Design and Construction of a Step Pool Storm Conveyance (SPSC) System on an Unnamed Tributary to Joe’s Branch, D’Olive Bay Watershed, Baldwin County, Alabama

A Step Pool Storm Conveyance (SPSC) system has been constructed to restore a severely eroded ephemeral drainage on a tributary to Joe’s Branch within the D’Olive Creek watershed in Baldwin County, Alabama. The project represents implementation of one of the management measures recommended in a comprehensive watershed management plan (WMP) developed for the area. The SPSC project was primarily funded through a Section 319 (nonpoint source) grant from the Alabama Department of Environmental Management (ADEM) to the Mobile Bay National Estuary Program (MBNEP). Additional funding for the project was provided by the Alabama Department of Transportation (ALDOT), with the cooperation and support of many others.

The objective of an SPSC system is to convert and dissipate, through storage pools and sand seepage filters, surface storm flow to shallow groundwater flow. SPSC systems typically are comprised of a series of shallow aquatic pools, riffle grade control, native vegetation, and an underlying sand/organic filter bed media. An SPSC system is intended not only to provide a stable drainage pathway for higher flows, but to attenuate and/or retain lesser flows and facilitate water quality treatment. SPSC systems have been used in other parts of the country. Notably, in Anne Arundel County, Maryland, there have been several applications spanning over a decade, and the County has developed specific design guidelines for their construction. However, to our knowledge, an SPSC or similar system has not been evaluated for the conditions found in the north Gulf coastal region of south Alabama.

This presentation will discuss the engineering design and construction of the SPSC demonstration project in Spanish Fort, Alabama. Participants will be presented with information to identify when and why a SPSC may be an effective measure to stabilize and enhance hydrologic systems. Completion of post-construction monitoring being performed by the Geological Survey of Alabama (GSA) will be necessary to fully evaluate the effectiveness and viability of the SPSC approach for the region. However, certain “lessons learned” are already evident and will be presented.

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