

Riley Purgatory Bluff Creek Watershed District Permit Application Review

Permit No: 2022-018 – modification

Considered at Board of Managers Meeting: May 8, 2024

Received complete: April 17, 2024

Applicant: Eden Prairie Schools; Kyle Fisher

Representative: Design Tree Engineering and Land Surveying; Griffin Dempsey

Project: The applicant proposes a stormwater reuse system at the Eden Prairie High School campus to provide stormwater management for the redevelopment of the high school’s track and field complex completed under permit 2022-018.

Location: 17185 Valley View Rd., Eden Prairie, Minnesota 55346

Reviewer: Scott Sobiech, PE and Leslie DellAngelo, PE; Barr Engineering Co.

Proposed Board Action

Manager _____ moved and Manager _____ seconded adoption of the following resolutions based on the permit report that follows and the presentation of the matter at the May 8, 2024 meeting of the managers:

Resolved that the application for a modification to approval of permit 2022-018 is approved, subject to the conditions and stipulations set forth in the Recommendations section of the attached report;

Resolved that on determination by the RPBCWD administrator that the conditions of approval of the permit have been affirmatively resolved, the RPBCWD president or administrator is authorized and directed to sign and deliver permit 2022-018 to the applicant on behalf of RPBCWD.

Upon vote, the resolutions were adopted, _____ [VOTE TALLY].

Applicable Rule Conformance Summary

Rule	Issue	Conforms to RBPCWD Rules?	Comments
C	Erosion Control Plan	See comment	See rule-specific permit condition C1 related to identifying erosion prevention on the erosion control plan.
J	Stormwater Management	Rate	Yes
		Volume	Yes
		Water Quality	Yes
		Low Floor Elev.	Yes
		Maintenance	Yes

Rule	Issue	Conforms to RBPCWD Rules?	Comments
	Chloride Management	Yes	
L	Permit Fee Deposit	N/A	
M	Financial Assurance	N/A	

Background

The applicant proposes to add a stormwater reuse system to the Eden Prairie High School campus to meet the stormwater management requirements (rate control, volume abstraction, and water quality) applicable to the reconstruction of the school track and field complex. The original application for the project triggered only RPBCWD’s Rule C erosion and sediment-control requirements because the school district presumed that the proposed work would involve only pavement rehabilitation, which is exempt from RPBCWD stormwater requirements. However, as the land-disturbing activities approved under permit 2022-018 got under way, poor onsite subsoil conditions were discovered, necessitating a change from pavement rehabilitation to full pavement reconstruction (i.e., disturbance of underlying soils). The applicant also added 0.15 acres of impervious surface to the project after discovering pavement reconstruction necessitated the need for stormwater management. The change triggered RPBCWD stormwater requirements for the project. The proposed redevelopment of the track and field proceeded and has been completed while the applicant has worked with RPBCWD and the City of Eden Prairie to develop a stormwater-management plan to bring the prior work into compliance with all applicable RPBCWD criteria. The school district has completed design, and is proposing a modification to permit 2022-018 to document the compliance measures to be installed. (Permit 2022-018 has expired, so approval of the modification application would require reinstatement of the permit.)

The proposed stormwater reuse system will replace the primary water supply for irrigation (city water) with water from an existing stormwater pond on the eastern portion of the site. The potable-water system will remain connected to the irrigation system to function as a back-up supply to be used only in instances when water is unavailable from the existing stormwater pond. The proposed retrofit includes re-grading of the eastern pond side slope and installation of an intake system. The reuse system will irrigate 32.2 acres of pervious green space on the campus and provide 57,529 cubic feet of volume abstraction, exceeding the 10,517 cubic feet of required volume abstraction (as detailed below). The applicant intends to utilize the 47,012 cubic feet of excess volume abstraction for future projects (equivalent of 1.1 inch abstraction from 11.77 acres of impervious surface).

The project site information is summarized in Table 1.

Table 1. Project site information

Site Information	Permit 2022-018	Modification	Total
Total Site Area (acres)	66.55	66.55	66.55

Site Information	Permit 2022-018	Modification	Total
Existing Site Impervious Area (acres)	32.86	33.01	32.86
Post Construction Site Impervious (acres)	33.01	33.01	33.01
Increase in Site Impervious Area (acres)	0.15	0.0	0.15
Percent Increase in Impervious Surface	<0.1%	0%	<0.1%
Disturbed Site Impervious Area (acres)	2.63	0.0	2.63
Percent Disturbance of Existing Impervious Surface	8.0%	0%	8.0%
Total Disturbed Area (acres)	6.10	0.29	6.39

There is one on-site protected wetland located in the northwest portion of the site that is not downgradient of the land-disturbing activities. Round Lake is off-site and receives treated runoff from the site.

Exhibits:

1. Permit application dated March 20, 2024 (Notified applicant on April 10, 2024 that submittal was incomplete, revised materials completing the application received April 17, 2024) (determined to be an application for a modification of permit 2022-018.)
2. Project Plan set (12 sheets) dated March 20, 2024 (revised April 17, 2024)
3. Stormwater Report dated March 22, 2024 (revised April 17, 2024)
4. Existing and Proposed HydroCAD Models received April 17, 2024
5. Existing (2022 Track Reconstruction) and Proposed (Reuse System) MIDS Models received April 17, 2024
6. CAD drawing with surveyed pond bathymetry received April 17, 2024
7. Joint Application Form received April 17, 2024
8. Response to permit review comments received April 17, 2024
9. Geotechnical Evaluation Report dated April 12, 2022
10. Chloride Management Plan and Certification received April 17, 2024
11. Draft Maintenance Agreement received April 17, 2024

Rule Specific Permit Conditions

Rule C: Erosion Prevention and Sediment Control

The applicant complied with applicable erosion- and sediment-control requirements in construction the track and field surfaces. Because the implementation of the reuse project will involve the alteration of 0.3

acres of land-surface area, the project must conform to the erosion prevention and sediment control requirements established in Rule C.

The erosion control plan prepared by Design Tree includes installation of perimeter control (silt fence and sediment control logs), a stabilized rock construction entrance, inlet protection, flotation silt curtain, temporary rock berm, daily inspection, placement of a minimum of 6 inches of topsoil (at 5% organic matter), decompaction of areas compacted during construction, and retention of native topsoil onsite to the greatest extent possible. To conform to RPBCWD Rule C requirements, the following revisions are needed:

- C1. The Applicant must provide the name, address and phone number of the individual who will remain liable to the District for performance under this rule and maintenance of erosion and sediment-control measures from the time the permitted activities commence until vegetative cover is established.

Rule J: Stormwater Management

Because the applicant disturbed or will disturb a total of 6.39 acres of land-surface area, the project must meet the criteria of RPBCWD's Stormwater Management rule (Rule J, Subsection 2.1).

The criteria listed in Subsection 3.1 will apply to only runoff from the new and reconstructed impervious areas on the project parcel because the impervious disturbance (<0.1 percent) and imperviousness increase (8 percent), do not amount to a disturbance of more than 50 percent of the impervious surface of the parcel nor will the imperviousness be increased by more than 50 percent (Rule J, Subsection 2.3).

The proposed stormwater reuse system will replace the primary water supply for irrigation with water from an existing stormwater pond on the eastern portion of the site. Potable water will remain connected to the system as a back-up supply used only in instances when water is unavailable from the existing stormwater pond. The proposed project includes the re-grading of the eastern pond side slope and installation of an intake system. With construction of the proposed reuse system, the applicant will bring the project into compliance with the applicable stormwater-management requirements.

Rate Control

In order to meet the rate control criteria listed in Subsection 3.1.a, the 2-, 10-, and 100-year post development peak runoff rates must be equal to or less than the existing discharge rates at all locations where stormwater leaves the site. The applicant used a HydroCAD hydrologic model to simulate runoff rates for pre- and post-development conditions for the 2-, 10-, and 100-year frequency storm events using a nested rainfall distribution, and a 100-year frequency, 10-day snowmelt event. The existing and proposed 2-, 10-, and 100-year frequency discharges from the site are summarized in Table 2 below. The proposed project is in conformance with RPBCWD Rule J, Subsection 3.1.a.

Table 2. Existing and Proposed Peak Runoff Rates

Modeled Discharge Location	2-Year Discharge (cfs)		10-Year Discharge (cfs)		100-Year Discharge (cfs)		10-Day Snowmelt (cfs)	
	Ex	Prop	Ex	Prop	Ex	Prop	Ex	Prop
P-1	0.7	0.7	1.8	1.8	9.0	9.0	2.0	2.0
P-2	2.8	2.8	8.3	8.3	26.3	26.2	5.7	5.7
P-3	5.2	5.2	8.7	8.7	15.2	15.2	0.3	0.3

Volume Abstraction

Subsection 3.1.b of Rule J requires the abstraction onsite of 1.1 inches of runoff from the regulated impervious surface of the site. An abstraction volume of 10,517 cubic feet is required from the 2.63 acres of regulated impervious area. A double-ring infiltrometer tests performed by American Engineering Testing on April 12, 2022 are revealed infiltration rates of 0.0 in/hr in the project area. The engineer concurs the soils are not conducive to infiltration and a stormwater reuse system is viable stormwater management method for achieving the volume abstraction requirement.

Table 3 summarizes the volume abstraction need for permit 2022-018 and the extra volume created by the proposed reuse system. The reuse system will irrigate 32.2 acres of pervious green space on the campus. The proposed reuse system will provide 57,529 cubic feet of volume abstraction, exceeding the 10,517 cubic feet of volume abstraction required to abstract runoff from the new and disturbed impervious surface created under permit 2022-018. The applicant will have the 47,012 cubic feet of excess volume abstraction available for future projects (equivalent of 1.1 inch abstraction from 11.77 acres of impervious surface) if the reuse system operates as projected. The engineer concurs with the submitted information and finds that the proposed project will conform with Rule J, Subsection 3.1.b. Because the proposed stormwater reuse system requires consistent use at a specified rate to meet District abstraction requirement, performance monitoring and reporting for the site will be required to ensure that the project provides the proposed volume abstraction rate.

Approval of the current proposed modification is for the work proposed under the 2022-018 application, as modified only; demonstrated available stormwater-management capacity may be utilized to comply with regulatory requirements applicable to future application, but no such approvals are granted hereby and the applicant will need to apply under RPBCWD regulatory requirements applicable to future applications.

Table 3. Volume Abstraction

Required Abstraction Depth (inches)	Required Abstraction Volume (cubic feet)	Provided Abstraction Depth (inches)	Provided Abstraction Volume (cubic feet)
1.1	10,817	6.03	57,529

Water Quality Management

Subsection 3.1.c of Rule J requires the Applicant to provide volume abstraction in accordance with 3.1b or least 60 percent annual removal efficiency for total phosphorus (TP), and at least 90 percent annual removal efficiency for total suspended solids (TSS) from site runoff, and no net increase in TSS or TP loading leaving the site from existing conditions. Because the reuse system proposed by the applicant provides volume abstraction meeting the standard in 3.1b and the engineer concurs with the modeling, under paragraph 3.1c.i, the engineer finds that the proposed project provides the required stormwater-quality protection.

Low floor Elevation

All new buildings must be constructed such that the lowest floor is at least two feet above the 100-year high-water elevation or one foot above the emergency overflow of a stormwater-management facility according to Rule J, Subsection 3.6a. In addition, a stormwater-management facility must be constructed at an elevation that ensures that no adjacent habitable building will be brought into noncompliance with this requirement according to Rule J, Subsection 3.6b. Because no buildings are proposed to be constructed or reconstructed as part of the project, Rule J, Subsection 3.6a does not impose requirements on the project. Because the applicant proposes to use an existing stormwater pond rather than constructing a new stormwater management facility with a high water level, Rule J, Subsection 3.6b does not impose requirements on the project.

Maintenance

Subsection 3.7 of Rule J requires the submission of maintenance plan. All stormwater management structures and facilities must be designed for maintenance access and properly maintained in perpetuity to assure that they continue to function as designed. The applicant provided a post construction operation and maintenance plan for review and a signed maintenance and inspection agreement. The engineer finds that the proposed project is in conformance with Rule J, Subsection 3.7.

Chloride Management

Subsection 3.8 of Rule J requires the submission of chloride management plan that designates the individual authorized to implement the chloride management plan and the Minnesota Pollution Control Agency-certified salt applicator engaged in implementing the plan. The applicant provided a chloride management plan that designating Kyle Fisher as the individual authorized to implement the chloride management plan and Cole Hagberg as the MPCA-certified salt applicator engaged in implementing the plan at the site. The engineer finds that the proposed project is in conformance with Rule J, Subsection 3.8.

Applicable General Requirements:

1. The RPBCWD Administrator and Engineer shall be notified at least three days prior to commencement of work.
2. Construction must be consistent with the plans, specifications, and models that were submitted by the applicant that were the basis of permit approval. The date(s) of the approved plans,

specifications, and modeling are listed on the permit. The grant of the permit does not in any way relieve the permittee, its engineer, or other professional consultants of responsibility for the permitted work.

3. The grant of the permit does not relieve the permittee of any responsibility to obtain approval of any other regulatory body with authority.
4. The issuance of this permit does not convey any rights to either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
5. In all cases where the doing by the permittee of anything authorized by this permit involves the taking, using or damaging of any property, rights or interests of any other person or persons, or of any publicly owned lands or improvements or interests, the permittee, before proceeding therewith, must acquire all necessary property rights and interest.
6. RPBCWD's determination to issue this permit was made in reliance on the information provided by the applicant. Any substantive change in the work affecting the nature and extent of applicability of RPBCWD regulatory requirements or substantive changes in the methods or means of compliance with RPBCWD regulatory requirements must be the subject of an application for a permit modification to the RPBCWD.
7. If the conditions herein are met and the permit is issued by RPBCWD, the applicant, by accepting the permit, grants access to the site of the work at all reasonable times during and after construction to authorized representatives of the RPBCWD for inspection of the work.

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 C and J.

Recommendation:

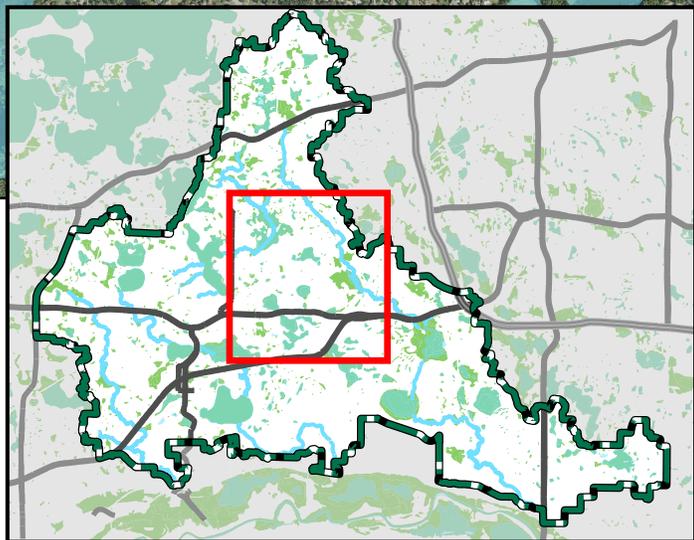
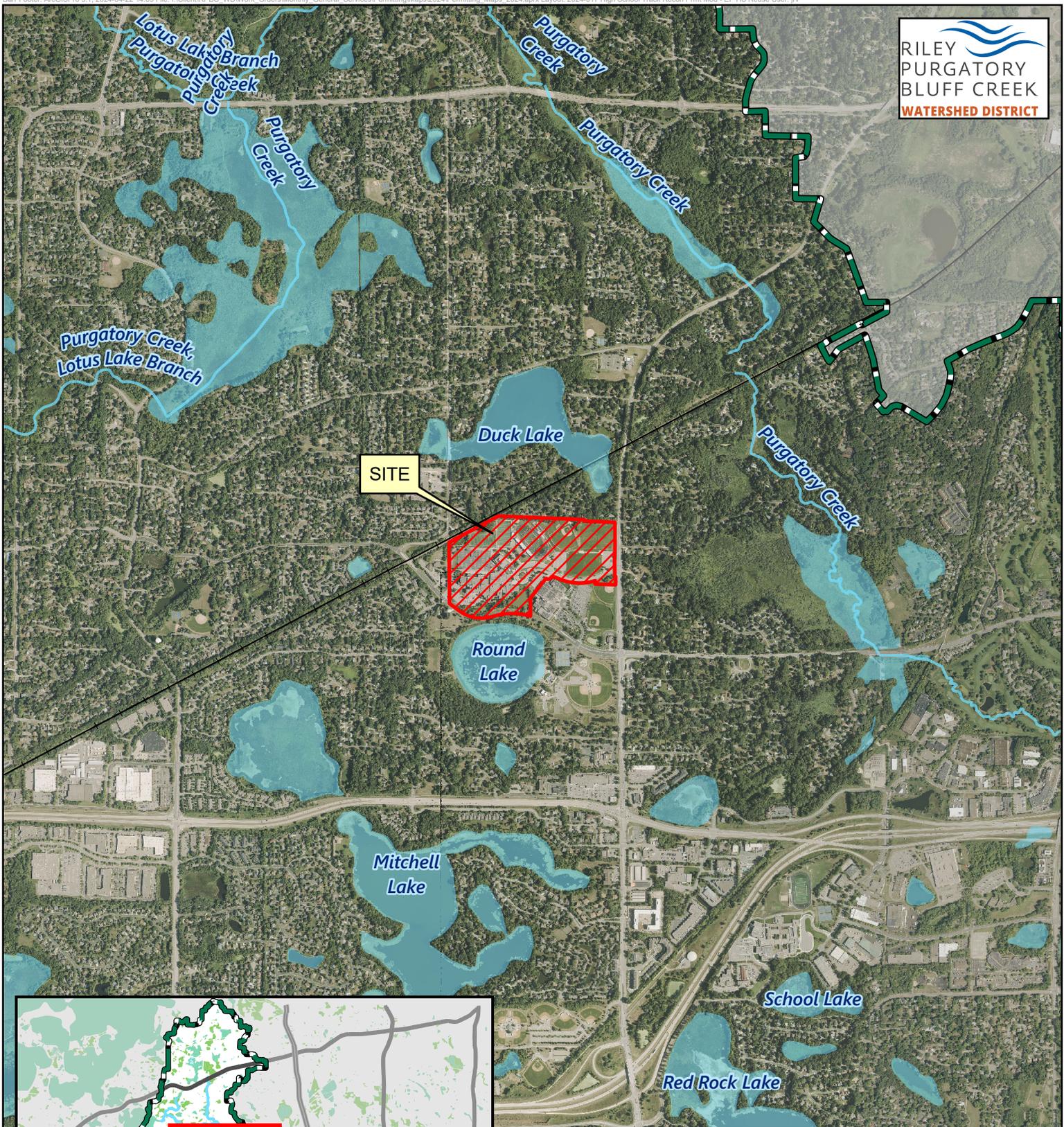
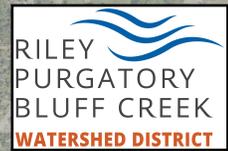
Approval of the permit modification and reinstatement of permit 2022-018, as modified, contingent upon:

1. Permit applicant must provide the name and contact information of the general contractor responsible for the site. RPBCWD must be notified if the responsible party changes during the permit term.

