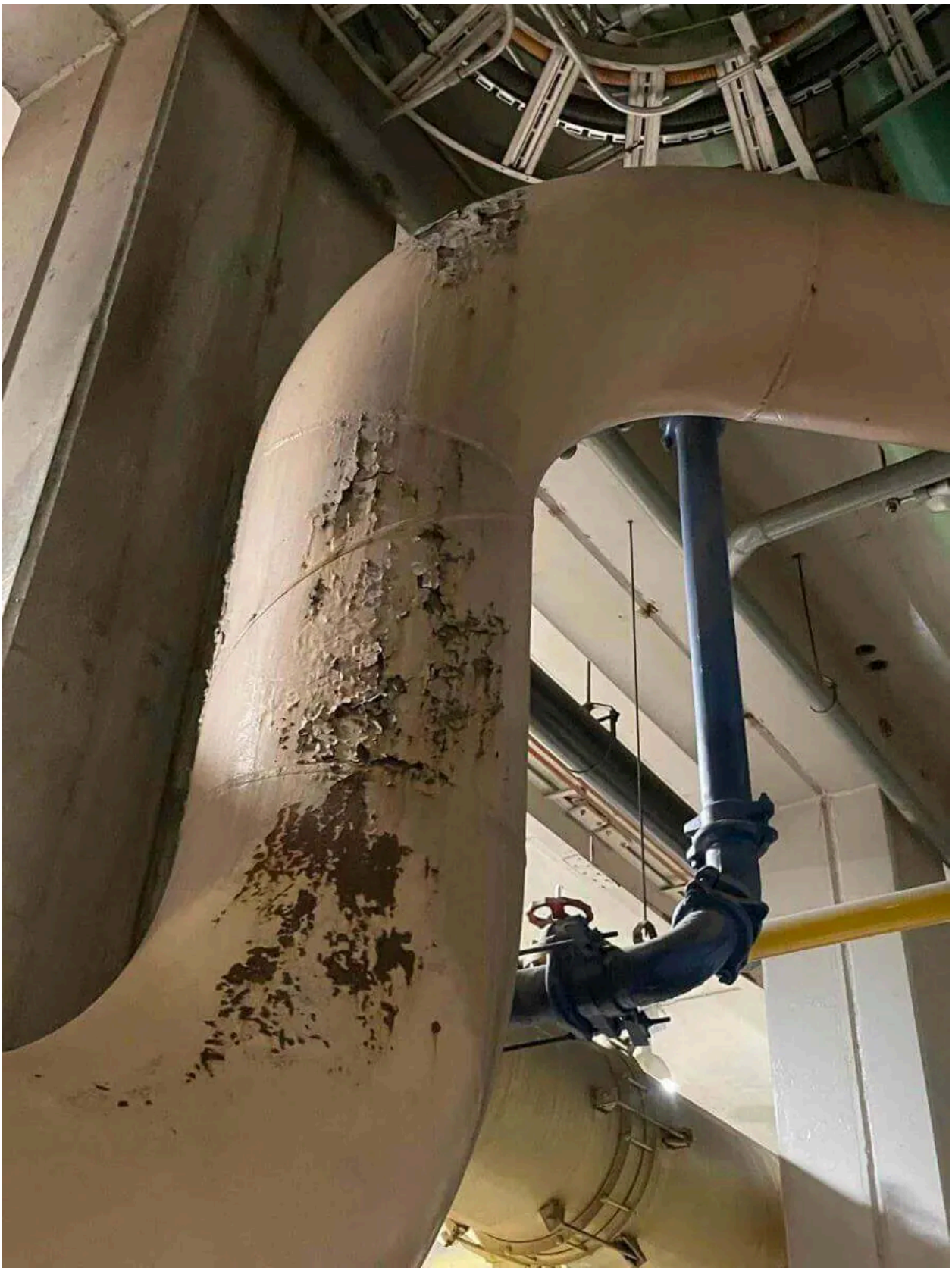
City of Winnipeg RAS Piping Renewal

The City of Winnipeg's oldest and largest treatment operation, the North End Sewage Treatment Plant, was first commissioned in 1937 and provides 70% of the City's wastewater treatment. The plant's Return Activated Sludge (RAS) piping system was installed in the late 1980s and is a critical component of the plant's operations.

Completed repairs



Return Activated Sludge (RAS) piping system before repairs

Installation of CSS V-Wrap™ Carbon Fiber system

Project Overview

- Application of StrongPIPE® V-Wrap™ Carbon Fiber System
- First-of-a-kind for Canada – the largest fully structural externally applied CFRP renewal project completed to date

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The RAS piping system, consisting of approximately 1,970 feet of steel pipelines ranging from 12- to 36-inches in diameter, was beyond its designed service life and had multiple leaks, signs of corrosion, and thinning of the pipe walls.

Following a condition assessment and options analysis by KGS Group, Structural Technologies' StrongPIPE® V-Wrap™ carbon fiber-reinforced polymer (CFRP) system was chosen as the renewal system for the RAS piping system.

CFRP was chosen because it met all project criteria including that it would deliver a long-term renewal to the nearly 2,000 lineal feet of piping with no major disruption to ongoing operations at the treatment plant. The externally applied CFRP system required no excavation, heavy equipment and was installed in 1/3 the time it would have taken to replace the piping.

Simpson, Gumpertz & Heger (SGH) performed the design of the CFRP system for the RAS piping project. As Structural Technologies' partner in the pipeline industry, SGH has designed CFRP for hundreds of pipeline renewal projects across the past 20 years.

Pullman, a licensee of Structural Technologies' products and technical support services, carried out the installation of the CFRP system. This consisted of pre-planning, site set-up, preparation of the steel substrate and application of the CFRP system in accordance with the approved drawings.

The project was a complex CFRP installation that required the experienced team at Pullman. The RAS piping configuration included a significant number of bends, tees, couplings, branch connections, and valves. Over the course of the project, the team overcame several additional challenges including mitigating more leaks than were anticipated and climate challenges through seasonal changes.

The project was successfully completed within budget, on schedule, and with zero safety incidents, providing the City of Winnipeg a safe and reliable piping system for years to come.

PROJECT INFO

- **Location:** Manitoba, Canada
- **Owner:** City of Winnipeg
- **Engineer of Record:** KGS Group
- **Engineer of Record:** Simpson, Gumpertz & Heger (SGH)
- **Specialty Contractor:** PULLMAN
- **General Contractor:** Trotter and Morton
- **Material Supplier:** STRUCTURAL TECHNOLOGIES

SOLUTIONS

- StrongPIPE® V-Wrap™ Carbon Fiber