Permit Application Review

Applicant:	Ross Bintner; City of Edina
Consultant:	Bryan Pitterle; Barr Engineering, Co.
Project:	Sanitary Sewer Lift Station #6 Replacement
Location:	4400 West 72nd Street, Edina, MN 55435
Applicable Rule(s):	4 and 5
Reviewer(s):	Dallen Webster and Louise Heffernan; Barr Engineering Co.

### **General Background & Comments**

The applicant, the City of Edina (City), proposes the redevelopment of the City's lift station #6, located at 4400 West 72nd Street in Edina. Currently, the 1.62-acre site is occupied by an existing lift station building with associated sanitary sewer infrastructure and a bituminous pavement entrance drive.

The project proposes the following:

- demolition and removal of the existing sanitary lift station building, concrete and bituminous pavement, and associated base materials
- site clearing and grading
- construction of a sanitary sewer lift station building and surface parking lot
- construction of a bituminous entrance drive
- site improvements including concrete sidewalks, landscaping, and utilities
- construction of two surface stormwater management facilities
- removal and replacement of a portion of West 72<sup>nd</sup> Street for the purpose of completing utility improvements (located within a linear corridor)

### Figure 1. Site location



The project site information (within the construction limits as shown in Figure 1 above) is:

- Total Project Area: 1.62 acres (70,224 square feet) includes both redevelopment area and linear project
- Disturbed Area: 1.62 acres (70,224 square feet) includes both redevelopment area and linear project
- Existing Project Impervious Area: 0.43 acres (18,523 square feet) includes both redevelopment area and linear project
- Proposed Project Impervious Area: 0.48 acres (20,764 square feet) includes both redevelopment area and linear project
- Increase in Impervious Area: 0.05 acres (2,241 square feet a 12.1% increase in impervious area) includes both redevelopment area and linear project<sup>1</sup>
  - Linear project: 0 acre increase
  - Redevelopment project: 0.05 acre increase

<sup>&</sup>lt;sup>1</sup> Per Rule 4.2.4. Stormwater management is not required for the linear portion of the project, as the linear portion of project will not create more than 1 acre of new or additional impervious surface (0 acres of new impervious surface proposed within the linear portion of the project).

The project site information within the redevelopment area is:

- Existing Impervious Area: 0.08 acres (3,369 square feet) includes the redevelopment area
- Proposed Impervious Area: 0.13 acres (5,610 square feet) includes the redevelopment area<sup>2</sup>
- 100% of the existing impervious area within the redevelopment project area is to be disturbed

The total project area (1.62 acres) includes the City-owned parcel (PID 3102824120005) presently occupied by the existing sanitary lift station, the adjacent City-owned parcel (PID 3102824120010) to be used for potential staging/storage, and a portion of the West 72<sup>nd</sup> Street right-of-way directly southeast of the existing sanitary lift station. The portion of the project within the City-owned lift station properties (two parcels) is a redevelopment project, as defined by the NMCWD rules, because even though the work qualifies as utility reconstruction, the subject property in not a linear corridor. The district's requirements for stormwater management apply to the redevelopment portion of 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. Site information for the redevelopment portion of the project is shown in above.

The portion of the project within the West 72<sup>nd</sup> Street right-of-way is a linear project, as defined by the NMCWD rules, because the proposed land-disturbing activities include reconstruction of a public improvement, and reconstruction of utilities in a linear corridor. For linear projects creating more than 1 acre of new or additional impervious surface, the criteria of section 4.3.1 or 4.3.2, as applicable, will apply only to the net new or additional impervious surface, Rule 4.2.4. Stormwater management is not required for the linear portion of the project, as the linear portion of project will not create more than 1 acre of new or additional impervious surface (0 acres of new impervious surface proposed).

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

Exhibits Reviewed:

- 1. Permit Application dated June 23, 2022 by the applicant and July 29, 2022 by the applicant's consultant (received July 29, 2022).
- 2. Plans dated June 7, 2022, prepared by Barr Engineering Co.
- 3. Stormwater Management Report dated July 29, 2022, prepared by Barr Engineering Co.
- 4. Electronic MIDS model files received August 5, 2022, prepared by Barr Engineering Co.