By accepting the permit, when issued, the applicant agrees to the following stipulations:

1. Continued compliance with General Requirements.
2. Per Rule J Subsection 4.5, upon completion of the site work, the permittee must submit as-built drawings demonstrating that at the time of final stabilization the stormwater management facility conforms to design specifications and functions as intended and approved by the District. As-built/record drawings must be signed by a professional engineer licensed in Minnesota and include, but not limited to:

- a) the surveyed bottom elevations, water levels, and general topography of all facilities;
 - b) the size, type, and surveyed invert elevations of all stormwater facility inlets and outlets;
 - c) the surveyed elevations of all emergency overflows including stormwater facility, street, and other;
 - d) other important features to show that the project was constructed as approved by the Managers and protects the public health, welfare, and safety.
3. Providing the following additional close-out materials:
- a) Documentation that disturbed pervious areas remaining pervious have been decompacted per Rule C.3.2c criteria



Feet



Permit Location Map

HIGH SCHOOL TRACK RECON
PERMIT MOD - EP HS REUSE
Permit 2024-017
Riley Purgatory Bluff Creek
Watershed District



EDEN PRAIRIE HIGH SCHOOL STORMWATER REUSE SYSTEM

17185 VALLEY VIEW RD, EDEN PRAIRIE, MN 55346



DESIGN TREE
engineering + land surveying

Corporate Office:
120 17th Ave W Alexandria, MN 56308
888-216-1916

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.

PRINTED NAME: GRIFFIN K. DEMPSEY
DATE: 04-17-24 LICENSE #: 61633

**EDEN PRAIRIE
HIGH SCHOOL
STORMWATER
REUSE SYSTEM**

**PRELIMINARY:
NOT FOR
CONSTRUCTION**

EDEN PRAIRIE, MN

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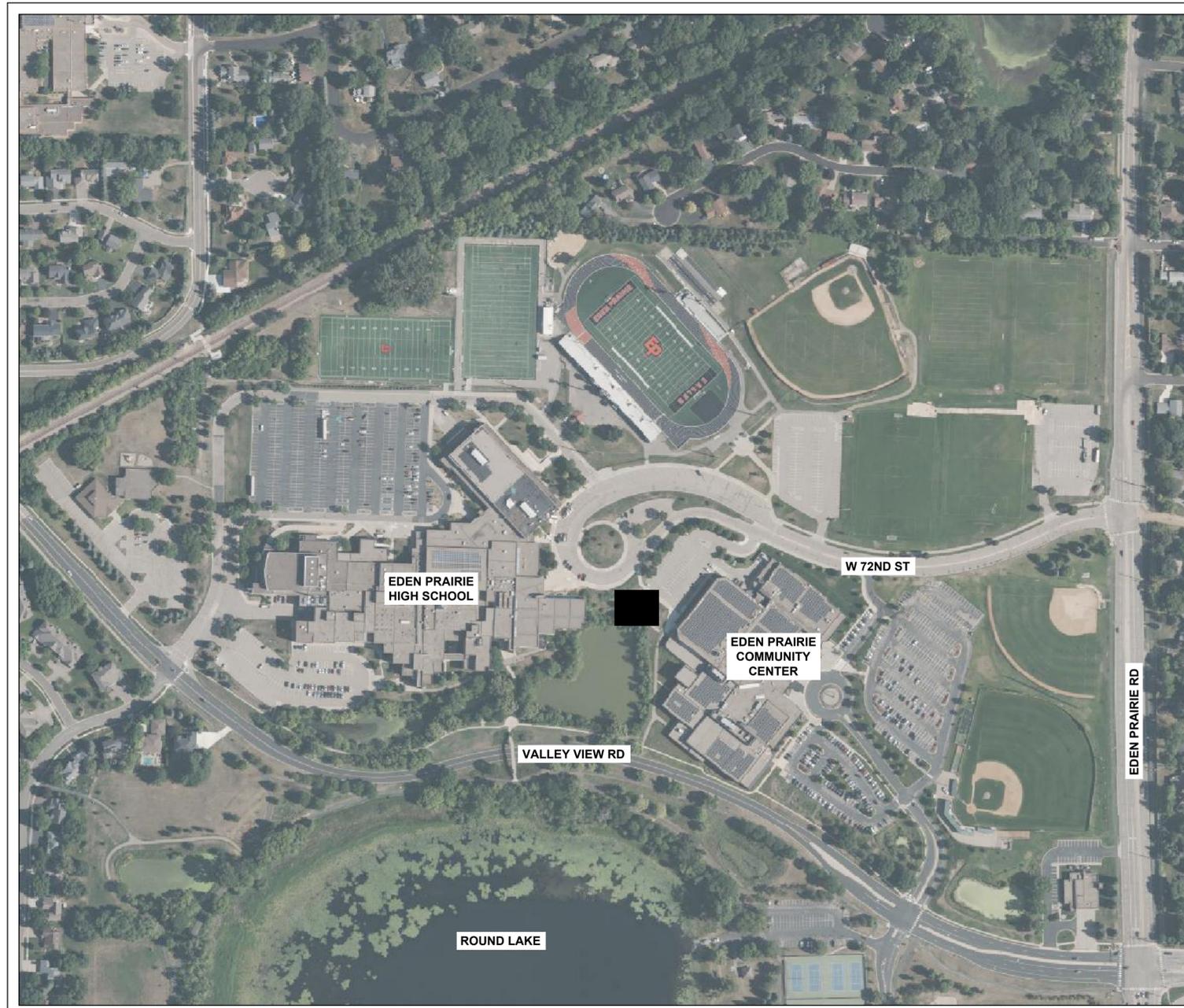
PROJECT NO.: 11323002

NO.	DATE	DESCRIPTION

COVER SHEET

DRAWING NO.

C001



INDEX OF SHEETS:

C001	COVER SHEET
C101	EXISTING CONDITIONS AND REMOVALS PLAN
C201	SITE AND UTILITY PLAN
C301	GRADING & DRAINAGE PLAN
C401	EROSION CONTROL PLAN
C501	CIVIL DETAILS
C502	EROSION CONTROL DETAILS
C503	EROSION CONTROL DETAILS
C504	EROSION CONTROL DETAILS
C505	BASEBALL FIELD DETAILS

GENERAL NOTES:

- EXISTING CONDITIONS & TOPOGRAPHIC INFORMATION PROVIDED BY:
DESIGN TREE ENGINEERING & LAND SURVEYING
120 17TH AVENUE W
ALEXANDRIA, MN 56308
- CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION OF THIS PROJECT

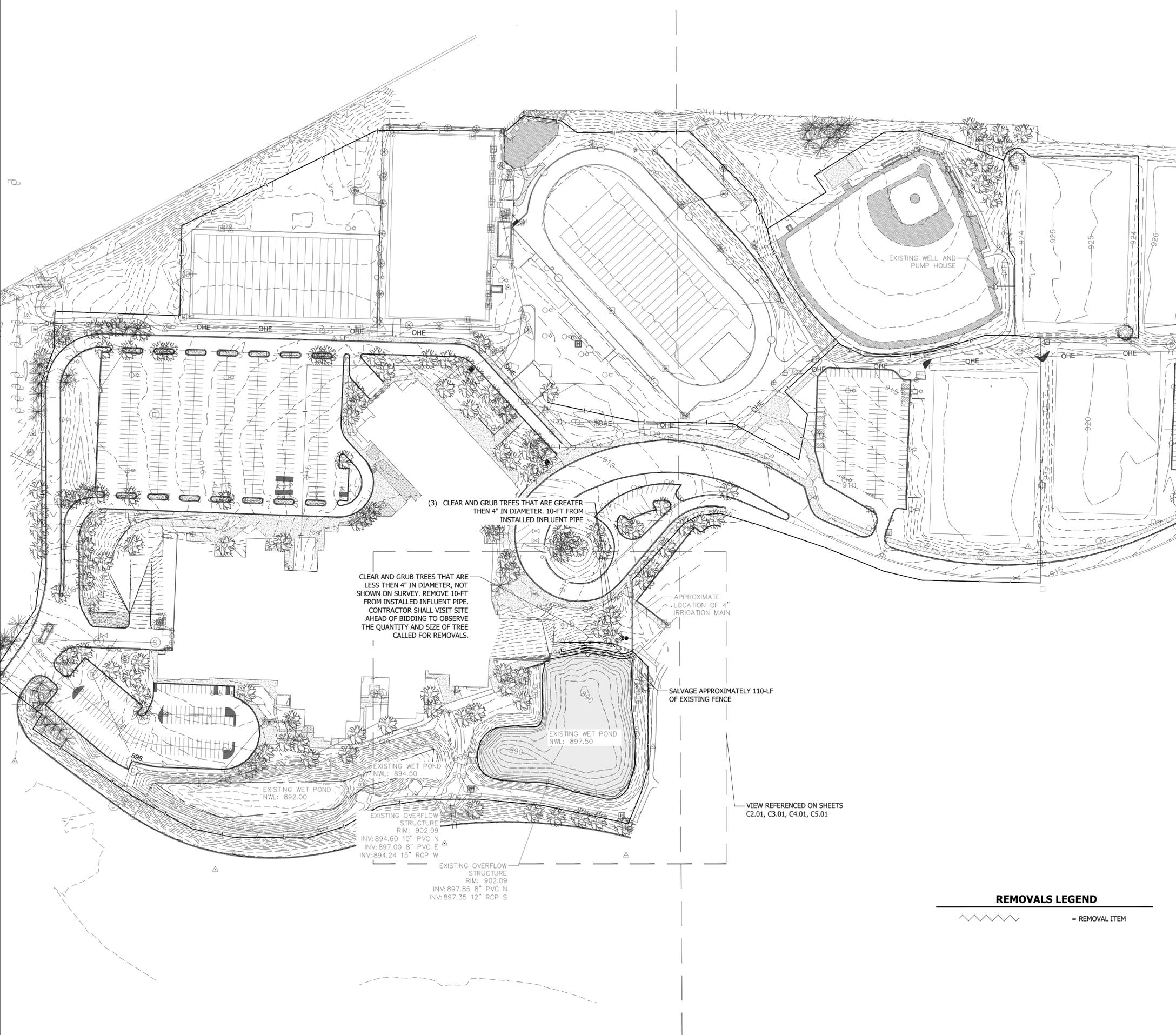
PROJECT CONTACTS

OWNER
EDEN PRAIRIE SCHOOLS
KYLE FISHER
8100 SCHOOL ROAD
EDEN PRAIRIE, MN 55344
TEL: 952-975-7124
EMAIL:
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CIVIL ENGINEER
DESIGN TREE ENGINEERING AND
LAND SURVEYING
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LAND SURVEYOR
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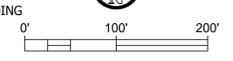
- NOTES:**
- EXISTING CONDITIONS & TOPOGRAPHIC INFORMATION PROVIDED BY: DESIGN TREE ENGINEERING & LAND SURVEYING
120 17TH AVENUE W
ALEXANDRIA, MN 56308
 - CONTRACTOR SHALL FIELD VERIFY ALL REMOVAL LIMITS PRIOR TO ANY CONSTRUCTION.
 - THE LOCATIONS AND ELEVATIONS OF THE EXISTING UTILITIES SHOWN HEREIN ARE APPROXIMATE. THEY HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND/OR RECORDS. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING LOCATION AND ELEVATION TO ENSURE THAT ANY EXISTING UTILITIES (SHOWN OR NOT SHOWN) ARE NOT DAMAGED DURING CONSTRUCTION.
 - CONTRACTOR SHALL PLACE ALL NECESSARY EROSION CONTROL MEASURES REQUIRED TO MAINTAIN SITE STABILITY PRIOR TO EXECUTING ANY SITE REMOVALS.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH UTILITY PROVIDERS FOR REMOVAL AND/OR RELOCATION OF EXISTING UTILITIES AFFECTED BY SITE DEVELOPMENT. ALL PERMITS, APPLICATIONS, AND FEES ARE THE RESPONSIBILITY OF THE CONTRACTOR.
 - ALL EXCESS OR WASTE MATERIAL GENERATED AS PART OF CONSTRUCTION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
 - CONTRACTOR SHALL MAINTAIN FULL ACCESS TO ADJACENT PROPERTIES DURING CONSTRUCTION AND TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES.
 - THE LOCATIONS AND ELEVATIONS OF THE EXISTING UTILITIES SHOWN HEREIN ARE APPROXIMATE. THEY HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND/OR RECORDS. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING LOCATION AND ELEVATION TO ENSURE THAT ANY EXISTING UTILITIES (SHOWN OR NOT SHOWN) ARE NOT DAMAGED DURING CONSTRUCTION.
 - GOPHER STATE ONE CALL DAMAGE PREVENTION SYSTEM FOR BURIED UTILITIES. 1-800-252-1166. CONTRACTOR SHALL HIRE A PRIVATE UTILITY LOCATOR TO ASSIST WITH PRIVATE UTILITY LOCATES.

LEGEND

- ◇ HYDRANT
- ⊙ SANITARY MAINHOLE
- ⊗ GATE VALVE
- ⊕ POWER POLE
- ⊙ LIGHT POLE
- CATCH BASIN
- ↑ SIGN
- 🌳 DECIDUOUS TREE
- 🌲 CONIFEROUS TREE
- ⊙ SHRUB
- ⊗ PEDESTAL
- < GUY WIRE
- ⊕ BOLLARD
- ⊕ POWER BOX
- ⊙ ELECTRIC METER
- ⊙ MONITORING WELL
- ⊙ SANITARY SEWER CLEANOUT
- WOOD FENCE
- CHAINLINK FENCE
- WIRE FENCE
- STORM SEWER LINE
- SANITARY SEWER LINE
- WATERMAIN
- OVERHEAD ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND FIBER
- UNDERGROUND ELECTRIC
- IRRIGATION LINES
- UNDERGROUND GAS LINE
- CONCRETE PAVEMENT
- BITUMINOUS PAVEMENT
- AGGREGATE SURFACING
- LANDSCAPING
- BUILDING

