

Applicant: Patrick Sejkora; City of Eden Prairie
Consultant:
Project: Coteau Trail Culvert Replacement
Location: 6358 Coteau Trail: Eden Prairie
Rule(s): 2, 3, 4, 5, and 6
Reviewer(s): LLH and BCO

General Background & Comments

The City of Eden Prairie is proposing to replace an existing 36-inch corrugated metal pipe with an equivalent 36-inch corrugated HDPE pipe at 6358 Coteau Trail in Eden Prairie. The existing corrugated metal pipe is approximately 59 linear feet in length and comes into contact with wetland 02-11-A (City of Eden Prairie identification number) at the upstream end of the pipe (northwest) and wetland 02-11-b (City of Eden Prairie identification number) at the downstream end of the pipe (southeast). The City of Eden Prairie has identified pipe deterioration, undermining of the pipe foundation, and silt accumulation at the culvert, resulting in obstructed drainage.

The project proposes replacement of the corrugated metal pipe along the existing alignment, resulting in approximately 1,370 square feet of disturbance. The proposed culvert diameter and upstream and downstream pipe inverts will be installed at approximately the same elevation as the existing culvert, to prevent changes in wetland hydrology.

The District's Floodplain Management and Drainage Alterations Rule 2.0 applies to the project as a result of land-altering activities proposed below the 100-year frequency floodplain of both wetlands.

The District's Wetland Management Rule (Rule 3.0) applies to the project, as a result of the proposed land-disturbing activities within the two wetlands identified in the project area. The District is the Local Governing Unit (LGU) responsible for administering the Wetland Conservation Act (WCA) in Eden Prairie.

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, Rules 4.2.1a and 5.2.1a. The project is considered a linear project as stated in Rule 4.2.4. For linear projects creating less than one (1) acre of new or additional impervious area (0 acres of net new impervious area is proposed to be created), the stormwater requirements of Rule 4.3.1 or 4.3.2 do not apply.

The District's Waterbody Crossings and Structures Rule 6.0 applies to the project as a result of stormwater infrastructure improvements that contact the bank (defined as an enclosed natural depression with definable banks capable of retaining water) of the two wetlands.

Exhibits

1. Permit Application dated October 12, 2020.
2. Site plan dated October 8, 2020 prepared by the City of Eden Prairie.
3. Property Owner Letter of Permission dated September 29, 2020 received by the City of Eden Prairie.
4. The Enclave at Old Shady Oak Road As-Built Grading Plan dated May 28, 2008 prepared by Sathre-Bergquist, Inc.
5. Joint Application Form for Activities Affecting Water Resources in Minnesota required for WCA utility exemption determination dated October 26, 2020, prepared by the City of Eden Prairie.
6. Approved Minnesota Wetland Conservation Act (WCA) Notice of Decision dated November 24, 2020.

The application with the submitted information is complete.

2.0 Floodplain Management and Drainage Alterations

Because replacement of the culvert involves alteration of land below the 100-year frequency floodplain of the two wetlands in the project area, the project activities must conform to NMCWD Floodplain Management and Drainage Alterations Rule, Rule 2.1.1.

The City of Eden Prairie's Water Resources Management Plan identifies a 100-year frequency flood elevation of 894.7 M.S.L. for wetland 02-11-A and 888.1 M.S.L. for wetland 02-11-B. The land-altering activities proposed below both the identified 100-year frequency flood elevations of the wetlands must not result in net fill or net impact within the floodplain.

Work below the 100-year flood elevation of both wetlands includes the removal of the existing 36-inch corrugated metal pipe and replacement with an equivalent 36-inch corrugated HDPE pipe. The proposed pipe diameter, length, and upstream and downstream invert elevations of the pipe match existing conditions. The area disturbed within the floodplains will be regraded and seeded with a native seed mixture. The grading that will occur will result in no net impact and no net loss of floodplain volume. The paragraphs of Rule 2 state:

2.3.1: The low floor elevation of all new and reconstructed structures must be constructed in accordance with the NMCWD Stormwater Rule, subsection 4.3.3

This section of the rule does not apply to the proposed project.

