

Innovations

Holly Commons Subdivision

In Water Treatment

Holly Springs, GA
Spring 2006

When a new subdivision was being built in the small town of Holly Springs, Cherokee Silt Fence Company got a call. Construction had been ongoing for some time, and the owners were looking for an erosion control company when serious problems needed to be addressed.

The site had poor erosion control when David Hire and Joe Rucker of Cherokee Silt Fence Company arrived. The silt fencing that was already installed had been poorly placed. There was no temporary vegetation and large areas of bare soil. The slopes around the sediment ponds and a nearby blue-line creek had been modified with poor quality fill soil and had not been walked in at all. The straw matting that had been installed on the slopes had degraded and was in need of replacement.

David and Joe wanted to start fixing the problem at the source instead of just cleaning up the effects of poor erosion control. If they didn't stabilize the soil at the source, they would continue to have problems after every rain event. They planned to stabilize the slopes by grassing them, install more silt fence, and clean out the sediment ponds.



The sediment had been given time to settle out, leaving only very fine particulate suspended in the pond

David Hire had worked with Applied Polymer Systems before and was very familiar with the superior performance of both their Silt Stop and Floc Log products, and asked for their help on this project. Since these polymers are soil specific, David sent a soil and water sample to the APS lab for a free analysis.

The first step was to pump the water out of two of the small sediment ponds. APS 703d and APS 706b Floc Logs were used together to treat the suspended sediment in the water as it was pumped out of the pond, clarifying the water enough that it could be discharged directly into the nearby creek.



Around the ponds was mostly bare soil with no temporary grassing

The Floc Logs were placed into static mixers attached to the pump, so the water was pumped out of the pond and mixed with the polymer logs before being discharged into the ditch. The treatment ditch was constructed across a flat area, using straw bales and lined with plastic sheeting and a couple of layers of jute matting. The suspended sediment binds together after reacting with the Floc Logs and then sticks to the jute matting, leaving clean water exiting the ditch and flowing into the creek.

The jute matting was sprinkled with APS 712 Silt Stop powder to enhance the particle collection, and the jute matting was run all the way down the hill to the double row of silt fence just above the creek. The plastic sheeting in the ditch prevented the highly erosive fill soil from being carved out and carried away by the water in the ditch. The Silt Stop treated jute matting protected the soil going down the slope, as the matting stuck to the soil surface and prevented it from washing away.



The ditch was made with two rows of straw bales covered with plastic and lined with two layers of an open-weave jute matting sprinkled with the appropriate Silt Stop® powder.



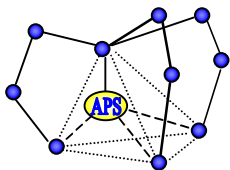
The water running off the jute fabric and through the silt fence is clear water measuring 15 NTU.

The first pond contained about 14,000 gallons of water had an initial turbidity of 400 NTU. It was pumped out at a rate of 130 GPM with the final turbidity reading as the water left the jute field and went through the silt fence of 20 NTU. This is a 95% turbidity reduction.

The second pond was smaller, containing only 10,000 gallons of water, but had more turbid water, with an initial reading of 850 NTU. It was pumped out at the same rate, with a final turbidity reading of 15 NTU. This is greater than a 98% turbidity reduction.

The slopes were then hydroseeded with seed, fertilizer and Silt Stop powder. The polymer helps to stabilize the slope and keep the seed and fertilizer from washing away until the grass has a chance to germinate. The areas of bare soil that were not hydroseeded were sprinkled with dry Silt Stop powder and covered with straw to help stabilize them.

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