REMOVALS LEGEND

~~~~~ = REMOVAL ITEM



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.

PRINTED NAME: GRIFFIN K. DEMPSEY  
DATE: 04-17-24 LICENSE #: 61633

**EDEN PRAIRIE  
HIGH SCHOOL  
STORMWATER  
REUSE SYSTEM**

**PRELIMINARY:  
NOT FOR  
CONSTRUCTION**

EDEN PRAIRIE, MN

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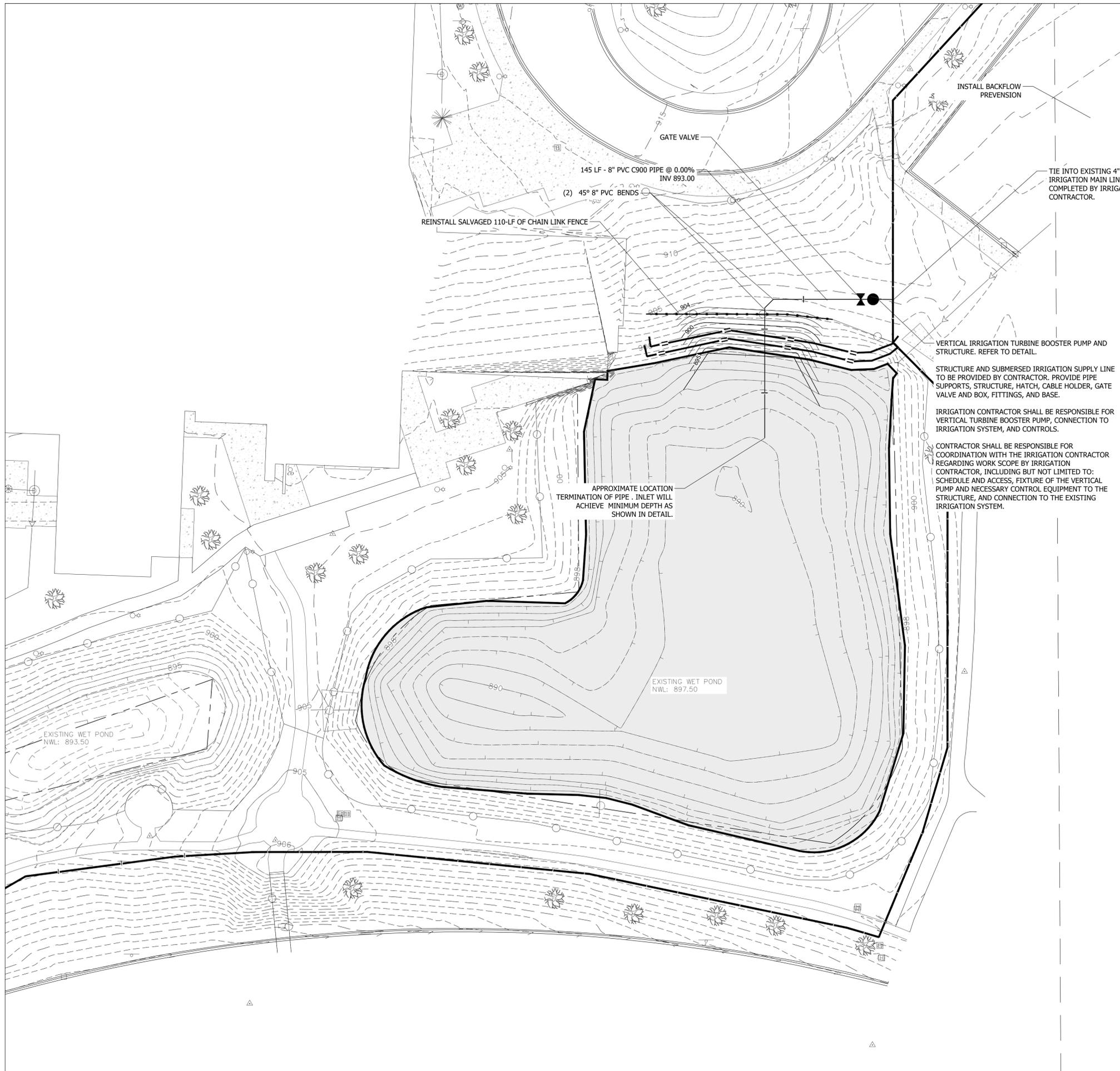
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CHECKED BY: DJF

PROJECT NO.: 11323002

| NO. | DATE | DESCRIPTION |
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**EXISTING  
CONDITIONS AND  
REMOVALS PLAN**

DRAWING NO.  
**C101**



**NOTES:**

1. ALL DIMENSIONS SHOWN ARE TO FLOW LINE, CENTERLINE OF FENCE, EDGE OF PAVEMENT, OR EXTERIOR FACE OF BUILDING, UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL VERIFY ALL PLAN AND DETAIL DIMENSIONS PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL MAINTAIN FULL ACCESS TO ADJACENT PROPERTIES DURING CONSTRUCTION AND TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES.
4. ALL SITE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER, IF APPLICABLE.
5. CONTRACTOR SHALL PROVIDE A TEMPORARY PEDESTRIAN ACCESS ROUTE PLAN FOR ANY WORK PERFORMED WITHIN THE PUBLIC RIGHT-OF-WAY.
6. CONTRACTOR SHALL PROVIDE A TEMPORARY TRAFFIC CONTROL PLAN FOR ANY WORK PERFORMED WITHIN THE PUBLIC RIGHT-OF-WAY.
7. GOPHER STATE ONE CALL DAMAGE PREVENTION SYSTEM FOR BURIED UTILITIES. 1-800-252-1166. CONTRACTOR SHALL HIRE A PRIVATE UTILITY LOCATOR TO ASSIST WITH PRIVATE UTILITY LOCATES.

**PROPOSED SITE LEGEND**

- CONCRETE PAVEMENT
- CHAINLINK FENCE

**PROPOSED UTILITY LEGEND**

- = GATE VALVE
- = IRRIGATION MANHOLE
- = IRRIGATION SUPPLY LINE

**SYSTEM PERFORMANCE NOTES:**

- FOR INFORMATION ONLY, TO BE PERFORMED BY IRRIGATION CONTRACTOR.
1. PUMP SYSTEM SHALL PROVIDE 300 GPM APPLICATION RATE AT 100 PSI.
  2. SYSTEM SHALL HAVE PRESSURE RELIEF DEVICES AT ALL PUMPS.
  3. SYSTEM SHALL HAVE A BACKFLOW PREVENTION DEVICES FOR EXISTING GROUNDWATER WELL AND SURFACE POND IRRIGATION SUPPLY PUMP.
  4. SYSTEM SHALL MODULATE IRRIGATION SUPPLY BETWEEN EXISTING GROUND WATER WELL AND PROPOSED SURFACE POND IRRIGATION SUPPLY.
  5. MODIFY TIE AND TIE INTO EXISTING CONTROL SYSTEM. SITE IRRIGATION CONTROLS SHALL EXECUTE PROGRAM LOGIC OUTLINED:
    - 5.1. DURING WHICH TIME THE SURFACE POND ELEVATION IS GREATER THAN 895.5, THE IRRIGATION SUPPLY WILL BE SOURCED FROM THE SURFACE POND, AND ALLOWED TO RECHARGE TO AN ELEVATION 897.5. DURING PERIODS OF RECHARGE, IRRIGATION SUPPLY WILL BE SOURCED FROM THE EXISTING GROUNDWATER WELL. AS SUCH, SYSTEM SHALL PROVIDE CONTROLS FOR 2-FT MAXIMUM DRAWDOWN IN SUPPLY STORMWATER POND, TO AN ELEVATION OF 895.5.

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.

PRINTED NAME: GRIFFIN K. DEMPSEY  
DATE: 04-17-24 LICENSE #: 61633

**EDEN PRAIRIE  
HIGH SCHOOL  
STORMWATER  
REUSE SYSTEM**

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EDEN PRAIRIE, MN

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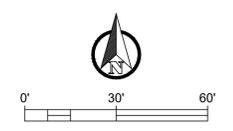
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PROJECT NO.: 11323002

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**SITE AND UTILITY  
PLAN**



DRAWING NO.  
**C201**



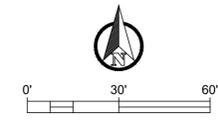
**NOTES:**

1. THE LOCATIONS AND ELEVATIONS OF THE EXISTING UTILITIES SHOWN HEREIN ARE APPROXIMATE. THEY HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND/ OR RECORDS. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING LOCATION AND ELEVATION TO ENSURE THAT ANY EXISTING UTILITIES (SHOWN OR NOT SHOWN) ARE NOT DAMAGED DURING CONSTRUCTION.
2. SIDEWALKS SHALL MEET ADA REQUIREMENTS, AND SHALL NOT EXCEED 2.00% CROSS SLOPE, OR 5.00% LONGITUDINAL SLOPE.
3. CONCRETE ENTRANCES AND APPROACHES SHALL NOT EXCEED 2.00% CROSS SLOPE IN SIDEWALK AREAS.
4. ACCESSIBLE PARKING STALLS SHALL MEET ADA REQUIREMENTS, AND SHALL NOT EXCEED 2.00% CROSS SLOPE IN ALL DIRECTIONS.
5. PEDESTRIAN RAMPS SHALL MEET ADA REQUIREMENTS.
6. ALL EXCESS OR WASTE MATERIAL GENERATED AS PART OF CONSTRUCTION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
7. ALL EXCAVATION SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF "STANDARD SPECIFICATIONS FOR TRENCH EXCAVATION AND BACKFILL/SURFACE RESTORATION" AS PREPARED BY THE CITY ENGINEERS ASSOCIATION OF MINNESOTA.
8. IN ADDITION TO THESE PLANS, A STORMWATER MANAGEMENT STUDY HAS BEEN PROVIDED. THE STORMWATER MANAGEMENT STUDY INCLUDES ADDITIONAL INFORMATION REGARDING THE DESIGN OF THE STORMWATER MANAGEMENT BMP. THE CONTRACTOR SHALL REVIEW THE STORMWATER BOOK AND COMPLY WITH ALL STATE AND LOCAL REQUIREMENTS.
9. ALL SITE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.
10. SPOT ELEVATIONS SHOWN INDICATE FINISHED PAVEMENT ELEVATIONS & GUTTER FLOW LINE UNLESS OTHERWISE NOTED. PROPOSED CONTOURS ARE TO FINISHED SURFACE GRADE.
11. GOPHER STATE ONE CALL DAMAGE PREVENTION SYSTEM FOR BURIED UTILITIES. 1-800-252-1166. CONTRACTOR SHALL HIRE A PRIVATE UTILITY LOCATOR TO ASSIST WITH PRIVATE UTILITY LOCATES.

**GRADING LEGEND**

- - - - - = EXISTING MAJOR CONTOUR
- - - - - = EXISTING MINOR CONTOUR
- - - - - = EXISTING CONTOUR LABEL
- = PROPOSED MAJOR CONTOUR
- = PROPOSED MINOR CONTOUR
- = PROPOSED CONTOUR LABEL
- xxx.xx = EXISTING SPOT ELEVATION\*
- xx.xx = PROPOSED SPOT ELEVATION\*
- = PROPOSED SURFACE FLOW DIRECTION

\*SPOT ELEVATIONS ALONG CURB & GUTTER AND OTHER REVEALS ARE TO FLOWLINE, UNLESS OTHERWISE NOTED.



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PRINTED NAME: GRIFFIN K. DEMPSEY  
DATE: 04-17-24 LICENSE #: 61633

**EDEN PRAIRIE  
HIGH SCHOOL  
STORMWATER  
REUSE SYSTEM**

**PRELIMINARY:  
NOT FOR  
CONSTRUCTION**

EDEN PRAIRIE, MN

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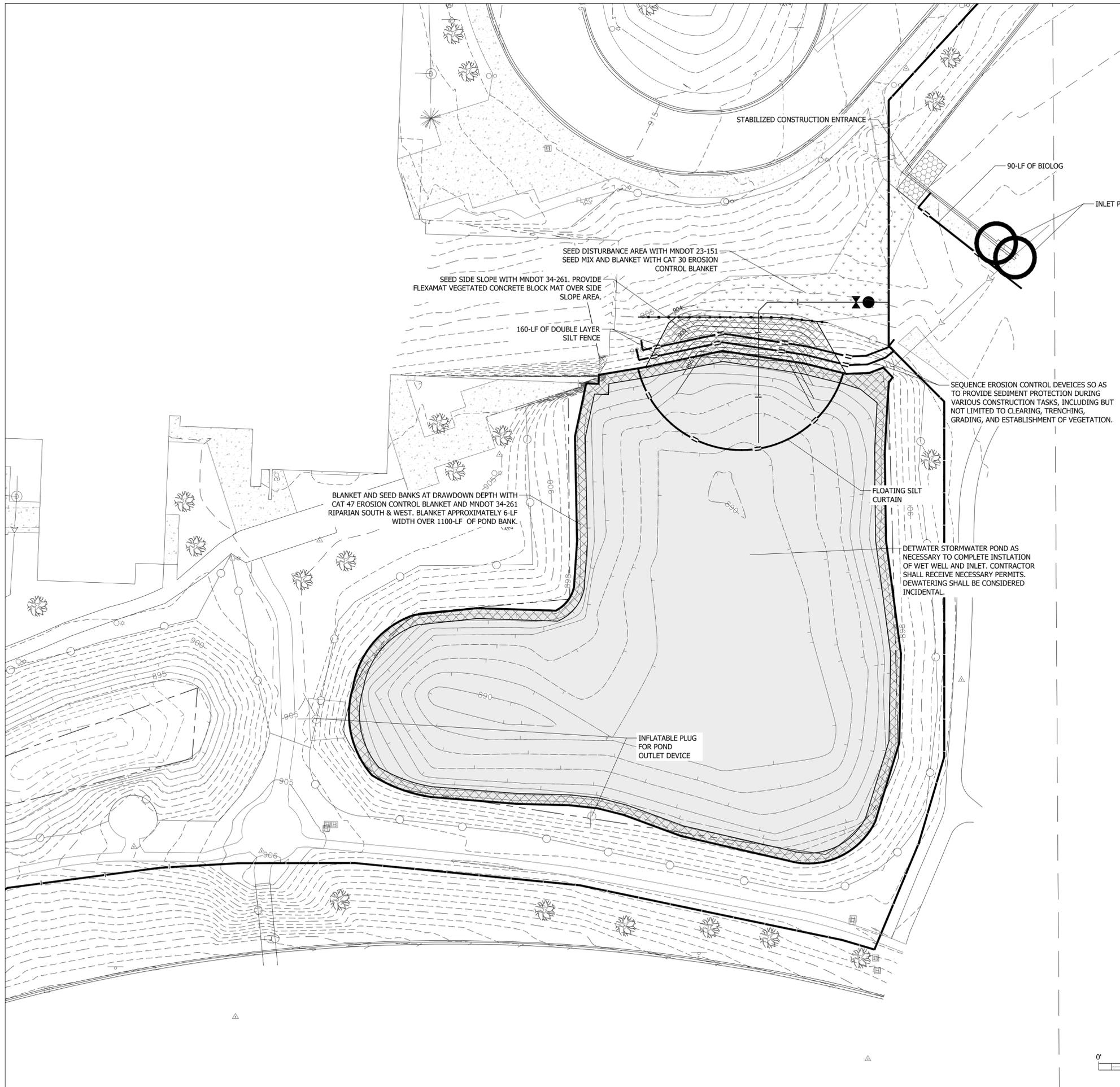
PROJECT NO.: 11323002

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**GRADING PLAN**

DRAWING NO.

**C301**

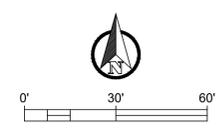


- NOTES:
- ALL DISTURBED AREAS SHALL BE FINAL GRADED AND PERMANENTLY STABILIZED WITH THE SEED MIX IDENTIFIED ON PLANS.
  - THE SITE MUST BE STABILIZED PER THE REQUIREMENTS OF THE MPCA, NPDES, MNDOT, AND CITY.
  - INLET PROTECTION SHALL BE PROVIDED ON ALL CATCH BASINS AND INLETS DOWN GRADIENT OF CONSTRUCTION ACTIVITY.
  - PROVIDE SILT FENCE PERIMETER CONTROL DOWN GRADIENT OF ALL CONSTRUCTION ACTIVITY AND TEMPORARY STOCKPILES.
  - TEMPORARY STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION.
  - NO OFFSITE VEHICLE TRACKING IS PERMITTED. STREETS SHALL BE CLEANED AND SWEEPED WHENEVER TRACKING OF SEDIMENTS OCCURS AND BEFORE SITES ARE LEFT IDLE FOR WEEKENDS AND HOLIDAYS.
  - REFER TO THE SWPPP AND THE CITY OF EDINA EROSION CONTROL REQUIREMENTS FOR FURTHER EROSION CONTROL SEQUENCING.
  - IN ADDITION TO THESE PLANS, A STORMWATER MANAGEMENT STUDY HAS BEEN PROVIDED. THE STORMWATER MANAGEMENT STUDY INCLUDES ADDITIONAL INFORMATION REGARDING THE DESIGN OF THE STORMWATER MANAGEMENT BMP. THE CONTRACTOR SHALL REVIEW THE STORMWATER BOOK AND COMPLY WITH ALL STATE AND LOCAL REQUIREMENTS.
  - WHEN INSTALLING END-OF-LINE FLARED END SECTIONS, BRING THE SILT FENCE UP & OVER THE FLARED END SECTIONS & COVER DISTURBED AREAS WITH RIP RAP. THE UPSTREAM FLARED END SECTIONS SHALL HAVE WOOD FIBER BLANKET INSTALLED ON THE DISTURBED SOILS.
  - INFILTRATION AREAS SHALL NOT BE EXCAVATED TO FINAL GRADE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN CONSTRUCTED AND STABILIZED. ONLY LOW IMPACT TRACK EQUIPMENT SHALL BE USED WITHIN INFILTRATION AREAS.
  - GOPHER STATE ONE CALL DAMAGE PREVENTION SYSTEM FOR BURIED UTILITIES. 1-800-252-1166. CONTRACTOR SHALL HIRE A PRIVATE UTILITY LOCATOR TO ASSIST WITH PRIVATE UTILITY LOCATES.

**EROSION CONTROL LEGEND:**

- STABILIZED CONSTRUCTION EXIT
- SILT FENCE, BIOLOG, OR SILT FENCE
- MNDOT SEED MIX 25-151
- CATEGORY 47 EROSION CONTROL BLANKET AND MNDOT SEED MIX 34-261
- INLET PROTECTION

- WATERSHED NOTES:
- AT LEAST 6 INCHES OF TOPSOIL OR ORGANIC MATTER WILL BE SPREAD AND INCORPORATED INTO THE UNDERLYING SOIL DURING FINAL SITE TREATMENT WHEREVER TOPSOIL HAS BEEN REMOVED, AND THE TOPSOIL WILL CONTAIN AT LEAST 5% ORGANIC CONTENT, CONSISTENT WITH THE DISTRICT'S TOPSOIL DEFINITION. CONTRACTOR SHALL REFER TO C607 FOR TOPSOIL SPECIFICATION.
  - SOIL SURFACES COMPACTED DURING CONSTRUCTION AND REMAINING PERVIOUS UPON COMPLETION OF CONSTRUCTION WILL BE DECOMPACTED TO ACHIEVE:
    - SOIL COMPACTION TESTING PRESSURE OF LESS THAN 1,400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 12 INCHES OF SOIL OR A BULK DENSITY OF LESS THAN 1.4 GRAMS PER CUBIC CENTIMETER OR 87 POUNDS PER CUBIC FOOT IN THE UPPER 12 INCHES OF SOIL.
    - IN ADDITION, UTILITIES, TREE ROOTS AND OTHER EXISTING VEGETATION WILL BE PROTECTED UNTIL FINAL REVEGETATION OR OTHER STABILIZATION OF THE SITE.
    - CONTRACTOR SHALL PROVIDE THE WATERSHED DISTRICT WITH DECOMPACTION DATA DEMONSTRATING THAT THE WORK ALREADY UNDERTAKEN CONFORMS WITH THE DECOMPACTION CRITERIA.
  - NATURAL TOPOGRAPHY AND SOIL CONDITIONS WILL BE PROTECTED, INCLUDING RETENTION ONSITE OF NATIVE TOPSOIL TO THE GREATEST EXTENT POSSIBLE.
  - ADDITIONAL MEASURES, SUCH AS HYDRAULIC MULCHING AND OTHER PRACTICES AS SPECIFIED BY THE DISTRICT MUST BE USED ON SLOPES OF 3:1 (H:V) OR STEEPER TO PROVIDE ADEQUATE STABILIZATION.
  - THE PERMITTEE MUST INSPECT ALL EROSION PREVENTION AND SEDIMENT CONTROL FACILITIES AND SOIL STABILIZATION MEASURES TO ENSURE INTEGRITY AND EFFECTIVENESS. THE PERMITTEE MUST REPAIR, REPLACE OR SUPPLEMENT ALL NONFUNCTIONAL BMPS WITH FUNCTIONAL BMPS WITHIN 48 HOURS OF DISCOVERY AND PRIOR TO THE NEXT PRECIPITATION EVENT UNLESS ADVERSE CONDITIONS PRECLUDE ACCESS TO THE RELEVANT AREA OF THE SITE. IN WHICH CASE THE REPAIR MUST BE COMPLETED AS SOON AS CONDITIONS ALLOW. WHEN ACTIVE LAND-DISTURBING ACTIVITIES ARE NOT UNDER WAY, THE PERMITTEE MUST PERFORM THESE RESPONSIBILITIES AT LEAST WEEKLY UNTIL VEGETATIVE COVER IS ESTABLISHED. THE PERMITTEE WILL MAINTAIN A LOG OF ACTIVITIES UNDER THIS SECTION FOR INSPECTION BY THE DISTRICT ON REQUEST.



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.

PRINTED NAME: GRIFFIN K. DEMPSEY  
 DATE: 04-17-24 LICENSE #: 61633

**EDEN PRAIRIE  
 HIGH SCHOOL  
 STORMWATER  
 REUSE SYSTEM**

**PRELIMINARY:  
 NOT FOR  
 CONSTRUCTION**

EDEN PRAIRIE, MN

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PROJECT NO.: 11323002

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**EROSION CONTROL  
 PLAN**

DRAWING NO.  
**C401**

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HIGH SCHOOL  
STORMWATER  
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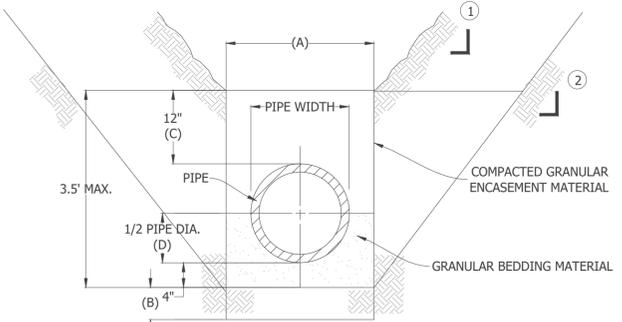
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**CIVIL DETAILS**

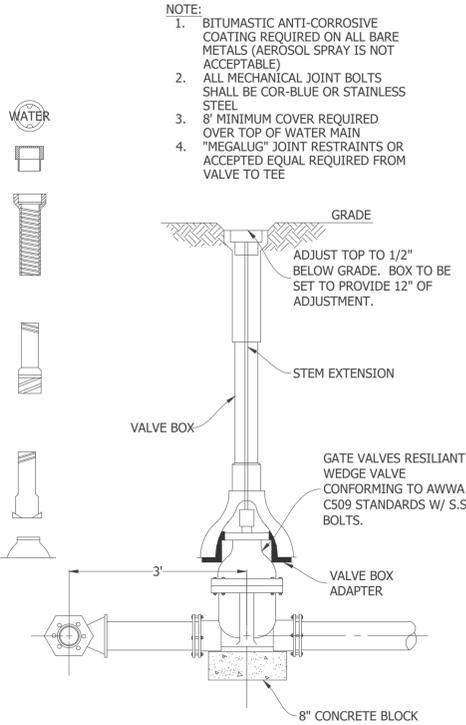
DRAWING NO.

**C601**



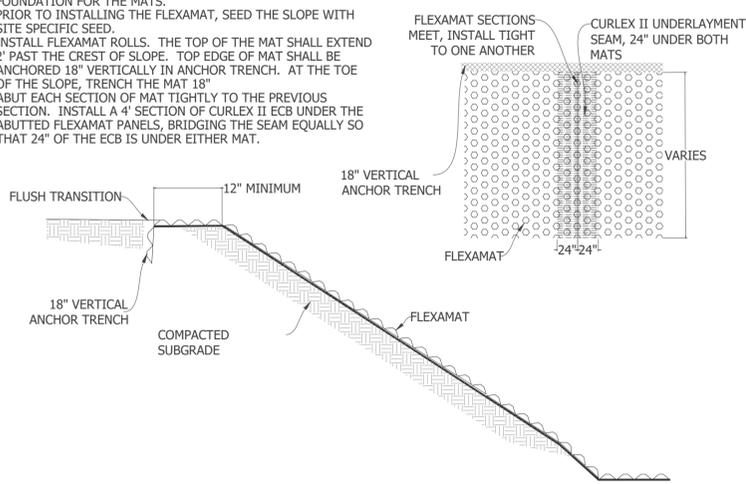
1. 0-12" DEPTH TRENCH SLOPE DEPENDS ON SOIL TYPE.
  2. 12-20' DEPTH TRENCH SLOPE DEPENDS ON SOIL TYPE.
  3. 0-20' DEPTH TRENCH SUPPORT OR SHIELD SYSTEM CAN BE UTILIZED TO REDUCE TRENCH WIDTH.
  4. 20' OR GREATER DEPTH TRENCH EXCAVATION MUST BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER. CONTRACTOR SHALL HAVE THE DESIGN COMPLETED AT HIS EXPENSE AND PROVIDE A COPY TO THE OWNER AND THE PROJECT ENGINEER.
- (A) MINIMUM TRENCH WIDTH SHALL ALLOW FOR SIX INCHES OF CLEARANCE ON EACH SIDE OF PIPE JOINT HUB.
- (B) THE TRENCH MAY BE OVEREXCAVATED A MIN. OF 6" & BACKFILLED WITH COMPACTED GRANULAR MATERIALS WHEN ROCK, INCOMPRESSIBLE MATERIALS, OR UNSTABLE SOILS ARE ENCOUNTERED.
- (C) COMPACTED GRANULAR ENCASEMENT MATERIAL SHALL COVER THE TOP OF PIPE BY AT LEAST 12" AND EXTEND THE FULL WIDTH OF THE TRENCH OR AT LEAST 2 1/2" TIMES THE PIPE DIAMETER ON EACH SIDE OF THE PIPE.
- (D) BEDDING AND HAUNCHING MATERIAL SHALL BE PLACED AND COMPACTED TO PROVIDE FULL SUPPORT FOR THE LENGTH OF THE PIPE.
- NOTES:  
1. THIS DETAIL APPLIES TO SANITARY SEWER, STORM SEWER, WATERMAIN, AND ALL SERVICE PIPES.

**TYPICAL PIPE BEDDING DETAIL**  
SCALE=N.T.S.

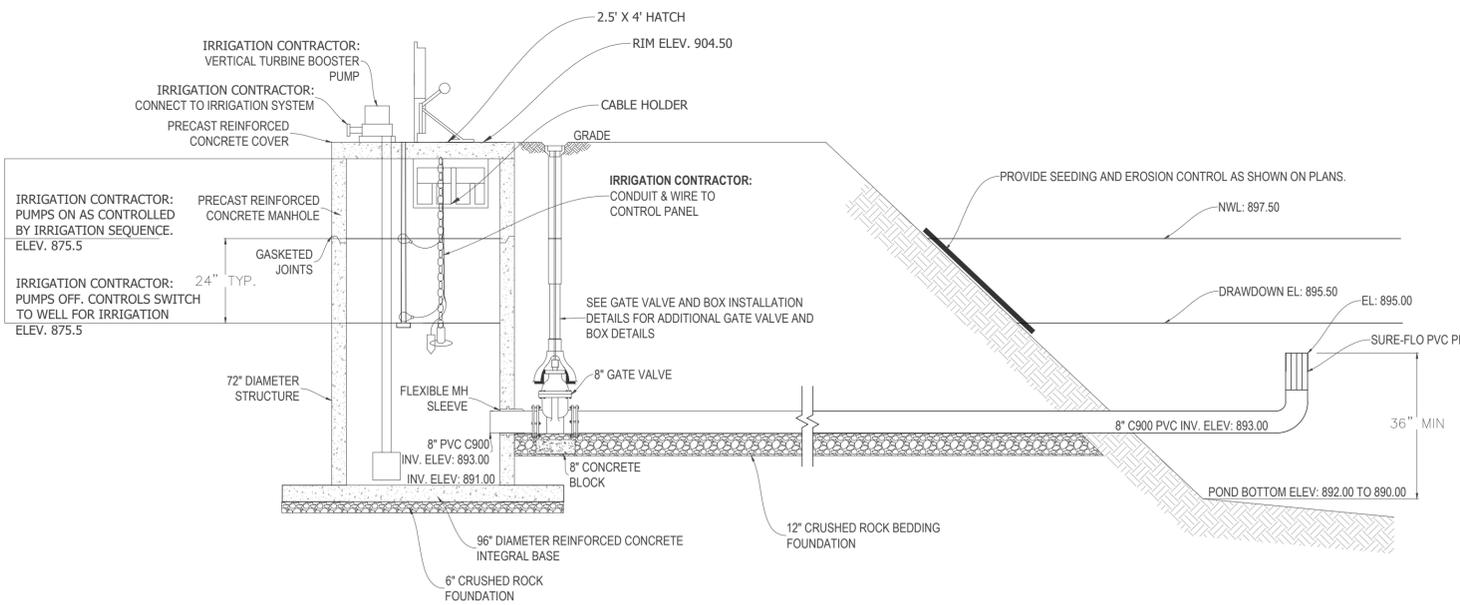


**GATE VALVE & BOX INSTALLATION**  
SCALE=N.T.S.

- NOTES:
1. GRADE A UNIFORM SUBGRADE. ALL SUBGRADE SURFACES PREPARED FOR PLACEMENT OF MATS SHALL BE SMOOTH AND FREE OF STICKS, ROOTS, OR DEBRIS OF ANY KIND. THE PREPARED SURFACE SHALL PROVIDE A FIRM, UNYIELDING FOUNDATION FOR THE MATS.
  2. PRIOR TO INSTALLING THE FLEXAMAT, SEED THE SLOPE WITH SITE SPECIFIC SEED.
  3. INSTALL FLEXAMAT ROLLS. THE TOP OF THE MAT SHALL EXTEND 2' PAST THE CREST OF SLOPE. TOP EDGE OF MAT SHALL BE ANCHORED 18" VERTICALLY IN ANCHOR TRENCH. AT THE TOE OF THE SLOPE, TRENCH THE MAT 18"
  4. ABUT EACH SECTION OF MAT TIGHTLY TO THE PREVIOUS SECTION. INSTALL A 4' SECTION OF CURLEX II ECB UNDER THE ABUTTED FLEXAMAT PANELS, BRIDGING THE SEAM EQUALLY SO THAT 24" OF THE ECB IS UNDER EITHER MAT.



**FLEXAMAT DETAIL**  
SCALE=N.T.S.



- NOTES:  
1. CONTRACTOR SHALL COORDINATE WORK TO BE PERFORMED BY OTHERS.

