

Date | 6-25-2013

To | Chisago Lakes LID Board of Managers

cc | Jerry Spetzman

From | Greg Graske

Regarding | Spring Channel and Outlet Structure Inspection

On June 4, 2013 an inspection of the Chisago Lakes Outlet Channels and Structures was conducted. Chisago County staff Jerry Spetzman along with 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 or monitoring up 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. During the last inspection there appeared to be continued tampering with the most downstream check dam. Larger boulders were brought in by the contractor to limit the ability to move the rocks. The trees along the channel section between Highway 8 and North Avenue were cleared last year and additional clean-up of the remaining brush is was completed per the recommendation of the last inspection report.



Photos: Left: most downstream check dam with larger boulders, Right: Cleared Channel

Debris including logs, trash and a tire was noted near the culvert under Sportsmans Drive. It is recommended that this debris be removed along with any other debris upstream and downstream of this crossing.



Photos: debris between North Avenue and Sportsman Drive

Recommended Action:

- Remove logs and debris in channel between North Avenue and Sportsman Drive

Channel from Wallmark Lake to County Road 19



Photo: Channel south of County Road 19

Last inspect this channel was dry due to low water. The channel is currently flowing indicating that water is discharging from Wallmark Lake. No concerns were noted.

Recommended Action:

- None

Channel from Chisago Lake to Green Lake



Photo: head cut in channel near Chisago Lake

Some minor debris was noted in the Channel from Chisago Lake to Green Lake. Also, some head cutting has occurred near Chisago Lake which is being caused by backflow from the wetland areas into Chisago Lake. Based on a visual observation this area is all below the OHW of Chisago Lake. It appears that the channel is finding a new equilibrium with no real impact to adjacent property and therefore no action is recommended at this time.

Recommended Action:

- None

Suggested Follow Up:

- Continue to monitor debris build up in channel
- Continue to monitor head cutting at channel connection to Chisago Lake

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 structure last fall. 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.



Photos: Left: Outlet Structure, Right: Water flowing to Green Lake

Recommended Action:

- None

Suggested Follow Up:

- Monitor site for continued beaver activity and need for beaver control.

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 last fall. The gate was exercised and appeared to be operational. The emergency management plan calls for the gate to be open when the lake level is 891.5. The plan also says that the gate may remain closed when lake levels are below 891.0. Lake Ellen was below the weir overflow elevation; therefore the gate was left closed.



Photo: Lake Ellen Outlet Structure

Recommended Action:

- None

Suggested Follow Up:

- Monitor Beaver Activity going forward and determine need for additional beaver control.
- Monitor Erosion Control Device in farm field for needed maintenance

Minor Maintenance Items Completed:

- Exercised Gate

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. Obstructions previously noted have been removed. No concerns were noted.



Photos: Pipes leaving Swamp Lake

Recommended Action:

- None

Ivy wood 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

Bloomquist Creek Crossings @ County Road 19

North of the Creek Crossing at County Road 19 there is a pinch point that has been historically used by Beavers. The District has obtained easements over this area and has discussed with the

landowner about some modifications to limit this pinch point to reduce the likelihood of water backups from Beavers. If this work is desired to be completed, it is important that the base channel configuration is minimally impacted as to not destabilize the channel. Modifications that widen the floodplain to match up and downstream would be acceptable assuming proper revegetation and stabilization is implemented at the same time as the modifications.



Photos: Bloomquist Creek at north of County Road 19

Recommended Action:

- **Modify floodplain to minimize pinch point north of County Road 19 if directed by the CLLID Board. Any modifications should be overseen by EOR's Steam Specialist.**

Miscellaneous

The channel at the outlet of North Center Lake was visited. The contractor has removed the trees near the channel outlet as requested by the Board. No water was flowing at the time of the inspection. No issues were noted.