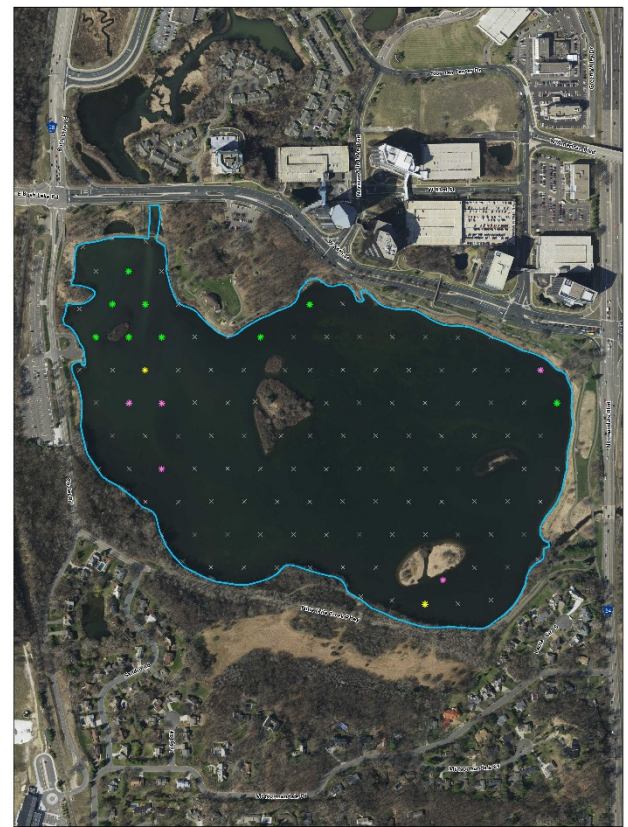


# Engineer's Report

May 14, 2021

## Normandale Lake Water Quality Improvement Project:

An herbicide treatment of Normandale Lake and an upstream portion of Nine Mile Creek (Jostens Pond) was completed on May 10, 2021 using diquat, a contact herbicide, to further reduce the presence of curly-leaf pondweed in Normandale Lake. The herbicide treatment plan, developed based on an April 17, 2021 pre-treatment plant survey, included treatment of a total of 11.5 acres, 10.6 acres in Normandale Lake and 0.9 acres in Jostens Pond. The 2021 treatment area is approximately 30 percent less than the area treated in 2020. In 2020, a total of 16.7 acres was treated. Note that the surface area of Normandale Lake is 116 acres so the 2021 treatment area was less than 15% of the littoral area, as was the 2020 treatment area. Additional aquatic plant surveys will be conducted in Normandale Lake and upstream portions of Nine Mile Creek in June and August of 2021.



The maps above show the locations and rake fullness ratings of curly-leaf pondweed observations from the April 17, 2021 pre-treatment plant survey, in comparison with results from June 26, 2020.

### **Bush Lake Shoreline Vegetation Management:**

On April 14, 2021, Barr staff conducted an onsite walk through of the project area with Landbridge, the vegetation management contractor, to discuss the 2021 work plan. In late-April, the contractor removed woody invasives, including buckthorn, honeysuckle and mulberry. Treatment of reed canary grass within the shoreline buffer was also completed in late-April.

### **Wetland Restoration and Protection Opportunity Identification:**

Barr staff worked on developing a request for proposals (RFP) for a wetland protection scoping and prioritization study, based on board and staff feedback received in April and at the NMCWD's May 6, 2021 workshop. The RFP is to further assess the feasibility, scope, and cost of potential wetland protection projects identified in the Wetland Restoration and Protection Opportunity Identification report (March 2021) and prioritize based on board and staff feedback.

Barr and NMCWD staff had preliminary discussions with representatives of the International School in Eden Prairie regarding potential wetland restoration opportunities on their property, in conjunction with a meeting regarding permitting. Barr and NMCWD staff also participated in meetings hosted by Hennepin County regarding protecting the high quality tamarack wetland adjacent to Glen Lake.



**Protecting and restoring high-quality wetlands is one of the wetland management goals identified in the District's 10-year Water Management Plan.**

### **Lake Level Management Plans for Arrowhead and Indianhead Lakes:**



A meeting to discuss and finalize the report was held with the District and Edina staff on April 28, 2021. We are revising the Lake Level Management Plans report in response to comments and expect to submit the final report in the upcoming weeks.

**Photo of Indianhead Lake in northwest Edina.**

### **Edina Stream Stabilization Project:**

There were no new construction or maintenance activities associated with the project. Landbridge will be completing the final maintenance work for the Phase 2 reaches within the next month, thereby completing the Phase 2 contract obligations.