**IRRIGATION VERTICAL TURBINE BOOSTER PUMP AND STRUCTURE**  
SCALE=N.T.S.

F:\DESIGN TREE ENGINEERING\PROJECTS\113 - EDEN PRAIRIE HS STORMWATER, FOREST HILLS SURVEY, TRANSPORTATION SURVEY\CONSTRUCTS\CIVIL\11323002-C-DETAILS.DWG 11/3/2022 4/17/24

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PRINTED NAME: GRIFFIN K. DEMPSEY  
DATE: 04-17-24 LICENSE #: 61633

**EDEN PRAIRIE  
HIGH SCHOOL  
STORMWATER  
REUSE SYSTEM**

**PRELIMINARY:  
NOT FOR  
CONSTRUCTION**

EDEN PRAIRIE, MN

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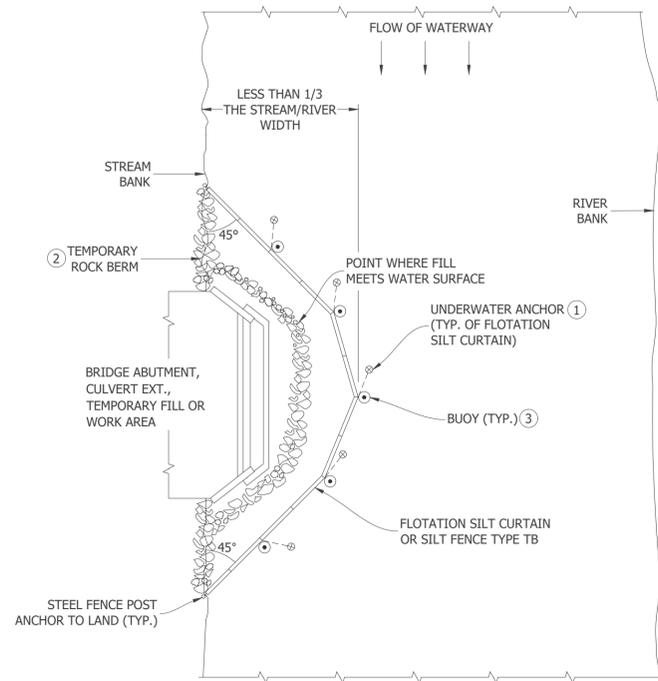
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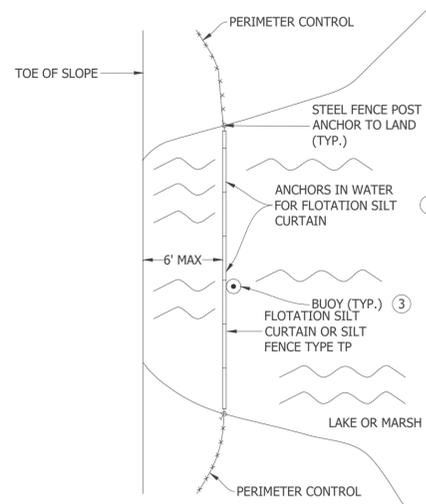
**EROSION  
CONTROL DETAILS**

DRAWING NO.

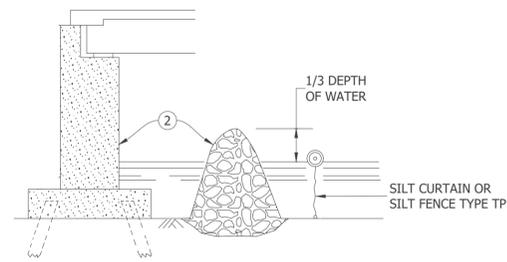
**C602**



PLAN VIEW FOR STREAM ⑤



PLAN VIEW FOR LAKE OR MARSH ⑤

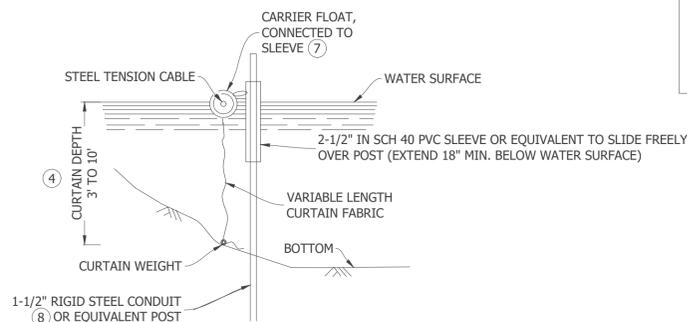


TEMPORARY ROCK BERM  
FOR SEDIMENT CONTROL

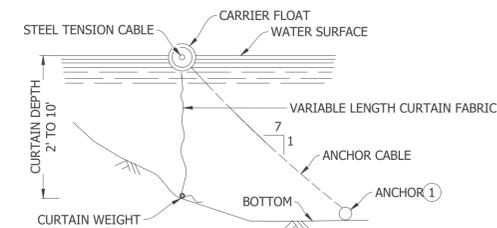
**INSTALLATION GUIDELINES  
SILT FENCE TYPE TB**  
MINIMUM WATER DEPTH: 1 FT.  
MAXIMUM WATER DEPTH: 3 FT.  
MAXIMUM WATER VELOCITY: 5 FT./SEC.

**INSTALLATION GUIDELINES  
FLOTATION SILT CURTAIN  
TYPE: STILL WATER**  
MINIMUM WATER DEPTH: 3 FT.  
MAXIMUM WATER DEPTH: 10 FT.  
MAXIMUM WATER VELOCITY: 2 FT./SEC.  
MAXIMUM WAVE HEIGHT: 1 FT

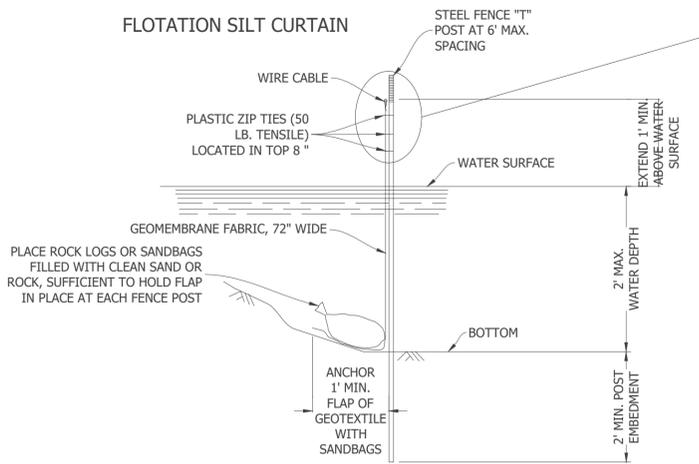
**INSTALLATION GUIDELINES  
FLOTATION SILT CURTAIN  
TYPE: MOVING WATER**  
MINIMUM WATER DEPTH: 3 FT.  
MAXIMUM WATER DEPTH: 10 FT.  
MAXIMUM WATER VELOCITY: 5 FT./SEC.  
MAXIMUM WAVE HEIGHT: 2 FT.



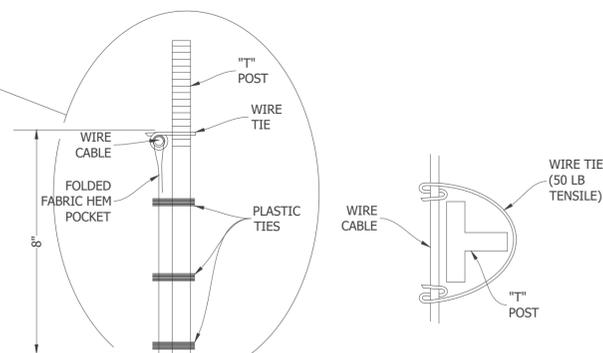
ALTERNATE FLOTATION SILT CURTAIN



FLOTATION SILT CURTAIN



SILT FENCE TYPE TB ⑥



FABRIC/CABLE/POST CONNECTION

**NOTES:**

SEE SPECS. 2573, 3886, 3887 & 3893.

- FOR ANCHOR SPACING AND WEIGHT REQUIREMENTS, SEE SPEC. 2573.
- IN AREAS WHERE THE PLAN CALLS FOR RIPRAP AT A BRIDGE, CULVERT, OR SLOPE, A TEMPORARY ROCK BERM CONSTRUCTED FROM THE RIPRAP CAN BE USED TO PROVIDE ADDITIONAL PROTECTION. WHEN THE WORK IS COMPLETE THE RIPRAP CAN THEN BE MOVED TO THE PERMANENT LOCATION INDICATED IN THE PLANS. THE TEMPORARY ROCK BERM IS INCIDENTAL.
- ON U.S. COAST GUARD OR OTHER MOTORIZED WATERWAYS, BUOYS ARE REQUIRED TO MARK THE ENDS AND SPECIAL AREAS FOR VISIBILITY. PLACE BUOYS AS REQUIRED FOR NAVIGATIONAL PURPOSES.
- MINIMUM WATER DEPTH APPLIES TO THE DEEPEST POINT ALONG THE FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB FOR DETERMINING APPLICABILITY OF FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB.
- SILT CURTAIN SHOULD BE REMOVED WHEN THE AREA CONTRIBUTING DIRECT RUNOFF HAS BEEN TEMPORARILY OR PERMANENTLY STABILIZED. SILT CURTAIN SHOULD ALSO BE REMOVED BEFORE WINTER IF ICE UP OR ICE FLOW IS ANTICIPATED.
- EMBED POST INTO BOTTOM A MINIMUM OF 40% OF THE WATER DEPTH (INCLUDING WAVE HEIGHT), BUT IN NO CASE SHALL EMBEDMENT BE LESS THAN 2 FEET.
- ANCHOR FLOAT MUST BE CONNECTED SECURELY TO SLEEVE WITH A MINIMUM TENSILE STRENGTH OF 100 LBS. CONNECTION METHOD MUST ALLOW FOR SLEEVE TO MOVE FREELY ON POST.
- PROVIDE SUFFICIENT NUMBER OF POST ANCHORS TO MAINTAIN SILT CURTAIN POSITION.

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PRINTED NAME: GRIFFIN K. DEMPSEY

DATE: 04-17-24 LICENSE #: 61633

**EDEN PRAIRIE  
HIGH SCHOOL  
STORMWATER  
REUSE SYSTEM**

**PRELIMINARY:  
NOT FOR  
CONSTRUCTION**

EDEN PRAIRIE, MN

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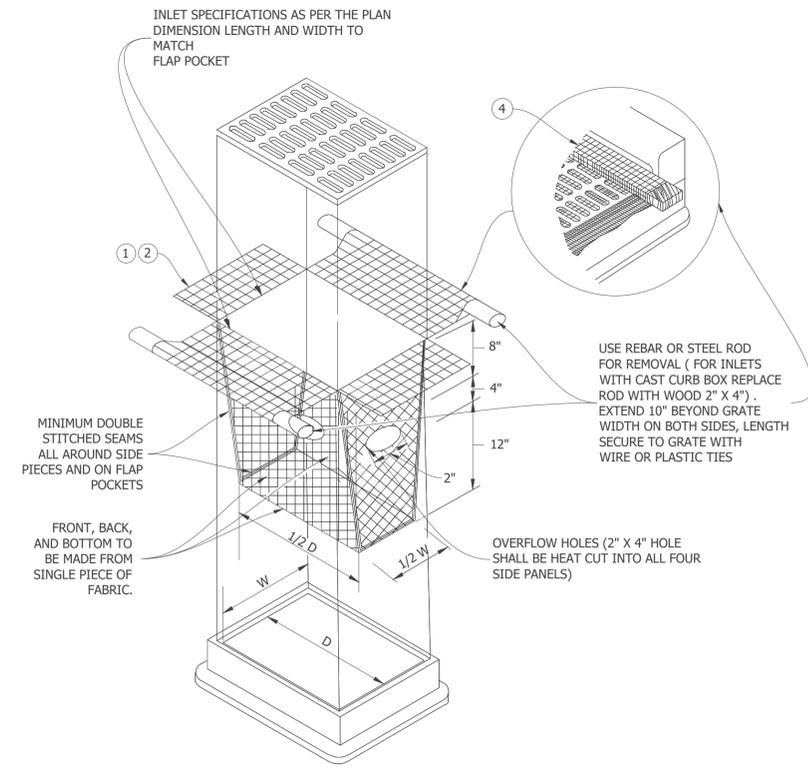
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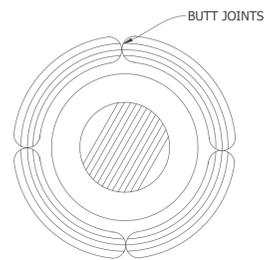
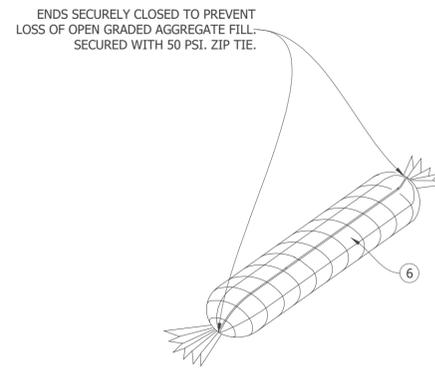
**EROSION CONTROL  
DETAILS**

DRAWING NO.

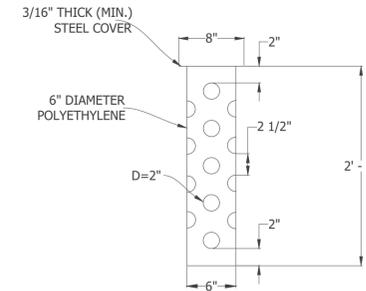
**C603**



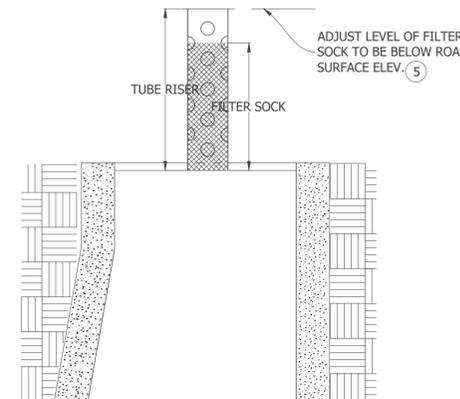
**FILTER BAG INSERT ③**  
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)



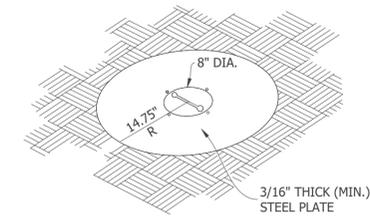
ROCK LOG/COMPOST LOG



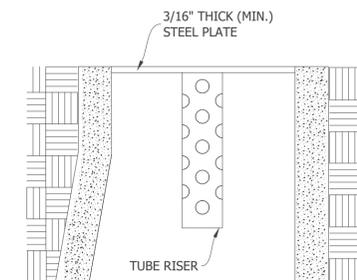
TUBE RISER



SECTION (UP POSITION)

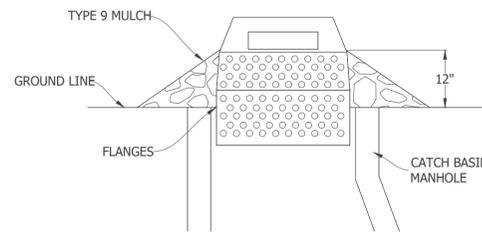


PERSPECTIVE VIEW



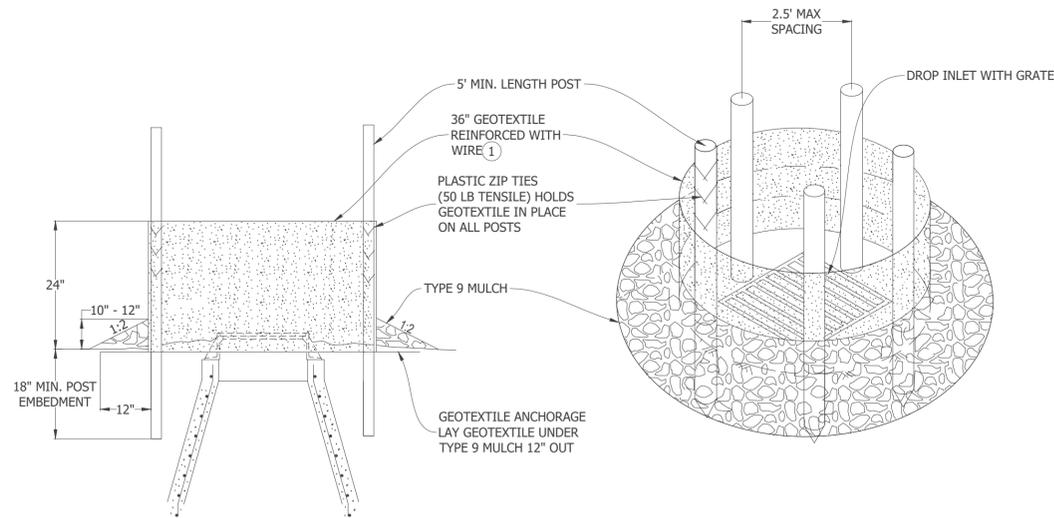
SECTION (DOWN POSITION)

POP-UP HEAD



SEDIMENT CONTROL INLET HAT

NOTE:  
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



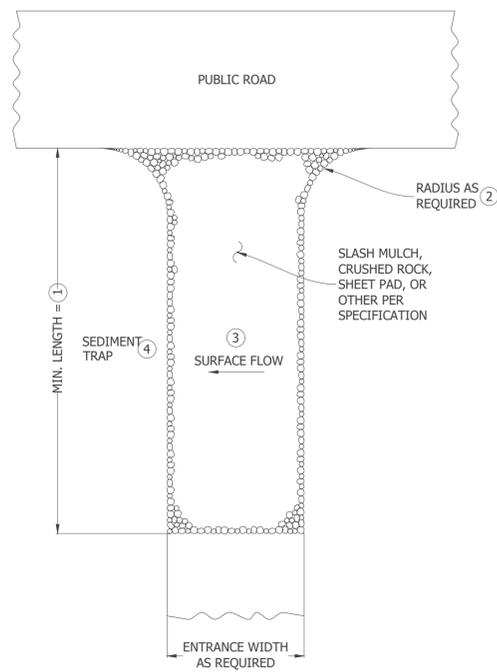
SILT FENCE RING AND ROCK FILTER BERM  
USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 OR LESS

**NOTES:**

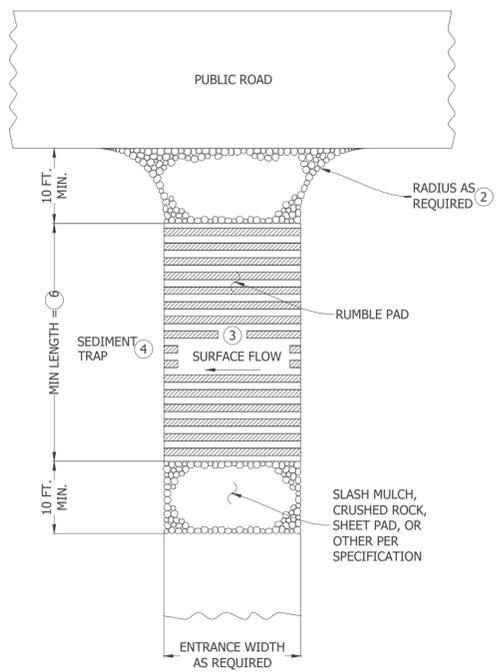
SEE SPECS. 2573, 3137, 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEDE TRAFFIC FLOW.

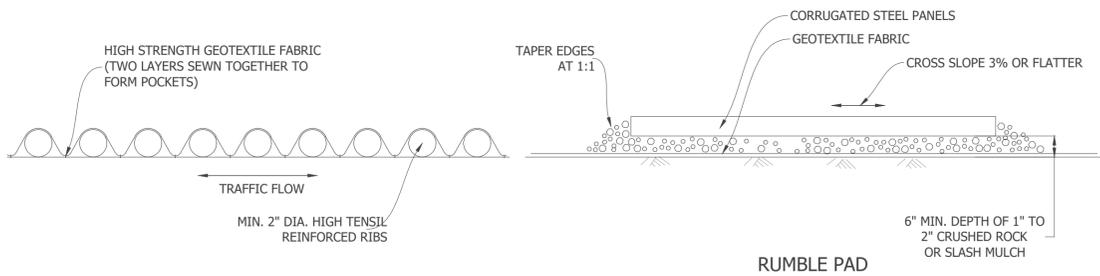
- ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
- FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- INSTALLATION NOTES:  
DO NOT INSTALL FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
- FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
- SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
- GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.



SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



SHEET PAD

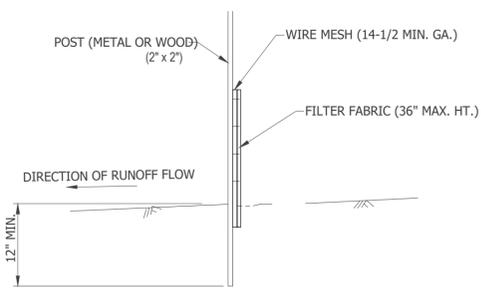
RUMBLE PAD

NOTES:

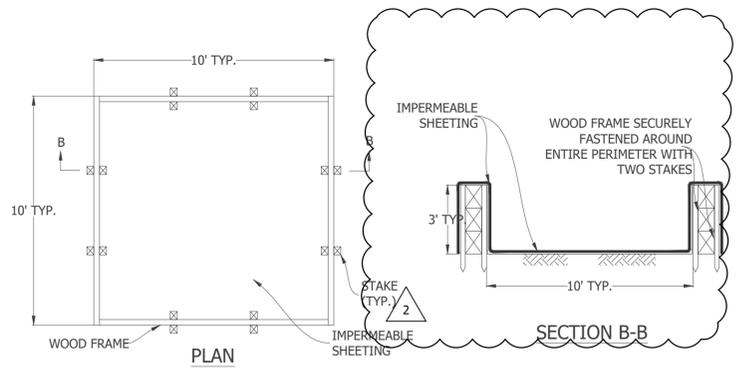
- SEE SPECS. 2573 & 3882.
- ① MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.
- ② PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.
- ③ IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.
- ④ IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.
- ⑤ IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.
- ⑥ MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.
- ⑦ MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

SLASH MULCH OR CRUSHED ROCK

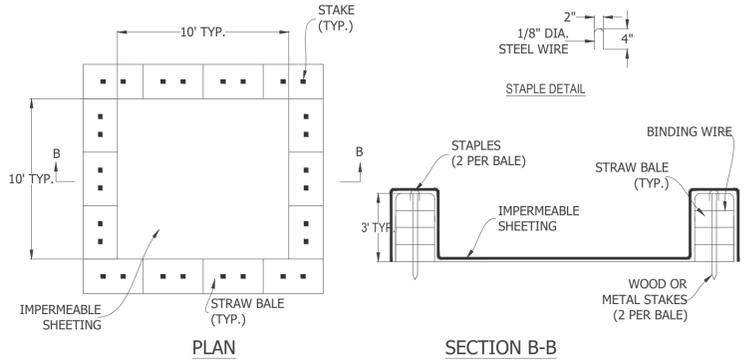
STABILIZED CONSTRUCTION EXIT DETAILS  
SCALE=N.T.S.



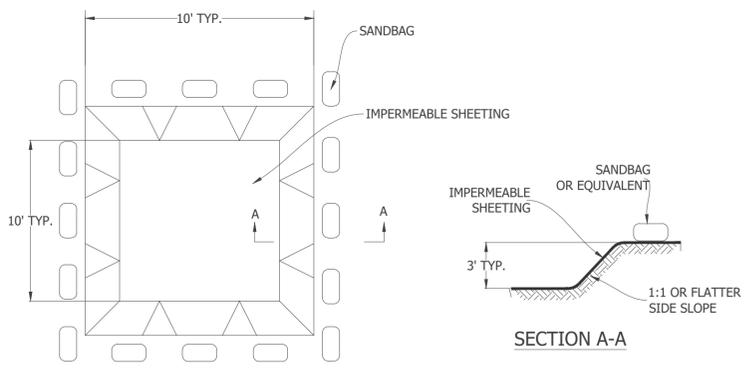
SILT FENCE DETAIL  
SCALE=N.T.S.



WASHOUT STRUCTURE WITH WOOD PLANKS



WASHOUT STRUCTURE WITH STRAW BALES



EXCAVATED WASHOUT STRUCTURE

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

CONCRETE WASHOUT DETAILS  
SCALE=N.T.S.

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.

PRINTED NAME: GRIFFIN K. DEMPSEY  
DATE: 04-17-24 LICENSE #: 61633

**EDEN PRAIRIE  
HIGH SCHOOL  
STORMWATER  
REUSE SYSTEM**

**PRELIMINARY:  
NOT FOR  
CONSTRUCTION**

EDEN PRAIRIE, MN

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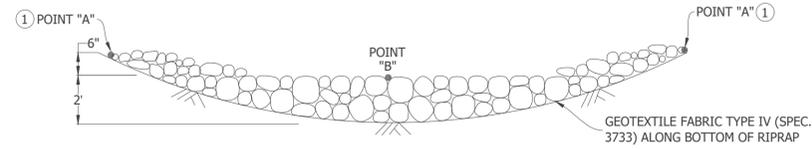
PROJECT NO.: 11323002

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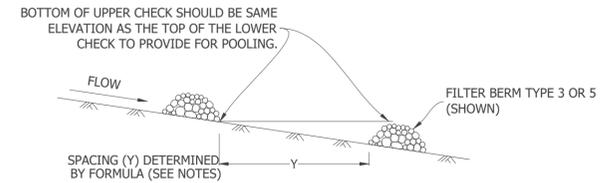
**EROSION CONTROL  
DETAILS**

DRAWING NO.  
**C604**

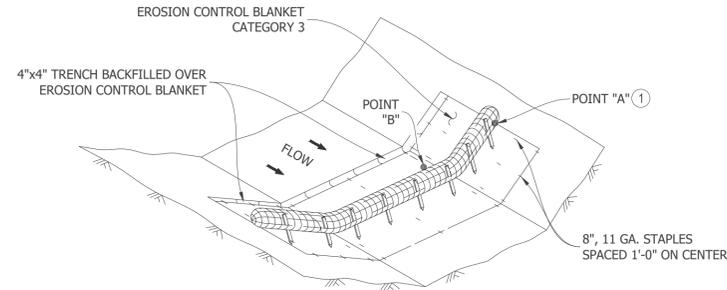
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**ROCK DITCH CHECKS**  
**FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK)** ② ③  
(FOR USE ON ROUGH GRADED AREAS)

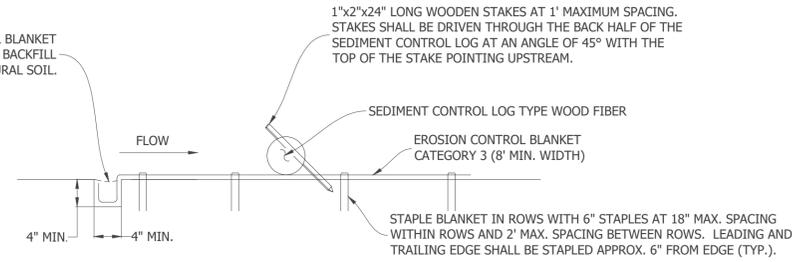


**DITCH CHECK SPACING**  
(FOR ALL FILTER BERM TYPES)



**SEDIMENT CONTROL LOG TYPE BLANKET SYSTEM** ④

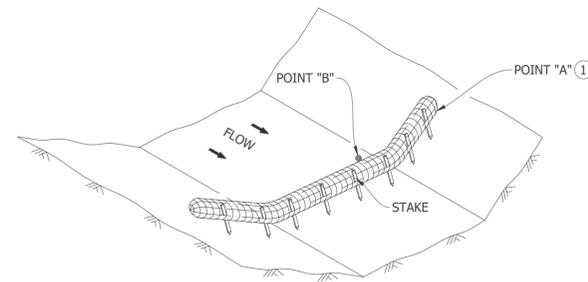
EROSION CONTROL BLANKET  
ANCHOR TRENCH. BACKFILL  
WITH TAMPED NATURAL SOIL.



1"x2"x24" LONG WOODEN STAKES AT 1' MAXIMUM SPACING.  
STAKES SHALL BE DRIVEN THROUGH THE BACK HALF OF THE  
SEDIMENT CONTROL LOG AT AN ANGLE OF 45° WITH THE  
TOP OF THE STAKE POINTING UPSTREAM.

SEDIMENT CONTROL LOG TYPE WOOD FIBER  
EROSION CONTROL BLANKET  
CATEGORY 3 (8' MIN. WIDTH)

STAPLE BLANKET IN ROWS WITH 6" STAPLES AT 18" MAX. SPACING  
WITHIN ROWS AND 2' MAX. SPACING BETWEEN ROWS. LEADING AND  
TRAILING EDGE SHALL BE STAPLED APPROX. 6" FROM EDGE (TYP.).



**SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST** ⑤  
(FOR USE ON ROUGH GRADED AREAS)

**NOTES:**

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WITH THE ENDS FACING UPSTREAM.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT)}}{\% \text{ CHANNEL SLOPE}} \times 100$$

- ① POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
- ② PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.
- ③ DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC..
- ④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC..
- ⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC..

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.

PRINTED NAME: GRIFFIN K. DEMPSEY  
DATE: 04-17-24 LICENSE #: 61633

**EDEN PRAIRIE  
HIGH SCHOOL  
STORMWATER  
REUSE SYSTEM**

**PRELIMINARY:  
NOT FOR  
CONSTRUCTION**

EDEN PRAIRIE, MN

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DRAWN BY: GKD

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PROJECT NO.: 11323002

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**EROSION  
CONTROL DETAILS**

DRAWING NO.

**C605**

**GOVERNING SPECIFICATIONS**  
**THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" 2018 EDITION AND ALL APPLICABLE MNDOT SPECIAL PROVISIONS AT THE TIME OF BIDDING SHALL APPLY ON THIS CONTRACT EXCEPT AS MODIFIED OR**

**SITE CLEARING**

1. EXECUTION
  - 1.1. Perform Work in accordance with MnDOT Standard Specifications for Construction – 2018 Edition, Section 2101, 2104, and 2105 and all applicable MnDOT Special Provisions except as modified herein.
  - 1.2. Protect trees, plant growth, and features designated to remain, as final landscaping as shown in the Plans.
  - 1.3. Protect benchmarks, survey control points, and existing structures from damage or displacement.
  - 1.4. Abandoned structures and other obstructions shall be removed and disposed of in accordance with the provisions of MnDOT 2104, except as modified below.
  - 1.5. Prior to beginning removals, the Engineer or Owner will mark the limits of the features to be removed. The limits shall be reviewed on-site by the Contractor and the Owner's on-site representative.
  - 1.6. Remove debris, rock, and extracted plant life from site.
  - 1.7. Items indicated to be salvaged shall be done so with minimum damage and stored until reinstallation or moved to a storage location as directed by the Owner.
  - 1.8. Any item removed that is not to be salvaged or reused on the project shall be disposed of offsite by the Contractor in accordance with MnDOT Standard Specifications for Construction - 2018 Edition, Section 2104.
  - 1.9. Excavate topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials for use in final grading.
  - 1.10. Do not excavate wet topsoil.
  - 1.11. Stockpile topsoil to be reused on-site in area determined by the Contractor and approved by the Owner.
  - 1.12. Protect stockpiled topsoil from erosion in accordance with NPDES permit requirements.

**GRADING**

1. GENERAL
  - 1.1. All information concerning property boundaries, ground elevations, present obstructions on or near the site, location of conduits, pipes, wires, etc., has been obtained from a source the Owner believes reliable. Present ground and subsurface conditions are documented by test boring logs included herein, however accuracy of this data is not guaranteed, and is furnished solely for the convenience of the Bidder. Use of this data is at Bidder's risk and no additional compensation will be granted because of the Bidder's lack of knowledge of the existing site.
  - 1.2. Additional test borings and other exploratory operations may be conducted by a Bidder (at no cost to the Owner), provided the methods and operations are acceptable to the Owner.
  - 1.3. Grades shown on the Plans are finished grades. Grading Contractor shall grade to the subgrade except landscaped areas that will be graded to finish grade with approved topsoil.
  - 1.4. The Contractor shall be solely responsible for determining quantities of cut, fill and waste materials and for grading to be done to complete the Work. Import/Export materials as required at no additional cost to the Owner.
  - 1.5. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult appropriate utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair any damaged utility(s) to satisfaction of utility owner.
  - 1.6. Visit the site prior to bidding; be familiar with actual conditions in the field. Extra compensation will not be allowed for conditions which could have been determined or anticipated by examination of the site, the Contract Drawings and the information available pertaining to existing soils, utilities, and other site characteristics.
  - 1.7. Maintain carefully, as established, temporary benchmarks, monuments, and other reference points and, if disturbed or destroyed by the Contractor, pay for replacement by a registered Engineer or Land Surveyor.
  - 1.8. Locate existing underground utilities and tie lines in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.
2. PRODUCTS
  - 2.1. General: Provide suitable on-site or off-site borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
  - 2.2. The table below outlines fill materials and suitable locations.

| Locations To Be Used             | Fill Classification | Possible Soil Type Descriptions | Sieve Gradation                                              | Additional Requirements |
