

Improving water quality

By Paul Downer
Managing Editor

Anyone driving along Highway 55 likely noticed a large excavation project a few miles east of Annandale in the past couple of months. Now that it is finished, area watershed officials and Cedar Lake property owners are hoping to see an improvement in the lake's water quality.

The Clearwater River Watershed District has been working toward that end since 2006, but the latest addition of a limestone rock filter to the creek connecting Cedar and Swartout lakes is a significant step in reducing the amount of phosphorous in Cedar Lake.

Increasing phosphorous loads caused large algae blooms that alarmed lake residents in 2002, and incremental steps have been taken toward addressing the problem since then. The new filter – working together with a second filter planned near Swartout Lake that should be constructed later this year – is expected to remove 1,280 pounds of phosphorous from the sub-watershed each year. That would cut the current flow of about 2,000 pounds of phosphorous per year by more than half.

"The limestone is the key of this project," said Cole Loewen of the CRWD. "Limestone creates a really strong chemical

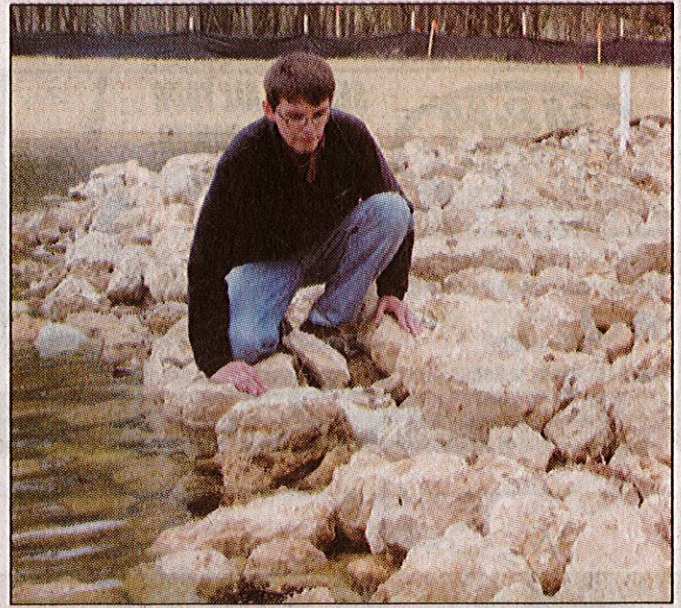


Photo by Paul Downer

Cole Loewen of the Clearwater River Watershed District inspects the limestone filter near Highway 55.

bond with phosphorous when they come in contact. This berm backs water up about a foot, and then it forces the water to trickle through the filter. When it trickles through the phosphorous in the water binds to the rock and stays put; the water moves on."

Spring construction

Workers from Northern Lines Contracting descended on a parcel of land crossed by the creek just west of Illsley Avenue NW in March to construct the filter. The watershed district purchased about 3.8 acres of common-interest land held by six owners for some of

the project area, while some of the project area remained in the common-interest territory.

Workers started by digging a new channel that captures most of the creek's flow, then built the limestone berm, or filter, across the length of the new channel. A swale was added to the nearby hillside to capture water flowing overland to the creek and deposit it where that water could also be filtered, and a drain tile already in place on the hillside was re-routed to allow filtration as well.

Water

Turn to page 6A

► Water

From page 1A

While the rock filter looks like a dam, Loewen said it is constructed in such a way that there won't be issues with water rising too much upstream. If the water in front of the filter rises by one foot the extra water will flow into an outlet channel.

"This is only designed to handle low to medium flow," said Loewen. "You get a high-flow event, it will go back into the old channel. If you get a really high-flow event it will overtop this filter and the whole area will inundate, but of course that would be a major flood."

The filters are designed to treat normal creek flow and rain events of up to 1.25 inches.