<sup>&</sup>lt;sup>2</sup> Since the proposed activities will disturb over 50% of the existing impervious surface within the redevelopment portion of the project (100% of the existing 3,369 square feet to be disturbed), the district's stormwater management criteria are required for the for the entire redevelopment portion, including the 5,610 square feet of impervious surface.

- 5. Electronic HydroCAD model files received July 29, 2022, prepared by Barr Engineering Co.
- 6. Geotechnical Investigation Report dated February 28, 2022, prepared by Barr Engineering Co.

The application with the submittal items above is complete.

## 4.0 Stormwater Management

The district's requirements for stormwater management apply to the redevelopment portion of 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.

The NMCWD'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 site imperviousness 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 proposed activities will disturb over 50% of the existing impervious surface within the redevelopment portion of the project (100% of the existing 3,369 square feet to be disturbed), the district's stormwater management criteria are required for the for the entire redevelopment portion, including the 5,610 square feet of impervious surface.

As previously stated, the NMCWD's Rules for Linear projects, Rule 4.2.4, states, stormwater management is not required for a linear project if the project entails construction or reconstruction, including mill and overlay or other maintenance, creating less than 1 acre of new or additional impervious surface. The removal and replacement of the portion of West 72<sup>nd</sup> Street is a linear project and does not require stormwater management because less than 1 acre of new or additional impervious surface is proposed (0 acres of new or additional impervious surface proposed) within the West 72<sup>nd</sup> Street right-of-way.

Stormwater management for compliance with Rules 4.3.1a, b and c will be provided by two surface retention basins (Basins).

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

Existing Conditions					
Modeled Discharge Location	2-year (c.f.s.)	10- year (c.f.s.)	100-year (c.f.s.)		
To West 72 <sup>nd</sup> Street (South)	<1.0	1.6	4.7		

Proposed Conditions					
Modeled Discharge Location	2-year (c.f.s.)	10- year (c.f.s.)	100-year (c.f.s.)		
To West 72 <sup>nd</sup> Street (South)	<1.0	<1.0	4.4		

Rule 4.3.1b is met.

The Barr Engineering Co. soil boring logs identify the underlying soil within the area of the Basins as poorly graded sand with silt (SP-SM). A design infiltration rate of 0.45 inches per hour has been used, conforming with infiltration rates identified in the Minnesota Storm Water Manual.



Figure 2. Typical section view of proposed retention basin

A retention volume of 514 cubic feet is required from the 5,610 square feet of proposed site impervious area. A retention volume of 244 cubic feet (108 cubic feet required) with an average infiltration area of 165 square feet (136 square feet required) is to be provided below the West Basin outlet elevation. A retention volume of 1,179 cubic feet (406 cubic feet required) with an average infiltration area of 704 square feet (655 square feet required) is to be provided below the East Basin outlet elevation. A total retention volume of 1,423 cubic feet (514 cubic feet is required) will be provided by the two Basins. With an average infiltration area of 165 square feet (East Basin) provided, the respective volume retention is drawn down within 40-hours and 45-hours, complying with Rule 4.3.1a (ii).

The district's water quality criterion requires a 60% annual removal efficiency for total phosphorus (TP) and 90% annual removal efficiency for total suspended solids (TSS). The results from the MIDS model provided show that the two Basins will provide a combined annual removal efficiency of 100% for TSS (71 lbs.) and an annual removal efficiency of 100% for TP (0.39 lbs.). The NMCWD engineer agrees with the modeling results. Rule 4.3.1c is met.

Pollutant of Interest	Site Loading (Ibs./year)	Required Load Removal (Ibs./year)	Provided Load Reduction (Ibs./year)
Total Suspended Solids (TSS)	42	38 (90%)	71 (>100%)
Total Phosphorus (TP)	0.23	0.14 (60%)	0.39 (>100%)

Rule 4.5.4d (i) requires at least three feet of vertical separation be provided between the bottom of an infiltration facility and groundwater. The soil boring logs indicate that groundwater was encountered at depth of 23.7 feet, elevation 821.0 M.S.L. The following table provides a comparison of the bottom elevation of the Basins relative to the groundwater table.

