

Memorandum



To: MCWD

From: Bill Alms, P.E.
Kendra Fallon, P.E.
Sarah Risus
Maddie Reckmeyer, EIT

Date: June 25, 2026
Revised: July 17, 2026

Re: 2026 Red Cedar and Hickory Avenue Improvements
WSB Project No. 032009-000

The City of Chanhassen is proposing drainage improvements along Red Cedar Point Road and Hickory Avenue. These two areas currently have no existing treatment from the roadway before discharging to Lake Minnewashta. Drainage issues exist for nearby properties prior to out letting the roadway stormwater to the lake. The city is proposing improvements to trap sediment before water runs off to the lake. The work for Red Cedar Point Road includes site grading, rain guardian installation, sediment trap installation, and vegetated drainage ditch installation. The work for Hickory Avenue includes site grading, drainage swale formation, sediment forebay installation, and vegetated hard armoring installation.

The Red Cedar Point Road drainage area is approximately 1.5 acres and extends east from the intersection of South Cedar Drive and Red Cedar Point Road to the project site. The Hickory Road drainage area is approximately 10 acres. It extends north from South Cedar Road north to Lake Minnewashta and it extends west from the intersection of Red Cedar Point Road and South Cedar Road to 400 west of Juniper Avenue. The existing and proposed site areas are provided in **Table 1**.

Table 1: Project Information

Project Area	Disturbed Area (sf)	Total Drainage Area (ac)	Existing Impervious (sf)	Proposed Impervious (sf)	Net Change in Impervious (sf)	Percent Impervious Change (%)
Red Cedar Point Road	3,717	1.5	1011	1215	204	5.5
Hickory Avenue	4,770	10.0	766	671	-95	-2.0

Applicable Rules and Regulations

The Minnehaha Creek Watershed District Rules that apply to the project are:

- 3.0 Erosion and Sediment Control
- 4.0 Floodplain Management

Each rule is addressed below.

Rule 3.0 Erosion and Sediment Control

Rule 3.0 is triggered due to triggering Rule 4.0, Floodplain Management. Each site disturbance is less than 5,000 square feet. Erosion control plans are provided in the plan set to prevent sediment from entering Lake Minnewashta. The contractor will be responsible for the installation and maintenance of the erosion control measures on site.

Rule 4.0 Floodplain Alteration

Rule 4.0 is triggered due to soil excavation and grading planned within the 100-year floodplain of Lake Minnewashta. The 100-year high water level is 946' according to FEMA and 946.15' according to MCWD. The ordinary high-water level of Lake Minnewashta is 944.56 NAVD88. No net fill is proposed in the floodplain, and all grading and excavation will meet the No-Rise Standard and will not restrict flood flows (see cut-fill maps in the appendix). Table 2 describes the cut and fill volumes for each site.

Table 2: Floodplain Cut and Fill Calculations

Site	Cut (CY)	Fill (CY)	Net Cut (CY)
Red Cedar Point	2	0	2
Hickory Ave	214	2	212

Rule 5.0 Stormwater Management

This is a linear transportation project. The new and reconstructed area is less than one acre, and the project does not have a net increase in impervious surface over 10,000 square feet; therefore Rule 5.0 does not apply.

Rule 6.0 Waterbody Crossings and Structures Rule

All conveyance structures will be placed above the top bank and OHWL of Lake Minnewashta, therefore Rule 6.0 does not apply.

Rule 7.0 Wetland Protection Rule

Rule 7.0 does not apply because there are no wetlands on site. A wetland developed overtime off Hickory Avenue, but was determined to be incidental, as shown in wetland delineation report located in the appendix.

Rule 8.0 Shoreline and Streambank Stabilization Rule

The bank of Lake Minnewashta will not be disturbed below the ordinary high-water level; therefore, Rule 8.0 does not apply.

Rule 9.0 Dredging Rule

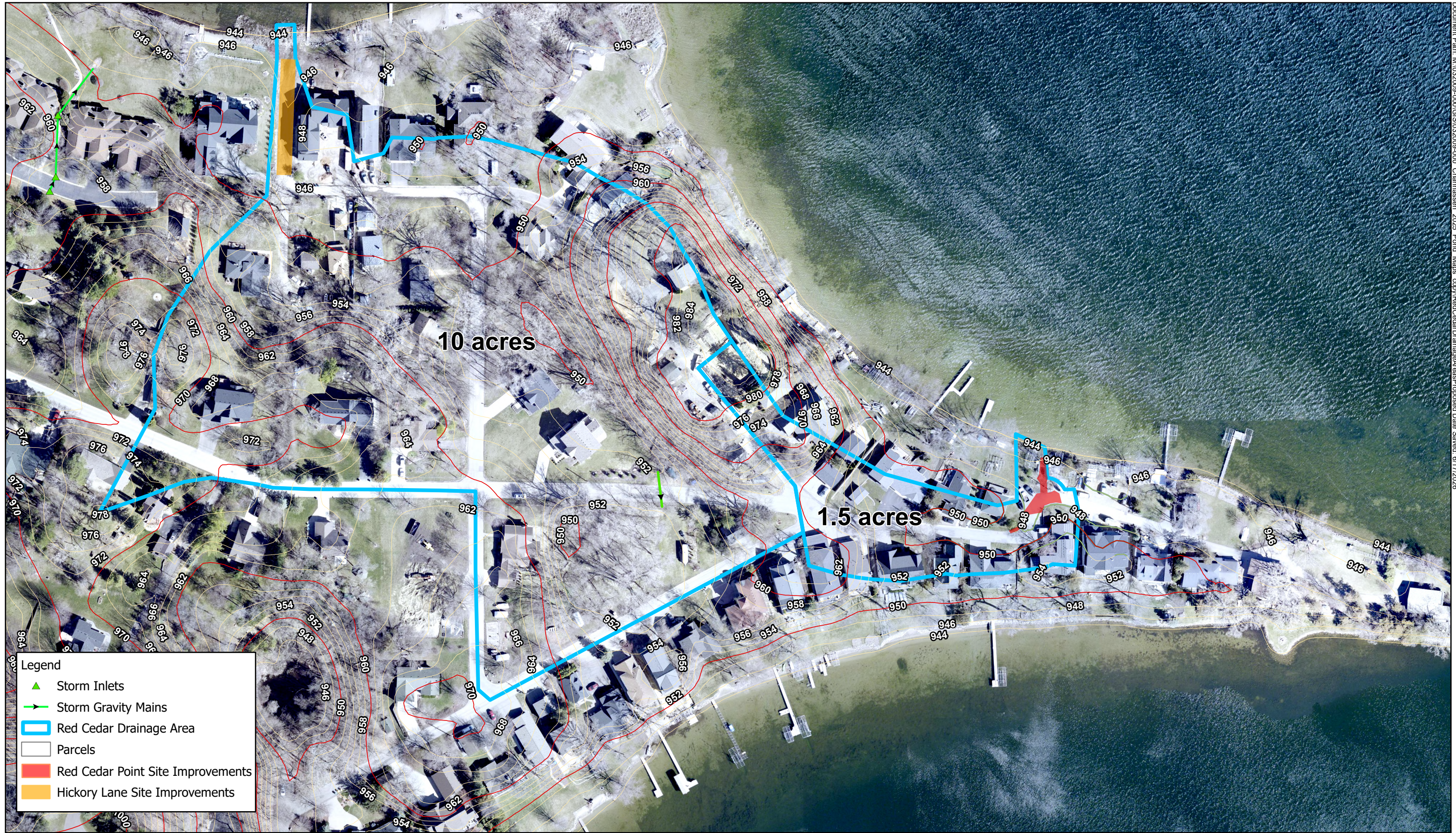
Dredging will not occur; therefore, Rule 9.0 does not apply.

Rule 10.0 Illicit Discharge Rule

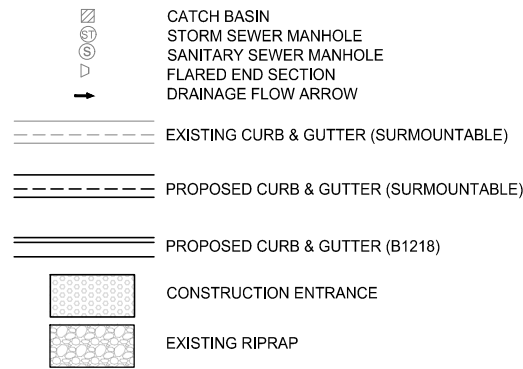
Direction connections are not planned; therefore, Rule 10.0 does not apply.

