



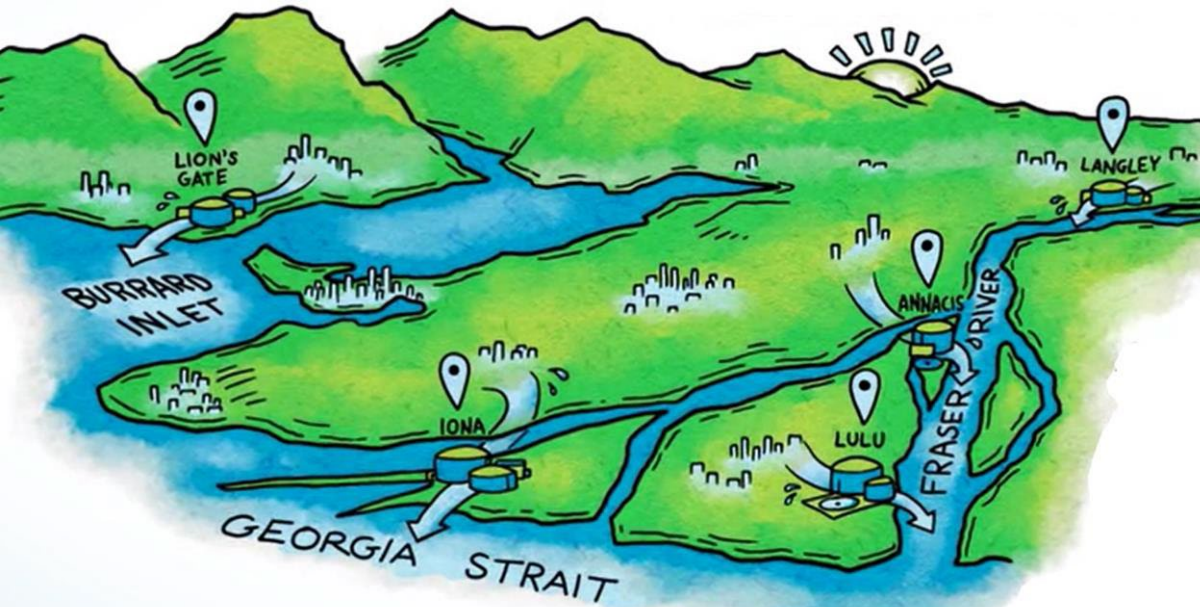
Source: www.beaversww.org

Beavers, Birdwatchers And A Critical Wastewater Forcemain Can Coexist!

JUSTIN HEBNER

PURE TECHNOLOGIES LTD., A XYLEM BRAND

Metro Vancouver – Liquid Waste Services



Metro Vancouver WW System

- Serves region of 2.8 million people
- Over 500 km of sanitary/combined sewer (up to 3 m dia)
- 34 pump stations
- 5 regional WWTPs
- Treat over 1,000 ML/d

Metro Vancouver Full Sewers

- 25% of sewer system is forcemains & pressure sewers
- Currently developing a program to inspect full sewers using advanced technologies
- Assessment priorities based on failure risk, type of pipe & age



THE LONGEST FLUSH

If you flush a toilet in Maple Ridge and Pitt Meadows, the wastewater will reach the Annacis Island Wastewater Treatment Plant 13 hours later. That's a long trip!

SPERLING AVENUE PUMP STATION



SPERLING AVENUE FORCEMAIN



PIPE MATERIAL
Spiral
welded steel



PIPE AGE
+60 years



PIPE DIAMETER
525mm



INSPECTION
LENGTH
400m

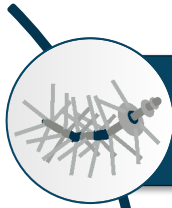
Sperling Avenue Forcemain

The Sperling Avenue Forcemain cuts right through Burnaby Lake Park, including a sensitive creek crossing (Still Creek, photo right).

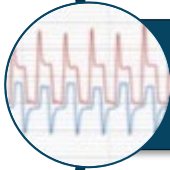


High risk forcemain due to factors such as its age and its location within an environmental sensitive area.

