BRIDGING THE GAP

Connecting to the Future of Asset Management

CNAM 2018 Conference

May 14-17 Windsor, Ontario

Bridging The Gap On Risk and Level of Service

Luigi Congi, City of Windsor

Ronnie Flannery-Guy, Aqua Data Inc.

May 15th 2018

CNAM Canadian Network of Asset Managers

Extreme Weather Events Supported Ongoing Sewer System Assessments

- September 29, 2016 the City of Windsor experienced an extreme rainstorm that produced 230mm in the hardest hit areas.
- Mayor Drew Wilkins declared a state of emergency and the Municipal Affairs Minister Bill Mauro activated the Disaster Assistance for Ontarians Program for impacted residence
- City Council agreed to move forward future allocated funds to expedite the completion of the Sanitary and Storm Sewer Master Plan

- August 28, 2017 the City of Windsor once again experienced record rainfall of 80 to 150 mm. Shortly after Mayor Drew Wilkins outlined an 8-point Plan including:

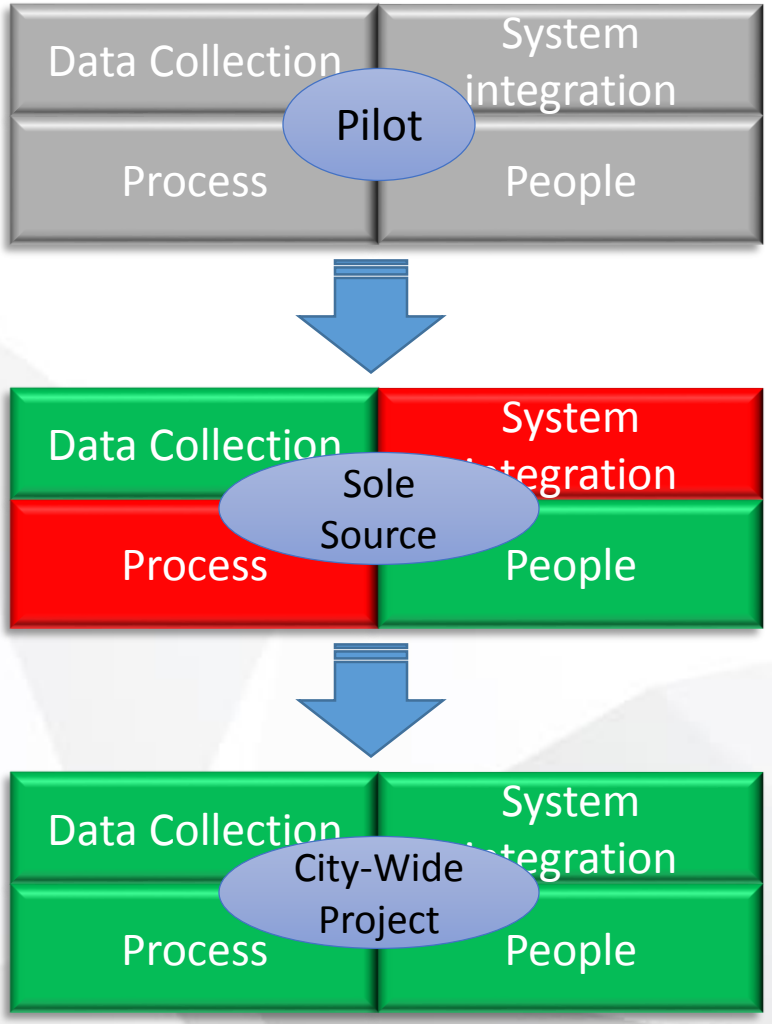
"a camera project mapping out the city's sewer systems, identifying problems and finding solutions. Without this plan, the city can't move forward with the big underground projects needed to ultimately solve the problem"

As a Result A Three Stage Approach Taken To Developing Solution

Pilot Program
Review data sets and determine relevancy
Identify internal system integration and adaptation
Explore impacted processes
Identify key stakeholders and end-user

Sole Source
Refine data set and determine use
Evaluate system readiness and adaptation
Isolate and remove redundancies
Analyze existing processes and identify improvements

City –Wide Project
Expand and appropriate system integration
Introduce new processes and procedures
Improve quality and maintain efficiency



Solution Provided an Integrated Approach in Providing Data to Multiple End Users

Upload
- Condition ratings
- Videos/Pics
- Reports

Daily/Wkly Reporting
- Correction forms
- Emergency reports
- Major Defects
- Progress reports

