

Municipal Case Study

Success of SDR 35 Ring-Tite® PVC with District of Parkland Sewer Project

IPEX Supplies Product and Expertise
to a Critical Edmonton–Area Sewer Line Project



Ring-Tite®

Product: SDR 35 Ring-Tite®
PVC gravity sewer pipe

Size and Length of Pipe:
920 meters of 1350 mm (54")
diameter and 2300 meters of
1200 mm (48") diameter pipe

Contractor: Pidherney's
Construction

Municipality: Edmonton, Alberta

PLANNING FOR GROWTH

The Alberta Capital Region Waste Commission (ACRWC) oversees wastewater collection, transmission, and treatment facilities for 13 municipalities surrounding Edmonton, Alberta. One of those municipalities, the Parkland area west of Edmonton, is experiencing population growth that the ACRWC predicted would overload the existing 750 mm (30 inch) diameter sewer line servicing the area.

Consequently, the organization embarked on a plan to expand sewage transmission capacity by twinning the existing sewer line with a 1350 mm (54 inch) diameter line. This upgrade would address not only future capacity concerns but also provide critical redundancy should either line need to be shut down for maintenance or emergencies.



The Parkland Sewer Twinning Project was completed in difficult ground conditions. Providing a quality product to the Owner by maintaining pipe roundness and grade control in a high ground water table with layers of flowing non-cohesive soils was a concern for our team at Pidherney's. We found the assistance from IPEX during the execution phase of the work very valuable by avoiding fatal flaws in the install methodology.



Ryan Leppke, Senior Project Manager
Pidherney's Construction

DESIGN REQUIREMENTS ARE NON-NEGOTIABLE

Working with its consultant ISL Engineering and Land Services of Edmonton, the ACRWC identified several key requirements for the new sewer line:

- The pipe material needed to resist hydrogen sulphide corrosion commonly encountered in sewer lines
- Given that the deepest pipe bury of the project would be only 10 meters, the pipe had to be strong enough to resist active surface loads from road traffic
- The pipe had to seal properly at the joints, allowing no infiltration or exfiltration, as the costs to treat infiltrating groundwater at the regional treatment plant and to mitigate the effects of sewage leaking into the environment would be unacceptably high
- The type of pipe used had to be familiar to both the ACRWC and its local contractors to install and maintain.

THE BEST PRODUCT FOR THE JOB

IPEX has enjoyed a strong working relationship with ACRWC for many years, supplying them pipe products for several key infrastructure projects. IPEX was aware that the ACRWC had experienced many problems with concrete sewer pipes corroding due to hydrogen sulphide in the wastewater.

Shadi Kilani was IPEX's technical contact who worked closely with the ACRWC and ISL Engineering. He responded to design questions about the best-value pipe products for this project. Trever Urchyshyn, IPEX sales representative, and others within the IPEX organization also assisted the client to select PVC as the pipe material best suited to accommodate the key requirements as identified by the client:

- PVC pipe is resistant to hydrogen sulphide corrosion and exhibits many decades of trouble-free in-service life
- PVC pipe is extremely tough – durable enough to withstand the active loads specified by the design engineers
- PVC pipe is shipped in 6.1-meter lengths compared to 2.5-meter concrete pipe lengths, substantially reducing the number of joints and potential for leakage
- PVC pipe is easier to cut and bevel on-site compared to concrete pipe
- PVC pipe has a smoother interior than concrete, improving flow characteristics that can result in smaller pipe diameters and reduced cost for the required line capacity.



MAKING IT HAPPEN

After reviewing their options, the ACRWC awarded IPEX the contract to supply 920 meters of 1350 mm (54 inch) diameter and 2300 meters of 1200 mm (48 inch) diameter SDR 35 Ring-Tite® PVC gravity sewer pipe.

An additional fact that influenced the client's final decision: IPEX had recently invested \$55 million expanding its Edmonton production facility to manufacture up to 1500 mm (60") SDR 35 PVC pipe, becoming the only Canadian manufacturer capable of doing so. The client anticipated locally manufactured pipe products would reduce wait times and the need for large on-site pipe inventories.

Pidherney's Construction was responsible for installing the new sewer line. Aware that groundwater is a concern for many areas west of Edmonton along the proposed pipe route, IPEX representatives met with Pidherney's installers at the start of the project in August 2017 to discuss installation requirements and backfill and bedding conditions in wet and dry conditions. Further, IPEX representatives were on-site to support the contractor when assessing the quality of native backfill materials and to provide solutions when such materials were unsuitable.

From a project management perspective, IPEX dealt closely with Pidherney's to ensure pipe and fitting were available when and where required. The project outcome benefited significantly from having IPEX as a local supplier of these products—no problems arose on the project due to late or missing deliveries.

Completion of the sewer line, originally scheduled for December 2017, was delayed due to cold weather that froze backfill materials, rendering them unsuitable for compaction. With the advent of warmer temperatures in the spring of 2018, Pidherney's finalized the installation.

A SUCCESSFUL OUTCOME LEADS TO OTHER PROJECTS

Given the success of this project and the reputation IPEX enjoys with the client, IPEX is currently involved in several other projects to replace failing concrete pipe, including one employing 1500 mm (60") diameter PVC pipe.