Condition Assessment Scope of Work



Inline Electromagnetic Inspection
(pipe wall assessment)



Transient Pressure Monitoring
(30 days)

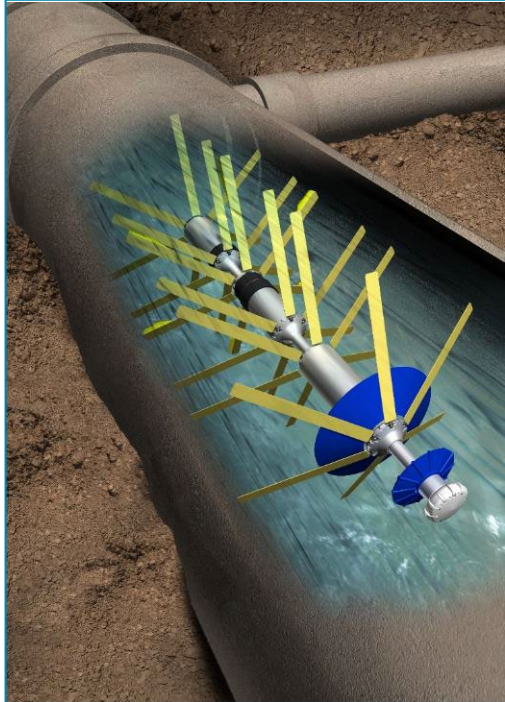


Structural Analysis
(FEA / failure curve)

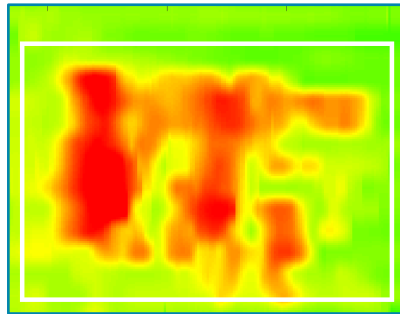


Above-ground Inspection (added as an extra)
(alignment, coating anomalies, CP survey, defect verification)

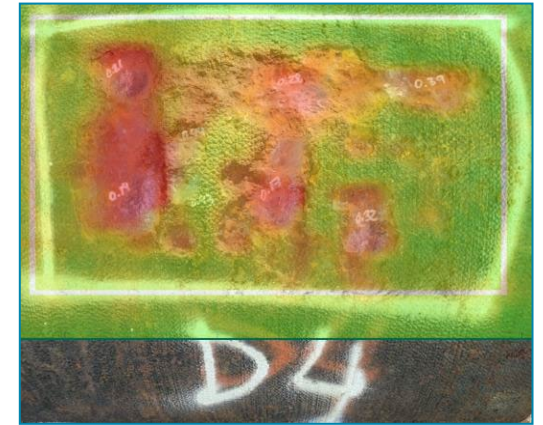
PipeDiver – Free-Swimming Wall Inspection Platform