Appendix

Existing and Proposed Drainage Area Map
Red Cedar Point Floodplain Figure
Hickory Ave Floodplain Figure
FEMA Floodplain Map
Wetland Delineation Report

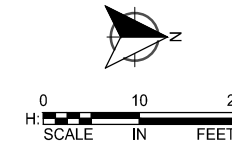


— — — — —	CONSTRUCTION LIMITS
— — — — —	PROPERTY LINE
— — — — —	DRAINAGE AND UTILITY EASEMENT
— — — — —	EASEMENT CENTERLINE
— — — — —	UNDERLYING LOT LINE
— — — — —	EDGE OF EXISTING GRASS (APPROX.)
— — — — —	GAS LINE
— — — — —	FIBER OPTION LINE
— — — — —	ELECTRICAL LINE
— — — — —	SANITARY SEWER PIPE
— — — — —	STORM SEWER PIPE
— — — — —	DTL
— — — — —	DRAIN TILE PIPE
— — — — —	WATERMAIN PIPE
— — — — —	CONTOUR - MAJOR - EXISTING
— — — — —	CONTOUR - MINOR - EXISTING
— — — — —	CONTOUR - OHWL - EXISTING
— — — — —	BIOLOG TYPE WOODFIBER
— — — — —	CONTOUR - MAJOR - PROPOSED
— — — — —	CONTOUR - MINOR - PROPOSED



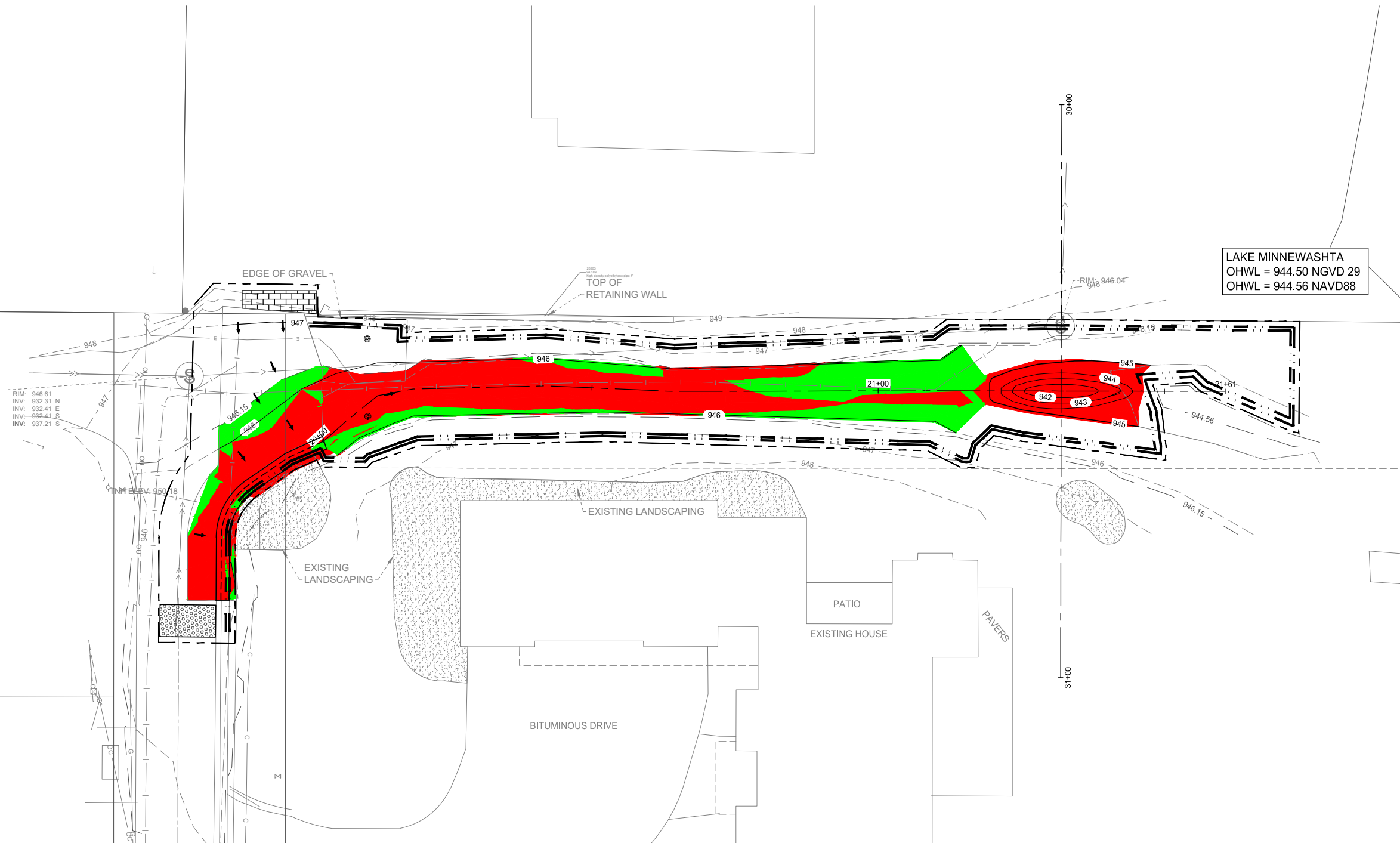
The map displays the City of San Diego with various streets and land parcels. Two specific locations are highlighted with arrows and labels:

- PROJECT WEST:** Located on the western side of the city, near the intersection of a major road and a smaller street.
- PROJECT EAST:** Located on the eastern side of the city, near the intersection of a major road and a smaller street.



ELEVATION TABLE					
RANGE	RANGE MAXIMUM	RANGE MINIMUM	COLOR	AREA	VOLUME
1	3'	0'		1301 SF	214 CY
2	0'	1'		557 SF	2 CY

AREA OF IMPREVIOUS SURFACE = 543 SF

[illegible]

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

WILLIAM C ALMS, P.E.

DATE: / / 2026 LIC. NO: 54301

FLOODPLAIN
FIGURE
HICKORY AVE
AREA

CHANHASSEN MISCELLANEOUS
DRAINAGE IMPROVEMENTS
CITY OF CHANHASSEN

CLIENT PROJECT NO.
26-XX

WSB PROJECT NO.
032009-000

SHEET

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 15. The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, NNGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

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The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

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ADMINISTRATIVE FLOODWAY

* Administrative floodway designated in accordance with local regulations for management of these areas

LEGEND



SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A

No Base Flood Elevations determined.

ZONE AE

Base Flood Elevations determined.

ZONE AH

Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO

Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR

Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently described. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99

Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V

Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

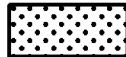
ZONE VE

Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.



FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.



OTHER FLOOD AREAS

ZONE X

Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.



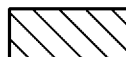
OTHER AREAS

ZONE X

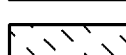
Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D

Areas in which flood hazards are undetermined, but possible.



COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS



OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% Annual Chance Floodplain Boundary
- 0.2% Annual Chance Floodplain Boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
- Base Flood Elevation line and value; elevation in feet*
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*Referenced to the North American Vertical Datum of 1988



Cross section line



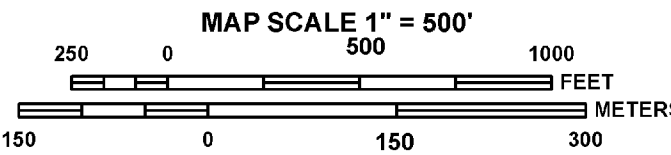
Transect line

- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
- 1000-meter Universal Transverse Mercator grid values, zone 15
- Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5
- River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index
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December 21, 2018
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

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PANEL 0113D

FIRM
FLOOD INSURANCE RATE MAP
CARVER COUNTY,
MINNESOTA
AND INCORPORATED AREAS

PANEL 113 OF 375
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:			
COMMUNITY	NUMBER	PANEL	SUFFIX
CHANHASSEN, CITY OF	270051	0113	D
VICTORIA, CITY OF	270054	0113	D

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MAP NUMBER
27019C0113D
EFFECTIVE DATE
DECEMBER 21, 2018

Federal Emergency Management Agency

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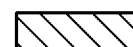
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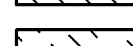
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Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988



Cross section line



Transect line

45° 02' 08", 93° 02' 12"
Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
1000-meter Universal Transverse Mercator grid values, zone 15



Bench mark (see explanation in Notes to Users section of this FIRM panel)



River Mile

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December 21, 2018
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MAP SCALE 1" = 500'
250 0 500 1000
150 0 150 300
FEET
METERS



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0226D

FIRM

FLOOD INSURANCE RATE MAP
CARVER COUNTY,
MINNESOTA
AND INCORPORATED AREAS

PANEL 226 OF 375
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CHANHASSEN, CITY OF	270051	0226	D
CHASKA, CITY OF	275234	0226	D
VICTORIA, CITY OF	270054	0226	D

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Federal Emergency Management Agency

MAP NUMBER
27019C0226D
EFFECTIVE DATE
DECEMBER 21, 2018

PART ONE: Applicant Information

If applicant is an entity (company, government entity, partnership, etc.), an authorized contact person must be identified. If the applicant is using an agent (consultant, lawyer, or other third party) and has authorized them to act on their behalf, the agent's contact information must also be provided.

