LOWER MINNESOTA RIVER
WATERSHED DISTRICT

October 2020 Administrator report
From: Linda Loomis, Administrator
To: LMRWD Board of Managers

In addition to items on the meeting agenda, work continues on the following District projects and issues:

Other Work

Watershed Based Funding
The Minnesota River North group last met on August 17, 2020. They are working on scheduling the next meeting in November. BWSR requested additional information for the Area #3 stabilization project from the LMRWD. A survey was sent to the group to establish criteria for prioritizing projects that have been submitted. Lower MN River North has been allocated $673,699 for FY 2020/2021.

The Minnesota River South group held its 5th meeting September 18, 2020. Its 6th meeting is scheduled for November 20, 2020. The group agreed to allocate 15% to feasibility studies, 10% to education & outreach and 75% to on-the-ground projects. They also agreed that percentages could shifted depending on the projects that are submitted. Lower MN River South has been allocated $829,075 for FY 2020/2021.

Meeting notes are available (for both groups) if Managers wish to see them.

One Watershed One Plan - Planning Area 56
The last meeting of this group was September 15, 2020. The next meeting of this group has been scheduled for Tuesday, November 24th from 11:00 am to 1:00pm. There has been no agreement as to the boundaries of the planning area (Managers may remember there were a few different options). It is likely that the area will be those areas that do not currently have a watershed management plan, since many of the entities in the area want to be on an advisory group rather than on the planning committee.

Data Management
The date of completion for this project has been extended. The person assigned this project by the contractor has had some health issues, so a new person, Mariah Helgeson, has been assigned to the project. Mariah and I met virtually to discuss how to organize the District's data. We now have a list of meta-tags by which to categorize documents as they are stored. The next step is to determine a file structure and then determine which cloud service will work the best for the District. Board members should think about whether or not Managers want access to the database and what they would want access to.

Watershed Plan Projects

Gully Inventory and condition assessment: The 2020 fieldwork was completed on August 30, 2020. Staff has been finalizing the document of over 3,000 pages to reduce the file size for the board. The report, which has been posted to the LMRWD website, covers gullies within the cities of Bloomington, Carver, Chanhassen, Chaska, Eden Prairie, Lilydale, Jackson Township, Mendota and Mendota Heights. It is the first volume in the overall gully project; the second phase of the work started this month and will cover the remaining cities within the District (Burnsville, Eagan, Savage and Shakopee), which were

not inventoried in 2008. Volume 1 is being used to assist with individual permits, project development and municipal rule review to document existing gully conditions and begin conversations with municipalities about potential restoration projects. When complete, the gully report will consist of two technical volumes and a plain-language summary report that will document all known gullies within the LMRWD and can be used to track their development through time. The final document can be accessed on the project page on the LMRWD website. (Appendices have not yet been uploaded to the site)
Project website: http://lowermnriverwd.org/projects/mn-river-corridor-management-project

Eden Prairie Area #3 Stabilization: After the Board approval at the May 20, 2020 meeting, Young Environmental coordinated collection and review of additional data at the Area #3 project site. The additional data confirm that the river has continued to move and cause erosion at the toe of the embankment. Further review indicates that groundwater seeps may also pose a threat to future stabilization efforts and the future designs should include adequate drainage to prevent extended soil saturation. Staff recommends completion of the preliminary and final engineering design of the rock vane option. The final memo has been posted to the Area #3 page of the LMRWD website.
Project website: http://lowermnriverwd.org/projects/mn-river-corridor-management-project

Riley Creek Cooperative project/Lower Riley Creek restoration: No new information since last update.
Project website: http://www.rpbcwd.org/whats-happening/projects/lower-riley-creek-ecological-restoration

Seminary Fen ravine stabilization project: There is no new information to report since the last update.
Project website: http://lowermnriverwd.org/projects/bwsr-clean-water-fund-grant-administration

East Chaska Creek: (Carver County Watershed Based Funding): We are still waiting for written permission from the City.
Project website: http://lowermnriverwd.org/projects/east-chaska-creek-bank-stabilization

Schroeder Acres Park (Scott County Watershed Based Funding): The City provided the LMRWD with a scope of work for this project from WSB. Since this project will be funded in part by Watershed Based Funding from BWSR, the scope of work was sent to BWSR. BWSR approved of the scope of work. Savage City Council is considering approval of the project at its October 19th meeting. Project website: http://lowermnriverwd.org/projects/schroeder-acres-parkeagle-creek-sub-watershed-stormwater-study

Shakopee Downtown BMP Retrofit (Scott County Watershed Based Funding): No new information to report since the last update.
Project website: http://lowermnriverwd.org/projects/targeted-bmps-downtown-shakopee

PLOC (Prior Lake Outlet Channel) Restoration (Scott County Watershed Based Funding): This project is also called Ridge Creek and action on this item is on the October meeting agenda.
Project website: http://lowermnriverwd.org/projects/prior-lake-outlet-channel-realignmentwetland-restoration

Dakota County Fen Gap Analysis and Conceptual Model (Dakota County Watershed Based Funding): Barr Engineering has completed the vegetative assessment of the Dakota County Fens. The report is being finalized.
Project website: http://lowermnriverwd.org/projects/dakota-county-fen-study-management-plan

Hennepin County Chloride Project (Hennepin County Watershed Based Funding): No new information since last update.

