# memo

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| **Project Name** \| | BCWD Permit 25-05 St. Croix Recreation Center | **Date** \| | 4/4/2025 |
| **To / Contact info** \| | BCWD Board of Managers | | |
| **Cc / Contact info** \| | Reabar Abdullah, PE; Dillon McClung / City of Stillwater | | |
| **Cc / Contact info** \| | Karen Kill, Administrator / BCWD | | |
| **From / Contact info** \| | Ryan Fleming, PE; Julia Lau, EIT / EOR | | |
| **Regarding** \| | Permit Application No. 25-05 Engineer's Report | | |

The following review of the above-captioned project located within the legal jurisdiction of the Brown's Creek Watershed District (BCWD) was conducted to determine compliance with the BCWD rules for purposes of the engineer's recommendation to the Board of Managers for its determination of the permit application.

**Applicant:** City of Stillwater
**Permit Submittal Date:** *3/21/2025*
**Completeness Determination:** *3/21/2025*
**Board Action Required By:** *5/19/2025*
**Review based on BCWD Rules effective April 1, 2020**
**Recommendation: Approve with Conditions**

## GENERAL COMMENTS

Existing Conditions: The project site includes two adjacent St. Croix Valley Recreation Center parcels with a total area of 16.4 acres, with approximately 0.07 acres of disturbance occurring on the neighboring Marker Buoy LLC & SKN Associates LLC parcel to the east. Disturbance is limited to 3.13 acres of the parcels that currently includes a skate park, surrounding turf grass and gravel drive path located north of Curve Crest Boulevard and east of Market Drive. Of the 3.13-acre area, 2.40 acres flow west toward an existing stormwater pond on the west side of the existing parking lot. The remaining 0.73 acres of the site flow offsite south toward the storm sewer system on Curve Crest Boulevard. The skate park includes 0.37 acres of impervious surface.

Proposed Conditions: The project will replace the existing skate park with a parking lot, sidewalk, a biofiltration basin, and driveways connecting west to the adjacent parking lot and south to Curve Crest Boulevard (Figure 1). Storm sewer will be added in the proposed parking lot to convey runoff to the biofiltration basin, then to the existing stormwater pond on the west side of the existing parking lot. The project will disturb approximately 3.13 acres. The entire 0.37 acres of existing impervious will be removed and the total proposed impervious area will be 1.85 acres of the 3.13-acre disturbance.

**Recommendation:** The BCWD engineer recommends that the Board approve the application with the conditions outlined in the report.