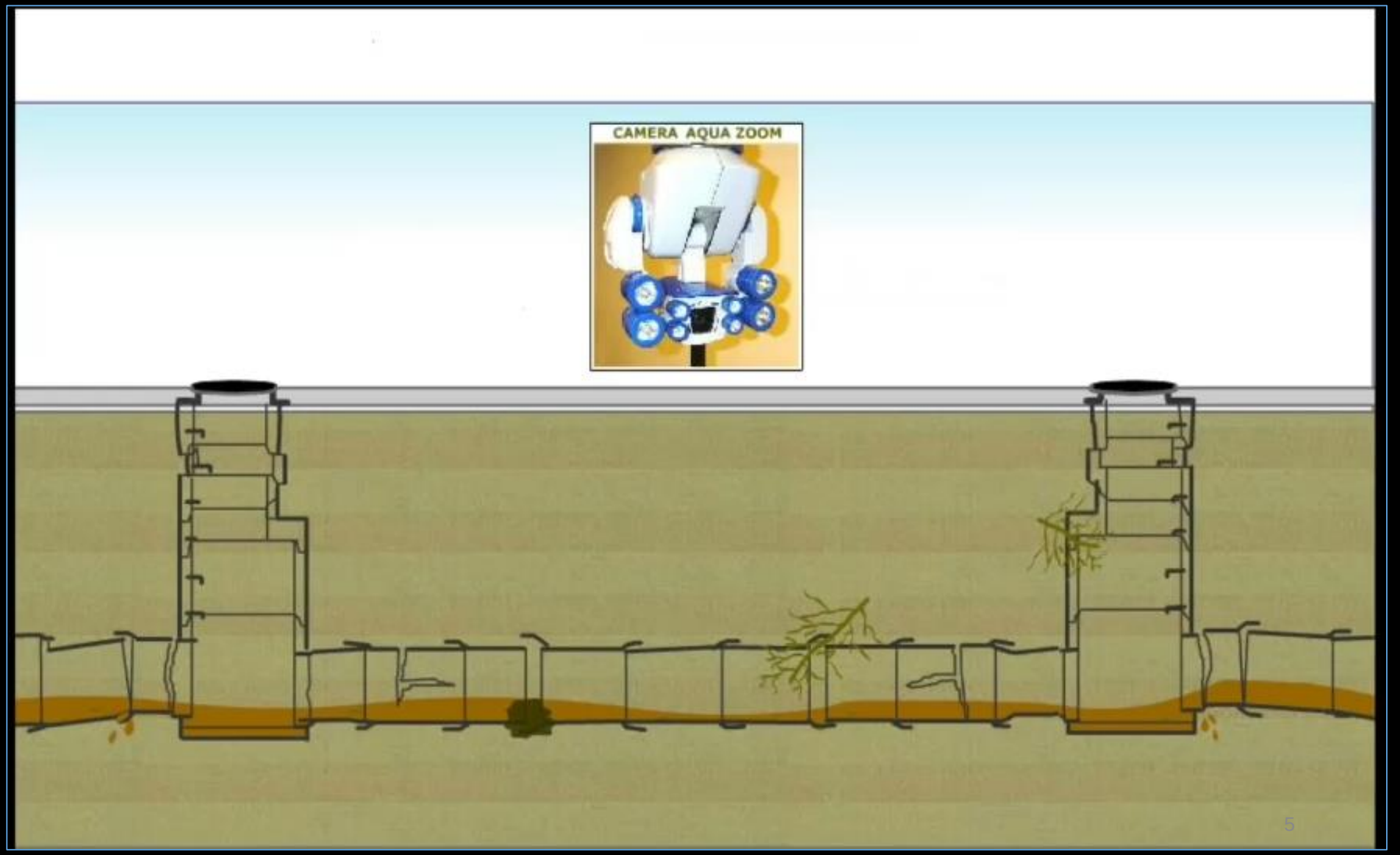
Monthly Reporting
- Scored Inspection Results
- Inspection Videos/Pics/Reports

Data Accessibility

Analysis of results drive maintenance and capital expenditures

Daily/Wkly Reporting
- Verified corrections
- Resolved emergency concerns
- Resolved maintenance concerns

