> (B)	Prevalence Index = B/A = <u>4.06</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>30</u>	x 2 = <u>60</u>																			
FAC species <u>1</u>	x 3 = <u>3</u>																			
FACU species <u>10</u>	x 4 = <u>40</u>																			
UPL species <u>68</u>	x 5 = <u>340</u>																			
Column Totals: <u>109</u> (A)	<u>443</u> (B)																			
Prevalence Index = B/A = <u>4.06</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Rhamnus frangula</u>	<u>1</u>	<u>No</u>	<u>FAC</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Asclepias syriaca</u>	<u>50</u>	<u>Yes</u>	<u>UPL</u>																	
2. <u>Bromus inermis</u>	<u>15</u>	<u>Yes</u>	<u>UPL</u>																	
3. <u>Phalaris arundinacea</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>																	
4. <u>Solidago gigantea</u>	<u>10</u>	<u>No</u>	<u>FACW</u>																	
5. <u>Solidago canadensis</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
6. <u>Onoclea sensibilis</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
7. <u>Asclepias syriaca</u>	<u>3</u>	<u>No</u>	<u>UPL</u>																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
_____ = Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ = Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

Hydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0¹
4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

SOIL

Sampling Point: W21-1U

[illegible]

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.	<i>Salix lucida</i>	50	Yes	FACW
2.	<i>Viburnum opulus</i>	10	No	FACW
3.	<i>Fraxinus pennsylvanica</i>	5	No	FACW
4.				
5.				
6.				
7.				
		65	=Total Cover	
Herb Stratum	(Plot size: 5')			
1.	<i>Phalaris arundinacea</i>	50	Yes	FACW
2.	<i>Onoclea sensibilis</i>	20	Yes	FACW
3.	<i>Eupatorium perfoliatum</i>	10	No	FACW
4.	<i>Rubus idaeus</i>	10	No	FAC
5.	<i>Solidago gigantea</i>	8	No	FACW
6.	<i>Eupatorium perfoliatum</i>	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 ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

[illegible]

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Fraxinus nigra</u>	<u>40</u>	<u>Yes</u>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>85.7%</u> (A/B)																
2. <u>Pinus strobus</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Ulmus americana</u>	<u>10</u>	<u>No</u>	<u>FACW</u>																	
4. <u>Populus tremuloides</u>	<u>10</u>	<u>No</u>	<u>FAC</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>80</u>		<u>=Total Cover</u>		Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>150</u></td> <td>x 2 = <u>300</u></td> </tr> <tr> <td>FAC species <u>75</u></td> <td>x 3 = <u>225</u></td> </tr> <tr> <td>FACU species <u>20</u></td> <td>x 4 = <u>80</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>245</u> (A)</td> <td><u>605</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>2.47</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>150</u>	x 2 = <u>300</u>	FAC species <u>75</u>	x 3 = <u>225</u>	FACU species <u>20</u>	x 4 = <u>80</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>245</u> (A)	<u>605</u> (B)	Prevalence Index = B/A = <u>2.47</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
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FAC species <u>75</u>	x 3 = <u>225</u>																			
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UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>245</u> (A)	<u>605</u> (B)																			
Prevalence Index = B/A = <u>2.47</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Alnus incana</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Fraxinus nigra</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u>Frangula alnus</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>																	
4. <u>Populus tremuloides</u>	<u>5</u>	<u>No</u>	<u>FAC</u>																	
5. <u>Ulmus americana</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>65</u>		<u>=Total Cover</u>																		
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Rubus idaeus</u>	<u>45</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>_____</u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Impatiens capensis</u>	<u>45</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u>Solidago gigantea</u>	<u>10</u>	<u>No</u>	<u>FACW</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>100</u>		<u>=Total Cover</u>																		
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____	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.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____		<u>=Total Cover</u>		Hydrophytic Vegetation Present? Yes <u>X</u> No _____																

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

SOIL

Sampling Point: W22-1W

[illegible]

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)
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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 <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u> If yes, optional Wetland Site ID: <u> </u>
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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: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <u> </u> Surface Water (A1) <u> </u> High Water Table (A2) <u> </u> Saturation (A3) <u> </u> Water Marks (B1) <u> </u> Sediment Deposits (B2) <u> </u> Drift Deposits (B3) <u> </u> Algal Mat or Crust (B4) <u> </u> Iron Deposits (B5) <u> </u> Inundation Visible on Aerial Imagery (B7) <u> </u> Sparsely Vegetated Concave Surface (B8) </div> <div style="width: 50%;"> <u> </u> Water-Stained Leaves (B9) <u> </u> Aquatic Fauna (B13) <u> </u> Marl Deposits (B15) <u> </u> Hydrogen Sulfide Odor (C1) <u> </u> Oxidized Rhizospheres on Living Roots (C3) <u> </u> Presence of Reduced Iron (C4) <u> </u> Recent Iron Reduction in Tilled Soils (C6) <u> </u> Thin Muck Surface (C7) <u> </u> Other (Explain in Remarks) </div> </div>	<u>Secondary Indicators (minimum of two required)</u> <u> </u> Surface Soil Cracks (B6) <u> </u> Drainage Patterns (B10) <u> </u> Moss Trim Lines (B16) <u> </u> Dry-Season Water Table (C2) <u> </u> Crayfish Burrows (C8) <u> </u> Saturation Visible on Aerial Imagery (C9) <u> </u> Stunted or Stressed Plants (D1) <u> </u> Geomorphic Position (D2) <u> </u> Shallow Aquitard (D3) <u> </u> Microtopographic Relief (D4) <u> </u> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
--	---

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

Remarks:

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>5</u></td> <td>x 1 = <u>5</u></td> </tr> <tr> <td>FACW species <u>30</u></td> <td>x 2 = <u>60</u></td> </tr> <tr> <td>FAC species <u>15</u></td> <td>x 3 = <u>45</u></td> </tr> <tr> <td>FACU species <u>55</u></td> <td>x 4 = <u>220</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>105</u> (A)</td> <td><u>330</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.14</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>5</u>	x 1 = <u>5</u>	FACW species <u>30</u>	x 2 = <u>60</u>	FAC species <u>15</u>	x 3 = <u>45</u>	FACU species <u>55</u>	x 4 = <u>220</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>105</u> (A)	<u>330</u> (B)	Prevalence Index = B/A = <u>3.14</u>	
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Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Agrostis gigantea</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Phleum pratense</u>	<u>25</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Plantago major</u>	<u>15</u>	<u>No</u>	<u>FACU</u>																	
4. <u>Trifolium pratense</u>	<u>15</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Juncus tenuis</u>	<u>15</u>	<u>No</u>	<u>FAC</u>																	
6. <u>Scirpus atrovirens</u>	<u>5</u>	<u>No</u>	<u>OBL</u>																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>105</u> = Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____	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.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <u> </u> No <u> X </u>																

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

SOIL

Sampling Point: W31-1U

[illegible]

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

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			

SOIL

Sampling Point: W31-1W

[illegible]

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

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

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> 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.	

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)		
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)			Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 40%;">Total % Cover of:</th> <th style="width: 60%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>8</u></td> <td>x 2 = <u>16</u></td> </tr> <tr> <td>FAC species <u>72</u></td> <td>x 3 = <u>216</u></td> </tr> <tr> <td>FACU species <u>35</u></td> <td>x 4 = <u>140</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>115</u> (A)</td> <td><u>372</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.23</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>8</u>	x 2 = <u>16</u>	FAC species <u>72</u>	x 3 = <u>216</u>	FACU species <u>35</u>	x 4 = <u>140</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>115</u> (A)	<u>372</u> (B)	Prevalence Index = B/A = <u>3.23</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>8</u>	x 2 = <u>16</u>																			
FAC species <u>72</u>	x 3 = <u>216</u>																			
FACU species <u>35</u>	x 4 = <u>140</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>115</u> (A)	<u>372</u> (B)																			
Prevalence Index = B/A = <u>3.23</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Salix bebbiana</u>	<u>8</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Corylus americana</u>	<u>3</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Populus tremuloides</u>	<u>2</u>	<u>No</u>	<u>FAC</u>																	
4. <u>Quercus rubra</u>	<u>2</u>	<u>No</u>	<u>FACU</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
15 =Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Rubus idaeus</u>	<u>70</u>	<u>Yes</u>	<u>FAC</u>																	
2. <u>Poa pratensis</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Pteridium aquilinum</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
100 =Total Cover				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 <u> </u> No <u> X </u>																
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
=Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: WD2-1U

[illegible]

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

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

Hydrophytic Vegetation Present?	Yes <u> X </u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> X </u> No <u> </u> If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes <u> X </u> No <u> </u>	
Wetland Hydrology Present?	Yes <u> X </u> No <u> </u>	
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.		

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)		
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="text"/> 0 (includes capillary fringe)			Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>15</u></td> <td>x 1 = <u>15</u></td> </tr> <tr> <td>FACW species <u>72</u></td> <td>x 2 = <u>144</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>13</u></td> <td>x 4 = <u>52</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>211</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.11</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>15</u>	x 1 = <u>15</u>	FACW species <u>72</u>	x 2 = <u>144</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>13</u>	x 4 = <u>52</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>100</u> (A)	<u>211</u> (B)	Prevalence Index = B/A = <u>2.11</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>15</u>	x 1 = <u>15</u>																			
FACW species <u>72</u>	x 2 = <u>144</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>13</u>	x 4 = <u>52</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>100</u> (A)	<u>211</u> (B)																			
Prevalence Index = B/A = <u>2.11</u>																				
_____ = Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Agrostis gigantea</u>	<u>50</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Carex scoparia</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u>Phleum pratense</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
4. <u>Eleocharis palustris</u>	<u>10</u>	<u>No</u>	<u>OBL</u>																	
5. <u>Scirpus atrovirens</u>	<u>5</u>	<u>No</u>	<u>OBL</u>																	
6. <u>Plantago major</u>	<u>3</u>	<u>No</u>	<u>FACU</u>																	
7. <u>Onoclea sensibilis</u>	<u>2</u>	<u>No</u>	<u>FACW</u>																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
_____ 100 = Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ = Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: WD2-1W

[illegible]

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

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.)

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> 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.	

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)			
		<input type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)				Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ =Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>10</u></td> <td>x 2 = <u>20</u></td> </tr> <tr> <td>FAC species <u>15</u></td> <td>x 3 = <u>45</u></td> </tr> <tr> <td>FACU species <u>90</u></td> <td>x 4 = <u>360</u></td> </tr> <tr> <td>UPL species <u>10</u></td> <td>x 5 = <u>50</u></td> </tr> <tr> <td>Column Totals: <u>125</u> (A)</td> <td><u>475</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.80</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>10</u>	x 2 = <u>20</u>	FAC species <u>15</u>	x 3 = <u>45</u>	FACU species <u>90</u>	x 4 = <u>360</u>	UPL species <u>10</u>	x 5 = <u>50</u>	Column Totals: <u>125</u> (A)	<u>475</u> (B)	Prevalence Index = B/A = <u>3.80</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>10</u>	x 2 = <u>20</u>																			
FAC species <u>15</u>	x 3 = <u>45</u>																			
FACU species <u>90</u>	x 4 = <u>360</u>																			
UPL species <u>10</u>	x 5 = <u>50</u>																			
Column Totals: <u>125</u> (A)	<u>475</u> (B)																			
Prevalence Index = B/A = <u>3.80</u>																				
_____ =Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ =Total Cover				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
_____ =Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Phleum pratense</u>	<u>80</u>	<u>Yes</u>	<u>FACU</u>																	
2. <u>Panicum virgatum</u>	<u>15</u>	<u>No</u>	<u>FAC</u>																	
3. <u>Agrimonia eupatoria</u>	<u>10</u>	<u>No</u>	<u>UPL</u>																	
4. <u>Plantago major</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Solidago gigantea</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
6. <u>Phalaris arundinacea</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>125</u> =Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ =Total Cover				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 <u> </u> No <u>X</u>																				
Remarks: (Include photo numbers here or on a separate sheet.) 																				

SOIL

Sampling Point: W100-1U

[illegible]

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

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.)

Hydrophytic Vegetation Present?	Yes <u> X </u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> X </u> No <u> </u> If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes <u> X </u> No <u> </u>	
Wetland Hydrology Present?	Yes <u> X </u> No <u> </u>	
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.		

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)			<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)			<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)			<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)			<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)			<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)			<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)			<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)			<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)			<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)				<input type="checkbox"/> Microtopographic Relief (D4)	
				<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:					
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text" value="15"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<input type="text" value="0"/>		
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<input type="text" value="0"/>		
(includes capillary fringe)					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																									
1. <u>Populus tremuloides</u>	<u>35</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83.3%</u> (A/B)																								
2. <u>Quercus rubra</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>																									
3. _____	_____	_____	_____																									
4. _____	_____	_____	_____																									
5. _____	_____	_____	_____																									
6. _____	_____	_____	_____																									
7. _____	_____	_____	_____																									
		<u>55</u>	=Total Cover	Prevalence Index worksheet: <table style="width: 100%;"> <thead> <tr> <th style="width: 40%;">Total % Cover of:</th> <th style="width: 20%;">Multiply by:</th> <th style="width: 40%;"></th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td>x 1 =</td> <td><u>0</u></td> </tr> <tr> <td>FACW species <u>95</u></td> <td>x 2 =</td> <td><u>190</u></td> </tr> <tr> <td>FAC species <u>55</u></td> <td>x 3 =</td> <td><u>165</u></td> </tr> <tr> <td>FACU species <u>20</u></td> <td>x 4 =</td> <td><u>80</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 =</td> <td><u>0</u></td> </tr> <tr> <td>Column Totals: <u>170</u></td> <td>(A)</td> <td><u>435</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A =</td> <td><u>2.56</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:		OBL species <u>0</u>	x 1 =	<u>0</u>	FACW species <u>95</u>	x 2 =	<u>190</u>	FAC species <u>55</u>	x 3 =	<u>165</u>	FACU species <u>20</u>	x 4 =	<u>80</u>	UPL species <u>0</u>	x 5 =	<u>0</u>	Column Totals: <u>170</u>	(A)	<u>435</u> (B)	Prevalence Index = B/A =		<u>2.56</u>
Total % Cover of:	Multiply by:																											
OBL species <u>0</u>	x 1 =	<u>0</u>																										
FACW species <u>95</u>	x 2 =	<u>190</u>																										
FAC species <u>55</u>	x 3 =	<u>165</u>																										
FACU species <u>20</u>	x 4 =	<u>80</u>																										
UPL species <u>0</u>	x 5 =	<u>0</u>																										
Column Totals: <u>170</u>	(A)	<u>435</u> (B)																										
Prevalence Index = B/A =		<u>2.56</u>																										
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																												
1. <u>Salix amygdaloides</u>	<u>25</u>	<u>Yes</u>	<u>FACW</u>																									
2. <u>Sambucus nigra</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>																									
3. _____	_____	_____	_____																									
4. _____	_____	_____	_____																									
5. _____	_____	_____	_____																									
6. _____	_____	_____	_____																									
7. _____	_____	_____	_____																									
		<u>35</u>	=Total Cover	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																								
Herb Stratum (Plot size: <u>5'</u>)																												
1. <u>Solidago gigantea</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>																									
2. <u>Panicum virgatum</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>																									
3. <u>Phalaris arundinacea</u>	<u>15</u>	<u>No</u>	<u>FACW</u>																									
4. <u>Onoclea sensibilis</u>	<u>10</u>	<u>No</u>	<u>FACW</u>																									
5. <u>Impatiens capensis</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																									
6. _____	_____	_____	_____																									
7. _____	_____	_____	_____																									
8. _____	_____	_____	_____																									
9. _____	_____	_____	_____																									
10. _____	_____	_____	_____																									
11. _____	_____	_____	_____																									
12. _____	_____	_____	_____																									
		<u>80</u>	=Total Cover	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 <u>X</u> No _____																								
Woody Vine Stratum (Plot size: <u>30'</u>)																												
1. _____	_____	_____	_____																									
2. _____	_____	_____	_____																									
3. _____	_____	_____	_____																									
4. _____	_____	_____	_____																									
		_____	=Total Cover																									
Remarks: (Include photo numbers here or on a separate sheet.)																												

