
APPENDIX C
IDDE SAMPLE FIELD DATA FORM

IDDE Field Data Form



IDDE ID:		DEC ID Cross Ref.:			
Date:	Time:	Inspector:			
Structure type:		Inner diameter (outfall only) _____ in.			
Material (outfall only):	Corrugated Metal	Concrete	Corrugated HDPE	Smooth Lined HDPE	Other (describe):
Flow depth (outfall only):	Dry	Wet (no flow)	Dripping	Flowing	Depth _____ in.
Pipe position (outfall only):	Free flow	Partially Submerged	Submerged	If partially submerged, surcharged? YES NO	
Erosion at outfall	None	If present, describe:			
Discharge characteristics (observations on Color, Turbidity, and Odor of flow):					
Flotables:	None	Sheen	Sewage	Suds	Other:
Deposits or staining:	None	Sediment	Oily	Iron Staining	Other:
Damage to structure:	None	Cracking, Spauling	Corrosion	Crushed	Other:
Obstructions:	None	Partially Obstructed		Fully Obstructed	Other:
OB pad set?	YES NO	Date OB pad retrieved:			
Temp.	°C	Specific Conductance		µS/cm	Total Chlorine mg/l
Sample Collected for <i>E. Coli</i> analysis: YES NO NA			Time:		
Sample Collected for N analysis: YES NO NA			Time:		
Comments:					

(Modified from field form in DEC IDDE Reports)

APPENDIX D
ST. ALBANS IDDE DATA SUMMARY

MISSISQUOI BASIN IDDE STUDY

TOWN OF ST. ALBANS

PROJECT NO. 13035

DATE: 10/30/13

Location	Outfall ID	Date	Material	Diameter (inches)	Flow Depth	Flow (gpm)	Deposits/Staining	Temp. (Celsius)	Conductivity (uS/cm)	Chlorine (mg/l)	OB pad	E. Coli (MPN/100 mL)	NH3 (mg/L)	Notes
Industrial Park	T149C	8/21/2013	Corrugated HDPE	15	Dripping	N/A	None	18.5	5,500	0.2	Negative	N/A	N/A	Take sample from standing water underneath outfall. DO=8.6 mg/l, pH=8.1. Orange foam found under outfall.
		9/18/2013	Corrugated HDPE	15	Flowing	---	None	15.5	4,442	0	Negative	N/A	N/A	Orange foam found at outfall. pH=8.23 and DO=7.26 mg/l. Flow 250 mg/l in 30 seconds.
Shopping Plaza	T124	8/21/2013	CMP	24	Flowing	<1	None	19	4,540	0	Negative	N/A	N/A	Partially submerged ~ 3.5". DO=6.25 mg/l, pH=7.56.
Shopping Plaza	T123	8/21/2013	CMP	18	Dripping	N/A	None	19.8	14,180	0	Negative	N/A	N/A	Structure has corrosion and rust stain found downstream. Two (2) adjacent 18" CMP pipes crushed and filled with sediment. Water quality test done on standing water below outfall. DO=4.3 mg/l, pH=7.3.
Shopping Plaza	T123.1	8/21/2013	PVC	4	None	N/A	None	N/A	N/A	N/A	Negative	N/A	N/A	Partially obstructed. No water quality testing done.
Hannafords	T16	8/21/2013	Corrugated HDPE	15	Dripping	N/A	None	19.7	2,500	0	Negative	N/A	N/A	Water quality testing done on water in swale. DO=10.7 mg/l, pH 7.58.
		9/16/2013	Corrugated HDPE	15	Dripping	N/A	None	15.4	3,423	0	Negative	N/A	N/A	pH=7.93 and DO - 5.63 mg/l.
		10/30/2013										<1	0.1	

NOTES:

1. N/A is for not accessible outfalls.
2. --- is for no data collected.
3. Potential contaminants were identified from the ANR Environmental Interest Locator.
4. Conductivity Threshold = 1500 us
5. E. Coli Threshold = 77CFU/100 mL
6. Fluoride Threshold = 0.25 mg/L
7. Ammonia Threshold = 0.10 mg/L
8. Phosphorus Threshold = 0.10 mg/L
9. Potassium Threshold = 5 ppm (5 gm/100 mL)
10. MBAS Threshold = 0.25 mg/L