Vegetation Management Plan: No new information since last update.

Sustainable Lake Management Plan: Trout Lakes: No new information to report since last update.

Geomorphic Assessment of Trout Streams: Work is continuing to review data provided by the project partners; the MN Department of Natural Resources (MNDNR) and the US Fish & Wildlife Services to

develop a gap analysis and long-term management plan for the trout streams within the District. Staff has met several times with project partners to discuss the project and gather feedback on the process, evaluation criteria, assumptions and final report outline.

A field inspection was held on October 13, 2020, attended by staff and MNDNR staff to discuss the alignment and history of alterations of the streams in Eagan (Kennealy's Creek, Harnack Creek/Unnamed !, Unnamed 3 and Unnamed 4). The site visit helped provide additional background on the trout streams, their current alignment and the area's development history. The information collected from the site visit will be incorporated into the final report. A summary of the site visit can be accessed using this link
Project website: http://lowermnriverwd.org/projects/geomorphic-assessment-trout-streams

Spring Creek Cost Share: No new information to report since the last update.

West Chaska Creek Re-meander: No new information to report since last update.

Seminary Fen Ravine Restoration Area C2: No new information to report since last update.

Project Reviews

Watermark in Savage: City of Savage - District staff had a preliminary discussion with the applicant to determine which rules would apply to this project. The project is a multi-family development to be located north of Savage City Hall on Dakota Avenue.

Texas Roadhouse: City of Shakopee - The LMRWD received an application for a Texas Roadhouse restaurant to be located in the Shakopee. It determined the application was incomplete and the applicant was notified. There is an issue with an understanding of who will be responsible for maintenance of the stormwater BMPs.

Southbridge Crossing 6th Addition: City of Shakopee - The District received an application and determined the application was incomplete. The developer was contacted and is working through some issues with a neighboring property.

Veterans Memorial Bridge: City of Shakopee - This item is on the October meeting agenda.

Quarry Lake Park Improvements: City of Shakopee - The City provided a Lake Level Analysis report of Quarry Lake (a land-locked lake) to the District for review and comment. This analysis reviewed lake levels in Quarry Lake over the past five years and evaluated several options for installing an outlet. The District's review of the Analysis is attached.

Prairie Heights: City of Eden Prairie - No new information to report since the last update.

Carver County CSAH 10: City of Chaska - No new information to report since the last update..
Project website: https://www.co.carver.mn.us/departments/public-works/projects-studies/highway-10-study-victoria-chaska-area

Keyland Development: City of Shakopee - No new information to report since the last update.

Hentges Industrial park: City Shakopee - No new information to report since the last update.

9960 Deerbrook, Chanhassen: No new information to report since last update.

Summerland Place Residential Development EAW: Shakopee - No new information since last update.

Timber Creek Residential Development EAW: Carver - No new information to report since last update.

MNDOT TH13 Improvement Study: A meeting was held for the business community on October 1st, which I attended. The same information was presented at the public meeting held the week after. Plans are to proceed with the Dakota Avenue intersection and begin construction in 2021. There are three options for alignment of the intersection being considered. The LMRWD has not received any

information from MNDOT regarding the stormwater plans, so we contacted MNDOT to ask for an update.
Project website: http://www.dot.state.mn.us/metro/projects/hwy13savageburnsville/index.html

Historic Fort Snelling Revitalization: No new information to report since the last update.
Project website: https://www.dnr.state.mn.us/input/environmentalreview/upperpost/index.html

HCRRA MN River Bluffs Regional Trail: Some changes to this project were made after construction began. The LMRWD requested information detailing the changes and are currently reviewing them. The maintenance agreement will also need to be amended.

MNDOT ADA Trail improvements in Mendota: No new information since last update.

MNDOT trail drainage improvements in Lilydale: No new information since last update.

MNDOT Trail - 494: Preliminary review of this project indicates that several District rules would be triggered by the project. The trail alignment does impact the Gun Club Lake High Value Resource Area and Steep Slope Overlay Districts on both side of the River. No Board action is needed st this time, as MNDOT was looking for a preliminary determination as to what rules this project would trigger. The District's review of information provided is attached.

MNDOT - TH5: Work continues on this project.
Project website: http://www.dot.state.mn.us/metro/projects/hwy5mpls-stpaul/index.html.

City of Chanhassen - Moon Valley Gravel Pit: No new information to report since last update.

City of Carver - Hawthorne Ridge: This project is complete and they are working on the punch list.

City of Carver - Levee rehabilitation: This item is on the October meeting agenda.

