

US 42 North Trunk Sewer Phase 3 Reconstruction Mason, OH



Project Stats	
Client:	City of Mason
Location:	Mason, OH
Year:	2009
Market:	Wastewater Infrastructure
Project Size:	2100.00 Linear Feet - Pipe

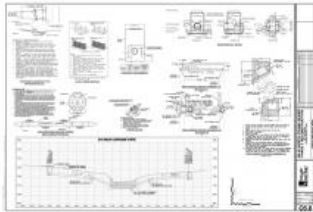
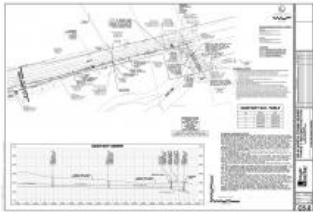
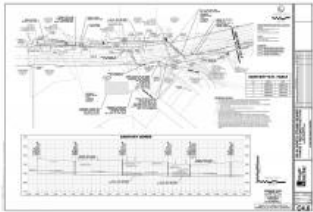
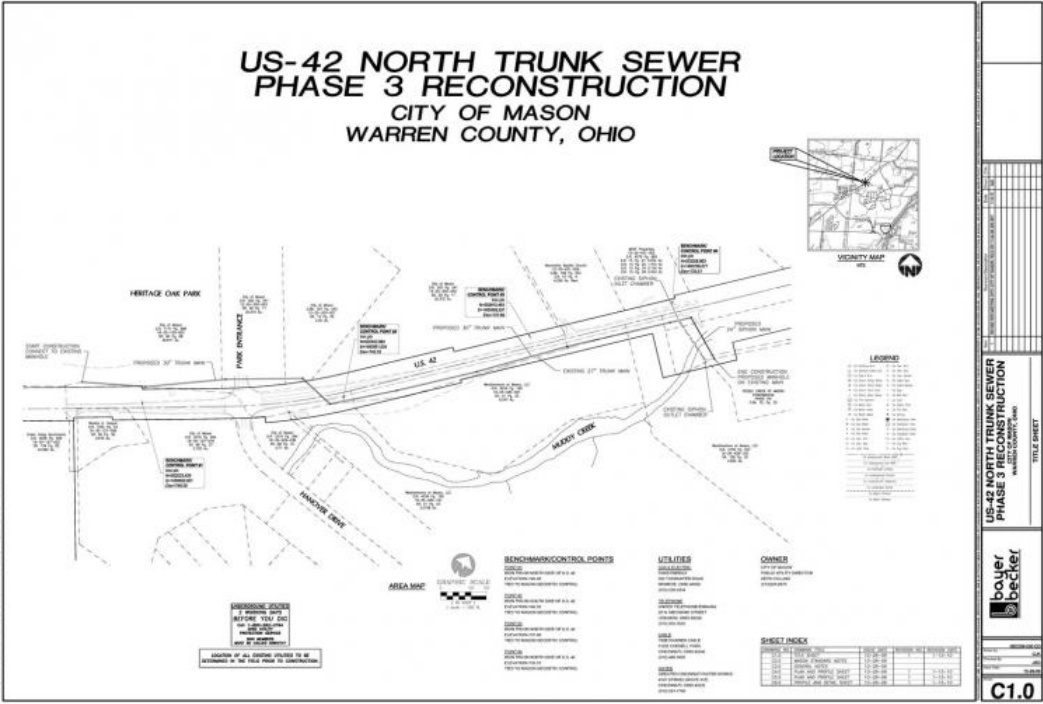
Services Provided:

SURVEYING SERVICES

Construction Layout & Staking
Topographic Surveys
Utility As-Builts & Record
Drawings

CIVIL ENGINEERING SERVICES

Waste Water Collection System
Waste Water Infrastructure



For design on the aging US 42 North Trunk Main, Bayer Becker proposed replacing the existing 50 year old 27" concrete main with 2,100 linear feet of 30" diameter PVC conduit. Design challenges included space constraints, proximity to existing utilities and siphon analysis and design.

The City of Mason required a design solution that did not include right of way acquisition or open cuts of US 42 roadway pavement. The land between the right of way and pavement was populated with existing utilities (overhead electric, water main and gas main) and the Muddy Creek meandered near the potential work zone. After careful study, Bayer Becker presented a proposed sewer alignment coupled with specific construction methods that satisfied the City's requirements. The proposed alignment maintained the required 10' separation between the sewer main and existing water while providing a safe working distance during construction from the overhead electric lines. In an effort to avoid open trench construction occurring directly under an overhead electric line, disturbance of an existing water way, and working near a steep bank of the Muddy Creek, Bayer Becker developed design details to extend an existing 12" sewer to the new system using a remaining segment of the 27" concrete sewer as a casing pipe.

The project contained a three conduit siphon system to convey sewage from the north to the south side of the Muddy Creek. The City indicated concerns that the siphon was a potential bottle neck for the system. To address the city's concerns, Bayer Becker performed an analysis of the existing siphon's performance covering a range of flow conditions. Based on Bayer Becker's analysis and recommendation, the City chose to replace the 16" high water conduit with a 24" diameter pipe as part of the reconstruction project.