

L&B DRAIN



Bank stabilization blocks installed.

By Elan Lipschitz, Land Protection Specialist, Little Forks Conservancy

Editor's Note: This project was recognized in 2008 with MACDC's Innovation and Excellence Award.

When the Little Forks Conservancy acquired the Averill Preserve from the Midland Area Community Foundation in 2003, immediate action was clearly needed to repair the erosion along the L&B County Drain. The final 1,500 feet of this small waterway dissects the preserve. L&B collects water from a small watershed before flowing to the Tittabawassee River, and plays an important role in the river's water

quality. The site is also highly visible to users of the Pere Marquette Rail-Trail.

Erosion of the L&B Drain resulted from a subsurface clay tile that broke under the pressure of increased flows as the surrounding area was developed. Worsening erosion over the course of many years increased the amount of sediment entering the river. To resolve this problem, the Little Forks Conservancy wanted to create an innovative solution to repair and restore this damaged ecosystem. They realized it would take a collaboration of local organizations to plan and to obtain funds for this project. The Conservancy first discussed options with Midland County Drain



Turf reinforcing mats line the L&B Drain channel.

Commissioner Doug Enos.

The Midland Area Community Foundation provided the first funding to complete a preliminary design and the necessary survey for the project. Little Forks Conservancy hired Rowe Engineering to assist. Robert Haneline, project manager and Brett Schwenke, wetland consultant, provided technical expertise. The survey determined elevations and wetland boundaries in the project area.