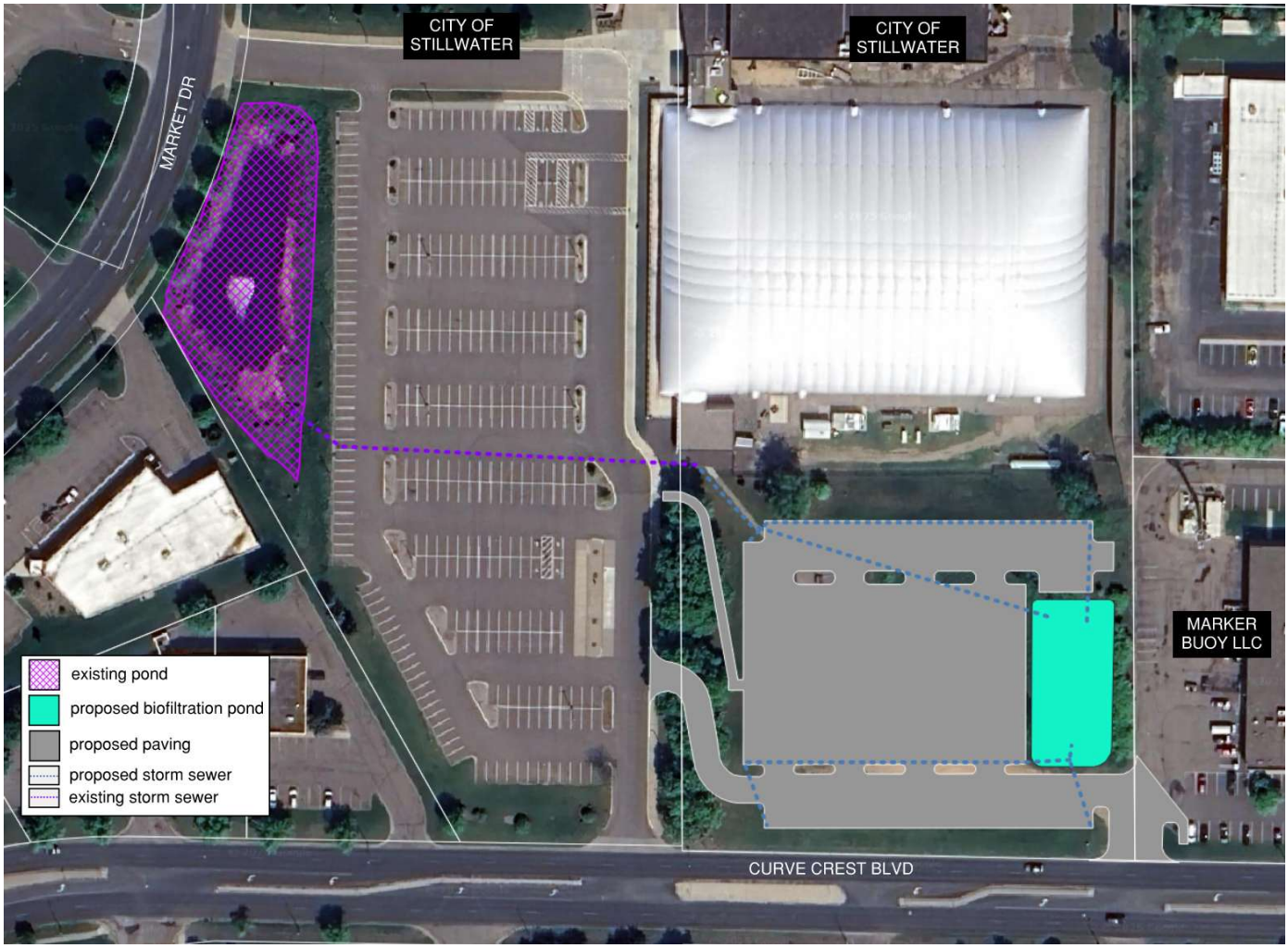


**Figure 1: St. Croix Valley Recreation Center Site Plan**

## Rule 2.0—STORMWATER MANAGEMENT

Under 2.2(b) of the Rule, the proposed project triggers the application of Rule 2.0 Stormwater Management because it creates one or more acres of new and/or reconstructed impervious surface. The site is located within the Diversion Structure Subwatershed, so the stormwater criteria in subsection 2.4.1(b) apply.

The existing site has a total of 7.78 acres of impervious surface. The proposed site will have a total of 9.26 acres of impervious area. Of the original impervious area, 0.37 acres (4.76%) will be disturbed under this project. Under 2.2(b)(ii) since the proposed activity will disturb less than 50 percent of existing impervious surface on the site, the criteria will apply only to reconstructed and net additional impervious surface and disturbed areas on the project site.

*The stormwater management plan for the project includes:*

- *Constructing storm sewer catch basins with SAFL baffle pretreatment devices, and storm sewer piping to convey runoff from new pavement to the proposed biofiltration basin.*
- *Constructing a biofiltration basin with outlet piping connecting to the existing storm sewer beneath the existing parking lot, which discharges to the existing stormwater pond.*

The proposed project is within the emergency response area for Stillwater's well number 10. The BCWD finds that stormwater infiltration is not a viable solution due to this site constraint. Stormwater management will be achieved by installing 2 SAFL baffles to trap sediment in the catch basins before flow enters the proposed biofiltration basin. Filtration media and drain tiles will be installed within the biofiltration basin to filter the water before discharging to the existing stormwater pond. The total drainage area of the proposed basin is 1.97 acres, which includes the proposed parking lot and a small hill section north of the basin.

