Permit No. 2021-098 Received complete: September 9, 2021

Applicant: Carrie Chang; Minnesota Area Realtors

Consultant: Benjamin Lucas; Solution Blue, Inc.

Project: Minnesota Area Realtors Parking Lot and Site Improvements

Location: 5750 Lincoln Drive: Edina

Rule(s): 4, 5

Reviewer(s): LLH/BCO

General Background & Comments

The project proposes parking lot and site improvements at the Minnesota Area Realtors (MAR) site located at 5750 Lincoln Drive in Edina. The 1.6-acre site is occupied by the MAR building with associated site elements and surface parking.

Parking lot and site improvements including landscaping, removal and replacement of concrete and bituminous pavement, mill and overlayment of the existing parking lot, utility improvements, construction of four stormwater management facilities, and installation of a stormwater reuse cistern system for irrigation are proposed. Improvements and/or additions to the MAR building are not proposed.

The project site information is:

- Total Site Area: 70,546 square feet
- Disturbed Site Area: 15,679 square feet (excludes mill and overlayment of the surface parking area)
- Existing Site Impervious Area: 42,715 square feet
- Proposed Site Impervious Area: 44,721 square feet
- An increase of 2,006 square feet in site impervious area (4.7% increase)
- Disturbed and Reconstructed Impervious Area: 840 square feet
- 2.0% of the existing site impervious area is to be disturbed and reconstructed
- Net Additional, Disturbed and Reconstructed Impervious Area: 2,846 square feet

The Nine Mile Creek Watershed District's Rule for Redevelopment, Rule 4.2.3, states, if a proposed activity will disturb more than 50% of the existing impervious surface on the site or will increase the imperviousness of the site by more than 50%, stormwater management will apply to the entire project site. Otherwise, the stormwater requirements will apply only to the disturbed, replaced and net additional impervious surface on the project site. Since the project will disturb less than 50% of the existing site impervious surface (4.7% to be disturbed) and will not increase the impervious surface at the site by more than 50% (2.0% increase

proposed), applicable stormwater management criteria is required for the 15,679 square feet of disturbed area, including the 2,846 square feet of disturbed, replaced and net additional 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.

Exhibits

- 1. Permit Application dated July 12, 2021.
- 2. Plans dated June 23, 2021, revised August 16, 2021, prepared by Solution Blue, Inc.
- 3. Stormwater Management Plan dated July 6, 2021, revised August 13, 2021, prepared by Solution Blue, Inc. including the following supplemental items
 - a. HydroCAD report printed August 13, 2021
 - b. P8 Report dated August 13, 2021
- 4. Geotechnical Evaluation dated July 22, 2021, prepared by Soil Investigation and Design Inc.
- 5. Email correspondence dated August 9, 2021 outlining ten items required for the application to be considered complete. Email correspondence dated September 7, 2021, September 8, 2021, and September 9, 2021 requesting outstanding items required for the application to be considered complete.

The application with the submittal items above is complete.

4.0 Stormwater Management

Stormwater management for compliance with Rule 4.3.1 will be provided by three permeable pavement systems and a bioretention basin (Basin). The stormwater management facilities will provide rate control, volume retention and water quality management for the regulated disturbed surfaces. The project also proposes a stormwater harvesting and reuse use system with a collection and distribution system for irrigation. A grant application for the stormwater harvesting and reuse use system has been approved for funding by the NMCWD.

The stormwater management facilities will capture a portion of runoff from the parking area, building, landscaping and sidewalks. A portion of stormwater runoff from landscaping and impervious surface will drain north and east towards the adjacent property and Lincoln Drive storm sewer system, respectively. The stormwater management facilities' overflow will be graded to direct runoff overland towards Lincoln Drive.

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

Exis	ting Conditions		
Drainage Area	2 year (c.f.s.)	10 year (c.f.s.)	100 year (c.f.s.)

To North - Adjacent Property	<1	1.0	2.3
To South - Lincoln Drive	3.7	6.3	12.1
Total	4.2	7.3	14.4

Proposed Conditions			
Drainage Area	2 year (c.f.s.)	10 year (c.f.s.)	100 year (c.f.s.)
To North - Adjacent Property	<1	1.0	2.3
To South - Lincoln Drive	3.6	5.7	11.5
Total	4.1	6.7	13.8

Rule 4.3.1b is met.