"The real key there is we are not backing up water upstream, which is important for upstream property owners," said Loewen. "They want to maintain their drainage and they don't want flooding out of their roads or culverts. So it was designed that way so no one upstream is impacted by this project in terms of backing up water."

Loewen said the overall response from the Cedar Lake Conservation Club and property owners to the project has been positive, but some concern remains upstream about possible flooding.

"The elevations say it's physically not possible – it's higher up there than what this will back up," said Loewen.

Bill Arendt, president of the Cedar Lake Conservation Club, said the project is a step in the right direction.

"All lakes are concerned with phosphorous," he said. "We have been doing things since 2006 to mitigate what we have, but there's no silver bullet that cleans up everything. So this is a long-term project, but we are pleased with it."

Cost-effective solution

Though the second filter project has not yet begun, the estimate for the total cost of the projects is \$554,200.

Half of that amount will be

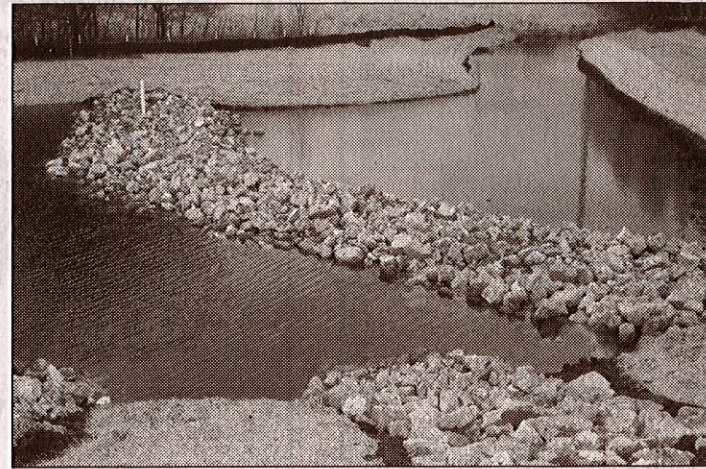


Photo by Paul Downer

This limestone filter will keep an estimated 480 pounds of phosphorous from entering the Cedar Lake sub-watershed annually.

covered by a \$277,900 grant through the Minnesota Board of Water and Soil Resources.

"This is one of the cheaper projects the district has done in terms of phosphorous removal," said Loewen, explaining that over the 30-year life of the project the cost-per-pound of phosphorous removed from the water is roughly \$14.

By way of comparison, a stormwater treatment project undertaken by the watershed district in Kimball has a cost of \$26 per pound, and those undertaken by other agencies in more urban areas can be up to 10 times more expensive.

The filter near Highway 55 is expected to strain out 480 pounds of phosphorous per year, and the second filter near Swartout – because there is more phosphorous in the system in that area – is expected to remove 800 pounds per year.

Protracted effort

Construction of the filters is the latest in a series of projects done over the past decade to reduce phosphorous in the Cedar Lake sub-watershed.

As mentioned above, Cedar Lake residents were concerned by algae blooms in 2002 and intensive monitoring of the lake to determine the sources of excess phosphorous began in 2003. That effort revealed the primary contributors as three nutrient-impaired shallow lakes – Swartout, Albion and Henshaw – and additional wetlands.

The goal has been to reduce the amount of phosphorous in Cedar Lake to 20 micrograms per liter. In 2003 and 2006 Cedar actually exceeded the state standard for impaired waters of 40 micrograms per liter, with the peak level being 58 micrograms per liter.

Initial improvement efforts included the installation of fish barriers to prevent carp runs (carp stir up sediment containing phosphorous on the bottoms of lakes and other water bodies), harvesting of carp to reduce numbers and construction of a treatment basin. Those measures helped, but there was still room for improvement.

"What was done worked, but it didn't get us to our goal of 20 micrograms, so we undertook this project and this one by Swartout to try to get underneath that 20," said Loewen.

The outcome

Now that the first filter is complete, monitoring will take place directly below the limestone to measure the amount of phosphorous removed by that specific project. How long will it take to accurately measure the impact?

