

Applicant: Josh Bowe; Three Rivers Park District (TRPD)
Consultant: Erik Bye; Short Elliott Hendrickson (SEH) Inc.
Project: Hyland Richardson Nature Center and Maintenance Facility Site
Improvements
Location: 8737 East Bush Lake Road and 10145 East Bush Lake Road: Bloomington
Rule(s): 3, 4 and 5
Reviewer(s): Gabrielle Campagnola and Louise Heffernan; Barr Engineering Co.

General Background & Comments

The applicant proposes site improvements at the Hyland Richardson Nature Center and Maintenance Facility within the Hyland Lake Park Reserve. The Nature Center area, located at 8737 East Bush Lake Road in Bloomington, is occupied by the Nature Center building with associated walking paths and surface parking. The Maintenance Facility, located at 10145 East Bush Lake Road in Bloomington, includes several maintenance buildings, surface parking and walking paths.

Site improvements at the Nature Center and Maintenance Facility including removal and replacement of bituminous walking paths, mill and overlayment of the existing parking lots, utility improvements, and construction of two stormwater management facilities is proposed. The project will be located entirely on TRPD property.

The project site information is:

- Total Site Area: 946.6 acres (41,233,434 square feet) – Hyland Lake Park Reserve
- Disturbed Site Area: 1.3 acres (57,064 square feet)
- Existing Site Impervious Area: 2.8 acres (119,790 square feet)
- Proposed Site Impervious Area: 2.9 acres (126,996 square feet)
- An increase of 7,206 square feet in site impervious area (6.0% increase)
- Disturbed and Reconstructed Impervious Area: 19,146 square feet
- 16.0% of the existing site impervious area is to be disturbed and reconstructed

The proposed increase in impervious area and disturbed and reconstructed impervious area (26,352 square feet) excludes the trails and sidewalks that do not exceed 10 feet in width and are bordered downgradient by a pervious area extending half the width of the trail or sidewalk in accordance with subsection 4.2.2c criteria.

The District's Wetland Management Rule 3.0 applies to the project because an onsite wetland is downgradient from the project's land-disturbing activities and a permit under District Rule 4.0 is required (Rule 3.4).

The District's requirements for both stormwater management and erosion and sediment control apply to both project sites because more than 50 cubic yards of material will be disturbed and 5,000 square feet or more of surface area is altered, Rules 4.2.1a and b and 5.2.1a and b.

Exhibits

1. Permit Application dated January 14, 2022. Email correspondence dated February 7, 2022, outlining seven items required to complete the application. Email correspondence dated April 20, 2022, identifying seven additional items required to complete the application.
2. Plans dated January 31, 2022, with the most recent revision dated March 31, 2022, prepared by SEH Inc.
3. Stormwater Management Report dated January 4, 2022, revised April 1, 2022, and April 22, 2022, prepared by SEH Inc.
4. MIDS Calculator model files received April 1, 2022 and April 22, 2022, prepared by SEH Inc.
5. Electronic HydroCAD model files received April 1, 2022 and April 22, 2022, prepared by SEH Inc.
6. Soil boring logs dated May 31, 2000, prepared by Braun Intertec.
7. Minnesota Routine Assessment Method (MnRAM) wetland data dated March 11, 2022, prepared by SEH Inc.
8. Wetland Report for Richland Nature Center Improvements dated February 2022, prepared by SEH Inc.
9. City of Bloomington Wetland Conservation Act (WCA) Notice of Decision dated April 7, 2022.

The application with the submittal items above is complete.

3.0 Wetlands Management

The District's Wetland Management Rule 3.0 applies to the project because onsite wetland(s) are downgradient or disturbed by the project's land-disturbing activities and a permit under District Rule 4.0 is required (Rule 3.4). The City of Bloomington is the Local Governmental Unit (LGU) responsible for administering the requirements of WCA in Bloomington. Per Rule 3.2.2, in cases where the District is not the LGU, applicable wetland buffer and stormwater treatment requirements nevertheless apply.

A wetland boundary determination completed by SEH, Inc. identified three wetlands within the project area located on TRPD property. As identified by the Wetland Permit Application Report dated February 4, 2022, prepared by SEH, Inc., the project is proposing permanent impacts to Wetland #1 (report identification). Documentation was submitted to the City of Bloomington, the LGU, requesting a no-loss determination for Wetland #1 be determined since the wetland

has been determined to be an incidental wetland. A WCA Notice of Decision approving the no-loss determination for the incidental wetland (Wetland #1) was issued on April 7, 2022. Subsection 3.2.2a states that sections 3.4 and 3.5 do not apply to incidental wetlands therefore a wetland buffer riparian to Wetland #1 is not provided in accordance with Rule 3.2.2a criteria. The engineer agrees with the assessment.