SOIL

Sampling Point: W100-1W

[illegible]

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

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

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> 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.	

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)		
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)			Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Quercus rubra</u>	<u>55</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		<u>55</u>	=Total Cover	Prevalence Index worksheet: <table style="width: 100%;"> <thead> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>15</u></td> <td>x 3 = <u>45</u></td> </tr> <tr> <td>FACU species <u>75</u></td> <td>x 4 = <u>300</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>95</u></td> <td>(A) <u>355</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.74</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>5</u>	x 2 = <u>10</u>	FAC species <u>15</u>	x 3 = <u>45</u>	FACU species <u>75</u>	x 4 = <u>300</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>95</u>	(A) <u>355</u> (B)	Prevalence Index = B/A = <u>3.74</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>5</u>	x 2 = <u>10</u>																			
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Column Totals: <u>95</u>	(A) <u>355</u> (B)																			
Prevalence Index = B/A = <u>3.74</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Corylus cornuta</u>	_____	_____	<u>FACU</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		_____	=Total Cover																	
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Maianthemum canadense</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Trientalis borealis</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u>Equisetum pratense</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
		<u>40</u>	=Total Cover																	
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
		_____	=Total Cover																	
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 <u> </u> No <u>X</u>																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: W101-1U

[illegible]

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

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

Hydrophytic Vegetation Present?	Yes	<u>X</u>	No	<u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u> If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes	<u>X</u>	No	<u> </u>	
Wetland Hydrology Present?	Yes	<u>X</u>	No	<u> </u>	
Remarks: (Explain alternative procedures here or in a separate report.) Climatic conditions are wet for this time of the year.					

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)					
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)			
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)			
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>6</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)				Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer rubrum</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		<u>25</u> =Total Cover		Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 40%;">Total % Cover of:</th> <th style="width: 60%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>50</u></td> <td>x 1 = <u>50</u></td> </tr> <tr> <td>FACW species <u>45</u></td> <td>x 2 = <u>90</u></td> </tr> <tr> <td>FAC species <u>40</u></td> <td>x 3 = <u>120</u></td> </tr> <tr> <td>FACU species <u>2</u></td> <td>x 4 = <u>8</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>137</u></td> <td>(A) <u>268</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>1.96</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>50</u>	x 1 = <u>50</u>	FACW species <u>45</u>	x 2 = <u>90</u>	FAC species <u>40</u>	x 3 = <u>120</u>	FACU species <u>2</u>	x 4 = <u>8</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>137</u>	(A) <u>268</u> (B)	Prevalence Index = B/A = <u>1.96</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>50</u>	x 1 = <u>50</u>																			
FACW species <u>45</u>	x 2 = <u>90</u>																			
FAC species <u>40</u>	x 3 = <u>120</u>																			
FACU species <u>2</u>	x 4 = <u>8</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>137</u>	(A) <u>268</u> (B)																			
Prevalence Index = B/A = <u>1.96</u>																				
		<u>5</u> =Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Frangula alnus</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		<u>5</u> =Total Cover																		
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Carex stricta</u>	<u>50</u>	<u>Yes</u>	<u>OBL</u>	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.																
2. <u>Phalaris arundinacea</u>	<u>45</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u>Frangula alnus</u>	<u>10</u>	<u>No</u>	<u>FAC</u>																	
4. <u>Pinus strobus</u>	<u>2</u>	<u>No</u>	<u>FACU</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
		<u>107</u> =Total Cover																		
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
		_____ =Total Cover																		

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

SOIL

Sampling Point: W101-1W

[illegible]

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

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

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> 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.	

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)		
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)			Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																									
1. <u>Acer rubrum</u>	30	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25.0%</u> (A/B)																								
2. <u>Quercus rubra</u>	25	Yes	FACU																									
3. _____																												
4. _____																												
5. _____																												
6. _____																												
7. _____																												
	55	=Total Cover		Prevalence Index worksheet: <table style="width: 100%;"> <thead> <tr> <th style="width: 40%;">Total % Cover of:</th> <th style="width: 20%;">Multiply by:</th> <th style="width: 40%;"></th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td style="text-align: center;">x 1 =</td> <td style="text-align: center;"><u>0</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td style="text-align: center;">x 2 =</td> <td style="text-align: center;"><u>10</u></td> </tr> <tr> <td>FAC species <u>30</u></td> <td style="text-align: center;">x 3 =</td> <td style="text-align: center;"><u>90</u></td> </tr> <tr> <td>FACU species <u>70</u></td> <td style="text-align: center;">x 4 =</td> <td style="text-align: center;"><u>280</u></td> </tr> <tr> <td>UPL species <u>35</u></td> <td style="text-align: center;">x 5 =</td> <td style="text-align: center;"><u>175</u></td> </tr> <tr> <td>Column Totals: <u>140</u></td> <td style="text-align: center;">(A)</td> <td style="text-align: center;"><u>555</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A =</td> <td style="text-align: center;"><u>3.96</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:		OBL species <u>0</u>	x 1 =	<u>0</u>	FACW species <u>5</u>	x 2 =	<u>10</u>	FAC species <u>30</u>	x 3 =	<u>90</u>	FACU species <u>70</u>	x 4 =	<u>280</u>	UPL species <u>35</u>	x 5 =	<u>175</u>	Column Totals: <u>140</u>	(A)	<u>555</u> (B)	Prevalence Index = B/A =		<u>3.96</u>
Total % Cover of:	Multiply by:																											
OBL species <u>0</u>	x 1 =	<u>0</u>																										
FACW species <u>5</u>	x 2 =	<u>10</u>																										
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Column Totals: <u>140</u>	(A)	<u>555</u> (B)																										
Prevalence Index = B/A =		<u>3.96</u>																										
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																												
1. <u>Corylus cornuta</u>			FACU																									
2. _____																												
3. _____																												
4. _____																												
5. _____																												
6. _____																												
7. _____																												
		=Total Cover																										
Herb Stratum (Plot size: <u>5'</u>)																												
1. <u>Eurybia macrophylla</u>	35	Yes	UPL	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																								
2. <u>Vaccinium angustifolium</u>	30	Yes	FACU																									
3. <u>Pteridium aquilinum</u>	15	No	FACU																									
4. <u>Rubus pubescens</u>	5	No	FACW																									
5. _____																												
6. _____																												
7. _____																												
8. _____																												
9. _____																												
10. _____																												
11. _____																												
12. _____																												
	85	=Total Cover																										
Woody Vine Stratum (Plot size: <u>30'</u>)																												
1. _____				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.																								
2. _____																												
3. _____																												
4. _____																												
		=Total Cover																										
Remarks: (Include photo numbers here or on a separate sheet.)																												

SOIL

Sampling Point: W102-1U

[illegible]

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

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

Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u> Hydric Soil Present? Yes <u> X </u> No <u> </u> Wetland Hydrology Present? Yes <u> X </u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> X </u> No <u> </u> 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.	

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)			
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="text"/> 0 (includes capillary fringe)			Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Fraxinus pennsylvanica</u>	<u>35</u>	<u>Yes</u>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75.0%</u> (A/B)																
2. <u>Populus tremula</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u>Betula papyrifera</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
4. <u>Acer rubrum</u>	<u>10</u>	<u>No</u>	<u>FAC</u>																	
5. <u>Quercus rubra</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		<u>80</u>	=Total Cover	Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 40%;">Total % Cover of:</th> <th style="width: 60%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>55</u></td> <td>x 1 = <u>55</u></td> </tr> <tr> <td>FACW species <u>35</u></td> <td>x 2 = <u>70</u></td> </tr> <tr> <td>FAC species <u>30</u></td> <td>x 3 = <u>90</u></td> </tr> <tr> <td>FACU species <u>40</u></td> <td>x 4 = <u>160</u></td> </tr> <tr> <td>UPL species <u>10</u></td> <td>x 5 = <u>50</u></td> </tr> <tr> <td>Column Totals: <u>170</u> (A)</td> <td><u>425</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>2.50</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>55</u>	x 1 = <u>55</u>	FACW species <u>35</u>	x 2 = <u>70</u>	FAC species <u>30</u>	x 3 = <u>90</u>	FACU species <u>40</u>	x 4 = <u>160</u>	UPL species <u>10</u>	x 5 = <u>50</u>	Column Totals: <u>170</u> (A)	<u>425</u> (B)	Prevalence Index = B/A = <u>2.50</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>55</u>	x 1 = <u>55</u>																			
FACW species <u>35</u>	x 2 = <u>70</u>																			
FAC species <u>30</u>	x 3 = <u>90</u>																			
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UPL species <u>10</u>	x 5 = <u>50</u>																			
Column Totals: <u>170</u> (A)	<u>425</u> (B)																			
Prevalence Index = B/A = <u>2.50</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Amelanchier arborea</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		<u>10</u>	=Total Cover	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Carex straminea</u>	<u>55</u>	<u>Yes</u>	<u>OBL</u>																	
2. <u>Pteridium aquilinum</u>	<u>15</u>	<u>No</u>	<u>FACU</u>																	
3. <u>Eurybia macrophylla</u>	<u>10</u>	<u>No</u>	<u>UPL</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
		<u>80</u>	=Total Cover	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.																
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
		_____	=Total Cover																	
Hydrophytic Vegetation Present? Yes <u>X</u> No _____																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: W102-1W

[illegible]

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

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.)

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
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.			

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)		
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)			Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>115</u></td> <td>x 2 = <u>230</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>115</u> (A)</td> <td><u>230</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>115</u>	x 2 = <u>230</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>115</u> (A)	<u>230</u> (B)	Prevalence Index = B/A = <u>2.00</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>115</u>	x 2 = <u>230</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>115</u> (A)	<u>230</u> (B)																			
Prevalence Index = B/A = <u>2.00</u>																				
=Total Cover																				
Sapling/Shrub Stratum (Plot size: 15')																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
=Total Cover																				
Herb Stratum (Plot size: 5')																				
1. <i>Phalaris arundinacea</i>	70	Yes	FACW																	
2. <i>Rubus pubescens</i>	25	Yes	FACW																	
3. <i>Solidago gigantea</i>	20	No	FACW																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
115 =Total Cover																				
Woody Vine Stratum (Plot size: 30')				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.																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
=Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>																

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		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
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

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R,	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> MLRA 149B)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Mesic Spodic (A17)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (F21) (outside MLRA 145)			
<input type="checkbox"/> (MLRA 144A, 145, 149B)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (F22)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Marl (F10) (LRR K, L)				
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 145)				

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

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

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.)

Hydrophytic Vegetation Present?	Yes <u> X </u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> X </u> No <u> </u> If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes <u> X </u> No <u> </u>	
Wetland Hydrology Present?	Yes <u> X </u> No <u> </u>	
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.		

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)					
<input type="checkbox"/> Surface Water (A1)		<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)		<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)		<input type="checkbox"/> Marl Deposits (B15)		<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)		<input type="checkbox"/> Hydrogen Sulfide Odor (C1)		<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)		<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)		<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift Deposits (B3)		<input type="checkbox"/> Presence of Reduced Iron (C4)		<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)		<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)		<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Thin Muck Surface (C7)		<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)				<input type="checkbox"/> Microtopographic Relief (D4)	
				<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:					
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<input type="checkbox"/> 10		
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<input type="checkbox"/> 0		
(includes capillary fringe)					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 40%;">Total % Cover of:</th> <th style="width: 60%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>25</u></td> <td>x 1 = <u>25</u></td> </tr> <tr> <td>FACW species <u>115</u></td> <td>x 2 = <u>230</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>140</u> (A)</td> <td><u>255</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>1.82</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>25</u>	x 1 = <u>25</u>	FACW species <u>115</u>	x 2 = <u>230</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>140</u> (A)	<u>255</u> (B)	Prevalence Index = B/A = <u>1.82</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>25</u>	x 1 = <u>25</u>																			
FACW species <u>115</u>	x 2 = <u>230</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>140</u> (A)	<u>255</u> (B)																			
Prevalence Index = B/A = <u>1.82</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Salix interior</u>	<u>50</u>	<u>Yes</u>	<u>FACW</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Phalaris arundinacea</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Carex stricta</u>	<u>25</u>	<u>Yes</u>	<u>OBL</u>																	
3. <u>Rubus pubescens</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>																	
4. <u>Salix interior</u>	<u>10</u>	<u>No</u>	<u>FACW</u>																	
5. <u>Solidago gigantea</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
=Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
=Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present?																
				Yes <u>X</u> No _____																

SOIL

Sampling Point: W103-1W

[illegible]

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)
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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 <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u> If yes, optional Wetland Site ID: <u> </u>
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Remarks: (Explain alternative procedures here or in a separate report.)
Climatic conditions are wet for this time of the year.

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <u> </u> Surface Water (A1) <u> </u> Water-Stained Leaves (B9) <u> </u> High Water Table (A2) <u> </u> Aquatic Fauna (B13) <u> </u> Saturation (A3) <u> </u> Marl Deposits (B15) <u> </u> Water Marks (B1) <u> </u> Hydrogen Sulfide Odor (C1) <u> </u> Sediment Deposits (B2) <u> </u> Oxidized Rhizospheres on Living Roots (C3) <u> </u> Drift Deposits (B3) <u> </u> Presence of Reduced Iron (C4) <u> </u> Algal Mat or Crust (B4) <u> </u> Recent Iron Reduction in Tilled Soils (C6) <u> </u> Iron Deposits (B5) <u> </u> Thin Muck Surface (C7) <u> </u> Inundation Visible on Aerial Imagery (B7) <u> </u> Other (Explain in Remarks) <u> </u> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> <u> </u> Surface Soil Cracks (B6) <u> </u> Drainage Patterns (B10) <u> </u> Moss Trim Lines (B16) <u> </u> Dry-Season Water Table (C2) <u> </u> Crayfish Burrows (C8) <u> </u> Saturation Visible on Aerial Imagery (C9) <u> </u> Stunted or Stressed Plants (D1) <u> </u> Geomorphic Position (D2) <u> </u> Shallow Aquitard (D3) <u> </u> Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>18</u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>16</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Populus tremuloides</i></u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>15</u> =Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>45</u></td> <td>x 2 = <u>90</u></td> </tr> <tr> <td>FAC species <u>80</u></td> <td>x 3 = <u>240</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>125</u> (A)</td> <td><u>330</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>2.64</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>45</u>	x 2 = <u>90</u>	FAC species <u>80</u>	x 3 = <u>240</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>125</u> (A)	<u>330</u> (B)	Prevalence Index = B/A = <u>2.64</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>45</u>	x 2 = <u>90</u>																			
FAC species <u>80</u>	x 3 = <u>240</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>125</u> (A)	<u>330</u> (B)																			
Prevalence Index = B/A = <u>2.64</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u><i>Populus tremuloides</i></u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>																	
2. <u><i>Alnus incana</i></u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>20</u> =Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u><i>Rubus idaeus</i></u>	<u>40</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u><i>Solidago gigantea</i></u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u><i>Poa trivialis</i></u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>																	
4. <u><i>Castilleja coccinea</i></u>	<u>10</u>	<u>No</u>	<u>FAC</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>90</u> =Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____	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.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ =Total Cover																				
Hydrophytic Vegetation Present? Yes <u>X</u> No _____																				

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

SOIL

Sampling Point: W200-1U

[illegible]

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Populus tremuloides</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>5</u> =Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>110</u></td> <td>x 2 = <u>220</u></td> </tr> <tr> <td>FAC species <u>25</u></td> <td>x 3 = <u>75</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>135</u> (A)</td> <td><u>295</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>2.19</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>110</u>	x 2 = <u>220</u>	FAC species <u>25</u>	x 3 = <u>75</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>135</u> (A)	<u>295</u> (B)	Prevalence Index = B/A = <u>2.19</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>110</u>	x 2 = <u>220</u>																			
FAC species <u>25</u>	x 3 = <u>75</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>135</u> (A)	<u>295</u> (B)																			
Prevalence Index = B/A = <u>2.19</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Populus tremuloides</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>																	
2. <u>Alnus incana</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>20</u> =Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Phalaris arundinacea</u>	<u>80</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Poa trivialis</u>	<u>15</u>	<u>No</u>	<u>FACW</u>																	
3. <u>Rubus idaeus</u>	<u>10</u>	<u>No</u>	<u>FAC</u>																	
4. <u>Solidago gigantea</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>110</u> =Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ =Total Cover																				
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 <u>X</u> No _____																				
Remarks: (Include photo numbers here or on a separate sheet.) 																				

