

STAHL SHEAFFER ENGINEERING

- **Owner:**
The Pennsylvania State University
- **Services:**
 - Structural Engineering
 - Site Engineering
 - Topographic Survey
 - Construction Administration
- **Construction Cost:**
\$2,160,000
- **Year Completed:**
2019



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Bryce Jordan Center Steam Service Replacement



The Pennsylvania State University, University Park, PA

Stahl Sheaffer provided structural and site civil engineering design associated with the Bryce Jordan Center steam service replacement.

Structural design services included new manhole and vault designs, pipe supports including guide and anchor designs, and layouts and specifications for precast concrete walkable and

shallow (pipe only) tunnels. The walkable tunnel was utilized to cross below an existing roadway and transitioned to a shallow tunnel for the remaining path to the building. The tunnel structures provide additional maintenance access to piping and increase the anticipated service life over direct-buried piping. New manhole vault designs were designed to be constructed around existing piping and incorporated cast-in-place tie-ins to existing tunnels to maintain the other existing tunnel system at the service replacement.



Based on our experience in rehabilitations, due to the typical harsh environment of these steam service structures, the designs incorporated additional protective means to provide maximum protection of the steel and concrete, including the use of galvanizing and marine coatings, concrete specified for increased durability, and epoxy coated reinforcing steel.

Site design services included a topographic survey and base map development of the project area, coordination with design team to develop a plan and profile of the horizontal and vertical alignment of the replacement steam lines, site restoration, erosion and sediment control design and approval, and traffic control plan development and coordination/approval with PennDOT for the temporary closure of Curtain Road.

During construction, Stahl Sheaffer performed on-site inspections at the fabrication facility for the pre-cast concrete tunnel sections as well as on-call construction administration to provide quick responses to questions and field issues, avoid delays, and ensure the project met a very tight construction window to re-open the site and minimize service outages.