2.3.2: Placement of fill below the 100-year flood elevation is prohibited unless fully compensatory storage is provided within the floodplain and:

- a. at the same elevation +/- 1 foot for fill in the floodplain and:*
- b. at or below the same elevation for fill in the floodplain of a water basin or constructed stormwater facility.*

Regrading and replacement of a 36-inch culvert is proposed below the 100-year frequency elevation of the two wetlands within the project limits. As previously stated, the culvert will be replaced in-kind, with the upstream and downstream pipe invert elevations matching existing conditions. The area disturbed within the floodplains will be regraded. Excavated

material removed for replacement of the culvert will be utilized for regrading purposes following culvert installation. Because the existing pipe elevations are to be matched with the pipe replacement, post-project conditions will result in no net reduction in the existing floodplain storage. The project conforms to Rule 2.3.2.

2.3.3. The District will issue a permit to alter surface flows only if it finds that the alteration will not have an adverse impact on any upstream or downstream landowner and will not adversely affect flood risk, basin or channel stability, groundwater hydrology, stream base-flow, water quality or aquatic or riparian habitat.

The applicant has demonstrated, and the engineer concurs that the project will preserve the existing 100-year flood levels of the two wetlands, as the project will not alter surface flows or alter the hydraulic configuration of the pipe, complying with Rule 2.3.3. As the project will not result in increased impervious surface at the site and pre-project drainage patterns will be maintained in post-project conditions, discharge rates from the site will not increase. The culvert will be replaced in-kind, with the upstream and downstream pipe invert elevations matching existing conditions.

Proposed activities will correct a hydraulic problem associated with the obstructed and deteriorated pipe, and the undermining of the pipe foundation. The existing pipe is not effectively handling stormwater runoff and functioning as designed, as a result of the pipe conditions described above. The identified deterioration is preventing normal flow through the pipe, introducing sediment into the wetlands, and exacerbating erosion along the pipe alignment.

Because the culvert will be replaced in-kind, the project will not affect the groundwater hydrology or shallow channel base flow conditions between the two wetlands. Additionally, the project will improve water quality by correcting an erosion problem. Proposed work may have a temporary impact on riparian habitat during the construction phase of the project. Once the proposed work is completed and temporary impacts are eliminated, the riparian habitat will be restored to its natural state. Temporary impacts cannot be avoided with any project that involves construction activities.

Because the culvert will be replaced in-kind, is not reasonably likely to cause adverse effects to water quality, hydrology, hydraulics or basin stability, thus conforming to Rule 2.3.3.

2.3.4 No structure may be placed, constructed or reconstructed and no surface may be paved within 50 feet of the centerline of any water course, except that this provision does not apply to:

a. Bridges, culverts, and other structures and associated impervious surface regulated under Rule 6.0;

b. Trails 10 feet wide or less, designed primarily for nonmotorized use.

This section of the rule does not apply to the proposed project.

The proposed project conforms to the floodplain management and drainage alteration requirements of Rule 2.0.

3.0 Wetlands Management

As previously stated, the District's Wetland Management Rule (Rule 3.0) applies to the project, as a result of the proposed land-disturbing activities within the two wetlands identified in the project area. The District is the Local Governing Unit (LGU) responsible for administering the Wetland Conservation Act (WCA) in Eden Prairie. The City submitted a Joint Application Form for Activities Affecting Water Resources in Minnesota dated October 26, 2020, requesting a WCA utility exemption under Section 8420.0420 Subpart 6 of the WCA rules.

Based on a desktop analysis of wetlands 02-11-A and 02-11-B, previously submitted MNRAM information from previous projects in the area, and comparison of the function and values presented in Appendix 3b of the District's Rules, both wetlands are classified as medium value. The desktop analysis considered previously submitted information from the 2016 Carmel Park Pipe Replacement Project for wetland 02-11-A and the 2015 Cherokee Trail Drainage Project for wetland 02-11-B. A Notice of Decision dated November 24, 2020 has been issued approving of the wetland boundary determination for both wetlands.

The project is expected to impact approximately 25 square feet of wet meadow habitat within the boundary of wetland 02-11-A and approximately 100 square feet of wet meadow at wetland 02-11-B. The City would like to complete the work this winter before the spring thaw to minimize impacts. A delineation of the wetlands was not conducted during the growing season; therefore, desktop wetland information was used to obtain preliminary wetland boundaries and approximate the temporary impacts, followed by a site review. The site review was performed on November 3, 2020 by the LGU (the District representatives) and City staff to evaluate and verify the existence and boundaries of the wetlands and to determine the actual amount of wetland impacts in the project area.