SOIL

Sampling Point: W200-1W

[illegible]

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

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

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

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)			
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="text" value="22"/> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="text" value="18"/> (includes capillary fringe)				Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ =Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 40%;">Total % Cover of:</th> <th style="width: 60%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>70</u></td> <td>x 2 = <u>140</u></td> </tr> <tr> <td>FAC species <u>5</u></td> <td>x 3 = <u>15</u></td> </tr> <tr> <td>FACU species <u>40</u></td> <td>x 4 = <u>160</u></td> </tr> <tr> <td>UPL species <u>10</u></td> <td>x 5 = <u>50</u></td> </tr> <tr> <td>Column Totals: <u>125</u> (A)</td> <td><u>365</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.92</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>70</u>	x 2 = <u>140</u>	FAC species <u>5</u>	x 3 = <u>15</u>	FACU species <u>40</u>	x 4 = <u>160</u>	UPL species <u>10</u>	x 5 = <u>50</u>	Column Totals: <u>125</u> (A)	<u>365</u> (B)	Prevalence Index = B/A = <u>2.92</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>70</u>	x 2 = <u>140</u>																			
FAC species <u>5</u>	x 3 = <u>15</u>																			
FACU species <u>40</u>	x 4 = <u>160</u>																			
UPL species <u>10</u>	x 5 = <u>50</u>																			
Column Totals: <u>125</u> (A)	<u>365</u> (B)																			
Prevalence Index = B/A = <u>2.92</u>																				
Sapling/Shrub Stratum (Plot size: 15')																				
1. <i>Alnus incana</i>	10	Yes	FACW																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
10 =Total Cover																				
Herb Stratum (Plot size: 5')																				
1. <i>Solidago gigantea</i>	40	Yes	FACW																	
2. <i>Corylus cornuta</i>	20	Yes	FACU																	
3. <i>Poa trivialis</i>	20	Yes	FACW																	
4. <i>Rubus allegheniensis</i>	10	No	FACU																	
5. <i>Phleum pratense</i>	10	No	FACU																	
6. <i>Hieracium caespitosum</i>	5	No	UPL																	
7. <i>Calystegia sepium</i>	5	No	FAC																	
8. <i>Apocynum androsaemifolium</i>	5	No	UPL																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
115 =Total Cover																				
Woody Vine Stratum (Plot size: 30')																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ =Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

Hydrophytic Vegetation Indicators:

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0¹

☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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 ☐

SOIL

Sampling Point: W202-1U

[illegible]

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

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

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

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)			
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)			
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="text" value="9"/> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <input type="text" value="1"/> (includes capillary fringe)				Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 40%;">Total % Cover of:</th> <th style="width: 60%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>10</u></td> <td>x 1 = <u>10</u></td> </tr> <tr> <td>FACW species <u>75</u></td> <td>x 2 = <u>150</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>65</u></td> <td>x 4 = <u>260</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>150</u> (A)</td> <td><u>420</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.80</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>10</u>	x 1 = <u>10</u>	FACW species <u>75</u>	x 2 = <u>150</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>65</u>	x 4 = <u>260</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>150</u> (A)	<u>420</u> (B)	Prevalence Index = B/A = <u>2.80</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>10</u>	x 1 = <u>10</u>																			
FACW species <u>75</u>	x 2 = <u>150</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>65</u>	x 4 = <u>260</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>150</u> (A)	<u>420</u> (B)																			
Prevalence Index = B/A = <u>2.80</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Alnus incana</u>	<u>25</u>	<u>Yes</u>	<u>FACW</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Phalaris arundinacea</u>	<u>50</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Pteridium aquilinum</u>	<u>35</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Phleum pratense</u>	<u>20</u>	<u>No</u>	<u>FACU</u>																	
4. <u>Poa annua</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Cicuta maculata</u>	<u>10</u>	<u>No</u>	<u>OBL</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
=Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
=Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.) 				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																

SOIL

Sampling Point: W202-1W

[illegible]

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)
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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 ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </div> <div style="width: 50%;"> <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) </div> </div>	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

Sampling Point: SP-01

Tree Stratum (Plot size: 30')		Absolute % Cover	Dominant Species?	Indicator Status
1.	<i>Pinus resinosa</i>	70	Yes	FACU
2.				
3.				
4.				
5.				
6.				
7.				
		70	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')		Absolute % Cover	Dominant Species?	Indicator Status
1.	<i>Pteridium aquilinum</i>	30	Yes	FACU
2.	<i>Aralia nudicaulis</i>	30	Yes	FACU
3.	<i>Plantago major</i>	15	No	FACU
4.	<i>Acer rubrum</i>	15	No	FAC
5.	<i>Trientalis borealis</i>	10	No	FAC
6.				
7.				
		100	=Total Cover	
Herb Stratum (Plot size: 5')		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
			=Total Cover	
Woody Vine Stratum (Plot size: 30')		Absolute % Cover	Dominant Species?	Indicator Status
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 ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

[illegible]

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

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

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> 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.	

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)				<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)				Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:							
Remarks:							

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Quercus rubra</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		<u>10</u>	=Total Cover	Prevalence Index worksheet: <table style="width: 100%;"> <thead> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>40</u></td> <td>x 2 = <u>80</u></td> </tr> <tr> <td>FAC species <u>25</u></td> <td>x 3 = <u>75</u></td> </tr> <tr> <td>FACU species <u>80</u></td> <td>x 4 = <u>320</u></td> </tr> <tr> <td>UPL species <u>97</u></td> <td>x 5 = <u>485</u></td> </tr> <tr> <td>Column Totals: <u>242</u> (A)</td> <td><u>960</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.97</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>40</u>	x 2 = <u>80</u>	FAC species <u>25</u>	x 3 = <u>75</u>	FACU species <u>80</u>	x 4 = <u>320</u>	UPL species <u>97</u>	x 5 = <u>485</u>	Column Totals: <u>242</u> (A)	<u>960</u> (B)	Prevalence Index = B/A = <u>3.97</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>40</u>	x 2 = <u>80</u>																			
FAC species <u>25</u>	x 3 = <u>75</u>																			
FACU species <u>80</u>	x 4 = <u>320</u>																			
UPL species <u>97</u>	x 5 = <u>485</u>																			
Column Totals: <u>242</u> (A)	<u>960</u> (B)																			
Prevalence Index = B/A = <u>3.97</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Populus balsamifera</u>	<u>40</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Acer rubrum</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		<u>65</u>	=Total Cover																	
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Rubus occidentalis</u>	<u>95</u>	<u>Yes</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Pteridium aquilinum</u>	<u>70</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Verbascum thapsus</u>	<u>2</u>	<u>No</u>	<u>UPL</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
		<u>167</u>	=Total Cover																	
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____	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.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____	_____	_____	_____																	
		_____	=Total Cover																	
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: SP-02

[illegible]

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

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

Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u> X </u> Wetland Hydrology Present? Yes <u> </u> No <u> X </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u> X </u> 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.	

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)		
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)			Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>35</u></td> <td>x 2 = <u>70</u></td> </tr> <tr> <td>FAC species <u>25</u></td> <td>x 3 = <u>75</u></td> </tr> <tr> <td>FACU species <u>35</u></td> <td>x 4 = <u>140</u></td> </tr> <tr> <td>UPL species <u>25</u></td> <td>x 5 = <u>125</u></td> </tr> <tr> <td>Column Totals: <u>120</u> (A)</td> <td><u>410</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.42</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>35</u>	x 2 = <u>70</u>	FAC species <u>25</u>	x 3 = <u>75</u>	FACU species <u>35</u>	x 4 = <u>140</u>	UPL species <u>25</u>	x 5 = <u>125</u>	Column Totals: <u>120</u> (A)	<u>410</u> (B)	Prevalence Index = B/A = <u>3.42</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>35</u>	x 2 = <u>70</u>																			
FAC species <u>25</u>	x 3 = <u>75</u>																			
FACU species <u>35</u>	x 4 = <u>140</u>																			
UPL species <u>25</u>	x 5 = <u>125</u>																			
Column Totals: <u>120</u> (A)	<u>410</u> (B)																			
Prevalence Index = B/A = <u>3.42</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Acer rubrum</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>																	
2. <u>Populus tremuloides</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u>Alnus incana</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Solidago gigantea</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Phleum pratense</u>	<u>25</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Bromus inermis</u>	<u>20</u>	<u>Yes</u>	<u>UPL</u>																	
4. <u>Pteridium aquilinum</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Chamaenerion angustifolium</u>	<u>10</u>	<u>No</u>	<u>FAC</u>																	
6. <u>Leucanthemum vulgare</u>	<u>5</u>	<u>No</u>	<u>UPL</u>																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
_____ = Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ = Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
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

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> High Chroma Sands (S11) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Mesic Spodic (A17) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> (MLRA 144A, 145, 149B) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Marl (F10) (LRR K, L) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Red Parent Material (F21) (MLRA 145) |
| <input type="checkbox"/> Stripped Matrix (S6) | |

Indicators for Problematic Hydric Soils³:

- | |
|--|
| <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Red Parent Material (F21) (outside MLRA 145) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (Explain in Remarks) |

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

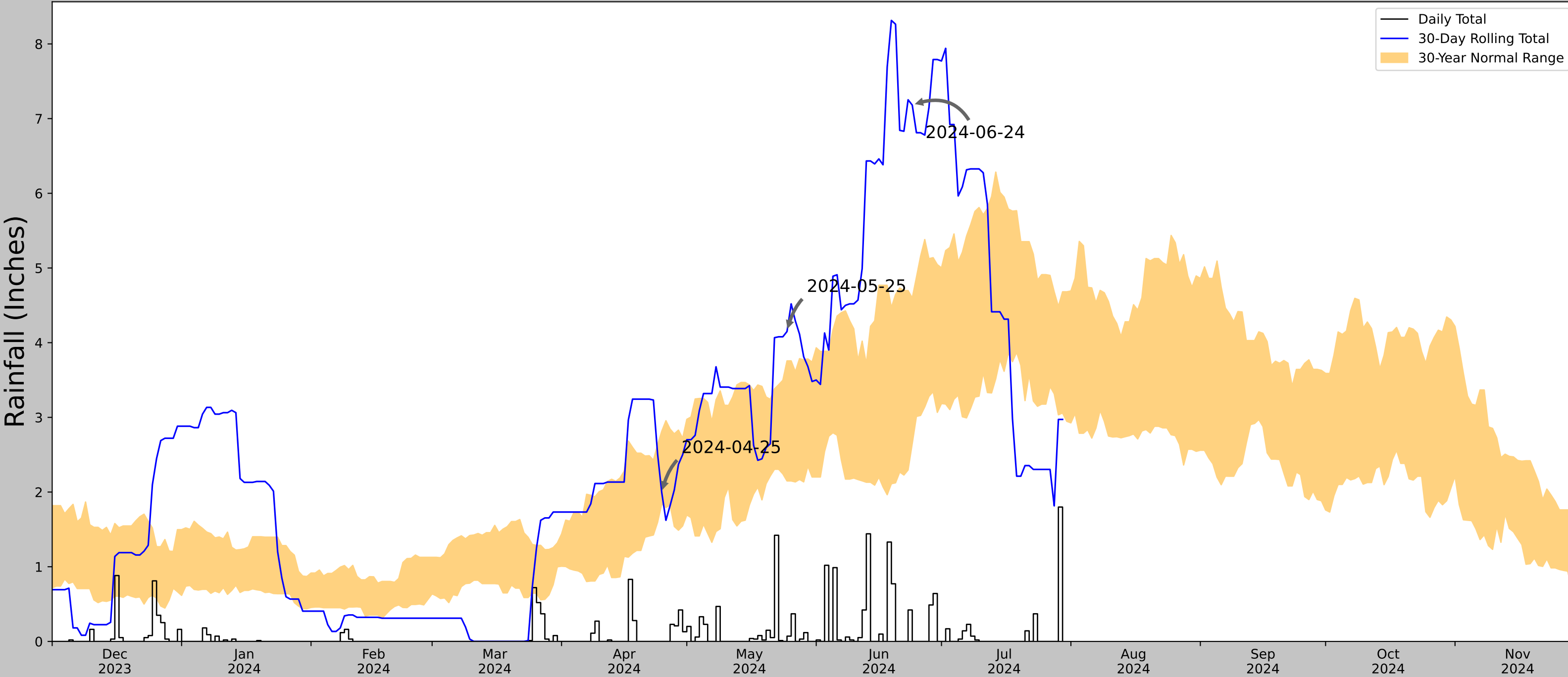
Hydric Soil Present? Yes _____ No X

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 ₂ O 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

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



US Army Corps
of Engineers®

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



ERDC
ENGINEER RESEARCH AND DEVELOPMENT CENTER

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.

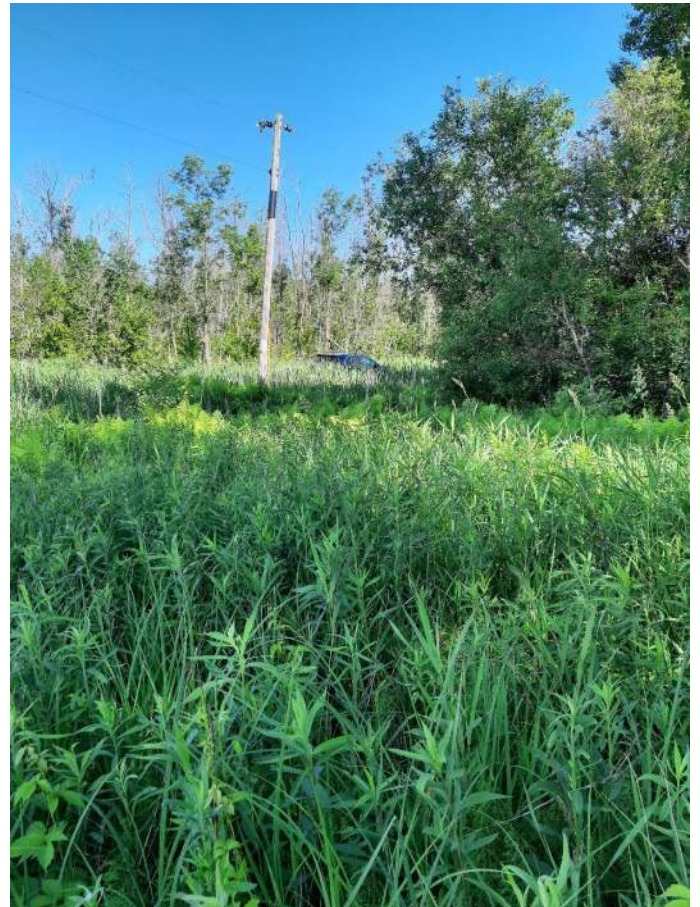


Photo 14: Type 2 portion of Wetland 7 facing northwest.



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.

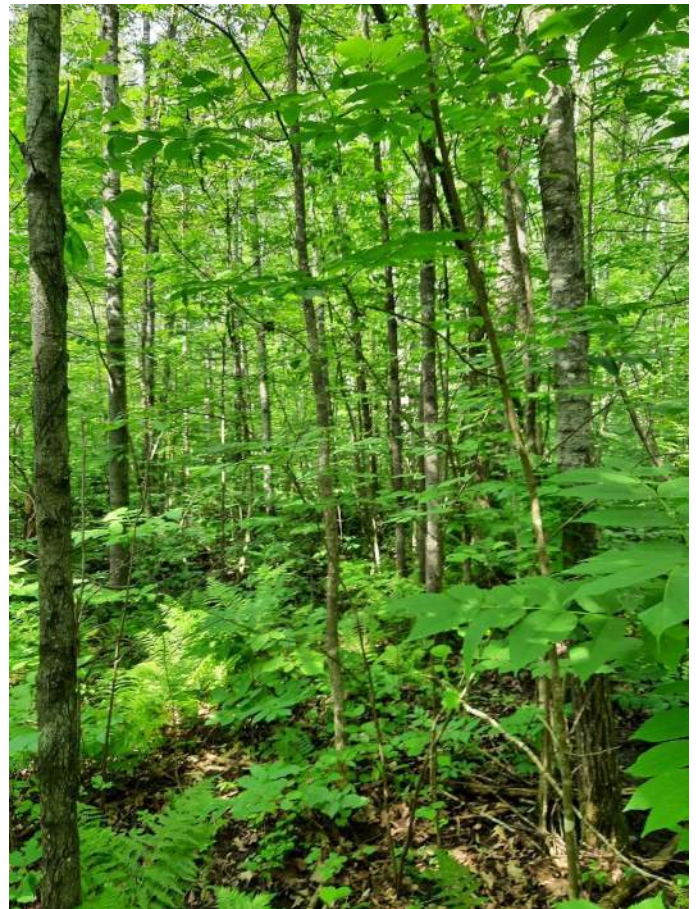


Photo 30: Southwest side of Wetland 12 facing northeast.