Applicant/Landowner Name: City of Chanhassen (Charlie Howley)
Mailing Address: 7700 Market Boulevard P.O Box 147 Chanhassen, MN 55317
Phone: 952.227.1169
E-mail Address: chowley@chanhassenmn.gov

Authorized Contact (do not complete if same as above): Joe Seidl
Mailing Address: 7700 Market Boulevard P.O Box 147 Chanhassen, MN 55317
Phone: 952.227.1168
E-mail Address: jseidl@chanhassemmn.gov

Agent Name: WSB (Samantha Nielsen)
Mailing Address: 701 Xenia Ave S. Suite 300, Minneapolis, MN, 55416
Phone: 651.420.0835
E-mail Address: samantha.nielsen@wsbeng.com

PART TWO: Site Location Information

County: Carver **City/Township:** Chanhassen
Parcel ID and/or Address: Red Cedar Point Road & Hickory Road, Chanhassen, MN 55331
Legal Description (Section, Township, Range): Section 2, Township 116N, Range 23W
Lat/Long (decimal degrees): Area 1: -93.6132931°W, 44.8751098°N; Area 2: -93.6173357°W, 44.8765263°N
Attach a map showing the location of the site in relation to local streets, roads, highways.
Approximate size of site (acres) or if a linear project, length (feet): Area 1: 0.16 acres; Area 2: 0.15 acres

If you know that your proposal will require an individual Permit from the U.S. Army Corps of Engineers, you must provide the names and addresses of all property owners adjacent to the project site. This information may be provided by attaching a list to your application or by using block 25 of the Application for Department of the Army permit which can be obtained at:

http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/RegulatoryDocs/engform_4345_2012oct.pdf

PART THREE: General Project/Site Information

If this application is related to a delineation approval, exemption determination, jurisdictional determination, or other correspondence submitted **prior to** this application then describe that here and provide the Corps of Engineers project number.

Describe the project that is being proposed, the project purpose and need, and schedule for implementation and completion. The project description must fully describe the nature and scope of the proposed activity including a description of all project elements that effect aquatic resources (wetland, lake, tributary, etc.) and must also include plans and cross section or profile drawings showing the location, character, and dimensions of all proposed activities and aquatic resource impacts.

The City of Chanhassen requested a wetland delineation for two project areas located along the west shore of Lake Minnewashta in Chanhassen, Minnesota. The purpose of the delineation is to improve drainage within the Red Cedar Point area.

PART FOUR: Aquatic Resource Impact¹ Summary

If your proposed project involves a direct or indirect impact to an aquatic resource (wetland, lake, tributary, etc.) identify each impact in the table below. Include all anticipated impacts, including those expected to be temporary. Attach an overhead view map, aerial photo, and/or drawing showing all of the aquatic resources in the project area and the location(s) of the proposed impacts. Label each aquatic resource on the map with a reference number or letter and identify the impacts in the following table.

Aquatic Resource ID (as noted on overhead view)	Aquatic Resource Type (wetland, lake, tributary etc.)	Type of Impact (fill, excavate, drain, or remove vegetation)	Duration of Impact Permanent (P) or Temporary (T) ¹	Size of Impact ²	Overall Size of Aquatic Resource ³	Existing Plant Community Type(s) in Impact Area ⁴	County, Major Watershed #, and Bank Service Area # of Impact Area ⁵

¹If impacts are temporary; enter the duration of the impacts in days next to the "T". For example, a project with a temporary access fill that would be removed after 220 days would be entered "T (220)".

²Impacts less than 0.01 acre should be reported in square feet. Impacts 0.01 acre or greater should be reported as acres and rounded to the nearest 0.01 acre. Tributary impacts must be reported in linear feet of impact and an area of impact by indicating first the linear feet of impact along the flowline of the stream followed by the area impact in parentheses). For example, a project that impacts 50 feet of a stream that is 6 feet wide would be reported as 50 ft (300 square feet).

³This is generally only applicable if you are applying for a de minimis exemption under MN Rules 8420.0420 Subp. 8, otherwise enter "N/A".

⁴Use *Wetland Plants and Plant Community Types of Minnesota and Wisconsin* 3rd Ed. as modified in MN Rules 8420.0405 Subp. 2.

⁵Refer to Major Watershed and Bank Service Area maps in MN Rules 8420.0522 Subp. 7.

If any of the above identified impacts have already occurred, identify which impacts they are and the circumstances associated with each:

PART FIVE: Applicant Signature

☐ Check here if you are requesting a pre-application consultation with the Corps and LGU based on the information you have provided. Regulatory entities will not initiate a formal application review if this box is checked.

By signature below, I attest that the information in this application is complete and accurate. I further attest that I possess the authority to undertake the work described herein.

Signature: _____

Date: _____

I hereby authorize WSB (Samantha Nielsen) to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this application.

¹ The term "impact" as used in this joint application form is a generic term used for disclosure purposes to identify activities that may require approval from one or more regulatory agencies. For purposes of this form it is not meant to indicate whether or not those activities may require mitigation/replacement.

Attachment A

Request for Delineation Review, Wetland Type Determination, or Jurisdictional Determination

By submission of the enclosed wetland delineation report, I am requesting that the U.S. Army Corps of Engineers, St. Paul District (Corps) and/or the Wetland Conservation Act Local Government Unit (LGU) provide me with the following (check all that apply):

☒ **Wetland Type Confirmation**

☐ **Delineation Concurrence.** Concurrence with a delineation is a written notification from the Corps and a decision from the LGU concurring, not concurring, or commenting on the boundaries of the aquatic resources delineated on the property. Delineation concurrences are generally valid for five years unless site conditions change. Under this request alone, the Corps will not address the jurisdictional status of the aquatic resources on the property, only the boundaries of the resources within the review area (including wetlands, tributaries, lakes, etc.).

☐ **Preliminary Jurisdictional Determination.** A preliminary jurisdictional determination (PJD) is a non-binding written indication from the Corps that waters, including wetlands, identified on a parcel may be waters of the United States. For purposes of computation of impacts and compensatory mitigation requirements, a permit decision made on the basis of a PJD will treat all waters and wetlands in the review area as if they are jurisdictional waters of the U.S. PJDs are advisory in nature and may not be appealed.

☐ **Approved Jurisdictional Determination.** An approved jurisdictional determination (AJD) is an official Corps determination that jurisdictional waters of the United States are either present or absent on the property. AJDs can generally be relied upon by the affected party for five years. An AJD may be appealed through the Corps administrative appeal process.

In order for the Corps and LGU to process your request, the wetland delineation must be prepared in accordance with the 1987 Corps of Engineers Wetland Delineation Manual, any approved Regional Supplements to the 1987 Manual, and the *Guidelines for Submitting Wetland Delineations in Minnesota* (2013).

<http://www.mvp.usace.army.mil/Missions/Regulatory/DelineationJDGuidance.aspx>



WETLAND DELINEATION REPORT

**RED CEDAR POINT AREAS 1 & 2
DELINEATION**

**RED CEDAR ROAD & HICKEY ROAD |
CHANHASSEN, MN 55331**

December 16, 2025

Prepared for:

City of Chanhassen
7700 Market Blvd
Chanhassen, MN 55317

WSB PROJECT NO. 032009-000



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- Antecedent Precipitation Data



Certification Sheet

I hereby certify that this report was prepared by me or under my direct supervision and that I am a Certified Wetland Delineator in the State of Minnesota.

