

May 1, 2019

Ms. Sheri S. Williamson, P.E.  
STV Incorporated  
454 S. Anderson Rd., Suite 3, BTC 517  
Rock Hill, South Carolina 29730

Re: Report of Permanent Pipe Camera Inspection - **REVISED**  
US 1 RBO I-20  
Lexington County, South Carolina  
SCDOT Project ID: P030711  
F&ME Project No.: G6018

Ms. Williamson:

Submitted herein is the revised report of our findings from the performed pipe inspection for the above referenced project. Included is a description of the project and the results from the performed camera inspections.

It has been a pleasure working with you on this project and we appreciate the opportunity to be of service. Please notify us if there are any questions regarding our findings.

Sincerely,

**F&ME CONSULTANTS**

A handwritten signature in blue ink that reads 'William J. Gieser'.

William J. Gieser, P.E.  
Project Engineer



## PROJECT DESCRIPTION

The project will consist of the replacement of the US Highway 1 Bridge over I-20 and the upgrade of the interchange between US 1 and I-20 in Lexington County, South Carolina. In addition, several existing secondary roads are expected to be realigned as part of the project. New storm drainage structures will be installed as part of the project as well as the reuse of existing storm drainage structures that are still in serviceable condition.

F&ME performed an inspection of a portion of the existing storm drainage pipes. Due to the size of the project, the pipe inspections were performed on multiple days. These inspections were performed in general accordance with the SCDOT Supplemental Technical Specification for Permanent Pipe Culverts: SC-M-714 (09-08). All of the inspected pipes were reinforced concrete pipe.

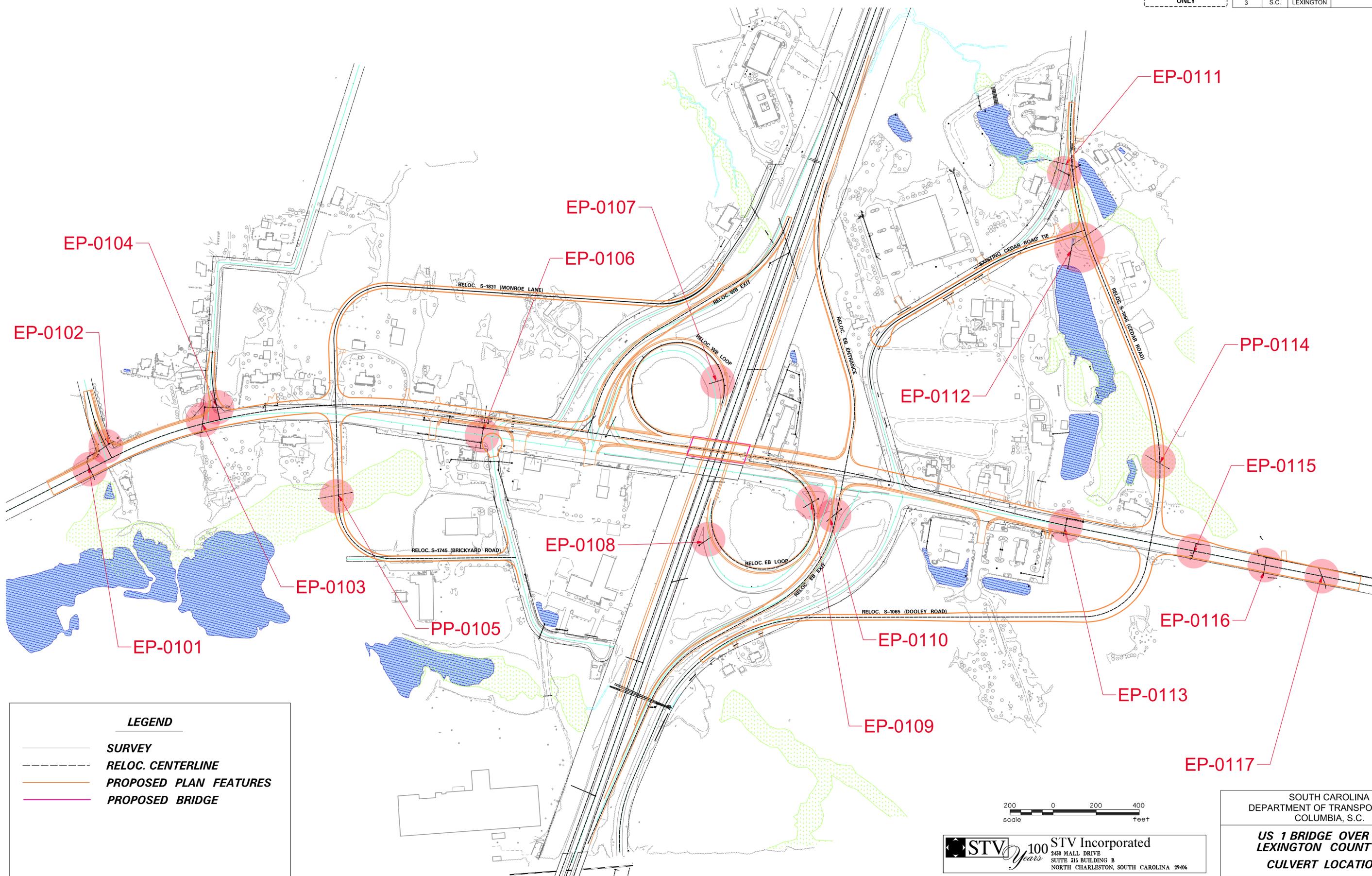
This report provides findings for the segments of the storm drainage system noted below.

- Line EP-0101 (Alignment US1, Station 351+65; 24" diameter)
- Line EP-0102 (Alignment Stoneridge Dr., US1 INTX; 36" diameter)
- Line EP-0106 (Alignment US1, Station 332+79; 24" diameter)
- Line EP-0107 (Alignment WB Loop, Station Unknown; Diameter Unknown)
- Line EP-0108 (Alignment EB Loop, Station 363+43; 18" diameter)
- Line EP-0111 (Cedar Rd., Station Unknown; 42" diameter)
- Line EP-0112 (Cedar Rd., Station Unknown; 36" diameter)
- Line EP-0113 (Alignment US1, Station 302+32; 24" diameter)
- Line EP-0115 (Alignment US1, Station 299+25; 18" diameter)
- Line EP-0116 (Alignment US1, Station 295+88; 36" diameter)
- Line EP-0116A (Alignment US1, Station 295+88; 36" diameter)
- Line EP-0117 (Alignment US1, Station 293+15; 24" diameter)

The data and findings resulting from our inspection are included herein. Both conforming and nonconforming pipe was identified during the inspection. Additionally, some pipe was obstructed and could not be inspected.

FOR INFORMATION ONLY

FED. ROAD DIV. NO.	STATE	COUNTY	PROJECT ID	RTE. NO.	SHEET NO.
3	S.C.	LEXINGTON		US 1	1



**LEGEND**

- SURVEY
- RELOC. CENTERLINE
- PROPOSED PLAN FEATURES
- PROPOSED BRIDGE



**STV** 100 Years **STV Incorporated**  
 2450 MALL DRIVE  
 SUITE 315 BUILDING B  
 NORTH CHARLESTON, SOUTH CAROLINA 29406

SOUTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 COLUMBIA, S.C.

**US 1 BRIDGE OVER I-20  
 LEXINGTON COUNTY, SC  
 CULVERT LOCATIONS**

SCALE 1" = 200' RTE. DWG. NO. A2

BeckerJM  
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 3/2/2019

A.1

US 1 Replace Bridge over I-20 - Pipe Culvert Inspection Recommendations

Pipe ID	Alignment	Station	# of Barrels	Pipe Size (D or WxH)	Measured Length (ft) during Field Survey	Recommendations for Pipe Based on Video Inspection Report
EP-0101	US1	351+65	1	N/A	N/A	Replace.
EP-0102	Stoneridge Dr.	US1 INTX	1	36"	108	Replace or retain, clean, and seal/line.
EP-0106	US1	332+79	1	24"	150	Replace.
EP-0107	WB Loop	Unknown	1	N/A	N/A	Replace.
EP-0108	EB Loop	363+43	1	18"	62	Retain and clean.
EP-0111	Cedar Rd.	Unknown	1	42"	51	Replace or retain, clean, and repair joints showing separation.
EP-0112	Cedar Rd.	Unknown	1	36"	46	Replace or retain and repair joints showing separation.
EP-0113	US1	302+32	1	24"	61	Replace.
EP-0115	US1	299+25	1	18"	>5	Replace.
EP-0116	US1	295+88	1	36" & 18"x 36"	57	Repair joints and and holes in box culvert section.
EP-0116A	US1	295+88	1	36"	13	Retain.
EP-0117	US1	293+15	1	24"	>37	Replace.