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.

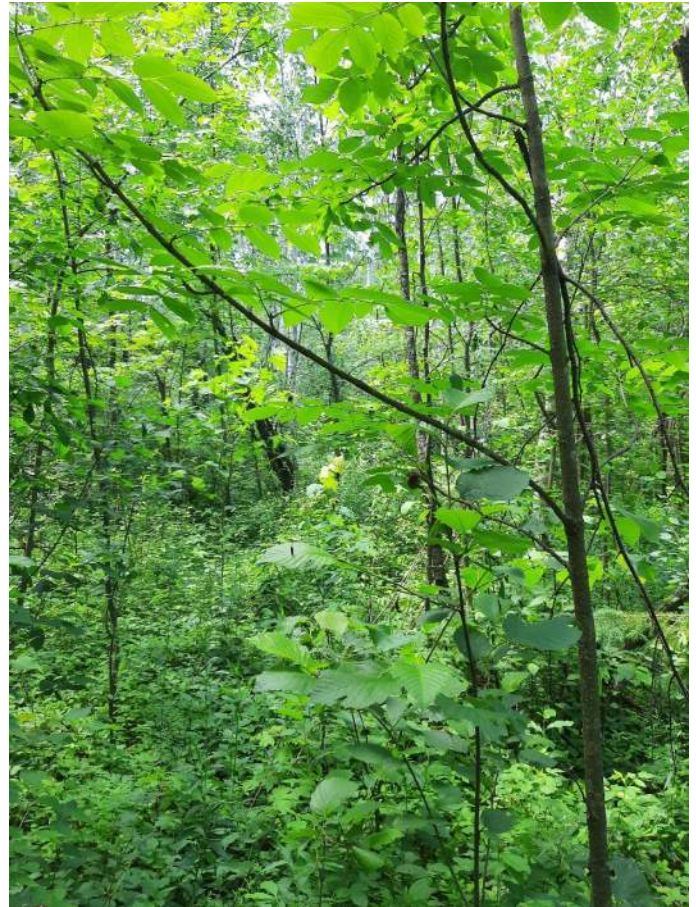


Photo 36: North side of Wetland 18 facing south.



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.

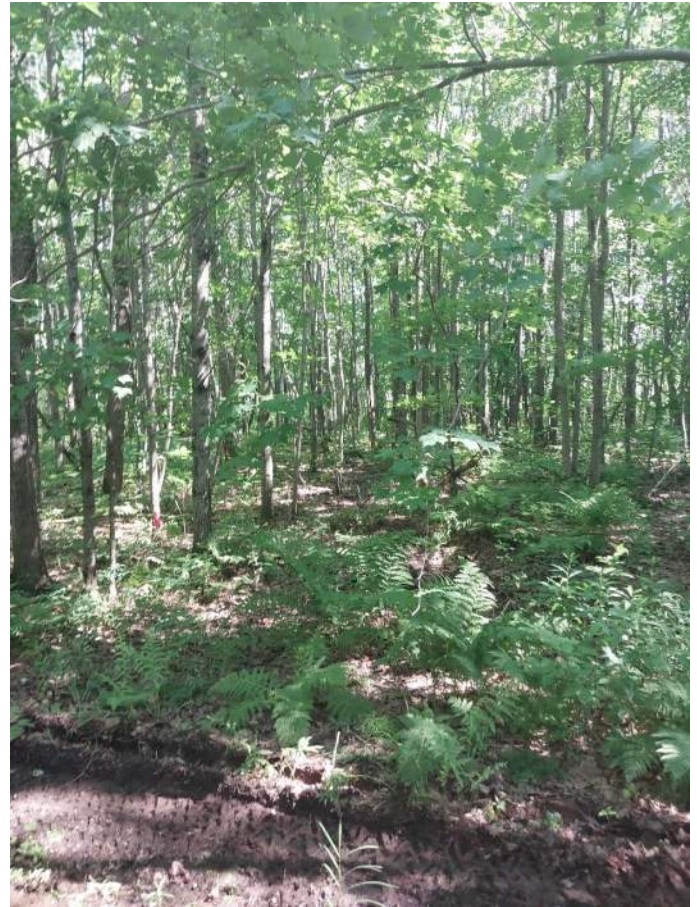


Photo 50: Wetland 26 facing northeast.



Photo 51: Wetland 27 facing east.

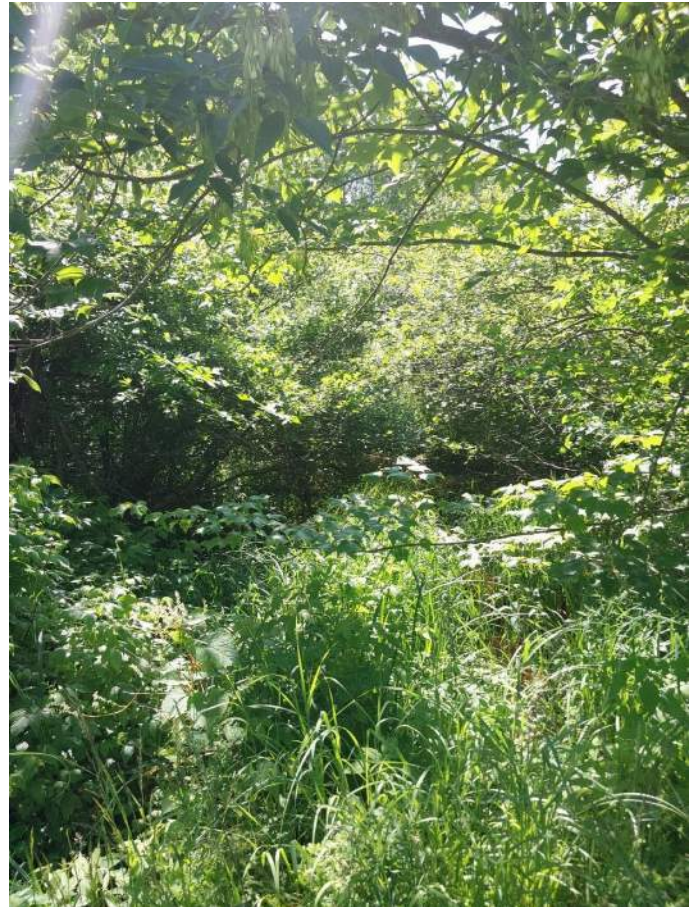


Photo 52: Wetland 28 facing northwest.



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.

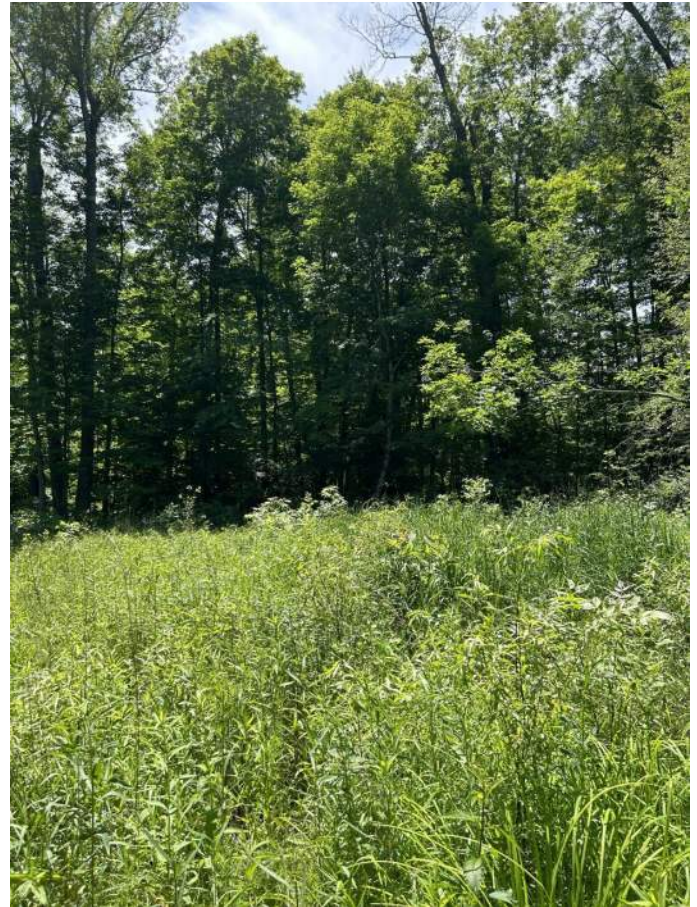


Photo 70: Wetland 44 facing south.



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.

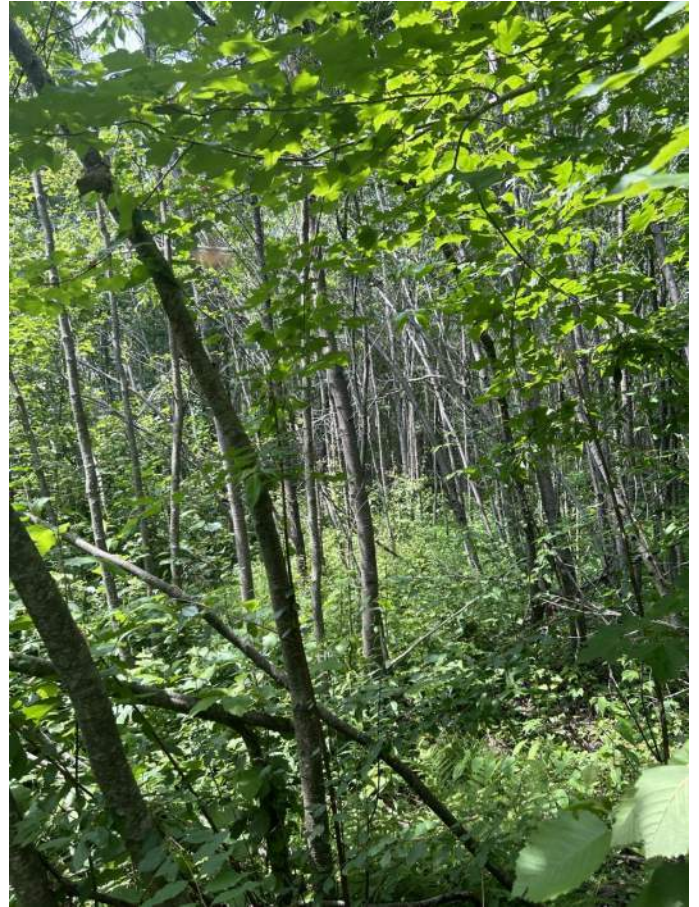


Photo 134: Wetland 225 facing west.



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.

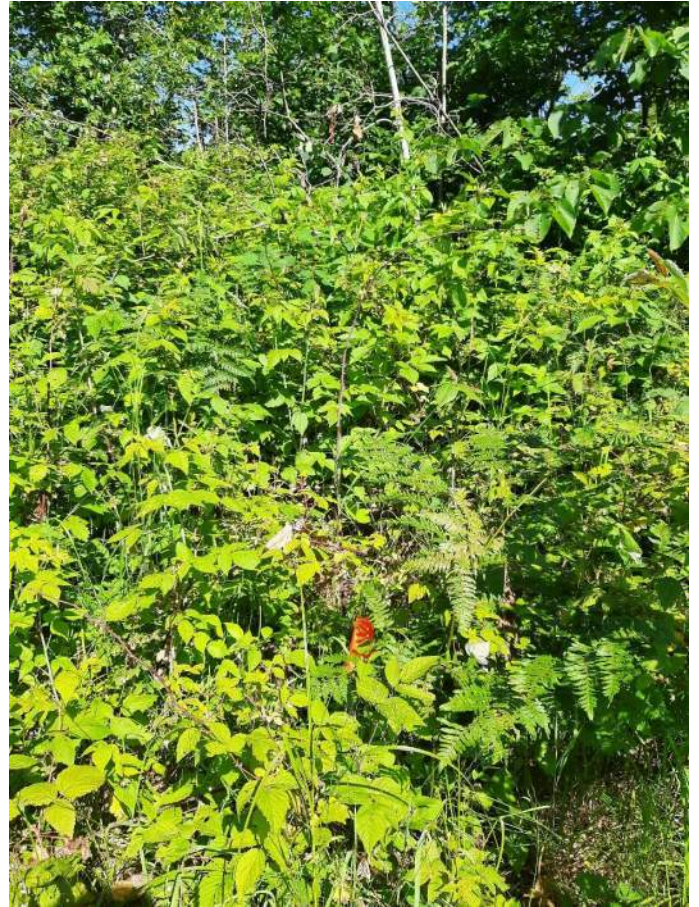


Photo 146: WD2-1U facing north.



Photo 147: WD2-1W facing west.

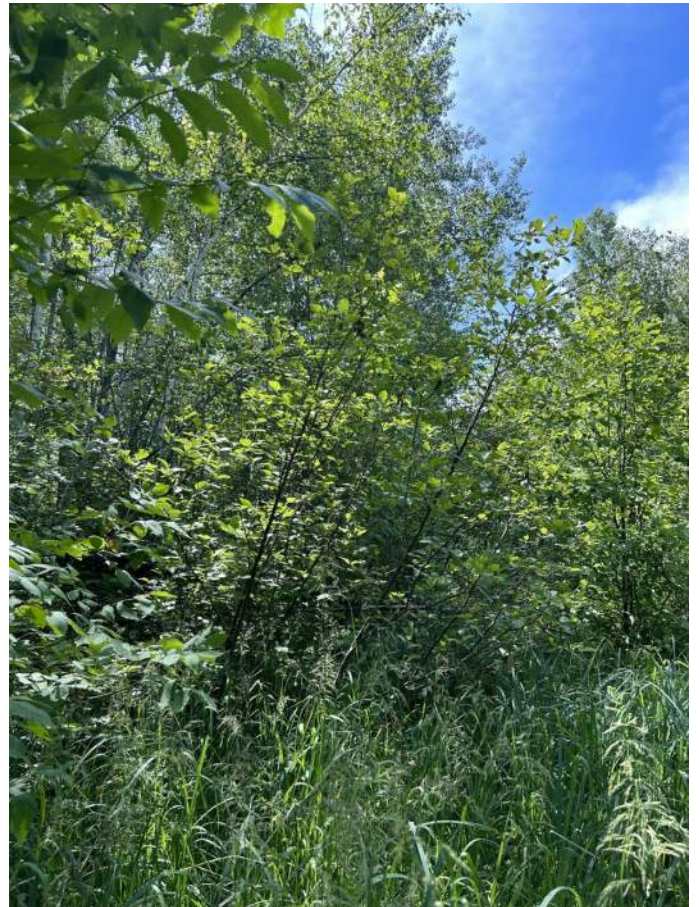


Photo 148: Wetland Ditch 3 facing southeast.



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.