Quality Assurance
- Scoring, Recommendations, Videos, Inspection Reports


CAMERA AQUA ZOOM

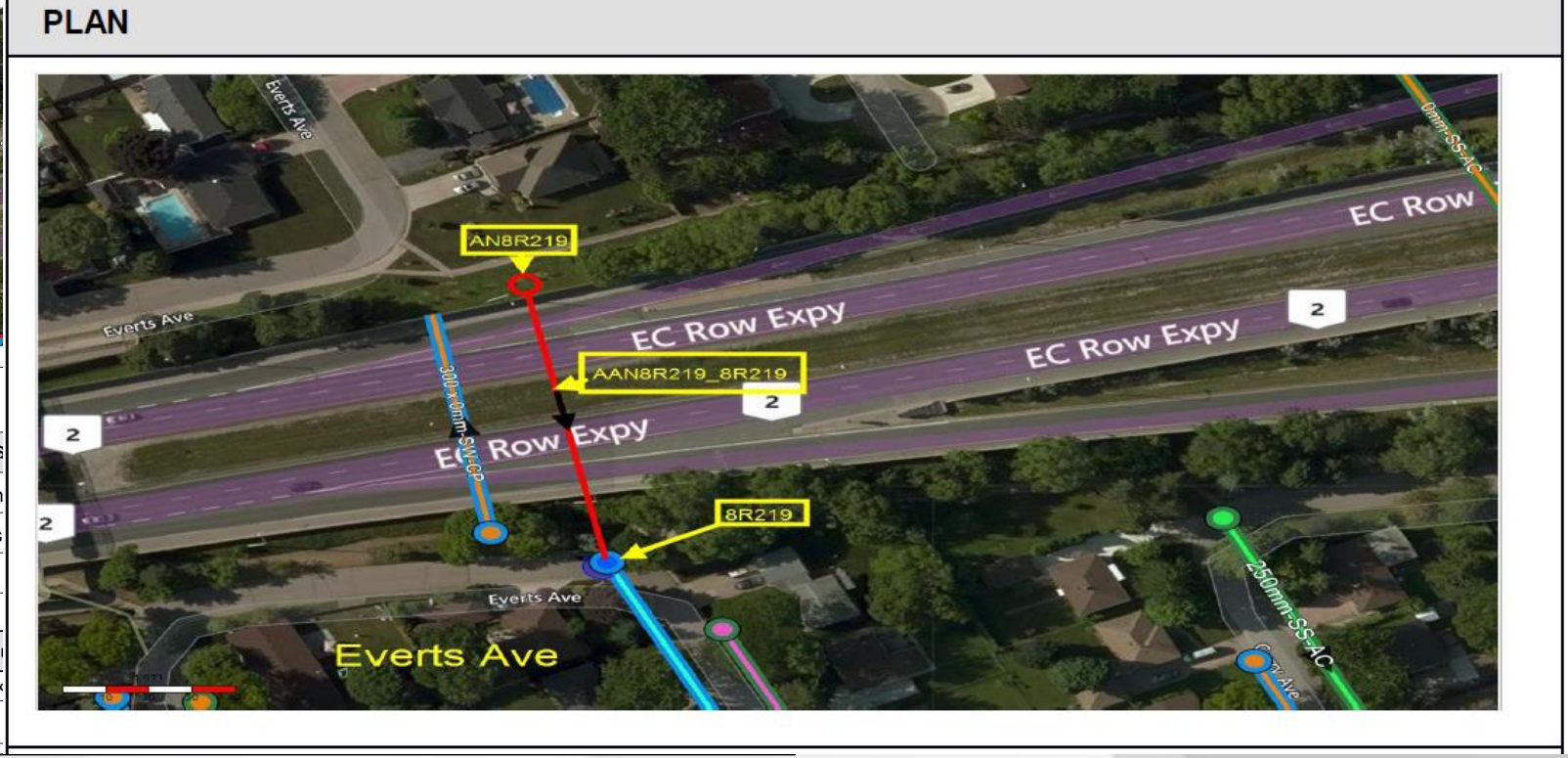
Variance reports – Correction forms

AQUA DATA	Correction Form	No : 47- 003 Project: RFT 43-17

IDENTIFICATION			
Activity :	CCTV ☐	Zoom X	
Date :	2018-01-29	City :	Windsor
Technician :	Maxime Rioux		

LOCATION			
Street :	Everts Ave	Civic N° :	
From :	Everts Ave- Mark Ave	To :	

PLAN



- New assets are added directly on field and georeferenced (GPS) with temp ID – City asset ID is then provided and updated.

Major defects - emails

- Major defects provided directly from the truck for immediate attention

iPad 7:27 PM 51%

74

From: 44 Camion

To: Lefebvre Lyne Dumitru Maria Hide

Major defects – weekly list

T_Sandwich 2_Major Defects Report_2018-03-11.xlsx - Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW DEVELOPER ANTIDOTE

