

Permit Application Review

Permit No. 2020-87
Received complete: September 25, 2020

Applicant: Jason Ulbrich, Eagle Ridge Academy
Consultant: Dave Knaeble, Civil Site Group
Project: Eagle Ridge Academy Gymnasium Addition and Site Renovation
Location: 11111 Bren Road West: Minnetonka
Rule(s): 4, 5
Reviewer(s): BCO/LLH

General Background & Comments

The project proposes a building addition for the construction of a gymnasium addition at Eagle Ridge Academy, 11111 Bren Road West in Minnetonka. In addition to the building addition, site improvements including removal and reconstruction of concrete and bituminous pavement, utility improvements, landscaping, grading, and a stormwater management facility are proposed.

Work is proposed at two locations, including along Bren Road West for the construction of the stormwater management facility, and the southwest side of the school for the construction of the building addition.

Two previous projects have been permitted for activities on the site since Redevelopment Rule 4.2.3 became applicable - NMCWD Permits #2016-62 and #2017-76. Work in 2016 and 2017 included construction of a tennis court, replacement of concrete and bituminous pavement, and athletic field and site improvements, and did not trigger NMCWD stormwater management criteria, only erosion and sediment control.

The applicant has requested that the site be considered restricted under subsection 4.3.2a of the NMCWD Rules, resulting from site constraints including site soils with low permeability, topography, and limited green space. The applicant has provided technical documentation to support the restricted site request, including soil classifications associated with poor infiltration capacities. The engineer has reviewed findings from the geotechnical evaluation and site plans, and concur with the applicant that the project meets restricted site criteria, and that volume retention in accordance with paragraph 4.3.1a is limited.

Updated project information based on the proposed 2020 Eagle Ridge Academy gymnasium addition and site improvement project is summarized below in conjunction with previous permit applications for the site. The project site information includes the following:

Site Information	Permits 2016-62 and 2017-76	Current Permit 2020-87	Site Aggregate Total
Total Site Area (acres)	17.71	17.71	17.71
Existing Site Impervious Area (acres)	11.17	9.74	11.17 ¹
Proposed Site Impervious Area (acres)	9.74	9.75	9.75
Change (increase/decrease) in Site Impervious Area (acres)	1.43 (12.8% decrease)	0.01 (0.1% increase)	1.42 (12.7% decrease) ²
Disturbed and Reconstructed Site Impervious Area (acres)	2.89 (25.9% disturbed)	0.32 (3.3% disturbed)	3.21 (28.7% disturbed) ²

¹Pre-2016 project existing conditions

²Calculated based on pre-2016 project existing conditions (Common Scheme of Development Rule 4.2.5)

The Nine Mile Creek Watershed District's Rule for Redevelopment, Rule 4.2.3, states, if a proposed activity will disturb more than 50% of the existing impervious surface on a site or will increase the imperviousness of the entire site by more than 50%, stormwater management criteria of Rule 4.3 will apply to the entire project site. Otherwise, the stormwater requirements will apply only to the disturbed, replaced and net additional impervious surface on the project site. Since the project will disturb less than 50% of the existing impervious surface on the project site and does not increase the imperviousness of the site by more than 50% in aggregate, stormwater management is not required for the entire site. Stormwater management is therefore required for the regulated impervious area for the 2020 gymnasium construction and site renovation project, including 0.32 acres of disturbed and reconstructed impervious surface.

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

Stormwater management is to be provided by an infiltration basin located along the northwestern boundary of the site, at the greenspace adjacent to Bren Road West. The stormwater management facility will provide rate control, volume retention and water quality management for the disturbed, replaced and net additional impervious surface, 0.32 acres (13,953 square feet).

For temporary erosion control measures, silt fence or bioroll are to be provided at the grading limits, and a rock construction is shown to be installed for sediment control. Storm drain inlet protection will be provided for erosion control in the parking areas downgradient from land-disturbing activities. Erosion control blanket and seeding is utilized for permanent stabilization.

Northern Technologies, LLC (NTI) conducted a geotechnical evaluation and performed three standard penetration test (SPT) borings on February 20, 2020 and one SPT boring on August 26, 2020 to depths ranging from approximately 16- to 21-feet below ground surface. Subsurface conditions encountered in the four soil borings include topsoil over fill soils consisting of clayey sand (SC) and sandy lean clay (CL), underlain by glacial till soils

consisting primarily of clayey sand (SC) and silty sand (SM). Groundwater was not observed in the four SPT borings at the time of field evaluation. However, the onsite clay-based soils are relatively impervious and are conducive to the development of perched groundwater zones at varying elevations and locations across the project site. The applicant is advised that seasonal and yearly fluctuations of groundwater level may occur.

