

Date | 9-9-2015

To | Chisago Lakes LID Board of Managers

cc | Jerry Spetzman

From | Greg Graske

Regarding | Summer Channel and Outlet Structure Inspection

On July 30, 2015 an inspection of the Chisago Lakes Outlet Channels and Structures was conducted. EOR engineer Greg Graske performed the field inspection of the channel system. The following summarizes the inspection, actions performed, and any future actions recommend. Actions in red are recommended for follow up in the near future, actions in orange are actions that require future follow up or monitoring but are not urgent, and actions in green are minor maintenance items that were completed in field prior to this report.

Channel from Chisago Lake to Wallmark Lake

The channel from Chisago Lake to Wallmark Lake was inspected. The channel area near Stinson Avenue appeared to be stable and the existing rock check dam appears to be eliminating any further head cutting and erosion of the channel. The trees along the channel section between Highway 8 and North Avenue were cleared three years ago. The overflow weir just north of Chisago Lake was cleared of vegetation several years ago. Vegetation is starting to regrow on the weir. Currently this is not causing any issues, however it should be monitored during future inspections and scheduled for clean up if small trees start to take hold. The trash rack at the sportsman drive culvert was covered with branches, trash and debris. This was removed at the time of the inspection.



Photos: Left – Rock Check Dam. Right - Sportsman Drive culvert covered with debris

Recommended Action:

- None

Suggested Follow Up:

- Monitor vegetation growth on weir and consider future removal

Minor Maintenance Items Completed:

- Debris Cleared from Sportsman Drive culvert trash rack

Channel from Wallmark Lake to County Road 19

No issues noted.

Recommended Action:

- None

Channel from Chisago Lake to Green Lake

As noted in the spring inspection report, a bridge crossing has been constructed at about the halfway point along the channel. It is unclear who constructed this bridge and for what purpose. In the past there have been planks and ladders seen across the channel and it was assumed that this was being used by hunters to gain access to the other side of the channel. The new bridge is much more substantial and would likely create a measurable obstruction during high water flows through the channel.



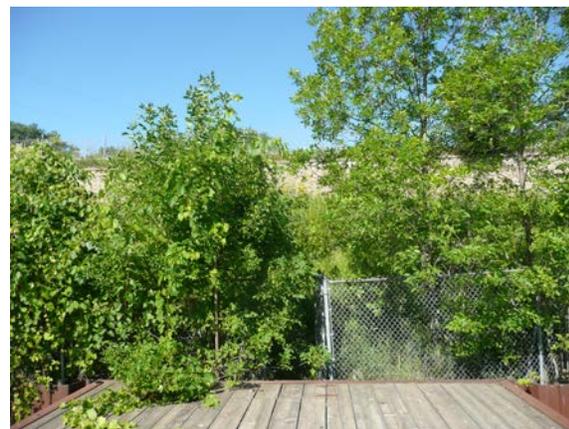
Photos: Bridge Crossing during Spring Inspection

Recommended Action:

- Wait on direction from County

Outlet Structure from Chisago Lake Outlet Channel into Green Lake

The outlet structure connecting the channel from Chisago Lake to Green Lake was visited. Several repairs were made to the structures in 2012. These repairs included fixing one of the gates, fixing the fence, and repairing a leak. The gates were tested and were working correctly. Water was observed flowing from the wetland area to Green Lake when opened. The gates were returned to the closed position upon completion of the inspection. The fenced entrance to the structure is being overtaken by woody vegetation. It is recommended that this be cleared with hand loppers during the fall channel and weir inspection.



Photos: Left - outlet structure. Right – entrance fence being overtaken by woody vegetation.

Recommended Action:

- Clear woody vegetation near entrance to outlet structure

Suggested Follow Up:

- Finish new tool for opening and closing gates

Minor Maintenance Items Completed:

- Tested gate operation

Outlet Structure and Pipe between Lake Ellen and Swamp Lake

A repair to the gate mechanism, clearing of vegetation and replacement of the missing control box cover was completed in 2012. The gate was opened on June 27th, 2014 due to rising water levels on Green Lake. The water levels receded and the gate was closed on November 3rd, 2014. During operations debris built up around the outside perimeter of the weir. The debris surrounding the weir was removed this spring by a contractor. Some repairs to the fence on top of the structure were also completed at that time. Due to high water levels the gate was again opened on July 23rd, 2015 with a few inches of water flowing over the weir. By the time of this inspection on July 30th, the water level has receded such that the water was just barely overtopping the weir. The gates should be closed at the time of the fall inspection (if they have not been already) and the structure inspected for debris build up around the perimeter.



Photo: Left – Sheet Pile Weir inside of structure. Right – Outside edge of structure

Recommended Action:

- Close gates at next inspection (dependent on water levels)

Suggested Follow Up:

- Monitor erosion control device in farm field for needed maintenance
- Inspect perimeter of structure for sediment and debris build up

Minor Maintenance Items Completed:

- None

Swamp Lake Outlet

The Swamp Lake outlet pipes under County Road 80 were visited. This location has 7 pipes under the road to convey flow. Vegetation is starting to get thick near several of the culverts. This should be monitored and scheduled for cleanout if needed.



Photos: Pipes leaving Swamp Lake

Recommended Action:

- None

Suggested Follow Up:

- Monitor vegetation build up, reassess for possible removal next year

Ivywood Outlet Structure

The culvert crossing under Ivywood Trail was visited. This site is not generally part of the outlet conveyance due to the outlet channel to Carlos Avery WMA never being fully completed. No issues noted.

Recommended Action:

➤ None