Ronnie Flannery-G

B6 ID

Zoom Cam Sewer Inspection

AQUA DATA

Sewers and Manholes Major Defects Reports

WINDSOR

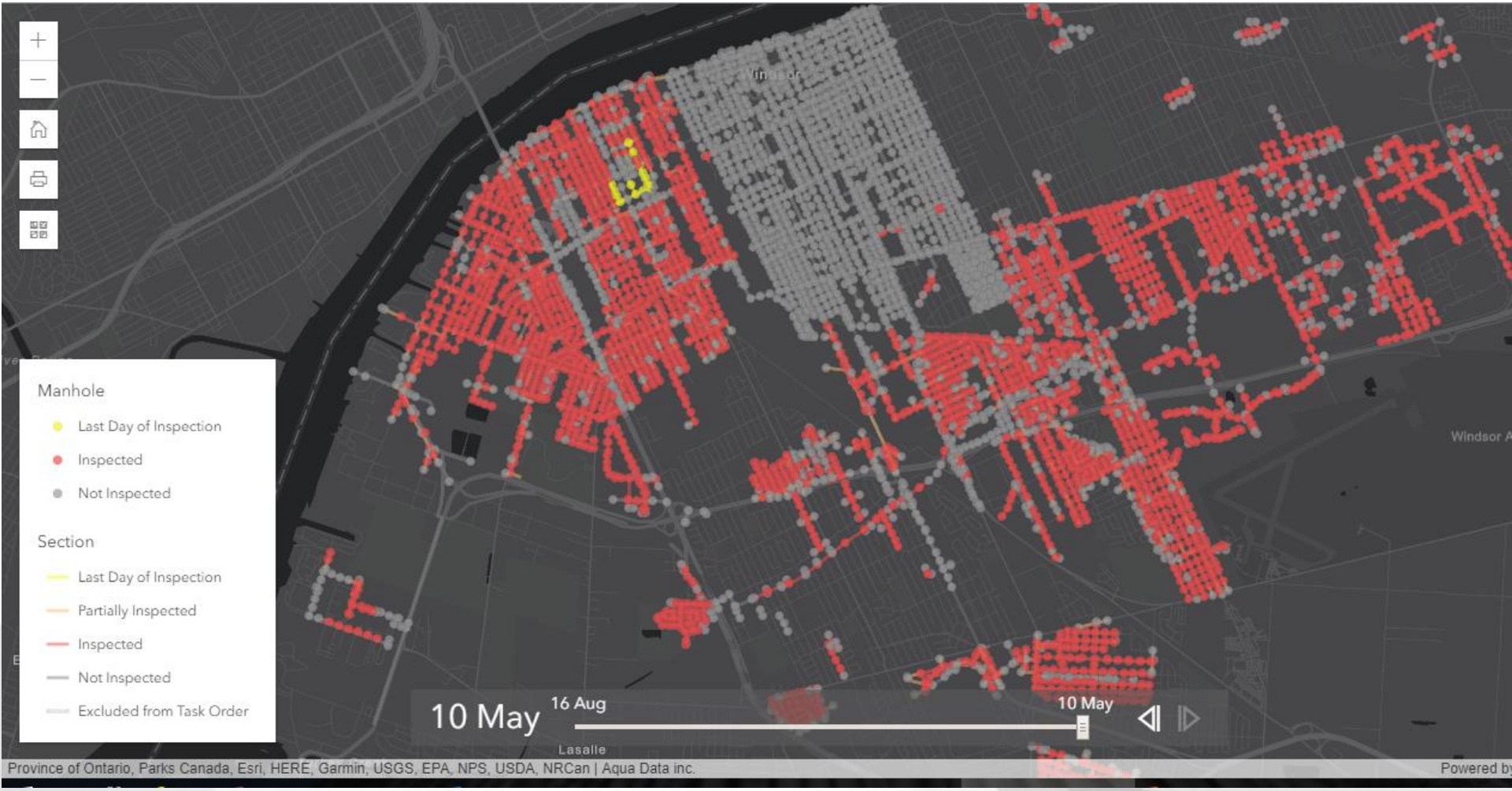
Zone Sandwich 2

					Already advised the City.		
5D157F_5D158F	Barrymore	Pipes	Sanitary	5D158	High water level 95% in pipes from manhole 5D158.	2018-03-08	

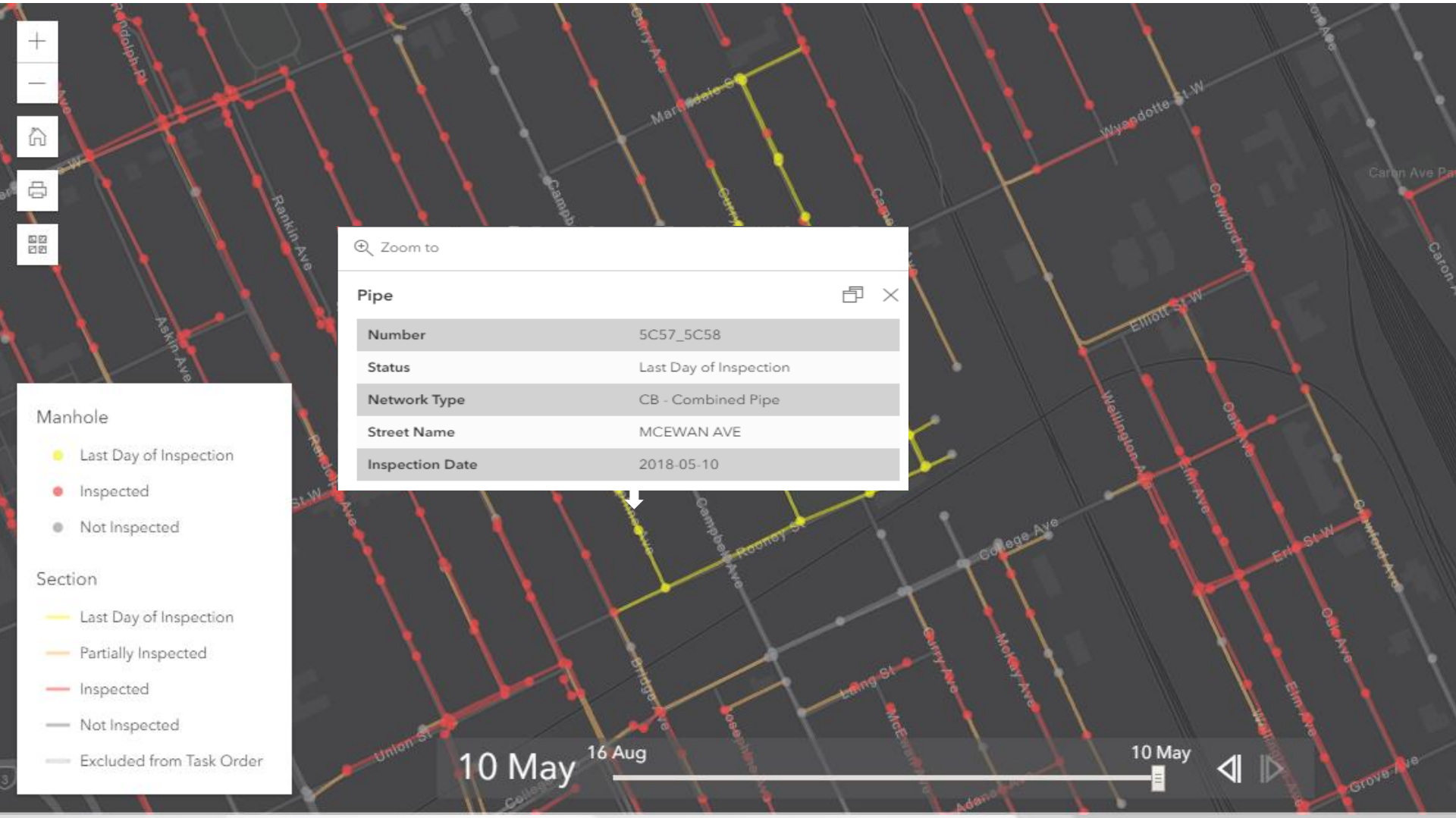
2018-03-11_Sandwich 2 2018-03-04_Sandwich 2