MISSISQUOI BASIN IDDE STUDY

CITY OF ST. ALBANS

PROJECT NO. 13035

DATE: 7/23/14/13

Location	Outfall ID	Date	Material	Diameter (inches)	Flow Depth	Flow (gpm)	Deposits/Staining	Temp. (Celsius)	Conductivity (uS/cm)	Chlorine (mg/l)	OB pad	E. Coli (MPN/100ml)	Fluoride (mg/L)	Ammonia (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	MBAS (ug/L)	Notes
	24	10/24/2013	CMP		1		Sheen/Sediment	13.49	3,150	0				2.1				
		7/23/2014	CMP											1.4				
	11	10/24/2013	PVC		1	1.5	None	14.14	2,230	0		610		0.11			<20	
		10/30/2013										435						
	37	10/24/2013	Concrete				None	7.98	940	0		43	0.12	0.07	0.019	5.7	<20	
	16	10/24/2013	Concrete		3	6	None	8.47	6,620	0		>2400	0.11	0.13	0.04	13	27.7	
Pearl/North Elm		10/30/2013	Concrete		Submerged	N/A	None	14.3	1,000	0		>2400	0.1	0.11	0.09	4.5	<20	
Pearl/Walnut		10/30/2013	Concrete	No Measureable Flow			None					---	---	---	---	---	---	Not enough flow to sample.
Pearl/Cedar		10/30/2013	Concrete	No Measureable Flow			None					---	---	---	---	---	---	Not enough flow to sample.
Main/Up Welden		10/30/2013	Concrete		Flowing		None	12.1	2,580	0		225	<0.10	0.19	0.04	8.8	<20	
Main/Fairfield		10/30/2013	Concrete		Flowing		None	12.6	2,470	0		>2400	<0.10	0.16	0.05	8.6	<20	
Main/Bank	Main	10/30/2013	Concrete	30	Flowing	1	None	12.8	1,540	0		>2400	<0.10	0.18	0.04	14	<20	
	Bank	10/30/2013	Concrete	18	Flowing	N/A	None	13	1,880	0		3	<0.10	0.1	0.03	4.9	<20	
Congress/Main		7/23/2014										2	0.1	0.32	<0.01	9.7	<10.0	
Main		7/23/2014										870	<0.10	0.75	0.21	26	19.6	
Bank		7/23/2014										150	<0.10	0.37	0.32	11	37	
Maiden		7/23/2014										3	<0.10	0.3	0.33	8.2	65.3	
Trunkline	TL-6	7/23/2014												0.85				
Trunkline	TL-7	11/20/2013	Concrete											0.39				Catch basin sump sampled for ammonia after cleaning.
		7/23/2014												4.3				
Rewes Dr.	43A	11/20/2013	Ditch									109						

NOTES:

1. N/A is for not accessible outfalls.
2. --- is for no data collected.
3. Potential contaminants were identified from the ANR Environmental Interest Locator.
4. Conductivity Threshold = 1500 us
5. E. Coli Threshold = 77CFU/100 mL
6. Fluoride Threshold = 0.25 mg/L
7. Phosphorus Threshold = 0.10 mg/L
8. Potassium Threshold = 5 ppm (5 gm/100 mL)
9. MBAS Threshold = 0.25 mg/L

APPENDIX E
TOWN OF ST.ALBANS LETTER

Memorandum

Date: November 21, 2013

To: Steve Beauregard
Town of St. Albans, Director of Public Works

CC: Wayne Elliott, PE

From: Nathan Pion, EI

RE: Missisquoi Advanced IDDE Investigation – Town of St. Albans

Steve,

Over the past 6 months, A+E has worked with the Vermont Department of Environmental Conservation to investigate illicit discharges identified in the *City and Town of St. Albans Illicit Discharge Detection and Elimination (IDDE) Study* completed by Watershed Consulting Associates.

Attached with this letter is a summary of the recommended next steps identified in the Watershed Consulting Associates and the steps completed by Aldrich + Elliott and water quality test results. As the stormwater collection systems within the Town of St. Albans are private, the majority of our investigations ended at the outfall.

It is our recommendation that the owners of the stormwater collection systems be informed of the findings and be encouraged to address the recommended steps as outlined to ensure compliance. Recommended steps include but are not limited to cleaning of catch basins, dye testing and salt management plans.

After you have had a chance to review these findings and recommendations, we would be glad to meet with you to discuss in more detail the findings and next steps.

Don't hesitate to contact us with questions.

Meeting Notes



Missisquoi IDDE
St. Albans Town
A+E Project #: 13035
November 1, 2013

Outfall T16 (Hannafords Store)

- Recommended next steps
 - Educate property owner about illicit discharge issue
 - Clean catch basin
 - Identify source of inflow.
 - Sample for water quality measures including E. Coli and Ammonia
 - Work with owner to stop spillage from trash compactor
- Completed steps
 - Sampled water quality including E. Coli and Ammonia
 - Saw no evidence of trash compactor leaking into CB.