Samantha Nielsen, Environmental Scientist

Samantha Nielsen

Date: November 11, 2025 CMWP No. 5687

Quality Control Review Completed By:

Roxy Robertson, Sr. Environmental Scientist

Roxy Robertson

Date: Date November 14, 2025 CMWP No. 1317



1. Executive Summary

A Level 2 wetland delineation was conducted in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0). Wetland boundaries within the study area were determined by completing United States Army Corps of Engineers (USACE) Wetland Determination Data Forms for paired test hole points and observing soils, vegetation, and hydrology in the area. The wetland delineation for the proposed project was completed by Samantha Nielsen of WSB on October 1, 2025. The delineation identified one wetland and two other aquatic resources within the limits of the project review area as summarized in **Table 1**.

A visual representation of the wetland and other aquatic resources within the project area is shown on **Figure 6, Appendix B**. All potential wetland areas (mapped hydric soils, NWI signatures, and low depressional areas) were reviewed on-site and either delineated or determined to be upland.

Table 1: Summary of Delineated Aquatic Resources, Red Cedar Point Areas 1 & 2, Carver County, Minnesota

Aquatic Resource ID	Aquatic Resource Type	Latitude/ Longitude	Size Within Project Area	Aquatic Resource Classification			
				Eggers and Reed	Circular 39	Cowardin	HGM
Wetland 1	Wetland	-93.617372°W 44.876640°N	0.05 ac	Wet Meadow	Type 2	PEMB	Lacustrine Fringe
Wet Ditch 1	Wetland	-93.617379°W 44.876439°N	0.03 ac	Wet Meadow	Type 2	PEMB	Depression
Lake Minnewashta	Lake	-93.6173569°W 44.8768490°N	0.03 ac	Open Water Wetland	Type 5	L2UBH	Depression



2. Background

2.1 Project Location

The project includes two locations along the west shore of Lake Minnewashta in Chanhassen, Carver County, Minnesota. Area 1 is located at the east end of Red Cedar Road, and Area 2 is located on the west end of Hickory Road. Area 1 encompasses approximately 0.16 acres, and area 2 encompasses approximately 0.15 acres. Both areas are situated within Section 8 of Township 116N and Range 23W, Major Watershed 20, and BSA 7. The decimal degree coordinates to the center of the project areas are as follows: (Area1) 44.8751098°N, -93.6132931°W, and (Area 2) 44.8765263°N, -93.6173357°W (**Figure 1, Appendix A**).

2.2 Project Purpose

The City of Chanhassen is proposing to improve drainage within the Red Cedar Point area. This report is intended to address all jurisdictional WCA, Public Water, or Section 404 wetlands and/or other aquatic resources for final design and permitting of this project. This project was authorized by the City of Chanhassen.

2.3 Project Scope

The scope of this project was to delineate all aquatic resources within the outlined project area.



3. Delineation Procedure

3.1 Desktop Resource Review

The following off-site mapping resources were reviewed to identify the potential presence of wetland within the project area.

TOPOGRAPHY

The project area is located on a small peninsula along the west side of Lake Minnewashta. The landform gently extends into the lake, with gradual slopes toward the shoreline. Area 1, located on Red Cedar Point Road, occurs downslope from the roadway and tapers toward the water's edge. Area 2 lies further up on the north side of the peninsula off of Hickory Road. The landform consists of a channel the gradually deepens as it approaches the lake. Water generally flows from the roads toward the lake (**Figure 2, Appendix A**).

DNR PUBLIC WATERS INVENTORY

The DNR Public Waters Inventory (PWI) (*Minnesota Department of Natural Resources, 1983*) shows one Public Waters Basin, Lake Minnewashta (DNR PWI No. 10000900), within both project areas (**Figure 3, Appendix A**).

FEMA FLOODPLAIN

The FEMA National Flood Hazard Layer (NFHL) depicts both 100-year and 500-year floodplain in both project areas along the shoreline (**Figure 3, Appendix A**).

HYDROLOGY

Hydrology within Areas 1 & 2 are influenced by Lake Minnewashta (DNR PWI No. 10000900), which flows in and out of Area 2, and flows to the north of Area 1. The proximity of the lake suggests potential surface water influence to wetland hydrology of Wetland 1. Swale 1 receives stormwater and surface water runoff. Wetland-specific hydrology information is provided in Section IV of this report.

NATIONAL WETLANDS INVENTORY

The DNR National Wetlands Inventory (NWI) identified one wetland within project Area 1 (**Figure 4, Appendix A**). The NWI identifies the following wetland type: L2UBH.

COUNTY SOIL SURVEY

The Soil Survey of Carver County, Minnesota <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm> identified the following soils (**Table 2**) within the project area (**Figure 5, Appendix A**):

Table 2: Carver County Soil Survey Summary within Project Area.

Map Symbol	Map Unit Name	Percent Hydric	Hydric Rating Category
EX	Essexville sandy loam	100	All Hydric
KC	Lester-Kilkenny loams, 6 to 12 percent slopes	0	Non-hydric



ANTECEDENT PRECIPITATION CONDITIONS

Historic climate data and WETS data were obtained from the Minnesota Climatology Working Group preceding the October 1, 2025 site visit, which fell within the normal precipitation range. Records of the antecedent precipitation can be found in **Appendix D**.

3.2 On-Site Determination Methods

A Level 2 field investigation was conducted by Samantha Nielsen, WSB on October 1, 2025 within the defined project area. No deviations were undertaken as part of this investigation.

The project area was delineated using the routine methodology described in the Corps of Engineers Wetlands Delineation Manual (US Army Corps of Engineers 1987), with additional guidance provided by the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0). Wetlands were classified according to the methodologies set forth in Wetlands of the United States (Circular 39), USFWS Shaw and Fredine 1971; Classification of Wetlands and Deepwater Habitats of the United States, Cowardin 1979; and Wetland Plants and Plant Communities of Minnesota and Wisconsin, 2nd ed., Eggers and Reed 1997. The wetland types in this report are classified by the Circular 39, Cowardin, and Eggers and Reed Classifications.

Soil types were researched prior to the on-site investigation with the assistance of the Soil Survey of Carver County from the Natural Resources Conservation Service (NRCS). All soil test pits were excavated to a minimum depth of 24 inches unless otherwise noted. Soil colors were described on-site per the Munsell Soil Color Charts (2009 Revised Edition) from the test pits in and adjacent to the wetlands. Hydric soils were identified using the current technical criteria for hydric soils developed by the NRCS in 2017 (Version 8.1). The presence of water was observed after time was allowed for movement of water through the substrate. This time varied depending upon soil characteristics.

The quadrant sampling method was employed for all sample points unless otherwise noted. Vegetation was measured as actual areal cover and may exceed 100 percent of total area due to overlap. Grasses and herbaceous vegetative cover were measured within a circular plot of a 5-foot radius, all woody shrubs and saplings were measured within a circular plot with a 15-foot radius and trees and woody vines were measured in a 30-foot radius circular plot. Regional plant identification resources were utilized in the identification of plant species, with indicator status taken from the 2022 National Wetland Plant List (US Army Corps of Engineers 2020). Plant species dominance was estimated based on the absolute percent coverage for herbaceous, shrub-sapling and tree strata if present. In addition to the use of indicators of hydrology, hydric soils and the presence of hydrophytic vegetation, other evidence such as topographic breaks and watershed characteristics were used to determine the wetland boundary.

Midwest Regional Supplement Routine Wetland Delineation data forms were used to record vegetation, hydrology and soil characteristics at sample points in and adjacent to the wetlands (**Appendix B**). Sampling transects were taken along the wetland-upland boundary of the wetland as indicated on **Figure 6, Appendix B**. Transects and delineated wetland boundaries were field surveyed using a sub-meter accuracy hand-held GPS unit. Sample point locations and delineated wetland edges are shown on **Figure 6 in Appendix B**. Pictures of each wetland can be found in **Appendix C**.

4. Results Summary

The wetland delineation data forms (**Appendix B**) and photos (**Appendix C**) are attached. A summary of the delineation is below.

4.1 Wetland 1

ON-SITE DETERMINATION RESULTS		
Circular 39	Type 2	
Cowardin	PEMB	
Eggers and Reed	Fresh Wet Meadow	
HGM	Lacustrine	
Soil Mapping Unit	Essexville sandy loam	
No. of Wetland Flags	7	
Wetland Size (Within Project Area)	0.05 ac	
DNR PWI	10000900	
NWI	L2UBH	

LOCATION:

Wetland 1 is positioned at the north end of Area 2, closest to the lake. The wetland boundary is outlined in **Figure 6.2, Appendix B**. One sample point was collected during the investigation.