READY

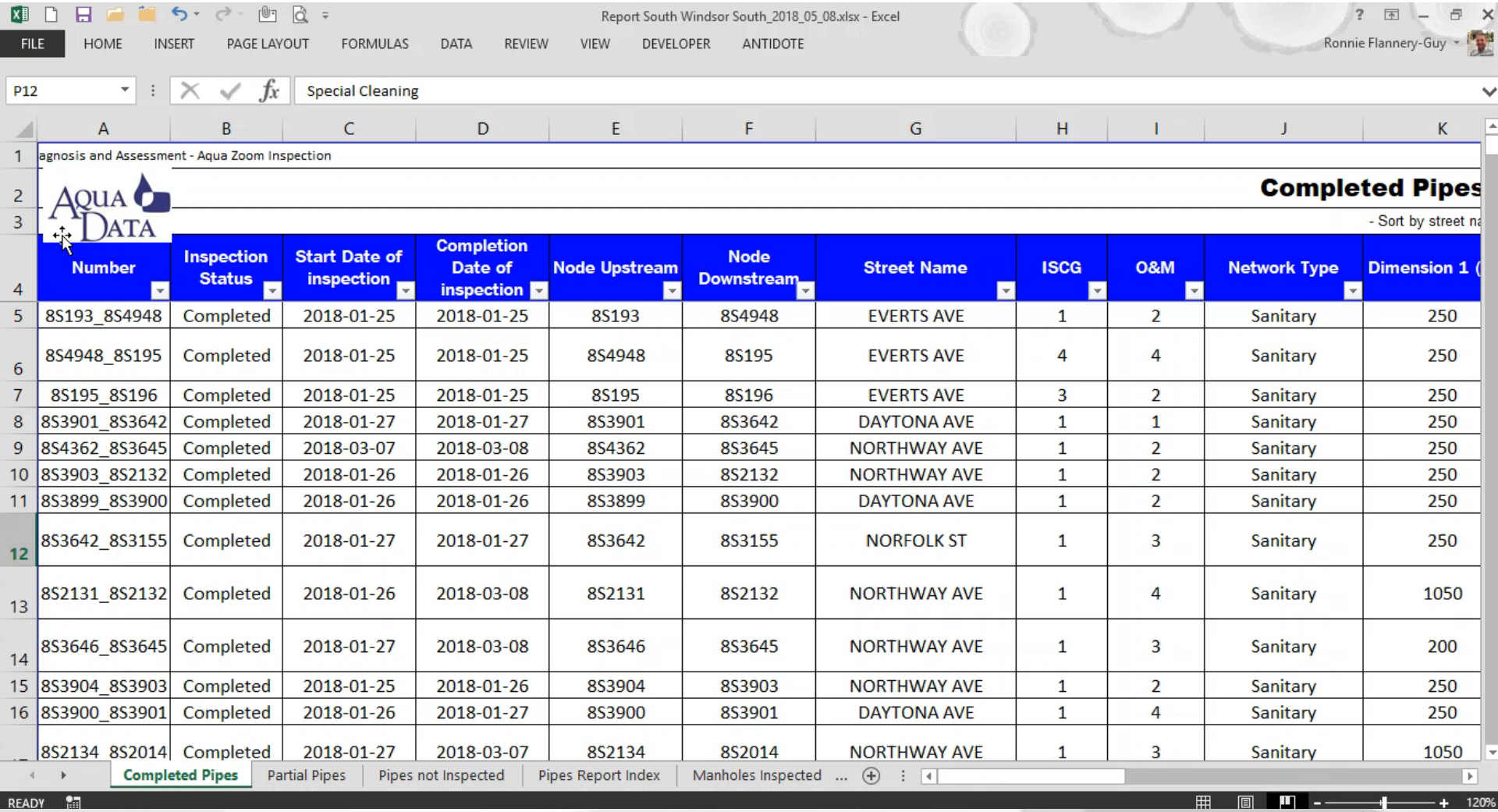
Progress follow up – updated daily



Progress follow up – updated daily

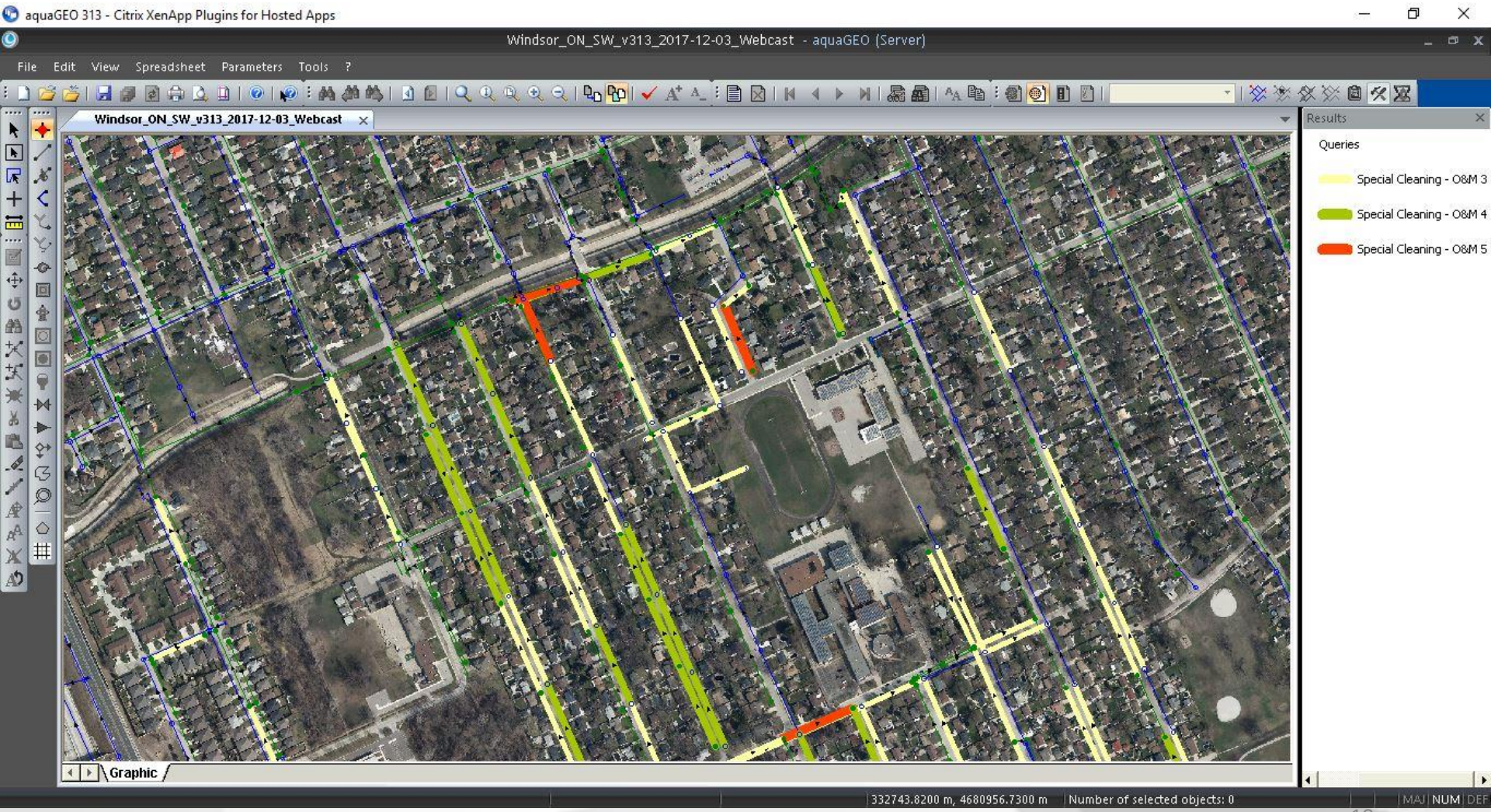


Recommendations by area - list



Number	Inspection Status	Start Date of inspection	Completion Date of inspection	Node Upstream	Node Downstream	Street Name	ISCG	O&M	Network Type	Dimension 1
8S193_8S4948	Completed	2018-01-25	2018-01-25	8S193	8S4948	EVERTS AVE	1	2	Sanitary	250
8S4948_8S195	Completed	2018-01-25	2018-01-25	8S4948	8S195	EVERTS AVE	4	4	Sanitary	250
8S195_8S196	Completed	2018-01-25	2018-01-25	8S195	8S196	EVERTS AVE	3	2	Sanitary	250
8S3901_8S3642	Completed	2018-01-27	2018-01-27	8S3901	8S3642	DAYTONA AVE	1	1	Sanitary	250
8S4362_8S3645	Completed	2018-03-07	2018-03-08	8S4362	8S3645	NORTHWAY AVE	1	2	Sanitary	250
8S3903_8S2132	Completed	2018-01-26	2018-01-26	8S3903	8S2132	NORTHWAY AVE	1	2	Sanitary	250
8S3899_8S3900	Completed	2018-01-26	2018-01-26	8S3899	8S3900	DAYTONA AVE	1	2	Sanitary	250