Exhibits

1. Signed Permit Application dated July 21, 2020.
2. Plan sheets dated May 8, 2020, revised July 30, 2020 and September 4, 2020, prepared by Civil Site Group.
3. Grading and Utility Plan dated September 10, 2020 (sent September 25, 2020), prepared by Civil Site Group.
4. Stormwater Management Report dated June 8, 2020, revised September 4, 2020, prepared by Civil Site Group, including the following supplemental items:
 - P8 water quality modeling output report dated June 8, 2020, prepared by Civil Site Group.
 - Existing and proposed HydroCAD model report dated June 12, 2020, prepared by Civil Site Group.
 - Drainage area maps dated June 8, 2020, prepared by Civil Site Group.
5. Geotechnical Exploration and Engineering Review dated March 24, 2020, prepared by NTI.
6. Additional Geotechnical Exploration and Engineering Review dated September 1, 2020, prepared by NTI.
7. E-mail correspondence dated August 18, 2020 specifying seven items required for the submittal to be considered complete.
8. Comment response memorandum dated September 2, 2020, prepared by Civil Site Group.

The applicant with the revised submittal has addressed the items specified in the August 18, 2020 e-mail. The submittal is complete.

4.0 Stormwater Management

Stormwater management is to be provided by an infiltration basin located along the northwestern boundary of the site, within the greenspace adjacent to Bren Road West. The stormwater management facility will provide rate control, volume retention and water quality management to account for the disturbed, replaced and net additional impervious surface, 0.32 acres (13,953 square feet).

As previously mentioned, proposed work for the Eagle Ridge Academy gym addition and site renovation project includes limits of disturbance at two site locations, including area along the northwestern boundary of the site for the construction of the infiltration basin and area at the southwest side of the school for construction of the building addition.

The infiltration basin receives runoff from a portion of the surface parking area at the northwestern side of the site, including 23,952 square feet of impervious surface which will not be disturbed as part of this project and currently does not receive stormwater treatment. The

impervious area disturbed and replaced as part of the building addition is conveyed to existing storm sewer and will not be routed to the stormwater management facility due to topography and site constraints. The infiltration basin is designed to manage the runoff from approximately 23,952 square feet of existing impervious surface area (13,953 square feet required).

In order to meet the rate control criteria listed in Rule 4.3.1b, 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 existing and proposed 2-, 10- and 100-year frequency discharges from the building addition disturbance area and are as follows:

Frequency	Existing Discharge c.f.s.	Proposed Discharge c.f.s.
2 year	1.3	1.3
10 year	2.0	2.0
100 year	3.6	3.6

The infiltration basin will attenuate surface runoff thereby reducing discharge rates from the 23,932 square feet of impervious surface tributary to the basin. Rule 4.3.1b is met.

As previously stated, the applicant has requested that the site be considered restricted under subsection 4.3.2a of the NMCWD Rules, as a result of site constraints including site soils with low permeability, topography, and limited green space. The applicant has provided technical documentation of site constraints limiting retention of runoff, including soil boring analysis identifying soil classifications associated with poor infiltration capacities. A design infiltration rate of 0.06 inches per hour is used in analysis for the engineer's review, based on suggested design criteria outlined in the Minnesota Storm Water Manual. The assumed infiltration rate of 0.06 inches per hour is based on soil boring classification information typically used for HSG Type D soils, and represents the "worst case" assumption. The engineer has reviewed findings from the geotechnical evaluation and site plans, and concur the site is restricted.

Other forms of volume retention practices, such as reuse or collection and transportation of stormwater runoff off-site are not practical or viable options because of the volume of stormwater generated from the 55% impermeable lot coverage and lack of green space near the building and parking areas for reuse. The majority of green space is located along the eastern side of the site, and is covered with existing vegetation/trees at an elevation lower than the building and parking areas. Under District Rule 4.3.2, Restricted Sites, retention to the standard in paragraph 4.3.1a is not practicably feasible, and site conditions (as described above) as such that 1.1-inches of retention is not feasible, because of the soils throughout the site with low infiltration capacities. As identified by the priority sequence outlined in NMCWD Rule 4.3.2a, the applicant provides retention of at least 0.55-inches of runoff from regulated impervious surface. The applicant provides rate control and water quality treatment in

accordance with paragraphs 4.3.1b and 4.3.1c, respectively, and the project conforms to Rule 4.3.2a.