# US 1 Replace Bridge over I-20

Alignment US1, Station 351+65

Structure EP-0101

24" RCP

## **Summary:**

F&ME inspected the overall condition of a 24" RCP designated as EP-0101.

## **Observations:**

- Dimensions – Diameter was not able to be verified. Total length was not measured.
- Scan direction – N/A
- General notes – North side of pipe was 100% blocked with debris; south side of pipe was 40% blocked with leaves and debris. Due to these blockages, video inspection of the pipe was not possible.
- Observations – None

**US 1 Replace Bridge over I-20**  
**Alignment Stoneridge Dr., Station US1 INTX**  
**Structure EP-0102**  
**36" RCP**

**Summary:**

F&ME inspected the overall condition of a 36" RCP designated as EP-0102.

**Observations:**

- Dimensions – Verified 36" RCP. Total length measured as approximately 108 LF.
- Scan direction – Outfall to inlet.
- General notes – None.
- Observations:
  - 1) 0.0 feet – Soil and yard debris in pipe.
  - 2) 3.7 feet – 2.19" gap in joint; chipped spigot with visible sealing ring.
  - 3) 8.0 feet – 1.20" gap in joint; fine root intrusion in joint.
  - 4) 16.1 feet – Fine root intrusion in joint.
  - 5) 18.3 feet – Soil and yard debris in pipe.
  - 6) 24.2 feet – 2.26" gap in joint; longitudinal crack in pipe at 12 o'clock position.
  - 7) 32.2 feet – 1.28" gap in joint; fine root intrusion in joint.
  - 8) 40.6 feet – 1.67" gap in joint; fine root intrusion in joint.
  - 9) 50.3 feet – Catch basin.
  - 10) 60.0 feet – 1.53" gap in joint; fine root intrusion in joint.
  - 11) 76.0 feet – 1.31" gap in joint; fine root intrusion in joint.
  - 12) 84.1 feet – 1.10" gap in joint; fine root intrusion in joint.
  - 13) 92.0 feet – 0.99" gap in joint; fine root intrusion in joint.

### Project Information

<b>Surveyor Name</b>	GCS	<b>Certificate Number</b>	U-0917-07009391
<b>Owner</b>	SCDOT	<b>Customer</b>	F&ME
<b>Drainage Area</b>		<b>PO Number</b>	
<b>Pipe Segment Reference</b>		<b>Date</b>	4/4/2019 11:40
<b>Street</b>	I-26	<b>City</b>	COLUMBIA
<b>Comments</b>			

### Manhole

<b>Upstream MH</b>	EP 0102 INLET	<b>Rim to Invert (U)</b>	
<b>Grade to Invert (U)</b>		<b>Rim to Grade (U)</b>	
<b>Downstream MH</b>	EP 0102 OUTLET	<b>Rim to Invert (D)</b>	
<b>Grade to Invert (D)</b>		<b>Rim to Grade (D)</b>	
<b>Sewer Use</b>		<b>Direction of Survey</b>	Upstream

### Pipe

<b>Height (Diameter)</b>	36	<b>Width</b>	
<b>Shape</b>	Circular	<b>Material</b>	Reinforced Concrete Pipe
<b>Lining Method</b>		<b>Pipe Joint Length</b>	
<b>Total Length</b>		<b>Length Surveyed</b>	108.2
<b>Year Laid</b>		<b>Year Renewed</b>	

### Misc

<b>Flow Control</b>		<b>Media Label</b>	DVD
<b>Purpose</b>		<b>Sewer Category</b>	
<b>Pre-Cleaning</b>	Not Known	<b>Date Cleaned</b>	
<b>Weather</b>		<b>Location Code</b>	
<b>Additional Info</b>		<b>Location Details</b>	

### Custom

<b>Number of Taps</b>	0	<b>Number of Roots</b>	14
<b>Num Cracks / Fractures</b>	1	<b>Number of Broken / Holes / Collapse</b>	2
<b>Number of Deposits</b>	0	<b>Custom6</b>	
<b>Custom7</b>		<b>Struct Grade</b>	
<b>OM Grade</b>		<b>Overall Grade</b>	

### Pacp 6

<b>Reverse Setup ID</b>		<b>Sheet (Group) Number</b>	
<b>Imperial Units (US)</b>	True	<b>Pressure Value</b>	
<b>Work Order</b>		<b>Project</b>	US#1 RBO I-20 PIPE
		<b>Completed</b>	Yes

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 11:40:00 AM

Street: I-26

Length Surveyed: 108.2

Pacp Quick Overall Rating:

Height (Diameter): 36

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0102 INLET

Downstream MH: EP 0102

OUTLET

Direction of Survey: Upstream

Material: Reinforced Concrete

Pipe

Distance	Fault Observation	Time	Picture
0.0	<p><b>Catch Basin</b>  <b>Severity: None</b>  <b>Remarks: EP 0102</b>  <b>OUTLET</b></p>	32	
0.0	<p><b>Water Level</b>  <b>Severity: None</b>  <b>Percent: 0</b></p>	45	
0.0	<p><b>Obstacle Other</b>  <b>Position: 5 To 7</b>  <b>Severity: None</b>  <b>Cont Defect: S01</b>  <b>Percent: 15</b>  <b>Remarks: DIRT</b>  <b>YARD DEBRIS</b>  <b>Maint Weight: 3</b></p>	01:30	

Distance	Fault Observation	Time	Picture
3.7	<p><b>Broken</b>  <b>Position: 3</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Remarks: CHIPPED</b>  <b>SPIGOT TAR</b>  <b>VISIBLE</b>  <b>Struct Weight: 4</b></p>	03:49	
3.7	<p><b>General</b>  <b>Observation</b>  <b>Severity: None</b>  <b>Remarks: 2.188</b></p>	04:16	
4.3	<p><b>Broken Void Visible</b>  <b>Position: 1</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Remarks: CHIPPED</b>  <b>SPIGOT</b>  <b>Struct Weight: 5</b></p>	06:04	

Distance	Fault Observation	Time	Picture
8.0	<b>Roots Fine Joint</b> <b>Position: 7</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	07:37	
8.0	<b>Roots Fine Joint</b> <b>Position: 2</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	08:08	
8.0	<b>Roots Fine Joint</b> <b>Position: 1</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	08:25	

Distance	Fault Observation	Time	Picture
8.0	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.196</b></p>	09:31	
16.1	<p style="text-align: center;"><b>Roots Fine Joint</b>  <b>Position: 7 To 9</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b></p>	10:21	
16.1	<p style="text-align: center;"><b>Roots Fine Joint</b>  <b>Position: 4 To 5</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b></p>	10:41	

Distance	Fault Observation	Time	Picture
18.3	<b>Obstacle Other</b> <b>Position: 5 To 7</b> <b>Severity: None</b> <b>Cont Defect: F01</b> <b>Percent: 15</b> <b>Remarks: DIRT</b> <b>YARD DEBRIS</b> <b>Maint Weight: 3</b>	11:11	
24.2	<b>Crack Longitudinal</b> <b>Position: 12</b> <b>Severity: None</b> <b>Joint</b> <b>Struct Weight: 2</b>	13:00	
24.2	<b>Roots Fine Joint</b> <b>Position: 4 To 9</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	13:08	

Distance	Fault Observation	Time	Picture
32.2	<b>Roots Fine Joint</b> <b>Position: 4 To 8</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	14:42	
32.2	<b>General Observation</b> <b>Severity: None</b> <b>Remarks: 1.279</b>	15:23	
40.6	<b>Roots Fine Joint</b> <b>Position: 4 To 7</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	16:57	