PLANT COMMUNITY DESCRIPTION:

The wetland is a fresh wet meadow located in a shallow, low-lying channel that is positioned below the grade of the surrounding maintained lawns. Wetland hydrology is influenced by the lake.

DOMINANT VEGETATION:

Corresponding data forms for Wetland 1 are: SP1

Dominant vegetation at the wetland sample points consisted of red osier dogwood (*Cornus sericea*) in the sapling/shrub stratum; and common woodrush (*Luzula multiflora*) and spearmint (*Mentha spicata*) that looked like a cultivar from a garden in the herb stratum. Hydric soil indicators consisted of Redox Dark Surface (F6). Hydrology indicators included Geomorphic Position (D2) and a FAC-Neutral Test (D5).

The adjacent upland area consisted of mowed residential grass, and therefore, no upland sample point was collected.

BOUNDARY PLACEMENT:

The wetland boundary was placed along the toe slope.

4.2 Additional Sampled Areas

Two additional sample points were collected at Area 1, and both were determined to be upland. Data sheets are included in **Appendix B**.

Sample Point 2 (SP2) was taken in a concave relief within a terrace of Area 1 that did not contain hydrophytic vegetation. No hydric soil indicators nor hydrology were observed at this sample point (**Figure 6.1, Appendix B**).

Sample Point 3 (SP3) was taken in a concave relief within a terrace of Area 1 that did not contain hydrophytic vegetation. No hydric soil indicators nor hydrology indicators were observed at this sample point (**Figure 6.1, Appendix B**).

4.3 Other Aquatic Resources

In addition to the wetlands identified within this report, the project area also contained a wet ditch.

Aquatic Resource ID: Wet Ditch 1		
Type	Wet ditch	
Stream Class	NA	
Size (ac)	0.03 ac	
Length (lf)/Width (lf)	85lf / 13lf	
Cowardin Classification	PEMB	
DNR PWI No.	N/A	
Summary	The wet ditch is situated just south of wetland 1 between two residential backyards. It is assumed the all three wetland indicators are present. However, this is an incidental wetland created to divert water from the homes. It is bordered by upland on both sides, and received a majority of its flow from precipitation and stormwater runoff (Figure 6.2, Appendix B).	



Aquatic Resource ID: Lake Minnewashta		
Type	Lake	No Photo
Stream Class	NA	
Size (ac)	0.03 ac	
Length (lf)/Width (lf)	56 lf/ 25 lf	
Cowardin Classification	L2UBH	
DNR PWI No.	10000900	
Summary	This lake is a DNR public watercourse (10000900) located on the north side of the project boundary and influence the hydrology of Wetland 1 (Figure 6.2, Appendix B). The lake corresponds with the DNR’s NWI feature L2UBH (Figure 4, Appendix A).	



5. Summary and Closing Statements

One wetland was delineated within Area 2 using the Level 2 method. Area 1 contained Lake Minnewashta.

The wetland delineation report was completed by Samantha Nielsen, WSB. The joint application form is included along with this report. This delineation report is being submitted as a request for approval of:

- Wetland Boundary and Type



6. References

The following sources of information were reviewed to assist in performing the wetland delineation.

Literature Sources

- Board of Water and Soil Resources. 2009. Wetland Conservation Act Rules, Chapter 8420. Print Communication Division, St. Paul.
- Cowardin L.M. USFWS. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Government Printing Office, Carver, D.C. 131 pp.
- Eggers, S.D. and D.M. Reed. 2014. Wetland Plants and Plant Communities of Minnesota & Wisconsin, Second Edition. United States Army Corps of Engineers, St. Paul District. 263 pp.
- Fredine, C.G. and S.P. Shaw. 1956. Wetlands of the United States (Circular 39). United States Government Printing Office, Carver, D.C.
- Kollmorgen Instruments Corp. 2009 Revised Edition. Munsell Soil Color Charts.
- National Technical Committee for Hydric Soils. 1991. Hydric Soils of the United States. U.S.D.A. Soil Conservation Service. Carver, D.C. Misc. Publication 1491. Revised December 15, 1995.
- United States Army Corps of Engineers. 2022 National Wetland Plant List, version 3.6. Engineer Research and Development Center. Cold Regions Research and Engineering Laboratory, Hanover, NH. <https://wetland-plants.sec.usace.army.mil/>
- United States Army Corps of Engineers. August 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Nobel. ERDC/EL TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- United States Army Corps of Engineers - St. Paul District and Minnesota Board of Water & Soil Resources. March 4, 2015. Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and Wetland Conservation Act Local Governmental Units in Minnesota, Version 2.0.
- United States Army Corps of Engineers. 1987 2014. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. Version 2.0 Waterways Experiment Station.
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Webs Soil Survey, Minnesota. Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed 10/01/2025.



