

A Proactive Approach to Assessing and Managing The Wastewater Collection System, and a UV Cured CIPP Rehabilitation



Stamford, CT WPCA



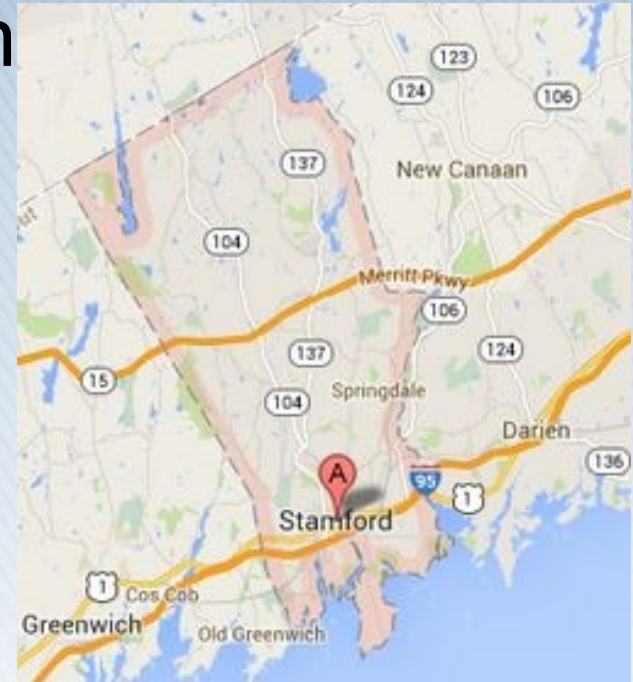
Presented by:
Joe Hausmann, PE – Wright-Pierce

Introduction

- Overview of the Stamford WPCA's system
- Components of the CMOM plan
- Status and Goals of CMOM program
- Area of Corrosion Attack
- UV Cured CIPP Repair
- Questions and Answers

System Overview

- Serves Stamford and Darien
- ~300 miles of sewer
 - Up to 60" diameter
 - ~20 miles of sewer >24"
- 23 Pump Stations
- 24 MGD WWTF



CMOM Program Components

- CCTV/Laser/Sonar Inspection >24" sewer
 - Phased approach based on criticality
- GIS-based data storage program
- Pump Station & Force Main Evaluations
- Sewer Cleaning Develop a Capital Improvement Plan (CIP)

Select Tools that best fit your needs, budget and system



CMOM Program Components

Criticality Assessment

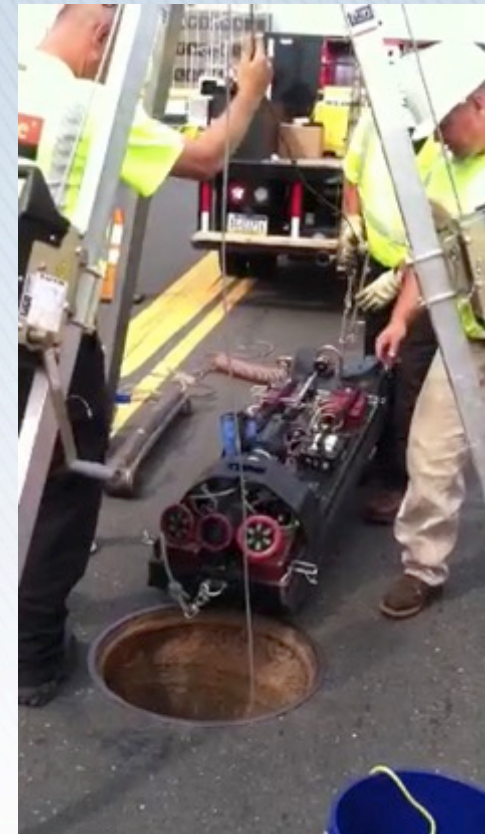
- Focused on large diameter sewers:
 - Lack of WPCA inspection equipment >24”
 - Increased Environmental Risk
 - Increased Cost / Complexity of Repairs
- Prioritized interceptors along waterways
- Concrete and Clay Interceptors