City of Carver - Jonathan Parkway upgrades -The District received a revised submittal on September 28, 2020. Anticipated construction is April 2021. On October 5, 2020 District staff requested additional information on the project and received a link to the information. It is likely this item will come before the Board at the November meeting.
Project website: https://www.co.carver.mn.us/departments/public-works/projects-studies/jonathan-carver-parkway-highway-11-improvements

Dakota County - MN River Greenway: No new information to report since last update.
Project website: **https://www.co.dakota.mn.us/parks/About/TrailPlanning/Pages/minnesota-river.aspx**

City of Burnsville - Freeway Dump and Landfill: No new information to report since last update.
Project website: https://www.pca.state.mn.us/waste/freeway-landfill-and-dump

Note: *This project was previously reported as the Burnsville Sanitary Landfill. There are two landfill projects going on in Burnsville. The one reported on this month is a cleanup of a super fund site - Freeway Dump and Landfill. The second landfill project is a request from the Burnsville Sanitary Landfill (owned by Water Management) to expand the amount of waste that it can bring to the site.*

City of Eden Prairie - Peterson Wetland Bank: No new information to report since last update.

City of Chanhassen - TH 101 Improvements: No new information to report since the last update. The most recent newsletter from the City of Chanhassen is attached
Project website: https://www.highway101improvements.com/

Cities of Richfield/Bloomington - TH 77 & 77th Street underpass: Funding for this project was included in the bonding bill that was just passed by the legislature. Engineers for the project contacted the LMRWD and were informed that they will have to apply for a permit and advised to apply as soon as possible.

City of Bloomington - MN Valley State Trail: No new information to report since last update.
Project website: https://www.dnr.state.mn.us/state_trails/minnesota_valley/plans.html

Hennepin County - CSAH 61/Flying Cloud Drive: This project is complete and will be removed from future reports.

MNDOT - I494/TH 5/TH 55 Mill & Overlay project: No new information to report since last update.
Project website: https://www.dot.state.mn.us/metro/projects/i494invergroveheights/

MNDOT - I35W Bridge Replacement: No new information to report since last update.
Project website: https://www.dot.state.mn.us/metro/projects/i35wbloomington/index.html

MNDOT - I494 from TH169 to Minnesota River: No new information to report since last update.

Scott County - TH 41/169/78 Interchange: This project is essentially complete. I have attached the October 2020 Newsletter for this project. This project will be removed from future updates. Further information can be found on the Project website https://www.scottcountymn.gov/1778/Highways-1694178-Interchange?PREVIEW=YES&PREVIEW=YES&PREVIEW=YES&PREVIEW=YES

MAC/LMRWD/MCWD boundary realignment: No new information to report since last update.

USACOE/USFWS - Bass Ponds, Marsh & Wetland: This project is scheduled to begin this month.
Project website: https://www.scottcountymn.gov/1865/Bass-Ponds-EAW

Upcoming meetings/events

- Metro MAWD - Tuesday, October 20, 7:00pm to 9:00pm
- UMWA - Thursday, October 22, 2020, 12:30pm to 1:30pm, contact District Administrator to join
- Water Resource Conference - October 20-21, virtual conference, registration can be accesses through link provided.
- BWSR Academy - October 27th - 29, 2020, Virtual, no charge
- USACE River Resource Forum #118 - December 1-2, MN Valley US Fish & Wildlife Service Visitor's Center, Bloomington, MN
- MAWD Annual Conference - December 1st - 4th, 2020, Virtual

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: October 14, 2020

Re: Quarry Lake Outlet Project Review (LMRWD No. 2020-114)

The City of Shakopee (the City) has submitted the Quarry Lake Water Level Management Plan (the Plan) to the Lower Minnesota River Watershed District (LMRWD or the District) for review through its consultant WSB & Associates (WSB). Young Environmental Consulting Group, LLC (Young Environmental), the district engineer, has reviewed the Plan and offers the following comments to the City.

Background

Quarry Lake is an artificial lake, which resulted from past quarry operations breaching the Prairie du Chien bedrock confinement layer, and primarily fed by groundwater springs. It is landlocked and has no normal outlet, causing water levels to rise and fall with changes in precipitation. It has an emergency overflow to the Prior Lake Outlet Channel (PLOC), which runs along the western boundary of the lake at elevation 738 to the north over the railroad tracks at elevation 739.9, and discharges into the Minnesota River (see **Figure 1**).

In 2019, the water levels in Quarry Lake rose high enough to inundate some of the infrastructure within the park. The City installed emergency pumps to draw down the lake levels two feet over a two-month period in 2019. As a result of the cost of the pumping operations, the City has developed a feasibility study to analyze groundwater influences and outlet options for Quarry Lake to control lake levels.

