LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, August 19, 2020

Agenda Item
Item 7. I. - Project Reviews

Prepared By
Linda Loomis, Administrator

Summary

i. Freeway Dump and Landfill

LMRWD staff has been meeting with the MPCA and Barr Engineering, consultants for the MPCA about remediation of the Freeway Dump and Landfill in Burnsville. The City of Burnsville does not have an approved municipal permit from the LMRWD. Therefore an Individual Project Permit will be required.

The reason this item is on the agenda has to do with LMRWD definition of impervious service. It is likely the LMRWD will need to issues a variance to the project. Staff is concerned that issuing a variance will set a precedent and is therefore recommending that the District consider revising the definition and clarify the overall intent of the stormwater rule for future projects.

LMRWD staff also communicated with the DNR regarding impacts to the floodplain from this project. It was determined that the LMRWD would take the review lead of the no-rise application because the LMRWD is more strict than the DNR when it comes to impacts to properties in the flood fringe. The DNR will review the project for short-term impacts (a temporary berm will be required during the construction) that may require flowage easements and notification of property owners

Attachments
Technical Memorandum dated July 27, 2020 Re: Freeway Landfill and Dump (Permit No. 2020-105)

Recommended Action
Provide direction to staff

ii. Fort Snelling

This project plans to redevelop housing at the Upper Post of Fort Snelling. Staff has reviewed the proposed plans and is recommending the Board approve an Individual Project Permit subject to receipt of an NPDES permit for the project and approval of the maintenance agreement by LMRWD legal counsel.

Attachments
Technical Memorandum dated August 12, 2020 Re: Fort Snelling Redevelopment (Permit No. 2020-113)

Recommended Action
Motion to approve Permit No. 2020-113 subject to receipt of NPDES Permit and approval of maintenance agreement by LMRWD legal counsel

iii. Prairie Heights

This Project was conditionally approved by the Board of Managers at the June 2020 Board meeting. The item is on the agenda to update the Board. The LMRWD has received notification that the project was approved by Riley Purgatory. However, there were conditions and the LMRWD will not issue a permit until all the conditions have been met. The LMRWD has reached out to Riley Purgatory Bluff Creek WD and asked to be copied on all correspondence on the project.

Attachments

Technical Memorandum dated August 11, 2020 Re: Prairie Heights Update (Permit No. 2020-103)

Recommended Action

No action recommended

Young Environmental Consulting Group, LLC

Technical Memorandum

To:	Linda Loomis, Administrator Lower Minnesota River Watershed District
From:	Katy Thompson, PE, CFM Della Schall Young, CPESC, PMP
Date:	July 27, 2020
Re:	Freeway Landfill and Dump Remediation – Project Update (Permit No. 2020-105)

The Minnesota Pollution Control Agency (MPCA) recently concluded the public comment period on the proposed remediation options for the Freeway Landfill and Dump site in the City of Burnsville. In 2019, Barr Engineering Co. (Barr) completed a focused feasibility study to evaluate potential remediation options and, at the time, the Lower Minnesota River Watershed District (District) requested that Young Environmental conduct a review to determine which District standards would be triggered by the proposed options. The MPCA and Barr have since developed two design options that the MPCA intends to release for bidding in early 2021. Young Environmental provided the District with a preliminary review of the proposed designs and permit requirements on June 10, 2020 (attached), which was then submitted to the MPCA as part of the public comment period.

On June 18, 2020, the District Administrator, Young Environmental, and Barr met online to discuss the project and the District's preliminary review (meeting notes attached). As part of the discussion, the project team and District staff walked through each of the District rules to determine applicability.

June 18, 2020: Meeting Summary

Rule A – Administrative and Procedural Requirements

The District confirmed that because the City of Burnsville does not have an approved municipal permit, an Individual Project Permit will be required for the project.

Rule B – Erosion and Sediment Control

The project team concurred with LMRWD that Rule B applies to the project and acknowledged the District's concern that concentrated discharges could enter the surrounding fen complex, causing scour and erosion.

Rule C – Floodplain and Drainage Alteration

The project team concurred with LRMWD that Rule C applies to the project and confirmed that it is working with Suzanne Jiwani at the Minnesota Department of Natural Resources (MnDNR) to obtain a no-rise certificate. The team also confirmed that the City of Burnsville has required a no-rise certificate for its floodplain records but no additional approval or permits.

Young Environmental contacted the MnDNR to confirm floodplain permitting requirements. A meeting was held on July 21, 2020 to discuss the floodplain review process for the MnDNR and District. During the meeting, it was decided that the District will take the review lead of the no-rise application because the District rules are more stringent than the MnDNR and FEMA requirements for the flood fringe impacts. The MnDNR will review short-term temporary impacts of the temporary construction berm in the floodway.

Rule D – Stormwater Management

The final stormwater management for the site remains a point of disagreement between the project team and the District. Our initial review was based on the determination that the proposed landfill liner and cap should be treated as a constructed impervious surface and be subject to District rules and definitions. The rules define an impervious surface as "a constructed hard surface that either prevents or retards the entry of water into the soil and causes water to runoff the surface in greater quantities and at an increased rate of flow than before development." The inherent purpose of the landfill final cover is to prevent surface and groundwater intrusions into the waste layers.

Barr's position is that the proposed landfill liner and cap should be considered pervious because the landfill design proposes a two-foot vegetated soil cover on top of the liner.

During the meeting, we discussed the District's willingness to consider a variance from the stormwater management requirement, specifically the peak rate control, given the MPCA's robust operation and maintenance requirement for capped landfills.

Additional Stormwater Considerations

Following the June 18 meeting, the District Administrator directed Young Environmental to research landfill permitting requirements, specifically stormwater regulations. The

proposed landfill remediation project would change the landscape of the area, and that change would alter the area's hydrology. Of the two options, the Dig and Line option is the most concerning for stormwater management due to the height of the proposed landfill and the proposed liner and cover system. For this option the MPCA is proposing stormwater detention ponds. However, the ponds were not sized with the assumption that the entire cap is impervious. Instead, they appear to have been sized to retain the additional runoff caused by the increased slopes and internal landfill stormwater mitigation system.

Given the disagreement over whether the cap is pervious or impervious, we contacted other metro watershed districts to determine if they have permitted similar projects. We found that there is wide latitude in the definition of "impervious surface" but general agreement that, while the proposed landfill cap is not a traditional impervious surface, neither is it a traditional pervious surface. One recommendation we received was to consider applying the methodology for permitting artificial turf because artificial turf systems also typically have a liner and underdrain system, similar to the proposed landfill.

Artificial Turf Hydrology Options

The proposed landfill cap and liner system is somewhat similar to an artificial turf system. Both systems provide an upper media layer that can filter or infiltrate stormwater, but both are limited by a lower impervious layer. In addition, water that filters through the upper media is collected in a drainage system and discharged elsewhere to prevent its infiltrating the underlying aquifer.