Distance	Fault Observation	Time	Picture
40.6	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.671</b></p>	17:33	
50.3	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: CATCH BASIN</b></p>	18:19	
60.0	<p style="text-align: center;"><b>Roots Fine Joint</b>  <b>Position: 4 To 7</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b></p>	19:48	

Distance	Fault Observation	Time	Picture
60.0	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.534</b></p>	20:37	
68.0	<p style="text-align: center;"><b>Roots Fine Joint</b>  <b>Position: 6</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b></p>	21:59	
76.0	<p style="text-align: center;"><b>Roots Fine Joint</b>  <b>Position: 6</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b></p>	23:48	

Distance	Fault Observation	Time	Picture
76.0	<p align="center"> <b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.312</b> </p>	24:24	
84.1	<p align="center"> <b>Roots Fine Joint</b>  <b>Position: 5 To 7</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b> </p>	25:46	
84.1	<p align="center"> <b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.103</b> </p>	26:19	

Distance	Fault Observation	Time	Picture
92.0	<b>Roots Fine Joint</b> <b>Position: 5 To 7</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	28:10	<p>US#1 RBO I-20 PIPE EP 0102 OUTLET To EP 0102 INLET</p> <p>11:20 -61/-85' +5.0% +91.9ft</p>
92.0	<b>General</b> <b>Observation</b> <b>Severity: None</b> <b>Remarks: 0.991</b>	28:46	<p>US#1 RBO I-20 PIPE ET To EP 0102 INLET</p> <p>11:21 115/-85' +5.0% +91.9ft</p>
100.0	<b>Roots Fine Joint</b> <b>Position: 5 To 8</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	30:19	<p>US#1 RBO I-20 PIPE EP 0102 OUTLET To EP 0102 INLET</p> <p>04,04,19 -140/-79' +3.1% +99.9ft</p>

Distance	Fault Observation	Time	Picture
108.2	Catch Basin Severity: None Remarks: EP 0102 INLET	31:15	

Created with the  report generator

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 11:40:00 AM

Street: I-26

Length Surveyed: 108.2

Pacp Quick Overall Rating:

Height (Diameter): 36

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0102 INLET

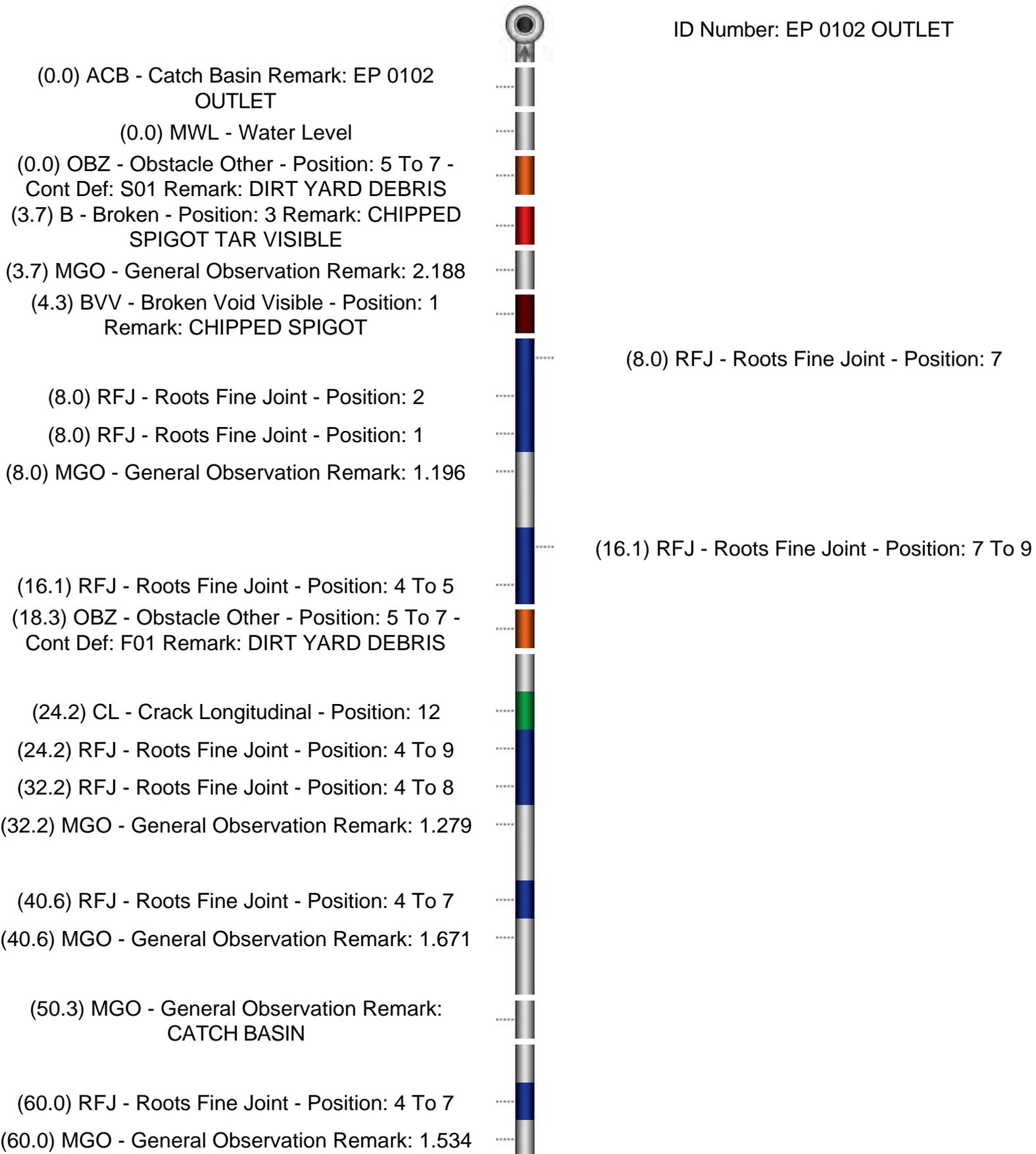
Downstream MH: EP 0102

OUTLET

Direction of Survey: Upstream

Material: Reinforced Concrete  
Pipe

ID Number: EP 0102 OUTLET



(76.0) MGO - General Observation Remark: 1.312

(84.1) RFJ - Roots Fine Joint - Position: 5 To 7

(84.1) MGO - General Observation Remark: 1.103

(92.0) RFJ - Roots Fine Joint - Position: 5 To 7

(92.0) MGO - General Observation Remark: 0.991

(100.0) RFJ - Roots Fine Joint - Position: 5 To 8

(108.2) ACB - Catch Basin Remark: EP 0102  
INLET

Total Distance: 108.2



(68.0) RFJ - Roots Fine Joint - Position: 6

(76.0) RFJ - Roots Fine Joint - Position: 6

ID Number: EP 0102 INLET

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 11:40:00 AM

Street: I-26

Length Surveyed: 108.2

Pacp Quick Overall Rating:

Height (Diameter): 36

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0102 INLET

Downstream MH: EP 0102

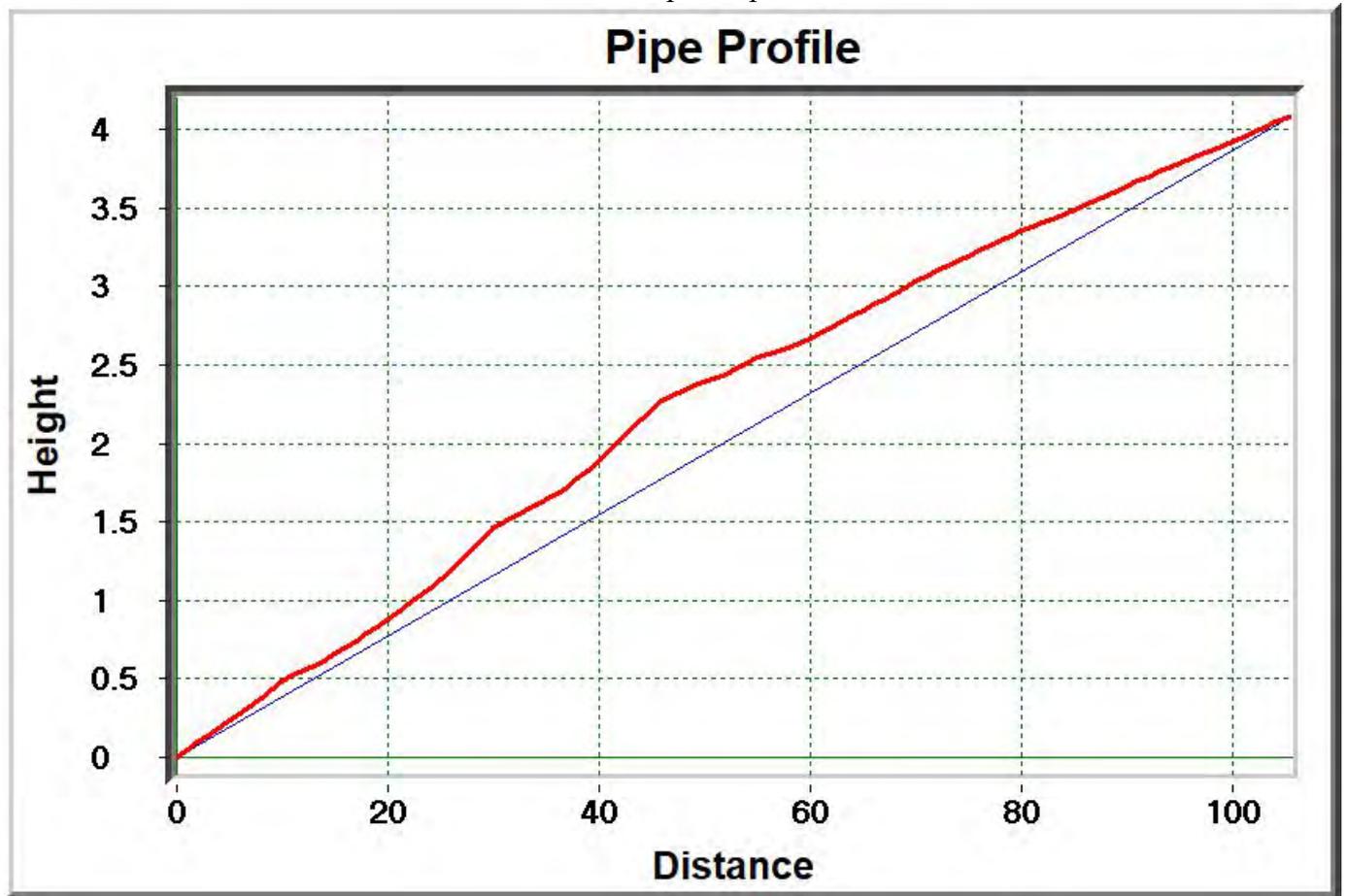
OUTLET

Direction of Survey: Upstream

Material: Reinforced Concrete

Pipe

Percent Grade Mean: 3.94  
Plot Distance From: 0 To 109  
Max Percent Difference: 3  
Number of Window Values: 1  
Percent Difference Max for Windows Values: 60  
Number of Feet to Average: 1  
Final number of points plotted: 97



# US 1 Replace Bridge over I-20

Alignment US1, Station 332+79

Structure EP-0106

24" RCP

## **Summary:**

F&ME inspected the overall condition of a 24" RCP designated as EP-0106.

## **Observations:**

- Dimensions – Verified 24" RCP. Total length measured as approximately 150 LF.
- Scan direction – Inlet to outfall.
- General notes – None.
- Observations:
  - 1) 0.0 feet – Soil in pipe.
  - 2) 2.0 feet – 1.65" gap in joint.
  - 3) 5.3 feet – 4.47" hole in pipe covered with concrete bag, concrete in bottom of pipe.
  - 4) 8.8 feet – 1.00" gap in joint.
  - 5) 12.3 feet – 1.05" gap in joint; fine root intrusion in joint.
  - 6) 12.6 feet – Longitudinal crack in pipe at 11 o'clock position.
  - 7) 15.4 feet – Longitudinal crack in pipe at 12 o'clock position.
  - 8) 18.1 feet – 0.56" gap in joint; longitudinal crack in pipe at 12 o'clock position; circumferential crack in pipe; fine root intrusion at joint.
  - 9) 21.4 feet – Longitudinal crack in pipe at 12 o'clock position.
  - 10) 24.3 feet – Longitudinal crack in pipe at 12 o'clock position.
  - 11) 27.4 feet – Longitudinal crack in pipe at 12 o'clock position.
  - 12) 30.1 feet – Longitudinal crack in pipe at 12 o'clock position.
  - 13) 33.3 feet – Longitudinal crack in pipe at 12 o'clock position.
  - 14) 42.3 feet – Longitudinal crack in pipe at 12 o'clock position; circumferential crack in pipe.
  - 15) 45.2 feet – 1.02" chip in pipe.
  - 16) 51.3 feet – 4.55" gap in joint; joint fully separated 0.94" with visible soil.
  - 17) 55.9 feet – 0.93" gap in joint; fine root intrusion at joint.
  - 18) 59.6 feet – 2.64" gap in joint; circumferential crack in pipe.
  - 19) 65.5 feet – Catch basin built over pipe.
  - 20) 71.6 feet – 1.15" gap in joint.
  - 21) 72.3 feet – Longitudinal crack in pipe at 12 o'clock position.
  - 22) 77.9 feet – Cracks in joint parging.
  - 23) 81.1 feet – Excess concrete at joint.
  - 24) 81.9 feet – 4" hole at joint with repair at 12 o'clock position; bell and/or spigot broken; spider web cracking at 9 o'clock position; exposed rebar.
  - 25) 85.3 feet - 4" hole at joint with repair at 2 o'clock position; bell and/or spigot broken; longitudinal crack in pipe at 10 o'clock position; exposed rebar.

# US 1 Replace Bridge over I-20

Alignment US1, Station 332+79

Structure EP-0106

24" RCP

## **Summary:**

F&ME inspected the overall condition of a 24" RCP designated as EP-0106.

## **Observations:**

- Dimensions – Verified 24" RCP. Total length measured as approximately 150 LF.
- Scan direction – Inlet to outfall.
- General notes – None.
- Observations:
  - 26) 93.3 feet – 4.57" holing in pipe with visible soil at 12 o'clock position.
  - 27) 101.6 feet – Broken spigot with visible soil and rebar.
  - 28) 107.1 feet – Circumferential crack from 12 o'clock to 2 o'clock.
  - 29) 109.4 feet – 1.81" gap in joint; fine root intrusion in joint.
  - 30) 117.7 feet – 0.94" gap in joint; fine root intrusion in joint.
  - 31) 125.7 feet – 1.34" gap in joint; fine root intrusion in joint; longitudinal crack in pipe at 12 o'clock position.
  - 32) 133.4 feet – Longitudinal crack at 3 o'clock position.
  - 33) 142.0 feet – 1.54" gap in joint; fine root intrusion in joint; longitudinal crack in pipe at 12 o'clock position.
  - 34) 149.6 feet – Junction box.