CMOM Tools

CCTV/Laser/Sonar Inspection

- RedZone Robotics – Pittsburgh, PA



CMOM Tools

RedZone Robotics

GIS Map Asset Dashboard ICOM3 - Multisensor Viewer

Reports GIS Tools R3 Inspection: Downstream 6/6/2013 (Most Recent) Exit Inspection Viewer

7.3 ft


JHA4

Payout	Code	Grade	Description
0.0	AMH	0	Manhole
0.0	MWL	0	Water Level
2.0	MGO	0	General Observation
2.0	MGO	0	General Observation
2.0	MGO	0	General Observation
2.0	MGO	0	General Observation
6.5	MGO	0	General Observation
50.0	MGO	0	General Observation
50.0	MGO	0	General Observation
50.0	DAGS	2	Deposits Attached Grease
64.9	MGO	0	General Observation
65.0	IR	4	Infil Runner
67.6	MGO	0	General Observation
89.0	TFA	0	Tap Factory Active
89.4	MGO	0	General Observation
99.9	MGO	0	General Observation
99.9	MGO	0	General Observation
150.0	MGO	0	General Observation
150.0	MGO	0	General Observation
199.9	MGO	0	General Observation
249.9	MGO	0	General Observation
249.9	MGO	0	General Observation
300.0	MGO	0	General Observation
300.0	MGO	0	General Observation
329.1	DAR	2	Deposits Attached Raggin
349.7	MGO	0	General Observation
349.9	MGO	0	General Observation
400.0	MGO	0	General Observation
408.3	AMH	0	Manhole