Validated Pipe Defect



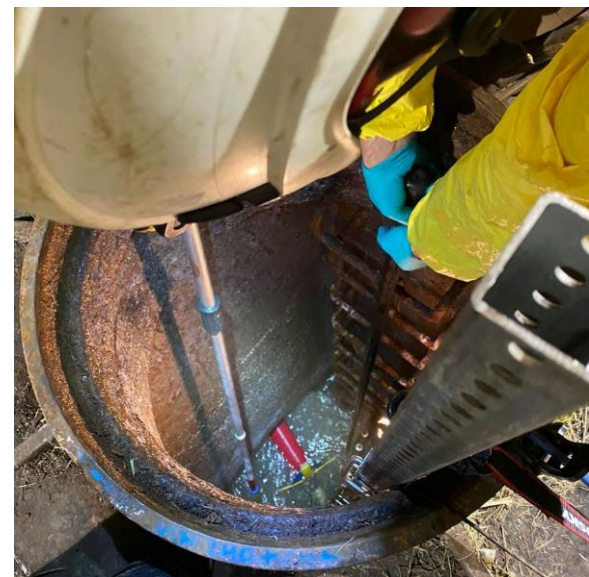
Inspection data defect heat map



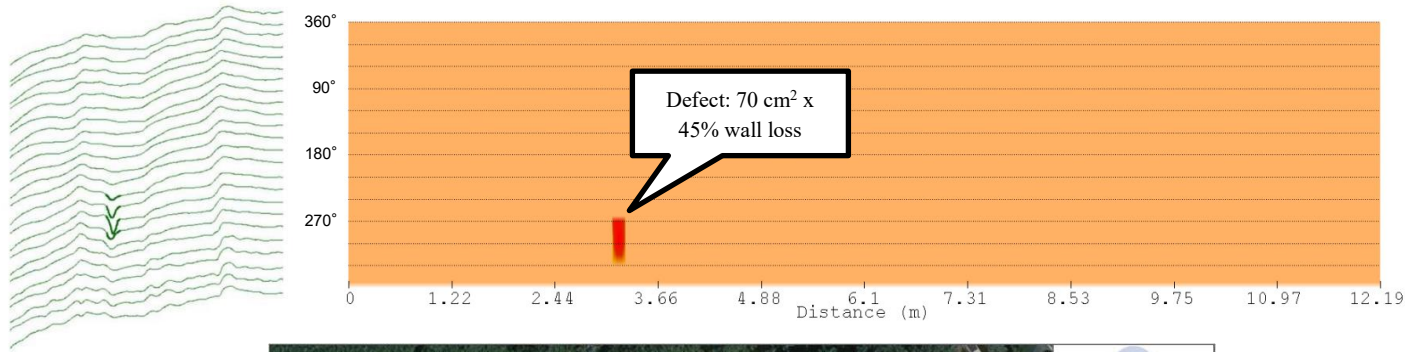
Sperling Avenue Forcemain – Inline Inspection



Sperling Avenue Forcemain – Inline Inspection



Inline Inspection Data



metro vancouver

**533-millimetre Sperling FM Pipeline
Pipe 10029**

DIG SHEET

Map Date: 08/10/2022

Legend

- Entry Port
- Outlet
- Vent
- Elbow/Bend

— Target Pipe Sections
— 533-mm Sperling FM Pipeline

Feature of Interest Coordinates

Feature	X [WGS84]	Y [WGS84]
0+205.9	-122.967776	49.253167
Joint 10028/10029	-122.961309	49.253802
Joint 10029/10030	-122.961811	49.253805
0+022.8	-122.960728	49.254112
0+000.0	-122.960670	49.254192

Supplied coordinates are for reference only. Please refer to dig instructions for proper usage of coordinates.

Distance to Pipe Joints

Pipe Joint	Dist to Sta 0+205.9	Dist to Sta 0+000.0
10028/10029	123.5 m	~81 m
10029/10030	135.7 m	~69 m

Contact Information

Project Manager: Ashwini Shanmugam
 Mobile: 6371 658-9738
 Email: Ashwini.Shanmugam@xylem.com

BEFORE YOU DIG:

Please contact the Xylem Project Manager prior to excavating or conducting repairs. Read and understand the locating procedures outlined in the associated Report. Measure from both the upstream and downstream features. Notify Xylem of any uncertainties in the associated Report or this Dig Sheet.

Data Sources

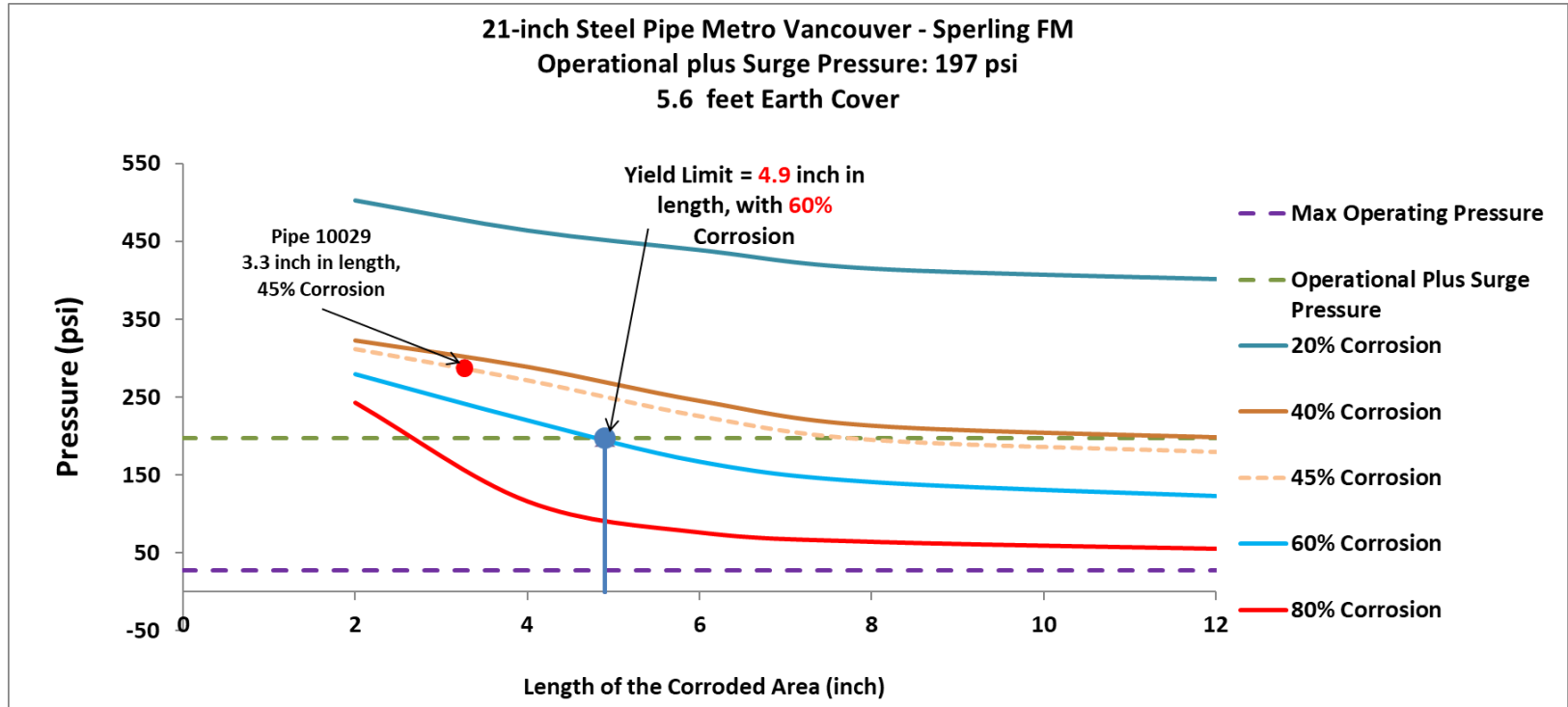
Pipeline Mapping: Metro Vancouver Record Drawings
 GPS Equipment Accuracy: ~1 metre

