



# Red Lake River bank stabilizations protect water quality, infrastructure



THIEF RIVER FALLS — Pennington Soil & Water Conservation District’s planned streambank stabilizations in Thief River Falls would prevent a sewer line from unleashing pollutants directly into the Red Lake River, protect personal property on the brink of an undercut bluff, and reduce erosion across from Oakland Park.

A \$542,640 Clean Water Fund grant from the Minnesota Board of Water and Soil Resources will cover 75% of the

cost. Thief River Falls will cover the rest, drawing from its stormwater enterprise fund and potentially pursuing other grants.

Construction could begin this year. Work is in the planning and permitting stages.

“The goal is to reduce sediment entering the Red Lake River, which is contributing to an impairment,” Peter Nelson said during a November 2019 stop at the Greenwood Street bridge,

*Pennington SWCD Manager Bryan Malone, right, views a planned streambank stabilization with water plan coordinator Peter Nelson, center, and resource technician Matthew Sorvig at the Greenwood Street bridge.*



*The Greenwood Street bridge, built about 10 years ago, altered the course of the Red Lake River. A Clean Water Fund grant from the Minnesota Board of Water and Soil Resources is making it possible for Pennington SWCD, working with the city of Thief River Falls, to stabilize this and two other high-priority sites in town. Reducing sediment and phosphorus will improve water quality. Photo Credits: Ann Wessel, BWSR*

near the site of the sewer line and the city's second-highest-volume lift station. Pennington SWCD's water plan coordinator at the time, Nelson is now the district manager.

Downstream, the Red Lake River is impaired for sediment. It enters the Red River, which flows to Lake Winnipeg. Excessive phosphorus fuels Lake Winnipeg's blue-green algae blooms. Increasingly frequent over the past 30 years, the blooms have at times covered more than 50% of the lake's surface.

Initial estimates show the three stabilizations would keep 385 tons of sediment — nearly 29 dump truck loads — out of the Red Lake River annually.

The sites are among 10 priorities for reducing sediment and phosphorus that Houston Engineering identified in a water-quality study funded by a previous \$60,560 Clean Water Fund grant. State highway projects will address six of those.

The seventh, a \$500,000 oxbow restoration and stormwater treatment project, received funding in December 2020 when the Red Lake Watershed District was awarded a \$250,000 Clean Water Fund grant.

"They're very expensive projects. Without the Clean Water Funds, we wouldn't be able to implement these projects," Nelson said.

The Pennington SWCD streambank stabilizations likely will start with the site that's part of the city's wastewater treatment infrastructure. Here, erosion sped up after the new Greenwood Street bridge, built about 10 years ago,



*Erosion undercutting a bluff brings a house closer to the brink along the Red Lake River in Thief River Falls, seen in November 2019. The site is one of three priority streambank stabilization sites that Pennington SWCD is working with the city to address.*

**“ We’ve probably been losing 3 to 4 feet of riverbank a year for the last 10 years. It’s not impacting the bridge abutment. It’s not impacting the lift station itself. But eventually it would encroach on that force main, on that large pipes. ”**

— Wayne Johnson, Thief River Falls water systems superintendent



altered the course of the river. The lift station treats 750,000 gallons a day — including wastewater from a poultry processing plant, a long-term care facility and residential neighborhoods.

Thief River Falls Water Systems Superintendent Wayne Johnson described the system:

Gravity moves the wastewater through a 20-inch line to a lift station situated at a lower elevation along the river. When wastewater in that lift station's well reaches a certain depth, a pump pushes it uphill to the next lift station through a 16-inch line. That line, currently 50 feet from the riverbank, would

breach if it were exposed.

"We're not getting to the point where it's going to be exposed next year. We've probably been losing 3 to 4 feet of riverbank a year for the last 10 years. It's not impacting the bridge abutment. It's not impacting the lift station itself. But eventually it would encroach on that force main, on that large pipe," Johnson said.

Plans for the private property, visible from the LB Hartz Park walking bridge, were under review this winter by Minnesota Department of Natural Resources staff. Plans for the downstream residential site

across from Oakland Park were being engineered.

All three sites lie within three-quarter-mile-long stretch of the Red Lake River in downtown Thief River Falls.



*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. [www.bwsr.state.mn.us](http://www.bwsr.state.mn.us)*

## THIEF RIVER FALLS

# Oxbow, stormwater project takes shape

An oxbow restoration and stormwater treatment project in Thief River Falls made possible by a Clean Water Fund grant awarded to the Red Lake Watershed District in December 2020 would restore habitat, filtration and water-retention capabilities of a 3-acre wetland.

The project would remove 17,000 cubic yards of sediment — including lime sludge, a byproduct of a city water treatment process. (Nearby settling ponds are now closed.) A rock structure would stabilize the wetland's outlet and oxygenate water.

The project also would reduce pollutant-carrying runoff to the wetland and the Red Lake River. Hydrodynamic separators would trap sediment and keep garbage out of stormwater runoff. A settling pond would treat chlorides and other pollutants from a city snow storage site within the wetland's drainage area.

"We're trying to do a multi-faceted (project). We're getting this sediment cleaned out, we're putting in some treatment aspects, and hopefully treating some of our snow runoff," said Wayne Johnson, Thief River Falls water systems



*While the Red Lake River is not impaired in Thief River Falls, seen here, streambank stabilizations designed to curb erosion and reduce how much phosphorus enters the water will have an effect downstream, where the river is impaired for sediment.*

**“ It’s one of our priority subwatersheds for restoration work because it’s one of the impaired reaches that’s closest to meeting standards. ”**

– Corey Hanson,  
Red Lake Watershed District water quality coordinator

superintendent.

The project would keep an estimated 4 tons of sediment and 28 pounds of phosphorus out of the river annually.

Corey Hanson, Red Lake Watershed District water quality coordinator, said the project fits One Watershed, One Plan priorities, which focus on restoring “barely

impaired” waters. The Red Lake River meets water-quality standards within Thief River Falls. It’s impaired for sediment downstream at Red Lake Falls, where the Clearwater River joins the Red Lake River.

“It’s one of our priority subwatersheds for restoration work because it’s one of the impaired reaches

that’s closest to meeting standards,” Hanson said. “We’ve got monitoring data that shows those stormwater outlets can (contribute) high concentrations of pollutants. This is one way that we can help address that.”

The Red River Watershed Management Board will contribute \$166,000 via competitive funds for water-quality improvements it makes available to its seven member watersheds. City and/or watershed district funding sources would cover the balance.

An Environmental Assessment Worksheet was out for comment through Jan. 27.