
Project Overview

The Spring Creek Stream Restoration and Urban Runoff Management Demonstration was created by a partnership between the ClearWater Conservancy, the Pennsylvania Military Museum, and the PA Department of Environmental Protection. The project focused on restoring the stream corridor and surrounding areas using environmentally sound practices. The restored areas would then function as a demonstration site to educate the community about stream restoration, management, and preservation.

This restoration has several important components which include reducing accelerated stream channel erosion along Spring Creek's stream banks, establishing two acres of native riparian vegetated buffer, eliminating approximately two acres of turf at the water's edge, treating the stormwater of the adjacent paved parking lot through a vegetated bio-swale system, and restoring and enhancing the aquatic and terrestrial habitat of the stream corridor as it crosses the Military Museum grounds.

Prior to restoration, the section of Spring Creek that passes through the Pennsylvania Military Museum grounds showed characteristics that were typical in many urban and suburban settings around Pennsylvania. Conditions included wide expanses of lawn mowed to the water's edge, excessive stream channel erosion, water runoff and erosion from the paved parking lot area, and degraded aquatic and terrestrial habitats.

The stream restoration project began in May of 2000, with design work by Andropogon Associates, Ltd. Initial grading was provided by Hawbaker, Inc. The stream restoration and site improvements were done by LandServ, Inc. The restoration was completed in November 2001.

Many environmentally friendly methods were used to improve and restore this section of stream. To stabilize the stream banks after grading, a combination of Coir logs, made of coconut fiber, and jute matting were used. These materials are completely biodegradable. The Coir logs were installed along the toe of the streambank slope and held in place using stakes and jute cord. Then, jute matting was used to cover the exposed soil and assist in the prevention of erosion during and after the restoration process. Meadow plants were inserted through the matting to aid in the stabilization of the soil and encourage the native plants to grow.

Also as part of this project, educational interpretive displays will be placed on site at the Pennsylvania Military Museum in Boalsburg, PA to illustrate the restoration project to visitors. An Exploration Station, which includes stream-related materials and equipment for school classrooms, will be available to teachers for use on the Military Museum grounds.

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The Spring Creek Stream Restoration and Urban Runoff Management Demonstration



Project Summary

Presented by
The ClearWater Conservancy

**with funding from Section 319 of the
federal Clean Water Act through the
Environmental Protection Agency**

The Stream Restoration

The restoration of the stream began with the need to change the slope of the streambanks. The steep sides, created by erosion, needed to be pulled back and given a more gradual slope. Carefully using construction equipment, the grass and soil were moved away from the stream, creating a wider floodplain area.



Next, the soil was covered with jute matting to help stabilize this new bank. Coir logs, made from coconut fiber, were used to line the toe of the slope to hold the new banks firmly in place. These logs were staked and roped with jute cording.



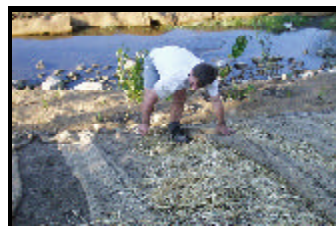
Native plants were then inserted through the matting and wildflower seeds were spread. As the plants grow, their roots will help hold the soil in place. These areas form part of the native meadow, creating a riparian buffer along the stream.

The Bio-Swale

Bio-swales are a natural way to collect and filter stormwater runoff. In contrast to pipes and storm sewers that quickly transport water, bio-swales accept stormwater, filter it through native vegetation, and encourage groundwater recharge.



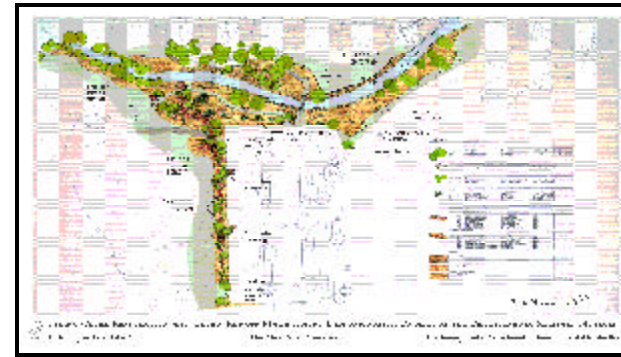
The bio-swale in this project created a grassy area to catch stormwater as it drains away from the parking lot. The swale is built in a series of small depressions and planted with native grasses and woody vegetation. As water leaves the parking lot area and flows through the swale, the depressions will retain the water and encourage infiltration to the groundwater system instead of rushing the water directly to the stream. Filtering runoff through the vegetation purifies the water. Pollutants that may come from the parking lot will collect in the soil, thus not reaching Spring Creek.



The Native Meadow

The areas surrounding the stream were planted as a native wildflower and grass meadow. This area forms a transition between the stream and the surrounding land, creating a riparian buffer, and will provide shelter and habitat for wildlife that lives near the stream.

The types of seeds and plants used to establish the native meadow and stabilize the stream banks were carefully chosen. Several varieties of woody plants were also used in the bio-swale, the riparian buffer, and along the streambanks. All species are native grasses, wildflowers, shrubs, and trees.



The Future of the Site

A restoration project of this type requires follow up and continuous care. Natural systems establish, grow, and change. Over time, the restored streambank will be monitored for changes or problems. Invasive plant species will be removed from the meadow and swale areas. Additional plants may need to be added. ClearWater will recruit volunteers from the community to help with these ongoing efforts.

Project Credits

Funding:

PA Department of Environmental Protection
Fran Koch

Design & Construction Oversight:

Andropogon Associates, Ltd.
Andy Otten

Bid Specifications:

Chester Engineers
John Miknis

Site Grading:

Glenn O. Hawbaker, Inc.
Jeff Sturniolo

Construction:

LandServ, Inc.
John Oleksa

Project Management:

ClearWater Conservancy
Dana Flowers & Jennifer Shuey

Project Education:

ClearWater Conservancy
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To learn more about this project or to become a member, please contact:

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