



Michigan's
Nonpoint Source
Program

Clean Michigan Initiative

Clean Water Fund
Tracking Code 2001-0072

St. Clair County Drain Commissioner's Office

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Village of Avoca Innovative Wastewater Treatment System

September 2002 through December, 2010

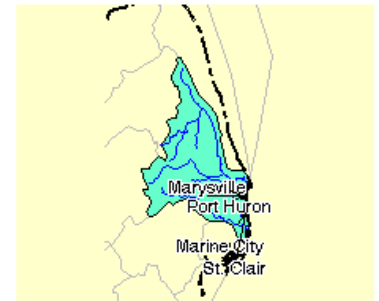
The Village of Avoca is an unincorporated community located in northern St. Clair County, Michigan. Prior to the project, it was estimated that approximately 15,000 gallons per day of sewage was being discharge into the #211 Drain. Subsequently, the St. Clair County Drain Commissioner began to investigate the idea of using an innovative solution in the form of a subsurface wetland wastewater treatment system. The project consisted of a conventional wastewater collection system with a subsurface wetland wastewater treatment system. The treatment system consists of two trains of two septic tanks in series to provide pretreatment/ preliminary treatment prior to discharge to a two-stage wetland treatment/ polishing system. The wetland system consists of lined cells that provide additional treatment beyond the preliminary treatment and unlined cells that provide polishing and effluent dispersal into the ground. Construction of the wetland wastewater treatment began in September 2009 and the system start up occurred in July 2010.



Grant Amount: \$ 411,329

Match Funds: \$ 798,788

Total Amount: \$1,210,117



Best Management Practices:

- Subsurface Wetland Wastewater Treatment System
- Sewer Collection System

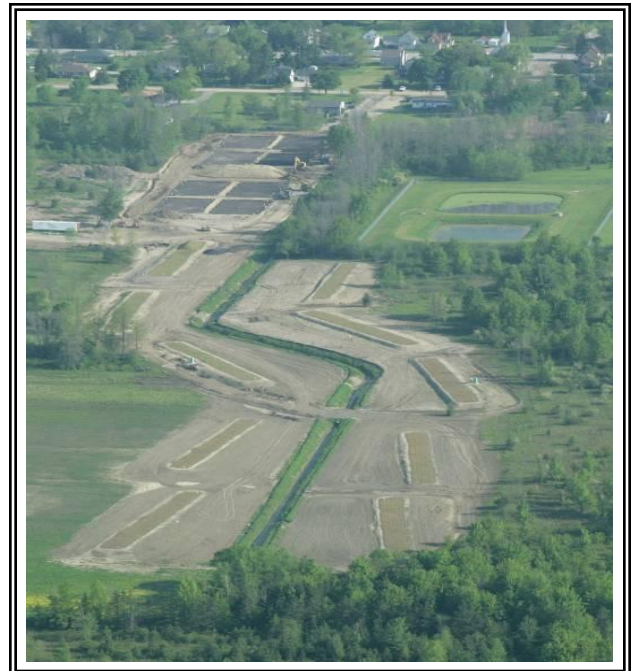


Annual Load Reductions:

- Estimated 15,000 gallons per day of untreated sewage eliminated.

Partners involved:

- St. Clair County
- Kenockee Township
- State of Michigan
- U.S. Department of Agriculture



Site of Wetland Treatment during construction (photo courtesy of Frank Frisk, photographer)



#211 County Drain Before: Prior to the project it was estimated that 15,000 gallons of raw sewage were entering the waterway each day.



Aerial photo of the site of the wetland treatment system during construction.



Site Conditions Before Construction.



Site Conditions After Construction: View of constructed lined wetland cells with established vegetation.