The Soil Investigation and Design, Inc. geotechnical report dated July 22, 2021 identifies the on-site underlying soil as clay with gravel (CL-ML) near the bottom of the proposed permeable pavement patio systems along the east side of the building (Patios 1 and 2). A design infiltration rate of 0.06 inches per hour has been used at Patios 1 and 2, conforming with infiltration rates shown in the Minnesota Storm Water Manual. The geotechnical evaluation identifies sandy silt (ML) near the bottom of the proposed permeable pavement patio along the west side of the building (Patio 3) and also at the elevation of the proposed distribution (irrigation) of pervious surface as part of the stormwater reuse system. A design infiltration rate of 0.2 inches per hour has been used for analysis at Patio 3 and at the location of the stormwater reuse distribution for irrigation.

A retention volume of 261 cubic feet is required from the proposed 2,846 square feet of new and reconstructed impervious area, Rule 4.3.1a. A HydroCAD hydrologic model was used to identify the volume retention achieved by the stormwater management facilities below the overflow and/or outlet elevations. Four stormwater management facilities are proposed to provide volume retention for compliance with Rule 4.3.1a. The stormwater management facilities provide a total volume of 263 cubic feet (261 cubic feet required) with an area of 1,317 square feet (1,087 square feet required). The volume retention depth, footprint and volume retention provided by each stormwater management facility is identified in the table below.

Stormwater Management Facility	Volume Retention Depth Provided (Feet)	Footprint Provided (Square Feet)	Volume Retention Provided (Cubic Feet)
Permeable Pavement Patio 1 (East Side of MAR Building)	0.5 ¹	592	118
Permeable Pavement Patio 2 (East Side of MAR Building)	0.5 ¹	340	68
Permeable Pavement Patio 3 (West Side of MAR Building)	0.52	320	64
Basin (West Side of MAR Building)	0.52	65	13

Total	-	1,317	263
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¹Based on the design infiltration rate, 0.06 inches per hour, for HSG Type D soils at the location of the stormwater management facility, the maximum inundation depth allowable for the system to drawdown within 48 hours accounting for 40% void space within the system is 0.6 feet.

With the design infiltration rates and the system depths noted above, the permeable pavement systems and Basin will drawdown within the required 48 hours. Rule 4.3.1a and Rule 4.3.1a (ii) are met.

As previously stated, the project also proposes the installation of a stormwater harvesting and reuse use system. The applicant has submitted and received approval of a grant from the District for the stormwater harvesting and reuse use system. As such, the volume retention achieved by the stormwater harvesting and reuse use system is not credited towards volume retention for compliance with Rule 4.3.1a. Stormwater runoff from approximately 5,333 square feet of impervious surface area will be collected by the cistern from the stormwater discharge exiting the permeable pavement system underdrain along the eastern side of the building (Patios 1 and 2). The water will be used to irrigate approximately 4,600 square feet of pervious surface on the site. With an infiltration rate of 0.2 inches per hour, approximately 2,880 square feet is required for the water to draw down within 48 hours. The project proposes to install a 3,000 gallon cistern tank, or approximately 400 cubic feet of water storage, which has the capacity to retain the volume required to irrigate 4,600 square feet of pervious surface with 1.0-inches of water.

The District's water quality criteria requires 60% annual removal efficiency for total phosphorus and 90% annual removal efficiency for total suspended solids. The site runoff load reductions required from the disturbed area is approximately 43 lbs. for total suspended solids and approximately 0.2 lbs. for total phosphorus. Because the proposed BMPs will provide stormwater management in excess of the disturbed, reconstructed and net additional surface area, the P8 Calculator results provided show that the Basin and permeable pavement systems will provide an annual removal efficiency of over 100% for total phosphorus (3.5 lbs.) and over 100% for total suspended solids (1,368 lbs.). We are in agreement with the modeling results. Rule 4.3.1c is met.

Rule 4.5.4d (i) requires at least three feet of separation between the bottom of a stormwater management facility and groundwater. The bottom elevation of the proposed stormwater management facilities, and the separation provided between the bottom of the proposed facilities and groundwater are shown in the table below.

Stormwater Management Facility	e l Facility I		Groundwater Level (M.S.L.)	Separation Provided Between Groundwater and Bottom of Facility
Permeable Pavement Patio 1 (East Side of MAR Building)	886.4	SB-2	878	8.4

²Based on the design infiltration rate, 0.2 inches per hour, for HSG Type C soils at the location of the stormwater management facility, the maximum inundation depth allowable for the system to drawdown within 48 hours accounting for 40% void space within the system is 2.0 feet.