JHA3

Jefferson Line No: JHA4-JHA3

PROFILER





US MH: JHA4 Downstream DS MH: JHA3

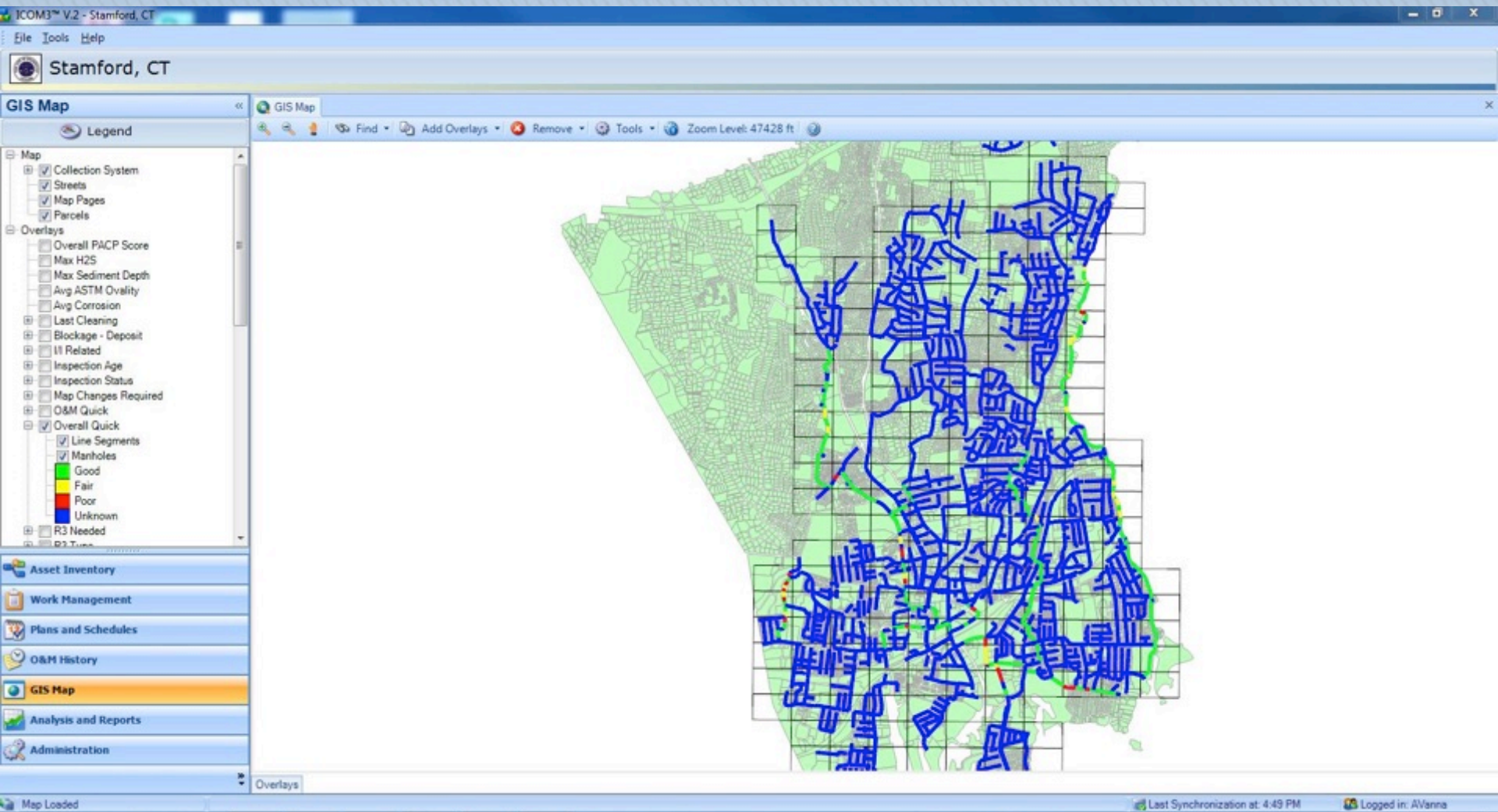
6.6.2013 23:56:89

Size: 60in, Clay Tile Distance: 7.20ft

Jump to Distance: Capture Observation Open Record

CMOM Tools

RedZone Robotics



Current Status

- Inspection Complete
 - 120,000 LF miles of <24"
 - 22 of 23 Pump Stations & Force Mains
 - ◆ 23rd station was just commissioned
- Reviewing Report
 - Evaluating the CIP
 - Timeline for repairs
- Performed 1 Immediate Repair
- Sewer cleaning in 2016
 - 13,000+ LF of 30" to 60" pipe
- Flow Monitoring shifted to a separate I/I Study by others



