

Highland Creek Sanitary Trunk Sewer Rehabilitation

In 2017, the city of Toronto embarked on program to implement rehabilitation of the Highland Creek Sanitary Trunk Sewer (STS). The sewer was near capacity and had been deteriorated from corrosion, which made this trunk line critical to allow future development of the City. The scope of the project included rehabilitation of a 2,134mm (84 in) diameter sanitary sewer, up to 18m (59 ft) deep with multiple bends located in a dense residential area. During detailed design, the most feasible rehabilitation technology was selected to have a minimal impact to the hydraulic capacity of the sewer, and 3D laser-sonar scanning was completed to survey bends and determine the exact sewer dimensions and configuration. The rehabilitation technology selected for this sewer section was GRP slip lining with a partial temporary bypass.

Several challenges during construction had to be overcome including installation of large shafts in mature established neighborhoods, lining within a limited working window due to high flows, operating a complex partial bypass system, coordination with the public, relocation of multiple utilities, and implementing a workable odor control solution on site. This paper provides an overview of the project and discusses key challenges and mitigation strategies used to deliver a complex GRP lining project of a large diameter trunk sewer with multiple bends in the city of Toronto.