### Project Information

<b>Surveyor Name</b>	GCS	<b>Certificate Number</b>	U-0917-07009391
<b>Owner</b>	SCDOT	<b>Customer</b>	F&ME
<b>Drainage Area</b>		<b>PO Number</b>	
<b>Pipe Segment Reference</b>		<b>Date</b>	4/3/2019 11:52
<b>Street</b>	I-26	<b>City</b>	COLUMBIA
<b>Comments</b>			

### Manhole

<b>Upstream MH</b>	EP 0106 INLET	<b>Rim to Invert (U)</b>	
<b>Grade to Invert (U)</b>		<b>Rim to Grade (U)</b>	
<b>Downstream MH</b>	EP 0106 OUTLET	<b>Rim to Invert (D)</b>	
<b>Grade to Invert (D)</b>		<b>Rim to Grade (D)</b>	
<b>Sewer Use</b>		<b>Direction of Survey</b>	Downstream

### Pipe

<b>Height (Diameter)</b>	24	<b>Width</b>	
<b>Shape</b>	Circular	<b>Material</b>	Reinforced Concrete Pipe
<b>Lining Method</b>		<b>Pipe Joint Length</b>	
<b>Total Length</b>		<b>Length Surveyed</b>	149.6
<b>Year Laid</b>		<b>Year Renewed</b>	

### Misc

<b>Flow Control</b>		<b>Media Label</b>	DVD
<b>Purpose</b>		<b>Sewer Category</b>	
<b>Pre-Cleaning</b>	Not Known	<b>Date Cleaned</b>	
<b>Weather</b>		<b>Location Code</b>	
<b>Additional Info</b>		<b>Location Details</b>	

### Custom

<b>Number of Taps</b>	0	<b>Number of Roots</b>	13
<b>Num Cracks / Fractures</b>	13	<b>Number of Broken / Holes / Collapse</b>	4
<b>Number of Deposits</b>	0	<b>Custom6</b>	
<b>Custom7</b>		<b>Struct Grade</b>	
<b>OM Grade</b>		<b>Overall Grade</b>	

### Pacp 6

<b>Reverse Setup ID</b>		<b>Sheet (Group) Number</b>	
<b>Imperial Units (US)</b>	True	<b>Pressure Value</b>	
<b>Work Order</b>		<b>Project</b>	US#1 RBO I-20 PIPE
		<b>Completed</b>	Yes

# Project: US#1 RBO I-20 PIPE

Date: 4/3/2019 11:52:00 AM

Street: I-26

Length Surveyed: 149.6

Pacp Quick Overall Rating:

Height (Diameter): 24

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0106 INLET

Downstream MH: EP 0106

OUTLET

Direction of Survey:

Downstream

Material: Reinforced Concrete

Pipe

Distance	Fault Observation	Time	Picture
0.0	<p><b>Catch Basin</b>  <b>Severity: None</b>  <b>Remarks: EP 0106</b>  <b>INLET</b></p>	22	
0.0	<p><b>Water Level</b>  <b>Severity: None</b>  <b>Percent: 5</b></p>	51	
2.0	<p><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.651</b></p>	02:38	

Distance	Fault Observation	Time	Picture
2.0	<p>Obstacle Other            Position: 6            Severity: None            Percent: 10            Remarks: DIRT IN PIPE            Maint Weight: 2</p>	03:04	
5.3	<p>Obstacle Other            Position: 6            Severity: None            Percent: 5            Remarks: NOT DIRT            CONCRETE IN BOTTOM            Maint Weight: 2</p>	05:20	
5.3	<p>Repair Other            Severity: None            Joint            Remarks: CONCRETE AND BAG USED TO COVER HOLE 4.465 INCHES</p>	07:33	

Distance	Fault Observation	Time	Picture
8.8	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.009</b></p>	09:23	
12.3	<p style="text-align: center;"><b>Roots Fine Joint</b>  <b>Position: 6</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b></p>	10:49	
12.3	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.054</b></p>	11:17	

Distance	Fault Observation	Time	Picture
12.6	<b>Crack Longitudinal</b> <b>Position: 12</b> <b>Severity: None</b> <b>Joint</b> <b>Struct Weight: 2</b>	11:48	
12.6	<b>Picture Number: 2</b> <b>Crack Longitudinal</b> <b>Position: 12</b>	0	
15.4	<b>Roots Fine Joint</b> <b>Position: 5 To 8</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	13:12	

Distance	Fault Observation	Time	Picture
15.4	<b>Crack Longitudinal</b> <b>Position: 12</b> <b>Severity: None</b> <b>Cont Defect: S01</b> <b>Joint</b> <b>Struct Weight: 2</b>	13:39	
18.1	<b>Picture Number: 2</b> <b>Crack Longitudinal</b> <b>Position: 12</b>	0	
21.4	<b>Picture Number: 3</b> <b>Crack Longitudinal</b> <b>Position: 12</b>	0	

Distance	Fault Observation	Time	Picture
24.3	<b>Picture Number: 4</b> <b>Crack Longitudinal</b> <b>Position: 12</b>	0	
27.4	<b>Picture Number: 5</b> <b>Crack Longitudinal</b> <b>Position: 12</b>	0	
30.1	<b>Picture Number: 6</b> <b>Crack Longitudinal</b> <b>Position: 12</b>	0	

Distance	Fault Observation	Time	Picture
33.3	Picture Number: 7 Crack Longitudinal Position: 12	0	
42.3	Picture Number: 8 Crack Longitudinal Position: 12	0	
18.1	Crack Longitudinal Position: 9 Severity: None Joint Struct Weight: 2	15:37	

Distance	Fault Observation	Time	Picture
18.1	<p>Roots Fine Joint            Position: 6            Severity: None            Joint            Maint Weight: 1</p>	16:01	
18.1	<p>Crack            Circumferential            Position: 12 To 1            Severity: None            Joint            Remarks: CRACK IN            PARGING OR            SPIGOT            Struct Weight: 1</p>	16:55	
24.3	<p>Roots Fine Joint            Position: 5 To 6            Severity: None            Joint            Maint Weight: 1</p>	20:03	

Distance	Fault Observation	Time	Picture
39.5	<b>Roots Fine Joint</b> <b>Position: 5</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	25:30	
45.2	<b>General Observation</b> <b>Severity: None</b> <b>Remarks: CHIPPED</b> <b>1.019</b>	28:45	
48.3	<b>Roots Fine Joint</b> <b>Position: 7</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	29:48	

Distance	Fault Observation	Time	Picture
51.3	<p align="center"> <b>Joint Separated</b>  <b>Medium</b>  <b>Severity: None</b>  <b>Remarks: SEPARATED</b>  <b>GAP 0.939</b>  <b>Struct Weight: 1</b> </p>	31:50	
51.3	<p align="center"> <b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: BELL</b>  <b>SPIGOT GAP 4.551</b> </p>	32:28	
55.9	<p align="center"> <b>Roots Fine Joint</b>  <b>Position: 4</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b> </p>	34:46	

Distance	Fault Observation	Time	Picture
55.9	<p style="text-align: center;"><b>General Observation</b>  Severity: None  Remarks: 0.93</p>	35:08	
59.6	<p style="text-align: center;"><b>General Observation</b>  Severity: None  Remarks: GAP 2.637</p>	37:28	
59.6	<p style="text-align: center;"><b>Crack</b>  Circumferential  Position: 2 To 3  Severity: None  Joint  Remarks: CRACKS  IN PARGING  Struct Weight: 1</p>	37:36	

Distance	Fault Observation	Time	Picture
65.5	<p style="text-align: center;"> <b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: CATCH BASIN BUILT OVER PIPE</b> </p>	39:17	
71.6	<p style="text-align: center;"> <b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.148</b> </p>	40:09	
72.3	<p style="text-align: center;"> <b>Crack Longitudinal</b>  <b>Position: 12</b>  <b>Severity: None</b>  <b>Cont Defect: F01</b>  <b>Joint</b>  <b>Struct Weight: 2</b> </p>	40:36	

Distance	Fault Observation	Time	Picture
77.9	<p align="center"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: CRACKS IN PARGING</b></p>	41:53	
81.1	<p align="center"><b>Repair Point Defective</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Remarks: EXCESS CONCRETE AT JOINT</b>  <b>Struct Weight: 4</b></p>	43:07	
81.9	<p align="center"><b>Broken</b>  <b>Position: 11 To 1</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Remarks: BELL OR SPIGOT BROKE</b>  <b>REBAR VISIBLE</b>  <b>Struct Weight: 4</b></p>	44:11	

Distance	Fault Observation	Time	Picture
81.9	<p>General Observation Severity: None Remarks: 3.986</p>	45:04	
81.9	<p>Crack Multiple Position: 8 To 9 Severity: None Joint Struct Weight: 3</p>	45:45	
81.9	<p>Picture Number: 2 Crack Multiple Position: 8 To 9</p>	0	