As identified in the SEH, Inc. Wetland Permit Application Report, Wetland #2 is not located downgradient from land-disturbing activities, as runoff from the project area is not tributary to the wetland. Therefore again, the project is not proposing a buffer riparian to Wetland #2 in accordance with subsection 3.4 criteria. The engineer agrees with the assessment.

A buffer is required for Wetland #3 located both onsite and downgradient from proposed land-disturbing activities. SEH, Inc. has submitted a MnRAM Assessment dated February 4, 2022, for the on-site wetlands. Based on the comparison of the function and values presented in Appendix 3b of the district's Rules, the NMCWD wetland rating for the wetland(s) have been classified. The table below summarizes the applicable requirements in accordance with Rules 3.2.2a and 3.4.1 for the wetlands within the project area.

Wetland (SEH, Inc. Wetland Report ID)	NMCWD Buffer Requirements	NMCWD Wetland Rating (Value)
#1	Not required for incidental wetlands per subsection 3.2.2a	N/A
#2	Not required per subsection 3.4 criteria	N/A
#3	Rule 3.4.1b is applicable	Medium

The district agrees with the MnRAM results with the medium value determination for Wetland #3. A medium value wetland requires a 20-foot minimum and 40-foot average buffer width. With an average 40-foot buffer, 20,305 square feet of buffer area is required - 20,308 square feet of buffer is shown to be provided. The required minimum and average buffer areas are shown to be met.

In accordance with Rule 3.4.5, buffer markers at the edges of the buffer area are required. Subsection 3.4.7 requires the maintenance of the wetland buffer by the applicant. A maintenance agreement is required.

4.0 Stormwater Management

The Nine Mile Creek Watershed District's Rule for Redevelopment, Rule 4.2.3, states, if a proposed activity will disturb more than 50% of the existing impervious surface on the site or will increase the imperviousness of the site by more than 50%, stormwater management will apply to the entire project site. Otherwise, the stormwater requirements will apply only to the disturbed, replaced and net additional impervious surface on the project site. Since the project will disturb less than 50% of the existing site impervious surface (16.0% to be disturbed) and will not increase the impervious surface at the site by more than 50% (6.0% increase proposed), applicable stormwater management criteria is required for the 57,064 square feet of disturbed area, including the 26,352 square feet of disturbed, replaced and net additional impervious surface.

Stormwater management for compliance with Rule 4.3.1 will be provided by an infiltration basin and a stormwater pond to be located at the Nature Center parking area. The stormwater management facilities will provide rate control, volume retention and water quality management for the regulated disturbed surfaces. As permitted by subsection 4.2.2c criteria, stormwater management is provided for trails and sidewalks that do not exceed 10 feet in width and are bordered downgradient by a pervious area extending at least half the width of the trail or sidewalk. These areas are excluded from the 26,352 square feet of regulated impervious surface as previously stated.

Rule 4.3.1b requires the 2-, 10-, and 100-year post development peak runoff rates be equal to or less than the existing discharge rates at all points where stormwater leaves the site. The applicant used a HydroCAD hydrologic model to simulate runoff rates at the two collection points where stormwater discharge leaves the site. The existing and proposed 2-, 10- and 100-year frequency discharges from the site are:

Existing Conditions			
Modeled Discharge Location	2-year (c.f.s.)	10- year (c.f.s.)	100-year (c.f.s.)
To Wetland #2 (Ultimately to East Bush Lake Road)	7.0	15.4	31.8
To South (To South Offsite Wetland, Ultimately to East Bush Lake)	2.1	4.5	10.4
Total	9.1	19.9	42.2

Proposed Conditions			
Modeled Discharge Location	2-year (c.f.s.)	10- year (c.f.s.)	100- year (c.f.s.)
To Wetland #2 (Ultimately to East Bush Lake Road)	4.0	9.3	31.4
To South (To South Offsite Wetland, Ultimately to East Bush Lake)	2.1	4.5	10.4
Total	6.1	13.8	41.8

Rule 4.3.1b is met.

The applicant has requested that the site be considered restricted under subsection 4.3.2 of the NMCWD rules. The soil borings completed by Braun Intertec identify the sites underlying soils as Type D soils, having low permeability. The geotechnical evaluation indicates groundwater was not encountered to a depth of 25.5 feet, elevation 867.5 M.S.L., the bottom of the boring within the closest proximity to the proposed stormwater management facilities (ST-2A). Soil classification from boring ST- 2A indicates the underlying soil as predominantly sandy lean clay (CL), with two 1.5' to 2' foot layers of silty sand. The engineer concurs with the analysis identifying the soils predominately comprised of low permeability throughout the site, supporting a restricted site determination.