Proposed Stormwater Management Facility	Bottom Elevation of Basin M.S.L.	Elevation Groundwater Encountered M.S.L.	Separation Provided (feet)
West Basin	841.8	821.0	20.8
East Basin	839.9	821.0	18.9

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

Rule 4.3.3 states that all new and reconstructed buildings must be constructed such that the low floor is at least two feet above the 100-year high-water elevation or one foot above the emergency overflow of a constructed facility. Additionally, Rule 4.3.3 states that all new and reconstructed buildings must be constructed such that no opening where surface flow can enter the structure is less than two feet above the 100-year high-water elevation of an adjacent facility. The low floor and low opening elevations of the proposed building in relation to the proposed basins' calculated 100-year high-water elevation(s) are summarized in the tables below.

Building	100-year Frequency Flood Elevation of West Basin (M.S.L.)	Low Opening Elevation of Proposed Building (M.S.L.)	Low Opening Separation Provided (feet)	Low Floor Elevation of Proposed Building (M.S.L.)	Low Floor Separation Provided (feet)
Proposed Lift Station #6	843.9	846.0	2.1	846.0	2.1

Building	100-year Frequency Flood Elevation of East Basin (M.S.L.)	Low Opening Elevation of Proposed Building (M.S.L.)	Low Opening Separation Provided (feet)	Low Floor Elevation of Proposed Building (M.S.L.)	Low Floor Separation Provided (feet)
Proposed Lift Station #6	842.2	846.0	3.8	846.0	3.8

The project is in conformance with Rule 4.3.3 criteria.

In accordance with Rule 4.3.1a (i), where infiltration or filtration facilities, practices or systems are proposed, pre-treatment of runoff must be provided. Vegetated turf (15 feet minimum) will provide the required pretreatment of runoff from the paved surfaces, complying with Rule 4.3.1a (i).

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

Subsection 4.3.5 requires the submission of a 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 must provide a receipt showing recordation of a maintenance declaration for the operation and maintenance of the stormwater management facilities.

# 5.0 Erosion and Sediment Control

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

The erosion control plan prepared by Barr Engineering Co. includes installation of silt fence, a stabilized rock construction entrance, erosion control blanket, and storm sewer inlet protection.

The contractor for the project will need to designate a contact who will remain liable to the district for performance under the District's Erosion and Sediment Control Rule 5.0, in accordance with subsection 5.4.1e. NMCWD must be notified if the responsible individual changes during the permit term.

# 11.0 Fees

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

Rules 4.0 and 5.0

# 12.0 Financial Assurances

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

Sureties for the project are:

# **Findings**

- 1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
- 2. Rules 4 and 5 will be met with the fulfilment of the conditions identified below.
- 3. The proposed stormwater management facilities will provide volume retention, rate control and water quality management in accordance with subsections 4.3.1b-c criteria.
- 4. In accordance with NMCWD Rule 4.3.5, the applicant must provide a maintenance and inspection plan that identifies the design, capacity, and functionality of the stormwater management facilities.

\$0

\$0

### **Recommendation**

Approval, contingent upon:

Compliance with the General Provisions (attached).

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

Per Rule 4.3.5, the applicant must enter an agreement committing to the operation and maintenance of the stormwater management facilities. A draft of the agreement must be approved by the District prior to <u>signature.recordation</u>.

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

The work for the Sanitary Sewer Lift Station 6 Replacement under the terms of Permit #2022-109, if issued, must have an impervious surface area and configuration materially consistent with the approved plans. A design that differs materially from the approved plans will need to be the subject of a request for a permit modification or new permit, which will be subject to review for compliance with all applicable regulatory requirements.

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

Per Rule 12.4.1b, demonstration and confirmation that the stormwater management facilities have been constructed or installed and are functioning as designed and permitted. Verification, through daily observation logs and photographs, must be provided showing the stormwater management facilities used for volume retention have drawn down within 48 hours from the completion of two 1.0-inch (approximate) separate rainfall events.

If not previously submitted within the last year for a City of Edina project, 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.