Permeable Pavement Patio 2 (East Side of MAR Building)	886.4	SB-2	878	8.4
Permeable Pavement Patio 3 (West Side of MAR Building)	887.9	SB-1	Not encountered in soil boring. Termination depth is 876 M.S.L.	11.9
Basin (West Side of MAR Building)	885.7	SB-1	Not encountered in soil boring. Termination depth is 876 M.S.L.	9.7

In accordance with Rule 4.5.4d, the required three feet of separation between the bottom of an infiltration area and groundwater is provided.

Rule 4.3.3 states that all new and reconstructed buildings must be constructed such that the low floor is at least two feet above the 100-year high water elevation or one foot above the emergency overflow of a constructed facility. Rule 4.3.3 also states, a stormwater management facility must be constructed at an elevation that ensures that no adjacent habitable building will be brought into noncompliance with a standard in subsection 4.3.3. Additionally, no opening where surface flow can enter the structure may be less than 2- feet above the 100-year high water elevation of an adjacent facility or waterbody. Alternatively, the plots in Appendix 4a as described in Rule 4.3.3a, may be used to determine compliance with Rule 4.3.3 criteria.

The existing MAR structure is a slab-on-grade foundation with a low floor and low opening elevation 890 M.S.L. The separation provided between the 100-year high water level (HWL) and low floor and low opening elevation of the structure is shown in the following table for each of the proposed stormwater management facilities.

Stormwater Management Facility	100-year HWL (M.S.L.)	Separation Provided between HWL and Low Floor and Low Opening Elevation, 890 M.S.L. (feet)	Appendix 4a Analysis Needed
Permeable Pavement Patio 1 (East Side of MAR Building)	887.8	2.2	No
Permeable Pavement Patio 2 (East Side of MAR Building)	887.3	2.7	No
Permeable Pavement Patio 3 (West Side of MAR Building)	889.5	0.5	Yes
Basin (West Side of MAR Building)	889.4	0.6	Yes

Adequate separation is provided between the low floor and low opening elevation of the existing structure adjacent to the Patios 1 and 2 permeable pavement systems.

With the low floor and low opening elevation of the existing building (890 M.S.L.) and the calculated 100-year frequency flood elevations of the Patio 3 permeable pavement system and Basin ranging from 889.4-889.5 M.S.L., the plots in Appendix 4a as described in Rule 4.3.3, are used to determine compliance with this requirement. SB-1 at the proposed location of the Basin and Patio 3 permeable pavement system indicates groundwater was not encountered in the boring to a depth of 14 feet (elevation 876 M.S.L.). The closest distance between the Patio

3 permeable pavement system and Basin, and the existing structure is 11 feet. Using Plot 2, the minimum permissible depth to the water table is approximately 6.5 feet. A separation of 14 feet is to be provided -890 M.S.L. (low floor elevation of existing structure) -876 M.S.L. (elevation where groundwater was not encountered). Rule 4.3.3 is met.

In accordance with Rule 4.3.1a (i), where infiltration facilities, practices or systems are proposed, pre-treatment of runoff must be provided. A vegetative filter strip will provide pretreatment for runoff entering the Basin. Geotextile fabric above the base course within the permeable pavement system will provide pretreatment for runoff entering the permeable pavement systems. Rule 4.3.1a (i) is met.

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

5.0 Erosion and Sediment Control

The submitted erosion and sediment control plan utilizes storm drain inlet protection, a rock construction entrance, sediment control log, and silt fence for erosion and sediment control. The contractor for the project will need to designate a contact who will remain liable to the District for performance under the District's Erosion and Sediment Control Rule 5.0 from the time the permitted activities commence until vegetative cover is established, in accordance with subsection 5.4.1e.

11.0 Fees

Fees for the project are:

Rules 4.0 and 5.0	\$1,500)

12.0 Financial Assurances

Financial Assurances for the project are:

Rule 4: Volume Retention: 1,087 sq. ft. x \$12/sq. ft. = \$13,044 \$13,04

Chloride Management: \$5,000

Rule 5: Perimeter control: 802 L.F. x \$2.50/L.F.= \$2005

Inlet Control: 6 x \$100/each = \$600

Site restoration: 0.4 acres x \$2,500/acre = \$1,000 \$3,605

Contingency and Administration \$7,151

Findings

- 1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
- 2. Rule 5 is met. Rule 4 will be met with the fulfilment of the conditions identified below.
- 3. The proposed stormwater management facilities will provide volume retention, water quality management, and attenuate discharge rates from the site in accordance with Rules