For restricted sites, subsection 4.3.2 requires rate control in accordance with subsection 4.3.1.a and that volume retention and water-quality protection be provided in accordance with the following priority sequence: (a) Retention of at least 0.55 inches of runoff from the regulated impervious surface and treatment of all runoff to the standard in paragraph 4.3.1c; or

(b) Retention of runoff on-site to the maximum extent practicable (MEP) and treatment of all runoff to the standard in paragraph 4.3.1c; or (c) Off-site retention and treatment within the watershed to the standards in paragraph 4.3.1a and 4.3.1c. Given both the physical and site limitations, the applicant proposes a large, shallow infiltration basin. The volume retention achieved by the proposed infiltration basin was determined based the permeability of the soils and the footprint available to achieve at least 0.55 inches of runoff from the regulated impervious surface.

In accordance with Rule 4.3.2a criteria, a retention volume of 1,208 cubic feet is required from the proposed 0.60 acres (26,352 square feet) of regulated impervious surface. A design infiltration rate of 0.06 inches per hour has been used, conforming with design infiltration rates in the Minnesota Storm Water Manual. The table below summarizes the volume retention required and volume retention achieved. The proposed project is in conformance with subsection 4.3.2a.

Volume Retention Summary

Required Volume Retention Depth (inches)	Required Volume (cubic feet)	Provided Volume Retention Depth (inches)	Provided Volume (cubic feet)
0.55	1,208	0.56	1,240

With an infiltration area of 5,241 square feet provided, the volume retention is drawn down within the required 48-hours, complying with Rule 4.3.1a (ii).

The District's water quality criterion requires 60% annual removal efficiency for total phosphorus (TP) and 90% annual removal efficiency for total suspended solids (TSS). The results of the MIDS modeling provided are summarized in table below. We agree with the modeling results and the project is in conformance with Rule 4.3.1c criteria.

Annual TSS and TP Removal Summary

Pollutant of Interest	Regulated Site Loading (lbs./year)	Required Load Removal (lbs./year)	Provided Load Reduction (lbs./year)
Total Suspended Solids (TSS)	197	177 (90%)	333 (>100%)
Total Phosphorus (TP)	1.09	0.7 (60%)	1.09 (100%)

Rule 4.5.4d (i) requires three feet of separation between the bottom of an infiltration area and groundwater. The soil boring logs indicate that groundwater was not encountered to the bottom boring, ST-2A, to a depth of 25.5 feet, elevation 867.5 M.S.L. The following table provides a comparison of the bottom elevation of the infiltration area in relation to the elevation where groundwater was not encountered.

Proposed Stormwater Management Facility	Bottom Elevation of Facility M.S.L.	Elevation Groundwater Not Encountered M.S.L.	Separation Provided (feet)
Infiltration Basin	874.9	867.5*	7.4

*Lowest elevation in boring ST-2A where no groundwater was detected

The required three (3) feet of separation is provided between the bottom of an infiltration area and groundwater.

Rule 4.3.3 states that all new and reconstructed buildings must be constructed such that the low floor is at least two feet above the 100-year high-water elevation or one foot above the emergency overflow of a constructed facility. Additionally, a stormwater management facility must be constructed at an elevation that ensures no adjacent habitable building will be brought into noncompliance with a standard in subsection 4.3.3. The infiltration basin and stormwater pond will discharge to the northeast to Wetland #2 and eventually to East Bush Lake Road. Additionally, the surface parking area with the proposed stormwater management facilities is hydrologically separated from the Nature Center building with a high point in the topography at elevation 881.0 M.S.L. The 100-year flood elevation of the stormwater pond and infiltration basin is elevation 875.1 M.S.L., approximately 5.9 feet below the high point. The low floor and low opening elevations of the Nature Center will not be impacted by the stormwater management facilities. No stormwater management facilities are proposed to be constructed near the maintenance buildings. The project is in conformance with Rule 4.3.3 criteria.

In accordance with Rule 4.3.1a (i), where infiltration or filtration facilities, practices or systems are proposed, pre-treatment of runoff must be provided. A vegetated filter strip will provide the required pretreatment of runoff prior to discharging to the infiltration basin, complying with Rule 4.3.1a (i).

In accordance with Rule 4.3.4, a post-project chloride management plan must be provided that will, 1) designate an individual authorized to implement the chloride-use plan and 2) designate a MPCA certified salt applicator engaged in the implementation of the chloride-use plan for the site.