8S3642_8S3155	Completed	2018-01-27	2018-01-27	8S3642	8S3155	NORFOLK ST	1	3	Sanitary	250
8S2131_8S2132	Completed	2018-01-26	2018-03-08	8S2131	8S2132	NORTHWAY AVE	1	4	Sanitary	1050
8S3646_8S3645	Completed	2018-01-27	2018-03-08	8S3646	8S3645	NORTHWAY AVE	1	3	Sanitary	200
8S3904_8S3903	Completed	2018-01-25	2018-01-26	8S3904	8S3903	NORTHWAY AVE	1	2	Sanitary	250
8S3900_8S3901	Completed	2018-01-26	2018-01-27	8S3900	8S3901	DAYTONA AVE	1	4	Sanitary	250
8S2134_8S2014	Completed	2018-01-27	2018-03-07	8S2134	8S2014	NORTHWAY AVE	1	3	Sanitary	1050

Special Cleaning example



Progress follow up – updated daily

tion report with Zoom camera
for pipe segments with pictures

THE CITY OF WINDSOR ONTARIO, CANADA

Global Informations **Pipe Number: 8S1621_8S1689**

1. Inspector	2. Certificate Number	3. Verified by	4. Certificate # (verify by)
Arran Stewart	U-0118-07009625	Francine Bignell	U-310-C1084
5. Owner	**6. Client**	**7. P.O. Number**	**8. Work Order**
	Windsor (City of)	43-17	Sth_Windsor_Sth

