

WILKIN SOIL & WATER CONSERVATION DISTRICT



Left: Previously, uncontrolled runoff caused severe erosion that contributed to Otter Tail River pollution. Right: Now, side-inlet structures control field runoff, reduce erosion and improve water quality in the Otter Tail River.
Photo Credits: Wilkin SWCD

Decade of ditch projects

Otter Tail River basin work enters final phase

Ten years, \$4 million and more than 100 miles of work in Wilkin County will wrap up this season when the last two ditch systems in the Otter Tail River drainage basin are retrofitted with berms, dikes and side-water inlets.

The structures retain water on fields for a short time, which allows sediment to settle and reduces flooding downstream.

At first, farmers like Jared Nordick didn't want to let the water sit on their land.

"We didn't want to lose the crop," Nordick said.

Nordick, 39, runs about 1,500 acres of corn, soybeans and wheat in Meadows Township with his father, Gerald.

Before culverts, berms and buffers were installed, the water ran fast across his land. The banks of the creek that bordered a field for a half-mile kept caving in. He farmed to the edge of that 6-foot drop. When the creek flooded, it carved channels into the field.

A 7-inch rain changed Nordick's mind. It scoured out a 3-foot-deep, 5-foot-wide hole in a field of prime farmland.

"By putting those culverts in, we've slowed the water down and held more water back on the landscape. As long as it's only there for 24 or 36 hours, that becomes flood reduction," Nordick said of the inlets.

Nordick now farms to the edge of a grassy buffer bordering the creek.



A \$201,000 Clean Water Fund grant from the Minnesota Board of Water and Soil Resources will help to pay for the fifth and final phase of work in the Otter Tail River drainage basin, projected to cost \$440,000. Landowners who benefit from the project will pay the balance.

Since 2007, BWSR has awarded nearly \$983,000 to the Wilkin Soil & Water Conservation District for cost-share, incentives and marketing to improve water quality and reduce turbidity caused by sediment loading in the Lower Otter Tail River.

The final phase of the Wilkin SWCD project includes 45 side-inlet structures, 22 acres of buffer strips and 11 miles of continuous berm along county ditches 3-2 and 7-1.

As part of the project, Wilkin County in 2016 excavated sediment from a 6-mile stretch of County Ditch 3-2. The excavated sediment will be used to build the berm. Side-inlet structures will be installed, buffer strips seeded. Work will start on 5 miles of County Ditch 7-1.

“When moving water stops, whatever is carried in it settles out and it’s redeposited back on the landscape. We’re not holding water back for a period that would result in crop damage.”

– Don Bajumpaa, Wilkin SWCD

“The work is becoming part of the ditch system, so the ditch system will maintain these things long-term,” said Pete Waller, Detroit Lakes-based BWSR Board Conservationist.

Wilkin County will remain the ditch authority until retrofits are complete. Then authority will transfer to the Buffalo-Red River Watershed District.

Wilkin SWCD staff has worked with landowners to install best management practices in the Otter Tail system since 2007.

That year, with 2002 flood damage fresh in everyone’s minds, Wilkin SWCD Manager Don Bajumpaa focused more on mitigating flood damage, less on water quality, when he presented the concept to landowners.

“Once we got the very first one done and the landowners could see and experience the way that it worked, we had people coming in begging us to do their ditches next,” Bajumpaa said. “It steamrolled from there.”

The SWCD staff has since worked with about 100 farmers within the Otter Tail River drainage basin.

“Once people recognized that they only had to deal with and handle their own water, that was appealing to them,” Bajumpaa said.

Containing water field by field means land downstream no longer bears the brunt of flooding upstream.

Designed to curb erosion and cut the amount of sediment carried into the river, the Phase V retrofits will reduce sediment loading by an estimated 1,375 tons a year and phosphorus loading by 1,870 pounds a year.

The Otter Tail River is impaired for turbidity because of sediment loading. The U.S. Geological Survey estimated 40,000 tons of sediment a year was lost at the sampling site in Breckenridge. The Otter Tail River enters the Red River at Breckinridge.

To meet water quality standards, the annual sediment load in the river must be cut by 17 percent -- nearly 6,900 tons a year.

The drainage basin is close to meeting this goal. Monitoring will continue for three years. Meanwhile, some progress is apparent.

"We can visually see the fact that what we've done is keeping sediment out of the ditch systems," Bajumpaa said.

Side-inlet Structures

Each structure is designed to fit the drainage area. Culverts in the berm connect ditch to field.

When the water level in the ditch rises, the water pressure pushes a flap-gate shut. That forces water behind the dike to stay on the field. Once the water level in the ditch drops, the flap-gate slowly releases water back into the ditch.

Water is typically off the land within 48 hours.

The Minnesota Board of Water and Soil Resources' mission is to improve and protect Minnesota's water and soil resources by working in partnership with local organizations and private landowners.