Distressed pipe locations derived from Xylem's proprietary tools and methods. Please see the associated technology report for more details.

xylem
Let's Solve Water

xylem
Let's Solve Water

Sperling Avenue Forcemain – FEA / Failure Curve



Sperling Avenue Forcemain – Above-ground Inspection (XLI)

Description

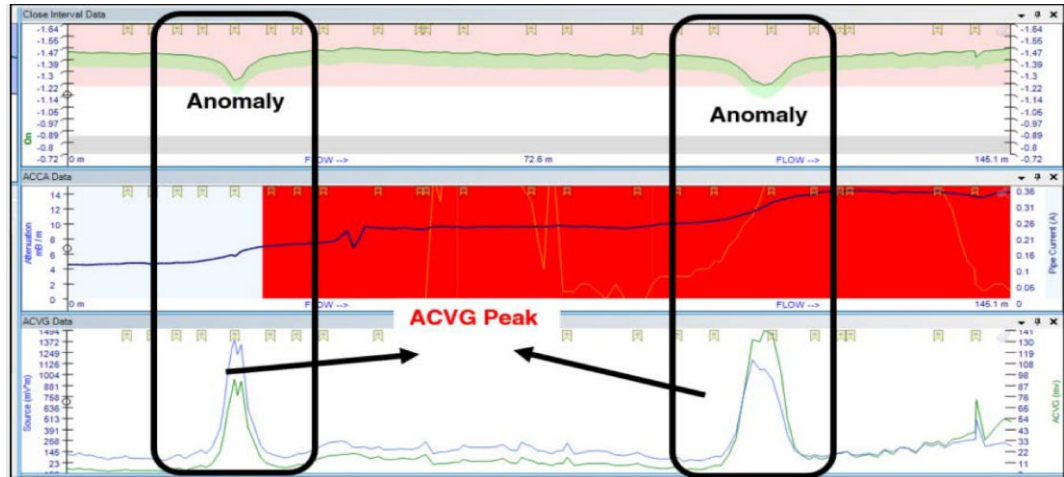
XLI is a non-intrusive above-ground inspection technology **used to identify areas where external corrosion is more likely to be occurring.**

XLI collects multiple sources of pipeline data in a single pass including: **alignment (x/y/z), cathodic protection status, and coating condition status.**