The City is also currently undertaking several capital improvement projects at Quarry

Lake Park. The Quarry Lake Park Improvements Project, a municipal roadway and park improvement project, was presented to the District in July 2020 for an individual project permit. At the time, the proposal included the construction of a new boat launch at Quarry Lake, a roadway to provide access to the boat launch, and a driveway to provide access to the adjacent Xcel Energy facility. On August 27, 2020, the District received a new plan set and a request from the applicant that the proposed permit application be amended to include a mountain-bike park on the south side of the parcel. On September 8, 2020, the District was notified by the applicant that the park and roadway improvements were on hold; the only construction project moving forward would be the construction of the mountain-bike trails. No new impervious surfaces would be constructed as part of the mountain-bike trails at this time. At the September 16, 2020, board meeting, the managers conditionally approved the trail project, pending receipt of their NPDES permit.

While Quarry Lake is not a public water of the state, it is state-designated trout water and stocked. It was missed during the District's high-value resource area (HVRA) overlay of area delineations and designations, but it falls under the definition of the HVRA within the LMRWD. The District will work with the City to define the HVRA around Quarry Lake. An additional review completed by Young Environmental determined that the project area is neither in the FEMA floodplain nor within the District's Steep Slope Overlay District.

The Minnesota Well Index indicates there are many wells in the area. One 1955 well record indicates the groundwater elevation may have been around 724. The more recent 2011 Scott County LiDAR data indicate the lake elevation may have been as low as 718, while 2016 aerial images show lake levels back up to 724. This brief analysis, as well as the nature of a landlocked lake, suggests that the lake has likely experienced frequent lake-level fluctuations since its creation. The draft *Sustainable Lake Management Plan* for Quarry Lake further confirms this, as does the City's *Local Surface Water Management Plan*, which states that varying lake levels are an issue of concern for the City and that there is a desire to coordinate with LMRWD to evaluate the need for a Quarry Lake outlet to prevent further shoreline erosion. The *Sustainable Lake Management Plan* also recommends installing a staff gage to measure lake levels and better assess how the lake surface elevation relates to the elevation of other nearby waters, including groundwater.

Although Young Environmental's review encompasses the evaluation of the outlet and creation of a normal water elevation, it focuses on the District's Floodplain and Drainage Alteration Rule C.4.d, which requires that "no person shall . . . drain surface water . . . without demonstrating the activity has no adverse impact on upstream or downstream landowners or water quality, habitat, or fisheries." Below is a summary of our findings and comments/questions for the City to address.

Lake Level Management Plan Summary

WSB developed the Plan using the city-wide XPSWMM model to simulate stormwater runoff conditions and create a water budget for the lake from 2014 to 2019. Lake level data from 2014 and 2019 were used to match the starting and end elevations in the model. The modeling indicates the lake levels fluctuated between 721 and 724.5 during this time period and are increasing overall due to groundwater inflows. Future conditions modeling predicts this increasing trend will continue with a peak elevation of 730 by year 2030.

The Plan proposed three alternatives to managing lake levels, which are summarized in **Table 1**.

Table 1. Quarry Lake Outlet Alternatives

Alternative	High Water Elevation	Construction and O&M Costs	Estimated Infrastructure Impacts
1. No Build	740.0	$0	$1,400,000
2. Gravity Outlet	726.4	$287,000	$56,000
3. Pumped Outlet	724.4	$482,000	$22,000

Option 2, a gravity outlet, was recommended because of its lower construction costs and maintenance needs. The no-build alternative was not considered because the modeling predicted that water levels would continue to rise, detrimentally affecting the existing parking lot, fishing pier, trails, and trees within Quarry Lake Park. To calculate these infrastructure impacts, the no-build alternative presumed a "probable equilibrium elevation" in Quarry Lake of 740 based on the railroad overflow elevation.

Questions for the City

After reviewing the Plan, we have several points of clarification we would like to discuss with the City.

1. Lake Levels

- We acknowledge the City's concerns with shoreline erosion and potential infrastructure damage from the fluctuating lake levels on Quarry Lake. Recognizing that 2019 was one of the wettest years on record, what is the likelihood of the lake experiencing levels similar to 2019 in the future?
- The Plan mentions that the PLOC has overtopped into Quarry Lake during high-flow events and "has the possibility to create even greater HWLs in Quarry Lake." Does the gravity outlet option include a means for controlling the overtopping of the PLOC in the future?

2. Modeling

- We generally use the Chanhassen weather station or the MSP International Airport for modeling in this area; however, we have noticed that the St. Paul Downtown Airport rainfall record was used. What is the rationale for using the rainfall record from that location?
- We understand groundwater monitoring data were not readily available for the study. Given the assumptions made in the water balance, what is your confidence in the groundwater inflows used in the XPSWMM modeling?
- We typically calibrate models using a stage hydrograph. Can you elaborate on your calibration and validation process used for the XPSWMM model to confirm the predicted water surface elevations?
- What are the anticipated discharge rates and effects of the proposed gravity outfall on the PLOC?

