



in Kansas City





PROJECT DETAILS

Kansas City Water Services (KCWS) desired to rehabilitate an old pipe located beneath the Paseo Parkway in the heart of Kansas City, MO. As a result of the pipe's age and deterioration, a crack had formed and caused the ultimate need for rehabilitation. The project was competitively bid in February 2014 with an anticipated start for mid-summer 2014. Prior to contract award, an engineered design solution specifying Sekisui's SPR[™] technology was provided to the owner.

The design was received, reviewed, and approved by KCWS; and SAK Construction, LLC was issued a firm contract and a formal notice to proceed. The construction started in late August 2014. While the lining process had to be completed under four lanes of heavy traffic, this traffic was the least of the potential obstacles in this project. The original 125-year-old sewer was a massive 114" circular brick pipe with many design challenges.



To begin with, depths reached a great distance of 35 ft. from the surface. Additional factors like technology-dependent bypass pumping, unexpected storm surcharging, soil and slope concerns, limited access, and two sweeping 90 degree bends with tight radii also had to be considered in the demanding design phase. Due to the multitude of design considerations, SPR[™] proved to be the perfect solution for the project.



Grouted in place

Circular/non-circular

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PROBLEM SOLVED

SPR[™] utilizes a PVC based material which is spirally wound into an existing pipeline. Successive wraps of profile are locked together and the annular space between the wound profile and the host pipe is grouted. The result is a strong composite pipe integrated with the existing pipeline, making SPR[™] a superior solution compared to other trenchless technologies. For instance, although there were great depths and limited access, no digging was involved because SPR[™] allows entry into the pipe through existing manholes. Another benefit of SPR[™] is the flexibility of the material which permitted winding along the 90 degree bends without losing structural integrity.



The SPR[™] design called for the installation of a 100" ID liner with steel reinforcement. The primary reason behind utilizing the 100" ID was attributed to internal dimensions of the host varying from 108.5" - 114" with significant deflection at the 4 o'clock and 7 o'clock positions in the crown of the pipe. The dimensions were verified by SAK utilizing laser profiling equipment, taken every four feet. By utilizing the SPR[™] process, the cross sectional loss still increased existing flow capacity, while also providing a fully structural 50 year solution. The successful winding, bracing, and grouting of the 100" SPR[™] profile occurred in a continuous live combined sewer through two tight opposite 90 degree bends. This was completed through existing manhole structures and one new access that the owner required. KCWS also noted that, because of the small footprint SPR[™] allowed, there was no interruption to traffic flow on the Paseo Parkway. The traffic control on 22nd Street was limited to one lane closure for less than two weeks over a 200 ft. section while the profile was being fed down the existing manhole.

This project was completed on time, on budget, while having nearly zero impact on the local community. Most importantly, Sekisui and SAK were able to provide the fully structural, 50 year design with improved hydraulic flows for the 125-year-old combined sewer.

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This was the first for us in Kansas City for the use of the SPR[™] product. We are very pleased with the performance of the contractor and the product during the installation process of the project. We look forward to using this type of trenchless technology installation for future projects.

- Matt Thomas, KCWS



See the Spiral Wound Process

