

Bee Meadow Pond Shoreline Restoration Project

Executive Summary

Bee Meadow Pond is one of three ponds located in Bee Meadow Park. The ponds are stocked for fishing, but boating and swimming are not allowed. The three ponds total 22.5 acres of the total 89-acre park. The ponds, originally quarry areas for clay used at a brick works, have become an important water feature in the community. While deeper and larger than many impoundments in New Jersey, the ponds are facing water quality issues similar to other surface water bodies in New Jersey.

Lakes and impoundments are often incorporated into public parks in order to provide recreational opportunities for local residents. While these amenities have been an attractive feature in our communities, they are being threatened by water quality concerns. Waterfowl that contribute a significant nutrient and fecal coliform load to the surface water system plague the lake. On October 3, 2001, there was a fish kill in Bee Meadow Pond, the result of nutrient overload and insufficient dissolved oxygen. The proposed restoration is located at the lowest of the three lakes on the property. A wooded natural area surrounds the upper lakes. The lower lake is crossed by high-tension electrical wires and is bordered by a major thoroughfare and the access road to the park. The areas bordered by roads have been impacted by recent activities. Approximately 500 feet of the shoreline adjacent to the park access road is experiencing shoreline erosion due to unprotected steep slopes. Near the entrance to the park, regular mowing and maintenance has eliminated the natural riparian buffer along approximately 300 feet of the shoreline. In addition, maintenance under the high-tension electrical wires and utility work has eliminated vegetation along an additional 300 feet of the lake.

Currently much of the disturbed area is mowed. Near the shoreline, invasive plant species (e.g. purple loosestrife) have become established. These areas provide habitat for a large population of waterfowl, making the area uninviting to park visitors and fisherman and contributing to the nonpoint source pollution (fecal coliform) in the pond.

I. Priorities to be Addressed

The project is located in Hanover Township, Morris County at the headwaters of West Brook, a tributary of the Troy Brook and Whippany River.

The shoreline restoration and riparian establishment proposed in this project will improve the watershed by reducing NPS pollutants, including fecal coliform, which must be reduced by 58% reduction in the Whippany River watershed. The project offers a host of other watershed enhancement benefits and addresses watershed management priorities, goals, objectives, and Action Now Strategies, and Action Items of the Whippany River Watershed Action Committee and WMA 6 by protecting public water supplies; improving the health of the watershed to aid public health; fostering local government's and the general public's environmental awareness and role in watershed management through hands-on technology transfer and public education and outreach; researching, assessing and monitoring the health of surface water; enhancing the quality of surface and ground water; enhancing wildlife habitat; restoring ecosystem health; improving an aquatic community; managing waterfowl damage; reducing contamination of surface and ground water; reducing nutrient loadings; utilizing BMPs to protect and improve water quality; turning watershed management plans into reality; and setting a precedent for other communities to protect the water resources of the Whippany River and other waterbodies in WMA 6. The project also addresses Commissioner Campbell's objectives, including accelerating the TMDL process, developing regional stormwater management plans, and Smart Growth.

II. Project Objectives/Implementation Tasks

The goals for this project are to reduce NPS pollution and improve water quality in the Whippany River watershed, utilize innovative best management practice techniques to demonstrate shoreline restoration and stabilization, transfer riparian restoration technology to municipalities, and provide educational opportunities that will build understanding for the need to protect water resources in the Whippany River Watershed. These goals will be achieved by accomplishing the following objectives:

- A. Establish a 50-foot-wide vegetated riparian buffer along approximately 300 feet of shoreline near the entrance to Bee Meadow Park
- B. Regrade and stabilize 500 feet of degraded shoreline adjacent to the entrance road along the north side of Bee Meadow Pond using soil bioengineering techniques and native vegetation and provide pedestrian access to the park and pond
- C. Establish an additional 300 feet of riparian buffer beneath high-tension electrical wires and in currently disturbed construction areas along the Pond.
- D. Ensure survival of at least 85% of new vegetation through the establishment of a long-term maintenance plan devised by TRC Omni Environmental Corporation and agreed to by the local community
- E. Follow NJDEP Best Management Practices throughout the project
- F. Provide hands-on restoration and education opportunities for public officials/staff, students and citizens during construction that transfer storm water best management practice techniques and riparian restoration technologies

- G. Publicize the project and its purposes through media and the resources of project partners. Written publicity will include the names of project partners, including WMA 6, and the fact that the project was funded by a 319(h) grant from NJDEP.
- H. Ensure maintenance of the project after the project period ends for survival of vegetation
- I. Document progress through "before" and "after" photos of the sites and participation of the local community in the project
- J. Collect data to determine the success of the restoration on removing the impacts of geese
- K. Track number of organizations participating in the project
- L. Track number of volunteers participating in construction
- M. Track success of media and public education and outreach (brochure, newspaper clippings, press releases, etc.)
- N. Complete the project between March 1, 2002 and June 30, 2004.
- O. Complete quarterly reports for NJDEP, with copies sent to the WMA 6 PAC.