3. Invasive Species

- The Plan and the *Sustainable Lake Management Plan* for Quarry Lake state the lake is infested with Eurasian milfoil and will provide a filtering component to the outfall to prevent it from moving downstream. What about other species entering the lake if there is a gravity connection, such as zebra mussels or invasive carp?
- How frequently do the PLOC and/or Quarry Lake overtop? If they do not, then the gravity outfall would be directly connecting infested water.
- We have not previously seen the proposed filtering box screen device. Please provide more information on its details and effectiveness.

Additionally, as we reviewed the City's official controls, we found the following items from the City's 2019 draft *Local Surface Water Management Plan* that should be addressed as part of the outlet design:

- It is in conformance with the approved Water Resource Management Plan and City's design criteria;
- It does not cause downstream flooding;
- It provides sufficient dead storage to retain back-to-back 100-year, 24-hour rainfalls;
- It will not affect the stability of downstream water resources; and
- It has been demonstrated that volume control practices alone will not address the problem.

Recommendation

The District has not received a project permit application at this time; however, a permit for the proposed outfall is required under Rule C, and the project would need to meet those requirements, including specifically addressing how the proposed outlet would prevent adverse impacts on Quarry Lake, the PLOC, and the Minnesota River for landowners, water quality, habitat, or fisheries. We recommend close coordination with the City to determine whether the need for an outlet exists and additional monitoring data are warranted to determine if 2019 represented an extreme year.

Attachments:

- Figure 1. Quarry Lake Outlet Location Map

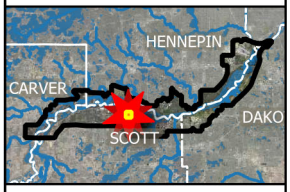
LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Figure 1: Quarry Lake Proposed Outlet

LEGEND

- Proposed Outlet Location
- Proposed Gravity Outlet Alignment
- LMRWD Boundary
- Scott Co. 2-ft Contours
- Public Streams
- Public Waters
- Railroads

LMRWD Watershed Location Map



Young Environmental Consulting Group, LLC

Note: 2016 aerial shown indicates a lake level elevation of approximately 722.

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:	October 16, 2020
Re:	S.P. 2785-433 TH 494 Trail Reconstruction and Bridge Rehabilitation Project (LMRWD No. 2020-130)

The Minnesota Department of Transportation (MnDOT) contacted the Lower Minnesota River Watershed District (LMRWD or District) on to determine whether their proposed TH 494 trail reconstruction project would trigger a District Individual Project Permit.

On September 17, 2020, Young Environmental Consulting Group (Young Environmental) participated in an early coordination virtual meeting to discuss the project and District rules that could be triggered by the proposed project. During the call, Young Environmental asked MnDOT to provide GIS shapefiles of the trail alignment to comprehensively review it and provide additional guidance to MnDOT on which District rules would apply. The requested information was received by Young Environmental on September 21, 2020. Subsequently, MnDOT provided examples of vegetated riprap it might use on the project for our review and comment. Below is a summary of our review.

The proposed alignment (Figure 1) shows the trail along the south side of the TH 494 Minnesota River bridge, following the same alignment of an existing trail that extends from American Boulevard in Bloomington over the Minnesota River to Eagan. The proposed alignment crosses into the District's High Value Resource Area (HVRA) around the Gun Club Lake Fen complex, Steep Slopes Overlay District (SSOD), and FEMA floodplain. MnDOT is proposing structural repairs and a mill and overlay of the pavement on the bridge, as well as widening the pedestrian trail from 8 feet to 10 feet wide.

Based on what has been presented, the project would trigger *Rule B – Erosion and Sediment Control*, due to the disturbance within the Gun Club Lake Fen HVRA (exceeding 5,000 square feet of disturbance or 50 cubic yards of excavation).

MnDOT is proposing structural repairs and a mill and overlay of the pavement. The work will result in temporary impacts to the floodplain, but it should be noted that work related to the piers, footings, or abutment structures does not negatively affect the hydraulic conveyance capacity of the bridge. A no-rise certification would meet address the requirements of *Rule C – Floodplain and Drainage Alteration*.

Additional information on the wet pond reconstruction and confirmation that high-water elevations would not be changed is necessary.

Per our discussion with MnDOT, the proposed trail is designed to meet the exemptions provided in *Rule D – Stormwater Management* (10-foot maximum trail width with a minimum of 5-foot-wide vegetated buffers on either side). Due to the slopes, MnDOT is proposing vegetated riprap along the trail edges. This method allows plants and vegetation to grow within the voids of typical riprap by filling the voids with compost and then seeding or planting. MnDOT confirmed via email on October 13, 2020, that the riprap would be placed on a granulated filter bed, not an impenetrable liner. Combined with vegetative planting, this would allow rainfall to infiltrate rather than run down the embankment, which happens with traditional riprap. Therefore, the proposed vegetated riprap appears to meet the intent of the District's vegetated buffer requirement for trail exemption under Rule D.

