



# DITCH 20 WETLAND RESTORATION FEASIBILITY STUDY



## Study Purpose and Outcomes

The purpose of this study was to identify projects that will improve water quality in Ditch 20 and downstream lakes and rivers, rank those projects by costs and benefits, and provide concept designs sufficient for pursuing installation funding. Ditch 20 is located in southeastern Isanti County. It has been identified as a significant phosphorus source to downstream impaired waterbodies including Typo and Martin Lakes, the Sunrise River, and St. Croix River. The ditch is believed to have altered the hydrology of adjacent peatlands in a way that results in phosphorus export from those soils. Projects were identified to restore wetland hydrology, reduce drainage and remove solids from the water. The cost:benefit ranking and concept designs in this report can be used by watershed managers to select projects to construct.



County Ditch 20

## Components

- Water monitoring to diagnose problems.
- Stakeholder outreach, particularly with landowners.
- Modeling the watershed to estimate feasibility and benefits (pollutant reductions) of possible water quality projects.
- Cost estimation of possible projects.
- Final list of 4 projects ranked by cost effectiveness.

## What's Next...

The information from this study is intended to help watershed managers select from among these or other projects. Those watershed planners include Isanti County, the Sunrise River Watershed Organization, Isanti Soil and Water Conservation District and the Anoka Conservation District. Each has watershed plans that are updated at least every 10 years. The projects may be eligible for grant funding, provided that 10-25% local matching dollars are secured.

## Summary Findings

Four water quality improvement projects were identified that were feasible and had landowner support (see map on back). They included two lateral ditch plugs, one weir in Ditch 20 and a settling pond. These projects were modeled, and concept designs and cost estimates were completed.

A cost-benefits analysis was performed. All of the projects had low costs per pound of phosphorus reduction, making them highly favorable from this standpoint (see table on reverse). For lateral ditch plug and weir projects we considered scenarios with and without bypass ditches to maintain drainage on upstream properties. Scenarios without a bypass ditch were more costly, but still had favorable cost effectiveness.

While these projects are feasible, several factors may make construction a challenge. First, all of these projects would require substantial permitting and legal steps. Second, while our costs estimates are reasonable and likely, actual costs may fall within a wide range due to project complexity. Finally, phosphorus reduction estimates for these projects carry an inherent amount of uncertainty.

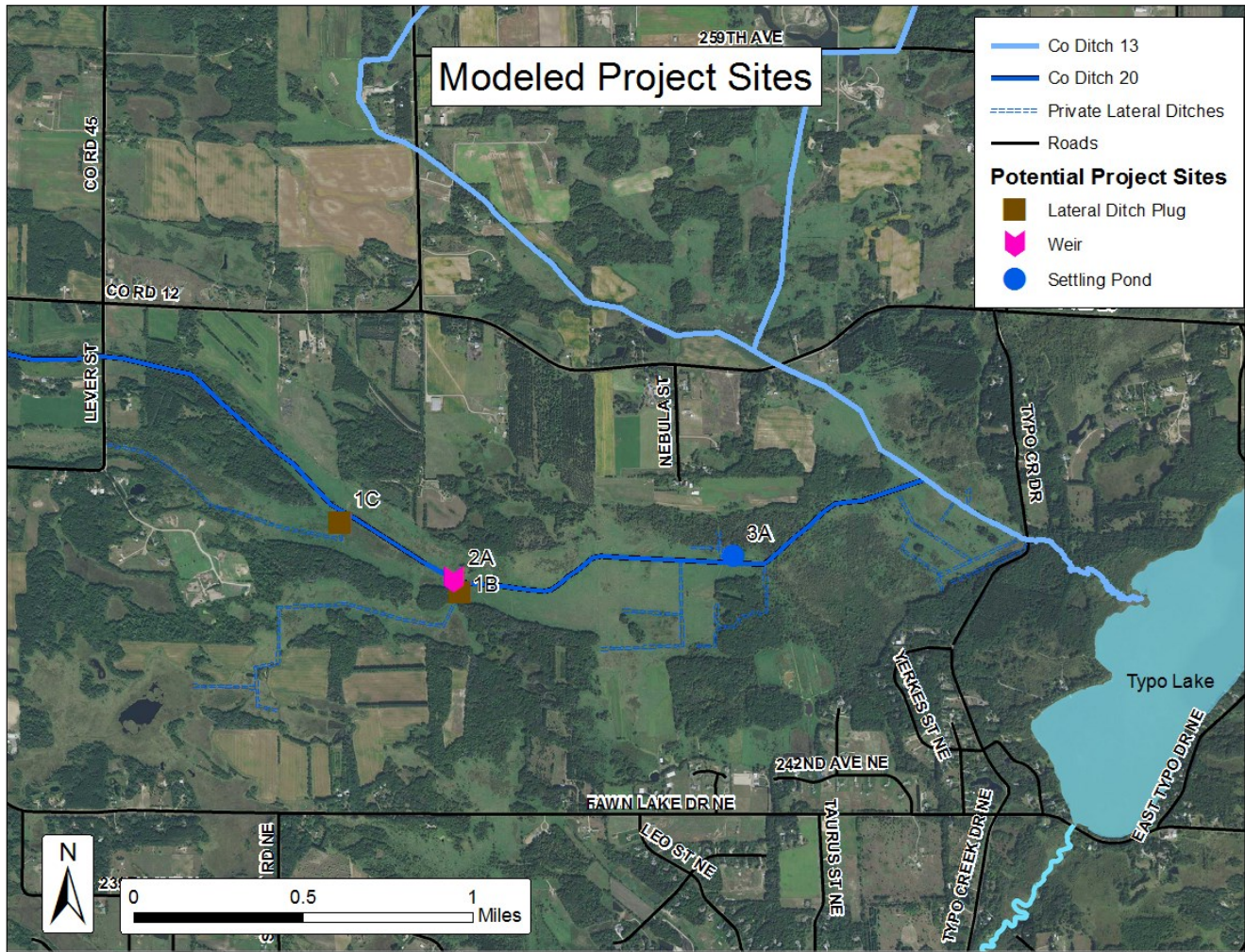
Wetland banking may be a reasonable way to finance or incentivize installation of some of these projects. In wetland banking, persons sell credits for wetland creation to others who impact wetlands in order to achieve "no net loss" as defined in State law.