III. Water Quality Improvements

This project will address non point source impacts in the Whippany River Watershed. The project will improve water quality in the watershed by reducing sediment and fecal coliform bacteria in surface water by stabilizing eroding shorelines, establishing a vegetated riparian buffer, and managing goose damage, including discouraging waterfowl use of turf areas around Bee Meadow Pond.

IV. Organizational Capacity of Partners/Commitment

An excellent team has been assembled to complete this project. Rutgers University is taking a more active role in providing technical support to help New Jersey better manage their water resources. To lead this effort, Dr. Christopher Obropta has joined Rutgers Cooperative Extension as their new Specialist in Water Resources. Dr. Obropta worked as an environmental consultant for 13 years at Omni Environmental Corporation in Princeton, New Jersey. He has successfully implemented numerous 319(h) projects throughout New Jersey and continues to develop strong partnership to foster these efforts.

Hanover Township is an active and dedicated member of the Whippany River Watershed Action Committee. Municipal officials will lead this effort to enhance natural resources and address nonpoint source pollution in their community..

With its proven record of success, the Whippany River Watershed Action Committee will continue its successful efforts to address the Whippany's TMDL and other nonpoint sources of pollution and educate local citizens and governments about watershed management in the Whippany River Watershed through this project. The Action Committee has implemented several previous 319(h) projects in WMA 6, including a project that is upgrading municipal codes -- including in Hanover Township, which is implementing a new stormwater ordinance, similar to the 10 Towns' -- for clean water protection, and a shoreline restoration and goose damage management project at Burnham Park in Morristown that has resulted in water quality improvement, enhanced habitat, increased biodiversity, reduction in algae growth, reduced use of shoreline habitat by Canada geese, and enhanced aesthetics in a public park, BMP technology

transfer to municipal officials, volunteers, and local corporations, and enhanced public awareness of and participation in watershed management.

V. Project Implementation

Rutgers Cooperative Extension will take the lead in this project. Rutgers has access to a large base of undergraduate and graduate students to assist with the fieldwork. Hanover Township will provide in-kind service to construct the project, and the Whippany River Watershed Action Committee will coordinate local volunteers and education and outreach.

The project will be completed within 18 months of receiving an official contract from NJDEP.

VI. Conclusions

This project is one of the implementation components of the Troy Brook Regional Storm Water Management Plan Project (RSWMP), which tackles the TMDL for the Whippany River by comprehensively addressing the problems of Troy Brook on a subwatershed basis.

The RSWMP project takes a multi-pronged approach to water resources improvement through storm water management, NPS pollution reduction, ecosystem enhancement, open space preservation, protection of flood storage capacity, hands-on stakeholder involvement, and public outreach and education. Project components include production of a RSMP for the Troy Brook watershed, installation of urban storm water retrofits upstream of a lake with a bathing beach, creation of a riparian buffer at Bee Meadow Pond, and water quality monitoring that will fill data gaps and establish project effectiveness.

The RSWMP project takes place within the context of established, ongoing watershed protection efforts that include: 1. NJDEP's Watershed Management approach, -- which started in the Whippany watershed; 2. The work of the 13-member intermunicipal watershed association -- the Whippany River Watershed Action Committee -- and the Whippany River Watershed Management Group; 3. Rutgers University - Cook College's practical, scientific, and educational contributions to the Whippany River watershed and that institution's revitalized state outreach program; 4. The Troy Meadows preservation initiative, facilitated by the Morris Land Conservancy, supported by state legislators, Morris County, and the municipalities of East Hanover, Hanover, and Parsippany (all members of the Action Committee), with participation by the Army Corps of Engineers, WMA 6, Passaic River Coalition, NJ Audubon, Green Acres, Wildlife Preserves, and many other organizations that want to see plans for the permanent preservation of Troy Meadows become a reality.

To address the project's ambitious goals, the project team offers an extraordinary wealth of academic and community resources, seasoned talent and partnerships, and excellent track records in successfully completing 319(h) and other major projects over many years.

Hanover Township and the Action Committee are committed to protecting the water resources of the Whippany River. Through this 319(h) effort, the community will address nonpoint source pollution problems and the TMDL for the Whippany River, and educate local citizens regarding the need for nonpoint source controls and watershed restoration. The restoration at Bee Meadow Pond will provide opportunities to involve local youth, citizens, and officials in the restoration process and give hands-on experience in implementing best management practices.

This project is located in the Troy Brook watershed and supports the efforts of the proposed Troy Brook Regional Stormwater Management Plan. It also dovetails with the Action Committee's lake monitoring project, which was funded by Victoria Foundation in 2002. We hope the Nonpoint Source Pollution Control and Management Implementation Program gives the greatest consideration to funding this project.

Photo 1
Degraded shoreline around Bee Meadow Pond (Phase I)



Photo 2
Eroding shoreline along Bee Meadow Pond (Phase II)



Photo 3
Eroding shoreline along Bee Meadow Pond (Phase II)



Photo 4
Degraded shoreline around Bee Meadow Pond (Phase III)