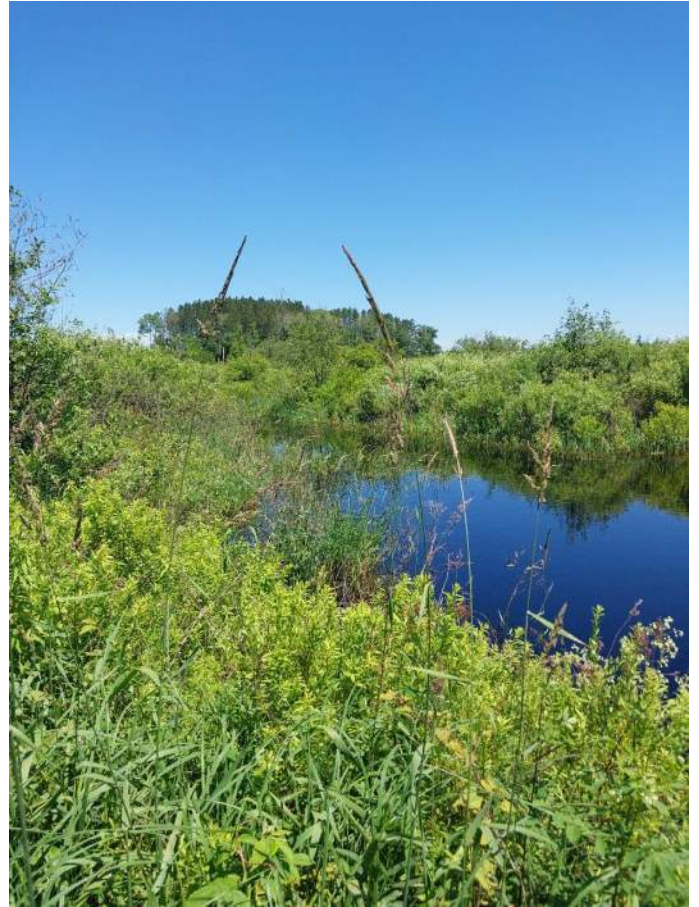


Photo 156: Stream 6 facing northwest.



Photo 157: Sample Point 1 facing north.



Photo 158: Sample Point 2 facing east.

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

<input checked="" type="checkbox"/> Wetland Boundary/Type <input type="checkbox"/> Sequencing <input type="checkbox"/> Replacement Plan <input type="checkbox"/> Bank Plan (not credit purchase)
<input type="checkbox"/> No-Loss (8420.0415) <input type="checkbox"/> Exemption (8420.0420)
Part: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H Subpart: <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9

Replacement Plan Impacts (replacement plan decisions only)

Total WCA Wetland Impact Area:
Wetland Replacement Type: <input type="checkbox"/> Project Specific Credits:
<input type="checkbox"/> Bank Credits:
Bank Account Number(s):

Technical Evaluation Panel Findings and Recommendations (attach if any)

<input checked="" type="checkbox"/> Approve <input type="checkbox"/> Approve w/Conditions <input type="checkbox"/> Deny <input type="checkbox"/> No TEP Recommendation
--

LGU Decision

<input type="checkbox"/> Approved with Conditions (specify below) ¹ <input checked="" type="checkbox"/> Approved ¹ <input type="checkbox"/> Denied
List Conditions:
Decision-Maker for this Application: <input checked="" type="checkbox"/> Staff <input type="checkbox"/> Governing Board/Council <input type="checkbox"/> Other:
Decision is valid for: <input checked="" type="checkbox"/> 5 years (default) <input type="checkbox"/> 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 decision¹.

<input type="checkbox"/> Attachment(s) (specify):
<input checked="" type="checkbox"/> Summary: On October 17, 2024, a site visit was conducted by Aitkin County Wetland Specialist Henry Eglund, 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

<input checked="" type="checkbox"/> Site Location Map <input type="checkbox"/> 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?

☐ Yes¹ ☒ No

¹If 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:

<input checked="" type="checkbox"/> SWCD TEP Member: Chelsey Koebernick	<input checked="" type="checkbox"/> BWSR TEP Member: Matt Johnson
<input type="checkbox"/> LGU TEP Member (if different than LGU contact):	
<input checked="" type="checkbox"/> DNR Representative: Jacob Frie	
<input type="checkbox"/> Watershed District or Watershed Mgmt. Org.:	
<input checked="" type="checkbox"/> Applicant: Dennis Thompson	<input checked="" type="checkbox"/> Agent/Consultant: Joey Goeden

Optional or As Applicable:

<input checked="" type="checkbox"/> Corps of Engineers: St. Paul	
<input type="checkbox"/> BWSR Wetland Mitigation Coordinator (required for bank plan applications only):	
<input checked="" type="checkbox"/> Members of the Public (notice only):	<input type="checkbox"/> Other:

Signature: <i>Henry Egland</i>	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

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 VIERKANDT,	Township 45	Range 22	Dir Section W 26	Subsection CADBBC	Well Depth 105 ft.	Depth Completed 105 ft.	Date Well Completed 02/02/1977
Elevation 1304	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Air Rotary				Drill Fluid	
Address Contact BOX 158 WYOMING MN 55092					Use domestic	Status Active	
Stratigraphy Information Geological Material From To (ft.) Color Hardness CLAY 0 33 BROWN MEDIUM GRANITE 33 105 DK. GRY HARD					Well Hydrofractured? Yes <input type="checkbox"/> No <input type="checkbox"/> From To		
					Casing Type Single casing Joint Threaded		
					Drive Shoe? Yes <input type="checkbox"/> No <input type="checkbox"/> Above/Below 1 ft.		
					Casing Diameter Weight 6 in. To 35 ft. lbs./ft.		
					Open Hole From 35 ft. To 105 ft.		
					Screen? <input type="checkbox"/> 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 <input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)		
					Grouting Information Well Grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Specified		
Remarks					Nearest Known Source of Contamination 100 feet South Direction Barnyard Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
					Pump <input checked="" type="checkbox"/> 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)? <input type="checkbox"/> Yes <input type="checkbox"/> No		
					Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> 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		

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 DEMAR, LEROY					Township 44	Range 25	Dir W	Section 2	Subsection ACADCC	Well Depth 80 ft.	Depth Completed 80 ft.	Date Well Completed 07/30/2012																														
Elevation 1308					Elev. Method 7.5 minute topographic map (+/- 5 feet)		Drill Method Drill Fluid																																			
Address C/W 29345 220TH ST ISLE MN 56342										Use test well Status Sealed																																
Stratigraphy Information										Well Hydrofractured? Yes <input type="checkbox"/> No <input type="checkbox"/> From To																																
<table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>CLAY</td><td>0</td><td>21</td><td>BROWN</td><td>HARD</td></tr><tr><td>CLAY ROCKS</td><td>21</td><td>30</td><td>BROWN</td><td>HARD</td></tr><tr><td>SAND</td><td>30</td><td>32</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>CLAY ROCKS</td><td>32</td><td>71</td><td>GRAY</td><td>HARD</td></tr><tr><td>SAND</td><td>71</td><td>80</td><td>GRAY</td><td>MEDIUM</td></tr></table>										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	Casing Type Joint		
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																																						
										Drive Shoe? Yes <input type="checkbox"/> No <input type="checkbox"/> Above/Below																																
Open Hole From ft. To ft.																																										
Screen? <input type="checkbox"/> Type Make																																										
Static Water Level																																										
Pumping Level (below land surface)																																										
Wellhead Completion Pitless adapter manufacturer Model <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																																										
Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified Material Amount From To bentonite 3 Sacks ft. 80 ft.																																										
Nearest Known Source of Contamination feet Direction Type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No																																										
Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input type="checkbox"/> No																																										
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> 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																																										
Remarks WELL SEALED ON 6/17/2013 BY 1933 COULD NOT MAKE WELL - IT WAS PUMPING SAND. SEE UNIQUE NUMBER 792370.																																										

Minnesota Well Index Report

332633

Printed on 01/30/2025
HE-01205-15

Entry Date	10/31/1990
Update Date	01/03/2020
Received Date	

Well Name ERICKSON,					Township 45	Range 22	Dir Section W 22	Subsection DDDAAC	Well Depth 145 ft.					Depth Completed 145 ft.			Date Well Completed 05/27/1988			
Elevation 1283					Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Non-specified Rotary			Drill Fluid Bentonite							
Address									Use domestic									Status Active		
Contact RR 3 BOX 86 MCGRATH MN 56350									Well Hydrofractured? Yes <input type="checkbox"/> No <input type="checkbox"/> From To											
Stratigraphy Information									Casing Type Single casing									Joint Threaded		
Drive Shoe? Yes <input type="checkbox"/> No <input type="checkbox"/> Above/Below									Casing Diameter 6 in. To 42 ft.									Weight lbs./ft.		
Geological Material SANDY CLAY SAND SANDY CLAY CLAY & ROCK SANDY CLAY CLAY & GRAVEL CLAY & ROCK SILTY SAND CLAY & ROCK GRANITE									From 0 7 9 17 21 29 33 36 36 36			To (ft.) 7 9 17 21 29 33 36 36 40 145			Color BROWN BROWN BROWN BROWN BROWN BROWN GRAY BROWN GRAY GRAY			Hardness M.SOFT		
Open Hole From 42 ft. To 145 ft.									Screen? <input type="checkbox"/> 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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)									Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									Pump <input checked="" type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No									Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> 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																				
Remarks																				

Minnesota Well Index Report

441223

Printed on 01/30/2025
HE-01205-15

453720

County Aitkin
Quad Malmö
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 OTT, GEORGE					Township 45	Range 25	Dir W	Section 33	Subsection CCCBBD	Well Depth 68 ft.	Depth Completed 68 ft.	Date Well Completed 07/21/1989																										
Elevation 1272					Elev. Method 7.5 minute topographic map (+/- 5 feet)					Drill Method Non-specified Rotary	Drill Fluid Bentonite																											
Address C/W GLEN RT BOX 244 AITKIN MN 56431										Use domestic	Status Active																											
Stratigraphy Information <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>SANDY CLAY</td><td>0</td><td>32</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>CLAY</td><td>32</td><td>59</td><td>GRAY</td><td>MEDIUM</td></tr><tr><td>SAND</td><td>59</td><td>64</td><td>GRAY</td><td>SOFT</td></tr><tr><td>BROKEN LEDGE</td><td>64</td><td>68</td><td></td><td>HARD</td></tr></table>										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	Well Hydrofractured? Yes <input type="checkbox"/> No <input type="checkbox"/>		From To	
										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																								
										Casing Type Single casing		Joint																										
										Drive Shoe? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Above/Below 1 ft.																										
										Casing Diameter 4 in.		Weight 60 ft. lbs./ft.																										
										Open Hole From ft. To ft.																												
Screen? <input checked="" type="checkbox"/>		Type stainless		Make JOHNSON																																		
Diameter 2 in.		Slot/Gauze 12		Set 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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																																						
Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified Material neat cement Amount 10 ft. 30 ft.																																						
Nearest Known Source of Contamination 100 feet Direction Septic tank/drain field Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																						
Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																						
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> 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																																						

520670

County Aitkin
Quad Split Rock
Quad ID 207B

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date10/20/1993
Update Date05/16/2017
Received Date09/30/1993

Well Name CRANCER,	Township 45	Range 22	Dir W	Section 5	Subsection BBBBCA	Well Depth 65 ft.	Depth Completed 65 ft.	Date Well Completed 06/22/1993
Elevation 1292	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Non-specified Rotary		Drill Fluid Bentonite				
Address Contact 861 IVY AV E ST PAUL MN 55106						Use domestic	Status Active	
Stratigraphy Information						Well Hydrofractured? Yes <input type="checkbox"/> No <input type="checkbox"/>	From To	
Geological Material						Casing Type Single casing	Joint Threaded	
CLAY/COBBLES						Drive Shoe? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Above/Below	
SANDY CLAY						Casing Diameter 4 in. To 61 ft. 11 lbs./ft.	Hole Diameter 6.2 in. To 65 ft.	
CLAY/COBBLES								
SANDY CLAY								
MED. COARSE SAND								
SILTY FINE SAND								
Open Hole						From ft.	To ft.	
Screen? <input checked="" type="checkbox"/>						Type stainless	Make WESCO	
Diameter 2 in.						Slot/Gauze 12	Length 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 <input type="checkbox"/> Casing Protection						MONITOR	Model	
<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)						<input checked="" type="checkbox"/> 12 in. above grade		
Grouting Information						Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified		
Material bentonite						Amount 2 Sacks	From 0 ft. 30 ft.	
Nearest Known Source of Contamination								
50 feet Northwes Direction						Septic tank/drain field	Type	
Well disinfected upon completion?						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Pump <input type="checkbox"/> Not Installed						Date Installed	07/12/1993	
Manufacturer's name GOULDS						Model Number 10EJ05412	HP 0.5	
Length of drop pipe 49 ft						Capacity 10 g.p.	Volt 230	
Abandoned								
Does property have any not in use and not sealed well(s)?						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Variance								
Was a variance granted from the MDH for this well?						<input type="checkbox"/> Yes <input type="checkbox"/> 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

CountyAitkin

QuadMalmo

Quad ID209D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date11/25/1996

Update Date01/03/2020

Received Date

Well NameHANSON, GENE				Township44	Range25	DirW	Section4	SubsectionACBDAB	Well Depth126 ft.	Depth Completed126 ft.	Date Well Completed05/30/1996								
Elevation1294				Elev. Method		LiDAR 1m DEM (MNDNR)			Drill MethodNon-specified Rotary	Drill FluidBentonite									
Address									Use	domestic	StatusActive								
C/WHC 69 BOX 109 ISLE MN									Well Hydrofractured?			Yes <input type="checkbox"/>	No <input type="checkbox"/>	From	To				
Stratigraphy Information									Casing Type		Single casing		Joint						
									Drive Shoe?		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	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?		<input checked="" type="checkbox"/>		Type		stainless		MakeJOHNSON		
									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					
									<input type="checkbox"/> Casing Protection		<input type="checkbox"/> 12 in. above grade								
									<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)										
Grouting Information									Well Grouted?		<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No		<input type="checkbox"/> 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?									<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No								
Pump									<input type="checkbox"/> 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.		TypSubmersible				
Abandoned									Does property have any not in use and not sealed well(s)?							<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No	
Variance									Was a variance granted from the MDH for this well?							<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> 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								
Remarks																			

Minnesota Well Index Report

577898

Printed on 01/30/2025

HE-01205-15

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 SWENSON, RAY	Township 45	Range 25	Dir W	Section 33	Subsection DDBDDA	Well Depth 65 ft.	Depth Completed 65 ft.	Date Well Completed 10/16/1996
Elevation 1279	Elev. Method LiDAR 1m DEM (MNDNR)				Drill Method Non-specified Rotary	Drill Fluid Bentonite		
Address C/W HC 69 BOX 129 ISLE MN 56342						Use domestic	Status Active	
						Well Hydrofractured? Yes <input type="checkbox"/> No <input type="checkbox"/>	From To	
Stratigraphy Information						Casing Type Single casing	Joint Above/Below	
Geological Material SAND CLAY & ROCK SAND						From 0 50	To (ft.) 50 65	Color BROWN BROWN
						Hardness MEDIUM MEDIUM		
						Casing Diameter 6 in.	Weight To 57 ft. lbs./ft.	Hole Diameter 6.5 in. To 65 ft.
						Open Hole From ft. To ft.		
						Screen? <input checked="" type="checkbox"/> Type stainless Make JOHNSON		
						Diameter 2 in. Slot/Gauze 10 Length 8 ft. Set 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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)		
						Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified		
						Material bentonite cuttings Amount 0 ft. 30 ft. 30 ft. 65 ft.		
						Nearest Known Source of Contamination <u>50</u> feet Direction Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
						Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
						Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
						Miscellaneous First Bedrock Last Strat sand-brown Aquifer Quat. buried 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		

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 BROUSE,					Township 45	Range 22	Dir Section W 3	Subsection DDDDDC	Well Depth 205 ft.			Depth Completed 205 ft.			Date Well Completed 06/17/1998																																							
Elevation 1296					Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Multiple methods used			Drill Fluid Bentonite																																									
Address Contact 5247 SUMMERS RD DULUTH MN 55803									Use domestic			Status Active																																										
Stratigraphy Information <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>TOPSOIL</td><td>0</td><td>1</td><td>BLACK</td><td>SOFT</td></tr><tr><td>CLAY</td><td>1</td><td>37</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>SILT & MUD</td><td>37</td><td>38</td><td>BROWN</td><td>SOFT</td></tr><tr><td>CLAY</td><td>38</td><td>56</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>SILT</td><td>56</td><td>57</td><td>BROWN</td><td>SOFT</td></tr><tr><td>SHALE</td><td>57</td><td>66</td><td>GRAY</td><td></td></tr><tr><td>SLATE ROCK</td><td>66</td><td>205</td><td>GRY/RED</td><td>M.HARD</td></tr></table>									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	Well Hydrofractured? Yes <input type="checkbox"/> No <input type="checkbox"/>			From To		
									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																																									
									Casing Type Single casing			Joint Welded																																										
Drive Shoe? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			Above/Below																																																			
Casing Diameter 6 in. To 60 ft. 19 lbs./ft.			Hole Diameter 6 in. To 205 ft.																																																			
Open Hole From 60 ft. To 205 ft.																																																						
Screen? <input type="checkbox"/>			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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																																																						
Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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? <input type="checkbox"/> Yes <input type="checkbox"/> No																																																						
Pump <input checked="" type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																																						
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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																																																						

Remarks
NEAREST SOURCE OF CONT: PRIVY.

