



**Title:** County Road 6 Pond Retrofit: 60% Design Briefing

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**Purpose:**

At the September 26, 2024, Minnehaha Creek Watershed District (MCWD) Board of Managers meeting, MCWD staff will provide a status report on the County Road 6 pond retrofit project, which looks to improve the pond's performance and further reduce phosphorus export to Long Lake through the implementation of a gravity sand filter bench and earthen berm. The update will provide overview of (1) how project design has progressed to the 60% design milestone, (2) what components still require additional refinement, and (3) the proposed timeline adjustment as the project advances toward final design and construction.

**Background:**

In 1998, as a result of a Clean Water Partnership diagnostic study, MCWD constructed the County Road 6 Stormwater Pond (CR-6 pond or pond) to capture and treat 3,370 acres of runoff, reducing sediment and nutrient loading to impaired Long Lake, which sits just downstream of the pond. The 2.5-acre pond was designed to remove approximately 50% of the total phosphorus load, when considered in conjunction with Deerhill Pond, which was constructed upstream of the CR-6 pond in 1996. An easement, encompassing the pond and maintenance trail, was obtained from the private landowner to ensure that long-term maintenance, monitoring, and retrofits to the pond could occur.

Long Lake Creek Roadmap

Since 2018, MCWD, Long Lake Waters Association, and the cities of Long Lake, Medina, and Orono have been working together toward a common goal of addressing continued nutrient impairments in the Long Lake Creek Subwatershed. To support this mutual effort, MCWD obtained state grant funding in 2018 and led a subwatershed assessment to (1) provide a scientific understanding of the system, (2) identify cost-effective projects and strategies, and (3) develop an actionable roadmap for implementation for the municipal partners. The roadmap identified 34 projects, prioritizing them using a three-tiered strategy: regional stormwater treatment, landscape projects, and internal load management. Constructing or enhancing regional stormwater facilities, like the CR-6 pond, was recommended as the top priority for its immediate and cost-effective impact on large drainage areas, with localized landscape projects to follow over time.

Supporting the Roadmap's inclusion of the CR-6 pond as a priority opportunity is the recent monitoring data that indicates the CR-6 pond has not been performing as originally designed. Despite being constructed 25 years ago, the pond has never been dredged and is currently approximately 12% full. Additionally, water quality sampling results show high phosphorus concentrations both entering and exiting the pond. These datapoints underscored the necessity to assess the CR-6 pond for potential retrofit opportunities to improve its effectiveness.

Feasibility and Project Identification

In 2023, MCWD contracted with Stantec to conduct a feasibility study to evaluate potential retrofit opportunities, focused on maximizing particulate phosphorus removal. Ultimately, a combination of a gravity sand filter bench and an earthen berm emerged as the most cost-effective solution. In total, these retrofits are projected to remove 52 to 73 pounds of total phosphorus annually with a cost-estimate of \$738,000, which accounts for design and construction.

MCWD formally ordered the project in March 2024, and soon after, on May 9, 2024, awarded a contract with Stantec for engineering and design services. The project team officially kicked off design work at the end of May 2024.

### Initiation-30% Design

Early work focused on wetland delineations, bathymetric mapping, and topographic surveys, to refine MCWD's understanding of the site's existing condition and guide initial design layouts. A design charrette site visit further evaluated filter bench positions, viewshed impacts, preventative maintenance, and potential regulatory constraints. Key decisions made during the 30% design phase included (1) selecting a sand-only unvegetated filter media, (2) confirming the feasibility and benefits of the earthen berm, and (3) identifying the general position of the filter bench to maintain a maintenance corridor off the county road. These decisions have shaped the ongoing work as the design progressed toward 60%.

### **60% Design Update:**

Since completing 30% design, MCWD staff and Stantec have been using both Hydraulic and Hydrologic (H&H) modeling and water quality modeling to optimize the project design. Multiple scenarios were analyzed to assess the effects of various modifications to the weir, filter media elevations and depths, and the berm. The primary goal remains maximizing the volume of water passing through the filter bench for phosphorus reduction while accounting for water-level impacts, site constraints, and easement boundaries. In parallel, early regulatory conversations have been initiated with the Minnesota Department of Natural Resources, the Board of Water and Soil Resources, and the United States Army Corps of Engineers, to align on the regulatory framework and prepare for upcoming permit applications.

While the project is advancing, several design components will require further consideration and refinement before 90% design. These include:

- **Weir Modifications:** Finalizing design details for plugging low-flow openings and raising the overflow cap
- **Maintenance Plan:** Developing a draw down option for filter bench maintenance
- **Drain Tile:** Finalizing the layout of the drain tile system, including cleanouts and grading for the outlet area
- **Berm:** Ensuring material stability to support overflow control
- **Northwest Corner:** Tying in the new raised berm to the pond's northwest corner, including grading adjustments

MCWD staff will focus particularly on a new opportunity in the northwest corner, where H&H modeling has highlighted how current and future pond water levels may interact with areas outside the existing pond footprint and easement. There is potential here for further design optimization, which will require coordination with this property owner, and those discussions have been initiated.

### Next Steps

Given the outstanding design elements, staff are recommending postponing construction from winter 2024-2025 to the following winter (2025-2026). This additional time will allow the team to fully explore the opportunity in the northwest corner, which has potential to strengthen the overall project design and function. Delaying construction also positions MCWD to bid the project at a more favorable time of year, likely increasing the number of responses and reducing costs.

At the September 26, 2024 Board meeting, staff will provide a status update on the 60% design effort, highlighting major project components and the areas where design may continue to evolve as it advances toward 90% design and final plan set.