

MACDC 2011 HONORABLE MENTION



STEPHEN R. MAY

TESTIMONIALS

“I was paying \$500-\$600/mo. just in electrical bills because of my 6 sump pumps. Now it's down to less than \$75/mo. I'm pretty sure they haven't turned on in the last 8 months and before I was pumping nearly 8,000 gallons an hour.”
10/28/10

“I haven't even had the sump pump turn on since last year. I couldn't be happier with how the drain has worked.”
10/26/10

“I was skeptical at first with what was being proposed, but I'm certainly convinced now. Steve and everyone involved did a great job. No water!”
10/28/10

Partners

Jule Swartz & Sons Excavating
The Charter Township of Madison
PREMARC
ADS



Background

If you have ever known people with persistent basement flooding problems, you know they are always watching the weather. On vacation, or at the movies, they are always monitoring the next rain event... living in fear that their basements will flood while they are away. These are the people we met on this project, the people we worked diligently to help.

On Friday, July 11, 2008, an application for creating a Drainage District was provided to property owners on Gier Road and Sand Creek Highway in Madison Township, Lenawee County. The next Monday, the application was returned to Lenawee County Drain Commissioner (LCDC) Stephen R. May. Over 80% of the property owners in the final Drainage District signed the initial application and petition.

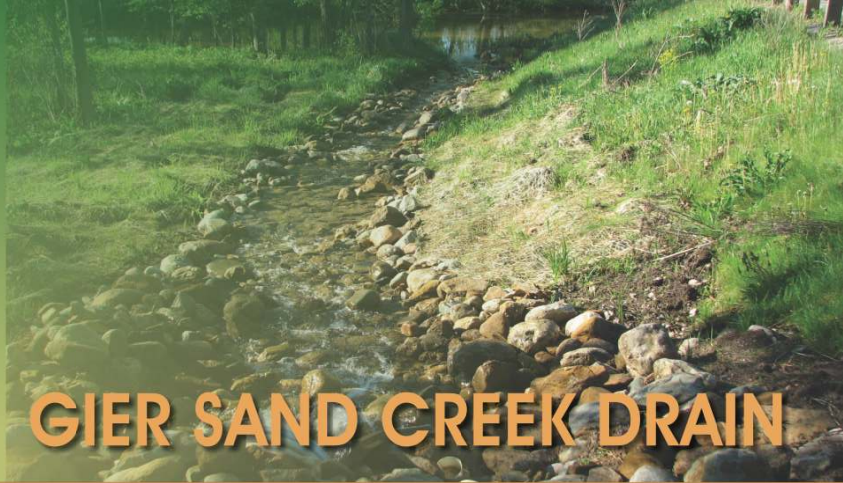
In October of 2008, the LCDC commissioned a Preliminary Engineering Study to quantify problems and propose solutions. The design team met on-site with homeowners to discuss individual drainage concerns. The groundwater problem was so severe that several properties had multiple sump pumps; one property required six separate sump pumps and a system costing \$20,000.

The installation of monitoring wells indicated water four to five feet below the surface. Soil borings showed fine to medium or coarse sand down to 20 feet, followed by a clay layer that restricted the groundwater. Several solutions were proposed. The most cost effective option was to install a series of underground perforated pipes to lower the groundwater table and provide direct outlets for sump

pump discharges. Fortunately, the grade of the drain outlet would allow the design of the system to drain groundwater one foot below the bottom of the lowest basement.

Because this project primarily addressed groundwater as opposed to surface runoff, the Drain Commissioner was challenged to develop an assessment methodology that would best assign benefit to each individual property.

Since the initial work began, groundwater levels throughout the drainage district have dropped over six feet - eliminating basement flooding. Residents have been exceptionally appreciative of the work and have been very outgoing in expressing their satisfaction.



GIER SAND CREEK DRAIN

Innovation

While groundwater problems (and solutions) are not new in Michigan, a project of this scale performed using the Michigan Drain Code is truly innovative. Based on research during design and construction, it is believed to be the first project of this type and size being constructed as a County Drain.



