

# SANITARY SEWER INTERCEPTOR EXPERIENCE



## Delta Combined Sewer Interceptor and Equalization Basin Improvements

PDG was hired to provide planning and design services to intercept and store combined sewer overflows for subsequent treatment at the wastewater treatment plant as required by the Ohio CSO policy.

### Project elements

- 3,500 l.f. of 8-inch through 42-inch gravity sewer
- 20 Manholes
- 1,800 l.f. of 6-inch diameter service connections
- 7 individual home grinder pumps
- 500 l.f. of 2-inch diameter force main
- 2,300 l.f. of 8-inch diameter force main
- 3 submersible pump station upgrades
- 1,700 l.f. of 12-inch through 24-inch diameter storm sewers
- Curb replacement
- Total street reconstruction
- 5 million gallon earthen equalization basin with mixers and aerators

### Project Cost

- \$4.9 million

### Design Services

- 2014

## Elmore Sanitary Interceptor Sewer and Pumping Station Improvements

This project included installation of 4,242 lineal feet of 18", 24" and 27" diameter gravity interceptor sanitary sewer along with a suction lift sanitary sewer pumping station capable of pumping 350 gallons of sanitary waste per

minute. This new interceptor sewer collects all Village sanitary sewer flows for delivery to the Village's Wastewater Treatment Plant. The project was completed in 2 phases with OPWC grant and loan funds as well as loan funding from the Ohio Water Development Authority.

PDG professional services provided for this project included infiltration and inflow analysis with flow monitoring, funding assistance, topographic surveying, design, bidding, construction layout, construction administration, and construction observation.

### Project Cost:

- \$1,192,340

## Port Clinton Second Street Reconstruction

Poggemeyer Design Group was hired by the City of Port Clinton to provide professional engineering, surveying and bidding assistance for the Second Street Reconstruction project. The project involves the reconstruction of a two block section of Second Street in the downtown business district of the City of Port Clinton, and includes the reconstruction of all pavement and walks within the right-of-way. The route is two lanes with parallel parking provided on both sides. The project includes a new dedicated storm sewer, a new waterline and an **18" sanitary sewer interceptor** as well as traffic control upgrades and electrical conduit for future lighting.

PDG secured two sources of funding for the project in the amount of \$587,840 of federal funds through ODOT Small Cities, \$175,000 through OPWC in the form of a grant, and plans to pursue funding through OWDA in the form of a loan to fund the waterline and sanitary sewer construction.

## Grafton Willow Street Southerly Interceptor

Prime consultant for the design and construction of interceptor, consisting of 2,600 feet of 15" and 18" diameter sanitary sewer, 3,500 feet of eight-inch diameter sanitary sewer, 1,500 feet of 12-inch diameter storm sewer, and a sludge press. Cost: \$538,687.

## Grafton Westerly Interceptor

Prime consultant for the design and construction of approximately 3,100 feet of 18" and 24" diameter interceptor sewer. Cost: \$313,590.

## Woodville Combined Sewer Separation

PDG is contracted with the Village of Woodville to design and install sanitary sewers to separate the current combined sanitary/storm system (CSS). Sanitary flows from 988 private resident and commercial establishment connections within an approximate 270-acre area are collected in approximately 13 miles of the CSS piping. The CSS piping was originally designed as a storm water collection system typically having lower flow velocities leading to silt and solids buildup that must be regularly cleaned to alleviate sewage back ups. Most of the manholes in the CSS were not channelized which also resulted in silt/solids deposition, particularly during dry weather operation.

Most of the Village's CSS was greater than 50 years old with some of the system being from the original infrastructure installation. Due to age, the CSS was subject to infiltration



and inflow (I/I) of ground and surface storm water through the leaky joints, cracks, and illegal connections of roof and area drains.

#### Project Elements

- Installation of new service laterals to each customer with connection to the structure's sanitary effluent line only
- CSS will be converted to a dedicated storm sewer system
- Elimination of 16 combined sewer overflows to the Portage River
- Treatment of all sanitary flows, alleviating storm water flows to the WWTP facility
- **Phase 1 improvements**
  - 14,095 lineal feet of ten-inch (10") diameter gravity sewers
  - 1,360 lineal feet of eight-inch (8") diameter gravity sewers,
  - 46 manholes, 409 sanitary sewer lateral connections
- Disconnection of four CSOs
- Restoration for the entire project area
- **Phase 2 and Phase 3 improvements**
  - Approximately 1,771 lineal feet of twelve-inch (12") diameter gravity sewers
  - 20,184 lineal feet of ten-inch (10") diameter gravity sewers
  - 1,445 lineal feet of eight-inch (8") diameter gravity sewer
  - 71 manholes, 571 sanitary sewer lateral connections
- Disconnection of twelve CSOs
- Restoration for the entire project area

#### Sanitary Sewer and Storm Sewer System Replacement Benefits:

- Remove sanitary sewer flows from the combined sewer, which will increase its storm water flow capacity and alleviate flooding in the area.
- Eliminate raw sanitary sewage backups into basements during heavy storm events.
- Reduce sanitary sewage odors which currently vent through catch basins attached to the combined sewer.

- Eliminate sanitary sewage "solids" build-up in the combined sewer, which should further increase its storm water carrying capacity.
- Eliminate untreated sewage discharge to the Portage River during heavy rainfall events.

#### Project Cost

- \$10.25 million

#### West Boundary Sanitary Sewer Interception

This project entailed the lining of a 60-inch diameter sewer interception. Slip lining, CIPP and fold and form type repairs were allowable alternatives to complete the work. Project included significant coordination with the City of Perrysburg and the Northwestern Water and Sewer District for bypass pumping and system shutdowns. This high traffic area in Perrysburg made for a difficult construction management. Through regular meetings and significant efforts, PDG was able to see the project through to completion.

#### Leipsic Wastewater Collection and Treatment Improvements

Prime consultant for the design and construction of improvements to the Village's 1.25 MGD wastewater system, including a new pumping station for the storm overflow lagoon and new interceptor sewer pumping station.

#### Project Cost

- \$2.7 million

#### Oak Harbor Wastewater Upgrades and Interceptor Sewer

PDG was the prime consultant for Oak Harbor's wastewater

treatment plant system improvements. The project involved installation of a 5 MG CSO storage basin with mixes and aerators, 6,000-square-foot maintenance building, and 15 MGD peak flow CSO pump station with a screening standby power generator for the **interceptor sewer** to carry overflow to the CSO basin.

#### Project Cost

- \$4.5 million

#### Walbridge Wastewater Collection System Improvements

Prime consultant for the design and construction of wastewater collection system consisting of six miles of gravity and interceptor sewers ranging in diameter from eight to 27 inches. Project included the replacement of existing sewers and an overloaded regional pumping station. Cost: \$3,100,000

#### Bowling Green Brim/Van Camp Road Wastewater Collection Improvements

Prime consultant for the design and construction of wastewater collection improvements including 1,200 feet of 21-inch diameter sanitary sewer, 1,300 feet of 18-inch diameter sanitary sewer, 60 feet of four- to 12+ inches pipe replacement, 1,300 feet of 12-inch diameter force main, and sewage pump station. Cost: \$328,100.