



Riparian Corridor Project Profile



Smith Elementary School Streambank Stabilization Project

Background

The Tonquish Creek is a tributary to the Middle Rouge River. Like most suburban streams, the Tonquish Creek watershed has undergone change due to development and upstream land use change. The Tonquish Creek suffers from high flow variability, sediment and stormwater pollution. Land use changes particularly from residential development replacing open land upstream has increased the amount of impervious surfaces, reducing the land's ability to absorb and filter stormwater, causing unstable flows. According to the Center for Watershed Protection, declines in the biological integrity of streams can be directly linked to increases in impervious surfaces. The huge surges in flow that follow rain and snow melts cause streambanks to erode and sediment to be deposited in the river and downstream. As stormwater pollution warms the water, reduces clarity and erodes away the vegetation that shades the river, the Tonquish Creek's water quality is degrading.

Project Overview

Smith Elementary School in the City of Plymouth encompasses just over 750 feet of the Tonquish Creek. The 9.25 acre School property is multi-use, with a heavily-used walking trail along the river, parking lots, basketball courts, baseball and soccer fields, and a heavily-used children's playscape. Much of the School property is mowed, providing little in the way of a buffer zone for the river. A streambank on the property was eroding and the bike path which many residents and students use was in jeopardy of being impacted.

Wayne County Department of Environment (WCDOE) was awarded a grant from the Clean Michigan Initiative to create a buffer zone of native plants along with stabilizing 120 feet of streambank. Soil lifts, a soft bioengineering technique and native plantings were used to stabilize the bank. A minor permit was acquired from the Michigan Department of Environmental Quality (MDEQ) for \$50.00.

JFNew, an environmental consulting firm, designed and provided technical assistance and materials for the project. Kooyers Services LLC, a construction contractor, prepared the site by re-grading the bank and installing a stone base at the toe of the slope. The dead ash and cottonwood trees that were cut and removed from the slope were placed on the opposite site of the stream. These trees were cut into manageable log lengths for future use.

On Rouge Rescue Day, June 3rd 2006, Friends of the Rouge (FOTR) volunteers moved the logs into position in the School's nature preserve as trail boundary markers and utilized the remaining logs to create upland small mammal habitat structures. Use of a dead ash tree demonstrates an inexpensive re-use of a readily-available material, made possible by the recent invasion of the Emerald Ash Borer that is killing most of the ash trees within Southeast Michigan.

The group of almost 50 volunteers, including elementary, middle and high school students, teachers, cub scouts and parents, stabilized the streambank by installing 70 linear feet of Soil Lifts and 50 linear feet of Bank Pull Back (Both are soil bioengineering stabilization techniques.) The lifts, slope and top of each slope were planted with over 300 trees and shrubs to create a new buffer area. Over 40 lbs of native grass and wildflower seed was spread out over the areas to stabilize the site and provide color and biodiversity to the project. Three Wren birdhouses, donated by Ford Motor Company, were installed. A Grow Zone sign, provided by Wayne County, will be installed over the summer.

This project will improve the health of the stream at a minimal cost by creating a buffer zone and stabilizing the bank using natural materials that also provide wildlife habitat. Using volunteer labor and installing interpretive signs educates local residents about good riparian practices. The cooperation of a municipality, a school and local volunteers is an effective strategy at improving the health of the river while simultaneously creating better river stewards.



One year after installation. (Picture - M. Best)

Methods Used

Woody Debris Management 101
Soft Bioengineering
Riparian Buffers

Materials Used

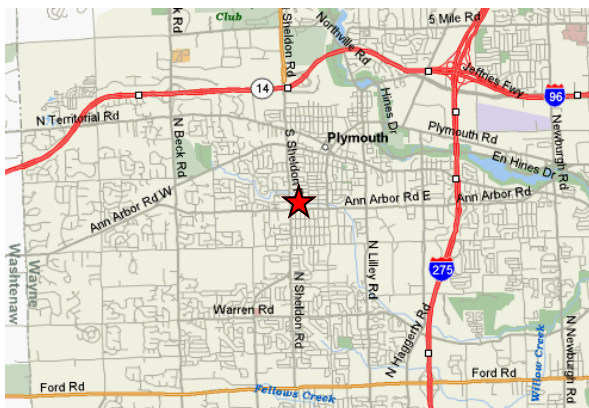
Buffer: native plants, On-site soil, shovels, trowels, rakes, wheelbarrows, bird boxes, signs and sign posts

Bioengineering: 300 native trees and shrubs, wood frames, Curlex blanket, coconut blanket, jute mesh blanket, 1440 cu. yds. of riprap, blanket staples and stakes, post hole digger, hammer, shovels, wheelbarrows, front-end loader to re-grade, sledgehammer.

Other: Refreshments



Volunteers installed over 300 native plants to create a riparian buffer zone. (Picture - C. Catalfio)



Partners

City of Plymouth, Smith Elementary School, FOTR, JFNew, Kooyers Services, LLC, Karen Gorman, MDEQ, Wayne County Department of Environment and the Cub Scouts.



Riparian area before work was done. (Picture - M. Best)

Cost

The total cost of the project was \$12,270.00, matched with \$1,920.00 in volunteer, so that actual cash expenditures were \$10,350.00. A grant from the Clean Michigan Initiative covered the costs. The costs fall well below the industry average for this type of project due to the volunteer labor and support from the partners.

Permits

MDEQ Inland Lakes and Streams Permit
MDEQ Floodplain/Water Resources Protection Permit



One year after completion, the site was 'greening up'. (Picture - M. Best)

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Text supplied by Matthew R. Best. Photographs supplied by Chris Catalfio and Matthew R. Best. For more information on this project, please contact Wayne County Department of Environment at (734) 326-3936, 3600 Commerce Court, Wayne, Michigan 48184

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