*Runoff leaves the site at the following discharge points:*

- *"Market Drive" – The existing drainage area consists of 14.32 acres, including the ice rink, existing parking lot, existing stormwater pond, and skate park. The proposed drainage area will increase to 15.83 acres by eliminating the skate park and routing the entire proposed parking lot and biofiltration basin to the existing pond to discharge to sewer on Market Drive.*

- *"Curve Crest Boulevard" – The existing drainage area consists of the 0.73-acre southeast gravel and turf portion of the skate park, and the entrance apron to the Marker Bouy LLC & SKN Associates LLC parcel. The proposed drainage area to Curve Crest Boulevard will decrease to 0.29 acres due to capturing more area in the proposed biofiltration basin.*

### Rate Control

According to BCWD Rule 2.4.1(b)(i), an applicant must submit a stormwater-management plan providing no increase in the existing peak stormwater flow rates from the site for a 24-hour precipitation event with a return frequency of two, 10 or 100 years for all points where discharges leave the site.

☒ Rule Requirement Met

*The stormwater management plan developed for the site was evaluated using a HydroCAD model of existing and post-development site conditions. A comparison of the modeled peak flow rates to each discharge point is included in Table 1 and 2.*

**Table 1 -** Peak Discharge Rate to Market Drive

| *Event* | *Existing Discharge Rate (cfs)* | *Proposed Discharge Rate (cfs)* |
|---|---|---|
| 2-year (2.80") | 15.19 | 15.04 |
| 10-year (4.17") | 22.60 | 22.19 |
| 100-year (7.23") | 33.20 | 33.04 |

**Table 2 -** Peak Discharge Rate to Curve Crest Boulevard

| *Event* | *Existing Runoff Rate (cfs)* | *Proposed Runoff Rate (cfs)* |
|---|---|---|
| 2-year (2.80") | 0.89 | 0.50 |
| 10-year (4.17") | 2.14 | 1.05 |
| 100-year (7.23") | 5.39 | 2.39 |

## Volume Control

According to BCWD Rule 2.4.1(b)(ii), an applicant must submit a stormwater-management plan providing retention onsite of 1.1 inches of stormwater volume from the regulated impervious surface.

☒ Rule Requirement Met

*Flexible treatment options within the diversion structure subwatershed apply when an applicant demonstrates that retention of 1.1 inches of stormwater volume onsite is not reasonably feasible. Because this site is located in the Emergency Response Area for Stillwater's drinking water well number 10, the permit applicant asserts that retention of stormwater volume onsite via infiltration is not reasonably feasible and the BCWD engineer concurs. Flexible Treatment Option A requires a 0.55-inch volume retention onsite, which is not feasible without the use of infiltration. Flexible Treatment Option B can be applied, which requires retention onsite of stormwater volume to the extent practicable and removal of 60 percent of the annual total phosphorus loading (BCWD Rule 2.4.3(b)).*

*A MIDS Model was used to calculate the annual total phosphorus loading for the new impervious area (1.67 acres) compared to the annual total phosphorus loading trapped within the proposed biofiltration basin to demonstrate compliance with the water quality requirement. As the following results illustrate, the rule requirement for Flexible Treatment Option B, 60% total phosphorus removal is exceeded with the biofiltration basin providing 68% removal of the total phosphorous load. The MIDS model results show that 11% of the annual stormwater runoff volume will be retained due to the perched outlet design of the biofiltration basin to retain volume in the void space below for treatment via evapotranspiration.*

- *Annual total phosphorus load from new/reconstructed impervious area = 3.14 lbs/year*
- *Annual total phosphorus loading trapped in biofiltration basin = 2.14 lbs/year (Removal of 68% TP)*
- *Volume retained to extent practicable = 0.06 inches*

• *Annual volume retention onsite = 0.43 acre-ft (11% runoff volume)*

### Lake/Wetland Bounce

According to BCWD Rule 2.4.1(b)(iii), an applicant must submit a stormwater-management plan providing no increase in the bounce in water level or duration of inundation for a 24-hour precipitation event with a return frequency of two, 10 or 100 years in the subwatershed in which the site is located, for any downstream lake or wetland beyond the limit specified in Appendix 2.1.