At the April 21, 2021 regular meeting, the board of managers approved award of a maintenance contract for 2020 vegetative management services for the Phase 1 reaches to Landbridge. The District's administrator is preparing the agreement with Landbridge. Barr and District staff have been working with the City of Edina as they prepare for long term contracting for future maintenance of the Phase 1 and Phase 2 reaches.

### **Discovery Point Restoration and Building Addition Rain Garden and Landscape:**

Rain garden construction on the north side of the building is now complete. Minnesota Native Landscapes (MNL) constructed the BMP over the course of two weeks including the installation of a limestone retaining wall and filtration soils. The garden is now mulched and stable with planting being planned for the coming weeks.

The newly cleared restoration area has been seeded with a diverse native woodland seed mix and erosion control prairie straw was put down. Cover crop is quickly germinating. MNL is responsible for monitoring the status of this area during its establishment period this year.

The southeast corner of Discovery Point is set for restoration as the existing fescue lawn area has been sprayed. A prescribed burn will eliminate remaining fescue and properly prepare the seed bed for the installation of native prairie similar to phases 1 and 2 of the restoration project.

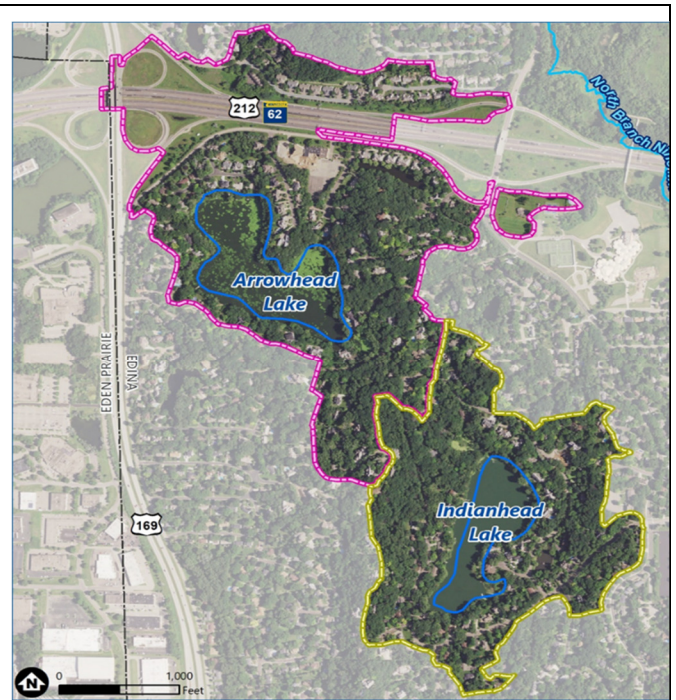


**Left: The maintenance strip above the rain garden is being constructed. Loosened soils in the foreground will be good for infiltration. Right: A lone nodding trillium flower blooms in the newly cleared and seeded restored area**

### Arrowhead Lake and Indianhead Lake Water Quality Study:

An update of the Use Attainability Analysis (UAA) of Arrowhead Lake and Indianhead Lake in Edina is underway, with completion anticipated in 2021. A UAA was originally developed for these lakes in 2006. The goals of this study are to comprehensively evaluate the current water quality and ecological status of these lakes and identify management needs to maintain or improve lake water quality. In-lake data have been analyzed and watershed and in-lake modeling efforts have begun.

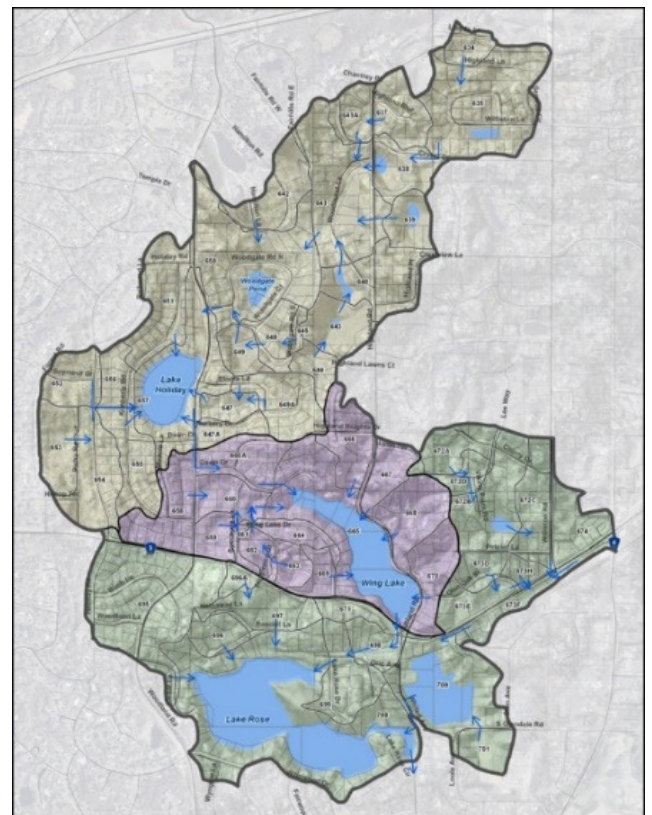
A virtual meeting with interested community members is scheduled for May 25th at 6:00. Meeting notification post cards were sent earlier this week. The meeting will include presentation of background information on lake water quality, an overview of the study, and discussion on lake goals. The meeting will also include discussion with attendees regarding how the lake is used, perceptions of current lake water quality, and other issues/concerns.