Outfall T123 (Highgate Shopping Center)

- Recommended next steps
 - Dye test and investigate floor drains in Thai House
 - Clear sediment from catch basins
 - Salt Mitigation Plan
- Completed Steps
 - Sampled outfalls

Outfall T124

- Recommended next steps
 - Bracket sampling
- Completed Steps
 - Sampled outfall

Outfall T149C (Industrial Park)

- Recommended next steps
 - Sample catch basin sump for conductivity.
 - Clean catch basin and resample
 - OB test
- Completed Steps
 - Sampled outfall WQ tests
 - Investigated CB's near Mylan Bldg. Found small PVC pipe coming from bldg.

Trunkline Investigation (TL-1)

- Investigation was moved under the City of St. Albans as the City maintains and operates the trunkline.

PHASE I (INITIAL ASSESSMENT) FIELD DATA SUMMARY SHEET

MISSISQUOI IDDE STUDY

PROJECT NO. 13035

DATE: 10/30/13

Location	Outfall ID	Date	Material	Diameter (inches)	Flow Depth	Flow (gpm)	Deposits/Staining	Temp. (Celsius)	Conductivity (uS/cm)	Chlorine (mg/l)	OB pad	E. Coli	NH3	Notes
Industrial Park	T149C	8/21/2013	Corrugated HDPE	15	Dripping	N/A	None	18.5	5,500	0.2	Negative	N/A	N/A	Take sample from standing water underneath outfall. DO=8.6 mg/l, pH=8.1. Orange foam found under outfall.
		9/18/2013	Corrugated HDPE	15	Flowing	---	None	15.5	4,442	0	Negative	N/A	N/A	Orange foam found at outfall. pH=8.23 and DO=7.26 mg/l. Flow 250 mg/l in 30 seconds.
Shopping Plaza	T124	8/21/2013	CMP	24	Flowing	<1	None	19	4,540	0	Negative	N/A	N/A	Partially submerged ~ 3.5". DO=6.25 mg/l, pH=7.56. Septic Odor.
Shopping Plaza	T123	8/21/2013	CMP	18	Dripping	N/A	None	19.8	14,180	0	Negative	N/A	N/A	Structure has corrosion and rust stain found downstream. Two (2) adjacent 18" CMP pipes crushed and filled with sediment. Water quality test done on standing water below outfall. DO=4.3 mg/l, pH=7.3.
Shopping Plaza	T123.1	8/21/2013	PVC	4	None	N/A	None	N/A	N/A	N/A	Negative	N/A	N/A	Partially obstructed. No water quality testing done.
Hannafords	T16	8/21/2013	Corrugated HDPE	15	Dripping	N/A	None	19.7	2,500	0	Negative	N/A	N/A	Water quality testing done on water in swale. DO=10.7 mg/l, pH 7.58.
		9/16/2013	Corrugated HDPE	15	Dripping	N/A	None	15.4	3,423	0	Negative	N/A	N/A	pH=7.93 and DO - 5.63 mg/l.
		10/30/2013										<1	0.1	

NOTES:

1. N/A is for not accessible outfalls.
2. --- is for no data collected.
3. Potential contaminants were identified from the ANR Environmental Interest Locator.

APPENDIX F
CITY OF ST. ALBANS TV CAMERA LOGS

Refer to electronic files for video logs

APPENDIX G

HARTIGAN TRUNKLINE TV CAMERA LOGS
AND REPORT



Hartigan Company
31 Welch Park Dr.
Middlesex VT 05602
800-696-0761

Project Summary

US MH	DS MH	Pipe ID	Date	Street	Material	Size	Total	Insp

Pipe Size: 18

Total Ln.: 0

Inspected Ln.: 0

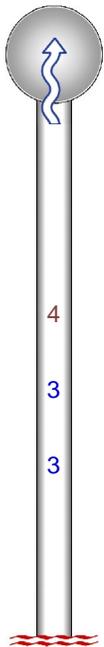
Project Total Ln.: 0.0

Project Inspected Ln.: 0.0



Defect Listing Plot Left

Customer City of St. Albans	City city of st. albans	Street Easement from Cubb ...	Date 20131125	Surveyed B... MLM	Sewer Use Stormwater
Upstream MH Behind SB Collins	DS Manhole Lower Welden St.	Material Vitrified Clay Pipe	Shape Circular	Length surveyed 38.2	
Pre-Cleaning Heavy Cleaning	Date Cleaned	Direction Upstream	Height 18	Width 18	Pipe Joint... 2
SPR N/A	MPR 10	PO Number			
SPRI N/A	MPRI 3.3	Work Order		Purpose	
QSR N/A	QMR 4132			Routine Assessment	
OPR 10	Media label				
OPRI 3.3	Certificate Number U-1106-3842	Pipe Segment Refere...	Location Code Easement/Right of W...	Weather Dry	
Location Details			Additional Info		



Lower Welden St.