Rather than considering the proposed landfill cap and liner entirely impervious or entirely pervious, we propose three alternative methods for determining the final hydrology for the site:

1. Using a modified SCS curve number that accounts for the maximum water retention available within the final cover system (if the cover soil's moisture-storage capacity and other necessary soil properties are known) as well as the final landfill slopes.
2. Modeling the final cover system and drainage layer in a method consistent with artificial turf methodology.[1]
3. Utilizing the Hydrologic Evaluation of Landfill Performance (HELP) program[2] to evaluate the evapotranspiration, infiltration, and filtration of the final cover

[1] https://www.hydrocad.net/curvenumber.htm

[2] https://www.epa.gov/land-research/hydrologic-evaluation-landfill-performance-help-model

system.

Recommendations

We applaud the MCPA for tackling this project, and we recognize the need to segregate the landfill waste from surface water and groundwater. We also want to protect the downstream resources from increased runoff or erosion due to the proposed project.

We recommend that the MPCA more closely examine the hydrology of the proposed Dig and Line options to ensure that no adverse impacts would result. In an effort to work with the MPCA on this complicated project, we also recommend considering the final landfill cover system as a quasi-impervious layer that may have the same effects as an impervious layer, unless the MPCA can prove otherwise.

Finally, due to the various definitions of an impervious surface that we encountered in the metro area, we recommend that the District consider revising the definition and clarify the overall intent of the stormwater rule for future projects.

Attachments:

June 10, 2020 – Freeway Landfill and Dump Preliminary Project Review

June 18, 2020 – Barr Meeting Notes

Young Environmental Consulting Group, LLC

Technical Memorandum

To: Linda Loomis, Administrator
Lower Minnesota River Watershed District

From: Katy Thompson, PE, CFM
Della Schall Young, CPESC, PMP

Date: June 10, 2020

Re: Freeway Landfill and Dump Remediation Preliminary Project Review (Permit No. 2020_105)

The Minnesota Pollution Control Agency (MPCA) is in the process of soliciting stakeholder design input on the proposed remediation options for the Freeway Landfill and Dump site in the City of Burnsville. In 2019, Barr Engineering Co. (Barr) completed a focused feasibility study to evaluate potential remediation options, and at the time, the Lower Minnesota River Watershed District (District) requested that Young Environmental conduct a review to determine which District standards the proposed options would trigger. The MPCA and Barr have since developed two design options that the MPCA intends to release for bidding in early 2021. The following is a more detailed review of the two options and the District requirements for the MCPA public comment period ending June 12, 2020.

Summary

Project Name:	Freeway Landfill and Dump Remediation
Purpose:	Remediation of two closed, but unlined, solid waste facilities
Project Size:	Approximately 175 acres of disturbance,
Location:	11937 Interstate 35W and 1020 W. Black Dog Rd, Burnsville, MN

Applicable LMRWD Rules:	Rule A – Administrative and Procedural Requirements Rule B – Erosion and Sediment Control Rule C – Floodplain and Drainage Alteration Rule D – Stormwater Management
Recommended Board Action:	Information only, no Board action at this time

Discussion

The MPCA is proposing to remediate the waste currently stored at the Freeway Landfill and Dump because the waste disposal occurred without the needed protections required by modern landfills to manage landfill leachate and landfill gas. The MPCA has proposed two options:

1. **Dig and Line:** Build a new modern landfill on the property (three variations of this option have been provided).
2. **Dig and Haul:** Move the waste from the landfill and dump off the property to another modern landfill.

As part of the MPCA's stakeholder outreach, the District was provided with the following documents for review:

- Freeway Remediation Presentation by Barr, dated May 6, 2020
- Freeway Remediation Preliminary Drainage Figures by Barr, dated May 6, 2020
- Focused Feasibility Study Report for the Freeway Landfill and Freeway Dump by Barr, dated October 2019

Rule A – Administrative and Procedural Requirements

The proposed project is located within the City of Burnsville and would normally be subject to municipal review; however, the City of Burnsville does not have an approved Municipal Permit with the District, and as such, the MPCA must receive a District Individual Project Permit prior to construction.

Rule B – Erosion and Sediment Control

The District regulates land-disturbing activities that affect one acre or more outside the High Value Resource Area (HVRA) Overlay District under Rule B. The proposed project disturbs 174 acres and will trigger the requirements under Rule B.

In addition, Option 1 should also address long-term erosion control concerns due to the long and steep flow paths from the top of the proposed landfill down to the stormwater management ponds to prevent damage to the underlying landfill cap and reduce erosion

at the toe of the slope and future sedimentation in the stormwater ponds and downstream waterbodies.

Based on the preliminary information provided, the proposed grading at the Freeway Dump site appears acceptable. However, it should be noted that the proposed grading will discharge into the Black Dog Lake Fen complex (**Figure 1**), and care should be taken during final design to ensure no adverse impacts would result to the fen from any concentrated stormwater runoff or outfalls.

Rule C – Floodplain and Drainage Alteration

The portions of the proposed project are located in the 100-year FEMA floodplain, and a District permit is required for land alteration or placement of fill below the floodplain. The City of Burnsville will be requiring a No Rise Certificate indicating that the proposed remediation will not cause an increase in water surface elevations of more than 0.00 ft. The District requests a copy of the No Rise documentation as well as calculations that demonstrate no net loss of flood conveyance capacity.

Rule D – Stormwater Management

The District requires stormwater management for projects that propose to create more than one acre of new impervious surface and more than 10,000 square feet in the HVRA. While neither remediation option currently includes the creation of traditional impervious surfaces (such as concrete or asphalt) as part of the design, we recommend considering the impermeable landfill cap an impervious surface because it may contribute to increased runoff rates from the final landfill when compared to existing conditions.

The District Rules define an impervious surface as “a constructed hard surface that either prevents or retards the entry of water into the soil and causes water to runoff the surface in greater quantities and at an increased rate of flow than before development.” The inherent purpose of a landfill final cover is to be impervious to surface and groundwater intrusions and to separate waste and byproducts from rain and groundwater infiltration, and the proposed remediation plans for Option 1 includes 60 to 80 acres of impervious liner and cover.

Further discussion of Rule D is broken below into three categories: rate control, volume reduction, and water quality.

Rate Control

The District clearly states one of the underlying policies in Rule D is to “require property owners control the rate and volume of stormwater runoff originating from their property so that surface water and groundwater quantity and quality is

protected or improved, soil erosion is minimized, and flooding potential is reduced." The current Freeway Landfill and Dump sites, for better or worse, are unlined and do allow for some rainfall infiltration, which affects the overall stormwater runoff from the site.

Under Option 1 (Dig and Line), the project proposes to line and cover the landfill waste with an impervious liner under the waste and an impervious cap on top of the waste (Figure 1). Installing an impervious cover, even with roughly two feet of pervious cover vegetation and topsoil on top, may increase the amount of stormwater runoff generated from the landfill site, particularly with the proposed height and slopes of the final landfill. If Option 1 is selected as the final design, the District will require hydrologic calculations to demonstrate that the proposed stormwater runoff rates from the site do not exceed the existing rates.

