Lake Iroquois Stream Remediation and Erosion Control Project

Part 1: Stream Remediation & Flood Plain Restoration

Report by P. Suozzi

Project Description

The overall aim of this project is to achieve velocity dissipation, reduce erosion, and decrease sediment carried into the lake by the stream paralleling Pine Shore Drive. In addition, the project seeks to restore a more natural stream bed to reduce channelization and scouring. The project will be undertaken in two parts:

- Reshape and line the ditches paralleling Pine Shore Drive and create proper turnouts and road crowning to reduce runoff
- Stream remediation by restoring the natural streambed and flood plain

The stream remediation and flood plain restoration work was completed on August 17, 2017 and is described in this report.

Stream and Flood Plain Restoration

- Place rock at outlet from rain garden to reduce erosion and scouring of channel.
- Place timber and rock check dams to allow stream to spread in natural flood plain, slowing water velocity and trapping sediment before it reaches the lake
- Remove old culvert under walking path
- Create crossing on walking path while allowing stream to regain a natural streambed
- Replant streambed with native species to anchor stream banks

Placing Rock at outlet of rain garden

This culvert, which goes under a driveway could not be removed, so rock was placed at the outlet to reduce the drop which was causing considerable erosion. Rock was also added on either side to prevent further stream bank erosion.

Completed rock armoring at culvert outlet

The water now flows more parallel to streambed. The rock also slows the velocity and traps sediment. Rocks on either side also protect banks from further erosion.

Removal of old culvert

The VYCC crew removed the old culvert using a winch and ropes.

Culvert is out

The old culvert was placed in the right of way over 60 years ago. The culvert was actually several water heaters welded together.

Regrading path after culvert removal

In order to allow the stream to resume a more natural flow, the VYCC crew regraded the path where the old culvert had been.

Gathering rock for the path

Rock was needed to form several weirs downstream of the path and to create a stream crossing on the path. Neighbor Doug Lantman volunteered to work with the crew using his tractor to retrieve rocks on the property and move them to the path. This saved much time for the crew and money for the project as rock did not need to be purchased.

Completed work on the path

After regrading the crew placed several rock weirs downstream (to the left of the crossing in the picture) to slow water velocity and added stepping stones where the old culvert had been. The stream can flow naturally and people can walk across dry shod, even in heavy rain.

Timber Delivery

In order to allow the stream to spread into its natural flood plain, to reduce water velocity, and capture sediment before it enters the lake, timber check dams were created upstream of the walking path.

Placing the check dams

The VYCC crew are being shown how to place the timber check dams in the stream bed. Although the area looks fairly dry in the picture, the streambed was actually quite wet and muddy.

Completed check dams

View of the streambed before replanting. The timbers will not be very visible once the plants grow back in but will spread the water thereby reducing erosion and scouring, as well as trapping sediment.

Plants!

After the streambed work was completed, replanting was needed to anchor the stream banks.

Planting Day

The last day of work was spent planting over 100 native plants along the streambank. The VYCC crew worked with volunteer Lisa Thompson who designed the planting plan and helped supervise the planting process.

Work completed!

A view upstream (west) of the finished check dams and plantings.

And what happens when it rains?

Water flowing downstream (to the left in this picture). Note how the water is now spread by the check dams.

The path in the rain

Water flowing across the path and new rock weirs during a heavy rainstorm. The rocks allow a natural flow and reduce the scouring into the lower part of the stream and still allow walkers to cross the path.

The VYCC Crew

Volunteers

Lisa Thompson
Master Gardener
Extraordinaire

Doug Lantman
Tractor owner & operator and
neighborhood historian

Thank-You

Daniel Schmidt and the VYCC crew
Claussen's
Clifford Lumber
Richmond Home Supply

VOLUNTEERS:

Lisa & Chris Thompson
Doug Lantman
Daniel Schmidt
Chris Conant
Bob Kenny
Pat Suozzi, Grant coordinator

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