

Natural Streambank Restoration

June 21, 2005

Upper Cattaraugus Creek Stabilization Project

Special points of interest:

- **USGS has measured sedimentation into Cattaraugus Creek as high as 21,000 tons per day.**
- **It was estimated that more than 900 tons of soil was being lost each year from the banks along Monkey Run**
- **More than 300 people have already seen the work that was done here through training sessions and slide shows**



One of the largest sources of sedimentation into the Great Lakes comes from streambank erosion along the sides of creeks, streams, and rivers. In western New York the second largest watershed is Cattaraugus Creek, covering 303,380 acres in Cattaraugus, Chautauqua, Erie and Wyoming counties. According to a Erie-Niagara River Basin study conducted by the US Department of Agriculture, Soil Conservation Service "A very high erosion hazard exists in this watershed because of the extensive fine-grained lake laid soils which are found in the area. Several tributary streams have significant occurrences of streambank erosion."

Cattaraugus Creek is highly used for water contact sports such as white water rafting, canoeing and fishing. High turbidity has negatively impacted

these recreational uses. These water use impacts are due in large part to the 50.9 miles of raw and unprotected stream banks in this watershed.

The upper Cattaraugus Creek is known as a blue ribbon trout stream and is generally maintained and classified as such by the New York State Department of Environmental Conservation. The segment of Cattaraugus Creek that includes Monkey Run and selected smaller tributaries above Elton Brook are designated as Class C(T)-important habitat for trout. The excessive amounts of sedimentation from the streambanks, measured by the U.S. Geological Survey as high as 21,200 tons per day, negatively affects the trout habitat by covering spawning grounds, reducing visibility and choking the fish.

Most efforts to control stream bank erosion have been a result of public safety issues, where eroding streams threaten roads, bridges, public utilities, or public buildings, all of which are highly visible and accessible. Additionally, homeowners looking to protect their yards have installed low cost, limited amounts of stream bank protection. Little attention from landowners has been given to protect the miles of streams and creeks that are not an immediate threat to homes and businesses. While erosion is a naturally occurring force, mass soil movement can be easily reduced.

This project will serve as a demonstration site to show how to protect these sites using natural materials, while improving fish habitat and restoring the natural functions of the stream.

What Was Done

On the next three pages are pictures and drawings of the restoration practices that were installed or plan to be installed. Many of these practices have been installed on rivers and streams much larger than Monkey Run and have been modified to fit the smaller flow stream. Some of the

practices were installed here for the first time in New York. The Rock Plug, L-Heads and Hydraulic Cover Stones are used to redirect the flow of water. The Vegetative Transplants, Coconut Fiber Rolls, Longitudinal Stone Toe, Log Bank Protection, Erosion Blankets and Live

Stakes are for reducing erosion by protecting the banks and flood plain. The recreated Pools and Riffles, Log Riffle Aerators, Rock Sill and Random Boulder Grade Control Structure are designed to maintain the stream bottom elevation and provide improved fish habitat.



Rock Plug



Hydraulic Cover Stone



Round Boulder L-Heads



Rock Sill



Live Branch Packing



Random Boulder Grade Control Structure



Coconut Fiber Roll & Live Stakes



Log Bank Protection



Log Riffle Aerator



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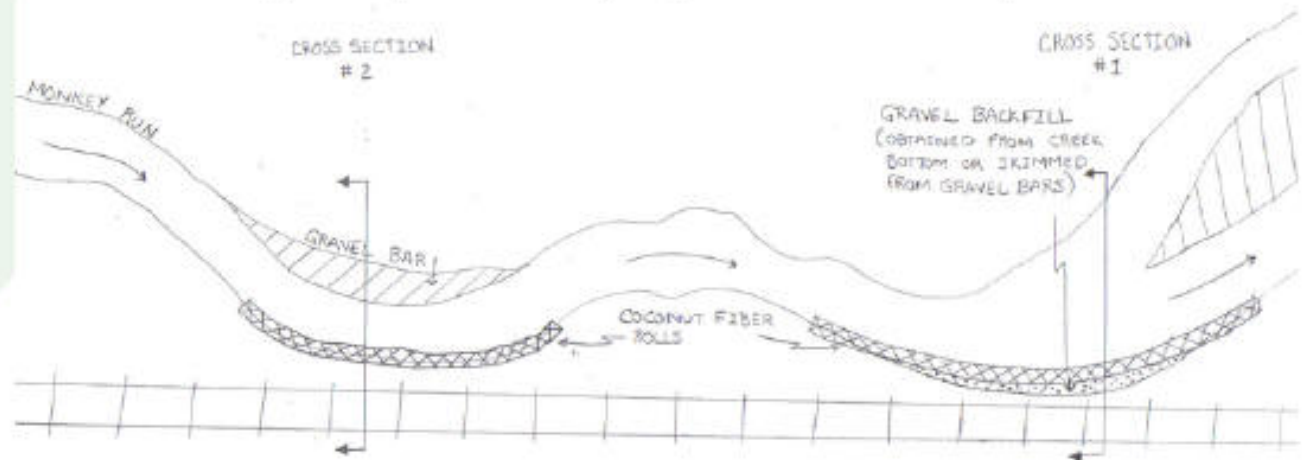
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What Still Needs to be Done

In addition to the work that was completed in the fall of 2004, approximately five sites in the upper reaches of Monkey Run will be protected using a variety of "soft" or vegetative engineering practices. These sites, also located adjacent to the rail road tracks, have lower velocity and require lower impact pro-

tection measures. Personnel from the Arcade and Attica Rail Road will be installing Coconut Fiber Rolls, Soil Socks, Fiber Blankets or other similar materials in the upcoming weeks. Native plant materials will be used to reinforce the protection measures, provide shade, improve aesthetics and improve fish habitat.



How it was Done

In June 2001, personnel from the Arcade and Attica Railroad attended a meeting of the Wyoming County Resource Conservation and Development Committee with their problem of streambank erosion threatening the safety of the rail line. Technical experts from the Wyoming County Soil and Water Conservation District visited the site to evaluate the threat and determine the necessary corrective actions. The matter was brought to the attention of the Seneca Trail Resource Conservation and Development Council for assistance in obtaining funding for the installation of the erosion control practices. Applications from the RC&D Council were sent to the Great Lakes Commission under their Great Lakes Basin Program for Soil Erosion and Sediment Control. In 2003, the RC&D Council

was notified that funding was approved for the restoration project. Wyoming County Soil and Water Conservation District personnel surveyed the most critically eroding site and designed a bank protection system using heavy rock riprap. Because the stream is a protected trout stream, the Department of Environmental Conservation became involved in approving the designs. DEC fisheries experts thought there were better ways of protecting the banks while also improving the fish habitat. A research hydraulic engineer from the US Army Corps of Engineers was consulted about using natural restoration techniques on the site, which he agreed to do. Working with the Soil and Water Conservation District, new ideas for restoration began to take shape and new designs were

developed. In the fall of 2004, permits were obtained for the natural restoration techniques and construction finally got underway. The restoration project was made possible because of the cooperation and partnership with the following individuals and organizations: Andy Schnitzler, Arcade and Attica Rail Road, Wyoming County Soil and Water Conservation District, Cattaraugus County Soil and Water Conservation District, Dave Derrick, US Army Corps of Engineers, Tim Spierto, NYS Department of Environmental Conservation, Steve Perschke, Natural Resources Conservation Service, Alleghany Ecological Consulting, Wyoming County RC&D Committee, Great Lakes Commission and the Seneca Trail RC&D Council, Inc.

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