An infiltration volume of 640 cubic feet is required for 0.55-inches of runoff from the 0.32 acres of disturbed and replaced impervious area. A volume of 931 cubic feet is proposed to be provided (640 cubic feet required) with an area of 4,060 square feet (2,665 square feet required) at an inundation depth of 0.24 feet. Rule 4.3.2a is met.

The maximum inundation depth allowable for the 640 cubic feet of volume retention to be drawn down within 48 hours using an infiltration rate of 0.06 inches per hour is 0.24 feet. Rule 4.3.1.a (ii) is met.

In accordance with Rule 4.3.1a (i), where infiltration facilities, practices or systems are proposed, pretreatment of runoff must be provided. Pretreatment for runoff entering the infiltration basin will be provided by riprap stilling basins for removal of sediment and two *Rain Guardian* chambers for debris removal at the infiltration basin curb cuts. Rule 4.3.1a (i) is met.

The District's water quality criterion requires a 60% annual removal efficiency for total phosphorus and 90% annual removal efficiency for total suspended solids. A P8 model has been submitted showing that the infiltration basin provides 97.1% (5.3 lbs.) annual removal for total suspended solids (TSS) and 68.7% (0.1 lbs.) annual removal efficiency of total phosphorus (TP) for water quality treatment. Water quality requirements identified in Rule 4.3.1c are met.

Rule 4.3.3.a states that all new and reconstructed buildings must be constructed such that the low floor is at least two feet above the 100-year high water elevation or one foot above the natural overflow of a constructed facility. The 100-year high water elevation of the infiltration basin is 945.3 M.S.L. The low floor elevation of the proposed building addition is 949.8 M.S.L., providing 4.5 feet of separation. Additionally, Rule 4.3.3 states that a stormwater management facility must be constructed at an elevation that ensures that no adjacent habitable building will be brought into noncompliance and that a minimum of 2 foot of separation be provided between the low opening of a structure and the high water elevation of an adjacent stormwater facility. The low floor elevation and low opening elevation of the existing building is shown to be 949.9 M.S.L., providing 4.6 feet of separation between the 100-year elevation of the infiltration basin. The project conforms to NMCWD Rule 4.3.3.

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

Rule 4.5.4d (i) requires no evidence of groundwater or redoximorphic soil conditions within three (3) feet of the bottom of a stormwater management facility. SB-1A taken on August 26, 2020 at the location of the infiltration basin indicates no groundwater was encountered to a depth of 16 feet in boring, elevation 929.5 M.S.L. The bottom of infiltration basin is 944.5 M.S.L., showing no evidence of groundwater within at least 15 feet of the bottom of the facility. Rules 4.5.4d (i) and (ii) are met.

5.0 Erosion and Sediment Control

For temporary erosion control measures, silt fence or bioroll are to be provided at the grading limits, and a rock construction is shown to be installed for sediment control. Storm drain inlet protection will be provided for erosion control in the parking areas downgradient from land-disturbing activities. Erosion control blanket and seeding is utilized for permanent stabilization.

The project contact is Dave Knaeble, Civil Site Group.

11.0 Fees

Fees for the project are:

Rules 4.0 and 5.0	\$3,000
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12.0 Financial Assurances

Financial Assurances for the project are:

Rule 4: Volume Retention: 2,665 sq. ft. x \$12/sq. ft. = \$31,980	\$31,980
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Chloride Management:	\$5,000
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Rule 5: Perimeter control: 760 L.F. x \$2.50/L.F. = \$1,900	
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Inlet Control: 2 x \$100/each = \$200	
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Site restoration: 0.50 acres x \$2500/acre = \$1,250	\$3,350
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Contingency and Administration	\$15,270
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Findings

1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
2. Rules 4 and 5 are met.
3. The applicant has requested the site be considered restricted on the basis of site constraints including site soils with low permeability, topography and limited green space. The engineer is in agreement with the applicant that the project meets restricted site criteria and that volume retention in accordance with paragraph 4.3.1a is not feasible. Volume retention is provided in accordance with Rule 4.3.2 priority sequence and retention of at least 0.55 inches of runoff from the site impervious surface is provided.
4. The proposed stormwater management facility will provide rate control and water quality management in accordance with Rules 4.3.1b and 4.3.1c, respectively. In accordance with NMCWD Rule 4.3.5, the applicant must provide a maintenance and inspection plan that identifies and protects the design, capacity and functionality of the stormwater management facility.
5. Although the District's floodplain management and drainage alterations rule does not apply to the project (Rule 2), a portion of the site is inundated during high water conditions in relation to the City of Minnetonka's Atlas-14 inundations extents, and should be addressed with the City.

