

Sanitary Pump Station No. 7 Replacement Macomb Township, Michigan



A new pump station was constructed along the south line of 23 Mile Road approximately 760' east of Romeo Plank Road. The pump station was designed to handle both current and future flows.

Spalding DeDecker Associates, Inc. (SDA) has been Macomb Township's Engineering consultant since 1964 and has acted in all capacities as the Township's Engineering

Department since that time. SDA provided survey and design services and provided construction contract administration services for the project. The new pump station is equipped with four 3,720 gpm fixed speed pumps. It is expected that future peak flows will require three of the four pumps to be in use, allowing for one pump to remain on stand-by.

SDA designed the flow to enter the pump station through two gravity sewer lines combined into one 48" concrete gravity sewer in the isolation chamber prior to entering the pump station. The isolation chamber is capable of isolating the wet well for regular maintenance. The pump station lifts and discharges the flow into a 24" ductile iron forcemain and carries the flow under the Middle Branch of the Clinton River to a gravity sewer downstream of the pump station.

The pumps are controlled based on the sewage level within the wet well. An ultrasonic system transmits the wet well levels to signal the pumps to turn on or off. Floats are used as back-up level controllers for low and high level alarms. The pump station is connected to the Township's existing Supervisory Control and Data Acquisition (SCADA) system. The system is



stops, security events, and the status of

The design required that the existing pump station and forcemain to remain in service providing uninterrupted sewage service during the construction of the new pump station and forcemain.

SDA also designed the installation of a

OWNER / CLIENT

Township of Macomb

PROJECT START - END

September 2005 – September 2008

SDA PROJECT NO.

MA05-026

meter chamber, which houses a Doppler Meter, to measure flows from the pump station and transmit the readings to a control panel. The controls for the pump station are housed in a control building. Since the pump station is located in a residential area, the building was designed to match the surroundings architecturally, including brick sides, and a cupola. The building contains heating and cooling systems to protect the electrical and instrumentation equipment.

A 280Kw natural gas back-up generator was included to power the entire pump station in case of power failure. The generator contains weather proof screening, as well as sound attenuation, to reduce the noise. The generator is surrounded by a brick wall for security and aesthetic reasons.

An extensive landscaping layout was designed around the pump station wet well and chambers to allow the site to blend with the surrounding residential area.

SPECIAL FEATURES

Tunneling was conducted under the Middle Branch of the Clinton River to replace the existing forcemain by installing 150 linear feet of 24" diameter ductile iron forcemain. The pump station was designed in accordance with current Michigan Department of Environmental Quality (MDEQ) and Ten State Standards and OSHA guidelines.