|----------------------------------|---------------------|---------------------------------|--------------------------------------------------------------|-------------------------|
| Drainage Layer                   | Free draining       | GP, GW, SP, SW                  | 100% passing 1-inch<br><50% passing # 40<br><5% passing #200 | <2%OC                   |
| Pond Side slopes                 | Pavement Fill       | SP, SP-SM, SM, SC               | 100% passing 3-inch                                          | <2% OC<br>PI<15%        |
| Below landscaped surfaces, Berms | Non-structural Fill |                                 | 100% passing 6-inch                                          | <10% OC                 |

- 2.3. TOPSOIL
  - 2.3.1. Shall be a fertile, friable, natural loam containing a liberal amount of humus and capable of sustaining vigorous plant growth.
  - 2.3.2. The pH value of the topsoil shall be between 5.5 and 7.5.
  - 2.3.3. Shall be obtained from naturally well-drained areas and shall be clean and reasonably free of subsoil, stones, clods of hard earth, plants or their roots and other extraneous matter.
  - 2.3.4. Obtained from stripping the site may be used.
  - 2.3.5. Whether it is new or salvaged, shall be loosened such that it is dry and friable and ready to be fine graded.
- 2.4. RIPRAP shall be random riprap, Class III meeting the requirements of MnDOT 3601.
- 2.5. Geotextile Fabric shall be Type 5 meeting requirements of MnDOT 3733.
3. EXECUTION
  - 3.1. Execution shall be in accordance with MnDOT Standard Specifications for Construction – 2018 Edition, Section 2105 and Section 2112 and all applicable MnDOT Special Provisions except as modified herein.
  - 3.2. EXCAVATIONS
    - 3.2.1. Excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches."
    - 3.2.2. Remove topsoil in areas to be regraded and/or excavated without mixing with existing subgrade soils. Stockpile salvaged topsoil that will be reused.
    - 3.2.3. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.
    - 3.2.4. Remove excess subsoil not intended for reuse, from site.
    - 3.2.5. Excess materials or materials not to be reused on-site shall be disposed of in accordance with MnDOT 2104.3C.
    - 3.2.6. Stockpile excavated material to be reused on site in area agreed upon by the Owner/Engineer.
    - 3.2.7. Review all subgrades with the Geotechnical Engineer to determine suitability of subgrade soils.
    - 3.2.8. Make soil corrections defined in the Geotechnical Report or by the Geotechnical Engineer. Follow soil correction procedures and use materials defined in the Report and in these specifications.
    - 3.2.9. Remove any groundwater and/or accumulated water from excavations or subgrades prior to fill placement or construction.
    - 3.2.10. Provide temporary drainage where construction interferes with existing drainage.
    - 3.2.11. Where new sod, seed, planting beds, or other vegetative matter are shown within construction limits defined on drawings, remove existing fill soil material to depth required for topsoil and replace with new or salvaged topsoil material.
    - 3.2.12. Do not remove wet subsoil unless it is subsequently processed to obtain optimum moisture content.
    - 3.2.13. When excavating through roots, perform work by hand and cut roots with sharp axe.
    - 3.2.14. Proof roll subgrade under all drivable surfaces with a fully loaded tandem-axle truck and have proof rolling observed by Geotechnical Engineer prior to placement of placement of additional fill or aggregate base.
    - 3.2.15. When subgrades consist of SP soils, proof rolling shall not be conducted until after placement of the aggregate base. Confirm presence of SP soils with Geotechnical Engineer.
  - 3.3. PLACEMENT AND COMPACTION
    - 3.3.1. Execution shall be in accordance with MnDOT Standard Specifications for Construction – 2018 Edition, Section 2105 and Section 2112 and all applicable MnDOT Special Provisions except as modified herein.
    - 3.3.2. Place fill and prepare subgrades according to the recommendations contained in the Geotechnical Report and in these specifications.
    - 3.3.3. In areas that will receive fills, remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills.
    - 3.3.4. Prior to placement of fill, excavations shall be inspected by the Geotechnical Engineer to verify that all unsuitable materials have been properly removed.
    - 3.3.5. When existing ground surface has a density less than that specified under for a particular area, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.
    - 3.3.6. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
    - 3.3.7. Place backfill and fill materials evenly adjacent to structures, piping, or conduit to required elevations. Prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.

- 3.3.8. Control soil and fill compaction, providing minimum percentage of density specified. Correct improperly compacted areas or lifts as directed by Testing Agency if soil density tests indicate inadequate compaction.
- 3.3.9. Compaction of all fill shall be obtained by the "Specified Density Compaction" method described in MnDOT 2105.3F1 unless specified otherwise in these specifications.
  - 3.3.9.1. The upper 3 feet of fill and fill that is adjacent to structures shall be compacted to a density of not less than 100 percent of maximum density.
  - 3.3.9.2. Fill below the upper 3 feet and not adjacent to structures shall be compacted to a density of not less than 98% of maximum density.
- 3.4. FINAL GRADING
  - 3.4.1. Turf areas are defined as any area not covered by asphalt, concrete, building, aggregates, infiltration basins and bioretention basins.
  - 3.4.2. In turf areas, spread topsoil material to a minimum depth of 6 inches and a maximum depth of 12 inches (depth after compaction), after installation of pavements, fencing, and walks. Complete grading of site and bring entire site to finish elevations shown on drawings. General turf areas shall be bladed smooth with a skid steer, planer bar, or similar lightweight equipment.
  - 3.4.3. Compact the subsoil and topsoil as necessary to prevent future settlement without inhibiting vertical drainage and subsequent turf establishment.
  - 3.4.4. If over compaction occurs (defined as a relative density above 90% Standard Proctor density), the Contractor shall scarify the soil to full depth of topsoil and regrade as required.
  - 3.4.5. Turf area grade tolerance shall be not more than 0.08' (one inch) above or below finish grade elevations.
  - 3.4.6. Final grading of topsoil shall be accomplished immediately prior to turning over to the sodding/seeding contractors. Coordinate finish grading with landscaping contractor's schedule.
  - 3.4.7. Topsoil shall not be spread around the building until exterior building work (any work related to building exterior finishing that would cause disturbance to the topsoil after it is placed) is complete.
  - 3.4.8. Topsoil shall not be backfilled behind back of curb, pavements or walks until curbing, pavements and walks are installed.
  - 3.4.9. Topsoil shall not be spread until underground utilities (storm sewer, sanitary sewer and watermain) are installed.
- 3.5. INFILTRATION VERIFICATION
  - 3.5.1. Infiltration rate shall be determined by a double ring infiltrometer test for the biofiltration basin, and infiltration basin after completion and site has been stabilized. Contractor shall coordinate with Geotechnical Engineer to perform the test.
  - 3.5.2. Variances between the field infiltrometer Test and the infiltration rate listed in the Stormwater Management Study for the project to be discussed with the Engineer to determine if modifications to the basin, outlet structure, grading or other improvements is needed.
  - 3.5.3. If the Infiltrometer Test exceeds the maximum infiltration rate of 8 inch/hour, the Contractor shall amend the soils in the basin to reduce the infiltration rate to meet MPCA guidelines.

**TRENCH EXCAVATION & BACKFILLING FOR UTILITIES**

1. PRODUCTS
  - 1.1. GRANULAR BORROW
    - 1.1.1. Granular borrow for use as bedding or fill material shall be Class II materials as identified by ASTM D2321.
  - 1.2. CRUSHED ROCK
    - 1.2.1. Crushed rock for use as bedding or fill material shall be Class IA or Class IB materials as identified by ASTM D2321.
2. EXECUTION
  - 2.1. Execution shall be in accordance with ASTM D2321, "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications"; AWWA C600, "AWWA Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances"; AWWA Standard 605, "Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water" and as shown in the plans except as modified herein.
  - 2.2. TRENCHING
    - 2.2.1. All excavations and trenches must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches".
    - 2.2.2. Remove lumped subsoil, boulders, and rock up of 1/6 cubic yard measured by volume.
    - 2.2.3. Do not advance open trench more than 200 feet ahead of installed pipe.
    - 2.2.4. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
    - 2.2.5. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and utilities.
    - 2.2.6. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by Engineer until suitable material is encountered and fill with granular or crushed rock material.
    - 2.2.7. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Engineer.
    - 2.2.8. Excavated non-organic materials shall be salvaged and stockpiled for use as subgrade materials and for the replacement of any unsuitable materials encountered during utility installation.
    - 2.2.9. Excess non-organic materials not used for subgrade materials or for the replacement of unsuitable materials shall be removed from site.
  - 2.3. SHEETING AND SHORING
    - 2.3.1. All excavations and trenches must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches".
    - 2.3.2. Remove lumped subsoil, boulders, and rock up of 1/6 cubic yard measured by volume.
    - 2.3.3. Do not advance open trench more than 200 feet ahead of installed pipe.
    - 2.3.4. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
    - 2.3.5. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and utilities.
    - 2.3.6. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by Engineer until suitable material is encountered and fill with granular or crushed rock material.
    - 2.3.7. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Engineer.
    - 2.3.8. Excavated non-organic materials shall be salvaged and stockpiled for use as subgrade materials and for the replacement of any unsuitable materials encountered during utility installation.
    - 2.3.9. Excess non-organic materials not used for subgrade materials or for the replacement of unsuitable materials shall be removed from site.
  - 2.4. BACKFILLING
    - 2.4.1. All excavations and trenches must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches".
    - 2.4.2. Remove lumped subsoil, boulders, and rock up of 1/6 cubic yard measured by volume.
    - 2.4.3. Do not advance open trench more than 200 feet ahead of installed pipe.
    - 2.4.4. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
    - 2.4.5. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and utilities.
    - 2.4.6. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by Engineer until suitable material is encountered and fill with granular or crushed rock material.
    - 2.4.7. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Engineer.
    - 2.4.8. Excavated non-organic materials shall be salvaged and stockpiled for use as subgrade materials and for the replacement of any unsuitable materials encountered during utility installation.
    - 2.4.9. Excess non-organic materials not used for subgrade materials or for the replacement of unsuitable materials shall be removed from site.

**EROSION AND SEDIMENT CONTROLS**

1. PRODUCTS
  - 1.1. Materials shall be as specified in MnDOT Standard Specifications for Construction – 2018 Edition, Section 2573 and 2575.
2. EXECUTION
  - 2.1. Execution shall be as specified in MnDOT Standard Specifications for Construction – 2018 Edition, Section 2573, MnDOT Special Provisions and as shown on the Drawings except as modified herein.
  - 2.2. The Contractor shall protect adjacent properties and water resources from erosion and sedimentation damage throughout construction.
  - 2.3. The Contractor shall notify the Engineer and Construction Manager of deficiencies or changes in the Erosion Control Plans or SWPPP required by current or changes to site conditions.
  - 2.4. The Contractor shall schedule and conduct operations to minimize the erosion of soils, to prevent the transportation of silt within and adjacent to the site.
  - 2.5. Construction of drainage infrastructure and the establishment of turf shall be done concurrently with earthwork operations or soon thereafter to minimize erosion and the transportation of sediment.