In Bloomington and Fort Snelling, the proposed trail crosses the District's SSOD several times, triggering *Rule F – Steep Slopes*. If possible, we recommend adjusting the alignment to avoid the SSOD. If not, preservation of the existing hydrology and drainage patterns would be necessary to avoid damage to the fragile slopes.

Recommendations

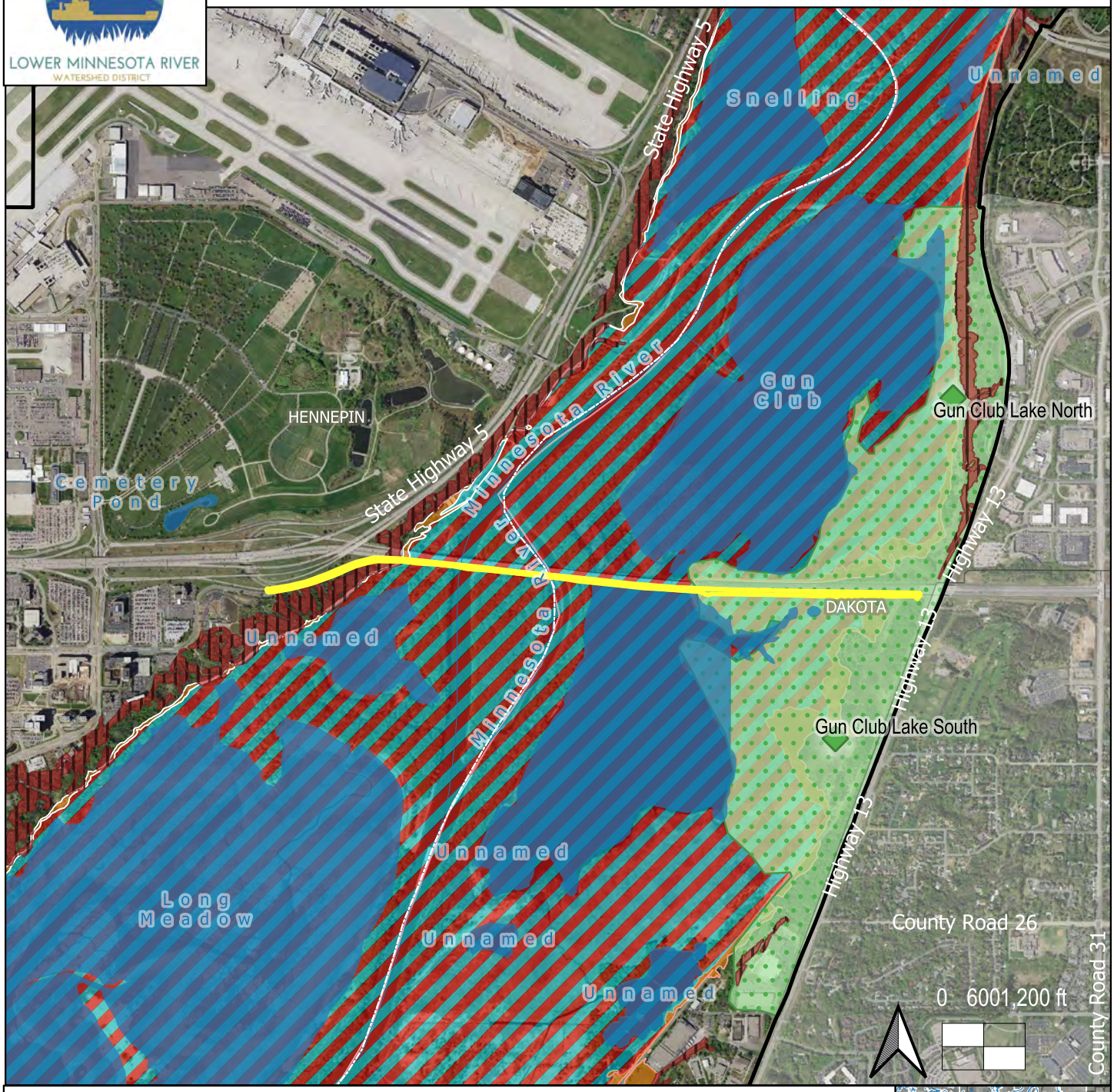
No Board action is needed at this time. We request that MnDOT complete the LMRWD online permit application and provide additional information about the proposed trail, whether any work is proposed for the bridge itself, the extent of project disturbance, and a cross-section of the proposed vegetated riprap.