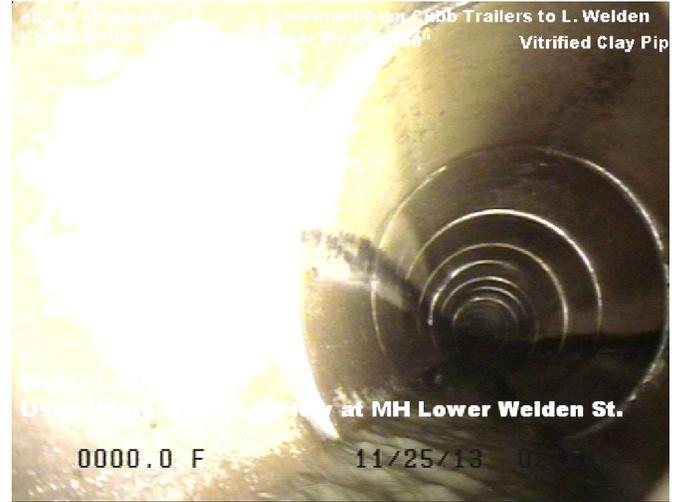
	Code:	Continuous:	Pos:	Val 1 / 2 :	% :	Gallons:
0.0 ft.	Access Point Manhole Lower Welden St.					
0.0 ft.	Water Level Used Vactor to lower Flow at MH Lower Welden St.				10	
8.6 ft.	Water Mark				50	
31.1 ft.	Deposits Settled Fine		5 - 7		15	
38.1 ft.	Deposits Settled Fine		5 - 7		20	
38.2 ft.	Survey Abandoned Due to Heavy Sand In Line Needs Further Cleaning.					

Image Report 4/Page

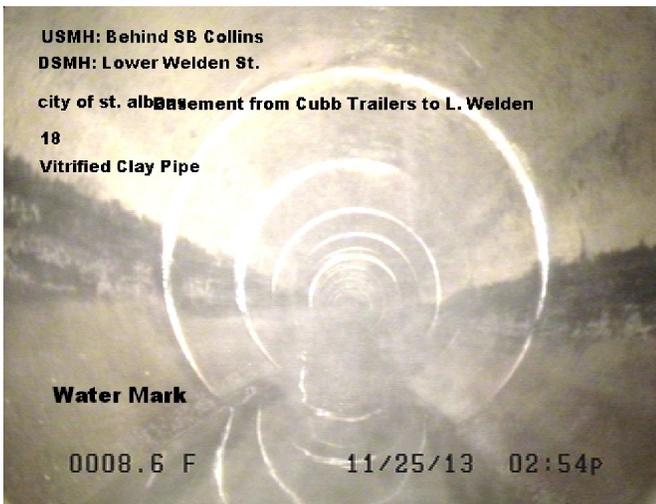
Customer City of St. Albans	City city of st. albans	Street Easement from Cubb ...	Date 20131125	Surveyed B... MLM	Sewer Use Stormwater
Upstream MH Behind SB Collins	DS Manhole Lower Welden St.	Material Vitrified Clay Pipe	Shape Circular	Length surveyed 38.2	
Pre-Cleaning Heavy Cleaning	Date Cleaned	Direction Upstream	Height 18	Width 18	Pipe Joint... 2



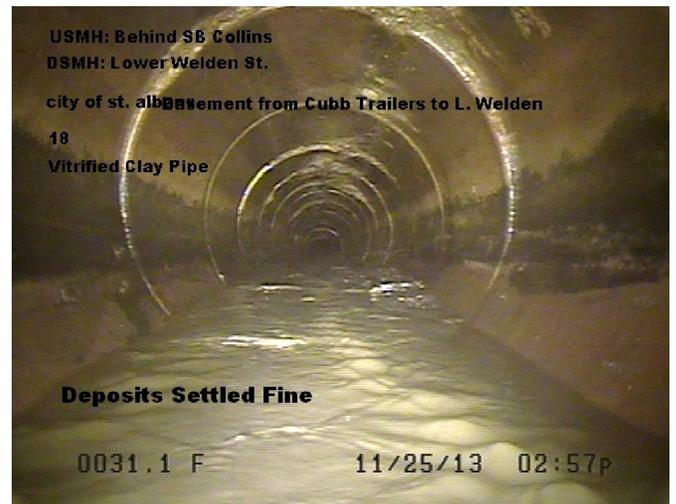
Distance: 0.0 ft. Grade: 0
 Condition: Access Point Manhole
 Remarks: Lower Welden St.



Distance: 0.0 ft. Grade: 0
 Condition: Water Level
 Remarks: Used Vector to lower Flow at MH Lower Welden St.