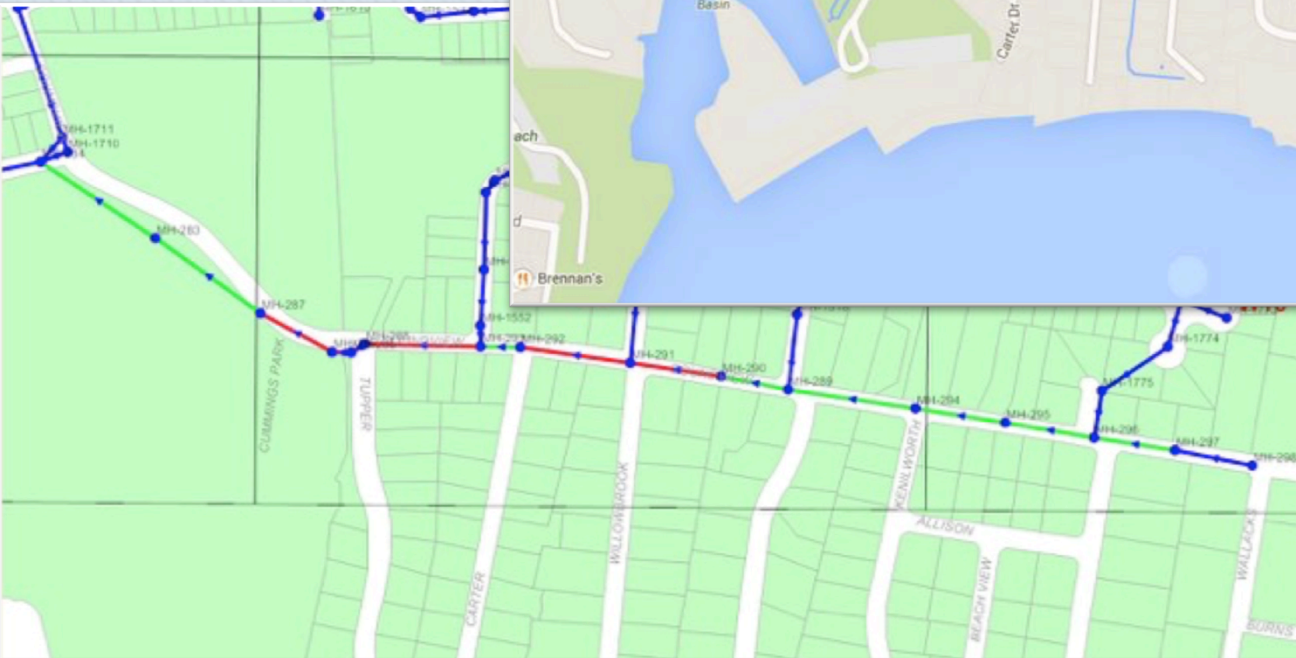
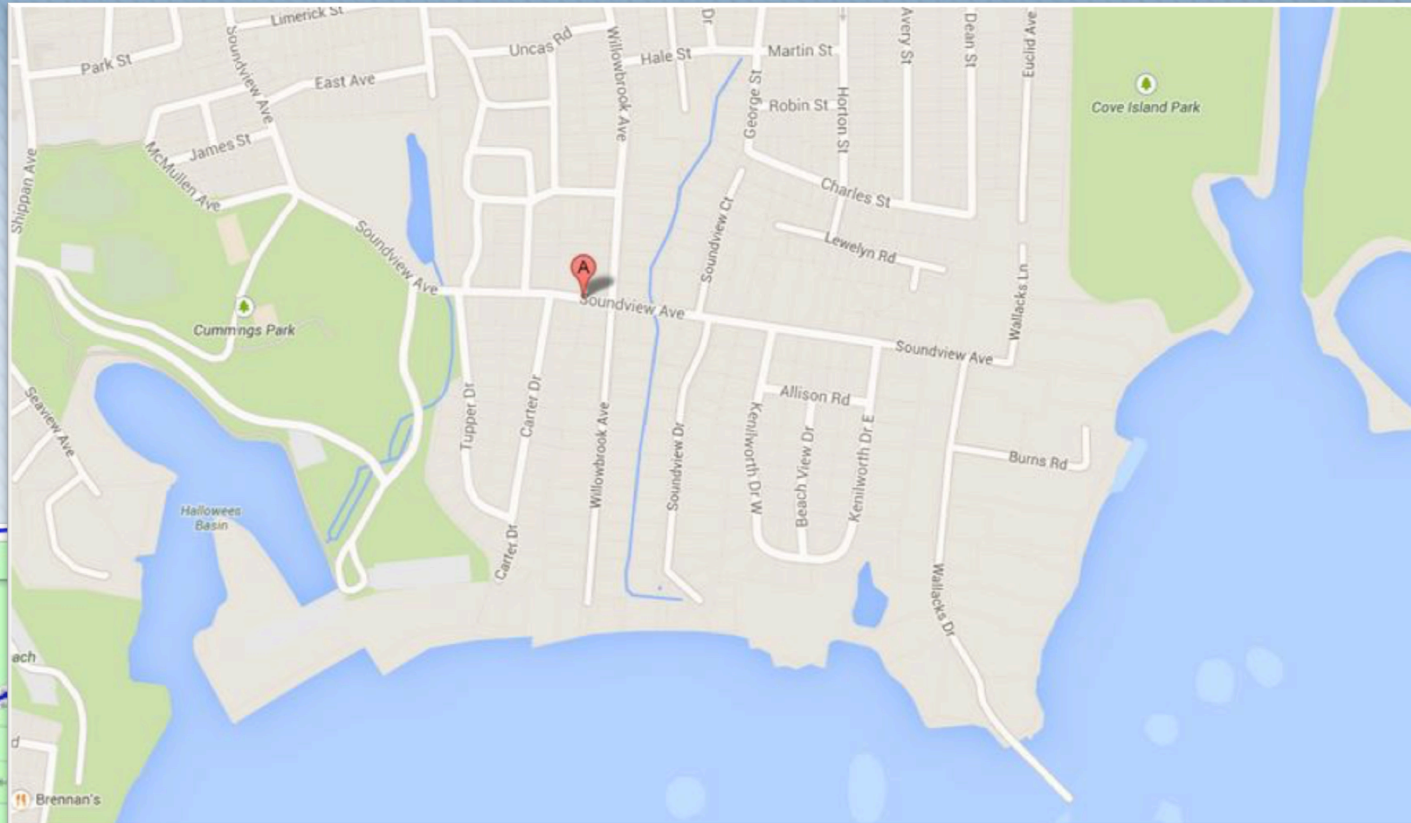
Completed Repair