As presented, Option 2 (Dig and Haul) does not propose any new impervious surface, either traditional hard surfaces or an impenetrable cover layer, and would not trigger the rate control requirements of Rule D. However, as noted in Rule B, runoff from the Freeway Dump will be entering the Black Dog Lake Fen HVRA, and care must be taken during final design to ensure no adverse impacts would result due to concentrated stormwater discharges into the fen.

Volume Reduction

Section 4.4.2 of Rule D requires volume reduction for post-construction stormwater runoff volume for projects that create more than one acre of impervious surface or redevelopment of more than 10,000 square feet in the HVRA. The District does not allow infiltration practices in areas that may mobilize high levels of contaminants in soil or groundwater; however, filtration technologies are an acceptable method in lieu of infiltration.

Water Quality

Section 4.4.3 of Rule D requires projects that create more than one acre of new impervious surface to provide evidence that no net increase in total phosphorus (TP) or total suspended solids (TSS) in the receiving waters will result from the project.

Stormwater ponds are currently proposed as part of the design; the District will require the applicant to develop and adhere to a stormwater maintenance plan for the project, including the acquisition of any necessary easements.

Recommendations

We applaud the MCPA for tackling this project and recognize the need to segregate the landfill waste from surface and groundwater. The following summarizes the comments from the District to the MPCA:

- The MPCA should apply for and receive a District Individual Project Permit prior to construction.
- The proposed project will trigger *Rule B – Erosion and Sediment Control* and require an Erosion and Sediment Control Plan, SWPPP, and NPDES Construction Stormwater Permit.
- The Freeway Dump portion of the project is located within the High Value Resource Area for Black Dog Lake Fen, and care should be taken during design to avoid concentrated stormwater discharges into the fen during and after construction.
- Portions of the project are located within the 100-year FEMA floodplain and floodway and *Rule C – Floodplain and Drainage Alteration*. The District will require a no-rise certification by a professional engineer and calculations demonstrating no loss of floodplain storage would result from the project.
- The District considers the landfill cap an impervious surface, and *Rule D – Stormwater Management* will apply to the project.
- The District does not allow infiltration practices in areas that may mobilize high levels of contaminants in soil or groundwater; however, filtration technologies are an acceptable method in lieu of infiltration.
- All stormwater BMPs will require a maintenance agreement with the District.

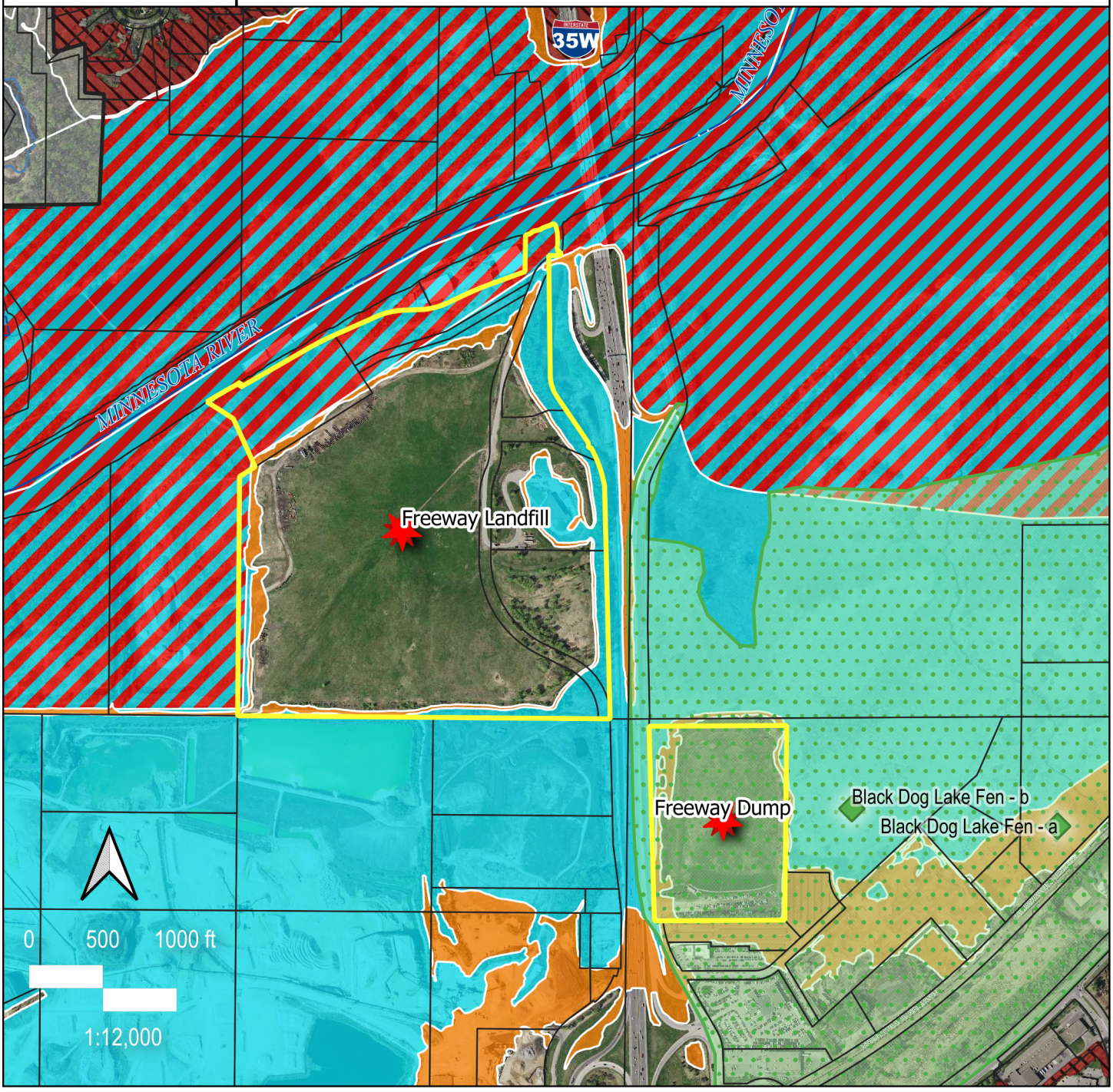
Attachments:

Figure 1—Proposed Freeway Landfill and Dump Location Map

LMRWD Permit Review Checklist

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Figure 1: Freeway Landfill and Dump Preliminary Review, City of Burnsville, MN
09-June-2020



LEGEND

- LMRWD Boundary
- Proposed Project Area
- Dakota Co. Parcels
- Dakota Co. Floodplain
- 100-yr Floodplain
- Floodway
- 500-yr Floodplain
- Steep Slopes Overlay District
- Calcareous Fen Locations
- HVRA Overlay District

Young Environmental Consulting Group, LLC

LOWER MINNESOTA RIVER WATERSHED DISTRICT
PROJECT REVIEW

Project ID	2020_0105	Authorization Agent	
Project Name	Freeway Landfill and Freeway Dump	Email Address	
Organization	Minnesota Pollution Control Agency	Phone Number	5555555555

Notes: 1/21/2020 - Review of preliminary plan documents and feedback

Project Summary

Anticipated start date	1/1/2021	Date received	
Project location	Burnsville, MN	Project map included?	☑
Project acres	174	Is the project in an unincorporated area?	☐
Total disturbed acres	174	Is it located in a High Value Resource Area	☑
New impervious acres	0	Is it located in a Steep Slope Overlay Distric	☐

Local Partners: City of Burnsville

Other Sensitive Area: Black Dog Lake Fen Complex

Project Description

The MPCA has determined additional waste management efforts are needed for the closed Freeway Landfill and Freeway Dump sites to prevent pollutants from further release of landfill gases and leachate into groundwater and the Minnesota River, particularly with the cessation of quarry pumping operations at nearby Kramer Quarry. The project proposed two options:
1. Dig & Line - excavate the waste from both sites and construct a modern landfill within the Landfill footprint
2. Dig & Haul - excavate the waste from both sites and haul to an existing landfill.
The MPCA is currently soliciting stakeholder feedback on the preliminary design through a public comment period that ends on June 12, 2020.