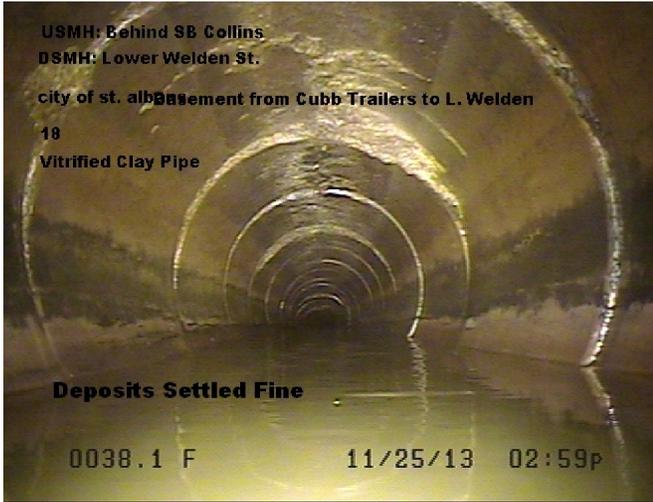
Distance: 8.6 ft. Grade: 4
 Condition: Water Mark
 Remarks: N/A



Distance: 31.1 ft. Grade: 3
 Condition: Deposits Settled Fine
 Remarks: N/A

Image Report 4/Page

Customer City of St. Albans	City city of st. albans	Street Easement from Cubb ...	Date 20131125	Surveyed B... MLM	Sewer Use Stormwater
Upstream MH Behind SB Collins	DS Manhole Lower Welden St.	Material Vitrified Clay Pipe	Shape Circular	Length surveyed 38.2	
Pre-Cleaning Heavy Cleaning	Date Cleaned	Direction Upstream	Height 18	Width 18	Pipe Joint... 2



Distance: 38.1 ft. Grade: 3
 Condition: Deposits Settled Fine
 Remarks: N/A



Distance: 38.2 ft. Grade: 0
 Condition: Survey Abandoned
 Remarks: Due to Heavy Sand In Line Needs Further Cleaning.



Hartigan Company
31 Welch Park Dr.
Middlesex VT 05602
800-696-0761

Project Summary

US MH	DS MH	Pipe ID	Date	Street	Material	Size	Total	Insp

Pipe Size: 18

Total Ln.: 0

Inspected Ln.: 0

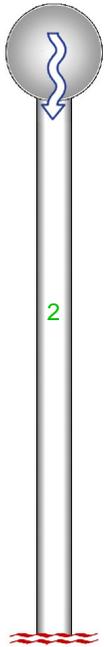
Project Total Ln.: 0.0

Project Inspected Ln.: 0.0



Defect Listing Plot Left

Customer City Of St. Albans	City city of st. albans	Street Easement from Cubb ...	Date 20131125	Surveyed B... MLM	Sewer Use Stormwater
Upstream MH Behind SB Collins	DS Manhole Welden St.	Material Vitrified Clay Pipe	Shape Circular	Length surveyed 9.4	
Pre-Cleaning Heavy Cleaning	Date Cleaned 20131125	Direction Downstream	Height 18	Width 18	Pipe Joint... 2
SPR 2	MPR N/A	PO Number			
SPRI 2	MPRI N/A	Work Order		Purpose	
QSR 2100	QMR N/A			Routine Assessment	
OPR 2	Media label				
OPRI 2	Certificate Number U-1106-3842	Pipe Segment Refere...	Location Code Easement/Right of W...	Weather Dry	
Location Details			Additional Info		



Behind SB Collins

	Code:	Continuous:	Pos:	Val 1 / 2 :	% :	Gallons:
0.0 ft.	Access Point Manhole Behind SB Collins					
0.0 ft.	Water Level				15	
4.0 ft.	Fracture Circumferential		11 - 2			
9.4 ft.	General Observation Partially abandoned VCP line left side of structure.					
9.4 ft.	Material Change Pipe Transitions to Cast Iron within Buried Structure					
9.4 ft.	Survey Abandoned Due to bend in Buried Structure					

Image Report 4/Page

Customer City Of St. Albans	City city of st. albans	Street Easement from Cubb ...	Date 20131125	Surveyed B... MLM	Sewer Use Stormwater
Upstream MH Behind SB Collins	DS Manhole Welden St.	Material Vitrified Clay Pipe	Shape Circular	Length surveyed 9.4	
Pre-Cleaning Heavy Cleaning	Date Cleaned 20131125	Direction Downstream	Height 18	Width 18	Pipe Joint... 2



Distance: 0.0 ft. Grade: 0
 Condition: Access Point Manhole
 Remarks: Behind SB Collins