Soundview Avenue

- 36" and 42" RCP Interceptor
- Rebar visible during inspection
- ~3,000LF of sewer in danger of collapse



Recent Results



Completed Repair

Soundview Avenue Rehabilitation

- WPCA and W-P initiated design immediately
- Lining was preferred method:
 - Too deep for open cut (Road Closures)
 - Laterals reduced sliplining's viability
 - Linestop on upstream forcemains for bypass
- Precision Industrial Maintenance
 - Selected as contractor - very competitive bid
 - UV cured CIPP liner

Completed Repair

Soundview Avenue Rehabilitation

- 4 phases / aspects of the work
 - Setup a bypass system and traffic control
 - Pre-inspect and pre-clean the lines
 - Perform the lining
 - Restoration

Completed Repair

Soundview Avenue Rehabilitation

Bypass

- 3,000 LF of 18" HDPE by-pass required
 - Used existing line stop of combined force mains upstream
 - Laid 18" bypass on double yellow line of road, buried in intersections for traffic

Recent Results



Completed Repair



Completed Repair



Completed Repair



Completed Repair

Soundview Avenue Rehabilitation



Completed Repair

Liner Installation

- Differences with UV-cured CIPP
 - UV-Cured using fiberglass vs. “felt sock”
 - Winched into place vs. inverted
 - Quicker cure times are possible
 - Potential for less odor and noise complaints
 - No refrigeration needed for liner materials

