

County Ditch 23 / Lake Ida AMA Wetland Project

Background and Project Purpose

The purpose of this project is to reduce the amount of phosphorus exiting the wetland and entering Lake Ida. Lake Ida is highly sensitive to phosphorus and protecting the lake is a high priority.

In 2014-16 grab samples were taken along County Ditch 23 at the inlet and outlet of the wetland. These samples showed there was an increase in phosphorus in the water as it was exiting the wetland. In 2018 a feasibility study was completed to determine what was causing the increase in phosphorus and how to address it. The study included water quality sampling, continuous flow measurements, rain fall recording, and input from upstream wastewater treatment plant. The study found that soil in the wetland is off loading a large amount of phosphorus (269 lbs. in 2018) during the summer months when the water is anoxic. A cost to benefit analysis was completed that evaluated multiple treatment options which found that a low flow channel through the wetland would be the best route. A hydrology analysis for the wetland was also completed. The full study can be found here: <http://www.douglasswcd.com/wp-content/uploads/2020/02/Lake-Ida-County-Ditch-23-Contributing-Lakeshed-Study.pdf>

Proposed Project

The recommended project is a low flow channel around the North edge of the wetland. The channel will be 27' wide at the top, with a 3' bottom and 4 to 1 side slopes. Cleaned sand will be used to line the channel, preventing water in the channel from coming into contact with the wetland soils. Spoils will be used to construct a maintenance bench along the upland side of the channel. The channel will pass through the property of three private landowners and the DNR's AMA. County Ditch 23 is currently routed through the middle of the wetland.

Deflection berms will be constructed at turning points in the channel and at a stream inlet point. These berms will help direct and contain the low water flows. Soil borings will be completed spring of 2022 to determine the type of deflection berms needed (berms or sheet piling).

High flows (two-year rain events) will overtop the channel and flow into the wetland. Flows into the wetland from the South and East will not be altered. Natural springs along the South side contribute about 10% of the water in the wetland. The wetland will not be impacted by this project. The water flowing out of the wetland is anoxic (measured dissolved oxygen at outlet was between 1-4 mg/L April – October 2018).