Distance: 0.0 ft. Grade: 0
 Condition: Water Level
 Remarks: N/A



Distance: 4.0 ft. Grade: 2
 Condition: Fracture Circumferential
 Remarks: N/A



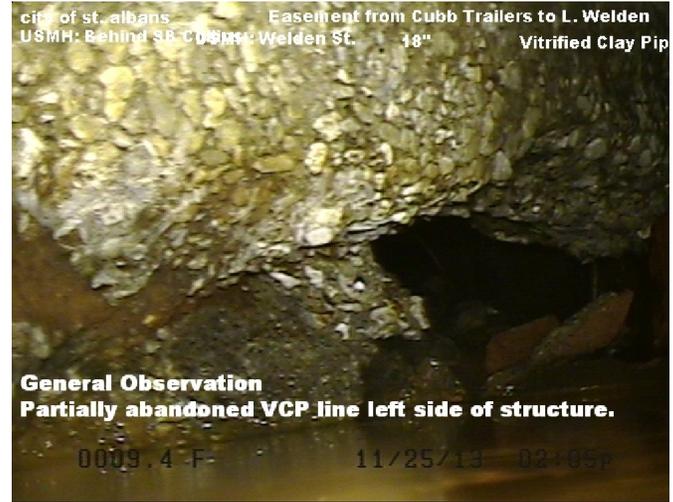
Distance: 4.0 ft. Grade: 2
 Condition: Fracture Circumferential
 Remarks: N/A

Image Report 4/Page

Customer City Of St. Albans	City city of st. albans	Street Easement from Cubb ...	Date 20131125	Surveyed B... MLM	Sewer Use Stormwater
Upstream MH Behind SB Collins	DS Manhole Welden St.	Material Vitrified Clay Pipe	Shape Circular	Length surveyed 9.4	
Pre-Cleaning Heavy Cleaning	Date Cleaned 20131125	Direction Downstream	Height 18	Width 18	Pipe Joint... 2



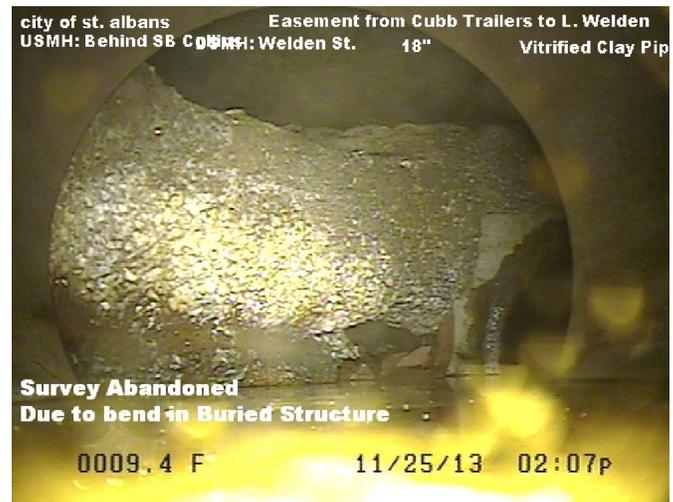
Distance: 9.4 ft. Grade: 0
 Condition: General Observation
 Remarks: Partially abandoned VCP line left side of structure.



Distance: 9.4 ft. Grade: 0
 Condition: General Observation
 Remarks: Partially abandoned VCP line left side of structure.



Distance: 9.4 ft. Grade: 0
 Condition: Material Change
 Remarks: Pipe Transitions to Cast Iron within Buried Structure



Distance: 9.4 ft. Grade: 0
 Condition: Survey Abandoned
 Remarks: Due to bend in Buried Structure



Hartigan Company
31 Welch Park Dr.
Middlesex VT 05602
800-696-0761

Project Summary

US MH	DS MH	Pipe ID	Date	Street	Material	Size	Total	Insp

Pipe Size: 15

Total Ln.: 0

Inspected Ln.: 0

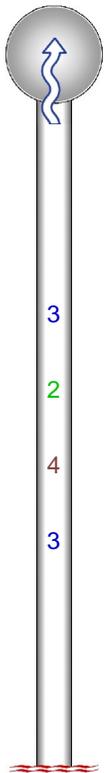
Project Total Ln.: 0.0

Project Inspected Ln.: 0.0



Defect Listing Plot Left

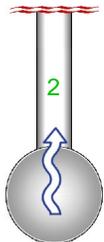
Customer Aldrich & Elliot	City city of st. albans	Street Easement from Cubb ...	Date 20131125	Surveyed B... MLM	Sewer Use Stormwater
Upstream MH Upstream	DS Manhole Behind SB Collins	Material Vitrified Clay Pipe	Shape Circular	Length surveyed 140.1	
Pre-Cleaning Heavy Cleaning	Date Cleaned 20131125	Direction Upstream	Height 15	Width 15	Pipe Joint... 2
SPR 7	MPR 55	PO Number			
SPRI 3.5	MPRI 2	Work Order		Purpose Routine Assessment	
QSR 4131	QMR 312D	Media label			
OPR 62					
OPRI 2.1	Certificate Number U-1106-3842	Pipe Segment Refere...	Location Code Easement/Right of W...	Weather Dry	
Location Details			Additional Info		