Completed Repair



Completed Repair



Completed Repair



Completed Repair

11.11.2014

18:18:10

0.0 m

DEMO

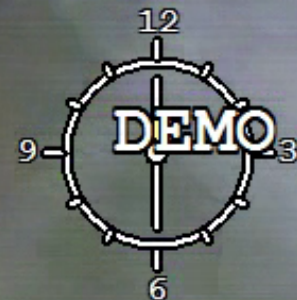
DEMO

DEMO

P 0°

R 0°

LQ

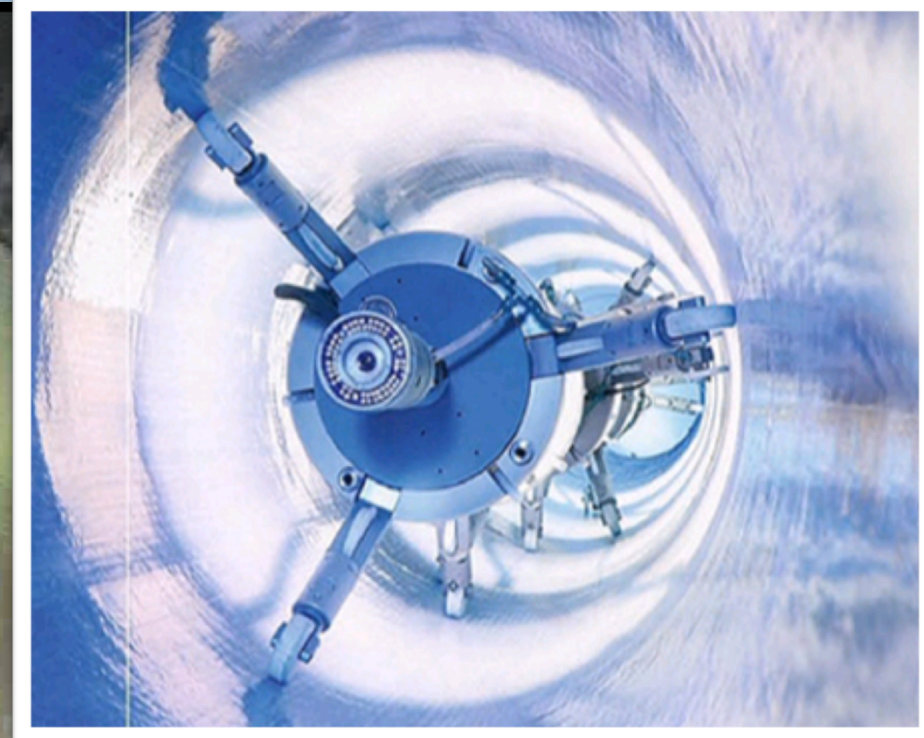


Completed Repair

11.11.2014

18:33:02

DEMO



Completed Repair

Industrial Maintenance, Inc.
Stamford CT, Soundview Ave Lining
95 post tv|



10.30.14

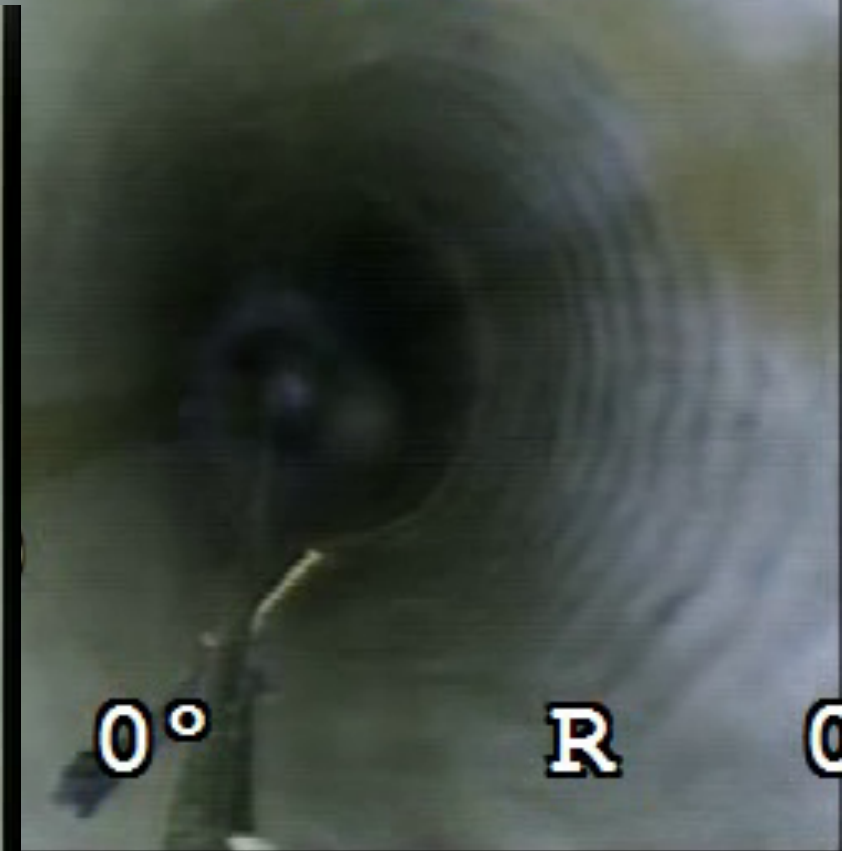
LC1: +0028.40 ft

Completed Repair

Industrial Maintenance, Inc.
Danford CT, Soundview Ave Lining
post tvl



LQ-----



0°

R

0

30.14

LC1: +0097.50 ft

Completed Repair



Acknowledgements

- Stamford WPCA:
 - Bill Brink, PE – Executive Director
 - Prakash Chakravarti, PE – Supervising Engineer
 - Stephen Pietrzyk - Regulatory Compliance Officer
- Wright-Pierce:
 - Dennis Dievert, Jr. PE – Project Manager
- RedZone Robotics, Inc.
- Precision Industrial Maintenance, Inc.

Questions / Discussions