  - 2.6. The Contractor shall incorporate erosion control features as soon as practicable prior to grading operations and provide additional control measures as needed to correct conditions that develop during construction.
  - 2.7. MAINTENANCE DURING CONSTRUCTION
    - 2.7.1. Execution shall be as specified in MnDOT Standard Specifications for Construction – 2018 Edition, Section 1514 except as modified herein.

- 2.7.2. In addition to the Contractor's requirements for sweeping as required under MnDOT 2051 (Maintenance and Restoration of Haul Roads), the Engineer may require additional sweeping of roads adjacent to the construction site to provide safe conditions for the traveling public, for environmental reasons, to meet local regulatory requirements or as otherwise directed by the Owner.
- 2.7.3. All erosion control devices shall remain in place until other means of permanent control are in place.
- 2.7.4. Contractor shall maintain erosion control devices throughout construction and replace them when they no longer function properly.
- 2.7.5. Erosion control devices shall not be removed until the site has been permanently stabilized in accordance with NPDES permit requirements.
- 2.8. AIR, LAND AND WATER POLLUTION
  - 2.8.1. Execution shall be as specified in MnDOT Standard Specifications for Construction – 2018 Edition, Section 1717 and as shown on the Drawings except as modified herein.
  - 2.8.2. If during the Project, the Contractor unexpectedly encounters any of the following conditions indicating the possible presence of contaminated soil, contaminated water, or regulated waste, the Contractor shall immediately stop work in the vicinity, notify the Engineer, and request suspension of work in the vicinity of the discovery area, in accordance with MnDOT 1803.4.
  - 2.8.3. A documented inspection and evaluation will be conducted prior to the resumption of work. The Contractor shall not resume work in the suspected area without authorization by the Owner's representative.
    - 2.8.3.1. Indicators of contaminated soil, ground water or surface water include, but are not limited to the following:
      - 2.8.3.1.1. Odor including gasoline, diesel, creosote (odor of railroad ties), mothballs, or other chemical odor.
      - 2.8.3.1.2. Soil stained green or black (but not because of organic content), or with a dark, oily appearance, or any unusual soil color or texture.
      - 2.8.3.1.3. A rainbow color (sheen) on surface water or soil.
    - 2.8.3.2. Indicators of regulated wastes include, but are not limited to the following:
      - 2.8.3.2.1. Cans, bottles, glass, scrap metal, wood (indicators of solid waste and a possible dump)
      - 2.8.3.2.2. Concrete and asphalt rubble (indicators of demolition waste).
      - 2.8.3.2.3. Roofing materials, shingles, siding, vermiculite, floor tiles, transite or any fibrous material (indicators of demolition waste that could contain asbestos, lead or other chemicals).
      - 2.8.3.2.4. Culverts or other pipes with tar-like coating, insulation or transite (indicators of asbestos).
      - 2.8.3.2.5. Ash (ash from burning of regulated materials may contain lead, asbestos or other chemicals).
      - 2.8.3.2.6. Sandblast residue (could contain lead).
      - 2.8.3.2.7. Treated wood including, but not limited to products referred to as green treat, brown treat and creosote (treated wood disposal is regulated).
      - 2.8.3.2.8. Chemical containers such as storage tanks, drums, filters and other containers (possible sources of chemical contaminants).
      - 2.8.3.2.9. Old basements with intact floor tiles or insulation (could contain asbestos), sumps (could contain chemical waste), waste traps (could contain oily wastes) and cesspools (could contain chemical or oily wastes).



Corporate Office:  
 120 17th Ave W Alexandria, MN 56308  
 888-216-1916

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.

PRINTED NAME: GRIFFIN K. DEMPSEY

DATE: 04-17-24 LICENSE #: 61633

**EDEN PRAIRIE  
 HIGH SCHOOL  
 STORMWATER  
 REUSE SYSTEM**



EDEN PRAIRIE, MN

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DRAWN BY: GKD

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PROJECT NO.: 11323002

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**CIVIL  
 SPECIFICATIONS**

DRAWING NO.

**C606**

**GOVERNING SPECIFICATIONS**  
**THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" 2018 EDITION AND ALL APPLICABLE MNDOT SPECIAL PROVISIONS AT THE TIME OF BIDDING SHALL APPLY ON THIS CONTRACT EXCEPT AS MODIFIED OR ALTERED IN THE FOLLOWING SPECIAL PROVISIONS.**

**TURF ESTABLISHMENT**

1. PRODUCTS
  - 1.1. FERTILIZER
    - 1.1.1. Furnish materials in accordance with MnDOT Standard Specifications for Construction – 2018 Edition, Section 3881 except as modified herein.
  - 1.2. SEED
    - 1.2.1. Furnish materials in accordance with MnDOT Standard Specifications for Construction – 2018 Edition, Section 3876 except as modified herein.
    - 1.2.2. All seed shall conform to the latest seed law of the State, including those governing labeling and weed seed tolerances. Tolerances for Germination and Purity, as determined by the Department of Agriculture, shall only apply to seed that has been previously tested and approved by the Department of Agriculture as a seed lot.
    - 1.2.3. All native grass, sedge, rushes, and forbs seed shall be either origin certified or wild type. Origin Certified Seed, designated as MCIA yellow tag species shall be used in all native seed mixes (mixes numbered 300 and above). Wild type may be substituted for yellow tag species only by obtaining approval of the Engineer and the Erosion Control Engineering Unit from the Office of Environmental Services. Wild type and named varieties of native species listed in Table 3876-1 may be used in 100 and 200 series seed mixtures. Origin shall be clearly identified on the seed label for all seed, including native forbs.
  - 1.3. MULCH & HYDRAULIC SOIL STABILIZER
    - 1.3.1. Furnish materials in accordance with MnDOT Standard Specifications for Construction – 2018 Edition, Section 3882, and Section 3884 except as modified herein.
  - 1.4. EROSION CONTROL BLANKET
    - 1.4.1. Furnish materials in accordance with MnDOT Standard Specifications for Construction – 2018 Edition, Section 3885.
  - 1.5. WATER
    - 1.5.1. Water shall be clean, fresh, and free of substances or matter capable of inhibiting vigorous growth of grass.
2. EXECUTION
  - 2.1. Perform Work in accordance with MnDOT Standard Specifications for Construction – 2018 Edition, Section 2575, and all applicable MnDOT Special Provisions except as modified herein.
  - 2.2. The Contractor shall be responsible for temporary seeding and all costs associate with temporary seeding to comply with NPDES permit requirements and MnDOT seeding dates identified in MnDOT Standard Specifications for Construction – 2018 Edition, Section 2575.
  - 2.3. FINISH GRADING
    - 2.3.1. Verify subgrade and trench backfilling have been inspected.
    - 2.3.2. Verify subgrade has been contoured and compacted.
    - 2.3.3. Where topsoil is to be placed, scarify surface to depth of 4 inches.
    - 2.3.4. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 6 inches.
    - 2.3.5. Place topsoil in areas where seeding, sod, and planting are indicated.
    - 2.3.6. Place topsoil to a minimum of 6" compacted thickness.
    - 2.3.7. Place topsoil during dry weather.
    - 2.3.8. Remove roots, weeds, rocks, and foreign material while spreading and prior to seeding or sod placement.
    - 2.3.9. Rocks larger than 1" diameter shall be removed.
    - 2.3.10. Near plants spread topsoil manually to prevent damage.
    - 2.3.11. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.
    - 2.3.12. Lightly compact placed topsoil.
  - 2.4. SOIL PREPARATION
    - 2.4.1. Immediately prior to placing the topsoil, scarify the existing soils to a minimum depth of 6 inches for all areas on slopes shallower than 2 horizontal to 1 vertical.
    - 2.4.2. Perform soil preparation immediately prior to seeding or placing sod to prevent undesirable weed growth or soil erosion.
    - 2.4.3. Place the topsoil and spread uniformly over lawn areas to a minimum depth of 6 inches unless a specific depth is stated elsewhere. Firm and smooth the topsoil after working the soil.
    - 2.4.4. Apply a starter fertilizer at the Manufacturer's or Supplier's recommended rates and work into the topsoil. The lag time between seeding or placing sod and fertilizing shall not exceed 48 hours.
    - 2.4.5. Fertilizers shall be applied at a rate determined by the seed or sod supplier. The type of fertilizer shall be determined based on the type and properties of the topsoil, seed, or sod.
    - 2.4.6. Rake the surface until it is smooth and of uniform fine texture immediately prior to seeding or placing sod.
    - 2.4.7. Rocks larger than 1" diameter shall be removed.
  - 2.5. SEEDING
    - 2.5.1. The seed mixture shall be placed with a seed drill that will accurately meter the types of seed to be planted and keep all seeds uniformly mixed during drilling. The application rate for seed mixes 25-151 shall be 120 lbs./acre. The application rate for seed mix 25-151 shall be 61 lbs./acre. The drill shall be equipped with disk furrow openers and packer assembly to compact the soil directly over the drill row. Seeding shall be done at a right angle to the surface drainage. The seeding shall be done with two passes over the entire area, with the second pass in a direction at a right angle to the first pass.
    - 2.5.2. Seeded areas shall have the seedbed firmed after seeding and prior to mulching. Soil firming shall be done with a drag cultipacker or other approved soil firming equipment. On slopes too steep to operate mechanical equipment, the seed shall be covered by hand raking or other approved means, wherever feasible, prior to mulching. Accomplish the soil firming or seed covering immediately after seeding.
    - 2.5.3. The mulch shall be spread by mechanical means to provide a uniform distribution at an application rate of 2.0 tons/acre of MnDOT Type 3 Mulch.
    - 2.5.4. Seed placed under the Contract shall be fertilized and watered and maintained by the Contractor for a period of 30 days after placement or until accepted by the Owner, whichever comes first. The seed shall develop into a lush turf over the landscaped areas to be acceptable.
  - 2.6. HYDROSEEDING
    - 2.6.1. Mix the seed, fertilizer, and mulch material in the required amount of water to produce a slurry mixture.
    - 2.6.2. Mulching shall be executed in accordance with MnDOT Standard Specifications for Construction – 2018 Edition, Section 2575.
    - 2.6.3. Mulch shall be Type 4 in areas seeded with MnDOT seed mixture 25-151 and applied at a rate of 1.5 tons per acre immediately following seeding and shall be immediately over-sprayed with Stabilized Fiber Matrix at 750 lbs./acre.
    - 2.6.4. Apply water with fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.
    - 2.6.5. Incorporate the mulch into the slurry mix after the seed and fertilizer have been thoroughly mixed.
    - 2.6.6. Direct the spray during the application to obtain a uniform material distribution.
    - 2.6.7. Empty the slurry mixture within one hour after the seed is added to the tank.
    - 2.6.8. Hydroseed placed under the Contract shall be fertilized, watered, and maintained by the Contractor for a period of 30 days after placement. The seed shall develop into a lush turf over the landscaped areas to be acceptable.
  - 2.7. EROSION CONTROL BLANKET
    - 2.7.1. Erosion control blanket shall be executed in accordance with MnDOT Standard Specifications for Construction – 2018 Edition, Section 2575.
    - 2.7.2. Erosion control blanket shall be Category 3 and shall be used with the seed mixtures designated above in areas as shown on the Drawings.
    - 2.7.3. Lay fabric smoothly on surface, bury top end of each section in 6-inch-deep excavated topsoil trench. Overlap edges and ends of adjacent rolls minimum 12 inches. Backfill trench and rake smooth, level with adjacent soil.
    - 2.7.4. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
    - 2.7.5. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.
  - 2.8. MAINTENANCE
    - 2.8.1. Water to prevent grass and soil from drying out.
    - 2.8.2. Roll surface to remove minor depressions or irregularities.
    - 2.8.3. Control growth of weeds. Apply herbicides. Remedy damage resulting from improper use of herbicides.
    - 2.8.4. Immediately reseed areas showing bare spots.
    - 2.8.5. Repair washouts or gullies.

**WATER REUSE DISTRIBUTION PIPING**

1. PRODUCTS
  - 1.1. PVC WATER REUSE PIPE
    - 1.1.1. PVC watermain pipe shall be manufactured in accordance with the requirements of AWWA C900 for 4" through 12" diameter pipe.