Appendix A

Figure 1 – Project Location

Figure 2– Topography

Figure 3 – DNR Public Waters

Figure 4 – National Wetlands Inventory

Figure 5 – County Soil Survey



Figure 1 - Project Location

Red Cedar Point Ares 1 & 2
Chanhassen, MN 55331



0

500

1 inch = 500 feet

Feet





Figure 2.1 - Topography



Figure 2.2 - Topography

Hickory Road (Area 2)
Chanhassen, MN 55331



0 80
Feet
1 inch = 80 feet





Figure 3 - DNR Public Waters

Red Cedar Point Areas 1 & 2
Chanhassen, MN 55331



0 200
Feet
1 inch = 200 feet



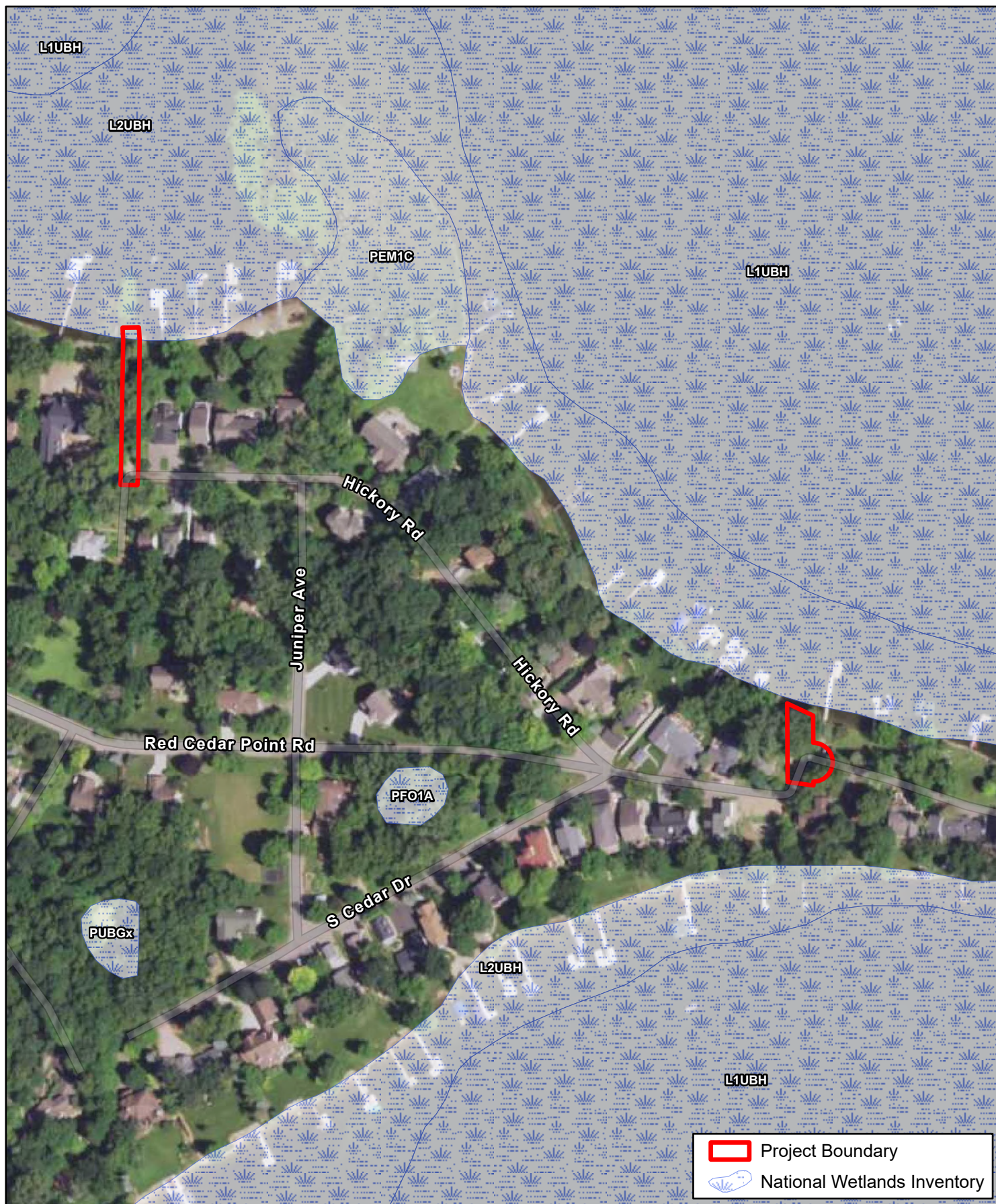


Figure 4 - National Wetlands Inventory

Red Cedar Point Ares 1 & 2
Chanhasen, MN 55331



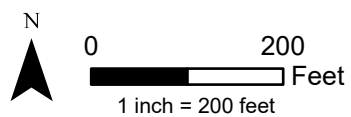
0 200
Feet
1 inch = 200 feet



Map unit symbol	Map Unit Name	Percent Hydric	Hydric Category
EX	Essexville sandy loam	100	Hydric
KC	Lester-Kilkenny loams, 6 to 12 percent slopes	0	Non-Hydric
W	Water	0	Non-Hydric



Figure 5 - County Soil Survey
Red Cedar Point Areas 1 & 2
Chanhassen, MN 55331





Appendix B

Figure 6 – Wetland Delineation Wetland Determination Data Forms

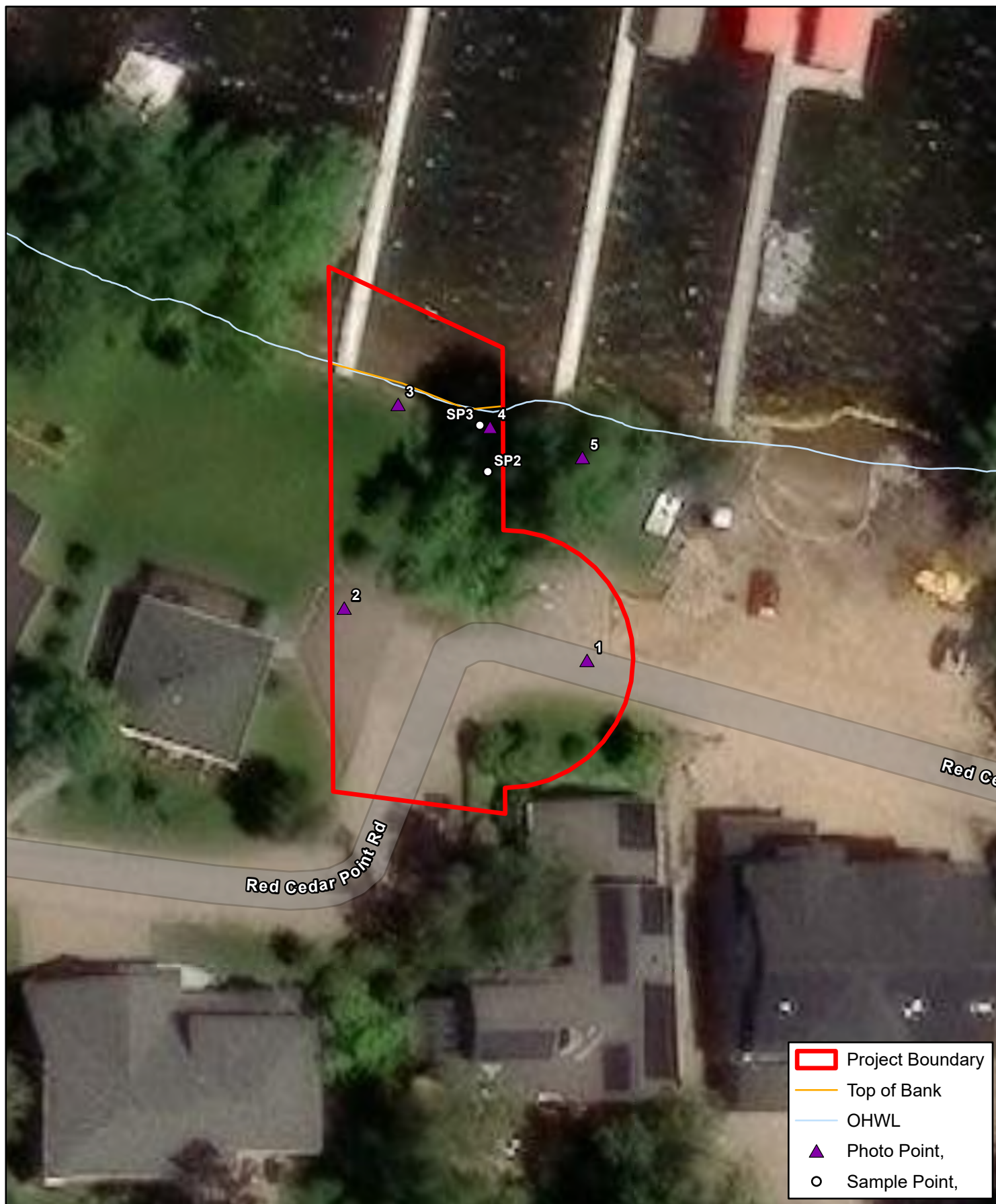


Figure 6.1 - Wetland Delineation

Red Cedar Point Road - Area 1
Chanhassen, MN 55331



0 30
Feet
1 inch = 30 feet

wsb





Figure 6.2 - Wetland Delineation

Hickory Road - Area 2
Chanhassen, MN 55331



0 40
Feet
1 inch = 40 feet



U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp: 9/30/2027 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
--	---

Project/Site: <u>Hickory Lane</u>	City/County: <u>Chanhassen</u>	Sampling Date: <u>10/01/25</u>
Applicant/Owner: <u>City of Chanhassen</u>	State: <u>MN</u>	Sampling Point: <u>SP1</u>
Investigator(s): <u>Samantha Nielsen</u>	Section, Township, Range: <u>8, 116N, 23W</u>	
Landform (hillside, terrace, etc.): <u>Toeslope</u>	Local relief (concave, convex, none): <u>Concave</u>	
Slope (%): <u>1-2</u>	Lat: <u>-93.6173741</u>	Long: <u>44.8766449</u>
		Datum: <u>WGS 84</u>
Soil Map Unit Name: <u>Essexville sandy loam</u>		NWI classification: <u>No</u>
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <u> </u> No <u> </u> (If no, explain in Remarks.)		
Are Vegetation <u> </u> , Soil <u> </u> , or Hydrology <u> </u> significantly disturbed? Are "Normal Circumstances" present? Yes <u> X </u> No <u> </u>		
Are Vegetation <u> </u> , Soil <u> </u> , or Hydrology <u> </u> 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> X </u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> X </u> No <u> </u>
Remarks:	

VEGETATION – Use scientific names of plants.