Additional Notes

Review Status

Is this a preliminary review?	☑
Is this a permit review?	☐
Does this project require a techincal revie	☐

Project Status

Project is pending	☑
Project is active	☐
Project has been archived	☐

Erosion and Sediment Control

This project triggers one or more thresholds for this rule.

Triggers		Criteria	
Disturbs one acre plus	☑	Erosion and Sediment Control Plan	☐
Located within the HVRA Overlay District	☑	Inspection and maintenance addressed	☐
Meets the HVRA threshold	☑	NPDES/SDS General Construction Permit documentation	☐

The documentation requirements for this rule have not been met. A review cannot be completed until all required documentation has been submitted.

Additional Notes

6/7/2020 - Based on the feasibility study and 5/6/2020 LMRWD presentation, the proposed project will disturb approximately 174 acres, including portions within the HVRA near Black Dog Lake Fen Complex. The District will require and erosion & sediment control plan, SWPPP, and a maintenance agreement for any permenant stormwater BMPs.

Floodplain Drainage Alteration

This project triggers one or more thresholds for this rule.

Triggers			
Changes in water surface elevation of floodplain	☑	Calculations by a professional engineer demonstrating no decrease to conveyance	☐
If yes, Compensatory storage equal or greater than volume of fill	☐	Conveyance capacity decrease below 100yr high water elevation	☐
If no, No-rise certification by a professional engineer	☐	Temporary placement of fill	☐
Criteria		Adverse impacts to water quality, habitat, or fisheries	☐
Net decrease of storage capacity OR increase in 100yr elevation	☐	New structures have 2ft+ between lowest enclosed area's floor and 100yr high water elevation	☐
Will floodplain storage be created	☐		

The documentation requirements for this rule have not been met. A review cannot be completed until all required documentation has been submitted.

Additional Notes

6/5/2020 - The proposed project is located within the 1% Special Flood Hazard Area for the Minnesota River. At this time it is not known if the project will reduce the flood storage capacity of the floodplain or not, but the potential impact should be con

Stormwater Managment

This project triggers one or more thresholds for this rule.

Type of project Development

Triggers

One acre or more of impervious surface	☑	Are trout streams protected	☐
HVRA Overlay District		Rate control exceeded for 1, 2, 10, and 100yr 24-hour event	☐
Located within the HVRA Overlay District	☑		
If yes, Meets the HVRA threshold	☑	Projects with 1+ acres of new impervious: are MPCA's Construction General Permit	☐

Criteria

Post-construction runoff rates exceed existing rates for 1, 2, 10, and 100yr 24-hour events?	☐	Net increase of TP	☐
		Net increase of TSS	☐
New Development: the post-construction runoff volume retained onsite equal 1.1 inches of runoff from impervious surfaces	☐	Is maintenance adequately addresse	☐
		Project will result in a net decrease of TP and TSS	☐
Redevelopment: the project will capture and retain onsite 1.1 inches from new/fully reconstructed impervious surface	☐	Volume control requirements sufficiently addressed	☐
Linear: the site will capture and retain (a) 0.55 inches of runoff from new/fully reconstructed impervious, or (b) 1.1 inches of runoff from the net increase in impervious area	☐		

The documentation requirements for this rule have not been met. A review cannot be completed until all required documentation has been submitted.

Alternative Infiltration Measures

Additional Notes

6/5/2020 - Option 1 (Dig & Line) proposes to dig up the existing landfill waste and construct an

impermeable liner under the waste, replace the waste, then cap with an impermeable cover over the waste per current regulatory standards. The purpose of a landfill liner and cap are to provide a permanent separation between the landfill waste and surface and groundwater, as such, the cap and liner should be considered impervious surface and would trigger the District's Rule D - Stormwater Management.
Option 2 (Dig & Haul) would remove the waste from both sites and presumably replace the waste with clean fill and pervious surface. In which case, Rule D would not be triggered.

Steep Slopes

This rule does not apply.

Triggers		***Criteria***	
Is the project in the Steep Slopes Overlay District	☐	Has the project been certified by a professional engineer	☐
Excavation of 50 cubic yards+ of earth	☐	Adverse impact to waterbodies	☐
Displacement of 5,000 sq. ft+ of earth	☐	Unstable slope conditions	☐
Vegetation removal or displacement	☐	Degradation of water quality	☐
		Preservation of existing hydrology	☐
Activities that require LGU permits	☐	New discharge points along slope	☐

Additional Notes

resourceful. naturally.
engineering and environmental consultants

Meeting Notes

Freeway Landfill and Dump Closure – LMRWD

June 18, 2020
3:00pm – 4:00pm

Attendees: LMRWD: Linda Loomis, Della Schall Young, Katy Thompson
Barr: Jim Herbert, Eric Lund, Bryan Pitterle

1. Introductions and Meeting Objectives

- Jim Herbert kicked off the meeting, thanked everyone for joining, and provided a brief overview of the agenda and meeting objectives

2. LMRWD Rules

- Rule A: Administrative and Procedural Requirements
  - Burnsville does not have an approved Municipal Permit with LMRWD
  - LMRWD confirmed an Individual Project Permit is requested

- Rule B: Erosion and Sediment Control
  - LMRWD and Barr confirmed applicability of rule
  - Bryan clarified that the side slopes of the landfill will be at 5H:1V and have downslope drainage collection berms/ditches at 200' maximum spacing. Water that is collected off the landfill top or within the downslope drainage collection berms/ditches is routed to downslope inlets and then pipes that flow to energy dissipators at the toe of slope.
  - Katy Thompson requested considerations be made for runoff or outfalls to the fen complex surrounding the dump site, especially if any concentrated stormwater becomes a part of the project.

- Rule C: Floodplain and Drainage Alteration
  - LMRWD and Barr confirmed applicability of rule
  - Della Schall Young inquired about who MPCA and Barr were working with from the city and MN DNR regarding the floodplain. Eric Lund indicated the primary DNR contact has been Suzanne Jiwani and the city contacts are Ryan Peterson and Jenni Faulkner. Eric stated the city has requested a no-rise certificate but has confirmed no approval or permit is required from the city.

