PUMP STATIONS AND FORCE MAINS - WASTEWATER

DOWNTOWN PUMP STATION IMPROVEMENTS
Put-in-Bay
PDG assisted the Village of Put-in-Bay with the design, project funding, bidding and construction administration to improve two downtown sanitary pumping stations. The project was replacement of controls and pumping equipment. A new SCADA system was designed to integrate with existing Village SCADA equipment. The electrical system was upgraded to 480 volt electrical service consolidation to the Bath House location, and permanent standby power was installed.

Project Cost
- Engineer's Estimate $298,925
- Project Cost $232,429
- Funding - OWDA

Completion December, 2014

Project Team
- Doug Nusser, Project Manager

POE/MERCER ROAD PUMP STATION
City of Bowling Green
The City of Bowling Green desires to increase the transfer capacity of the Poe/Mercer Pump Station and add a third screw pump at its Water Pollution Control Facility. The project included:
- Replace four (4) existing raw sewage pumps, including new motors and shafts, at the Poe/Mercer Pump Station with four (4) new 10 mgd pumps each for a total peak pumping capacity of 30 mgd with one pump out of service.
- Provide new variable frequency drives and new electrical conduits and wiring for power circuits. Evaluate the feasibility of wall mounting new variable frequency drives and removing the existing cabinets that house the current drives.
- Replace the four (4) existing hydraulic actuated check valves with new check valves and the PVC piping at the surge relief valve with ductile iron piping and proper pipe supports.
- Raise the concrete walls of the junction chamber 18 inches prior to the aeration tanks at the Water Pollution Control Facility.
- Integrate the new raw sewage pumps into SCADA system and connect new screw pump to the system.
- Installation of a 750 KW standby power generator with a diesel engine.

Project Cost
- Engineer's Estimate $1,563,160
- Project Cost $1,597,000

Project Team
- Mike Atherine, PE., Project Manager
- Steve Wonderly, PE., Design
- Dan Knott, PE., Electrical

DANBURY TOWNSHIP SANITARY PUMP STATION REHABILITATION AND ODOR/ CORROSION CONTROL PROJECT - OTTAWA COUNTY
The Danbury Township pump station project consisted of rehabilitating three (3) existing Ottawa County wet well/dry well pump stations with new pumps, piping, valves, controls, telemetry and cathodic protection at a project cost of $1,110,000. Two of these stations are duplex stations and the third is a triplex pump station. Each pump station was outfitted with a pump around as well as the standby power generators. Pump sizes range from 700 gpm to 2,500 gpm dry well pumps. Pump stations have a capacity of 1 MGD, 3 MGD and 5.8 MGD during wet weather flow and have VFD controls to reduce flow rates during lower flow periods. The telemetry system allows the flow control system to be adjusted remotely from the WWTP to match the incoming flow. An automatic level system matched with the variable frequency drives allows the pump speeds to be adjusted to maintain optimum pump operation. Included with this pump station rehabilitation project was an odor control and corrosion protection project. This included two (2) permanent chemical feed stations and a bulk storage tank to dispense odor/corrosion control chemicals. This portion of the project was important to reduce odor complaints from long force main discharges and to lengthen the life of concrete structures.

Project Cost $500,000
Completed 2006

FORD ROAD FORCE MAIN REPLACEMENT
NORTHEASTERN WATER & SEWER DISTRICT
The Ford Road force main project consisted of replacing the existing 12-inch asbestos-concrete pipe with new 16-inch PVC. The force main extended 8,900 lineal feet...
across the City of Perrysburg, Ohio, Wood County. New technology using fusible PVC pipe for the 5,400 lineal feet of horizontal directional drilling was installed. This project was Phase II of III for improving capacities for the District.

**Project Cost** $900,000
**Completed** 2008

**BATES ROAD PUMP STATION REPLACEMENT**

**NORTHWESTERN WATER & SEWER DISTRICT**

The Bates Road pump station project consisted of retrofitting the existing wetwell/drywell, suction lift pump station with submersible pump station with an above ground valve package. New flow meter and telemetry upgrades were included to assist in collecting accurate flow data.

**Project Cost** $286,000
**Completed** 2007

**VAN WERT BONNEWITZ AVENUE PUMP STATION**

The Bonnewitz Avenue Pump Station project consisted of replacement of an existing pump station with a new pump station and elimination of another pump station via construction of a gravity sewer. The new pump station includes a masonry building housing five self-priming type pumps with a total pumping capacity of approximately 7,000 gallons per minute, electrical, controls and a Supervisory Control and Data Acquisition (SCADA) system. A self-contained standby power generator is also included.

The gravity sewer, which will enable the elimination of a second pump station, consists of approximately 2,500 feet of 24-inch through 54-inch diameter pipe. Critical to the gravity sewer portion of the project was the coordination of existing utilities and the crossing of railroad tracks via boring and jacking of sewer pipe.

**Project Cost** $2.3 million
**Completed** 2008

**OAK HARBOR CSO ABATEMENT PROJECT**

Project consists of approximately 5,000 lineal feet of trunk sewer interceptor adjacent to the Portage River in Oak Harbor. The sewer is 27- to 60-inch diameter.

The project also includes the construction of a large pump station to divert flows from the influent of the wastewater plant to a storage lagoon. The pump station can pump 15,000 gallons per minute. The pump station contains screening facilities for protection of the pumps.