Distance	Fault Observation	Time	Picture
85.3	<p><b>Broken</b>  <b>Position: 9 To 3</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Remarks: BROKE</b>  <b>BELL AND OR</b>  <b>SPIGOT REBAR</b>  <b>VISIBLE</b>  <b>Struct Weight: 4</b></p>	48:20	<p>US#1 RB0 I-20 PIPE  EP 0106 INLET  TO EP 0106 OUTLET</p> <p>3.98</p> <p>11:53 27/-87' +4.0% +85.3ft</p>
85.3	<p><b>Crack Longitudinal</b>  <b>Position: 10</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Struct Weight: 2</b></p>	49:32	<p>US#1 RB0 I-20 PIPE  EP 0106 INLET  TO EP 0106 OUTLET</p> <p>11:54 -35/54' +4.0% +85.3ft</p>
93.3	<p><b>Hole Soil Visible</b>  <b>Position: 12</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Struct Weight: 5</b></p>	51:24	<p>US#1 RB0 I-20 PIPE  T  TO EP 0106 OUTLET</p> <p>11:56 89/-85' +1.9% +93.3ft</p>

Distance	Fault Observation	Time	Picture
93.3	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 4.572</b></p>	51:50	
101.6	<p style="text-align: center;"><b>Crack Multiple</b>  <b>Position: 12 To 1</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Struct Weight: 3</b></p>	52:48	
101.6	<p style="text-align: center;"><b>Picture Number: 2</b>  <b>Crack Multiple</b>  <b>Position: 12 To 1</b></p>	0	

Distance	Fault Observation	Time	Picture
101.6	<b>Broken Soil Visible</b> <b>Position: 12</b> <b>Severity: None</b> <b>Joint</b> <b>Remarks: BROKEN</b> <b>AT SPIGOT</b> <b>Struct Weight: 5</b>	54:02	
101.6	<b>Picture Number: 2</b> <b>Broken Soil Visible</b> <b>Position: 12</b>	0	
101.6	<b>Picture Number: 3</b> <b>Broken Soil Visible</b> <b>Position: 12</b> <b>Remarks: BROKEN</b> <b>AT SPIGOT</b>	0	

Distance	Fault Observation	Time	Picture
101.6	<p>Roots Fine Joint            Position: 6            Severity: None            Joint            Maint Weight: 1</p>	54:58	
107.1	<p>Crack            Circumferential            Position: 12 To 2            Severity: None            Struct Weight: 1</p>	56:20	
109.4	<p>Roots Fine Joint            Position: 5            Severity: None            Joint            Maint Weight: 1</p>	57:32	

Distance	Fault Observation	Time	Picture
109.4	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.814</b></p>	58:19	
117.7	<p style="text-align: center;"><b>Roots Fine Joint</b>  <b>Position: 6</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b></p>	59:30	
117.7	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 0.935</b></p>	1:00:17	

Distance	Fault Observation	Time	Picture
125.7	<b>Crack Longitudinal</b> <b>Position: 12</b> <b>Severity: None</b> <b>Joint</b> <b>Struct Weight: 2</b>	1:02:01	<p>US#1 RBO I-20 PIPE EP 0106 INLET To EP 0106 OUTLET</p> <p>04.03.19 110/-94' -1.5% +125.6ft</p>
125.7	<b>Roots Fine Joint</b> <b>Position: 7</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	1:03:07	<p>US#1 RBO I-20 PIPE To EP 0106 OUTLET</p> <p>04.03.19 -117/-94' -1.6% +125.6ft</p>
125.7	<b>General</b> <b>Observation</b> <b>Severity: None</b> <b>Remarks: 1.344</b>	1:04:24	<p>US#1 RBO I-20 PIPE EP 0106 INLET To EP 0106 OUTLET</p> <p>04.03.19 29/-90' -1.5% +125.6ft</p>

Distance	Fault Observation	Time	Picture
133.4	<b>Crack Longitudinal</b> <b>Position: 3</b> <b>Severity: None</b> <b>Joint</b> <b>Struct Weight: 2</b>	1:05:07	
133.8	<b>Roots Fine Joint</b> <b>Position: 5</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	1:08:09	
142.0	<b>Crack Longitudinal</b> <b>Position: 12</b> <b>Severity: None</b> <b>Joint</b> <b>Struct Weight: 2</b>	1:07:27	

Distance	Fault Observation	Time	Picture
142.0	<b>Roots Fine Joint</b> <b>Position: 7</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	1:08:00	
142.0	<b>General Observation</b> <b>Severity: None</b> <b>Remarks: 1.544</b>	1:11:16	
149.6	<b>Junction Box</b> <b>Severity: None</b> <b>Remarks: EP 0106</b> <b>OUTLET</b>	1:10:59	

# Project: US#1 RBO I-20 PIPE

Date: 4/3/2019 11:52:00 AM

Street: I-26

Length Surveyed: 149.6

Pacp Quick Overall Rating:

Height (Diameter): 24

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0106 INLET

Downstream MH: EP 0106

OUTLET

Direction of Survey:

Downstream

Material: Reinforced Concrete

Pipe

ID Number: EP 0106 INLET

(0.0) ACB - Catch Basin Remark: EP 0106 INLET

(0.0) MWL - Water Level

(2.0) MGO - General Observation Remark: 1.651

(2.0) OBZ - Obstacle Other - Position: 6 Remark:  
DIRT IN PIPE

(5.3) OBZ - Obstacle Other - Position: 6 Remark:  
NOT DIRT CONCRETE IN BOTTOM

(5.3) RPZ - Repair Other Remark: CONCRETE  
AND BAG USED TO COVER HOLE 4.465  
INCHES