- Rule D: Stormwater Management
  - Barr's position is that the proposed landfill cover should be defined as pervious because the liner is two feet deep and the surface soils do not impede entry of water into the soils.
  - LMRWD considers the proposed landfill cover as impervious due to the liner system and to ensure consistency with its review of future projects.
  - LMRWD indicated a willingness to work with the MPCA for a variance to its Rate Control requirement given that the MPCA will have an O & M plan and the cover soil materials will provide some filtration.
  - LMRWD and Barr concurred that if the proposed cap is considered as an impervious surface then the existing cap should also be considered as an impervious surface (to the extent documentation supports an existing clay cap).

- Operations & Maintenance (O & M)
    - LMRWD emphasized the importance of continued O & M at the site. Barr indicated the MPCA has a program for maintaining its sites that will be described in the final application.

3. Schedule

- Eric Lund described that the currently assumed schedule is as follows
    - July 2020 - selected variation of dig-and-line option
    - November 2020 – bid both dig-and-line and dig-and-haul options
    - Early 2021 – legislature selects which option receives funding
    - Summer 2021 – construction begins

4. Action Items

- Eric Lund to reach out to Ryan Peterson (City) and Jenni Faulkner (City) to see if it is OK to forward an email regarding city coordination and permitting. [Post meeting note – task completed and email forwarded]
- Della Schall Young to reach out to Suzanne Jiwani with the MN DNR to coordinate floodplain and flood conveyance alterations.
- Barr to begin preparing documentation that would support request for variance for rate control requirements as part of Rule D. Additional correspondence with LMRWD prior to submittal may be requested.

Young Environmental Consulting Group, LLC

Technical Memorandum

To: Linda Loomis, Administrator
Lower Minnesota River Watershed District

From: Katy Thompson, PE, CFM
Della Schall Young, CPESC, PMP

Date: August 12, 2020

Re: Fort Snelling Redevelopment Permit Review (LMRWD No. 2020-113)

Loucks has applied for an Individual Project Permit from the Lower Minnesota River Watershed District (LMRWD or District). Together with Dominium (the project owner), they are proposing to redevelop a portion of Fort Snelling, located east of the intersection of Colville Avenue and Taylor Avenue, in Hennepin County, Minnesota (**Figure 1**). The project proposes to renovate historic buildings to provide multifamily housing and construction of associated roads, surface parking, garages, utilities, and stormwater management systems.

Because the proposed project is located in Fort Snelling and subject to LMRWD permitting review, the applicant must receive a District permit for triggering the District's Rule B—Erosion and Sediment Control and Rule D—Stormwater Management. The project is not located within the FEMA floodplain or the District's Steep Slopes or High Value Resources overlay districts.

An initial review of the proposed project was completed on July 30, 2020, and the applicant was contacted to clarify several minor concerns on August 5, 2020, including proposed land uses and modification to the proposed conditions HydroCAD modeling. The applicant provided supporting documents on August 7, 2020, and the project review has been revised following review of the new information.

Project Summary

Project Name:	Fort Snelling Redevelopment
Purpose:	Residential
Project Size:	46.8 acres, 23.40 acres disturbed, 12.43 acres of existing impervious, 16.68 acres of proposed impervious, and 4.25 acres of new impervious created
Location:	6409 Taylor Avenue, St. Paul, MN 55111
Applicable LMRWD Rules:	Rule B—Erosion and Sediment Control Rule D—Stormwater Management
Recommended Board Action:	Conditional approval, see recommendations

Discussion

The District has received the following documents for review:

- LMRWD Individual Permit Application by Loucks, dated July 17, 2020
- LMRWD Individual Permit Fee of $1,500 (Check No. 169016), received July 20, 2020
- 11x17 Full Civil Plan Set by Loucks, dated July 20, 2020
- Stormwater Management Plan by Loucks, dated September 10, 2019, revised July 20, 2020
- Draft Stormwater Maintenance Agreement, received July 20, 2020
- SWPPP Narrative by Loucks, dated July 20, 2020
- Watershed Response Memo by Loucks, dated August 7, 2020
- Landscape Plans by Loucks, dated April 10, 2020, revised June 17, 2020, and July 24, 2020
- Revised Proposed HydroCAD Report by Loucks, dated August 5, 2020

The documents provided include the information necessary for review.

Rule B—Erosion and Sediment Control

The District regulates land-disturbing activities that affect one acre or more under Rule B. The proposed project would disturb approximately 47 acres within the LMRWD boundary, including the creation of 4.25 acres of new impervious surfaces. The applicant has provided an erosion and sediment control plan and Stormwater Pollution Prevention Plan (SWPPP). Minor discrepancies exist between the areas proposed in

the SWPPP and other project documentation.

A NPDES permit is required for a District permit as well as an executed maintenance agreement with the District. The applicant has provided a draft maintenance agreement, which has been submitted to the District counsel for review.

Rule D—Stormwater Management

The District requires stormwater management for projects that propose to create one acre or more of new impervious area. The provided information demonstrates that the project will create an additional 4.25 acres of impervious surfaces.

The project will connect to the existing storm sewer near or within the MnDOT right-of-way at several locations (**Figure 1**). A summary of the proposed outfalls is provided below:

- **1R:** Overland flow to the golf course; no BMP treatment provided
- **2R:** Overland flow to the baseball fields; no BMP treatment provided
- **3R:** Connection to existing MnDOT storm sewer, stormwater treatment provided by an underground infiltration gallery (1P) and an infiltration basin (2P)
- **4R:** Connection to existing MnDOT storm sewer and a new outfall to MnDOT right-of-way; no BMP treatment provided
- **5R:** Connection to existing MnDOT storm sewer; no BMP treatment provided

The following is a discussion of the District's stormwater requirements.

Rate Control

Section 4.4.1 of Rule D requires that applicants demonstrate no increase in proposed runoff rates when compared with existing conditions. The Fort Snelling Redevelopment project would discharge at four locations, three east to MnDOT storm sewers or right-of-way (3R, 4R, and 5R) and one northwest to the baseball fields (2R). The project proposes to redirect flow away from the existing 1R outfall to the 3R system. A summary of the provided HydroCAD modeling appears in **Tables 1** through **6** below.