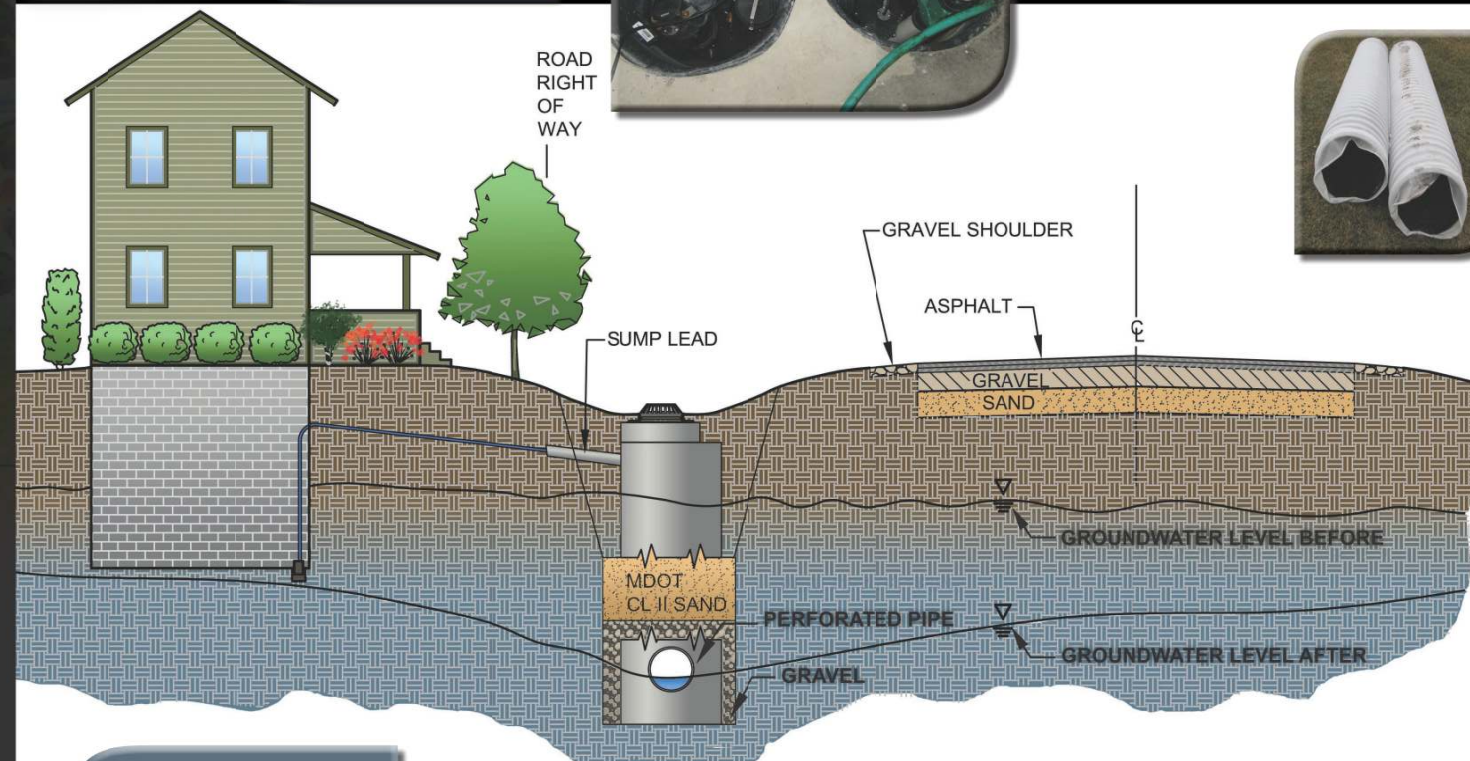
Cost Effectiveness

- Smaller pipes than traditional surface drain
- Estimated 40% cost savings
- Owners report hundreds of dollars monthly savings in sump pump operating costs
- Owners experience *peace of mind* during wet weather events

Use of New Methods & Technology

Key to successful construction was modification of the standard 20-foot length of HDPE pipe, shortened to 8-feet, minimizing the amount of open trench and groundwater control.

Equally significant was the melding of HDPE pipe and concrete structures using special gaskets designed to provide a watertight joint.



Results

The reduction in localized groundwater levels has been monitored, tracked and recorded. The project has reduced, and in many cases, eliminated sump pump run times. The best measure of success, however, is demonstrated by the many positive comments and the peace of mind of the residents.

Complexity

By design, construction took place in the winter, and each trench was allowed to drain before the next section of storm sewer was installed, allowing for 4-inch pumps rather than dewatering wells and deeper construction than a typical project addressing surface drainage problems. Existing roads and utilities limited the area for new construction. The local Road Commission required construction outside the roadway.



Public Involvement & Education

- Informational letters sent to each property owner prior to design, and during all phases of construction
- On-site meetings held with nearly 50% of affected property owners to discuss drainage concerns
- www.lenaweedrain.com - user friendly web-site maintained by LCDC, providing information on all aspects of the project 24/7
- Individual meetings by LCDC with property owners to discuss project scope and potential apportionments

Gier Sand Creek Drain - Groundwater Levels