The District is in agreement with the utility exemption request for the proposed work within both wetlands. As the proposed project will replace an existing structurally obsolete culvert, in accordance with MN Statute 103G.2241, Subdivision 3 and MN Rule Chapter 8420.0420 Subsection 6, a replacement plan is not required for wetland impacts resulting from the construction, maintenance, or repair of utility infrastructure. As a result of the utility exemption determination, criteria in accordance with Rule 3.3 Replacement Wetlands is met. However, since the wetlands are not the subject of a no-loss determination from the District, sections 3.4 and 3.5 nevertheless apply.

A medium value wetland requires a 20 foot minimum and 40 foot average buffer width, Rule 3.4.1b. Per Rule 3.4.4, a buffer is only required on property owned by the applicant. Both wetlands are located on private property south of the City right-of-way at Coteau Trail.

As shown on the plans, the minimum of 20 foot buffer is met and the 40 foot average is taken to the City easement boundary for both wetlands, as permitted by buffer width averaging methodology outlined in Rule 3.4.1. An area of approximately 2,400 square feet is required for the 40 foot average buffer for each wetland. The site plans show that a buffer area of approximately 6,400 square feet will be provided for both wetlands. The plans are in conformance with the minimum buffer width and average buffer width criteria required by District criteria.

Additionally, a heavily vegetated natural buffer currently exists south and southeast of wetland 02-11-A, and south and southwest of wetland 02-11-B. The natural buffer ensures the

preservation of the natural resources, habitat, water treatment and water storage functions of the wetland. This also provides a natural buffer around the wetland to maintain its integrity as intended by the District Rules. Following wetland disturbances, all wetland characteristics will be restored to pre-project conditions within 90 days of the commencement of construction.

4.0 Stormwater Management

The District's requirements for stormwater management apply to the project because more than 50 cubic yards of material will be disturbed, Rule 4.2.1a. The project is considered a linear project (Rule 4.2.4). For linear projects creating less than one (1) acre of new or additional impervious area (0 acres of net new impervious area is proposed to be created), the stormwater requirements of Rule 4.3.1 or 4.3.2 do not apply.

5.0 Erosion and Sediment Control

Sediment control logs, and sandbags or floating silt curtain will be provided for erosion prevention and sediment control measures. Native seed mixtures and erosion control blanket will be installed for final stabilization measures.

The project contact is Patrick Sejkora, City of Eden Prairie.

6.0 Waterbody Crossings and Structures

The District's Waterbody Crossings and Structures Rule 6.0 applies to the project as a result of stormwater infrastructure improvements contacting the bank of two water basins (wetlands), Rule 6.2. Thus, conformance with Rule 6.3.1 is required.

Work within the banks of both wetlands include stormwater infrastructure improvements, site regrading, and installation of associated erosion control measures.

Rule 6.3.1 states construction, improvement, repair or removal of a waterbody crossing in contact with the bed or bank of a waterbody:

- a) *Shall retain adequate hydraulic capacity and assure no net increase in the flood stage of the pertinent waterbody:*

Since the project is a linear project and exempt from the stormwater management rule, a detailed hydrologic model was not provided for the project.

As previously stated, the work will remove the existing 36-inch corrugated metal pipe and replace the pipe with an equivalent 36-inch corrugated HDPE pipe. The proposed diameter, length, and upstream and downstream invert elevations of the pipe will match existing conditions. The temporary wetland impacts resulting from the replacement of the culvert will be regraded and seeded with a native seed mixture. The grading will result in no net impact and no net loss of floodplain volume.

The wetland shall retain adequate hydraulic capacity with no net reduction in flood volume or increase in flood stage. Because the culvert will be replaced in-kind, the hydraulic configuration will maintain existing drainage patterns while minimizing the potential for soil erosion that may result from a deteriorated pipe. Thus, Rule 6.3.1a is met.

- b) *Shall retain adequate navigational capacity pursuant to any requirements of the waterbody's classification by the District:*

The wetlands are not used for navigational purposes.