Table 1. HydroCAD Drainage Area and Impervious Summary

OUTFALL	EXISTING CONDITIONS		PROPOSED CONDITIONS		CHANGE	
	Drainage Area (ac)	Impervious Area (ac)	Drainage Area (ac)	Impervious Area (ac)	Drainage Area (ac)	Impervious Area (ac)
1R	4.856	1.439	0	0	-4.856	-1.439
2R	2.776	1.061	2.637	0.425	-0.139	-0.636
3R	24.328	6.121	28.108	9.495	+3.78	+3.374
4R	5.662	0.42	7.474	2.081	+1.812	+1.661
5R	9.161	3.387	8.579	3.896	-0.582	+0.509
TOTAL	**46.783**	**12.428**	**46.798**	**15.897**	**+0.015**	**+3.469**

Table 2. Peak Runoff Rates at Discharge Point 1R from HydroCAD Models

EVENT	EXISTING (CFS)	PROPOSED (CFS)	CHANGE (CFS)
1-YR / 24-HR	3.61	0	-3.61
2-YR / 24-HR	4.97	0	-4.97
10-YR / 24-HR	10.64	0	-10.64
100-YR / 24-HR	24.47	0	-24.47

Table 3. Peak Runoff Rates at Discharge Point 2R from HydroCAD Models

EVENT	EXISTING (CFS)	PROPOSED (CFS)	CHANGE (CFS)
1-YR / 24-HR	3.31	2.3	-1.01
2-YR / 24-HR	4.28	3.13	-1.15
10-YR / 24-HR	8.09	6.55	-1.54
100-YR / 24-HR	16.8	14.8	-2

Table 4. Peak Runoff Rates at Discharge Point 3R from HydroCAD Models

EVENT	EXISTING (CFS)	PROPOSED (CFS)	CHANGE (CFS)
1-YR / 24-HR	12.22	1.72	-10.5
2-YR / 24-HR	16.67	2.55	-14.12
10-YR / 24-HR	28.11	17.08	-11.03
100-YR / 24-HR	55.72	54.32	-1.40

Table 5. Peak Runoff Rates at Discharge Point 4R from HydroCAD Models

EVENT	EXISTING (CFS)	PROPOSED (CFS)	CHANGE (CFS)
1-YR / 24-HR	4.49	3.46	-1.03
2-YR / 24-HR	6	4.75	-1.25
10-YR / 24-HR	12.12	10.37	-1.75
100-YR / 24-HR	26.66	25.19	-1.47

Table 6. Peak Runoff Rates at Discharge Point 5R from HydroCAD Models

EVENT	EXISTING (CFS)	PROPOSED (CFS)	CHANGE (CFS)
1-YR / 24-HR	8.28	6.48	-1.8
2-YR / 24-HR	10.82	8.89	-1.93
10-YR / 24-HR	20.86	18.93	-1.93
100-YR / 24-HR	44.22	43.72	-0.5

There are minor discrepancies between the results reported in the Stormwater Management Plan and the provided HydroCAD modeling; however, both show a reduction in runoff rates at all locations.

The proposed conditions HydroCAD model uses slightly different curve numbers for the open space areas (grass cover, woods, and woods/grass combination) that indicate potential restoration activities may occur as part of this project. The provided landscape plans indicate the applicant intends to remove existing invasive vegetation and replant with native short grass prairie species, which justifies the lower curve numbers.

Volume Reduction

Section 4.4.2 of Rule D requires volume reduction for post-construction stormwater runoff volume for projects that create more than one acre of impervious surface. The applicant proposes to treat the new 4.25 acres of impervious surface with two infiltration BMPs to meet the District requirement of one inch of rainfall over the new impervious surfaces or 15,442 cubic feet (CF) of volume reduction.

The proposed underground infiltration gallery (1P) consists of four rows of 37 chambers made from 60-inch perforated corrugated metal pipe (CMP) on top of a six-inch aggregate base that provides approximately 21,480 cubic feet (CF) of infiltration potential. The applicant provided soil boring information with the stormwater management plan. Soil boring ST-21 is located within the footprint of the underground infiltration gallery and indicates that the underlying soils may be a sandy clay that may not provide the assumed level of infiltration used in the

supporting HydroCAD modeling. The soil boring did not go deep enough to confirm adequate separation exists between the bottom of the infiltration zone and seasonally high groundwater or other infiltration-limiting features. The applicant provided additional information on August 7, 2020, in the "Watershed Response Memo" that demonstrated the seasonally high groundwater elevation at BMP 1P is 797.50 and that the groundwater separation requirement of three feet is met.

The proposed infiltration basin (2P), however, does have adequate separation from groundwater (the boring log at ST-10 showed no signs of groundwater to a depth of 801.4) and suitable underlying soils to provide the design infiltration capacity of 4,827 CF. A summary of the proposed infiltration BMPs is provided in **Table 7** below.

Table 7. Infiltration BMP Design Summary

BMP	BOTTOM ELEVATION	OUTLET ELEVATION	MAX. DEPTH (FT)	PROVIDED STORAGE (CF)	DESIGN HIGH WATER LEVEL	EMERGENCY OVERFLOW ELEV.
1P	800.50	802.20	1.7	21,480	805.51	n/a
2P	808.00	809.20	1.2	4,827	812.34	814.10

Water Quality

Section 4.4.3 of Rule D requires projects that create more than one acre of impervious surface to provide evidence that no net increase in total phosphorus (TP) or total suspended solids (TSS) in the receiving waters would result from the project. The overall project will create 4.25 acres of new impervious surface, and the two infiltration BMPs have been proposed to meet the District's water quality requirements. The proposed BMPs provide an overall reduction for both TP and TSS (**Table 8**), meeting the District's water quality requirements.

Table 8. MIDS Water Quality Summary

	Total Area (ac)	Impervious Area (ac)	Area Routed to Proposed BMPs (ac)	TP Annual Load (lbs)	TSS Annual Load (lbs)
Existing	46.783	12.428	0	31.029	5,636.8
Proposed	46.798	16.689	20.613	24.729	4,373.8
			Change	**-6.3**	**-1,263.0**

Recommendations

Overall, the project as proposed appears to meet the requirements laid out in the District Rules, and we recommend conditional approval of the project by the Board. The following are required to satisfy the conditions:

- Copy of the NPDES permit
- Any modifications to the stormwater maintenance agreement if determined necessary by the District's legal counsel

Attachments:

- Figure 1. Proposed Fort Snelling Redevelopment Project Location Map

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

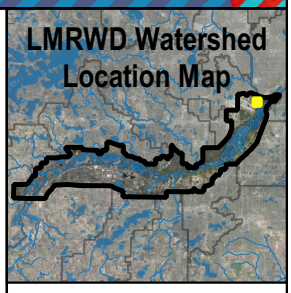
Figure 1: Fort Snelling Redevelopment Project Location

LEGEND

- Project Location
- Proposed Outfall Locations
- Infiltration Basin (2P)
- Infiltration Gallery (1P)
- Public Waterbodies
- Steep Slopes Overlay District
- Hennepin Co. Parcel Data
- Streets

Hennepin Co. Floodplain

- 100-yr Floodplain
- 500-yr Floodplain
- Floodway



Young Environmental Consulting Group, LLC

Young Environmental Consulting Group, LLC

Technical Memorandum

To: Linda Loomis, Administrator
Lower Minnesota River Watershed District

From: Katy Thompson, PE, CFM
Della Schall Young, CPESC, PMP

Date: June 11, 2020

Re: Prairie Heights Preliminary Review (Permit No. 2020-103)

Norton Homes has applied for an Individual Project Permit with the Lower Minnesota River Watershed District (District or LMRWD) for Prairie Heights, a 24-lot, single-family home subdivision in Eden Prairie, Minnesota. The proposed project is not in the High Value Resource Area overlay district or in the Steep Slope overlay district. The applicant has also applied for a preliminary plat approval from the City of Eden Prairie and provided these documents to the District for review.