- 4.3.1 a, c and b, 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.
- 4. The project proposes the installation of a stormwater harvesting and reuse use system for the site. A grant application for the installation of the proposed stormwater harvesting and reuse use system has been approved by the District. As such, the volume retention achieved by the stormwater harvesting and reuse use system is not credited towards volume retention for compliance with Rule 4.3.1a. Stormwater runoff exiting the proposed permeable pavement systems along the eastern side of the existing building will be collected by the cistern and used to irrigate approximately 4,600 square feet of site pervious area.
- 5. The City of Edina's Comprehensive Water Resources Management Plan (CWRMP) identifies a portion of the site adjacent to Lincoln Drive being inundated by runoff during the 100-year frequency flood storm event. The inundated area is not regulated by the District's Rule 2.0 Floodplain Management and Drainage Alterations because the area is not a water basin, waterbody or watercourse.

Recommendation

Approval, contingent upon:

General Provisions

Financial assurance in the amount of \$28,800: \$23,800 for stormwater management, erosion control and site restoration, and \$5,000 for compliance with the chloride management requirements.

A receipt showing recording of a maintenance declaration for the on-site stormwater management facilities. A draft of the declaration must be approved by the District prior to recordation.

As indicated by email correspondence from the consultant dated September 8, 2021, the first floor elevation (FFE) of the building (890 M.S.L.) is the low floor and low opening elevation. The site plans must be amended to identify the first floor elevation (FFE) as the low floor and low opening elevation of the existing MAR building.

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

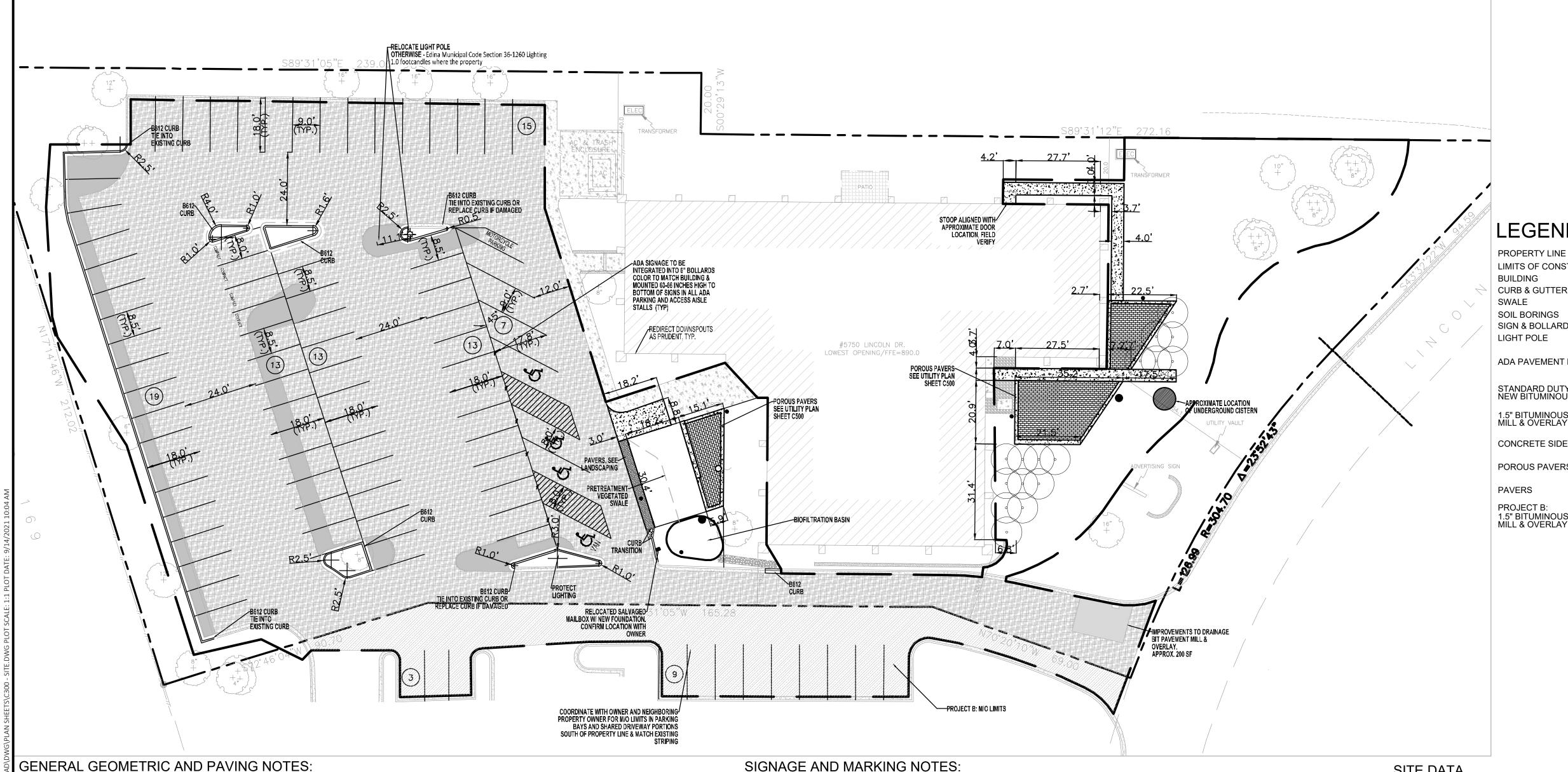
By accepting the permit, when issued, the applicant agrees to the following for closeout of the permit and release of the financial assurance after the project:

