



**Clean Michigan Initiative  
Nonpoint Source Grant**  
Tracking code 2002-0061



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## Sebewaing River Watershed Implementation of Physical Improvements

April 1, 2004, through September 30, 2007

The Sebewaing River Watershed is made up of approximately 66,000 acres of mostly agricultural land draining into Saginaw Bay. The two major water quality issues are nutrient and sediment loading from agricultural practices. Ice blockage was also leading to flooding and erosion in the Village of Sebewaing. The project goal was to correct the causes of the sources of sediment and excessive nutrients and to reduce the risk of flooding and erosion caused by the changes in the natural hydrology of the watershed. The project was a joint effort with the Sebewaing River Inter-County Drainage Board using a holistic approach to drain maintenance rather than traditional open channel excavation. The project included BMPs to reduce sediment and nutrient loads through the application of grade stabilization structures, stream bank stabilization, conservation tillage, filter strips, tile inlet/outlet stabilization and nutrient management.



**Grant Amount: \$ 684,700**  
**Match Funds: \$ 592,800**

**Total Amount: \$ 1,277,500**



### Best Management Practices:

- Ag Waste Storage System (1)
- Cover Crops (3,854 acres)
- Tile Outlet Repairs (187)
- Filter Strips (125 acres)
- Windbreaks (4.7 acres)
- Structures (236)
- Channel Restoration (13.3 miles)
- Sediment Basins (2)
- Septic System Update (3 systems)



### Annual Load Reductions:

- Sediment: 36,560 tons/year
- Phosphorus: 39,100 pounds/year
- Nitrogen: 78,730 pounds/year

### Partners involved:

- Natural Resources Conservation Service
- Huron and Tuscola County Drain Commissions
- Sebewaing Inter-County Drainage Board
- Brookfield Township
- Sebewaing Township
- Huron County Board of Commissioners
- Fishbeck, Thompson, Carr & Huber, Inc

## Sebewaing River Watershed Best Management Practices



Tile outlet in need of repair. The stream bank was cut back over 20 feet. Sediments and nutrients were entering the water.



New outlet tube installed. The stream bank was seeded and riprap placed to prevent erosion.



Sediment Basin on Columbia Drain



Sugar beet field after harvest had very little residue present to prevent sheet and rill erosion.



Rye cover crop was installed to reduce sediment erosion from 2.4 ton per acre to virtually zero. Phosphorous and nitrogen entering waterbody is also reduced.



Aerial photo of Sediment Basin on Columbia Drain



Kundinger Brothers Animal Waste Storage



Channel restoration on Columbia Drain



Aerial photo of Sediment Basin on State Drain

**State & Columbia Drains  
Before BMP Implementation**



**Typical Washout formed by Runoff  
from Agricultural Fields  
(State Drain Sta. 25+00)**



**Typical Washout formed by Runoff  
from Agricultural Fields  
(State Drain Sta. 42+00)**



**Typical Rill Erosion formed by Runoff  
from Agricultural Fields  
(Near State Drain Sediment Basin)**



**Typical Rill Erosion formed by Runoff  
from Agricultural Fields  
(State Drain Sta. 118+00)**



**Typical Gully Erosion formed by Runoff  
from Agricultural Fields  
(State Drain Sta. 178+00)**



**Typical Gully Erosion formed by Runoff  
from Agricultural Fields  
(State Drain Sta. 280+00)**

**State Drain  
After BMP Implementation**



**Stream Restoration Downstream of Sebewaing Road  
Tree Revetments & Selective Clearing  
(State Drain Sta. 10+00)**



**Tree Revetment Installation & Selective Clearing  
(State Drain Sta. 5+00)**



**Tree Revetment with Sediment Deposition  
(State Drain Sta. 55+00)**



**Tree Revetment with Sediment Deposition  
(State Drain Sta. 55+00)**



**Typical Tree Revetment  
(State Drain Sta. 115+00)**



**Typical Tree Revetment Anchoring System  
(Steel Cable with U-Bolt Connector  
and Duckbill Earth Anchor)**

## Columbia Drain After BMP Implementation



**Typical Grade Control Structure  
During Low Flow  
(Columbia Drain Sta. 40+00)**



**Typical Grade Control Structure  
During Low Flow  
(Columbia Drain Sta. 40+00)**



**Typical Grade Control Structure  
(Columbia Drain Sta. 26+00)**



**Typical Grade Control Structure  
(Columbia Drain Sta. 82+00)**



**Typical Tile Outlet Protection  
(Columbia Drain Sta. 50+00)**



**Typical Tile Outlet Protection  
(Columbia Drain Sta. 35+00)**