    - 1.1.2. PVC watermain pipe shall be PVC Class 150, DR18 for all pipes up to and including 12" diameter.
    - 1.1.3. PVC water main pipe shall be resistant to aggressive soils or corrosive substances in accordance with the requirements of ASTM D-543.
  - 1.2. FITTINGS
    - 1.2.1. Fittings shall be mechanical joint ductile iron Class 350 conforming to the requirements of AWWA C110 or C153, ANSI A21.53, A21.11, and A21.4.
    - 1.2.2. Fittings shall have an asphaltic coating at least one mil thick on all exterior surfaces. Spotty of thin seal coating, or poor coating adhesion, shall be cause for rejection.

- 1.2.3. Fitting gaskets shall be designed and constructed to meet or exceed the requirements of AWWA C111.
- 1.2.4. Restrainer glands shall be Megalug of approved equal.
- 1.2.5. Stainless steel or Cor-Blue bolts shall be used for all fitting connections.
- 1.3. GATE VALVES
  - 1.3.1. Gate valves shall meet the requirements of AWWA C509-80 and shall be single disc type with resilient seat bonded. With a water working pressure of not less than 150 psi.
  - 1.3.2. Gate valves shall be provided with a two-inch square operating nut, painted white, opening counterclockwise.
  - 1.3.3. Gate valves shall include a stationary valve rod extension which attaches to the operating nut and extends to within 1" of the valve box cover.
  - 1.3.4. Valve boxes shall be three piece, 5 1/4", screw type for a burial depth of 8' or as shown on the plans and shall be Mueller, Tyler, Bibby, or Engineer approved equal.
  - 1.3.5. Valve boxes shall be of sufficient length to provide for minimum adjustment of 6" above and below grades when the pipe is installed to specified depth.
2. EXECUTION
  - 2.1. GENERAL
    - 2.1.1. Installation of Polyvinyl Chloride (PVC) pipe and their appurtenances shall conform to the requirements of AWWA Standard 605 and as shown in the plans except as modified herein.
    - 2.1.2. Installation of Polyethylene pipe and their appurtenances shall conform to the requirements of AWWA C906 and as shown in the plans except as modified herein.
    - 2.1.3. When replacing existing watermain and services, the existing water supply must remain active during construction. The Contractor shall make the necessary arrangements to provide uninterrupted water service to all properties adjacent to the project.
    - 2.1.4. Granular bedding material and encasements are required as indicated in the plans.
    - 2.1.5. In wet or unsuitable soil conditions, the Contractor shall excavate 6" below the bottom of the pipe, furnish and install a 6" crushed rock foundation to provide support for the pipe installation. The rock will be incidental to pipe cost.
  - 2.2. WATER PIPING
    - 2.2.1. Maintain separation of water piping from sanitary sewer and storm sewer of 10 feet in accordance with Minnesota Department of Health and Minnesota Department of Labor & Industry requirements.
    - 2.2.2. When crossing sanitary sewer mains or services, a minimum of 18" of vertical separation shall be provided and one full length of water pipe shall be centered at the point of crossing so both joints will be equidistant and as far from the sewer as possible.
    - 2.2.3. Have sufficient materials available to allow for unknown conditions that may be encountered.
    - 2.2.4. Have sufficient tools on-site that may be necessary during construction, such as, valve box wrenches, curb stop wrenches, gate valve keys, etc.
    - 2.2.5. Install pipe to indicated elevation to within tolerance of a 1/2 inch.
    - 2.2.6. Establish elevations of buried piping with not less than 8ft of cover.
    - 2.2.7. When using a bar to push the watermain pipe home, wood blocking shall be used to protect the bell or spigot of the pipe from being damaged.
    - 2.2.8. Install concrete for thrust restraints at each elbow or change of direction of pipe and as shown in the plans.
    - 2.2.9. Support blocking, reaction blocking, and anchorage devices shall be provided as detailed in the plans.
    - 2.2.10. Excavations shall not be backfilled until fittings and connections have been inspected by the Owner or the Engineer.
    - 2.2.11. Excavations shall not be backfilled until necessary information for record drawings has been recorded.
    - 2.2.12. Utilize stiffeners for polyethylene pipe where recommended by the pipe or fitting manufacturer.
    - 2.2.13. Support blocking, reaction blocking and anchorage devices for curb stops and curb boxes shall be provided as detailed in the plans.
    - 2.2.14. Curb stops & boxes shall be adjusted to within 1" of finished grade.
    - 2.2.15. Curb boxes in driveways shall have a short top section of a valve box installed to protect the curb stop and curb box as shown in the plans.
  - 2.3. FITTINGS
    - 2.3.1. All plugs, caps, tees, bends, and other thrust points shall be provided with reaction backing, or movement shall be prevented by attachment of suitable restraining devices, megalugs or tie rods in accordance with plans.
    - 2.3.2. Fittings shall be protected with an 8-mil polyethylene encasement in accordance with ANSI/AWWA C105/A21.5-88.
  - 2.4. GATE VALVES
    - 2.4.1. Support blocking, reaction blocking, and anchorage devices shall be provided as detailed in the plans.
    - 2.4.2. Center and plumb valve box over valve. Set box 1/2" below finished grade in pavements or sidewalk, flush with finished grade in turf areas, and 3" below finished grade in aggregate roads and alleys.
    - 2.4.3. Gate valves shall be protected with an 8-mil polyethylene encasement in accordance with ANSI/AWWA C105/A21.5-88.
  - 2.5. TRACER WIRE
    - 2.5.1. Tracer wire shall be attached to the top and in the center of the pipe as necessary such that the wire is not displaced during backfilling operations.
    - 2.5.2. Tracer wire shall be brought to the surface as shown in the plans at the end of the main, at each valve box, at each hydrant, and shall be connected to existing tracer wire when connecting to an existing main.
    - 2.5.3. Sufficient tracer wire shall be left around curb stop to allow for extension of the tracer wire to the residence with the extension of the water service.
    - 2.5.4. Tracer wire test stations shall be connected to the tracer wire and installed at every hydrant.
  - 2.6. FIELD QUALITY CONTROL
    - 2.6.1. Electric Conductivity Test:
      - 2.6.1.1. All tracer wire shall be tested for electrical conductivity from tracer wire test station to tracer wire test station.
  - 1.1. PRECAST JOINT EXTERNAL SEAL WRAP
    - 1.1.1. Precast joint external seal wrap shall be an 8" single continuous rubber band made of EPDM rubber with a minimum thickness of 65 mils.
    - 1.1.2. The seal shall be secured by a 2" wide mastic strip on the top and bottom edge of the rubber wrap.
    - 1.1.3. The mastic shall be non-hardening butyl rubber sealant and shall adhere to two different manhole sections.
  - 1.2. EXTERNAL RUBBER SEALING SLEEVE
    - 1.2.1. External chimney seals shall be a single continuous rubber band made of EPDM rubber with a minimum thickness of 65 mils.
    - 1.2.2. The seal shall be secured by a 2" x 1/4" mastic strip on the top and bottom edge.
    - 1.2.3. The mastic shall be non-hardening butyl rubber sealant and shall seal the cone/top slab of the manhole and over the lip of the casting.
  - 1.3. TRACER WIRE
    - 1.3.1. Tracer wire shall be #12 AWG copper-clad steel wire with 30 mils of green HDPE coating.
    - 1.3.2. Tracer wire shall be spliced using a direct bury splice kit and be covered with a flame retardant compound.
    - 1.3.3. Tracer wire test stations shall be Rhino TrView Flex Test Station, Carsonite Perma-Post Test Station or Engineer approved equal and shall be 72" tall, green in color, with two internal terminals and sewer pipeline stickers affixed to them.
  2. EXECUTION
    - 2.1. GENERAL
      - 2.1.1. Execution shall be in accordance with ASTM D2321, "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications", National Precast Concrete Association's "NPCA Manhole Installation Guide", in accordance with the State Plumbing Code, any local requirements and as shown in the plans except as modified herein.
      - 2.1.2. Existing lines and wastewater flow must remain active during construction. The Contractor shall make the necessary arrangements to provide uninterrupted sanitary sewer service to all properties adjacent to the project.
      - 2.1.3. Granular bedding material and encasements are required as indicated in the plans.
      - 2.1.4. In wet or unsuitable soil conditions, the Contractor shall excavate 6" below the bottom of the pipe, furnish and install a 6" crushed rock foundation to provide support for the pipe installation. Foundation rock will be incidental to pipe installation price.
    - 2.2. SANITARY SEWER PIPING
      - 2.2.1. Maintain separation of water main from sanitary sewer and storm sewer of 10 feet in accordance with Minnesota Department of Health requirements.
      - 2.2.2. Have sufficient materials available to allow for unknown conditions that may be encountered.
      - 2.2.3. When using a bar to push the sanitary sewer pipe home, wood blocking shall be used to protect the bell or spigot of the pipe from being damaged.
      - 2.2.4. Install pipe to indicated elevation to within tolerance of a 1/2".
      - 2.2.5. All service fittings, including wyes, bend, and cleanouts, shall have 1 1/2" crushed or natural rock as foundation material.
      - 2.2.6. Cleanouts shall be extended to within 6 inches of finished grade elevation.
      - 2.2.7. Excavations shall not be backfilled until connections have been inspected by the Owner or the Engineer.
      - 2.2.8. Excavations shall not be backfilled until necessary information for record drawings has been recorded.
    - 2.3. TRACER WIRE
      - 2.3.1. Tracer wire shall be attached to the top and in the center of the pipe as necessary such that the wire is not displaced during backfilling operations.
      - 2.3.2. Tracer wire test stations shall be installed at every air release manhole and at every lift station. Locations to be determined in the field by the Contractor, the Owner and the Engineer's on-site representative.
    - 2.4. TESTING
      - 2.4.1. All pipes shall be tested in accordance with the State Plumbing code.
      - 2.4.2. Upon completion of pressure testing, all sanitary sewer pipe 8 inches in diameter or larger shall be jetted and televised prior to final acceptance and system startup.

- 2.4.3. Upon completion of jetting the sanitary sewer main, all sanitary sewer manholes shall be cleaned prior to final acceptance and system startup.
- 2.4.4. All tracer wire shall be tested for electrical conductivity from tracer wire test station to tracer wire test station.
- 2.4.5. Any portion of the work deemed to be defective through the testing shall be remedied at no additional cost to the Owner.
- 2.4.6. Owner or Engineer shall be present for all testing for verification of results.
- 2.4.7. The Owner will not consider final acceptance or substantial completion until all testing, jetting, and corrective action is completed to the satisfaction of the Engineer.

**STORM WATER CONVEYANCE**

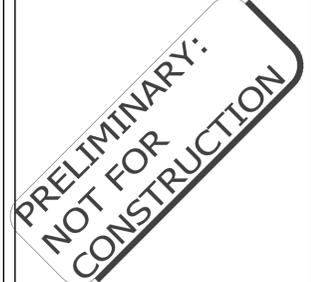
1. PRODUCTS
  - 1.1. Materials shall be in accordance with MnDOT Standard Specification for Construction – 2018 Edition, Section 2501, 2503, 2506 and 2511.
  - 1.2. CONCRETE MANHOLES AND CATCH BASINS
    - 1.2.1. Shall be pre-cast concrete meeting the requirements of ASTM Specification C-478 and MnDOT 2506.
    - 1.2.2. Manholes and catch basins shall conform to MnDOT Standard Plate 4003, 4005, or 4006 as applicable by the design designated on the plans.
    - 1.2.3. All joints shall be gasketed.
2. EXECUTION
  - 2.1. Execution shall be as specified in the MnDOT Standard Specifications for Construction – 2018 Edition, Section 2501 and 2511.
  - 2.2. Granular bedding material and encasements are required as indicated in the plans.
  - 2.3. In wet or unsuitable soil conditions, the Contractor shall excavate 6" below the bottom of the pipe, furnish and install a 6" crushed rock foundation to provide support for the pipe installation. Foundation rock will be incidental to pipe installation price.
  - 2.4. The Contractor shall not impede existing drainage ways during construction, if necessary, the Contractor shall temporarily bypass until permanent measures are operational.
  - 2.5. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.
  - 2.6. All culverts or pipe sewers to be removed or salvaged and reinstalled shall be replaced at the same location and elevation unless otherwise shown on the plans.
  - 2.7. All existing pipe sewers or culverts are to remain in place if possible unless otherwise shown on the plans.

**DESIGN TREE**  
 engineering + land surveying  