☐ Rule provision imposes no compliance requirements on the project. *There are no applicable downstream waterbodies as specified in Appendix 2.1.*

### Infiltration Pretreatment

According to BCWD Rule 2.5.2, surface flows to infiltration facilities must be pretreated for long-term removal of at least 50 percent of sediment loads.

☐ Rule provision imposes no compliance requirements on the project. *There is no stormwater infiltration proposed for this site.*

*The BCWD Rule does not require pretreatment for bioretention or filtration practices. However, like infiltration practices, bioretention and filtration practices can be prone to failure from inadequate pretreatment. For the proposed biofiltration basin, pretreatment of the proposed parking lot runoff is provided by 2 SAFL baffles prior to stormwater discharge into the basin.*

**Rule 2.0 Conditions:**

2-1. Provide BCWD a biofiltration basin planting plan for review and approval.

2-2. Provide BCWD with the final Civil Plan Set prior to start of construction. (BCWD 2.7.9)

2-3. Provide documentation as to the status of a National Pollutant Discharge Elimination System stormwater permit for the project from the Minnesota Pollution Control Agency and provide the Storm Water Pollution Prevention Plan (SWPPP) as it becomes available (BCWD Rule 2.7.15).

2-4. The stormwater management facilities to be constructed for the project must be added to the inventory of those maintained under the March 8th, 2010, programmatic maintenance agreement between the City of Stillwater and BCWD (BCWD Rule 2.6).

## Rule 3.0—EROSION CONTROL

According to BCWD Rule 3.2, all persons undertaking any grading, filling, or other land-altering activities which involve movement of more than fifty (50) cubic yards of earth or removal of vegetative cover on five thousand (5,000) square feet or more of land must submit an erosion control plan to the District, and secure a permit from the District approving the erosion control plan. The proposed project triggers the application of Rule 3.0 Erosion Control because 2.76 acres of vegetative cover are proposed to be disturbed.

☒ Rule Requirements Met with Conditions

*The erosion and sediment control plan includes:*

- *Catch basin inlet protection*
- *Silt fence*
- *Erosion control logs*
- *Rock construction entrance*

*To meet the criteria of BCWD Rule 3.2, the erosion and sediment control plan must include:*

- *Add perimeter controls along the eastern edge of the limit of disturbance.*

*The following conditions must be addressed in the erosion and sediment control plan to comply with the District's requirements:*

**Rule 3.0 Conditions:**

3-1. Address all erosion control comments above (BCWD 3.2.2).

3-2. Provide the contact information for the erosion and sediment control responsible party during construction once a contractor is selected. Provide the District with contact information for the Erosion Control Supervisor and the construction schedule when available (BCWD 3.3.2).

## Rule 4.0—LAKE, STREAM, AND WETLAND BUFFER REQUIREMENTS

According to BCWD Rule 4.2.1, Rule 4.0 applies to land that is (a) adjacent to Brown's Creek; a tributary of Brown's Creek designated as a public water pursuant to Minnesota Statutes section 103G.005, subdivision 15; a lake, as defined in these rules; a wetland one acre or larger; or a groundwater-dependent natural resource; and (b) that has been either (i) subdivided or (ii) subject to a new primary use for which a necessary rezoning, conditional use permit, special-use permit or variance has been approved on or after April 9, 2007, (for wetlands and groundwater-dependent natural resources other than public waters) or January 1, 2000 (for other waters).

☐ Rule Not Applicable to Permit. *There are no adjacent lakes, streams, or wetlands.*

## Rule 5.0—SHORELINE AND STREAMBANK ALTERATIONS

According to BCWD Rule 5.2, no person may disturb the natural shoreline or streambank partially or wholly below the ordinary high water mark of a waterbody, without first securing a permit from the District.