<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Tree Stratum</th> <th style="text-align: left; border-bottom: 1px solid black;">(Plot size: <u>30</u>)</th> <th style="text-align: center; border-bottom: 1px solid black;">Absolute % Cover</th> <th style="text-align: center; border-bottom: 1px solid black;">Dominant Species?</th> <th style="text-align: center; border-bottom: 1px solid black;">Indicator Status</th> </tr> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td><u>Frangula alnus</u></td><td style="text-align: center;"><u>2</u></td><td style="text-align: center;"><u>No</u></td><td style="text-align: center;"><u>FACW</u></td></tr> <tr><td>3.</td><td></td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;"><u>2</u></td> <td colspan="2" style="text-align: right;">=Total Cover</td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Sapling/Shrub Stratum</th> <th style="text-align: left; border-bottom: 1px solid black;">(Plot size: <u>15</u>)</th> <th style="text-align: center; border-bottom: 1px solid black;">Absolute % Cover</th> <th style="text-align: center; border-bottom: 1px solid black;">Dominant Species?</th> <th style="text-align: center; border-bottom: 1px solid black;">Indicator Status</th> </tr> <tr><td>1.</td><td><u>Cornus sericea</u></td><td style="text-align: center;"><u>5</u></td><td style="text-align: center;"><u>Yes</u></td><td style="text-align: center;"><u>FACW</u></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;"><u>5</u></td> <td colspan="2" style="text-align: right;">=Total Cover</td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Herb Stratum</th> <th style="text-align: left; border-bottom: 1px solid black;">(Plot size: <u>5</u>)</th> <th style="text-align: center; border-bottom: 1px solid black;">Absolute % Cover</th> <th style="text-align: center; border-bottom: 1px solid black;">Dominant Species?</th> <th style="text-align: center; border-bottom: 1px solid black;">Indicator Status</th> </tr> <tr><td>1.</td><td><u>Scirpus sylvaticus</u></td><td style="text-align: center;"><u>10</u></td><td style="text-align: center;"><u>Yes</u></td><td style="text-align: center;"><u>OBL</u></td></tr> <tr><td>2.</td><td><u>Mentha spicata</u></td><td style="text-align: center;"><u>10</u></td><td style="text-align: center;"><u>Yes</u></td><td style="text-align: center;"><u>FACW</u></td></tr> <tr><td>3.</td><td></td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr><td>6.</td><td></td><td></td><td></td><td></td></tr> <tr><td>7.</td><td></td><td></td><td></td><td></td></tr> <tr><td>8.</td><td></td><td></td><td></td><td></td></tr> <tr><td>9.</td><td></td><td></td><td></td><td></td></tr> <tr><td>10.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td style="text-align: center;"><u>20</u></td> <td colspan="2" style="text-align: right;">=Total Cover</td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Woody Vine Stratum</th> <th style="text-align: left; border-bottom: 1px solid black;">(Plot size: <u>30</u>)</th> <th style="text-align: center; border-bottom: 1px solid black;">Absolute % Cover</th> <th style="text-align: center; border-bottom: 1px solid black;">Dominant Species?</th> <th style="text-align: center; border-bottom: 1px solid black;">Indicator Status</th> </tr> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td></td> <td colspan="2" style="text-align: right;">=Total Cover</td> </tr> </table>	Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	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Indicator Status	1.					2.								=Total Cover		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>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B) Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Total % Cover of:</th> <th style="text-align: left; border-bottom: 1px solid black;">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>17</u></td> <td>x 2 = <u>34</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>27</u> (A)</td> <td><u>44</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>1.63</u></td> </tr> </table> 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 ≤3.0¹ <u> </u> 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u>	Total % Cover of:	Multiply by:	OBL species <u>10</u>	x 1 = <u>10</u>	FACW species <u>17</u>	x 2 = <u>34</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>27</u> (A)	<u>44</u> (B)	Prevalence Index = B/A = <u>1.63</u>	
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SOIL

Sampling Point: SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/1	95	7.5YR 3/4	5	C	M	Loamy/Clayey	Silt clay loam
10-24	10YR 3/1	95		5	C	M	Loamy/Clayey	Gley1 6/10Y
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.						² Location: PL=Pore Lining, M=Matrix.		
Hydric Soil Indicators:						Indicators for Problematic Hydric Soils³:		
☐ Histosol (A1)			☐ Sandy Gleyed Matrix (S4)			☐ Iron-Manganese Masses (F12)		
☐ Histic Epipedon (A2)			☐ Sandy Redox (S5)			☐ Red Parent Material (F21)		
☐ Black Histic (A3)			☐ Stripped Matrix (S6)			☐ Very Shallow Dark Surface (F22)		
☐ Hydrogen Sulfide (A4)			☐ Dark Surface (S7)			☐ Other (Explain in Remarks)		
☐ Stratified Layers (A5)			☐ Loamy Mucky Mineral (F1)					
☐ 2 cm Muck (A10)			☐ Loamy Gleyed Matrix (F2)					
☐ Depleted Below Dark Surface (A11)			☐ Depleted Matrix (F3)					
☐ Thick Dark Surface (A12)			☒ Redox Dark Surface (F6)					
☐ Iron Monosulfide (A18)			☐ Depleted Dark Surface (F7)					
☐ Sandy Mucky Mineral (S1)			☐ Redox Depressions (F8)					
☐ 5 cm Mucky Peat or Peat (S3)								
Restrictive Layer (if observed):								
Type: _____								
Depth (inches): _____						Hydric Soil Present? Yes ☒ No ☐		
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)	☐ Surface Soil Cracks (B6)	
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)	
☒ Saturation (A3)	☐ True Aquatic Plants (B14)	☐ Dry-Season Water Table (C2)	
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Crayfish Burrows (C8)	
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Saturation Visible on Aerial Imagery (C9)	
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Stunted or Stressed Plants (D1)	
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Geomorphic Position (D2)	
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☒ FAC-Neutral Test (D5)	
☐ Inundation Visible on Aerial Imagery (B7)	☐ Gauge or Well Data (D9)		
☐ Sparsely Vegetated Concave Surface (B8)	☐ Other (Explain in Remarks)		
Field Observations:			
Surface Water Present?	Yes ☐ No ☒	Depth (inches):	
Water Table Present?	Yes ☐ No ☒	Depth (inches):	
Saturation Present?	Yes ☒ No ☐	Depth (inches):	12
(includes capillary fringe)			
Wetland Hydrology Present? Yes ☒ No ☐			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp: 9/30/2027 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
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Project/Site: Red Cedar Road City/County: Chanhassen Sampling Date: 10/01/25
Applicant/Owner: City of Chanhassen State: MN Sampling Point: SP2
Investigator(s): Samantha Nielsen Section, Township, Range: 8, 116N, 23W
Landform (hillside, terrace, etc.): Terrace Local relief (concave, convex, none): Linear
Slope (%): 0-1 Lat: -93.6132672 Long: 44.87515751 Datum: WGS84
Soil Map Unit Name: Essexville sandy loam NWI classification: No
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 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>
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Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>) 1. <u> </u> 2. <u>Acer negundo</u> 25 Yes FAC 3. <u>Fraxinus nigra</u> 25 Yes FACW 4. <u>Tilia americana</u> 25 Yes FACU 5. <u> </u> 75 =Total Cover	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)
Sapling/Shrub Stratum (Plot size: <u>15</u>) 1. <u> </u> 2. <u> </u> 3. <u> </u> 4. <u> </u> 5. <u> </u> =Total Cover	
Herb Stratum (Plot size: <u>5</u>) 1. <u>Ageratina altissima</u> 5 Yes FACU 2. <u> </u> 3. <u> </u> 4. <u> </u> 5. <u> </u> 6. <u> </u> 7. <u> </u> 8. <u> </u> 9. <u> </u> 10. <u> </u> 5 =Total Cover	
Woody Vine Stratum (Plot size: <u>30</u>) 1. <u> </u> 2. <u> </u> =Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>25</u> x 2 = <u>50</u> FAC species <u>25</u> x 3 = <u>75</u> FACU species <u>30</u> x 4 = <u>120</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>80</u> (A) <u>245</u> (B) Prevalence Index = B/A = <u>3.06</u>
Remarks: (Include photo numbers here or on a separate sheet.)	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </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.
	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>

SOIL

Sampling Point: SP2**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		
0-24	10YR 2/1	100					Loamy/Clayey	Sandy loam

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

☐ Histosol (A1)	☐ Sandy Gleyed Matrix (S4)
☐ Histic Epipedon (A2)	☐ Sandy Redox (S5)
☐ Black Histic (A3)	☐ Stripped Matrix (S6)
☐ Hydrogen Sulfide (A4)	☐ Dark Surface (S7)
☐ Stratified Layers (A5)	☐ Loamy Mucky Mineral (F1)
☐ 2 cm Muck (A10)	☐ Loamy Gleyed Matrix (F2)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Matrix (F3)
☐ Thick Dark Surface (A12)	☐ Redox Dark Surface (F6)
☐ Iron Monosulfide (A18)	☐ Depleted Dark Surface (F7)
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)
☐ 5 cm Mucky Peat or Peat (S3)	

Indicators for Problematic Hydric Soils³:

☐ Iron-Manganese Masses (F12)
☐ Red Parent Material (F21)
☐ Very Shallow Dark Surface (F22)
☐ 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:

HYDROLOGY

Wetland Hydrology Indicators:

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

☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)
☐ Saturation (A3)	☐ True Aquatic Plants (B14)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Gauge or Well Data (D9)
☐ Sparsely Vegetated Concave Surface (B8)	☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches): _____
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches): _____
Saturation Present?	Yes _____	No <u>X</u>	Depth (inches): _____
(includes capillary fringe)			

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Midwest Region See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp: 9/30/2027 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
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Project/Site: <u>Red Cedar Road</u>	City/County: <u>Chanhassen</u>	Sampling Date: <u>10/01/25</u>
Applicant/Owner: <u>City of Chanhassen</u>	State: <u>MN</u>	Sampling Point: <u>SP3</u>
Investigator(s): <u>Samantha Nielsen</u>	Section, Township, Range: <u>8, 116N, 23W</u>	
Landform (hillside, terrace, etc.): <u>Terrace</u>	Local relief (concave, convex, none): <u>Linear</u>	
Slope (%): <u>0-1</u>	Lat: <u>-93.6132741</u>	Long: <u>44.8752032</u>
		Datum: <u>WGS 84</u>
Soil Map Unit Name: <u>Essexville sandy loam</u>	NWI classification: <u>No</u>	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <u> </u> No <u> </u> (If no, explain in Remarks.)		
Are Vegetation <u> </u> , Soil <u> </u> , or Hydrology <u> </u> significantly disturbed? Are "Normal Circumstances" present? Yes <u>X</u> No <u> </u>		
Are Vegetation <u> </u> , Soil <u> </u> , or Hydrology <u> </u> 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>	Is the Sampled Area within a Wetland? 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>	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	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)																
1. <u> </u>																				
2. <u>Acer negundo</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u>Fraxinus nigra</u>	<u>25</u>	<u>Yes</u>	<u>FACW</u>																	
4. <u>Tilia americana</u>	<u>25</u>	<u>Yes</u>	<u>FACU</u>																	
5. <u> </u>																				
	<u>75</u>	<u>=Total Cover</u>																		
Sapling/Shrub Stratum (Plot size: <u>15</u>)				Prevalence Index worksheet: <table><tr><td>Total % Cover of:</td><td>Multiply by:</td></tr><tr><td>OBL species <u>3</u></td><td>x 1 = <u>3</u></td></tr><tr><td>FACW species <u>27</u></td><td>x 2 = <u>54</u></td></tr><tr><td>FAC species <u>27</u></td><td>x 3 = <u>81</u></td></tr><tr><td>FACU species <u>27</u></td><td>x 4 = <u>108</u></td></tr><tr><td>UPL species <u>40</u></td><td>x 5 = <u>200</u></td></tr><tr><td>Column Totals: <u>124</u> (A)</td><td><u>446</u> (B)</td></tr><tr><td colspan="2">Prevalence Index = B/A = <u>3.60</u></td></tr></table>	Total % Cover of:	Multiply by:	OBL species <u>3</u>	x 1 = <u>3</u>	FACW species <u>27</u>	x 2 = <u>54</u>	FAC species <u>27</u>	x 3 = <u>81</u>	FACU species <u>27</u>	x 4 = <u>108</u>	UPL species <u>40</u>	x 5 = <u>200</u>	Column Totals: <u>124</u> (A)	<u>446</u> (B)	Prevalence Index = B/A = <u>3.60</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>3</u>	x 1 = <u>3</u>																			
FACW species <u>27</u>	x 2 = <u>54</u>																			
FAC species <u>27</u>	x 3 = <u>81</u>																			
FACU species <u>27</u>	x 4 = <u>108</u>																			
UPL species <u>40</u>	x 5 = <u>200</u>																			
Column Totals: <u>124</u> (A)	<u>446</u> (B)																			
Prevalence Index = B/A = <u>3.60</u>																				
1. <u>Cornus alternifolia</u>	<u>2</u>	<u>No</u>	<u>FAC</u>																	
2. <u> </u>																				
3. <u> </u>																				
4. <u> </u>																				
5. <u> </u>																				
	<u>2</u>	<u>=Total Cover</u>																		
Herb Stratum (Plot size: <u>5</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </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.																
1. <u>Persicaria punctata</u>	<u>3</u>	<u>No</u>	<u>OBL</u>																	
2. <u>Parthenocissus inserta</u>	<u>2</u>	<u>No</u>	<u>FACU</u>																	
3. <u>Hemerocallis fulva</u>	<u>40</u>	<u>Yes</u>	<u>UPL</u>																	
4. <u>Lysimachia vulgaris</u>	<u>2</u>	<u>No</u>	<u>FACW</u>																	
5. <u> </u>																				
6. <u> </u>																				
7. <u> </u>																				
8. <u> </u>																				
9. <u> </u>																				
10. <u> </u>																				
	<u>47</u>	<u>=Total Cover</u>																		
Woody Vine Stratum (Plot size: <u>30</u>)				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>																
1. <u> </u>																				
2. <u> </u>																				
		<u>=Total Cover</u>																		
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: SP3**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		
0-24	10YR 2/1	100					Loamy/Clayey	Sandy loam

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

☐ Histosol (A1)	☐ Sandy Gleyed Matrix (S4)
☐ Histic Epipedon (A2)	☐ Sandy Redox (S5)
☐ Black Histic (A3)	☐ Stripped Matrix (S6)
☐ Hydrogen Sulfide (A4)	☐ Dark Surface (S7)
☐ Stratified Layers (A5)	☐ Loamy Mucky Mineral (F1)
☐ 2 cm Muck (A10)	☐ Loamy Gleyed Matrix (F2)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Matrix (F3)
☐ Thick Dark Surface (A12)	☐ Redox Dark Surface (F6)
☐ Iron Monosulfide (A18)	☐ Depleted Dark Surface (F7)
☐ Sandy Mucky Mineral (S1)	☐ Redox Depressions (F8)
☐ 5 cm Mucky Peat or Peat (S3)	

Indicators for Problematic Hydric Soils³:

☐ Iron-Manganese Masses (F12)
☐ Red Parent Material (F21)
☐ Very Shallow Dark Surface (F22)
☐ 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:

HYDROLOGY

Wetland Hydrology Indicators:

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

☐ Surface Water (A1)	☐ Water-Stained Leaves (B9)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)
☐ Saturation (A3)	☐ True Aquatic Plants (B14)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Gauge or Well Data (D9)
☐ Sparsely Vegetated Concave Surface (B8)	☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

☐ Surface Soil Cracks (B6)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches): _____
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches): _____
Saturation Present?	Yes _____	No <u>X</u>	Depth (inches): _____
(includes capillary fringe)			

Wetland Hydrology Present? Yes _____ No X

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

Remarks:



Appendix C

Wetland Photos

	Red Cedar Road Photo 1 Photo Location: Southeast of the project area
	Red Cedar Road Photo 2 Photo Location: Southwest of the project area
	Red Cedar Road Photo 3 Photo Location: West side of the project area
	Red Cedar Road Photo 4 Photo Location: North side of the project area



**Red Cedar Road
Photo 5**

Photo Location: East of the project area



**Hickory Road
Photo 1**

Photo Location: South of the project area
by the road



**Hickory Road
Photo 2**

Photo Location: South of the project area



**Hickory Road
Photo 3**

Photo Location: West side of the project
area



**Hickory Road
Photo 4**

Photo Location: East side of the project area



Appendix D

Antecedent Precipitation Data

NRCS method - Rainfall Documentation Worksheet Hydrology Tools for Wetland Determination
NRCS Engineering Field Handbook Chapter 19

Date	10/1/2025	Landowner/Project	Red Cedar Point Areas 1 & 2
Weather Station		State	MN
County	Carver	Growing Season	2025
Photo/obs Date		Soil Name	

shaded cells are locked or calculated	Long-term rainfall statistics (from WETS table or State Climatology Office)								
		30% chance <	30% chance >		Condition Dry, Wet, Normal	Condition Value	Month Weight Value	Product of Previous 2 Columns	
	Month			Precip					
	1st Prior Month*	September	1.98	4.66	2.12	N	2	3	6
	2nd Prior Month*	August	2.91	6.11	3.73	N	2	2	4
3rd Prior Month*	July	3.14	5.08	5.85	W	3	1	3	
*compared to photo/observation date								Sum	13

*compared to photo/observation date

Note: If sum is	
6 - 9	prior period has been drier than normal
10 - 14	prior period has been normal
15 - 18	prior period has been wetter than normal

Condition value:
Dry =1
Normal =2
Wet =3

Conclusions: prior period has been normal