9. Media Number **10. Project**

11. Date
2018-02-27

15. Pre-Cleaned **16.**
N - No Pre-Cleaning

19. Direction of Survey **21. In**
D - Downstream CI - Cor

Location

24. Drainage Area

26. Street
WEST GRAND BLVD

Pipe

30. Sewer Type **31. He**
SS - Sanitary Sewage Pipe

34. Material **35.**
AC - Asbestos Cement

38. Total Length **39. In**

Measures

42. Upstream MH	43. Rim to Invert (Upstream)	44. Rim to Grade (Upstream)	45. Grade to Invert (Upstream)
8S1621			
46. Northing (Upstream)	**47. Easting (Upstream)**	**48. Elevation (Upstream)**	
49. Downstream MH	**50. Rim to Invert (Downstream)**	**51. Rim to Grade (Downstream)**	**52. Grade to Invert (Downstream)**
8S1689			
53. Northing (Downstream)	**54. Easting (Downstream)**	**55. Elevation (Downstream)**	
56. MH Coordinate System	**57. MH Vertical Datum**	**58. GPS Accuracy**	
		N/A	

Other Informations

59. Additional Informations

Video Filename: Sth_Windsor_Sth_8S1621_8S1689_8S1621_2018-02-27-17-00-16.mp4

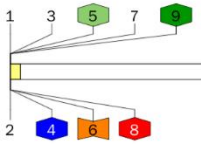
Structural Evaluation		Operational Evaluation		Global Evaluation		Other Evaluations	
Quick Rating:	4131	**Quick Rating:**	5142	**Global Rating:**	24	**Structural Grade:**	4
Global Rating:	7	**Global Rating:**	17	**(Structural & O&M)**		**O&M Grade:**	5
Condition Index:	3,5	**Condition Index:**	3,4				

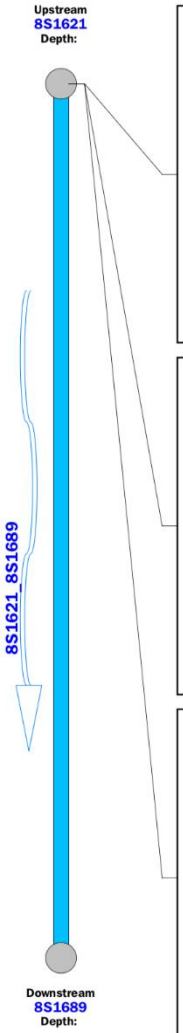
aquaGEO™ - PACP v. 7.0 Page - 2190

- Complete PACP Header

Inspection report with Zoom camera for pipe segments with pictures

Pipe Number: 8S1621_8S1689





4

0,00

DAGS

Deposits attached - Grease, <= 10%

cross-sectional area loss, 04 08 o'clock (Sth_Windsor_Sth_8S1621_8S168... 9_8S1621_2018-02-27_17-00-16_004.jpg)

PCG: N/A
O&M: 2

5

0,00

FL

Longitudinal fracture, 12 o'clock,

Possibility, presence of roots (Sth_Windsor_Sth_8S1621_8S1689_8S1621_... 2018-02-27_17-00-16_005.jpg)