The Prairie Heights project spans the boundary between the District and the Riley-Purgatory-Bluff Creek Watershed District (RPBCWD). The extension of Surrey Street and construction of six single-family homes comprise the extent of the proposed improvements within the District. The portion of the Prairie Heights project within the District flows into RPBCWD under both existing and proposed conditions, and all proposed stormwater best management practices (BMPs) are located within the RPBCWD boundary (**Figure 1**).

Summary

Project Name:	Prairie Heights
Purpose:	Construction of a 24-lot, single-family, detached home subdivision by Norton Homes
Project Size:	10.71 acres platted, 9.63 acres of disturbance (2.48

	acres in the District), 0.38 acres of existing impervious, and 2.78 acres of new impervious surface (1.1 acres in the District)
Location:	Southwest of Pioneer Trail and Yorkshire Lane, Eden Prairie, MN (Parcel IDs 2711622140035 and 2611622230005)
Applicable LMRWD Rules:	Rule B—Erosion and Sediment Control Rule D—Stormwater Management
Recommended Board Action:	Conditional approval, pending approval by RPBCWD

Discussion

Norton Homes is proposing to construct a new subdivision comprising 24 single-family detached home lots southwest of the intersection of Pioneer Trail and Yorkshire Lane in Eden Prairie, Minnesota (Hennepin County Parcel IDs: 2711622140035 in LMRWD and 2611622230005 in RPBCWD). The District was provided with the following documents for review:

- Storm Water Management Plan for Prairie Heights Preliminary Plat, dated May 18, 2020, by Alliant Engineering, Inc.
- Preliminary Plat Plans, dated May 18, 2020, by Alliant Engineering, Inc.

The proposed project is located in the City of Eden Prairie and would normally be subject to municipal review; however, the City of Eden Prairie does not have an approved Municipal Permit with the District, and as such, the applicant must receive a District permit prior to construction.

Rule B—Erosion and Sediment Control

The District regulates land-disturbing activities that affect one acre or more outside the High Value Resource Area Overlay District under Rule B. The proposed project disturbs a total of 9.63 acres, which includes 2.48 acres and approximately 1 acre of new impervious surfaces within the District boundary. Norton Homes has provided a preliminary erosion and sediment control plan and a Stormwater Pollution Prevention Plan with the preliminary plat submittal. The Storm Water Management Plan states that there will not be a homeowners association. The applicant may need to enter into a stormwater maintenance agreement with the City of Eden Prairie and/or the RPBCWD to ensure proper long-term maintenance of the proposed stormwater facilities.

Rule D—Stormwater Management

The District requires stormwater management for projects that propose to create more than one acre of new impervious surface. Although the project is proposing approximately 1.1 acres of impervious area within the District boundaries, it will be treated in stormwater basins located with the RPBCWD.

Rate Control

Section 4.4.1 of Rule D requires that applicants demonstrate no increase in proposed runoff rates when compared to existing conditions. Although the proposed impervious within the District is treated outside the District limits in Basin A, the rate control requirement for the proposed development is met. A summary of the provided results appears in **Table 1** below.

Table 1. Prairie Heights West Outlet (Basin A) Rate Control Summary

EVENT	EXISTING (CFS)	PROPOSED (CFS)	Δ (CFS)
2-YR 24-HR	3.52	2.39	–1.13
10-YR 24-HR	10.49	10.04	–0.45
100-YR 24-HR	31.5	22.75	–8.75
100-YR 10-DAY (SNOW)	7.5	5.6	–1.9

Volume Reduction

Section 4.4.2 of Rule D requires volume reduction for post-construction stormwater runoff volume for projects that create more than one acre of impervious surface. Based on the Storm Water Management Plan provided, Norton Homes proposes to excavate in situ soils and backfill with amended soils due to clay soils and filtrate rather than infiltrate to meet the volume reduction/abstraction credit for the District and RPBCWD. The applicant is proposing to filter the stormwater runoff in excess of the 1.1-inch requirement imposed by RPBCWD.

Water Quality

Section 4.4.3 of Rule D requires projects that create more than one acre of impervious surface to provide evidence that no net increase in total phosphorus (TP) or total suspended solids (TSS) in the receiving waters will result from the project.

The applicant has provided P8 modeling to demonstrate an overall reduction in TP and TSS, exceeding the District requirements.

Recommendations

Although the project is located in both the Lower Minnesota River Watershed District and RPBCWD, the applicant has proposed a design that attempts to meet both districts' requirements. From our review of the preliminary plat submittal, the project as presented meets the Lower Minnesota River Watershed District criteria for both Rules B and D. We recommend it be conditionally approved, pending the following:

- Approval of the project by the Riley-Purgatory-Bluff Creek Watershed District
- Revision of the narrative and a final review of final plans should changes be made at the request of the Riley-Purgatory-Bluff Creek Watershed District
- Submission of a copy of the NPDES permit
- Submission of a copy of the final RPBCWD permit and executed maintenance agreement with the RPBCWD permit