Attachments

Figure 1 – Project Location Map

October 5, 2020 Examples of MnDOT Vegetated Riprap

Figure 1: 2785-433 TH 494 Trail



LEGEND

Project Location

Public Waterways

Public Waterbodies

Steep Slopes Overlay District

High Value Resource Area Overlay District [HVRA]

LMRWD Calcareous Fens

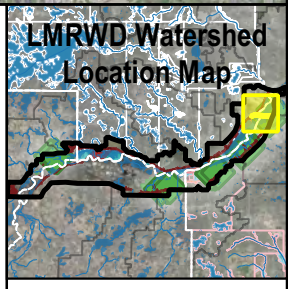
FEMA Special Flood Hazard Areas

Floodway

100-yr Floodplain

500-yr Floodplain

Area With Reduced Flood Risk Due to Levee



Young Environmental Consulting Group, LLC

Exhibit A: SP 8210-102 on TH95 Field Images

TH 95: First step of installation (5/11/2017).

TH 95: Second step of installation/turf establishment (5/12/2017).

TH95: Inspection 8/4/2017 shows successful turf establishment.

Exhibit B: Images courtesy of Dwayne Stenlund. "TH13 compost grout of riprap to solve a slope failure above the rail road." (Near Lilydale or Mendota).

RootRap

Exhibit C: TH23 in St. Cloud, separate from the recent TH23 project in District 1 for which the we have shown the Special Provision.

Vegetated Riprap
(Root-Rap, Compost Grouting)

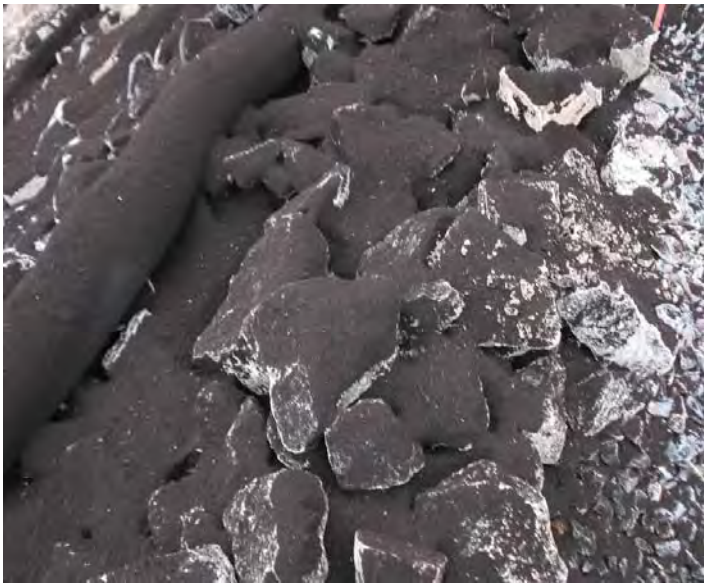
This method is a bioengineering practice for establishment of plant material within the voids of typical riprap. The concept is to inject compost, or organic soils into the riprap voids, then seed the area. We expect to see this practice applied where vegetation is preferred for ecological or aesthetic seasons, yet traditional riprap is required for slope stability or scour prevention. This method has been considered a success along the rocky north shore TH61 roadsides, and is now being applied throughout the state. MnDOT Specification 2577 (Soil Bioengineering Systems) have two applicable specifications for placement of riprap, soil, and overseeding of the riprap voids (2577.3 H Root-Rap & 2577.4 D Granular Channel liner). Costs are similar to sod installation (though this does not include the riprap itself). Where there is suitable light and water, we surmise that this method is better at shoreline protection than either riprap or vegetation alone. The following photos are of this method being applied at the site of the TH23 DeSoto Bridge replacement in St. Cloud. Final grading and site restoration of the temporary access road called for riprap to the top of the bank. In order to vegetate the area, MnDOT worked with DNR and the City of St Cloud to develop a solution to meet all parties interests. MnDOT desired riprap for protection of the slope adjacent to bridge abutments, while the DNR and city desired natural vegetation. The agreed to plan called on Composted Riprap as a solution. For more information on the development of this method see: http://www.glc.org/basin/pubs/projects/mn_AppNatRes_pub02.pdf

This method has proven successful on open slopes, though has only recently been applied adjacent to bridges or open water. Application should be limited to areas above the expected flow line of the river and more than 10 feet away from abutments or the 'drip line' of a bridge.

In the photos on the next page, a Grade 2 leaf and grass feedstock compost, at a rate of 270 cubic yards per acre was applied. This typically filled the riprap voids. Typically voids are filled approximately ¾ full. Compost is not always required, though soils suitable for plant growth is required. Downslope perimeter controls may also be required to limit movement of the compost or soil due to rain and wind events until plant establishment. Unless controlled, over time natural succession from grasses and forbs to shrubs and trees will occur due to seed dispersal from adjacent vegetation.

In this example sediment control logs were placed horizontally to break the slope for erosion control purposes. Also, the steep slope was not favorable for safely walking on, so a boom truck was called upon for broadcast application. Ideally the compost should be truly injected into the voids, though in this case was broadcast over the entire area with hopes of it settling into the voids prior to the winter setting in. Seeding followed compost placement. In this example project, applied seed did not germinate as expected. This was determined to be a combination of the south facing slope along and drought conditions. Subsequent years growth was noted to include species from natural dispersal of adjacent vegetation.