5.0 Erosion and Sediment Control

The district's requirements for erosion and sediment control apply to the project because more than 50 cubic yards of material will be disturbed and 5,000 square feet or more of surface area is altered, Rules 5.2.1a and b.

The erosion control plan prepared by SEH Inc. includes installation of silt fence, sediment control logs, and storm sewer inlet protection. The contractor for the project will need to designate a contact who will remain liable to the district for performance under the District's Erosion and Sediment Control Rule 5.0 from the time the permitted activities commence until vegetative cover is established, in accordance with subsection 5.4.1e. NMCWD must be notified if the responsible individual changes during the permit term.

11.0 Fees

Because the property owner is a public entity, no fees are charged.

Rules 3.0, 4.0 and 5.0

\$0

12.0 Financial Assurances

Because the property owner is a public entity, the District's financial assurance requirements do not apply.

Sureties for the project are:

\$0

Findings

1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
2. The proposed project will conform to Rules 3, 4 and 5 with the fulfillment of the conditions identified below.
3. The proposed stormwater management facility will provide rate control and water quality management in accordance with subsections 4.3.1b-c criteria and volume retention in accordance with subsection 4.3.2a criteria.
4. In accordance with NMCWD Rule 3.4.7, the wetland buffer must be documented by an agreement or other document approved by the district.
5. In accordance with NMCWD Rule 4.3.5, the applicant must provide a maintenance and inspection plan that identifies and protects the design, capacity and functionality of the stormwater management facilities.

Recommendation

Approval, contingent upon:

Continued compliance with the General Provisions (attached).

The applicant providing a name and contact information for the individual responsible for the erosion and sediment control at the site. NMCWD must be notified if the responsible individual changes during the permit term.

Per Rules 4.3.5 and 3.4.7, execute an agreement for the operation and maintenance of the stormwater management facilities and wetland buffer is required. A draft of the agreement must be approved by the district.

By accepting the permit, when issued, the applicant agrees to the following stipulations for closeout of the permit and release of the financial assurance after the project:

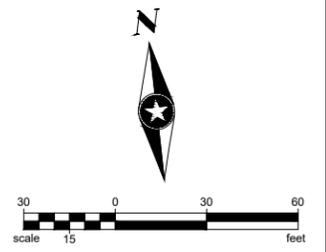
The work for the Hyland Richardson Nature Center and Maintenance Facility improvements under the terms of Permit #2022-004, if issued, must have an impervious surface area and configuration materially consistent with the approved plans. Design that differs materially from the approved plans (e.g., in terms of the total impervious area, buffer area, etc.) will need to be the subject of a request for a permit modification or new permit, which will be subject to review for compliance with all applicable regulatory requirements.

In accordance with Rule 3.4.5, buffer markers are required at the limits of the required wetland buffer.