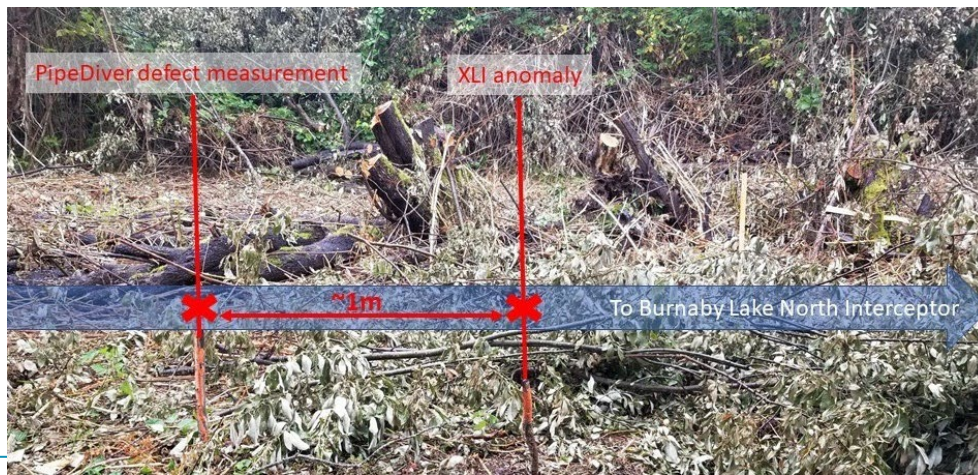


How it Works

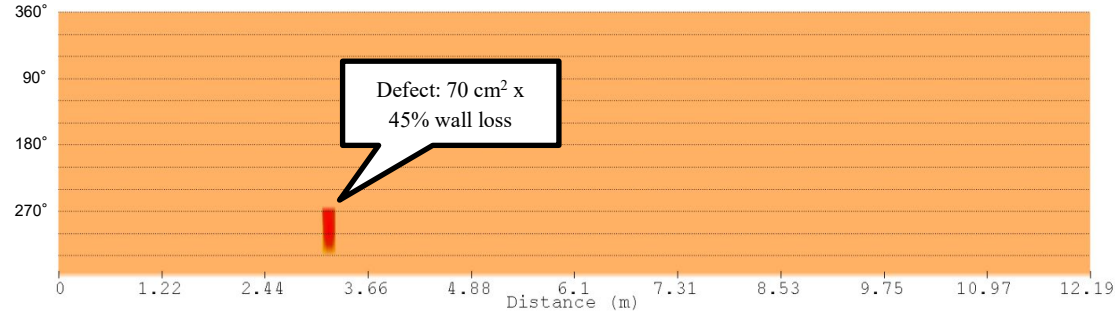
- Coating anomalies show a drop in current level (AC; blue line) and corresponding spike in ACVG



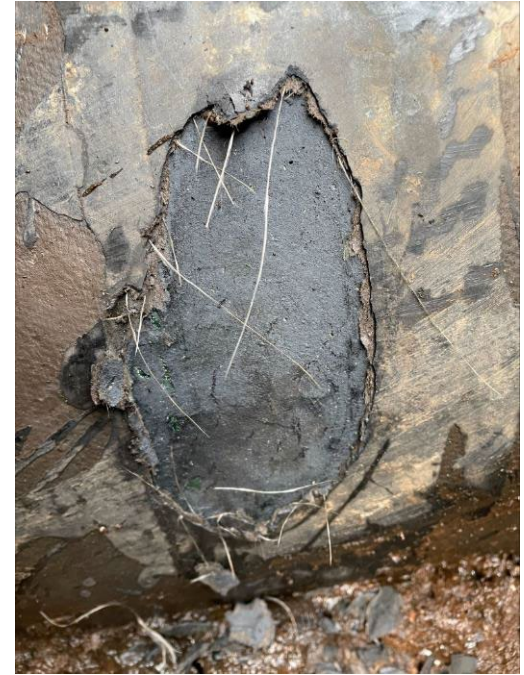
Sperling Avenue Forcemain – Above-ground Inspection (XLI)



Sperling Avenue Forcemain – defect validation and repair



Sperling Avenue Forcemain – XLI coating anomaly (anomaly #2)



Summary: Sperling Avenue Forcemain Condition Assessment Project

CONDITION ASSESSMENT



Sperling Forcemain



PIPE MATERIAL
Spiral
welded steel



PIPE AGE
+60 years

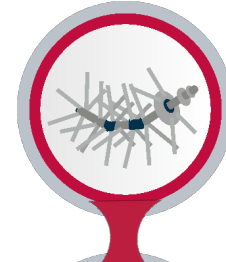


PIPE DIAMETER
525mm



INSPECTION
LENGTH
400m

RESULTS



PIPEDIVER INSPECTION
1 defect (approx. 3.5 in x
3.5 in) with 45% wall loss



ENGINEERING ASSESSMENT
Data shows pipe is in
serviceable condition



SPECTRUM XLI INSPECTION
Detected a large coating
defect near PipeDiver wall
loss and 1 additional
coating defect

Thank you. Questions?

Pure Technologies, a Xylem brand
Regional Sales Manager



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