The project was designed to reduce the number of overflow events in quantity and occurrence by diverting flow from the existing combined sewer overflows through an interceptor. The interceptor was routed through the downtown and residential areas to the wastewater plant. Construction of this project required a considerable effort under large rainfall events, flow in excess of the carrying capacity of the existing sewer is diverted to the new sewer. This flow is pumped into storage and released into the plant at a controlled rate for treatment.

**Complete** 2008

**NEWCOMERSTOWN WASTEWATER TREATMENT PLANT IMPROVEMENTS**

Prime consultant for the design, construction and startup of improvements to the Village’s 1.25 MGD wastewater treatment plant including influent self-priming type variable speed raw sewage pumps and controls with a total pumping capacity of 3.25 MGD.

**Project Cost** $4.5 million

**NEW LEXINGTON PUMP STATION IMPROVEMENTS**

Prime consultant for the design and construction of the City’s main influent pump station to its wastewater treatment plant. The improvements include the installation of four self-priming type variable speed pumps with total pumping capacity of 5.4 MGD, screening improvements, masonry concrete block building, 3,000 feet of 21-inch diameter gravity sewer and miscellaneous control and electrical work.

**Project Cost** $900,000

**OAK HARBOR WASTEWATER TREATMENT PLANT PUMP STATION IMPROVEMENTS**

Prime consultant for the design and construction of the replacement of four influent pumps to the Village’s wastewater treatment plant. The improvements include the installation of four self-priming type raw sewage pumps,
variable drives and miscellaneous control and electrical work.

Project Cost $160,000

GIBSONBURG WASTEWATER COLLECTION AND TREATMENT IMPROVEMENTS
Prime consultant for the design and construction of improvements to the Village’s 330,000 gpd wastewater system, including new pumping facilities, influent sewage pumps, and screw pumps with 14 mgd peak pumping capacity.

Project Cost $4 million

SHELBY WASTEWATER TREATMENT PLANT IMPROVEMENTS
Design consultant, in cooperation with Krocka and Associates, for the upgrading and expansion of the City’s 2.5 MGD wastewater treatment plant, including associated metering and pumping facilities.

Project Cost $3.2 million

WALBRIDGE WASTEWATER COLLECTION SYSTEM IMPROVEMENTS
Prime consultant for the design and construction of wastewater collection system improvements, including the replacement of an overloaded regional pumping station.

Project Cost $3.1 million

DELTA WASTEWATER TREATMENT IMPROVEMENTS
Prime consultant for the design and construction of improvements to the Village’s 800,000 gpd wastewater treatment plant, including pumps for raw sewage and sludge.

Project Cost $2.75 million

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

GRAFTON WASTEWATER COLLECTION AND TREATMENT IMPROVEMENTS
Prime consultant for the design and construction of improvements to the Village’s 750,000 gpd wastewater treatment plant. Project involved the rehabilitation and extension of the sanitary sewer system which included raw sewage and sludge pumping.

Project Cost $2.6 million

ARCADIA WASTEWATER COLLECTION SYSTEM
Prime consultant for the design and construction of a wastewater collection system for the Village consisting of a force main and 9.5 miles of sanitary sewers extending from Arcadia to the City of Findlay.

Project Cost $2.2 million

WHITEHOUSE WASTEWATER COLLECTION SYSTEM IMPROVEMENTS
Prime consultant for the design and construction of wastewater system improvements which included a force main and five miles of sanitary sewer extending from Whitehouse to the Lucas County Regional Wastewater Treatment Facility.

Project Cost $1.3 million

PICKAWAY COUNTY ORIENT SANITARY SEWER IMPROVEMENTS
Prime consultant for the design and construction of a lift station and 8,000 feet of sanitary sewer.

Project Cost $481,000

DELTA SLUDGE LAGOON & PUMP STATION
Prime consultant for the design and construction of sludge lagoons, pump station and force main.

Project Cost $400,000

GRAFTON MIDVIEW LOCAL SCHOOLS PUMP STATION AND FORCE MAIN
Prime consultant for the design and construction of pump station and force main which connect Midview Local Schools...
sewers with the Village of Grafton's wastewater treatment plant, as mandated by the EPA.

**Project Cost** $400,000

**LEIPSIC PROTEC WATER AND SEWER**
Prime consultant for the design and construction of an elevated water tank, 7,200 feet of waterline, sanitary sewers, and pump station.

**Project Cost** $359,000

**DELPHOS SEVENTH STREET PUMP STATION**
Prime consultant for the design and construction of a new pump station.

**Project Cost** $130,000

**RIDGEVILLE CORNERS WASTEWATER COLLECTION AND TREATMENT SYSTEM**
Prime consultant for the design and construction of a 194,000 gpd wastewater collection and treatment system which included five miles of sanitary sewers and a force main from Ridgeville Corners to the wastewater treatment plant.

**Project Cost** $2,650,000

**WAKEMAN WASTEWATER COLLECTION AND TREATMENT IMPROVEMENTS**
Prime consultant for the design and construction of a new 110,000 gpd wastewater treatment system which included an innovative, small diameter shallow gravity sewer system with septic tanks and pumping capacity.

**Project Cost** $2.5 million

**LUCKEY WASTEWATER COLLECTION AND TREATMENT SYSTEM**
Prime consultant for the design and construction of the Village's new 120,000 gpd wastewater treatment and collection system which included a combined sewer interceptor system with pumping capacity.

**Project Cost** $750,000

**CORRECTIONS COMMISSION OF NORTHWEST OHIO UTILITY EXPANSION**
Prime consultant for the design and construction of a utility expansion in Williams and Henry Counties which included pumping stations and 15,000 feet of force main.

**Project Cost** $750,000