

SEDIMENTS

Newsletter of the North Carolina Sedimentation Control Commission

Trying New Approaches to Maximize Erosion, Sediment and Turbidity Control

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Controlling sedimentation and erosion on construction sites requires time and effort not only in installing and maintaining the devices but also in understanding how they work and why they fail. We investigated the problem at several sites. The approach was to install measures to control erosion and sedimentation according to the original E&SC plans, then follow up with additional measures to improve the effectiveness of these devices. To manage turbidity, we used polyacrylamide (PAM) at various points on the site to flocculate suspended solids. Often the biggest challenge was not installing or maintaining the devices but that the dynamic nature of a construction site required constant adjustments. The key element to success was ensuring that runoff was routed through the treatment system, which is difficult to achieve as the site is graded, utilities are installed, and other disturbances occur.

We have evaluated the results at a number of sites. In this article, we highlight an example from one site where changes occurred within the sediment basin as well as to the drainage patterns flowing to the basin. This is an ongoing project and many of the lessons learned are helping us to develop strategies that developers can use to come into compliance with the new EPA turbidity guideline (280 NTU) required for sites disturbing 20 (August 2011) or 10 (February 2014) or more acres.

Changes to a site during construction and changes to sediment basins and other BMPs can dramatically affect effluent turbidity. Examination of the magnitude of and variations in turbidity levels allowed us

to pin-point when construction activity was at its peak or when failures occurred due to poor maintenance.

Peaks in turbidity were evident immediately after the sediment basin had been reworked to include a riser for the proposed wetland that would eventually take its place (Figure 1). The result was a very large spike in the outlet turbidity compared to the skimmer, both due to the disturbance and the new outlet placement at the riser base (Figure 2). Because they installed this type of riser they no longer allowed as much pooling in this basin. This made it very important for us to control the erosion and turbidity on the site before the runoff ever entered the basin. We were able to protect the inlets and stabilize the soil with a combination of erosion control blankets, wattles and hydromulch with PAM.

The second spike in turbidity was the result of the installation of a new entrance
continued on page 4



Figure 1. Skimmer basin now converted to constructed wetland with a bottom outlet (see stone at bottom of riser). Note inlet protection and wattles on the ditch at the far end.

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In This Issue

- 2 NCDOT is the IECA Organization of the Year
- 2 LID Guidebook and On-line Training
- 3 News from LQS-Summary Statistics
- 3 Turbidity Control: Basic Concepts
- 5 Construction Site Workshop
- 5 IECA 2011 Environmental Connection
- 6 Calendar of Events

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