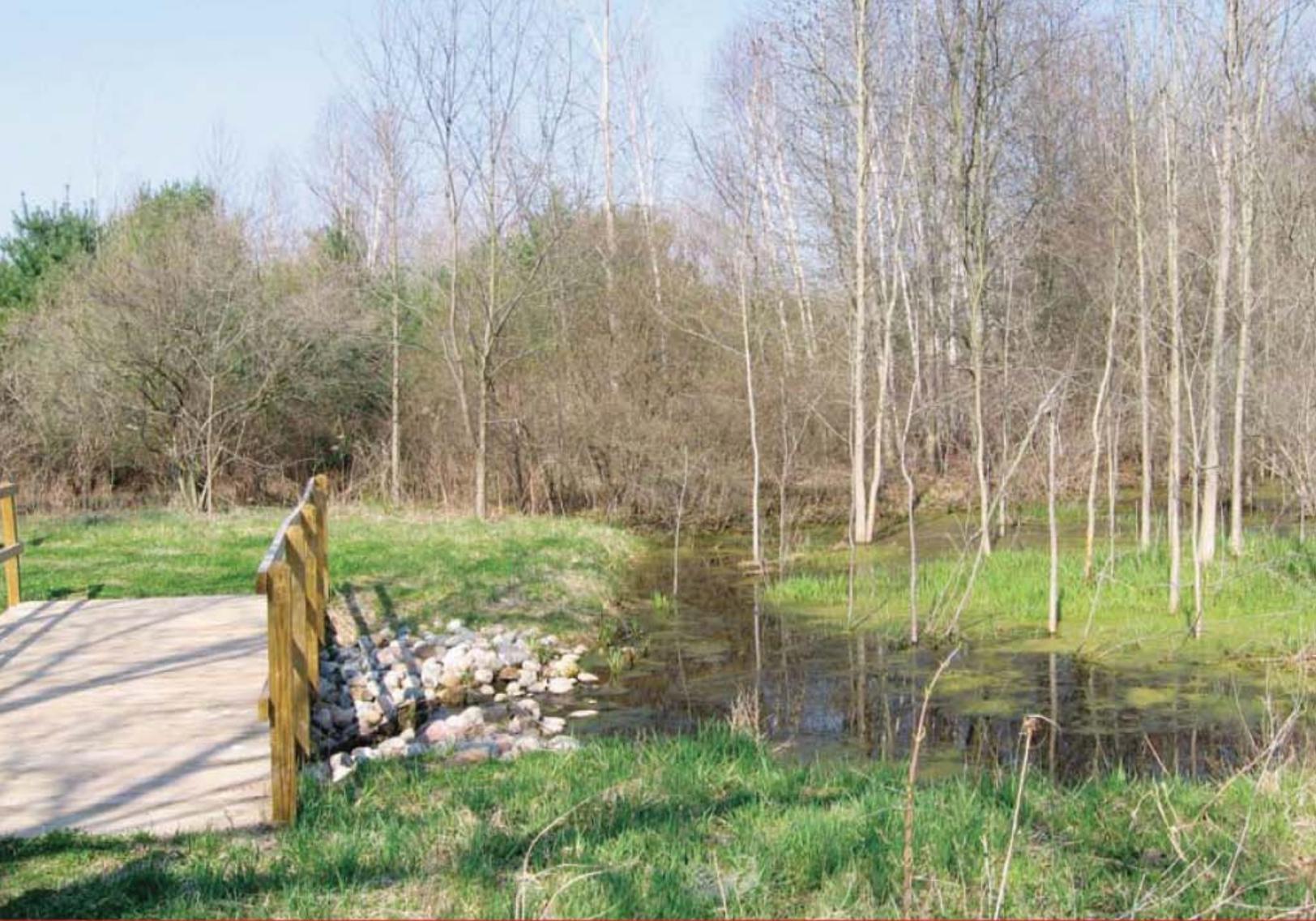
Team Approach to Design

The next step was to involve local stakeholders including: Jim Malek, Friends of the Pere Marquette Rail Trail; Will Sears, District Conservationist from the USDA Natural Resource and Conservation Service; Paul Pounders, Director of the Midland County Parks and Recreation Department; Doug Enos, Midland County Drain Commissioner; and The Little Forks Conservancy staff and Board members.

These stakeholders participated in a design charette,

facilitated by Rowe Engineering, to gather ideas and information to create an innovative solution to the environmental issues of the L&B Drain. Local stakeholders provided valuable input that shaped the project design. The charette produced a natural design using non-traditional material that was sensitive to the site ecology.

With design complete, the challenge of funding the project remained. While the L&B Drain is a County drain, its course runs almost entirely on the Conservancy's Averill Preserve. Rather than using the Drainage District's limited funds, the Conservancy sought outside funding. Several options were explored and the Conservancy applied for grants from the Saginaw Bay Watershed Initiative Network and Great Lake Commission. Both grant applications were successful. These grants, together with funding from USFWS Partners for Wildlife Program and a private donor, brought in over \$100,000 to complete this project.



Erosion control measures in place.

Installation Handled With Care

The project called for erosion repair and wetland enhancement. In the upper portion of the waterway, damaged tile was removed and an open drain channel was created. This involved some excavation; the project contractor, Gerace Construction, used care to work around existing trees and limit affects to existing vegetation. The contractor's vigilance reduced planting costs.

An energy dissipater was installed to reduce the velocity of water as it enters the property during peak flows and minimize impacts on the banks. Turf reinforcement matting was installed to stabilize the banks of the newly created channel. The matting was chosen because it allows vegetation to grow through it.

One project goal was to enhance an existing wetland area where the upper portion of the drain discharges. A weir was installed in the channel to increase water

retention in the wetland and expand the area subject to seasonal saturation. The enlarged wetland will filter sediment before the water flows to the Tittabawassee River.

One of the greatest challenges was stabilizing the lower portion of the drain where it meets the Tittabawassee River. An innovative technique was implemented using open- and closed-cell cable concrete blocks. These blocks were used to stabilize the highly eroded banks. Over time, sediment will fill the spaces between the blocks and they will be barely noticeable.

Finishing Touches for Averill Preserve

After the major construction was completed, the Conservancy focused on replanting with native vegetation. Karen Breternitz at Chippewa Nature Center helped the Conservancy to obtain plant stock from Wildtype Nursery, a firm that specializes in native Michigan genotype vegetation. Ms. Breternitz



Reinforcement installed at channel crossing.

assisted in selecting plants that represent native vegetation for the area and also stabilize erosion. The Conservancy enlisted the help of volunteers and Wild Ones – Midland Chapter to plant over 1,000 plugs. Plants included native grasses such as big and little bluestem, blue flag iris and other wildflowers.

The design decreased water velocity, reduced sediment entering the Tittabawassee River, improved the aesthetics of the site, repaired erosion and enhanced the existing wetland. In addition, the project can be used as an educational site for erosion control techniques.

Since project completion, the Averill Preserve has been the focus of several Conservancy field trips. The wetland area has more wildlife, including several species of turtles and frogs. Vegetation is growing out of the open cell cable concrete blocks and turf reinforcement matting. This project has restored an integral part of a nature preserve that benefits the water quality and wildlife habitat of the area.

ROWE INCORPORATED
Engineering • Land Surveying • Planning • Landscape Architecture
Land Development Services • Aerial Photogrammetry

(810) 341-7500
www.roweincorp.com
Flint • Lapeer • Mt. Pleasant • Grayling