

Miller Run #1 Passive Treatment System
SRI O&M TAG Project #30 Request #3
OSM PTS ID: PA-284

Requesting Organization: Huntingdon County Conservation District (in-kind partner)

Requesting Organization Representative: Celina Seftas

Municipality/County: Huntingdon County

Dates of Work Performed: 9/29/20 – 9/30/20

Initial Request: On 5/6/19, the Huntingdon County Conservation District (HCCD) reported that during large storm events the system becomes overwhelmed including the emergency spillway and flows over the berm. Recent events had caused some damage to the game land access road. They also noted issues of short-circuiting occurring during normal operation. System needs evaluated to determine what the cause & what remedy, if any, can be implemented.

Background Information: The Miller Run #1 Passive Treatment System was constructed in 2007 by the Shoup Run Watershed Association and Huntingdon County Conservation District (HCCD). The system consists of a 400-ton limestone bed. Assistance was previously provided to address the limestone bed which was leaking. As part of that project, a conceptual plan and cost estimate were developed. The HCCD obtained funding and fixed the bed. In 2015 HCCD contacted Stream Restoration Incorporated (SRI) with hydraulic concerns of the system overflowing the emergency spillway during high flow events. After evaluating the emergency spillway concerns, HCCD contacted a contractor who made site repairs.

Initial Site Visit, Observations, and Identified Needs: A site investigation was conducted on 11/12/19 to diagnose why water was overflowing the embankment during high flows as well as to determine cause for short circuiting of raw water through the emergency spillway during normal operation. Site investigations included laser level measurements which revealed that a low spot exists on the embankment in the general area of the outlet water control structure which was over 0.2 ft lower than the invert of the emergency spillway. Field measurement also confirmed that there was some form of subsurface clogging or lens contributing to the bypass of raw water out of the emergency spillway during normal flow situations. During normal or low flow conditions the system passes flows through a combination of the outlet structure and/or emergency spillway depending on the surface/subsurface conditions; however, with a large rain event, flow could easily overflow the pond at the low point in the embankment and flood the game lands roadway.

Work Completed:

- Earth Shapers, LLC was hired to complete work at the site. They hauled 2 loads of clay to the site to build up the embankment to raise the top of embankment to an adequate height above the crest of the emergency spillway (1 ft elevation difference min between emergency spillway crest and top of embankment).
- An inlet pool was constructed to address the organic debris lens/clogging at the inlet end of the system (same side the existing emergency spillway is located). The inlet pool is expected to help encourage uniform flow distribution into the limestone bed.
- Vegetation/organic debris on top of the limestone bed was removed.
- Limestone treatment media was stirred/cleaned, but sludge removal from the treatment component was not possible due to the lack of room to place any of the sludge.

Recommendations & Future Considerations:

Water quality monitoring shall continue to evaluate the long-term treatment effectiveness of the system. In general, monitoring the extent of leaves that accumulate on the limestone bed and removal of those leaves each year would also aid in extending the longevity of the limestone between cleanings. It is also recommended that the next maintenance activity at this site should include sludge removal from the system. Space is limited at this system with no on-site sludge disposal available. There will be a need to utilize either a vacuum truck or pumped water filter bags/geotubes to facilitate treatment sludge removal at that time.

Photo Log



Top Left: Emergency spillway overflowing to the culvert under the game land access road before maintenance.

Top Right: Stormwater overflowing the embankment and flow across the game land access road before maintenance.

Bottom Left: Leafy debris and vegetation growing on top of the limestone media before maintenance.

Bottom Right: Limestone bed after raising the height of the berm and cleaning.