RESTORING MILL CREEK

Stabilizing Streambanks with Bioengineering

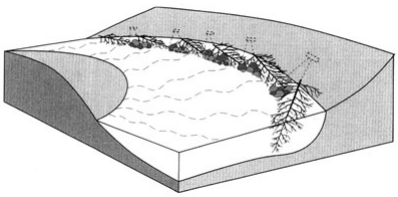
Project summary

Some sediment in Mill Creek is natural. But too much means a property owner is losing land from erosion and is a problem for the fish and other creatures living in the creek that can suffocate on it. The Huron River Watershed Council (HRWC) and its partners have restored two of the most severely eroding spots on Mill Creek where erratic stream flows had eaten away the banks.

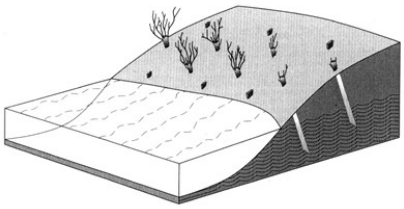
We used preferred bionengineering techniques, also called soft engineering which relies on vegetative materials such as trees rather than hard, structural materials. These sites represent the first examples of bioengineering techniques on the Mill Creek system.

Through the strategic use of bank re-sloping, tree revetments, and live stakes of Michigan native plants, we stabilized 360 combined lineal feet at the two sites, which keeps 33 lbs of phosphorus and 37 tons of sediment out of the creek.

Tree revetments are rows of interconnected trees attached to the toe of the streambank to reduce flow velocities along eroding streambanks, trap sediment, and provide a substrate for plant establishment and erosion control. Tree reetments provide temporary bank protection while vegetation is getting established, then slowly degrade.



Live stakes are live, woody cuttings of native species that are tamped into the soil to root, grow and create a living root mat that stabilizes the soil by reinforcing and binding soil particles together, and by extracting excess soil moisture. At the Mill sites, stakes were placed in three rows spaced 1.5 ft apart at the upslope edge of the whole tree revetment.



Before. Bare, vertical banks at this site were the result of dredging and upstream changes to hydrology in Mill Creek.

During. Crews pull back the slope and install soft engineering techniques such as erosion control blankets and trees sourced from a local tree farm. Photo: ECT

After streambank restoration. Nearly one year after construction and high flows, the banks are vegetated with native trees, shrubs and grasses.

Michigan DNRE

Funded by U. S. Environmental Protection Agency, and Michigan Dept of Natural Resources & Environment

Restoring Mill Creek: Stabilizing Streambanks with Bioengineering

Locations: Mill Creek at S. Lima Center Road
Mill Creek at S. Dancer Road

Engineer/Construction: ECT and Restoration Dredging

Installation date: 2009

Installation cost: $66,500 (includes labor and materials)
+ match from project partners

Length: 360 lineal ft

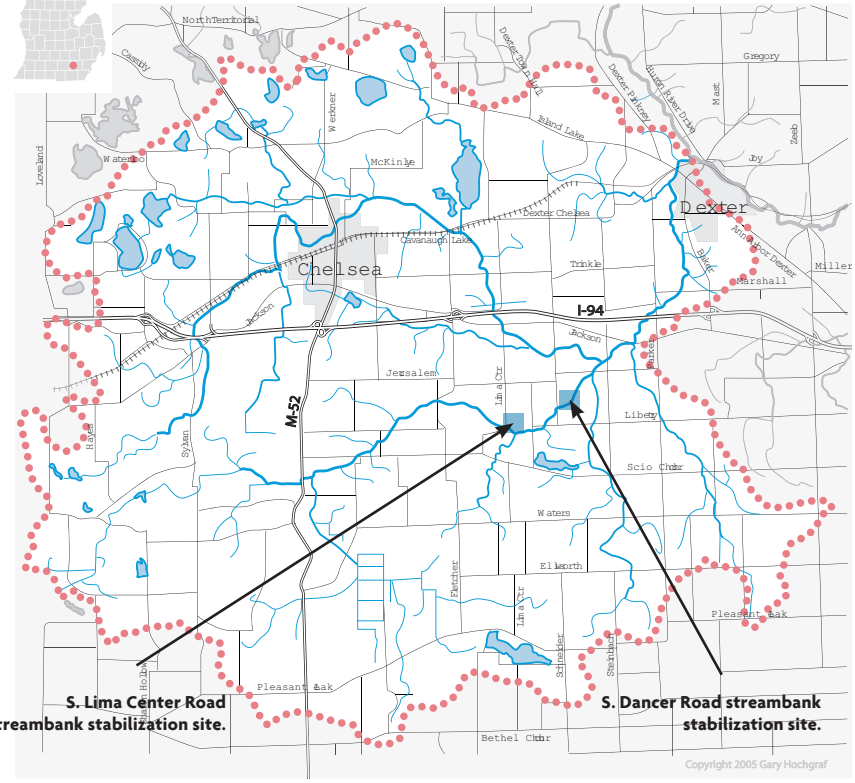
Pollutants controlled: 37 tons of sediment
33 lbs of phosphorus

Materials: topsoil, erosion control blankets, seeding, live stakes:
240 at S. Lima Center Road site (56% survival)
207 at S Dancer Road site (95% survival)

Why Mill Creek?

At 145 square miles, Mill Creek watershed is the largest creek system in the Huron River watershed. Mill Creek is a valuable freshwater resource. Water quality is good due to the remaining natural areas of woodlands, wetlands, floodplains, lakes and streams. Yet, Mill Creek faces a few challenges, including excessive soil erosion and sedimentation, erratic stream flows, and polluted runoff.

Visit the sites on S. Dancer and S. Lima Center Roads or go to www.hrwc.org to learn more.



Land + Water Protection

To help ensure the success of the stabilized streambanks, the partners are working to permanently protect critical natural areas upstream of the two streambank locations. Land owners are receiving information about their properties' importance to the watershed and the conservation options available to them. Contact HRWC or Legacy Land Conservancy if you are a property owner interested in permanent protection of your land through voluntary land preservation agreements, purchase of development rights, or outright sale/donation of the property. Contact HRWC or ECT if you would like information on streambank stabilization techniques.

PROJECT TEAM

Huron River Watershed Council

Washtenaw County Water Resources Commissioner

RD

Michigan's Nonpoint Source Program

LEGACY Land Conservancy
Protecting and Preserving Southern Michigan

ECT
Environmental Consulting & Technology, Inc.

URQUHART'S TREE FARM
CHOOSE & CUT CHRISTMAS TREES
Licensed and Inspected Nursery Stock for Transplant
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