Shamokin Creek Site 48 Passive Treatment System
SRI O&M TAG Project #5 Request #1
OSM PTS ID: PA-36

Requesting Organization:	Northumberland County Conservation District & Shamokin Creek Restoration Alliance (in-kind partners)
Receiving Stream:	Unnamed tributary (Shamokin Creek Watershed)
Hydrologic Order:	Unnamed tributary→Shamokin Creek→Susquehanna River
Municipality/County:	Coal Township, Northumberland County
Latitude / Longitude:	40°46'40.152"N / 76°34'39.558"W
Construction Year:	2003

The Shamokin Creek Site 48 (SC48) Passive Treatment System was constructed in 2003 to treat an acidic, metal-bearing discharge in Coal Township, Northumberland County, PA. Stream Restoration Inc. was contacted by Jaci Harner, Watershed Specialist, Northumberland County Conservation District (NCCD), on behalf of the Shamokin Creek Restoration Alliance (SCRA) via email on 8/2/2011 regarding problems with the SC48 passive system. Cliff Denholm (SRI) conducted a site investigation on 9/19/2011 with Jaci Harner and SCRA members Jim Koharski, Leanne Bjorklund, and Mike Handerhan. According to the group, the system works well; however, they were experiencing problems with the SC48 system intake pipe. An AMD-impacted stream is treated by diverting water into a passive system via a small dam and intake pipe. During storm events and high-flow periods, however, erosion with sediment transport takes place which results in a large quantity of sediment including gravel-sized material being deposited in the area above the intake as well as within the first settling pond. At times, the accumulation of sediment has redirected and prevented the stream from entering the treatment system. In other words, the passive treatment system is bypassed with the degraded stream remaining untreated. A screen at the intake also accumulates leaves and debris. The group wanted help to reduce system maintenance needs.

In June 2013, BioMost, Inc. performed site work, which included multiple updates to the treatment system inlet structure. Previously, watershed volunteers had lined the stream channel near the system with sandbags to stabilize the banks. During high flow events, however, this was not sufficient to control erosion. To remediate this issue, BioMost Inc. placed riprap along the stream banks and improved existing erosion control measures. As during high flow events a significant amount of water circumvented the treatment system, as part of the project, Ecology Blocks were positioned within the stream channel to create a pool to divert a large portion of the water into the treatment system. An Agridrain bar-guard was also installed onto the intake pipe to prevent large objects such as rocks and sticks from entering the system. A settling pool upstream of the system was also improved to help reduce sediment loading entering the system.

The project team thanks the Northumberland County Conservation District and Shamokin Creek Restoration Alliance for all of their efforts including support and assistance. Funding for technical assistance and maintenance was provided by the PA DEP's Growing Greener and the Foundation for Pennsylvania Watersheds grant programs and in-kind services by project partners.

Additional Recommendations & Considerations:

- Conduct site inspection on a quarterly basis at minimum.
- Regularly inspect the intake and bar-guard for sediment and debris.
- Remove any leaves and debris from the bar-guard during every site visit.
- Remove sediment as feasible and necessary.

Update

The SCRA has since reported that sediment was again depositing in front of the intake pipe and that they were concerned about future issues. They were, however, able to remove at least a portion of the sediment. On further investigation, the SCRA has discovered that the stormwater drainage channel from the Vo-tech property upstream of the site has been severely eroding causing the sedimentation. Based on this information, we discussed the potential of collecting and directly piping the discharge to the passive system. A 2nd request for this project has been made. A site investigation is planned to identify the location of the discharge(s), collect water samples, and evaluate the area to the collect and convey the drainage directly to the passive system. This work will occur utilizing the O&M TAG 2 grant. A separate report will be provided for this new request at a later date.

The Site 48 system was experiencing issues with the system intake and sedimentation due to channel erosion *(top left)*. A meeting with the watershed organization was conducted *(top right)* to explain maintenance activities that were going to be conducted. Ecology Blocks were placed in the channel to increase flow into the treatment system *(middle and bottom left)* and limestone riprap placed along the bank and below the Ecology Blocks to control erosion *(middle right)*. A bar guard was also installed on the intake pipe *(middle right)* to reduce the sediment and debris from entering the treatment system.