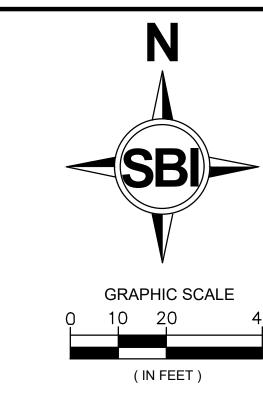
Per Rule 4.5.8, submit an as-built drawing of the stormwater management facilities conforming to the design specifications, including a stage volume relationship in tabular form for the stormwater management facilities.

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. The release of the \$5,000 of the financial assurance required for the chloride-management plan requires that chloride-management plan has been provided and approved by the District's Administrator.

The applicant is required to demonstrate that the stormwater management facilities are functioning as designed and permitted (Rule 12.4.1b). Verification, through daily observation logs and photographs, must be provided showing the stormwater facilities used for volume retention have drawn down within 48 hours from the completion of two 1-inch (approximate) separate rainfall events.





LEGEND **PROPOSED EXISTING** PROPERTY LINE LIMITS OF CONSTRUCTIO BUILDING **CURB & GUTTER SOIL BORINGS** SIGN & BOLLARD LIGHT POLE ADA PAVEMENT MARKING STANDARD DUTY ASPHALT NEW BITUMINOUS SECTION 1.5" BITUMINOUS MILL & OVERLAY CONCRETE SIDEWALK POROUS PAVERS **PAVERS** PROJECT B:

444 Cedar Street, Suite 1005 651-294-0038

Saint Paul, MN 55101 www.SolutionBlue.com

SUMMARY

DESIGNED: ZRE DRAWN: ZRE REVIEWED: JRH / BJL PHASE: IFC INITIAL ISSUE: 07.06.2021

Ι,						
	REVISION HISTORY					
	#	DATE	DESCRIPTION			
	01	08/16/2021	ADDRESSING REVIEWER COMMENTS			
	03	09/14/2021	ISSUED FOR CONSTRUCTION			

CERTIFICATION

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.

Bonjamer/ucos BENJAMIN LUCAS

DATE: 09.14.21 REG. NO. 54265

CIVIL SITE PLAN

SOLUTION BLUE PROJECT NO: 210302

SITE DATA

SITE ADDRESS: 5750 LINCOLN DR, EDINA, MN CONSTRUCTION LIMITS AREA: 45,505 SF (INCLUDING NEIGHBOR PORTION OF M/O WORK)

MILL/OVERLAY LIMITS 29,799 SF FULL DEPTH PVMT REMOVALS 1,487 SF 2,212 SF FULL DEPTH PVMT REPLACEMENT/NEW

EXISTING IMPERVIOUS AREA: 42,715 SF PROPOSED NEW IMPERVIOUS AREA: 44,720 SF NET IMPERVIOUS CREATED: 2,005 SF

DISTURBED AREA: 15,679 SF (M/O AREA NOT INCLUDED IN DISTURBED AREA)

BUILDING FOOTPRINT AREA: PROPOSED PARKING SPACES: 66 EXISTING POV STALLS 80 PROPOSED POV STALLS TOTAL 4 ADA (INCL. 1 VAN ADA)

12,390 SF 80 STALLS (INCL. 4 ADA)

Know what's below. Call before you dig.