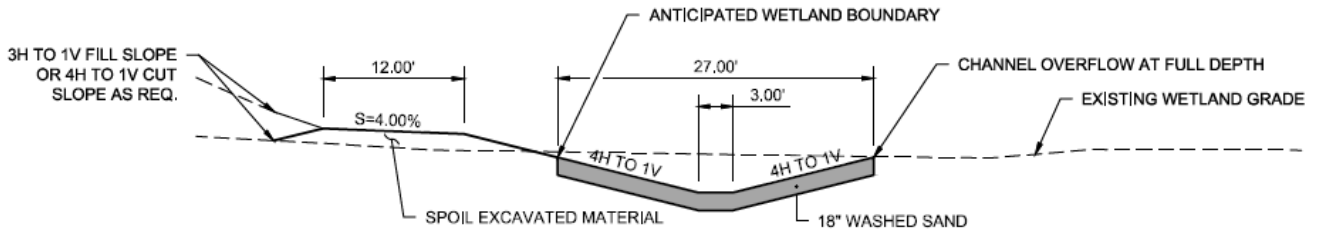
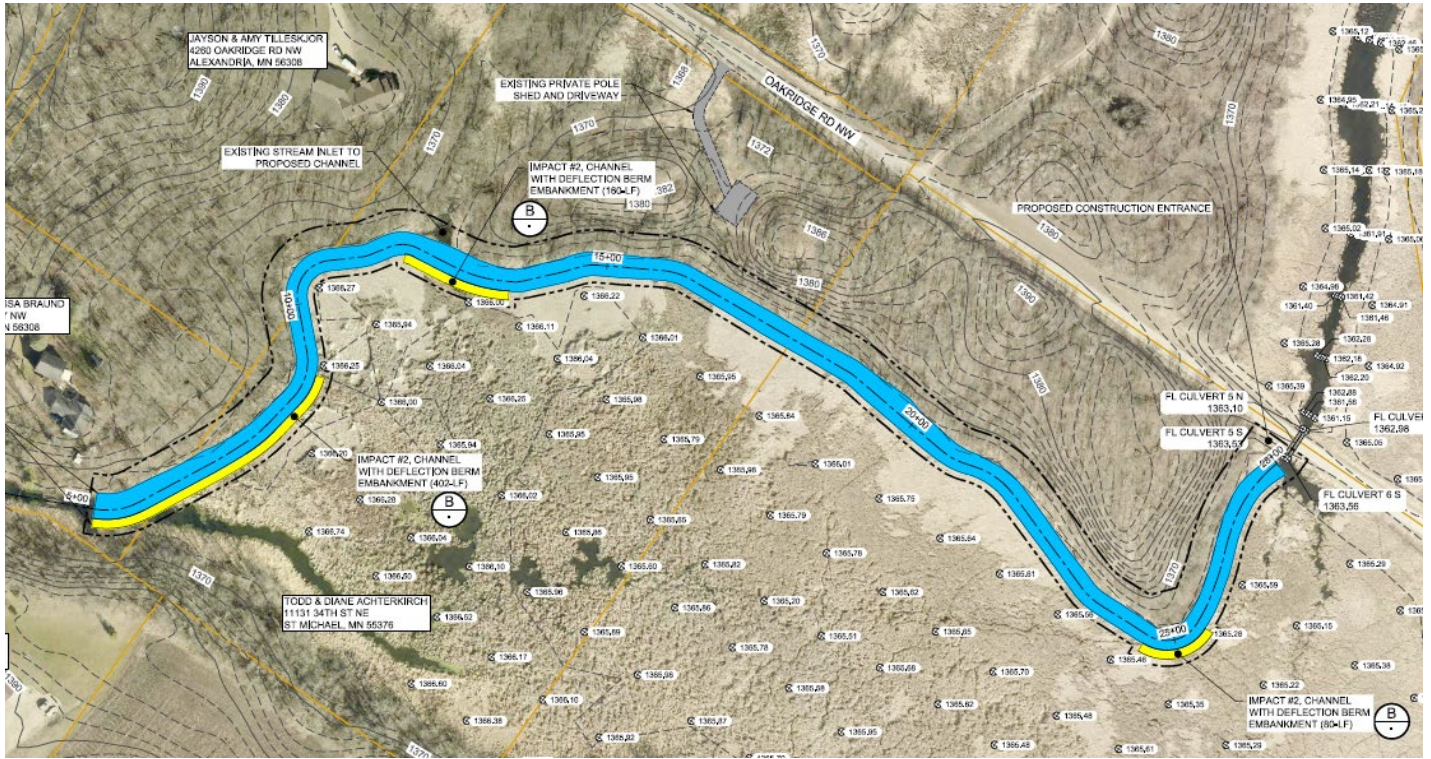
Funding has been secured to complete this project. A Clean Water Grant was awarded to cover 75% of project costs and private Douglas County citizens have completed fundraising to pay for the remaining 25% match.

Permitting Needs

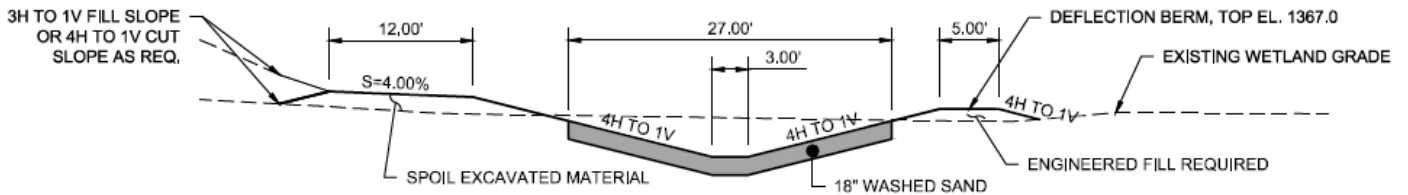
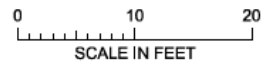
Permits from the DNR, Corps of Engineers, Wetland Conservation Act, and Douglas County will be needed. DNR Natural Heritage and State Historic Preservation reviews will also be sought.

We anticipate that Douglas County will make the channel part of County Ditch 23 and complete the operation and maintenance. The channel would be maintained mostly via herbicides (wetland has thick cattail growth) and on occasion via mechanical methods. This would reduce maintenance costs and risk of damage to the channel.

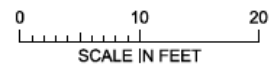
Map of channel location in wetland.



A SECTION: PROPOSED CHANNEL WITH MAINTENANCE BENCH



B SECTION: PROPOSED CHANNEL WITH MAINTENANCE BENCH & DEFLECTION BERM



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