 Corporate Office:  
 120 17th Ave W Alexandria, MN 56308  
 888-216-1916

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.

PRINTED NAME: GRIFFIN K. DEMPSEY  
 DATE: 04-17-24 LICENSE #: 61633

**EDEN PRAIRIE  
 HIGH SCHOOL  
 STORMWATER  
 REUSE SYSTEM**



EDEN PRAIRIE, MN

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DRAWN BY: GKD  
 CHECKED BY: DJF

PROJECT NO.: 11323002

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**CIVIL  
 SPECIFICATIONS**

DRAWING NO.  
**C607**

## MAINTENANCE AGREEMENT

Between the Riley Purgatory Bluff Creek Watershed District and  
Independent School District No. 272, Eden Prairie Schools

This Maintenance Agreement (Agreement) is made by and between the Riley Purgatory Bluff Creek Watershed District, a watershed district with purposes and powers set forth at Minnesota Statutes chapters 103B and 103D (RPBCWD), and Independent School District No. 272, Eden Prairie Schools, *a public corporation subject to the control of the State of Minnesota legislature, limited only by constitutional restrictions* (EPS).

### Recitals and Statement of Purpose

WHEREAS pursuant to Minnesota Statutes section 103D.345, the RPBCWD has adopted and implements the Wetland and Creek Buffers Rule, the Waterbody Crossings and Structures Rule and the Stormwater Management Rule;

WHEREAS under the Stormwater Management Rule, certain land development activity triggers the requirement that the landowner record a declaration establishing the landowner's perpetual obligation to inspect and maintain stormwater-management facilities;

WHEREAS in each case, a public landowner, as an alternative to a recorded instrument, may meet the maintenance requirement by documenting its obligations in an unrecorded written agreement with the RPBCWD;

WHEREAS in accordance with the RPBCWD rules and as a condition of permit 2024-017, the EPS's perpetual obligation to maintain stormwater facilities must be memorialized in a maintenance agreement specifying requirements and restrictions;

WHEREAS EPS and the RPBCWD execute this Agreement to fulfill the condition of permit no. 2024-017, and concur that it is binding and rests on mutual valuable consideration;

THEREFORE EPS and RPBCWD agree as follows that EPS, at its cost, will inspect and maintain the stormwater facilities as shown in the site plan attached to and incorporated into this Agreement as Exhibit A in perpetuity as follows:

## 1. STORMWATER FACILITIES

- a. **Stormwater retention and treatment basin(s).** Stormwater retention and treatment basin(s) must be inspected at least once a year to determine if the basin's retention and treatment characteristics are adequate and continue to perform per design. Culverts and outfall structures must be inspected at least annually and kept clear of any obstructions or sediment accumulation. Sediment accumulation must be measured by a method accurate to within one vertical foot. A storage treatment basin will be considered inadequate if sediment has decreased the wet storage volume by 50 percent of its original design volume. Based on this inspection, if the stormwater basin(s) is identified for sediment cleanout, the basin(s) will be restored to its original design contours and vegetation in disturbed areas restored within one year of the inspection date.
- b. **Stormwater Reuse System.** The Stormwater Reuse System will be inspected, including inspection points designated on Exhibit B, at a minimum, on an annual basis. The Stormwater Reuse system will be maintained as specified or recommended by the manufacturer and the maintenance will include the items listed below; provided that if the items listed below conflict with the manufacturer's final maintenance specifications or recommendations after construction of the Stormwater Reuse system, then the specification and recommendations of the manufacturer shall prevail.
  - (1) Inspect and clean pretreatment filters, at inspection point 1, at a minimum once annually
  - (2) Inspect below grade storage tanks, at inspection point 1, at a minimum once annually. Clean tanks as needed, and as specified by the Manufacturer.
  - (3) Inspect interior treatment skid components, at inspection point 1, at a minimum once annually. Clean and replace treatment skid components as specified by the Manufacturer.
  - (4) Flow Meter: A flow meter will be operated and maintained to record water usage to help determine the ability of the Stormwater Reuse system to achieve estimated volume abstraction as set forth in the RPBCWD approved design. Records of maintenance of the flow meter and water usage shall be maintained for one year after submission of the annual report to the RPBCWD, as required in section (3) of the declaration.

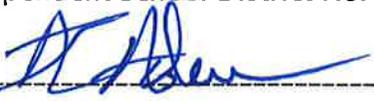
- (5) Pervious Areas: The pervious areas designated on Exhibit C must be maintained in a pervious state for irrigation.
3. **Reporting.** EPS will submit to the RPBCWD annually a brief written report that describes stormwater facility maintenance activities performed under this declaration, including dates, locations of inspections and the maintenance activities performed.
  4. **Property Transfer.** If EPS conveys into private ownership a fee interest in the property that is the subject of this Agreement, it shall require as a condition of sale, and enforce: (a) that the purchaser record a declaration on the property incorporating the maintenance requirements of this Agreement; and (b) that recordation occur either before any other encumbrance is recorded on the property or, if after, only as accompanied by a subordination and consent executed by the encumbrance holder ensuring that the declaration will run with the land in perpetuity. If EPS conveys into public ownership a fee interest in any property that has become subject to this Agreement, it shall require as a condition of the purchase and sale agreement that the purchaser accept an assignment of all obligations vested under this Agreement.
  5. This Agreement may be amended only in a writing signed by the parties.
  6. The recitals are incorporated as a part of this Agreement.

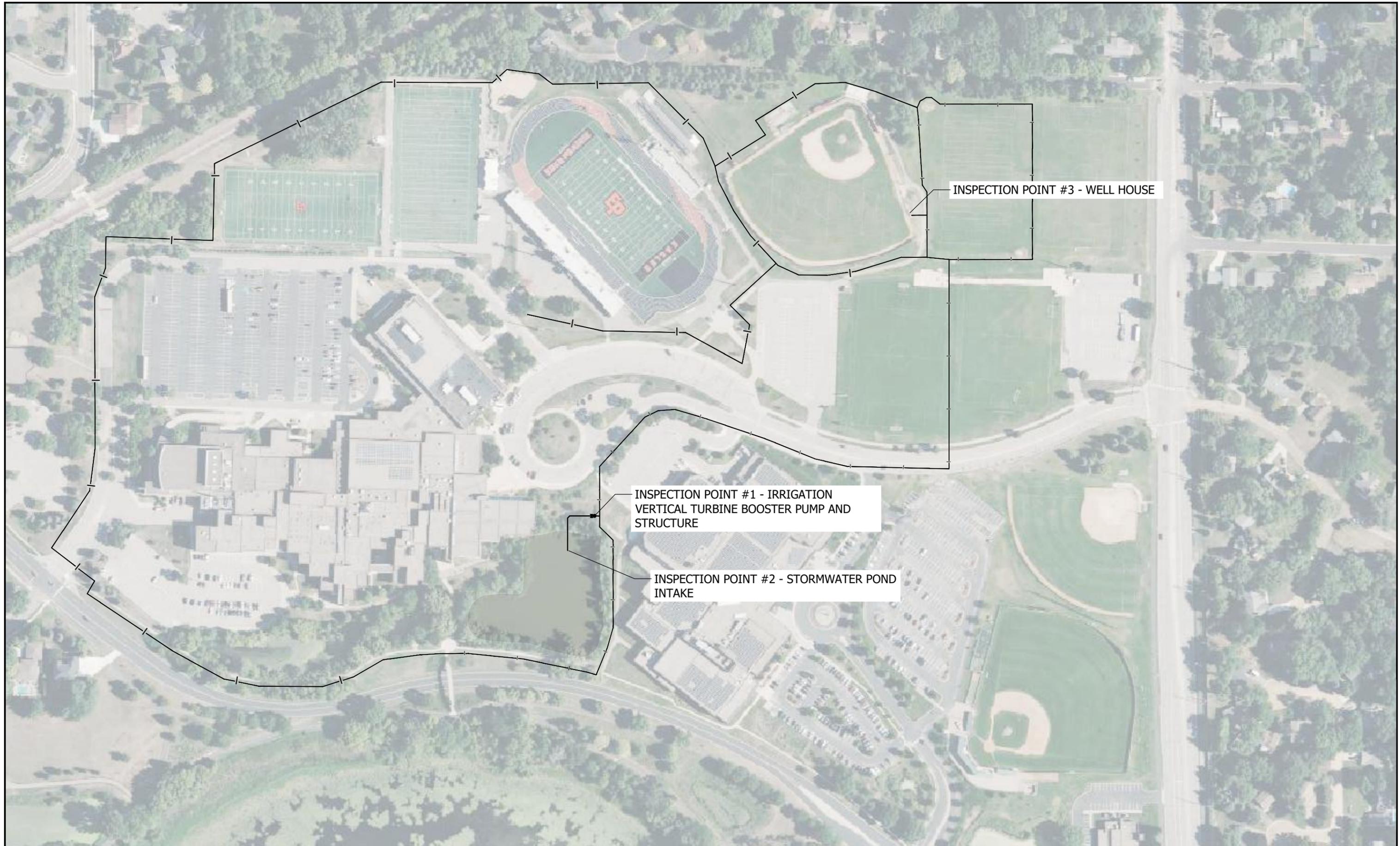
IN WITNESS WHEREOF, the parties hereto have executed this Agreement.

**RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT**

By \_\_\_\_\_ Date:  
President, Board of Managers

Independent School District No. 272, Eden Prairie Schools,

By:  \_\_\_\_\_ Date: 4/12/2024  
Its Executive Director of Business Services



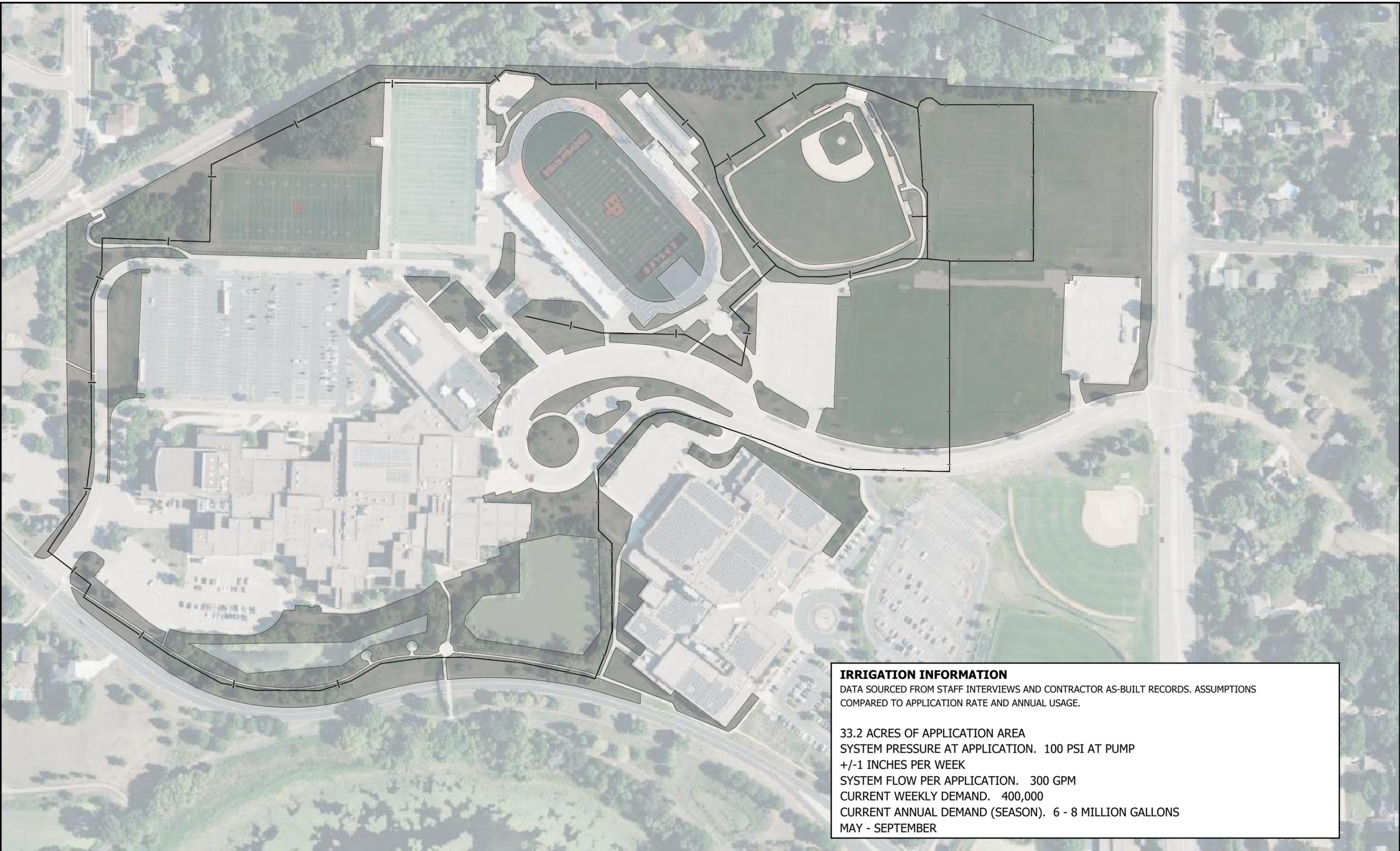
INSPECTION POINT #3 - WELL HOUSE

INSPECTION POINT #1 - IRRIGATION  
VERTICAL TURBINE BOOSTER PUMP AND  
STRUCTURE

INSPECTION POINT #2 - STORMWATER POND  
INTAKE

**EXHIBIT B - MAINTENANCE LOCATIONS**

EDEN PRAIRIE HIGH SCHOOL STORMWATER REUSE - EDEN PRAIRIE, MN



**IRRIGATION INFORMATION**

DATA SOURCED FROM STAFF INTERVIEWS AND CONTRACTOR AS-BUILT RECORDS. ASSUMPTIONS COMPARED TO APPLICATION RATE AND ANNUAL USAGE.

- 33.2 ACRES OF APPLICATION AREA
- SYSTEM PRESSURE AT APPLICATION. 100 PSI AT PUMP
- +/-1 INCHES PER WEEK
- SYSTEM FLOW PER APPLICATION. 300 GPM
- CURRENT WEEKLY DEMAND. 400,000
- CURRENT ANNUAL DEMAND (SEASON). 6 - 8 MILLION GALLONS
- MAY - SEPTEMBER

**EXHIBIT C - IRRIGATION AREA**

EDEN PRAIRIE HIGH SCHOOL STORMWATER REUSE -EDEN PRAIRIE, MN

## Chloride Management Plan

### Overview

It is the policy of the District to regulate the management of stormwater runoff to minimize the impacts of the application of chloride compounds on water resources by minimizing their use on roads, parking lots, sidewalks and other impervious surfaces.

A chloride management plan for post project management of chloride must be provided when an applicant for a permit under the stormwater management rule for land disturbing activity on property other than single-family home sites. The plan must include, at a minimum:

1. Designation of an individual authorized to implement the chloride-use plan
2. Designation of a Minnesota Pollution Control Agency (MPCA)-certified salt applicator engaged in the implementation of the chloride-use plan for the site

### Background

Elevated chloride concentrations have been found in waterbodies throughout the Twin Cities Metro Area at levels exceeding water quality standards. Chloride levels when they exceed water quality standard impact the aquatic community. The District has identified through monitoring that stormwater reaching Purgatory Creek regularly exceeds water quality standards during winter months. The chloride or salt found in the water comes from the salt that is applied to our streets, parking lots, driveways and sidewalks during winter months. In an effort to protect the District's water resources and increase efficiency in winter best management practices, a Chloride Management Plan needs to be in place as prescribed in Subsection 3.8 of Rule J. This will require cities, the county, commercial and private applicators to both reduce chloride application rates and improve winter management practices.

### Chloride Management Plan

The two minimum components of a chloride management plan are the designation of individual authorized to implement the plan and the designation of a MPCA certified salt applicator engaged in the implementation of the chloride-use plan for the site.

#### Designated Individual

This individual is the point of contact for any questions regarding winter maintenance on the site, including chloride application.

#### MPCA Certified Applicator

To achieve MPCA certification, an applicator must first attend a Smart Salting Training. Riley Purgatory Bluff Creek Watershed District and other organizations host these trainings free of charge throughout the year. The training offers information about best practices for managing snow and ice on roads or parking lots and sidewalks. A test is offered at the end of the workshop to earn Minnesota Pollution Control Agency (MPCA) Level 1 Certification in Snow & Ice Control Best Practices. Additional information about the trainings, including upcoming training dates is available at: [www.pca.state.mn.us/water/salt-application-training](http://www.pca.state.mn.us/water/salt-application-training)

### Project Information

Name of Proposed Project: EPHS Stormwater Reuse System

Address or Intersection: 17185 Valley View Rd

City: Eden Prairie

RPBCWD Permit Number (if known): #2024-017

*For Cities/Public Agencies Only:*  Chloride Management Plan previously submitted for the year

**Applicant Information (Site Owner or Project Developer)**

Name of Permit Applicant: Eden Prairie Schools  
Address: 8100 School Road  
City, State, Zip: Eden Prairie, MN 55344  
Phone: 952-975-7000

Email: Andrew\_Adams@edenpr.k12.mn

**Applicant Information (Site Consulting Engineer or Project Representative)**

Name: Griffin Dempsey, PE of DTE-LS  
Address: 601 Carlson Pkwy  
City, State, Zip: Minnetonka MN 55305  
Phone: 763-270-3611

Email: gkd@dte-ls.com

**Designated Individual**

Company Name: Eden Prairie Schools  
Address: 8100 School Road  
City, State, Zip: Eden Prairie MN 55344  
Contact Name: Kyle Fisher  
Email Address: Kyle\_Fisher@edenpr.k12.mn.us  
Phone Number: 952-975-7124

Mobile Number:

**MPCA Certified Individual\***

Company Name: Eden Prairie Schools  
Address: 8100 School Road  
City, State, Zip: Eden Prairie MN 55344  
Contact Name: Cole Hagberg  
Email Address: Cole\_Hagberg@edenpr.k12.mn.us  
Phone Number: 952-975-7513

Mobile Number:

**Class Information**

Level 1:  Parking Lot & Sidewalk  Roads  
Level 2:  Winter Maintenance Assessment Tool  
Location & Date of Class:

Include a photo/scanned copy of certified individual's certificate or excel spreadsheet from the MPCA website that has certified individual's name listed. Certification is valid for five years.

MPCA website link: [www.pca.state.mn.us/water/salt-application-training](http://www.pca.state.mn.us/water/salt-application-training)

Signature:



Printed Name: Andrew Adams

Date: 4/15/2024

Return to: **Riley Purgatory Bluff Creek Watershed District**  
18681 Lake Drive East  
Chanhassen, MN 55317  
Email: [tjeffery@rpbcwd.org](mailto:tjeffery@rpbcwd.org)

**To Be Completed by District:**  
Permit # \_\_\_\_\_  
Received From \_\_\_\_\_  
Date Received \_\_\_\_\_  
Date Approved \_\_\_\_\_

# Smart Salting for Parking Lots & Sidewalks

This is to certify that

**Cole Hagberg**

completed the Smart Salting for Parking Lots & Sidewalks training requirements on behalf of the

**Eden Prairie Schools**

for learning and pledging to reduce their salt use.

Your actions will help  
protect Minnesota lakes,  
streams and groundwater.

**m** MINNESOTA POLLUTION  
CONTROL AGENCY



**Brooke Asleson**

Resource Management  
and Assistance Division

Issue Date: 11-1-2023

Certificate expires 5 years  
from issue date