The TH 23 Mississippi River Crossing project was installed during in the fall of 2009.



First spring (2010)

One year later (2011)

Third year (2013)

Highway 101 IMPROVEMENTS
(Pioneer Trail to Flying Cloud Drive)

CONSTRUCTION UPDATE

CARVER COUNTY

DEPARTMENT OF TRANSPORTATION

OCTOBER 9, 2020

The following is a summary of the current status of the project construction and the activities that will be occurring over the next few weeks.

Construction Status

- **Highway 101 is closed to traffic from Highway 61 to Creekwood Drive.**
- Construction at the Highway 61 and old Highway 101 intersection has begun.
- Highway 61 has been reduced to one lane in each direction through the project area.
- Roadway construction in the vicinity of the Highway 101 and Creekwood Drive intersection continues.
- Retaining wall construction is underway.

Planned Construction Activities

- Construction on Highway 61 will be completed.
- The HCRRA trail pedestrian bridge will be placed and finished.
- Roadway construction at Highway 101 and Creekwood Drive will continue.
- Retaining wall construction will be completed.
- **Highway 101 will remain closed to traffic from Highway 61 to Creekwood Drive.**

The City of Chanhassen and Carver County are working with our contractors and other partners to complete our construction projects safely and responsibly. Work is being conducted in accordance with guidelines related to COVID-19 to the maximum extent possible, including social distancing and hygiene.

MORE INFORMATION ON THE PROJECT CAN BE FOUND HERE:
www.highway101improvements.com

Highway 101
IMPROVEMENTS
(Pioneer Trail to Flying Cloud Drive)

CONSTRUCTION IMAGES

CARVER COUNTY

DEPARTMENT OF TRANSPORTATION

OCTOBER 9, 2020

Retaining wall construction along Highway 101

Construction on Highway 61 at the old Highway 101 intersection

MORE INFORMATION ON THE PROJECT CAN BE FOUND HERE:
www.highway101improvements.com

Highways 169/41/78 Interchange Improvement Project

OCTOBER 2020 NEWSLETTER

PROJECT UPDATE

The Highways 169/41/78 Interchange Improvement Project is substantially complete. You may see crews on site in the coming weeks while they complete finishing touches, but there are no planned travel impacts associated with this construction.

Thank you to the local business community, area residents and travelers for your sacrifices, patience and collaboration during this important and impactful construction project. We now have a safer interchange that will serve the area's needs for years to come.

PROJECT AT-A-GLANCE

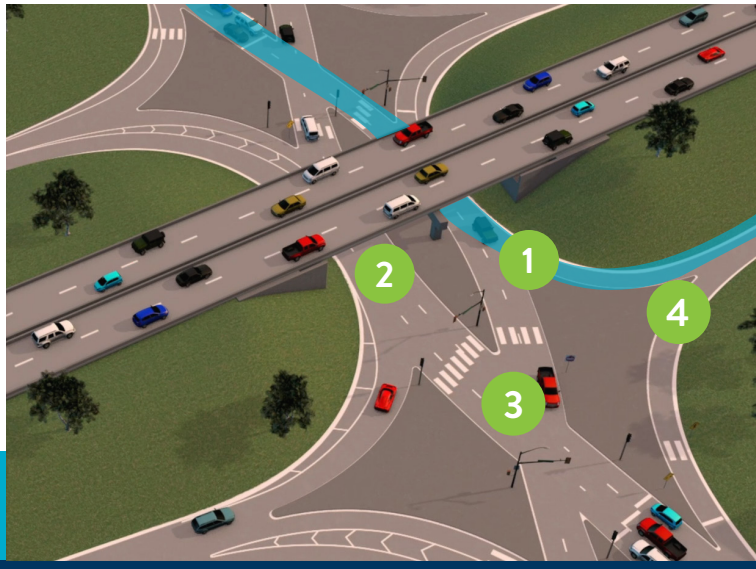
This 2.5-year, $44 million construction project is a collaboration between Scott County and the Minnesota Department of Transportation to improve area safety and access.

Drone photography courtesy of Scott County

The new Diverging Diamond Interchange (DDI) is now open to traffic. Travel improvements include better flow, safer movements on and off Highway 169, and easier access to area businesses.

HOW IT WORKS

1. Vehicles make left turns by crisscrossing at either end of the bridge that carries Highway 169 traffic.
2. Through traffic moves from the right side of the road to the left side of the road then back again.
3. Signs and pavement markings guide vehicles through the intersection.
4. Drivers make right turns when lights and traffic indicate it's safe.



At the stoplight, vehicles cross to the opposite side of the road to make a free left turn without stopping.

Visit the project website to watch a short video on what to do. We know moving through the DDI might feel a bit unusual at first, but with patience and practice, this new way of travel will get easier with each trip.

scottcountymn.gov/169interchange

CONNECT WITH US

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