Watershed map of Arrowhead Lake and Indianhead Lake in southwest Edina. Both lakes are land-locked.

### Holiday-Wing-Rose Lake Water Quality Study

An update of the Use Attainability Analysis (UAA) of the Holiday-Wing-Rose chain of lakes in Minnetonka is underway with completion anticipated in 2021. The original UAA was completed for these lakes in 2010. The goals of this study are to comprehensively evaluate the current water quality and ecological status of these lakes and identify management needs to maintain or improve lake water quality. These are shallow lakes and it can be expected that aquatic plants and shoreline issues will be of interest to lake residents. This suggests that city (City of Minnetonka) and public engagement will be an important component of these studies. Meetings with the City of Minnetonka and lake residents are anticipated in early summer.



Watershed map of Holiday-Wing-Rose chain of lakes in Minnetonka. Discharge from Rose Lake flows south to Birch Island Lake in Eden Prairie.

**Lake Cornelia and Lake Edina Water Quality Improvements: Rosland Park Stormwater Filtration BMP:**

Design work continues on the Rosland Park Stormwater Filtration BMP. Work in the last month included preparing 90% design level construction drawings which included further refinement of design for traffic control, filter vault layout and grading, vault structural design, piping system (inflow, outflow, and backwash piping), monitoring access and equipment, pump station, electrical, and site restoration. The 90% construction drawings were provided to District and City of Edina staff on April 27, 2021 for review and formal comment. A meeting with District and City of Edina staff to discuss the 90% design drawings was held on May 4<sup>th</sup> and follow-up comments were provided by City of Edina staff on May 11<sup>th</sup>. The primary comments from the city pertained to including a fish screen to prevent fish from reaching the pumping station and modifying the design for the grating on the top of the vault to accommodate maintenance preferences. Barr staff are working on preparing 100% design plans, and technical specifications. We anticipate the project will go out for bid following the June 16, 2021 regular meeting.

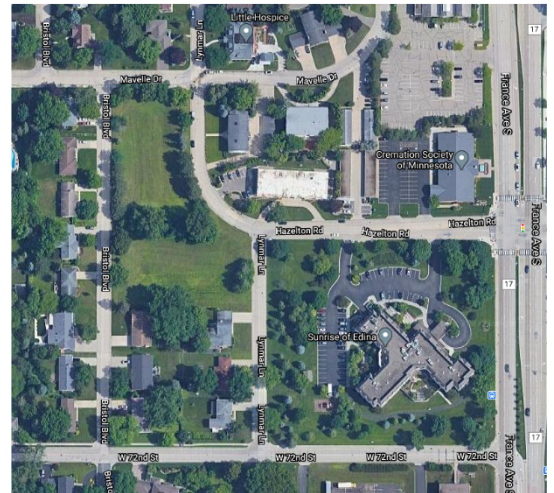
The stormwater filtration vault will include several chambers, in which multiple filtration media can be used/tested to optimize phosphorus removal. Barr staff conducted in-field column test experiments of several filter media options last week at Rosland Park to assess the performance of each media (e.g., TP removal), the filtration rates, and the performance as a function of flow rate through the media (some react quickly and some react slowly). Laboratory results of the testing are pending.

Work on MNDNR US Army Corp of Engineers (ACOE) permitting is ongoing. Barr staff are also working on preparing the application submittal for NMCWD permitting.



## **Lake Cornelia and Lake Edina Water Quality Improvements: Lynmar Basin Stormwater Retrofit Concept Plan:**

The Lynmar Basin, located in the Lake Edina watershed, currently serves as a dry pond, providing flood detention but minimal water quality benefits. This site was identified for implementation of stormwater best management practices in the *Lake Cornelia and Lake Edina Water Quality Improvement Project, Feasibility Study/Preliminary Engineering Report (2020)* to reduce stormwater volume and pollutants to downstream Lake Edina. The proposed partnership project between the District and City of Edina will retrofit and enhance stormwater quality improvement and flood reduction best management features (BMPs) within the park. The proposed project will also seek to provide additional co-benefits, including improved ecology and wildlife habitat, enhanced active and passive recreation opportunities within the park, and educational opportunities for park users.