- c) *Shall not adversely affect water quality, change the existing flowline/gradient, or cause increased scour, erosion or sedimentation:*

As stated in item (a), the hydraulic capacity of the existing system will be maintained, as the culvert will be replaced in-kind, and the upstream and downstream pipe invert elevations will match existing conditions. Any change in the water quality of the wetlands will be temporary during construction. Erosion control measures including sediment control logs, sandbags, and floating silt curtain will be installed to minimize water quality impacts (sedimentation).

The potential of increased scour, erosion or sedimentation will not increase as a result of the project since the culvert will be replaced at approximately the same elevations as existing conditions. Wetland characteristics including elevations, contours, and substrate will be restored to pre-project conditions within 90 days of the commencement of construction.

Proposed activities will correct a hydraulic problem associated with the obstructed and deteriorated pipe, and the undermining of the pipe foundation. The existing pipe is not effectively handling stormwater runoff and functioning as designed due to its deterioration. The identified deterioration is preventing normal flow through the pipe, which may introduce sediment into the wetlands over time and exacerbate erosion along the pipe alignment.

The proposed design is not reasonably likely to cause adverse effects to water quality and the physical or biological character of the wetlands because of the in-kind pipe replacement and the restoration of the undermined foundation material, thus conforming to Rule 6.3.1c.

- d) *Shall preserve existing wildlife passage along each bank and riparian area:*

The project will not permanently change conditions that will deter wildlife from using the wetland areas once the project is complete. Construction activities may temporarily displace wildlife until the areas is restored to pre-project conditions. Thus, Rule 6.3.1d is met.

- e) *Shall represent the “minimal impact” solution to a specific need with respect to all other reasonable alternatives:*

Alternative options investigated for the crossing included, 1) no-build alternative, and 2) altering the design of the culvert. A “do nothing” alternative would not correct the existing hydraulic problem resulting from the deteriorated pipe. An alternate design of the culvert may alter the wetland baseflows and hydraulic characteristics. For the reasons noted above, both alternative designs were rejected.

As previously stated, the pipe is not functioning as designed, and proposed activities will correct a hydraulic problem associated with the obstructed and deteriorated pipe, and the undermining of the pipe foundation. The identified deterioration may prevent normal flow through the pipe, introduce sediment into the wetlands, and exacerbate erosion along the pipe alignment. Thus, replacement of the pipe in-kind meets criteria in Rule 6.3.1e and represents the minimal impact solution.

Rule 6.3.2 with criteria involving projects with directional boring or horizontal drilling does not apply to the project.

Rule 6.3.3 states, removal of structures or other waterway obstructions:

- a) *Shall maintain the original cross-section and bed conditions to the greatest extent practicable:*

Areas within the bank of the wetlands impacted by replacement of the culvert will be restored to pre-project natural conditions, including elevations, contours, and substrate. Disturbed areas will be graded such that no net reduction in floodplain volume will occur.

- b) *Shall achieve complete removal of the structure, including any footings or pilings that impede navigation:*

This rule does not apply to the project.

- c) *Shall not involve the removal of a water level control device:*

This rule does not apply to the project.

Rule 6.3.4 states, *No activity affecting the bed of a protected water may be conducted between April 1 and June 30 on public waterbodies:*

Wetlands 02-11-A and 02-11-B are not public waters, as defined by Minnesota Statute 103G.005 Subdivision 15 and 15a.

11.0 Fees

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

Rules 2.0-6.0 \$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: \$0

Findings

1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
2. Rules 4, 5 and 6 are met. Compliance with Rules 2 and 3 will be determined based on review of the plans to be submitted following conditions outlined below.

Recommendation

Approval, contingent upon:

1. General Conditions
2. Per Rules 3.4.7 and 6.5, a written agreement is to be provided to the District stating the City’s responsibility for the maintenance of the wetland buffer and stormwater infrastructure.

3. Per Rule 3.4.5, a revised plan sheet identifying buffer marker locations conforming to average and minimum buffer width criteria outlined in Rule 3.4.1b for medium value wetlands.

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

1. An as-built drawing along the pipe alignment conforming to Rule 2.3 criteria for the 100-year flood elevation of wetlands 02-11-A and 02-11-B, showing that no net reduction in floodplain volume results from the project.
2. Buffer markers for compliance with Rule 3.4.5 are required.