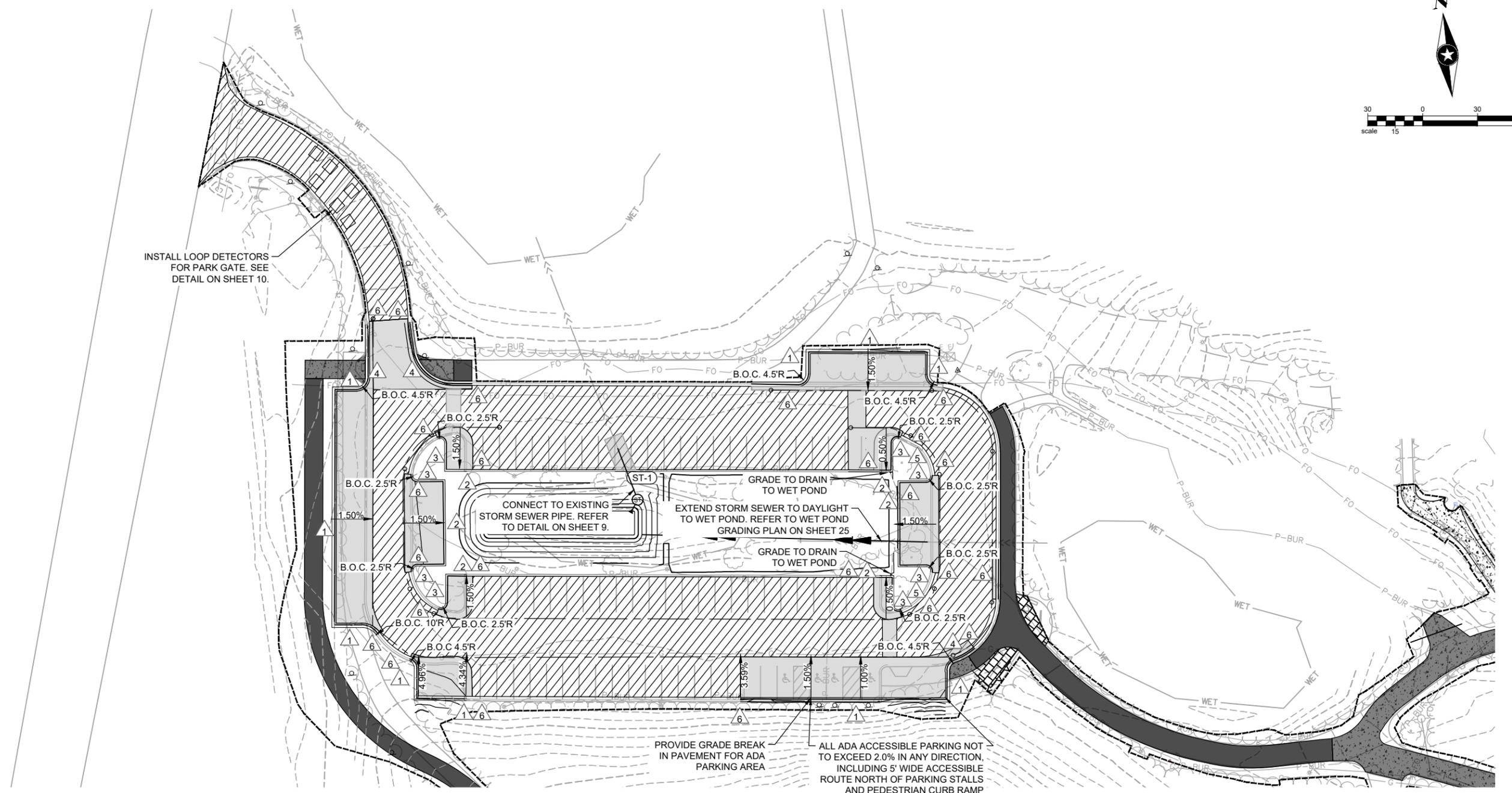
Per Rule 4.5.6, an as-built drawing of the stormwater management facilities conforming to the design specifications, including a stage volume relationship in tabular form for the stormwater management facilities, as approved by the district, must be provided.

Per Rule 12.4.1b, demonstration and confirmation that the infiltration facility has been constructed or installed and are functioning as designed and permitted. Verification, through daily observation logs and photographs, must be provided showing the stormwater management facility used for volume retention have drawn down within 48 hours from the completion of two 0.55-inch (approximate) separate rainfall events.

If not previously submitted in the calendar year of closeout, submission of a plan for post-project management of Chloride use on the site. The plan must include 1) the designation of an individual authorized to implement the chloride use plan and 2) the designation of a Minnesota Pollution Control Agency certified salt applicator engaged in the implementation of the chloride-use plan for the site.



INSTALL LOOP DETECTORS FOR PARK GATE. SEE DETAIL ON SHEET 10.



KEYED NOTES:

- 1 SURMOUNTABLE CURB & GUTTER (TIP OUT)
- 2 RIBBON CURB
- 3 DESIGN S5 CURB
- 4 INSTALL NEW ADA ACCESSIBLE DROP CURB & GUTTER, PEDESTRIAN RAMP, AND TRUNCATED DOMES. MAINTAIN FLOW LINE. SEE DETAILS.
- 5 TREE PROTECTION. SEE DETAIL ON SHEET 7.
- 6 MATCH EXISTING CURB & GUTTER

LEGEND:

- SEE TYPICAL SECTIONS ON SHEETS 18
- BITUMINOUS ROADWAY PAVEMENT (INSET A)
- 1.5 IN BITUMINOUS OVERLAY (INSET B)
- BITUMINOUS TRAIL
- 4 IN CONCRETE WALK
- 6 IN CONCRETE WALK/PAVEMENT
- INSTALL SALVAGED BRICK PAVERS
- CONSTRUCTION LIMITS

RICHARDSON NATURE CENTER PARKING LOT

SEH Project	TH163435	Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date
Drawn By	KAM	.			.		
Designed By	BKH	.			.		
Checked By	TPM	.			.		

I HEREBY CERTIFY THAT THIS PLAN 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.

BLAKE K. HANSEN, P.E.
LICENSE NO. 58904

DATE 01/31/2022

HYLAND LAKE PARK RESERVE
RICHARDSON NATURE CENTER &
MAINTENANCE PAVEMENT IMPROVEMENTS

RICHARDSON NATURE CENTER
PARKING LOT CONSTRUCTION PLAN

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