The most important (and cost-neutral) recommendation of this study is that County Ditch 20 should not be cleaned or re-excavated to its original depth. Doing so could increase drainage and other factors that are believed to drive phosphorus release from this system.

A full project report is available from the Anoka Conservation District.

## For More Information Contact:

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### COST-BENEFIT ANALYSIS OF DITCH 20 POTENTIAL WATER QUALITY PROJECTS

Project ID	Project	Description	TP reduction (lbs/yr)	Estimated Costs				Total Cost Including 30 Years of Maintenance	Est Cost per lb-TP Removed over 30-yr lifespan	Certainty of TP Reduction Outcomes
				Construction	Final Design/ Engineering	Legal (easements, permitting, etc)	Maintenance (over 30 yrs)			
2A-no bypass	Weir - WITHOUT Bypass Ditch	Weir in public ditch, maintaining higher water in 21.55 acres.	114.57	\$20,174	\$2,017	\$13,000	\$15,200	\$50,391	\$14.66	Low-Mod
1B-no bypass	Lateral Ditch Plug - WITHOUT Bypass Ditch	Plug private lateral ditch restoring 10.86 ac of wetland.	103.62	\$18,806	\$1,881	\$13,000	\$15,200	\$48,887	\$15.73	Low-Mod
1C-no bypass	Lateral Ditch Plug - WITHOUT Bypass Ditch	Plug private lateral ditch restoring 7.72 ac of wetland.	86.96	\$18,806	\$1,881	\$13,000	\$15,200	\$48,887	\$18.74	Low-Mod
1B-with bypass	Lateral Ditch Plug - WITH Bypass Ditch	Plug private lateral ditch restoring 10.86 ac of wetland. Upstream drainage maintained with new bypass ditch.	103.62	\$43,366	\$4,337	\$13,000	\$15,200	\$75,903	\$24.42	Low*
1C-with bypass	Lateral Ditch Plug - WITH Bypass Ditch	Plug private lateral ditch restoring 7.72 ac of wetland. Upstream drainage maintained with new bypass ditch.	86.96	\$39,726	\$3,973	\$13,000	\$15,200	\$71,899	\$27.56	Low*
2A-with bypass	Weir - WITH Bypass Ditch	Weir in public ditch, maintaining higher water in 21.55 acres. Upstream drainage maintained with new bypass ditch.	114.57	\$93,674	\$9,367	\$13,000	\$15,200	\$131,241	\$38.18	Low*
3A	Settling Pond	6.5' deep, 1.31 acre settling pond on private property that is in-line with the public ditch and does not affect flows or water levels.	117.58	\$126,952	\$12,695	\$21,000	\$52,400	\$213,047	\$60.40	Moderate

\* Pollutant reduction estimates assume entire upstream drainage is treated by the proposed project. Bypass ditches would result in a lesser area being treated. Bypass ditches may also result in additional drainage, depending on depth dug, counteracting some phosphorus reductions achieved by the project.

### Preliminary\* Funding Sources

Anoka Co Ag Preserves Program	\$ 5,000	Sunrise River WMO	\$ 5,000
Martin Laker Association	\$ 2,500	Clean Water Fund Grant	\$72,400

\*Final funding may differ. Amounts shown above are maximum committed amounts.