Recommendation

Approval, contingent upon:

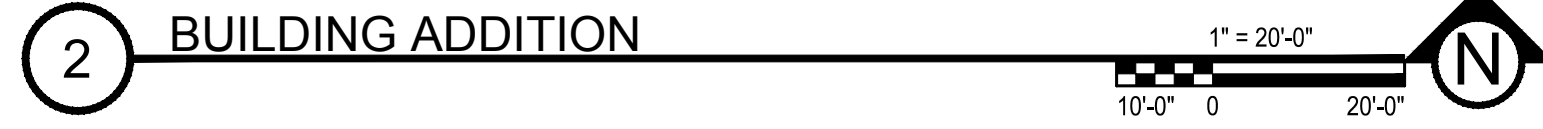
1. General Conditions
2. Financial Assurance in the amount of \$55,600, \$50,600 for stormwater management, erosion control, and site restoration, and \$5,000 for compliance with the chloride management requirements.
3. Submittal of documentation that a drainage easement over hydrologic features has been submitted to the City of Minnetonka (Rule 4.5.4i) if such easement is required by the City.
4. Per Rule 4.3.5, a receipt showing recordation of a maintenance declaration for the on-site stormwater management facility. A draft of the declaration must be approved by the District prior to recordation.
5. Per Rule 4.5.3c, site plans amended to show the 100-year high water elevation of the stormwater management facility.
6. The applicant should ensure stormwater runoff tributary to the infiltration basin will be conveyed to the basin, and consider replacing the existing catch basin structure grate with a solid cover for the catch basin in the parking area located directly south of the infiltration basin.

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

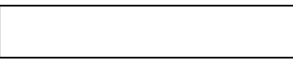
1. Per Rule 4.5.8, an as-built drawing of the project conforming to the design specifications as approved by the District must be submitted, including a stage volume relationship in tabular form for the infiltration system.
2. Submission of a plan for post-project management of Chloride use on the site. The plan must include 1) the designation of an individual authorized to implement the chloride use plan and 2) the designation of a Minnesota Pollution Control Agency certified salt applicator engaged in the implementation of the chloride-use plan for the site. It is required that the chloride-management plan has been provided and approved by the District's Administrator.
3. For the release of the \$50,600 financial assurance required, Rule 12.4.1b requires demonstration and confirmation that the stormwater management facility has been constructed or installed and is functioning as designed and permitted. The retention volume of 640 cubic feet is required to be drawn down within a 48 hour time period. Verification, through daily observation logs and photographs, must be provided showing the storm water facility used for volume retention has drawn down within 48 hours from the completion of two 0.55-inch (approximate) separate rainfall events.