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 JOHNSON, JEFF	Township 44	Range 25	Dir W	Section 5	Subsection ADADAC	Well Depth 141 ft.	Depth Completed 141 ft.	Date Well Completed 09/10/1997																																			
Elevation 1272	Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Non-specified Rotary	Drill Fluid Bentonite																																				
Address Contact GLEN AITKIN MN 56431						Use domestic	Status Active																																				
Stratigraphy Information <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>TOPSOIL</td><td>0</td><td>3</td><td>BLACK</td><td>MEDIUM</td></tr><tr><td>SAND</td><td>3</td><td>13</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>CLAY & GRAVEL</td><td>13</td><td>60</td><td>GRAY</td><td>MEDIUM</td></tr><tr><td>SAND</td><td>60</td><td>63</td><td>GRAY</td><td>MEDIUM</td></tr><tr><td>CLAY & GRAVEL</td><td>63</td><td>130</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>SAND</td><td>130</td><td>141</td><td>BROWN</td><td>MEDIUM</td></tr></table>						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	Well Hydrofractured? Yes <input type="checkbox"/> No <input type="checkbox"/> From To		
						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																																	
						Casing Type Single casing <input type="checkbox"/> Joint <input type="checkbox"/>																																					
						Drive Shoe? Yes <input type="checkbox"/> No <input type="checkbox"/> Above/Below																																					
Casing Diameter 4 in. To 133 ft. lbs./ft.																																											
Hole Diameter 6.5 in. To 141 ft.																																											
Open Hole From ft. To ft.																																											
Screen? <input checked="" type="checkbox"/> 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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																																											
Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified Material Amount From To bentonite 0 ft. 30 ft. cuttings 30 ft. 141 ft.																																											
Nearest Known Source of Contamination <u>50</u> feet Direction Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																											
Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																											
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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																																											

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 OTT, WILLIAM	Township 45	Range 25	Dir Section W 32	Subsection DDDDAC	Well Depth 132 ft.	Depth Completed 132 ft.	Date Well Completed 03/30/1998																																			
Elevation 1270	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Non-specified Rotary				Drill Fluid Bentonite																																				
Address Contact 228 3RD AV E SHAKOPEE MN 55379					Use domestic	Status Active																																				
Stratigraphy Information <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>SAND</td><td>0</td><td>18</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>SAND</td><td>18</td><td>40</td><td>GRAY</td><td>MEDIUM</td></tr><tr><td>CLAY & ROCK</td><td>40</td><td>80</td><td>GRAY</td><td>MEDIUM</td></tr><tr><td>CLAY & ROCK</td><td>80</td><td>96</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>DIRTY SAND</td><td>96</td><td>110</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>SAND</td><td>110</td><td>132</td><td>BROWN</td><td>MEDIUM</td></tr></table>					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	Well Hydrofractured? Yes <input type="checkbox"/> No <input type="checkbox"/> From To		
					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																																	
					Casing Type Single casing Joint																																					
					Drive Shoe? Yes <input type="checkbox"/> No <input type="checkbox"/> Above/Below																																					
Casing Diameter Weight 4 in. To 124 ft. lbs./ft.																																										
Open Hole From ft. To ft.																																										
Screen? <input checked="" type="checkbox"/> 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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																																										
Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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? <input type="checkbox"/> Yes <input type="checkbox"/> No																																										
Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																										
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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 Hasskamp Bros. Well 01310 LOYD Licensee Business Lic. or Reg. No. Name of Driller																																										

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 PAYNE, DOUG	Township 45	Range 22	Dir W	Section 23	Subsection 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 <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>TOP SOIL</td><td>0</td><td>3</td><td>RED</td><td>SOFT</td></tr><tr><td>CLAY GRAVEL</td><td>3</td><td>17</td><td>RED</td><td>MEDIUM</td></tr><tr><td>AQUIFER</td><td>17</td><td>25</td><td>BROWN</td><td>SOFT</td></tr></table>						Geological Material	From	To (ft.)	Color	Hardness	TOP SOIL	0	3	RED	SOFT	CLAY GRAVEL	3	17	RED	MEDIUM	AQUIFER	17	25	BROWN	SOFT
Geological Material	From	To (ft.)	Color	Hardness																					
TOP SOIL	0	3	RED	SOFT																					
CLAY GRAVEL	3	17	RED	MEDIUM																					
AQUIFER	17	25	BROWN	SOFT																					
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 <input type="checkbox"/> No <input checked="" type="checkbox"/> From To																									
Casing Type Single casing			Joint																						
Drive Shoe? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Above/Below																									
Casing Diameter 5 in. To 17 ft.		Weight 2.65 lbs./ft.		Hole Diameter 8 in. To 25 ft.																					
Open Hole From ft. To ft.																									
Screen? <input checked="" type="checkbox"/> 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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																									
Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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 <u>130</u> feet <u>Northeas</u> Direction <u>Septic tank/drain field</u> Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																									
Pump <input type="checkbox"/> Not Installed Date Installed <u>11/04/1998</u> Manufacturer's name AERMOTOR, 2 WIRE Model Number <u>T12-50-</u> HP <u>0.5</u> Volt <u>220</u> Length of drop pipe <u>15</u> ft Capacity <u>12</u> g.p. Typ <u>Submersible</u>																									
Abandoned Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																									
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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																									

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 DEXHEIMER,	Township 45	Range 25	Dir W	Section 33	Subsection CCCCCB	Well Depth 83 ft.	Depth Completed 83 ft.	Date Well Completed 11/08/1999
Elevation 1269	Elev. Method LiDAR 1m DEM (MNDNR)				Drill Method Non-specified Rotary	Drill Fluid Bentonite		
Address Contact HC 69 BOX 132D ISLE MN 56342						Use domestic	Status Active	
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						Well Hydrofractured? Yes <input type="checkbox"/> No <input type="checkbox"/> From To		
						Casing Type Single casing <input type="checkbox"/> Joint <input type="checkbox"/>		
						Drive Shoe? Yes <input type="checkbox"/> No <input type="checkbox"/> Above/Below		
						Casing Diameter 4 in. To 75 ft. 3 lbs./ft.		
						Weight 8 in. To 83 ft.		
						Hole Diameter		
						Open Hole From ft. To ft.		
						Screen? <input checked="" type="checkbox"/> Type stainless Make JOHNSON		
						Diameter 4 in. Slot/Gauze 12 Length 10 ft. Set 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 <input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)								
Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No								
Pump <input checked="" type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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								

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 VANKEVCLEN, Elevation 1295 Address Contact 36877 304TH LA NW AITKIN MN 56431	Township 45 Range 25 Dir W Section 34 Subsection DDBCAD Elev. Method LiDAR 1m DEM (MNDNR)	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 <input type="checkbox"/> No <input checked="" type="checkbox"/> From To Casing Type Single casing Joint Drive Shoe? Yes <input type="checkbox"/> No <input type="checkbox"/> Above/Below Casing Diameter 4 in. To 54 ft. lbs./ft. Weight Hole Diameter 6.5 in. To 62 ft. Open Hole From ft. To ft. Screen? <input checked="" type="checkbox"/> Type stainless Make JOHNSON Diameter 2 in. Slot/Gauze 12 Length 8 ft. Set 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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified Material Amount From To high solids bentonite 3 Sacks 0 ft. 30 ft. Nearest Known Source of Contamination <u>50</u> feet Direction Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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																									
Stratigraphy Information <table><thead><tr><th>Geological Material</th><th>From</th><th>To (ft.)</th><th>Color</th><th>Hardness</th></tr></thead><tbody><tr><td>CLAY & ROCKS</td><td>0</td><td>35</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>SAND</td><td>35</td><td>44</td><td>GRAY</td><td>MEDIUM</td></tr><tr><td>CLAY & ROCKS</td><td>44</td><td>50</td><td>GRAY</td><td>HARD</td></tr><tr><td>SAND</td><td>50</td><td>62</td><td>GRAY</td><td>MEDIUM</td></tr></tbody></table>		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	
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																											

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 DAMER, HAVEN	Township 44	Range 25	Dir W	Section 2	Subsection DBDCCC	Well Depth 77 ft.	Depth Completed 77 ft.	Date Well Completed 01/11/2002
Elevation 1315	Elev. Method LiDAR 1m DEM (MNDNR)				Drill Method Non-specified Rotary	Drill Fluid Bentonite		
Address C/W 29494 210TH ST ISLE MN 56342						Use domestic	Status Active	
Stratigraphy Information						Well Hydrofractured? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	From To	
						Casing Type Single casing	Joint Above/Below	
Geological Material CLAY CLAY (ROCKY) SAND						Drive Shoe? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Weight 4 in. To 73 ft. 3 lbs./ft.	Hole Diameter 8 in. To 77 ft.
From 0 37 73						To (ft.) 37 73 77	Color BROWN GRAY GRAY	Hardness MEDIUM HARD MEDIUM
Open Hole From ft. To ft.								
Screen? <input checked="" type="checkbox"/>						Type stainless	Make JOHNSON	
Diameter 3 in.						Slot/Gauze 15	Length 4 ft.	Set 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		
<input type="checkbox"/> Casing Protection						<input checked="" type="checkbox"/> 12 in. above grade		
<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)								
Grouting Information						Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified		
Material high solids bentonite						Amount 5 Sacks	From 0 ft.	To 65 ft.
Nearest Known Source of Contamination 50 feet South Direction						Septic tank/drain field Type		
Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No								
Pump <input checked="" type="checkbox"/> 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)?						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Variance Was a variance granted from the MDH for this well?						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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								
Northland Drilling, Inc.						49697	FENSKE, N.	
Licensee Business						Lic. or Reg. No.	Name of Driller	

686399

CountyAitkin

QuadSplit Rock

Quad ID207B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date11/11/2003

Update Date07/28/2017

Received Date09/10/2003

<div>Well Name</div> LUNDQUIST,	<div>Township</div> 45	<div>Range</div> 22	<div>Dir</div> W	<div>Section</div> 8	<div>Subsection</div> BBABCB	<div>Well Depth</div> 78 ft.	<div>Depth Completed</div> 78 ft.	<div>Date Well Completed</div> 09/10/2003			
<div>Elevation</div> 1292	<div>Elev. Method</div>	LiDAR 1m DEM (MNDNR)				<div>Drill Method</div> Non-specified Rotary	<div>Drill Fluid</div> Bentonite				
<div>Address</div>						<div>Use</div> domestic	<div>Status</div> Active				
Well37002 150TH PL STURGEON LAKE MN 55783						<div>Well Hydrofractured?</div>	<div>Yes</div> <input type="checkbox"/>	<div>No</div> <input checked="" type="checkbox"/>	<div>From</div>	<div>To</div>	
<div>Stratigraphy Information</div>						<div>Casing Type</div> Single casing	<div>Joint</div>				
						<div>Drive Shoe?</div>	<div>Yes</div> <input type="checkbox"/>	<div>No</div> <input checked="" type="checkbox"/>	<div>Above/Below</div>		
<div>Geological Material</div>						<div>Casing Diameter</div>	<div>Weight</div>				
CLAY & ROCKS						4 in.	To	70 ft.	lbs./ft.		
SAND											
CLAY & ROCKS											
SAND											
						<div>Open Hole</div>	<div>From</div>	<div>ft.</div>	<div>To</div>	<div>ft.</div>	
						<div>Screen?</div> <input checked="" type="checkbox"/>	<div>Type</div> stainless	<div>Make</div> JOHNSON			
						<div>Diameter</div>	<div>Slot/Gauze</div>	<div>Length</div>	<div>Set</div>		
						2 in.	12	8 ft.	70 ft.	78 ft.	
						<div>Static Water Level</div>					
						38 ft.	land surface		<div>Measure</div>	09/10/2003	
						<div>Pumping Level (below land surface)</div>					
						46 ft.	1 hrs.	Pumping at		20 g.p.m.	
						<div>Wellhead Completion</div>					
						<div>Pitless adapter manufacturer</div>		SNAPPY	<div>Model</div> 8PL41U		
						<input type="checkbox"/> Casing Protection		<input type="checkbox"/> 12 in. above grade			
						<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)					
						<div>Grouting Information</div>					
						<div>Well Grouted?</div> <input checked="" type="checkbox"/>		<div>Yes</div> <input type="checkbox"/>	<div>No</div> <input type="checkbox"/>	<div>Not Specified</div> <input type="checkbox"/>	
						<div>Material</div>	<div>Amount</div>		<div>From</div>	<div>To</div>	
						high solids bentonite	3 Sacks	10 ft.	40 ft.		
						<div>Nearest Known Source of Contamination</div>					
						<u>50</u> feet	<div>Direction</div>		<div>Septic tank/drain field</div> Type		
						Well disinfected upon completion?		<input checked="" type="checkbox"/>	<div>Yes</div> <input type="checkbox"/>	<div>No</div> <input type="checkbox"/>	
						<div>Pump</div> <input type="checkbox"/>	Not Installed		<div>Date Installed</div>	<u>09/12/2003</u>	
						<div>Manufacturer's name</div> AERMOTOR					
						<div>Model Number</div>	<u>T12-50</u>	<div>HP</div> <u>0.5</u>	<div>Volt</div>	<u>230</u>	
						<div>Length of drop pipe</div>	<u>54</u> ft	<div>Capacity</div> <u>12</u> g.p.	<div>Typ</div>	<u>Submersible</u>	
						<div>Abandoned</div>					
						Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
						<div>Variance</div>					
						Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
						<div>Miscellaneous</div>					
						<div>First Bedrock</div>	<div>Aquifer</div>		<div>Quat. buried</div>		
						<div>Last Strat</div>	sand-gray		<div>Depth to Bedrock</div>	ft	
						<div>Located by</div> Minnesota Geological Survey					
						<div>Locate Method</div> GPS SA Off (averaged) (15 meters)					
						<div>System</div>	UTM - NAD83, Zone 15, Meters		<div>X</div> 487996	<div>Y</div> 5138996	
						<div>Unique Number Verification</div>		<div>Site Plan</div>	<div>Input Date</div>	02/23/2016	
						<div>Angled Drill Hole</div>					
						<div>Well Contractor</div>					
						<div>A & M Drilling Co.</div>		48717	<div>ANDERSON, D.</div>		
						<div>Licensee Business</div>		<div>Lic. or Reg. No.</div>	<div>Name of Driller</div>		

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 GENE HAUER					Township 46	Range 22	Dir Section W 33	Subsection CCACBC	Well Depth 112 ft.					Depth Completed 112 ft.					Date Well Completed 06/24/2003																				
Elevation 1288					Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Non-specified Rotary					Drill Fluid Bentonite																								
Address										Use domestic					Status Active																								
Contact 2449 EAGLE CREEK BL SHAKOPEE MN 55379										Well Hydrofractured? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> From To																													
Stratigraphy Information										Casing Type Single casing					Joint Threaded																								
										Drive Shoe? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>					Above/Below																								
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														
										Open Hole From 110 ft.					To 112 ft.																								
										Screen? <input type="checkbox"/>					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														
										<input type="checkbox"/> Casing Protection					<input checked="" type="checkbox"/> 12 in. above grade																								
										<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																													
										Grouting Information																													
										Well Grouted?					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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?										<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																			
										Pump																													
										<input type="checkbox"/> 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)?																													
										<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																													
										Variance																													
										Was a variance granted from the MDH for this well?																													
										<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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																			