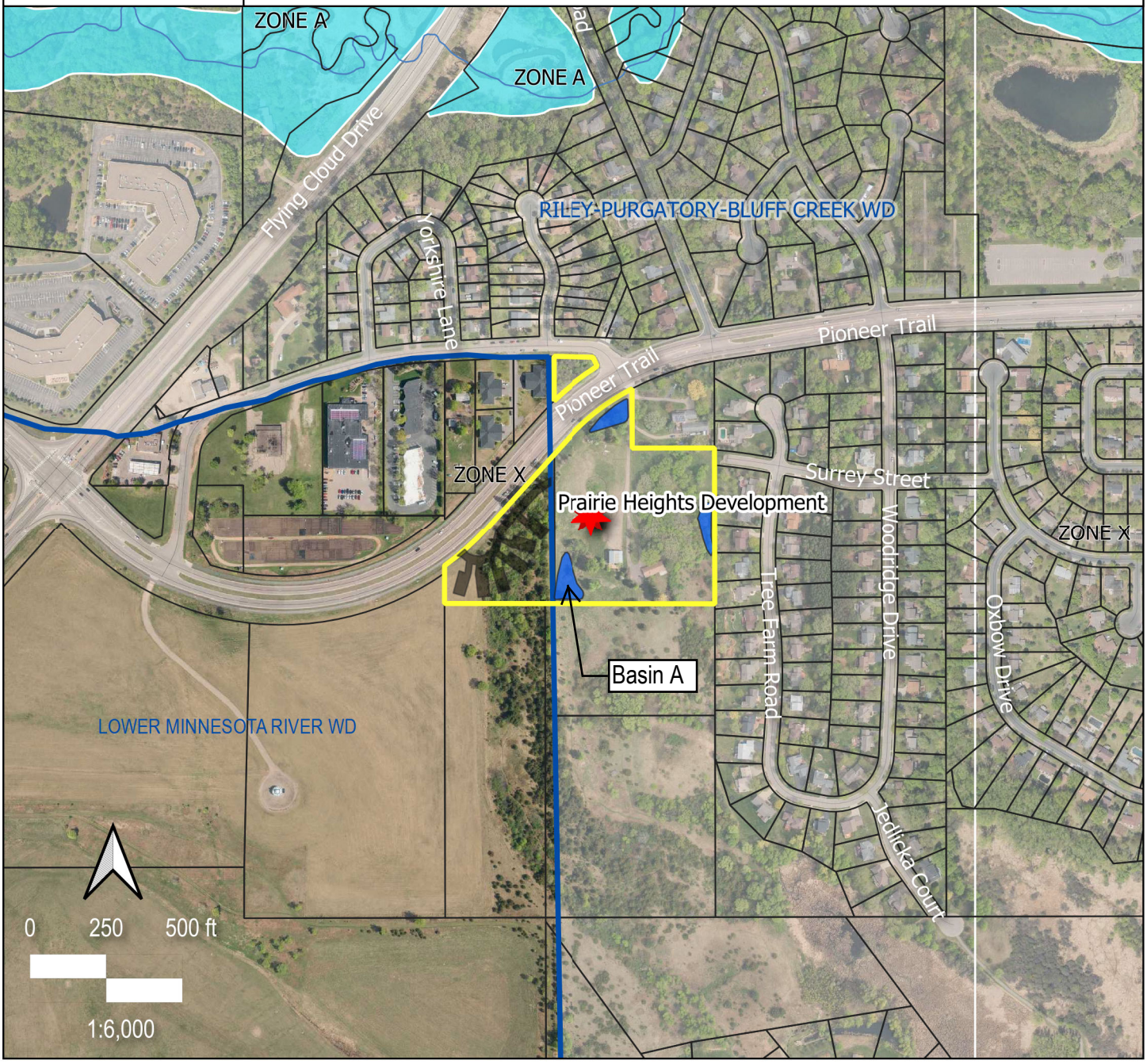
Attachments:

Figure 1. Proposed Prairie Heights Project Location Map

LMRWD Permit Review Checklist

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Figure 1: Prairie Heights Preliminary Review
Eden Prairie, MN
09-June-2020



LEGEND

- LMRWD Boundary
- Proposed Project Area
- Proposed Impervious
- Proposed Stormwater Basins
- Hennepin Co. Parcels
- Hennepin Co. Floodplain
- 100-yr Floodplain
- Floodway
- 500-yr Floodplain
- Calcareous Fen Locations
- HVRA Overlay District
- Steep Slopes Overlay District

Young Environmental Consulting Group, LLC

LOWER MINNESOTA RIVER WATERSHED DISTRICT
PROJECT REVIEW

Project ID	2020_0103	Authorization Agent	Patrick Hiller
Project Name	Prairie Heights Development	Email Address	path@nortonhomes.com
Organization	Norton Homes	Phone Number	7635592991

Notes: 5/27/2020 - Rcvd application

Project Summary

Anticipated start date	7/13/2020	Date received	5/27/2020
Project location	12701 Pioneer Tr	Project map included?	☑
Project acres	9.63	Is the project in an unincorporated area?	☐
Total disturbed acres	9.63	Is it located in a High Value Resource Area	☐
New impervious acres	2.78	Is it located in a Steep Slope Overlay Distric	☐

Local Partners

n/a

Other Sensitive Area

Th proposed project straddles the LMRWD and Riley-Purgatory-Bluff Creek Watershed District boundary

Project Description

Norton Homes is proposing a 24-lot single family, detached villa home development in Eden Prairie, MN

Additional Notes

Review Status

Is this a preliminary review?	☑
Is this a permit review?	☑
Does this project require a techincal revie	☑

Project Status

Project is pending	☑
Project is active	☐
Project has been archived	☐

Erosion and Sediment Control

This project triggers one or more thresholds for this rule.

Triggers		Criteria	
Disturbs one acre plus	☑	Erosion and Sediment Control Plan	☑
Located within the HVRA Overlay District	☐	Inspection and maintenance addressed	☐
Meets the HVRA threshold	☐	NPDES/SDS General Construction Permit documentation	☐

The documentation requirements for this rule have not been met. A review cannot be completed until all required documentation has been submitted.

Additional Notes

6/8/20 - Prelim SWPPP and ESC provided

Floodplain Drainage Alteration

This rule does not apply.

Triggers

Changes in water surface elevation of floodplain	☐	Calculations by a professional engineer demonstrating no decrease to conveyance	☐
If yes, Compensatory storage equal or greater than volume of fill	☐	Conveyance capacity decrease below 100yr high water elevation	☐
If no, No-rise certification by a professional engineer	☐	Temporary placement of fill	☐

Criteria

Net decrease of storage capacity OR increase in 100yr elevation	☐	Adverse impacts to water quality, habitat, or fisheries	☐
Will floodplain storage be created	☐	New structures have 2ft+ between lowest enclosed area's floor and 100yr high water elevation	☐

Additional Notes

Stormwater Managment

This project triggers one or more thresholds for this rule.

Type of project Development

Triggers

One acre or more of impervious surface	☑

HVRA Overlay District

Located within the HVRA Overlay District	☐
If yes, Meets the HVRA threshold	☐

Criteria

Post-construction runoff rates exceed existing rates for 1, 2, 10, and 100yr 24-hour events?	☐
New Development: the post-construction runoff volume retained onsite equal 1.1 inches of runoff from impervious surfaces	☐
Redevelopment: the project will capture and retain onsite 1.1 inches from new/fully reconstructed impervious surface	☐
Linear: the site will capture and retain (a) 0.55 inches of runoff from new/fully reconstructed impervious, or (b) 1.1 inches of runoff from the net increase in impervious area	☐
Are trout streams protected	☐
Rate control exceeded for 1, 2, 10, and 100yr 24-hour event	☑
Projects with 1+ acres of new impervious: are MPCA's Construction General Permit	☑
Net increase of TP	☑
Net increase of TSS	☑
Is maintenance adequately addresse	☐
Project will result in a net decrease of TP and TSS	☐
Volume control requirements sufficiently addressed	☐

The documentation requirements for this rule have not been met. A review cannot be completed until all required documentation has been submitted.

Alternative Infiltration Measures

Infiltration not possible at all basins due to poor soils, filtrating stormwater per RPBCWD standards instead.

Additional Notes

6/10/20 - Stormwater runoff to be treated by three infiltration basins located within RPBCWD.

Steep Slopes

This rule does not apply.

Triggers		***Criteria***	
Is the project in the Steep Slopes Overlay District	☐	Has the project been certified by a professional engineer	☐
Excavation of 50 cubic yards+ of earth	☐	Adverse impact to waterbodies	☐
Displacement of 5,000 sq. ft+ of earth	☐	Unstable slope conditions	☐
Vegetation removal or displacement	☐	Degradation of water quality	☐
Activities that require LGU permits	☐	Preservation of existing hydrology	☐
		New discharge points along slope	☐

Additional Notes