<p>1. THE CONTRACTOR SHALL VERIFY LOCATIONS AND LAYOUT OF ALL SITE ELEMENTS PRIOR TO BEGINNING CONSTRUCTION, INCLUDING BUT NOT LIMITED TO, LOCATIONS OF EXISTING AND PROPOSED PROPERTY LINES, EASEMENTS, SETBACKS, UTILITIES, BUILDINGS AND PAVEMENTS. CONTRACTOR IS RESPONSIBLE FOR FINAL LOCATIONS OF ALL ELEMENTS FOR THE SITE. ANY REVISIONS REQUIRED AFTER COMMENCEMENT OF CONSTRUCTION, DUE TO LOCAL ADJUSTMENTS SHALL BE CORRECTED AT NO ADDITIONAL COST TO OWNER. ADJUSTMENTS TO THE LAYOUT SHALL BE APPROVED BY THE ENGINEER/LANDSCAPE ARCHITECT PRIOR TO INSTALLATION OF MATERIALS. STAKE LAYOUT FOR APPROVAL.</p> <p>2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION, INCLUDING A RIGHT-OF-WAY AND STREET OPENING PERMIT.</p> <p>3. THE CONTRACTOR SHALL VERIFY RECOMMENDATIONS NOTED IN THE GEO TECHNICAL REPORT PRIOR TO INSTALLATION OF SITE IMPROVEMENT MATERIALS.</p> <p>4. CONTRACTOR SHALL FIELD VERIFY COORDINATES AND LOCATION DIMENSIONS OF THE BUILDING AND STAKE FOR REVIEW AND APPROVAL BY THE OWNERS REPRESENTATIVE PRIOR TO INSTALLATION OF FOOTING MATERIALS.</p> <p>5. LOCATIONS OF STRUCTURES, ROADWAY PAVEMENTS, CURBS AND GUTTERS, BOLLARDS, AND WALKS ARE APPROXIMATE AND SHALL BE STAKED IN THE FIELD, PRIOR TO INSTALLATION, FOR REVIEW AND APPROVAL BY THE ENGINEER/LANDSCAPE ARCHITECT.</p> <p>6. CURB DIMENSIONS SHOWN ARE TO FACE OF CURB. BUILDING DIMENSIONS ARE TO FACE OF CONCRETE FOUNDATION. LOCATION OF BUILDING IS TO BUILDING FOUNDATION AND SHALL BE AS SHOWN ON THE DRAWINGS.</p> <p>7. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR SAMPLES AS SPECIFIED FOR REVIEW AND APPROVAL BY THE ENGINEER/LANDSCAPE ARCHITECT PRIOR TO FABRICATION FOR ALL PREFABRICATED SITE IMPROVEMENT MATERIALS SUCH AS, BUT NOT LIMITED TO THE FOLLOWING, FURNISHINGS, PAVEMENTS, WALLS, RAILINGS, BENCHES, FLAGPOLES, LANDING PADS FOR CURB RAMPS, AND LIGHT AND POLES. THE OWNER RESERVES THE RIGHT TO REJECT INSTALLED MATERIALS NOT</p>	<p>PREVIOUSLY APPROVED.</p> <p>8. PEDESTRIAN CURB RAMPS SHALL BE CONSTRUCTED WITH TRUNCATED DOME LANDING AREAS IN ACCORDANCE WITH A.D.A. REQUIREMENTS-SEE DETAIL.</p> <p>9. CROSSWALK STRIPING SHALL BE 24" WIDE WHITE PAINTED LINE, SPACED 48" ON CENTER PERPENDICULAR TO THE FLOW OF TRAFFIC. WIDTH OF CROSSWALK SHALL BE 5' WIDE. ALL OTHER PAVEMENT MARKINGS SHALL BE WHITE IN COLOR UNLESS OTHERWISE NOTED OR REQUIRED BY ADA OR LOCAL GOVERNING BODIES.</p> <p>10. SEE SITE PLAN FOR CURB AND GUTTER TYPE, TAPER BETWEEN CURB TYPES-SEE DETAIL.</p> <p>11. ALL CURB RADII ARE MINIMUM 3' UNLESS OTHERWISE NOTED.</p> <p>12. CONTRACTOR SHALL REFER TO FINAL PLAT FOR LOT BOUNDARIES, NUMBERS, AREAS AND DIMENSIONS PRIOR TO SITE IMPROVEMENTS.</p> <p>13. FIELD VERIFY ALL EXISTING SITE CONDITIONS, DIMENSIONS.</p> <p>14. PARKING IS TO BE SET PARALLEL OR PERPENDICULAR TO EXISTING BUILDING UNLESS NOTED OTHERWISE.</p> <p>15. ALL PARKING LOT PAINT STRIPPING TO BE WHITE, 4" WIDE TYP.</p> <p>16. BITUMINOUS PAVING TO BE "LIGHT DUTY" UNLESS OTHERWISE NOTED. SEE DETAIL SHEETS FOR PAVEMENT SECTIONS.</p> <p>17. ALL TREES THAT ARE TO REMAIN ARE TO BE PROTECTED FROM DAMAGE WITH A CONSTRUCTION FENCE AT THE DRIP LINE. SEE LANDSCAPE DOCUMENTS.</p>
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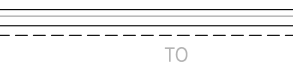
1. RESERVED FOR CITY SPECIFIC NOTES.


- ## SITE PLAN LEGEND:
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LIGHT DUTY BITUMINOUS PAVEMENT. SEE GEOTECHNICAL REPORT FOR AGGREGATE BASE & WEAR COURSE DEPTH, SEE DETAIL.

CONCRETE PAVEMENT AS SPECIFIED (PAD OR WALK) SEE GEOTECHNICAL REPORT FOR AGGREGATE BASE & CONCRETE DEPTHS, SEE DETAIL.

PROPERTY LINE

CONSTRUCTION LIMITS

CURB AND GUTTER-SEE NOTES (T.O.) TIP OUT GUTTER WHERE APPLICABLE-SEE PLAN

TRAFFIC DIRECTIONAL ARROW PAVEMENT MARKINGS

SIGN AND POST ASSEMBLY. SHOP DRAWINGS REQUIRED

HC = ACCESSIBLE SIGN

NP = NO PARKING FIRE LANE

ST = STOP

CP = COMPACT CAR PARKING ONLY