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 JORSON, LLOYD 44					Township 25		Range W 4		Dir Section BBBABB		Subsection		Well Depth 60 ft.		Depth Completed 60 ft.		Date Well Completed 06/11/2003				
Elevation 1271					Elev. Method		LiDAR 1m DEM (MNDNR)										Drill Method Non-specified Rotary		Drill Fluid Bentonite		
Address														Use domestic		Status Active					
C/W 31903 220TH ST ISLE MN 55342														Well Hydrofractured?		Yes <input type="checkbox"/> No <input type="checkbox"/>		From		To	
Stratigraphy Information														Casing Type Single casing		Joint Unknown					
Geological Material														Drive Shoe?		Yes <input type="checkbox"/> No <input type="checkbox"/>		Above/Below			
CLAY														Casing Diameter		Weight		Hole Diameter			
														4 in. To 56 ft.		lbs./ft.		8 in. To 60 ft.			
CLAY																					
SAND																					
														Open Hole		From ft. To ft.					
														Screen? <input checked="" type="checkbox"/>		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																					
<input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade																					
<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																					
Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																					
Pump <input checked="" type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																					
Variance																					
Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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																					

Remarks
EXISTING WELL SEALED, SEE H206872

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 JOHNSON, JEFF	Township 45	Range 25	Dir W	Section 32	Subsection 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	
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 <input type="checkbox"/> No <input checked="" type="checkbox"/> From To					
Casing Type Single casing Joint					
Drive Shoe? Yes <input type="checkbox"/> No <input type="checkbox"/> Above/Below					
Casing Diameter 4 in. To 99 ft. lbs./ft.					
Weight lbs./ft.					
Hole Diameter 6.5 in. To 106 ft.					
Open Hole From ft. To ft.					
Screen? <input checked="" type="checkbox"/> Type stainless Make JOHNSON					
Diameter <input type="checkbox"/> Slot/Gauze <input type="checkbox"/> Length <input type="checkbox"/> 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					
<input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade					
<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)					
Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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					

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 KLEMZ, DOUG					Township 45	Range 22	Dir W	Section 6	Subsection CDCADB	Well Depth 114 ft.			Depth Completed 114 ft.			Date Well Completed 09/28/2004																								
Elevation 1286					Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Non-specified Rotary			Drill Fluid Bentonite																											
Address Contact 8800 LEYTE ST NE BLAINE MN										Use domestic			Status Active																											
Stratigraphy Information <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>CLAY & ROCKS</td><td>0</td><td>25</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>CLAY & SAND</td><td>25</td><td>38</td><td>BROWN</td><td>SOFT</td></tr><tr><td>HARDPAN</td><td>38</td><td>104</td><td>GRAY</td><td>HARD</td></tr><tr><td>SAND</td><td>104</td><td>114</td><td>BROWN</td><td></td></tr></table>										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		Well Hydrofractured? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			From To		
										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																											
										Casing Type Single casing			Joint																											
										Drive Shoe? Yes <input type="checkbox"/> No <input type="checkbox"/>			Above/Below																											
										Casing Diameter 4 in. To 106 ft.			Weight lbs./ft.			Hole Diameter 6.5 in. To 114 ft.																								
										Open Hole From ft. To ft.																														
Screen? <input checked="" type="checkbox"/>			Type stainless			Make JOHNSON																																		
Diameter 2 in.			Slot/Gauze 10			Length 8 ft.			Set 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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																																								
Grouting Information Material high solids bentonite Amount Sacks From To ft. 30 ft.										Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified																														
Nearest Known Source of Contamination <u>50</u> feet Direction Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																								
Pump <input type="checkbox"/> Not Installed Date Installed Manufacturer's name STA-RITE Model Number HP <u>0.5</u> Volt <u>230</u> Length of drop pipe <u>50</u> ft Capacity <u>10</u> g.p. Typ <u>Submersible</u>																																								
Abandoned Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																								
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																								
Miscellaneous First Bedrock Last Strat sand-brown 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																																								

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 RHODE, JUDY	Township 45	Range 25	Dir Section W 35	Subsection CCBCAC	Well Depth 43 ft.	Depth Completed 43 ft.	Date Well Completed 04/30/2004
Elevation 1272	Elev. Method 7.5 minute topographic map (+/- 5 feet)	Drill Method Non-specified Rotary		Drill Fluid Bentonite			
Address C/W 22144 300TH PL ISLE MN 56342					Use domestic	Status Active	
Stratigraphy Information					Well Hydrofractured? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> From To		
Geological Material From To (ft.) Color Hardness					Casing Type Single casing Joint Unknown		
CLAY 0 15 BROWN MEDIUM					Drive Shoe? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Above/Below		
SANDY CLAY 15 33 BROWN MEDIUM					Casing Diameter 4 in. To 35 ft. 3 lbs./ft.		
CLAY, SANDY, ROCKY 33 43 BROWN HARD					Hole Diameter 8 in. To 43 ft.		
					Open Hole From ft. To ft.		
					Screen? <input checked="" type="checkbox"/> 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		
					<input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade		
					<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)		
					Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
					Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
					Variance		
					Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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		
					Northland Drilling, Inc. 49697 HINES, R		
					Licensee Business Lic. or Reg. No. Name of Driller		
Remarks SEE H#222169 FOR ABANDONMENT OF TEST HOLE (#328529)							

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 BAYERLE,	Township 45	Range 25	Dir Section W 32	Subsection DDDDBC	Well Depth 100 ft.	Depth Completed 100 ft.	Date Well Completed 10/15/2004
Elevation 1264	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Non-specified Rotary				Drill Fluid Bentonite	
Address Contact 32046 220TH ST AITKIN MN 56431					Use domestic	Status Active	
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					Well Hydrofractured? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> From To		
					Casing Type Single casing Joint		
					Drive Shoe? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Above/Below		
					Casing Diameter 4 in. To 96 ft. lbs./ft.		
					Open Hole From ft. To ft.		
					Screen? <input checked="" type="checkbox"/> 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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)		
					Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified Material Amount From To high solids bentonite 3 Sacks 10 ft. 40 ft.		
					Nearest Known Source of Contamination <u>50</u> feet Direction <u>Septic tank/drain field</u> Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
					Pump <input type="checkbox"/> Not Installed Date Installed <u>10/19/2004</u> Manufacturer's name AERMOTOR Model Number <u>T12-50</u> HP <u>0.5</u> Volt <u>230</u> Length of drop pipe <u>60</u> ft Capacity <u>12</u> g.p. Typ <u>Submersible</u>		
					Abandoned Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
					Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Remarks					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 513122 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		

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 BURGESON, Elevation 1280 Address Well 27552 KESTRAL AV MN					Township 46 Elev. Method		Range 22 LiDAR 1m DEM (MNDNR)		Dir Section W 34 Subsection DCCDDA		Well Depth 144 ft. Drill Method Non-specified Rotary		Depth Completed 144 ft. Drill Fluid Bentonite		Date Well Completed 08/31/2018 Status Active	
Stratigraphy Information										Use domestic Well Hydrofractured? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> From To Casing Type Single casing Joint Drive Shoe? Yes <input type="checkbox"/> No <input type="checkbox"/> Above/Below						
Geological Material		From	To (ft.)	Color	Hardness	Casing Diameter Weight Hole Diameter										
TOPSOIL		0	2			6 in. To 84 ft. 18.9 lbs./ft.				10 in. To 84 ft.						
CLAY, ROCKS		2	80							6 in. To 144 ft.						
COARSE BOULDERS		80	84													
ROCK		84	144													
Open Hole From 84 ft. To 144 ft.																
Screen? <input type="checkbox"/> 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						
<input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade																
<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																
Grouting Information										Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																
Pump <input checked="" type="checkbox"/> 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)?										<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
Variance																
Was a variance granted from the MDH for this well?										<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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												

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 WAITE, STEVE					Township 45	Range 22	Dir Section W 27	Subsection DCDACA	Well Depth 125 ft.					Depth Completed 125 ft.					Date Well Completed 06/24/2005																																													
Elevation 1313					Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Non-specified Rotary					Drill Fluid Bentonite																																																	
Address Contact 12174 230TH LA MCGRATH MN 56350										Use domestic					Status Active																																																	
Stratigraphy Information <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>GRAVEL W/ CLAY</td><td>0</td><td>18</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>SANDY CLAY</td><td>18</td><td>25</td><td>BROWN</td><td>SOFT</td></tr><tr><td>CLAY & SAND</td><td>25</td><td>30</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>FINE GRAVEL W/ CLAY</td><td>30</td><td>38</td><td>RED</td><td>M.SOFT</td></tr><tr><td>COARSE SAND W/ SILT</td><td>38</td><td>45</td><td>BROWN</td><td>SOFT</td></tr><tr><td>CLAY & GRAVEL</td><td>45</td><td>49</td><td>BROWN</td><td>M.HARD</td></tr><tr><td>SHALE</td><td>49</td><td>51</td><td>GRAY</td><td>M.HARD</td></tr><tr><td>GRANITE</td><td>51</td><td>125</td><td>ORANGE</td><td>HARD</td></tr></table>										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	Well Hydrofractured? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>					From To				
										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																																																		
Casing Type Single casing					Joint Threaded																																																											
Drive Shoe? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>					Above/Below																																																											
Casing Diameter 6 in. To 54 ft. 19 lbs./ft.					Hole Diameter 10. in. To 30 ft. 9 in. To 54 ft. 6 in. To 125 ft.																																																											
Open Hole From 54 ft. To 125 ft.																																																																
Screen? <input type="checkbox"/> 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 <input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																																																																
Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified Material Amount From To high solids bentonite 2 Sacks ft. 30 ft.																																																																
Nearest Known Source of Contamination <u>75</u> feet Direction Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																																																
Pump <input type="checkbox"/> Not Installed Date Installed <u>08/30/2005</u> Manufacturer's name GOULDS Model Number <u>10GS05412</u> HP <u>0.5</u> Volt <u>230</u> Length of drop pipe <u>87</u> ft Capacity <u>10</u> g.p. Typ <u>Submersible</u>																																																																
Abandoned Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																																																
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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																																																																

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 WILSON,	Township 45	Range 22	Dir Section W 34	Subsection ABADAD	Well Depth 125 ft.	Depth Completed 125 ft.	Date Well Completed 09/07/2006
Elevation 1308	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Non-specified Rotary				Drill Fluid Bentonite	
Address Contact 5309 82ND AV N BROOKLYN PARK MN 55443					Use domestic	Status Active	
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					Well Hydrofractured? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> From To		
					Casing Type Single casing Joint Threaded		
					Drive Shoe? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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? <input type="checkbox"/> 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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)		
					Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
					Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
					Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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		

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 TREBTOSKE,	Township 45	Range 22	Dir W	Section 26	Subsection BCBAAC	Well Depth 51 ft.	Depth Completed 51 ft.	Date Well Completed 08/25/2006
Elevation 1293	Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Non-specified Rotary	Drill Fluid Qwik gel	
Address						Use domestic	Status Active	
Contact 19769 15 SH KIMBALL MN 55353						Well Hydrofractured? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> From To		
Well KRESTREL AV MCGRATH MN 56350						Casing Type Single casing Joint Glued		
Stratigraphy Information						Drive Shoe? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Above/Below		
Geological Material		From	To (ft.)	Color	Hardness	Casing Diameter 5 in. To 36 ft. 0 lbs./ft.		
CLAY		0	9	BROWN	SOFT	Hole Diameter 8.7 in. To 51 ft.		
SAND		9	13	BROWN	SOFT			
CLAY & GRAVEL		13	36	BROWN	SOFT			
SAND		36	51	BROWN	SOFT			
						Open Hole From ft. To ft.		
						Screen? <input checked="" type="checkbox"/> 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		
						<input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade		
						<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)		
						Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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? <input type="checkbox"/> Yes <input type="checkbox"/> No		
						Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input type="checkbox"/> No		
						Variance		
						Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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		

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 URBIA-ROTE,	Township 46	Range 22	Dir Section W 32	Subsection BCABBC	Well Depth 245 ft.	Depth Completed 245 ft.	Date Well Completed 06/06/2007																																								
Elevation 1305	Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Non-specified Rotary	Drill Fluid Bentonite																																								
Address Contact 238 DUNBAR WA MAHTOMEDI MN 55115					Use domestic	Status Active																																									
Stratigraphy Information <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>SANDY CLAY &</td><td>0</td><td>28</td><td>RED</td><td>M.SOFT</td></tr><tr><td>CLAY & COBBLES</td><td>28</td><td>52</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>SILTY SAND</td><td>52</td><td>58</td><td>BROWN</td><td>V.SOFT</td></tr><tr><td>CLAY & SAND</td><td>58</td><td>66</td><td>RED/BRN</td><td>MEDIUM</td></tr><tr><td>SANDY CLAY</td><td>66</td><td>91</td><td>GRAY</td><td>HARD</td></tr><tr><td>SHALE</td><td>91</td><td>102</td><td>GRAY</td><td>M.SOFT</td></tr><tr><td>GRANITE</td><td>102</td><td>245</td><td>GRY/BLK</td><td>V.HARD</td></tr></table>					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	Well Hydrofractured? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	From 123 ft.	To 245 ft.
					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																																						
					Casing Type Single casing		Joint Threaded																																								
Drive Shoe? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Above/Below																																													
Casing Diameter 6 in. To 105 ft. 19 lbs./ft.		Hole Diameter 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? <input type="checkbox"/>		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 <input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																																															
Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																															
Pump <input type="checkbox"/> 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)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																															
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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																																															

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

<div>Well Name ODDEN, LARRY</div> <div>Elevation 1312</div> <div>Address Well 75 CR MN</div> <div>Stratigraphy Information</div> <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>SANDY CLAY</td><td>0</td><td>8</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>CLAY & ROCKS</td><td>8</td><td>38</td><td>BROWN</td><td>M.HARD</td></tr><tr><td>SILTY SAND</td><td>38</td><td>41</td><td>BROWN</td><td>SOFT</td></tr><tr><td>CLAY & BOULDERS</td><td>41</td><td>91</td><td>BROWN</td><td>V.HARD</td></tr><tr><td>GRANITE</td><td>91</td><td>225</td><td>BLK/GRY</td><td>V.HARD</td></tr></table>	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	<div>Well Depth 225 ft.</div> <div>Drill Method Multiple methods used</div> <div>Use domestic</div> <div>Well Hydrofractured? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div> <div>Casing Type Single casing</div> <div>Drive Shoe? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div> <div>Casing Diameter 6 in. To</div> <div>Weight 92.5 ft. 19 lbs./ft.</div> <div>Hole Diameter 6 in. To 225 ft.</div> <div>Open Hole From 92.5 ft. To 225 ft.</div> <div>Screen? <input type="checkbox"/></div> <div>Type</div> <div>Make</div> <div>Static Water Level 35 ft. land surface Measure 07/30/2007</div> <div>Pumping Level (below land surface) 220 ft. 2 hrs. Pumping at 3 g.p.m.</div> <div>Wellhead Completion Pitless adapter manufacturer Model <input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)</div> <div>Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified Material Amount From To bentonite 0 ft. ft.</div> <div>Nearest Known Source of Contamination 60 feet West Direction Sewer Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</div> <div>Pump <input checked="" type="checkbox"/> Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ</div> <div>Abandoned Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</div> <div>Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</div> <div>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</div> <div>Angled Drill Hole</div> <div>Well Contractor Bob Kent Well Drilling 1886 KENT, B. Licensee Business Lic. or Reg. No. Name of Driller</div>
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																											

Minnesota Unique Well Number

774214

CountyAitkin

QuadSplit Rock

Quad ID207B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date12/13/2011

Update Date08/10/2017

Received Date02/19/2010

Well Name	Township	Range	Dir	Section	Subsection	Well Depth	Depth Completed	Date Well Completed
RAY DRAKE	46	22	W	32	BCABDB	106 ft.	106 ft.	10/11/2009
Elevation	1302	Elev. Method	LiDAR 1m DEM (MNDNR)					
Address						Use	domestic	Status
Well						NA MN		Active
Stratigraphy Information						Well Hydrofractured?	Yes	No
Geological Material						From		To
CLAY/ROCKS						0		89
SAND/GRAVEL						89		106
Color						BROWN		MEDIUM
Hardness						SOFT		
Casing Type						Single casing		Joint
Drive Shoe?						Yes		No
Casing Diameter						Weight		Hole Diameter
4 in.						96 ft.		6.7 in.
To						lbs./ft.		106 ft.
Open Hole						From		To
Screen?						Type		plastic
Diameter						Slot/Gauze		Set
4 in.						10		96 ft.
Length						10 ft.		106 ft.
Static Water Level						28 ft.		top of casing
Pumping Level (below land surface)						60 ft.		2 hrs.
Wellhead Completion						Pitless adapter manufacturer		MAASS
Casing Protection						12 in. above grade		Model
At-grade (Environmental Wells and Borings ONLY)						JC-4		
Grouting Information						Well Grouted?		Yes
Material						Amount		From
cuttings						55		ft. 96
well grouted, type unknown						4 Sacks		ft. 55
Nearest Known Source of Contamination						50 feet		North Direction
Well disinfected upon completion?						Yes		No
Pump						Not Installed		Date Installed
Manufacturer's name						SCHAEFER		
Model Number						HP		0.5
Length of drop pipe						60 ft		Capacity
Abandoned						Does property have any not in use and not sealed well(s)?		Yes
Variance						Was a variance granted from the MDH for this well?		Yes
Miscellaneous						First Bedrock		Aquifer
Last Strat						sand +larger-brown		Quat. buried
Located by						Minnesota Geological Survey		Depth to Bedrock
Locate Method						GPS SA Off (averaged) (15 meters)		
System						UTM - NAD83, Zone 15, Meters		X 488034
Unique Number Verification						Tax Records		Y 5141801
Angled Drill Hole								
Well Contractor						A Ruppert Well, Inc.		1572
Licensee Business						Lic. or Reg. No.		RUPPERT, C.