☐ Rule Not Applicable to Permit. *There are no proposed shoreline or streambank alterations.*

## Rule 6.0—WATERCOURSE AND BASIN CROSSINGS

According to Rule 6.2, no person may use the beds of any waterbody within the District for the placement of roads, highways and utilities without first securing a permit from the District.

☐ Rule Not Applicable to Permit. *There are no proposed watercourse or basin crossings.*

## Rule 7.0—FLOODPLAIN AND DRAINAGE ALTERATIONS

According to Rule 7.2, no person may alter or fill land below the 100-year flood elevation of any waterbody, wetland, or stormwater management basin, or place fill in a landlocked basin, without first obtaining a permit from the District. No person may alter stormwater flows at a property

boundary by changing land contours, diverting or obstructing surface or channel flow, or creating a basin outlet, without first obtaining a permit from the District.

☒ Rule Requirements Met

Under BCWD Rule 7.3.5, the District will issue a permit to alter surface flows under paragraph 7.2 only on a finding that the alteration will not have an unreasonable impact on an upstream or downstream landowner and will not adversely affect flood risk, basin or channel stability, groundwater hydrology, stream baseflow, water quality or aquatic or riparian habitat.

*A HydroCAD model was prepared to evaluate downstream flooding impacts. This model demonstrates that there will be little to no impact to downstream properties or resources as a result of the proposed redevelopment, nor will there be significant impact to downstream properties during construction.*

*The existing stormwater pond has a 100-year flood elevation from which the flood footprint extends to the centerline of Market Drive but does not impact any downstream structures or properties. The biofiltration basin design includes flood storage such that implementation of this project will result in the flood elevation in the existing pond to decrease by 0.05 feet, which will not pose unreasonable impact on upstream or downstream landowners.*

### Rule 8.0—FEES

As the City of Stillwater is a government entity, the applicant is exempt from fees.

### Rule 9.0—FINANCIAL ASSURANCES

As the City of Stillwater is a government entity, the applicant is exempt from financial assurances.

### Rule 10.0—VARIANCES

*According to BCWD Rule 10.0, the Board of Managers may hear requests for variances from the literal provisions of these Rules in instances where their strict enforcement would cause undue hardship because of the circumstances unique to the property under consideration. The Board of Managers may grant variances where it is demonstrated that such action will be keeping with the spirit and intent of these rules. Variance approval may be conditioned on an applicant's preventing or mitigating adverse impacts from the activity.*

☒ Rule Not Applicable to Permit. *There are no requested variances.*

### RECOMMENDED CONDITIONS OF THE PERMIT:

The following is a summary of the remaining tasks necessary to bring the project into compliance with the BCWD Rules in all respects other than where variances are requested as discussed above:

1. Address all stormwater management requirements (Conditions 2-1 to 2-3).
2. Address all erosion control requirements (Conditions 3-1 to 3-2).
3. Provide authorization from the property owner Marker Buoy LLC & SKN Associates LLC for the disturbance proposed to occur on its parcel.

### STIPULATIONS OF APPROVAL:

1. Note that the permit, if issued, will require that the applicant notify the District in writing at least three business days prior to commencing land disturbance. (BCWD Rule 3.3.1)

2. To ensure that construction is carried out according to the approved plan, provide verification that construction standards have been met for the biofiltration basin. This includes but is not limited to confirmation that biofiltration soil meets the specifications in the plan, and that the vegetation establishment procedures have been followed per the landscaping/restoration plan. This can be achieved by scheduling a BCWD inspection during construction of the basins, or well-documented photographic evidence by the onsite engineer along with collected survey elevations of the basins.
3. Provide the District with As-built record drawings showing that the completed grading and stormwater facilities conform to the grading plan.
4. Provide contact information for the party responsible for long-term maintenance of proposed stormwater facilities.