Behind SB Collins

	Code:	Continuous:	Pos:	Val 1 / 2 :	% :	Gallons:
0.0 ft.	Access Point Manhole Behind SB Collins					
0.0 ft.	Water Level				5	
0.1 ft.	Fracture Longitudinal		9			
10.9 ft.	Infiltration Weeper	Start S01	3 - 9			
79.3 ft.	Fracture Multiple		12 - 12			
128.1 ft.	Obstacle Other Loose Piece of VCP		5 - 7		15	
139.6 ft.	General Observation Buried Structure Flat Top of Concrete.					
140.1 ft.	Survey Abandoned Due to Buried Structure with pipe material change to DIP					

Uninspected Length: 0 ft.



140.1 ft.	Infiltration Weeper (clock adjusted from 3 - 9 for reverse)	End F01	9 - 3			
-----------	--	---------	-------	--	--	--

Upstream

Image Report 4/Page

Customer Aldrich & Elliot	City city of st. albans	Street Easement from Cubb ...	Date 20131125	Surveyed B... MLM	Sewer Use Stormwater
Upstream MH Upstream	DS Manhole Behind SB Collins	Material Vitrified Clay Pipe	Shape Circular	Length surveyed 140.1	
Pre-Cleaning Heavy Cleaning	Date Cleaned 20131125	Direction Upstream	Height 15	Width 15	Pipe Joint... 2



Distance: 0.0 ft. Grade: 0
 Condition: Access Point Manhole
 Remarks: Behind SB Collins



Distance: 0.0 ft. Grade: 0
 Condition: Water Level
 Remarks: N/A



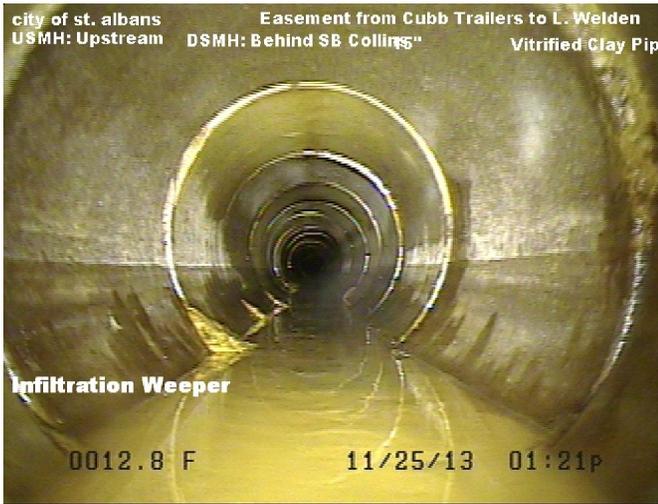
Distance: 0.1 ft. Grade: 3
 Condition: Fracture Longitudinal
 Remarks: N/A



Distance: 10.9 ft. Grade: 2
 Condition: Infiltration Weeper
 Remarks: N/A

Image Report 4/Page

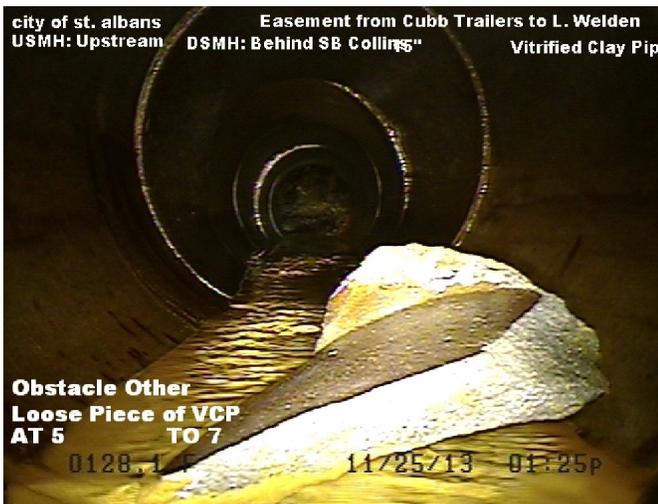
Customer Aldrich & Elliot	City city of st. albans	Street Easement from Cubb ...	Date 20131125	Surveyed B... MLM	Sewer Use Stormwater
Upstream MH Upstream	DS Manhole Behind SB Collins	Material Vitrified Clay Pipe	Shape Circular	Length surveyed 140.1	
Pre-Cleaning Heavy Cleaning	Date Cleaned 20131125	Direction Upstream	Height 15	Width 15	Pipe Joint... 2