Minnesota Well Index Report

774214

Printed on 01/30/2025

HE-01205-15

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 EKLUND, HELEN 44	Township 25	Range W 2	Dir Section CCCADB	Subsection CCCADB	Well Depth 68 ft.	Depth Completed 68 ft.	Date Well Completed 04/04/2016
Elevation 1325	Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Non-specified Rotary	Drill Fluid Bentonite
Address C/W 29926 210TH ST ISLE MN 56342					Use domestic	Status Active	
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					Well Hydrofractured? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> From To		
					Casing Type Single casing Joint		
					Drive Shoe? Yes <input type="checkbox"/> No <input type="checkbox"/> 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? <input checked="" type="checkbox"/> 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 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)		
					Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified Material Amount From To well grouted, type unknown 9 Sacks ft. 58 ft.		
Nearest Known Source of Contamination <u>50</u> feet <u>North</u> Direction <u>Sewer</u> Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No							
Pump <input type="checkbox"/> Not Installed Date Installed <u>04/08/2016</u> Manufacturer's name FLOWISE Model Number <u>P10S05</u> HP <u>0.5</u> Volt <u>230</u> Length of drop pipe <u>50</u> ft Capacity <u>10</u> g.p. Typ <u>Submersible</u>							
Abandoned Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No							
Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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 A and M Pumps 2121 KEMPENICH, C. Licensee Business Lic. or Reg. No. Name of Driller							

Minnesota Unique Well Number

817773

CountyAitkin

QuadThor SW

Quad ID208C

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date

Update Date07/18/2017

Received Date05/24/2017

Well Name	Township	Range	Dir	Section	Subsection	Well Depth	Depth Completed	Date Well Completed
EKLUND, JOAN	44	25	W	3	CBBBCD	56 ft.	56 ft.	09/16/2016
Elevation	1300	Elev. Method	LiDAR 1m DEM (MNDNR)					
Address						Use	domestic	Status
C/W						21436 310TH AV ISLE MN 56342		
Stratigraphy Information						Well Hydrofractured?	Yes	No
Geological Material						FromTo		
CLAY & ROCKS						Joint		
SAND						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		
						Fromft. Toft.		
						Screen?		
						Type		
						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		
						A and M Pumps		
						2121		
						KEMPENICH, C.		
						Licensee Business		
						Lic. or Reg. No.		
						Name of Driller		

Minnesota Well Index Report

817773

Printed on 01/30/2025

HE-01205-15

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.

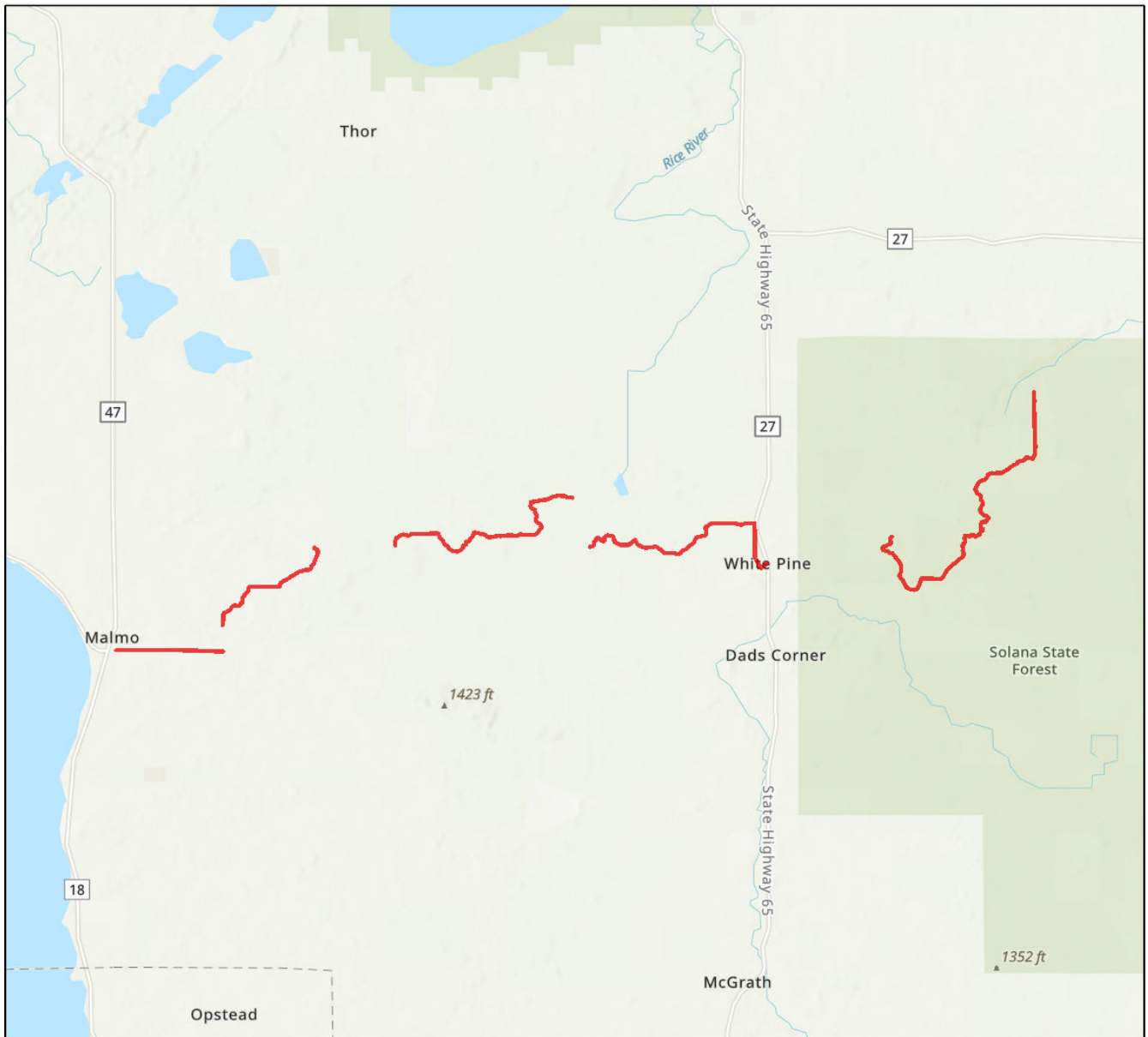
For informational purposes only, this tool currently checks the following USFWS Regulatory Layers:

[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



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 (<i>Lynx canadensis</i>)	Threatened	NLAA
Gray Wolf (<i>Canis lupus</i>)	Threatened	NLAA
Monarch Butterfly (<i>Danaus plexippus</i>)	Proposed	No effect
	Threatened	
Whooping Crane (<i>Grus americana</i>)	Experimental	No effect
	Population, Non-Essential	

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 Phase 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,-93.4832667,3955174,14z>



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:
Project code: 2025-0064578
Project Name: Aitkin County ATV Trail

03/05/2025 20:06:27 UTC

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 be 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 (<i>Myotis septentrionalis</i>)	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 Phase 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,-93.4832667,3955174,14z>



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 include 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:
Project Code: 2025-0064578
Project Name: Aitkin County ATV Trail

03/05/2025 19:48:55 UTC

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 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 help 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 Phase 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 Fisheries¹, 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.

-
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 <i>Lynx canadensis</i> 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 <i>Canis lupus</i> 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 <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

BIRDS

NAME	STATUS
Whooping Crane <i>Grus americana</i> 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 <i>Danaus plexippus</i> 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 <i>Bombus suckleyi</i> 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.

-
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 <i>Haliaeetus leucocephalus</i> 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 (■)

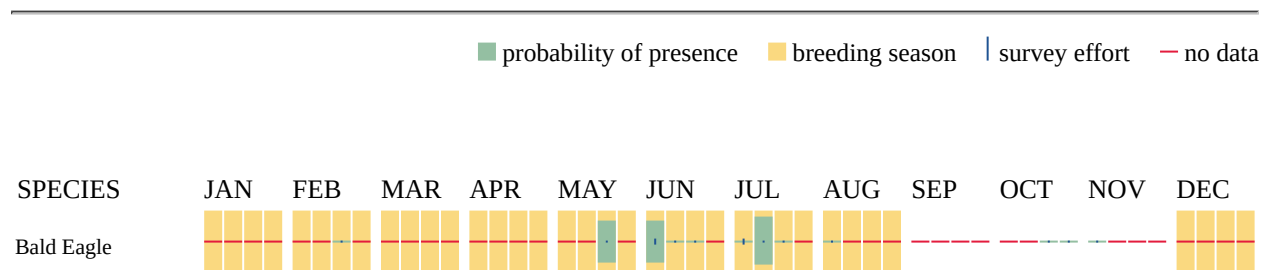
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

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.

-
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 <i>Haliaeetus leucocephalus</i> 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 <i>Coccyzus erythrophthalmus</i> 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 <i>Cardellina canadensis</i> 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 <i>Vermivora chrysoptera</i> 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 <i>Contopus cooperi</i> 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 <i>Catharus fuscescens fuscescens</i> 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 <i>Hylocichla mustelina</i> 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 (■)

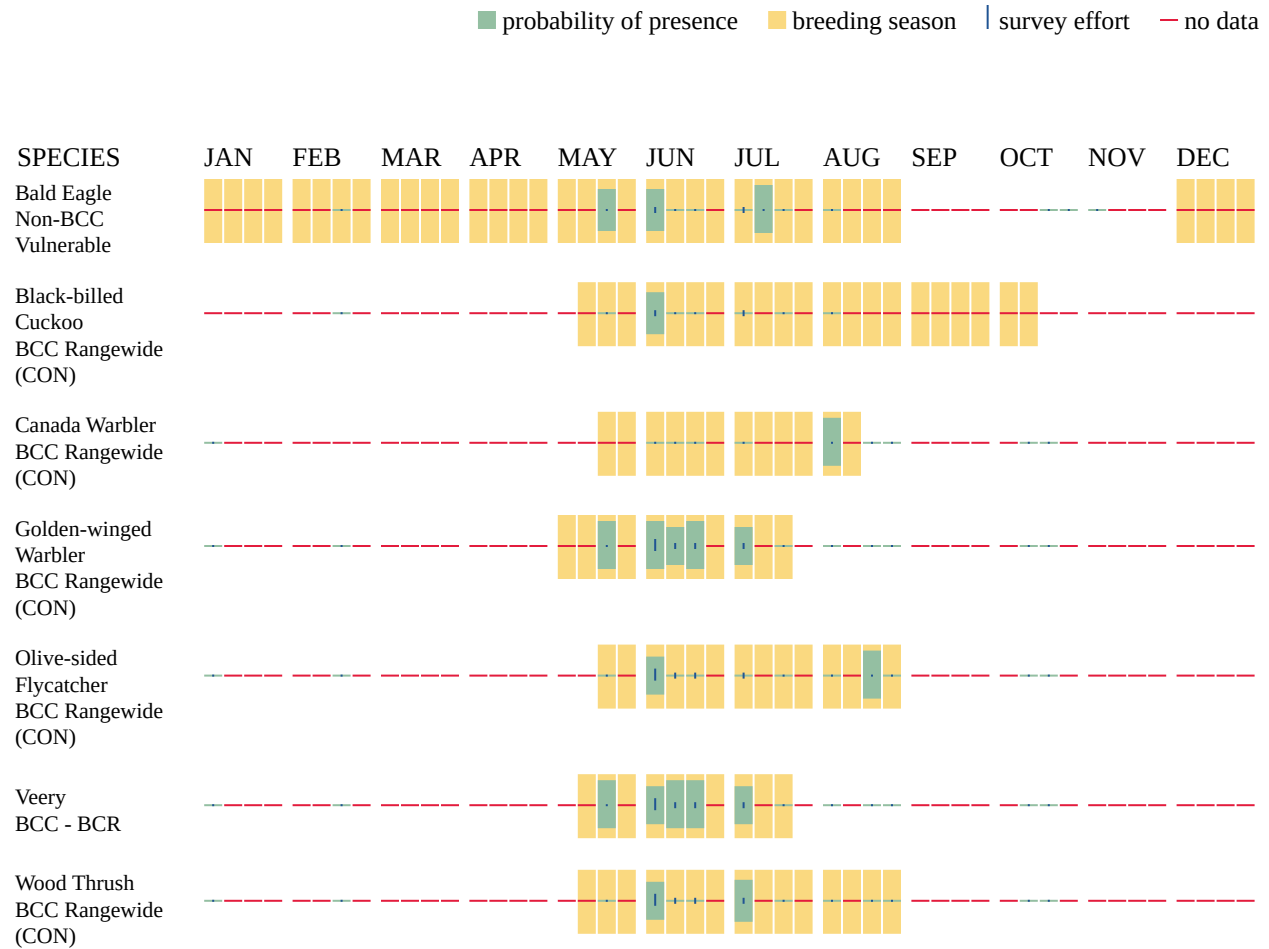
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

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

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 equipment.
- (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 CO2 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 CO₂ 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 CO₂ emissions are reported below (note different formula)

Note: emissions here are only for the diesel portion of the fuel, biogenic CO₂ emissions are reported below (note different formula)

Total Organization-Wide On-Road Gasoline Mobile Source Mileage and CH₄/N₂O Emissions

Vehicle Type	Vehicle Year	Mileage (miles)	CH ₄ (g)	N ₂ O (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
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	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
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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 CH₄/N₂O Emissions

Vehicle Type	Fuel Type	Vehicle Year	Mileage (miles)	CH ₄ (g)	N ₂ O (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 CH₄/N₂O Emissions

Vehicle Type	Fuel Type	Fuel Usage (gallons)	CH ₄ (g)	N ₂ O (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

Total Organization-Wide On-Road Gasoline Mobile Source Mileage and CH₄/N₂O Emissions

Vehicle Type	Vehicle Year	Mileage (miles)	CH ₄ (g)	N ₂ O (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 (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 CH₄/N₂O Emissions

Vehicle Type	Fuel Type	Vehicle Year	Mileage (miles)	CH ₄ (g)	N ₂ O (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 CH₄/N₂O Emissions

Vehicle Type	Fuel Type	Fuel Usage (gallons)	CH ₄ (g)	N ₂ O (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 CO₂ Equivalent Emissions (metric tons) - Mobile Sources

23.3

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		103,994				
														103,994			103,994	All trails year total

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	117,614	All trails year total
Red Top Soo Line					925	1,804	1,340				4,069	1,356		
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	
	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		
														127,508	
														127,508	
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