"Trends are tricky. Within three years you might have something, but it will probably be more like five before we can be comfortable," said Loewen. "There are so many factors. You could have a very heavy rain year or just a lot of concentrations coming through, and you

have to balance those over time."

That said, the watershed district is confident that the filters will work as planned.

"If we didn't think it would work we wouldn't have built it," said Loewen. "We try to be very conservative using taxpayer dollars."

Other lakes

While efforts to improve Cedar are ongoing, Loewen said other Annandale lakes in the watershed, including Pleasant and Clearwater, are doing well in terms of phosphorous levels.

"Clearwater is doing really great. The district did a lot of

work back in the '80s that dropped that lake from 100-150 micrograms per liter to where it's meeting the state standard every year, under 40, which is wonderful," he said. "We don't want it to ever get back there though, so we keep doing work in the upper portion to control the amount of phos coming in."

That upper area includes the chain of Augusta, Caroline, Marie, Louisa and ultimately Lake Betsy near Kimball, which takes in a large amount of phosphorous due to agricultural activity to the west.

"In terms of lakes we have concerns about, we know that

upper watershed is exporting phosphorous. We want to control that load amount as much as possible so it doesn't cause problems in Clearwater," said Loewen. "Louisa, Marie, Caroline and Augusta are all listed as impaired for phosphorous on the state list. We're trying to get them de-listed."

Pleasant Lake is doing very well, according to Loewen, and this year's city of Annandale project to reconstruct Cherry Avenue and nearby streets, as well as improve storm water infrastructure, should help.

"That lake's in a pretty good state," said Loewen.

ANNUAL MEETING NOTICE

Clearwater Lake Property Owners

SATURDAY, JUNE 6th at CAMP FRIENDSHIP (Sun Porch)

8 a.m. Coffee/Rolls – 9 a.m. Meeting

Clearwater Lake Property Owners are encouraged to attend this important ANNUAL C.L.P.O. Association meeting. Be a part of the future changes to the C.L.P.O Association. Come and share your ideas, thoughts on how to grow our membership and continue to protect our lake.

If you are currently NOT a member of the C.L.P.O Association, you may join by contacting Kathy Irwin (Membership) at (763) 244-0270 or email KathyIrwin@remax.net. You may also join the morning of the C.L.P.O. Associations June 6th Annual Meeting.

Partial Agenda

C.L.P.O. ASSOCIATION Annual Meeting

You may request a complete agenda of the meetings Current State of the C.L.P.O by requesting a copy from the Acting President Steve Irwin via email irwinss@hotmail.com, or calling 320-248-3559

1) VOTE ON UPDATED BY-LAWS

During Tom Bacon's last Board meeting, it was asked by the board members that the present BY-LAWS be reviewed. As the BY-LAWS hasn't been updated in many years it was felt that they needed to be reviewed and updated. The revised BY-LAWS require approval by the CLPO members at the JUNE 6th Annual Meeting being held at CAMP FRIENDSHIP's Sun Porch

If you would like a copy of the BY-LAWS to REVIEW prior to the June 8th meeting, please email Steve Irwin (acting President) at irwinss@hotmail.com, or call 320-248-3559 providing us with your name, email address or home address and one will be sent to you. **Please review and come to the Annual Board meeting to vote with a yay or nay on the BY-LAWS.**

2) ELECTION OF BOARD MEMBERS

Election to be held at the June 6th Annual meeting. **Nominations must be submitted 10 days prior to the meeting. Send all nominations to Joy Carlson (Secretary) via email: JoyCarlson@remax.net or mail nominations to CLPO, PO BOX 476, and Annandale, MN 55302.** You must be an active member of the CLPO Association to submit nominations.

Please try to attend this annual meeting; this is a critical time for the future of our association. We need your ideas and thoughts to grow and protect our lake. Become an active part of this association.