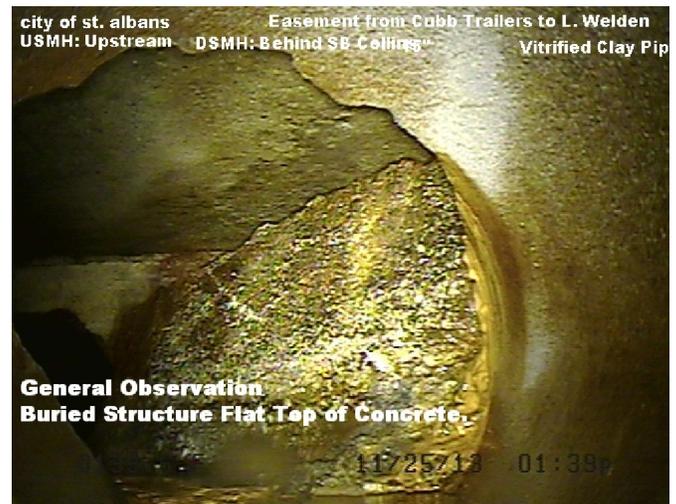
Distance: 10.9 ft. Grade: 2
 Condition: Infiltration Weeper
 Remarks: N/A



Distance: 79.3 ft. Grade: 4
 Condition: Fracture Multiple
 Remarks: N/A



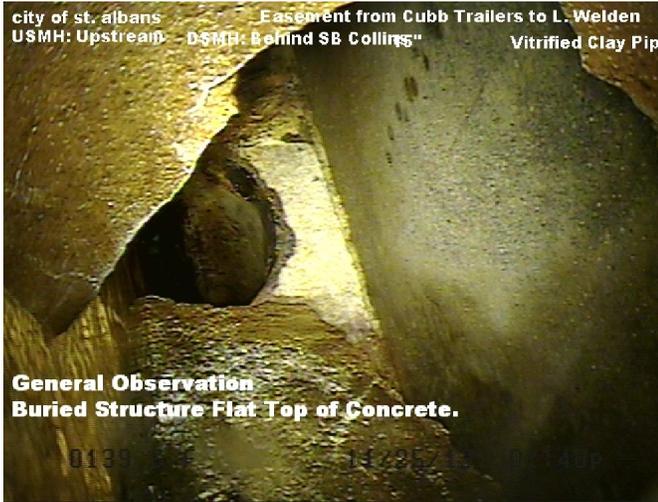
Distance: 128.1 ft. Grade: 3
 Condition: Obstacle Other
 Remarks: Loose Piece of VCP



Distance: 139.6 ft. Grade: 0
 Condition: General Observation
 Remarks: Buried Structure Flat Top of Concrete.

Image Report 4/Page

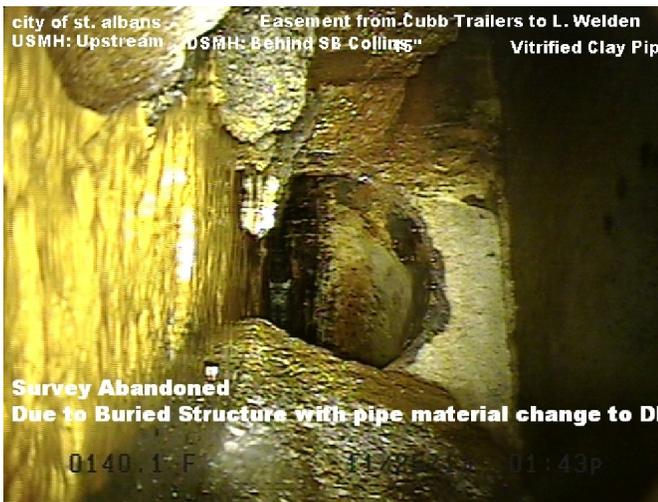
Customer Aldrich & Elliot	City city of st. albans	Street Easement from Cubb ...	Date 20131125	Surveyed B... MLM	Sewer Use Stormwater
Upstream MH Upstream	DS Manhole Behind SB Collins	Material Vitrified Clay Pipe	Shape Circular	Length surveyed 140.1	
Pre-Cleaning Heavy Cleaning	Date Cleaned 20131125	Direction Upstream	Height 15	Width 15	Pipe Joint... 2



Distance: 139.6 ft. Grade: 0
 Condition: General Observation
 Remarks: Buried Structure Flat Top of Concrete.



Distance: 140.1 ft. Grade: 0
 Condition: Survey Abandoned
 Remarks: Due to Buried Structure with pipe material change to DIP



Distance: 140.1 ft. Grade: 0
 Condition: Survey Abandoned
 Remarks: Due to Buried Structure with pipe material change to DIP



Distance: 140.1 ft. Grade: 2
 Condition: Infiltration Weeper
 Remarks: N/A

APPENDIX H
VRWA TV CAMERA LOGS

Refer to electronic files for video logs