

Combined Sewer And Sanitary Sewer System Rehabilitation

Client: Altoona Water Authority

Blair County, PA

Year: 2021 Cost: \$11,700,000



The Altoona Water Authority undertook a major sewer rehabilitation project involving deteriorated sections of its sanitary sewer and combined sewer system. Gwin, Dobson & Foreman, the Authority's long-serving engineer, designed a sewer rehab project drawing on its comprehensive knowledge and experience with the wastewater system. The rehab project addressed structural deficiencies, eroded sewer inverts and flow lines, inflow and infiltration problems, accumulated debris and conveyance capacity restrictions.

Combined Sewer System – A spray-on cementitious lining contract was developed for the cleaning, reinforcing and guniting of 10,500 LF of deficient combined sewers in the 1st, 3rd and 4th Sewer Districts. These lines, consisting of brick arch and egg-shape sewers, range from 130-140 years in age and are concentrated in the center city area. Sizes ranged from 41"x51" to 52"x80" brick egg and 84"x42" to 96"x48" brick arch sewers. About 1,200 tons of debris were removed under the contract.



Sanitary Sewer System – A cured-in-place pipe (CIPP) contract was developed for the cleaning and sliplining of 43,600 LF of deficient sanitary sewer pipe. Pipe sizes ranged from 8" – 44" diameter terra cotta and concrete pipe subject to root intrusion and excessive inflow and infiltration. The Westerly Altoona outfall (1896) was also cleaned and sliplined involving 5,400 LF of a 33" x 48" brick oval sewer.

The projects included the rehabilitation of 1,600 vertical feet of deteriorated manholes using a calcium-aluminate spray-on system and reinstatement of 316 sewer laterals.

GD&F performed a detailed hydraulic analysis of the combined sewer system and devised the requirements for the wastewater bypass pumping system. The project was financed by a \$11.7 million, 20-year low interest loan from the Pennsylvania Infrastructure Investment Authority.



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