PCG: 3
O&M: N/A

6

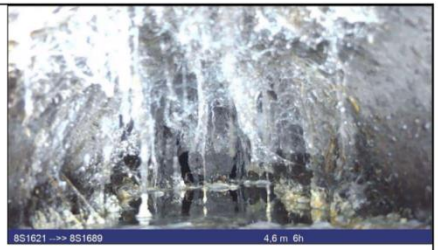
0,00

MGP

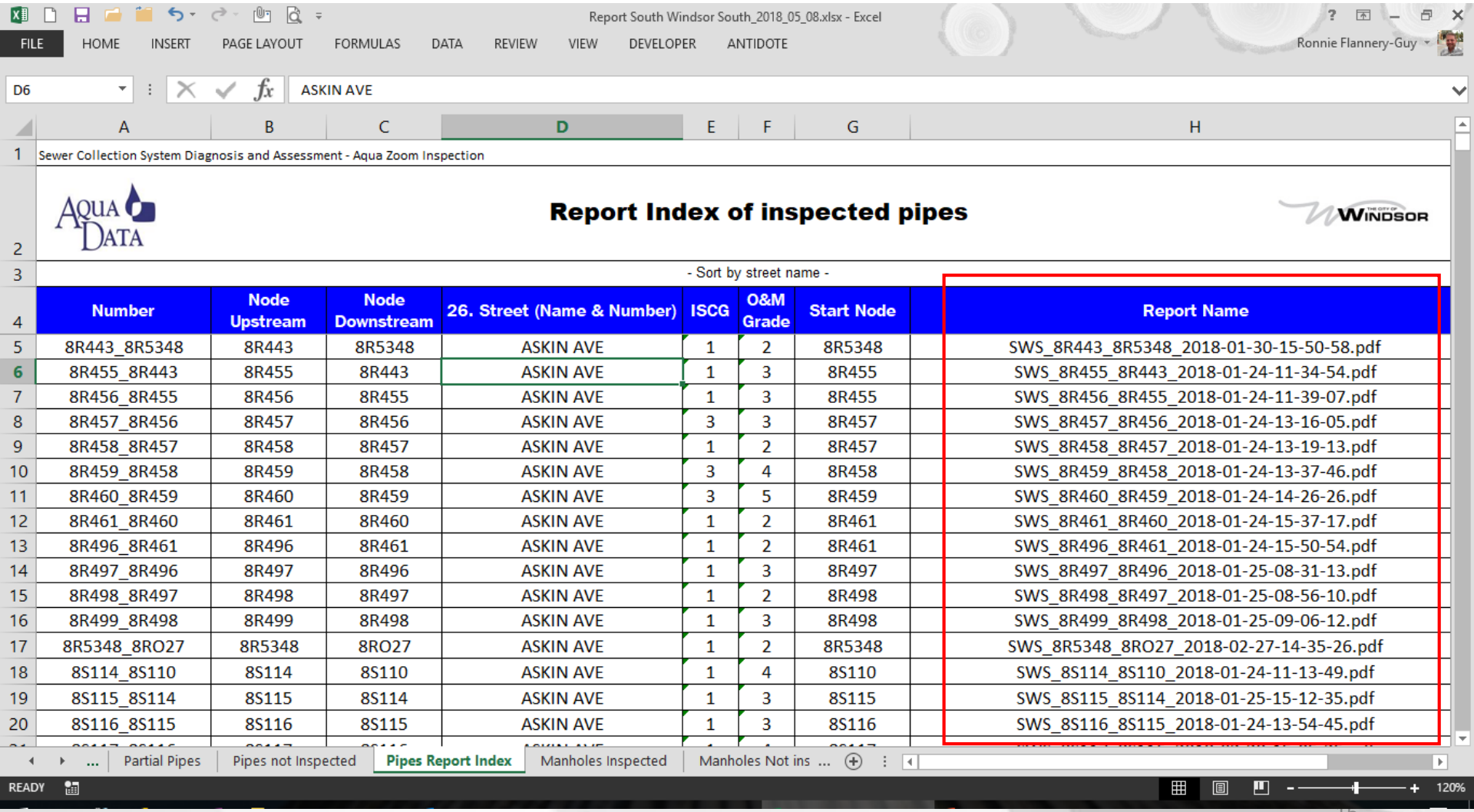
Miscellaneous features - General

photograph (Sth_Windsor_Sth_8S1621_8S1... 689_8S1621_2018-02-27_17-00-16_006.jpg)

PCG: N/A
O&M: N/A



Pipe register index



Number	Node Upstream	Node Downstream	26. Street (Name & Number)	ISCG	O&M Grade	Start Node	Report Name
8R443_8R5348	8R443	8R5348	ASKIN AVE	1	2	8R5348	SWS_8R443_8R5348_2018-01-30-15-50-58.pdf
8R455_8R443	8R455	8R443	ASKIN AVE	1	3	8R455	SWS_8R455_8R443_2018-01-24-11-34-54.pdf
8R456_8R455	8R456	8R455	ASKIN AVE	1	3	8R455	SWS_8R456_8R455_2018-01-24-11-39-07.pdf
8R457_8R456	8R457	8R456	ASKIN AVE	3	3	8R457	SWS_8R457_8R456_2018-01-24-13-16-05.pdf
8R458_8R457	8R458	8R457	ASKIN AVE	1	2	8R457	SWS_8R458_8R457_2018-01-24-13-19-13.pdf
8R459_8R458	8R459	8R458	ASKIN AVE	3	4	8R458	SWS_8R459_8R458_2018-01-24-13-37-46.pdf
8R460_8R459	8R460	8R459	ASKIN AVE	3	5	8R459	SWS_8R460_8R459_2018-01-24-14-26-26.pdf
8R461_8R460	8R461	8R460	ASKIN AVE	1	2	8R461	SWS_8R461_8R460_2018-01-24-15-37-17.pdf
8R496_8R461	8R496	8R461	ASKIN AVE	1	2	8R461	SWS_8R496_8R461_2018-01-24-15-50-54.pdf
8R497_8R496	8R497	8R496	ASKIN AVE	1	3	8R497	SWS_8R497_8R496_2018-01-25-08-31-13.pdf
8R498_8R497	8R498	8R497	ASKIN AVE	1	2	8R498	SWS_8R498_8R497_2018-01-25-08-56-10.pdf
8R499_8R498	8R499	8R498	ASKIN AVE	1	3	8R498	SWS_8R499_8R498_2018-01-25-09-06-12.pdf
8R5348_8RO27	8R5348	8RO27	ASKIN AVE	1	2	8R5348	SWS_8R5348_8RO27_2018-02-27-14-35-26.pdf
8S114_8S110	8S114	8S110	ASKIN AVE	1	4	8S110	SWS_8S114_8S110_2018-01-24-11-13-49.pdf
8S115_8S114	8S115	8S114	ASKIN AVE	1	3	8S115	SWS_8S115_8S114_2018-01-25-15-12-35.pdf
8S116_8S115	8S116	8S115	ASKIN AVE	1	3	8S116	SWS_8S116_8S115_2018-01-24-13-54-45.pdf

Improved Precision and Accuracy Achieved with a System Wide Assessment

- Complete inventory of system (manholes, catch basins, chambers, and sewer pipe conditions)
- Clearly define sewer operational and structural condition ratings since flushing has the potential of removing evidence of operational conditions
- Provides guidance into where further CCTV inspection is needed
- Basis for creating a more efficient flushing program (flushing lines that need it and reducing damage from flushing activities)
- Reduced operational cost in obtaining a system-wide assessment (no flushing needed prior to inspection)
- Less time and cost involved compared to traditional CCTV inspection

Established Framework Maximizes Service Levels and Minimizes Risk

- Comprehensive system-wide assessment of operational and structural condition of an asset
- Ability to continuously monitor sewer degradation without causing further flushing damage
- Operational ratings form the baseline for periodic monitoring of flow conditions over time
- Inspection results assist in developing an effective and efficient sewer flushing program resulting in cost savings and longevity to sewer lines
- Historical condition ratings captured from the inspection program are used to refine CCTV inspection programs
- Ability to identify relining needs prior to deterioration, prolonging asset life in a cost effective manner

Questions