

Ann Arbor WWTP Residuals Handling Improvements Project



The Ann Arbor Wastewater Treatment Plant (WWTP) receives and treats approximately 19.0 million gallons of wastewater per day from the City of Ann Arbor, Pittsfield, Scio, and Ann Arbor Townships.

The City of Ann Arbor implemented a study to evaluate the condition and performance of the WWTP solids processing facility. Finalized in 2004, the study revealed that the facility, which processes residual solids (biosolids) in wastewater, needed to be replaced. The aging biosolids processing equipment was originally constructed in 1978 and has exceeded its useful operating life. As a result, operating efficiency has declined and maintenance has become increasingly more challenging and costly. Replacement of these equipment and systems is necessary for the WWTP to improve process reliability and meet current and future biosolids processing capacity requirements.

With assistance from Greeley & Hansen, LLC (an engineering firm specializing in wastewater system design) and from project stakeholders, the City developed a plan to refurbish the existing biosolids processing facility. The plan provides for efficient, flexible and cost-effective operation of the biosolids facility well into the future. The following tasks were performed during the design effort:

- Visits to other wastewater treatment facilities to evaluate their application and use of more efficient biosolids thickening, dewatering, stabilization, and off-loading equipment.
- Surveys of other wastewater treatment facilities regarding actual equipment performance.
- On-site pilot testing of biosolids dewatering equipment and evaluation of performance results to determine if the equipment meets the City's design requirements.
- Plant-wide odor control study.
- Public meetings with WWTP neighbors and stakeholders to discuss and address their concerns for odor, light and noise control.
- Design of new solids handling facilities, including new equipment and rehabilitation of existing structural facilities.

The Residuals Handling Improvements Project is included in the City's Capital Improvements Plan for the WWTP and will take two and a half years to complete. The project includes a number of major elements that include:



- Demolition of existing equipment including dewatering plate and frame presses and biosolids incinerator
- Installation of three centrifuges for biosolids dewatering
- Installation of two gravity belt thickeners to separately thicken secondary biosolids
- Rehabilitation of an existing gravity thickener for thickening primary biosolids and conversion of two existing gravity thickeners to covered tanks for blending thickened primary and secondary biosolids
- Rehabilitation and modification of the Solids Handling Building to accommodate new equipment, meet current building code requirements and to install a building addition for loading trucks with processed biosolids and receiving chemical deliveries
- Installation of a new boiler to service all facilities within the WWTP
- Installation of odor control equipment to reduce WWTP staff exposure and off-site nuisance odors from residuals handling equipment and facilities
- Replacement of antiquated 4.8 kV electrical system with a more efficient and maintainable 13.2 kV system

WWTP staff solicited public bids for the project as specified in ITB No. 3972. Five bids were received on November 24, 2008, as follows:

Sorensen Gross Construction Services, LLC	\$42,444,927
DeMaria Building Company	\$44,269,579
Walsh Construction	\$44,938,202
Granger Construction	\$45,864,621
Spence Brothers	\$45,938,496

The project was awarded to Sorensen Gross Construction Services, L.L.C. on January 5, 2009 and notice to proceed was issued on February 27, 2009.

As of September 2011, the project is 90% complete. All equipment, including odor control equipment, will be on-line and operational by December 2011. Key construction progress includes:

- Demolition of portions of the existing building structure and process equipment within the Solids Handling Building, along with various environmental abatement activities.
- Demolition of process equipment and structures at the gravity thickening facilities.
- The following major equipment has been installed and is operational:
 - Dewatering centrifuges
 - Dewatered cake storage and load-out hoppers
 - Dewatered cake conveyors
 - Dewatered cake lime addition equipment (pugmills)
 - Polymer dilution units
 - Liquid sludge loading equipment
 - Blend Tank mixing and aeration system
 - Gravity Thickener mechanism
 - Sludge Holding Tank mixer drives
 - Gravity Belt Thickeners
 - Sludge pumps
 - Bulk polymer tanks and pumps
 - Plant wide boiler system
 - Twenty-ton monorail equipment
 - Truck load-out facility



This improvement project will provide the City with up-to-date residuals handling facilities. In addition, the project will help the City of Ann Arbor achieve its goals for enhancing efficiency, reducing maintenance, and extending the viability of the WWTP to provide continued reliable, cost-effective wastewater treatment service to the community for the next 25 years.

For more information on this project, please contact Mike Amicangelo at MAMicangelo@A2gov.org