1 MOTORCYCLE STALL

STATE LAW: 48 HOURS BEFORE EXCAVATING OR DEMOLISHING BUILDINGS, CALL 811 FOR FIELD LOCATION OF UNDERGROUND UTILITY LINES. THIS SERVICE LOCATES UTILITY OWNED LINES BUT NOT PRIVATE LINES.

THE LOCATIONS OF UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED. THE EXACT LOCATION OF ALL UTILITIES (PUBLIC AND PRIVATE) MUST BE DETERMINED BEFORE COMMENCING WORK.

GENERAL GEOMETRIC AND PAVING NOTES:

- SITE DIMENSIONS SHOWN ON THIS PLAN SHALL BE USED FOR ALL LAYOUT WORK. CHECK ALL PLAN AND DETAIL DIMENSIONS. PAVING SHALL BE LAID OUT ON SITE BY A REGISTERED LAND SURVEYOR.
- 2. ALL PAVING DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE. THE FACE OF CURB IS ASSUMED TO BE 8 INCHES FROM THE BACK OF CURB, ALL CURB & GUTTER TO BE B612 UNLESS OTHERWISE NOTED, SEE DETAIL SHEET C900.
- CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF EXIT PORCHES, RAMPS, PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
- ALL SIDEWALKS SHALL HAVE POSITIVE SLOPE AWAY FROM THE BUILDING. THE MAXIMUM CROSS SLOPE SHALL BE 2.0% AND THE MAXIMUM LONGITUDINAL SLOPE SHALL BE 5.0% UNLESS OTHERWISE SHOWN ON THE DRAWINGS, SEE DETAIL SHEET C900.
- 5. SEE GRADING PLAN SHEET C400 FOR CURB TAPERS.
- 6. ALL CURB RADII SHALL BE 5' UNLESS OTHERWISE NOTED.
- NO SLOPE IN ANY DIRECTION SHALL EXCEED 2% IN ACCESSIBLE PARKING AND LOADING AREAS.
- MATCH NEW AND EXISTING PAVEMENT SURFACES, SIDEWALKS AND CURBS AT SAWCUT LINES, ALLOWING NO PONDING OF WATER AT JOINTS. PROVIDE SMOOTH GRADE TRANSITION ACROSS NEW AND EXISTING JOINTS.
- 9. ALLOW MINIMUM OF SEVEN DAYS CURE FOR CURB AND GUTTER PRIOR TO PAVING.
- 10. ALLOW MINIMUM OF 24 HOUR COOLING PRIOR TO ALLOWING TRAFFIC ON BITUMINOUS PAVING.
- 11. SEE DETAIL SHEET C900 FOR BITUMINOUS & CONCRETE PAVEMENT SECTION DEPTHS AND SPECIFICATIONS.
- 12. PATTERNED CONCRETE PAVING AND PATIO AREAS AS DEFINED BY HATCHING SHALL MEET TEXTURE, COLOR AND PATTERN REQUIREMENTS AS SHOWN ON ARCHITECTURAL PLANS.
- 13. SEE ELECTRICAL PLANS BY OTHERS FOR SITE LIGHTING.
- 14. SEE ARCHITECTURAL AND LANDSCAPE PLANS FOR SIGNAGE AND FENCING INFORMATION.

- 1. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE MN MUTCD, CURRENT VERSION.
- 2. SEE REGULATORY SIGN DETAIL FOR SIGN AND POST DETAILS AND SIGN DESIGNATION AND SIZE INFORMATION.
- 3. ACCESSIBLE PARKING SIGNS SHALL BE PER MINNESOTA MUTCD SIGN R7-8M, SEE ACCESSIBLE SIGN AND BOLLARD DETAIL ON
- 4. PROVIDE 4" WIDE SOLID WHITE STRIPING IN PARKING AREAS, UNLESS NOTED OTHERWISE.
- 5. PROVIDE PAVEMENT MARKINGS AND PAINT SYMBOLS AT ACCESSIBLE PARKING SPACES PER MN MUTCD, ADA AND LOCAL CODE.
- 6. PAVEMENT MARKINGS THAT EXIST PRIOR TO THE START OF THE PROJECT MUST BE REPLACED IN-KIND. IF IT IS LATEX OR EPOXY PAINT, ALL COSTS ASSOCIATED WITH PAVEMENT MARKING REPLACEMENT SHALL BE BORNE BY THE CONTRACTOR.