**Lynmar Basin is a low-lying, turfed/natural area just south of Mavelle Drive, between Bristol Boulevard and Lynmar Lane.**

A community open house meeting was held at the park on April 20, 2021 to answer questions and gather additional input from interested public. Barr, District, and City of Edina staff attended the meeting. Barr and District staff met with the City of Edina on April 29<sup>th</sup> to discuss feedback received from the interested public at the open house and/or web-based survey and its influence on conceptual designs.

The development of concept plans has begun and will be presented to the City and District staff for review and comment in the next month.

### **Wetland Conservation Act (WCA) and NMCWD Wetland Rule Administration:**

Work administering the WCA and NMCWD wetland rule in the past month included:

- Cherokee Trail/Old Shady Oak Road Culvert Improvements (Eden Prairie) – review and discuss responses from permit applicant regarding potential indirect wetland impacts and improvement opportunities, submitting WCA notice of 60-day extension and summary.
- Hennepin County Home School proposed wetland bank site (Minnetonka) – participating in 4/22/21 TEP meeting, communication with MNDNR regarding potential for Exceptional Natural Resource Value crediting, reviewing ecosystem services valuation and habitat management plan.
- Crosstown Core Industrial site (Eden Prairie)- reviewing application, preparing and submitting WCA Notice of Application
- Other miscellaneous program administration

## Atlas 14 Flood Risk and Resiliency, Phase II:

Barr continued to make progress on key project initiatives and tasks associated with Phase II of the Atlas 14 Flood Risk and Resiliency project. A project overview and update was provided to the project Technical Advisory Committee (TAC) at our first project TAC meeting held April 27<sup>th</sup>. Additionally, Barr engaged the TAC to solicit feedback regarding modeling of the mid-century rainfall event, critical infrastructure and municipal building data, sharing of model results, and the framework for evaluating flood mitigation projects (a critical first step leading into Phase III of the Atlas 14 Flood Risk and Resiliency project).

While preparing for the first TAC meeting, Barr continued to make progress on project tasks, and the project as a whole remains on schedule. We completed initial model QA/QC and review of mid-century flood inundation areas. Additionally, we completed hydraulic rating curve calibration and began our first model simulations of the selected calibration events. We are currently processing results and evaluating initial calibration testing strategies.

As we prepare for our next TAC meeting to develop a framework for evaluating flood mitigation projects and complete initial scoping of Phase 3 (identifying flood mitigation and resilience projects throughout the creek system), we will continue to make progress on tasks related to model calibration, “high level” review of crossing failure risks, and quantifying potential flood damage costs.

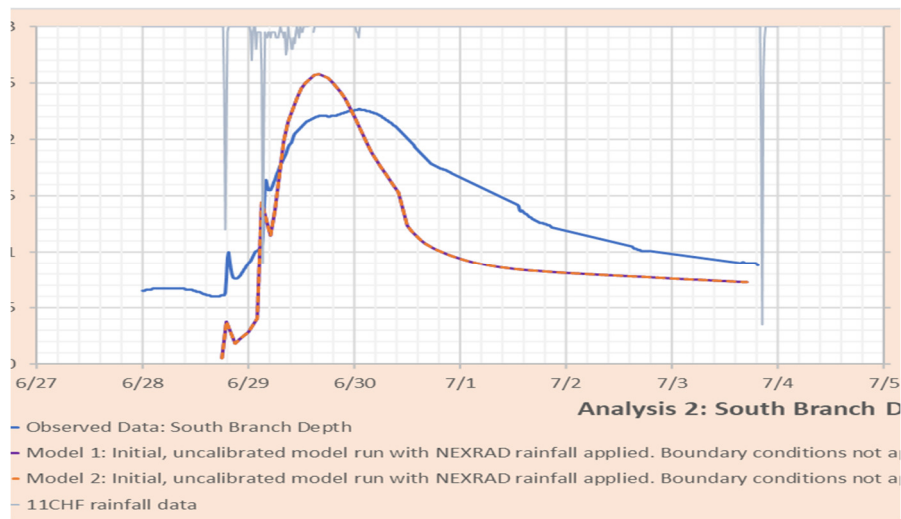


Image showing initial, uncalibrated model result compared to monitored stage at the South Branch Watershed Outlet Monitoring Program (WOMP) station at West 78<sup>th</sup> Street for the 6/28/2020 rainfall calibration event.