(8.8) MGO - General Observation Remark: 1.009

(12.3) RFJ - Roots Fine Joint - Position: 6

(12.3) MGO - General Observation Remark: 1.054

(12.6) CL - Crack Longitudinal - Position: 12

Photo Num: 2 (12.6) CL - Crack Longitudinal -  
Position: 12

(15.4) RFJ - Roots Fine Joint - Position: 5 To 8

(15.4) CL - Crack Longitudinal - Position: 12 - Cont  
Def: S01

Photo Num: 2 (15.4) CL - Crack Longitudinal -  
Position: 12 - Cont Def: S01

Photo Num: 3 (15.4) CL - Crack Longitudinal -  
Position: 12 - Cont Def: S01

Photo Num: 4 (15.4) CL - Crack Longitudinal -  
Position: 12 - Cont Def: S01

Photo Num: 5 (15.4) CL - Crack Longitudinal -  
Position: 12 - Cont Def: S01

Photo Num: 6 (15.4) CL - Crack Longitudinal -  
Position: 12 - Cont Def: S01

Photo Num: 7 (15.4) CL - Crack Longitudinal -  
Position: 12 - Cont Def: S01

Photo Num: 8 (15.4) CL - Crack Longitudinal -  
Position: 12 - Cont Def: S01

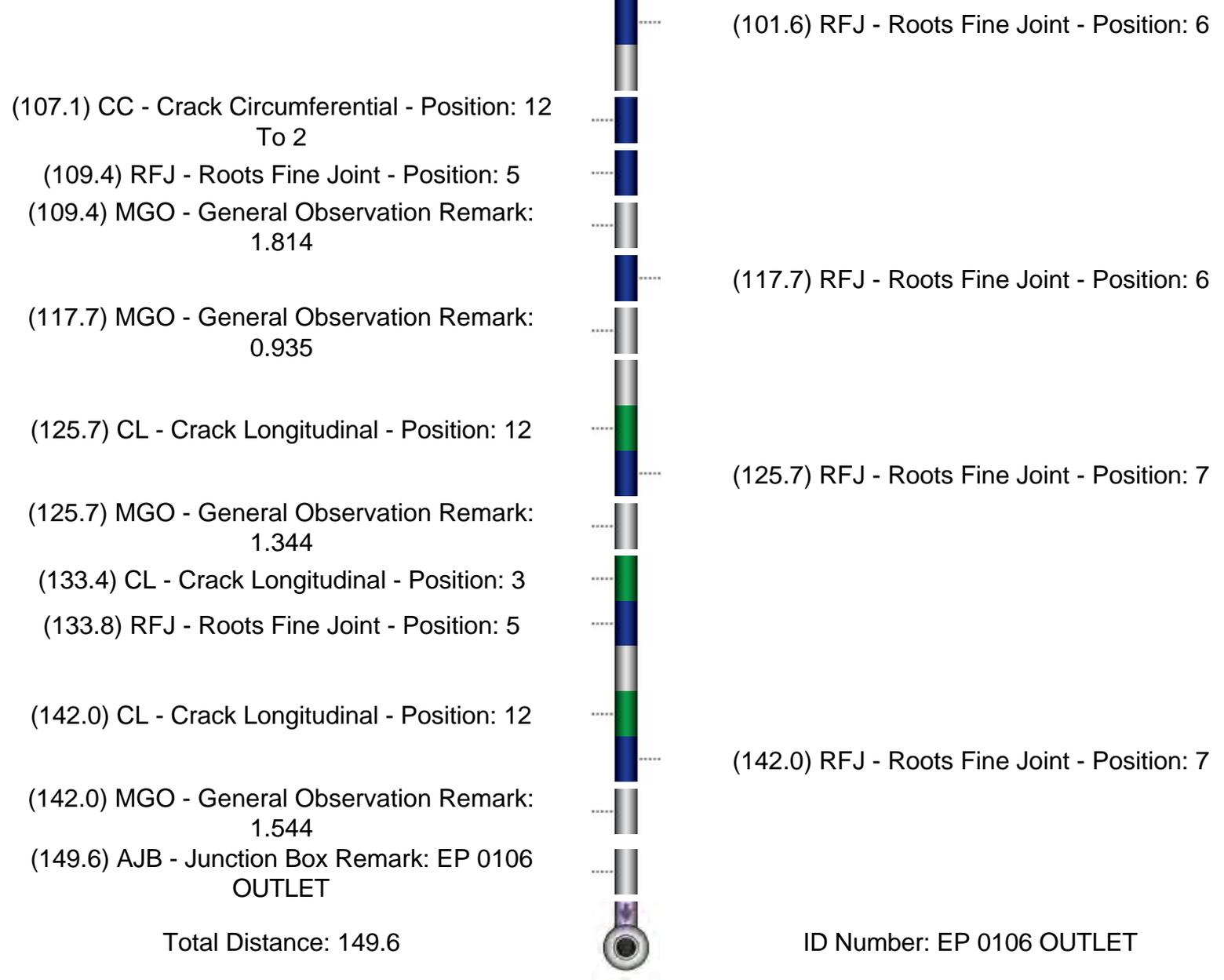
(18.1) CL - Crack Longitudinal - Position: 9

(18.1) RFJ - Roots Fine Joint - Position: 6

(18.1) CC - Crack Circumferential - Position: 12 To  
1 Remark: CRACK IN PARGING OR SPIGOT



(24.3) RFJ - Roots Fine Joint - Position: 5 To 6		
(39.5) RFJ - Roots Fine Joint - Position: 5		
(45.2) MGO - General Observation Remark: CHIPPED 1.019		
(51.3) JSM - Joint Separated Medium Remark: SEPARATED GAP 0.939		(48.3) RFJ - Roots Fine Joint - Position: 7
(51.3) MGO - General Observation Remark: BELL SPIGOT GAP 4.551		
(55.9) RFJ - Roots Fine Joint - Position: 4		
(55.9) MGO - General Observation Remark: 0.93		
(59.6) MGO - General Observation Remark: GAP 2.637		
(59.6) CC - Crack Circumferential - Position: 2 To 3 Remark: CRACKS IN PARGING		
(65.5) MGO - General Observation Remark: CATCH BASIN BUILT OVER PIPE		
(71.6) MGO - General Observation Remark: 1.148		
(72.3) CL - Crack Longitudinal - Position: 12 - Cont Def: F01		
(77.9) MGO - General Observation Remark: CRACKS IN PARGING		
(81.1) RPRD - Repair Point Defective Remark: EXCESS CONCRETE AT JOINT		
(81.9) MGO - General Observation Remark: 3.986		(81.9) B - Broken - Position: 11 To 1 Remark: BELL OR SPIGOT BROKE REBAR VISIBLE
		(81.9) CM - Crack Multiple - Position: 8 To 9 Photo Num: 2 (81.9) CM - Crack Multiple - Position: 8 To 9
		(85.3) B - Broken - Position: 9 To 3 Remark: BROKE BELL AND OR SPIGOT REBAR VISIBLE
		(85.3) CL - Crack Longitudinal - Position: 10
(93.3) HSV - Hole Soil Visible - Position: 12		
(93.3) MGO - General Observation Remark: 4.572		
(101.6) CM - Crack Multiple - Position: 12 To 1 Photo Num: 2 (101.6) CM - Crack Multiple - Position: 12 To 1		
(101.6) BSV - Broken Soil Visible - Position: 12 Remark: BROKEN AT SPIGOT Photo Num: 2 (101.6) BSV - Broken Soil Visible - Position: 12 Remark: BROKEN AT SPIGOT Photo Num: 3 (101.6) BSV - Broken Soil Visible - Position: 12 Remark: BROKEN AT SPIGOT		



# Project: US#1 RBO I-20 PIPE

Date: 4/3/2019 11:52:00 AM

Street: I-26

Length Surveyed: 149.6

Pacp Quick Overall Rating:

Height (Diameter): 24

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0106 INLET

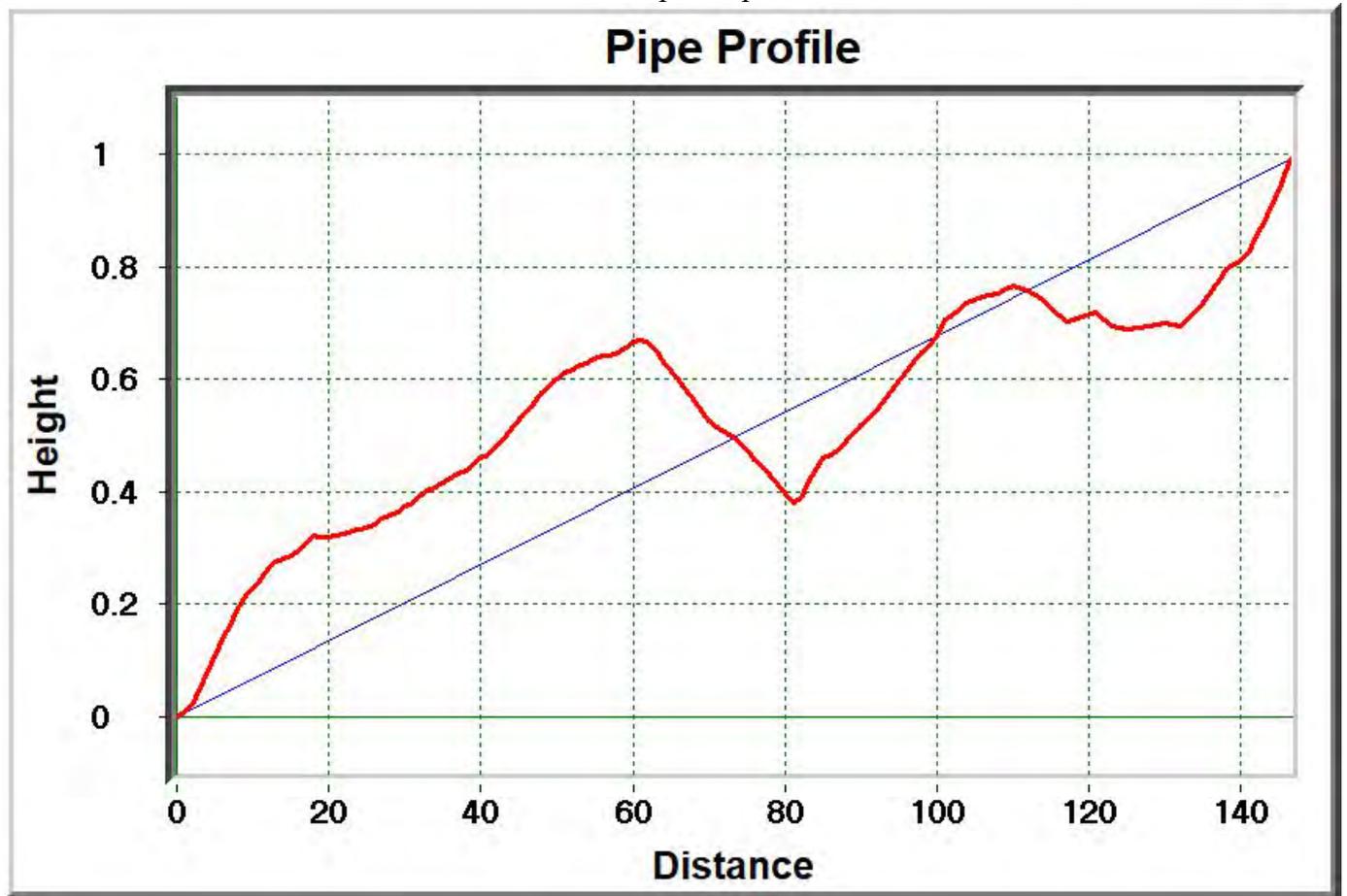
Downstream MH: EP 0106  
OUTLET

Direction of Survey:

Downstream

Material: Reinforced Concrete  
Pipe

Percent Grade Mean: 0.65  
Plot Distance From: 0 To 151  
Max Percent Difference: 3  
Number of Window Values: 1  
Percent Difference Max for Windows Values: 60  
Number of Feet to Average: 1  
Final number of points plotted: 128



US 1 Replace Bridge over I-20  
Alignment WB Loop, Station Unknown  
Structure EP-0107  
Diameter Unknown

**Summary:**

F&ME inspected the overall condition of a RCP designated as EP-0107.

**Observations:**

- Dimensions – Diameter was not able to be verified. Total length was not measured.
- Scan direction – N/A
- General notes – West side of pipe the pipe was obstructed by sediment and debris. East side of pipe was also obstructed by sediment and debris. Due to these blockages, video inspection of the pipe was not possible.
- Observations – None

# US 1 Replace Bridge over I-20

Alignment EB Loop, Station 363+43

Structure EP-0108

18" RCP

## **Summary:**

F&ME inspected the overall condition of an 18" RCP designated as EP-0108.

## **Observations:**

- Dimensions – Verified 18" RCP. Total length measured as approximately 62 LF.
- Scan direction – Inlet to outfall.
- General notes – None.
- Observations
  - 1) 2.6 feet – 0.60" gap in joint.
  - 2) 6.0 feet – Longitudinal crack in pipe from 11 o'clock to 12 o'clock position.
  - 3) 10.0 feet – Longitudinal crack in pipe at 12 o'clock position.
  - 4) 18.3 feet – 0.63" gap in joint; fine root intrusion in joint.
  - 5) 28.0 feet – Sediment in pipe.
  - 6) 30.4 feet – 0.41" gap in joint; fine root intrusion in joint.
  - 7) 41.5 feet – Sediment in pipe.

### Project Information

<b>Surveyor Name</b>	GCS	<b>Certificate Number</b>	U-0917-07009391
<b>Owner</b>	SCDOT	<b>Customer</b>	F&ME
<b>Drainage Area</b>		<b>PO Number</b>	
<b>Pipe Segment Reference</b>		<b>Date</b>	4/4/2019 13:33
<b>Street</b>	I-26	<b>City</b>	COLUMBIA
<b>Comments</b>			

### Manhole

<b>Upstream MH</b>	EP 0108 INLET	<b>Rim to Invert (U)</b>	
<b>Grade to Invert (U)</b>		<b>Rim to Grade (U)</b>	
<b>Downstream MH</b>	EP 0108 OUTLET	<b>Rim to Invert (D)</b>	
<b>Grade to Invert (D)</b>		<b>Rim to Grade (D)</b>	
<b>Sewer Use</b>		<b>Direction of Survey</b>	Downstream

### Pipe

<b>Height (Diameter)</b>	18	<b>Width</b>	
<b>Shape</b>	Circular	<b>Material</b>	Reinforced Concrete Pipe
<b>Lining Method</b>		<b>Pipe Joint Length</b>	
<b>Total Length</b>		<b>Length Surveyed</b>	62.1
<b>Year Laid</b>		<b>Year Renewed</b>	

### Misc

<b>Flow Control</b>		<b>Media Label</b>	DVD
<b>Purpose</b>		<b>Sewer Category</b>	
<b>Pre-Cleaning</b>	Not Known	<b>Date Cleaned</b>	
<b>Weather</b>		<b>Location Code</b>	
<b>Additional Info</b>		<b>Location Details</b>	

### Custom

<b>Number of Taps</b>	0	<b>Number of Roots</b>	18
<b>Num Cracks / Fractures</b>	2	<b>Number of Broken / Holes / Collapse</b>	0
<b>Number of Deposits</b>	0	<b>Custom6</b>	
<b>Custom7</b>		<b>Struct Grade</b>	
<b>OM Grade</b>		<b>Overall Grade</b>	

### Pacp 6

<b>Reverse Setup ID</b>		<b>Sheet (Group) Number</b>	
<b>Imperial Units (US)</b>	True	<b>Pressure Value</b>	
<b>Work Order</b>		<b>Project</b>	US#1 RBO I-20 PIPE
		<b>Completed</b>	Yes

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 1:33:00 PM

Street: I-26

Length Surveyed: 62.1

Pacp Quick Overall Rating:

Height (Diameter): 18

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0108 INLET

Downstream MH: EP 0108

OUTLET

Direction of Survey:

Downstream

Material: Reinforced Concrete

Pipe

Distance	Fault Observation	Time	Picture
0.0	<p><b>Catch Basin</b>  <b>Severity: None</b>  <b>Remarks: EP 0108 INLET</b></p>	01:18	
0.0	<p><b>Water Level</b>  <b>Severity: None</b>  <b>Percent: 0</b></p>	01:33	
2.6	<p><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 0.601</b></p>	02:56	

Distance	Fault Observation	Time	Picture
6.0	<b>Crack Longitudinal</b> <b>Position: 12</b> <b>Severity: None</b> <b>Joint</b> <b>Struct Weight: 2</b>	03:51	 <p>US#1 RBO I-20 PIPE EP 0108 INLET UTLET</p> <p>04.04.19 87/-43' +2.7% +6.0ft</p>
10.0	<b>Picture Number: 2</b> <b>Crack Longitudinal</b> <b>Position: 12</b>	0	 <p>U To EP 0108 OUTLET</p> <p>04.04.19 111/-123' +1.7% +10.0ft</p>
6.0	<b>Crack Longitudinal</b> <b>Position: 11</b> <b>Severity: None</b> <b>Joint</b> <b>Struct Weight: 2</b>	04:21	 <p>US#1 RBO I-20 PIPE T To EP 0108 OUTLET</p> <p>12:44 135/-72' +2.7% +6.0ft</p>

Distance	Fault Observation	Time	Picture
10.1	<b>Roots Fine Joint</b> <b>Position: 9</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	06:43	
10.1	<b>Roots Fine Joint</b> <b>Position: 5 To 6</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	07:08	
18.3	<b>Roots Fine Joint</b> <b>Position: 6</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	09:06	

Distance	Fault Observation	Time	Picture
18.3	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 0.632</b></p>	09:43	
26.4	<p style="text-align: center;"><b>Roots Fine Joint</b>  <b>Position: 7</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b></p>	11:59	
28.0	<p style="text-align: center;"><b>Obstacle Other</b>  <b>Position: 5 To 7</b>  <b>Severity: None</b>  <b>Cont Defect: S01</b>  <b>Percent: 10</b>  <b>Remarks: DIRT IN PIPE</b>  <b>Maint Weight: 2</b></p>	12:18	

Distance	Fault Observation	Time	Picture
30.4	<b>Roots Fine Joint</b> <b>Position: 7</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	13:18	
34.4	<b>Roots Fine Joint</b> <b>Position: 7 To 8</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	14:45	
34.4	<b>Roots Fine Joint</b> <b>Position: 8</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	15:22	

Distance	Fault Observation	Time	Picture
38.3	<b>Roots Fine Joint</b> <b>Position: 12</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	16:16	
38.3	<b>Roots Fine Joint</b> <b>Position: 8 To 9</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	16:52	
41.5	<b>Obstacle Other</b> <b>Position: 5 To 7</b> <b>Severity: None</b> <b>Cont Defect: F01</b> <b>Percent: 10</b> <b>Remarks: DIRT IN PIPE</b> <b>Maint Weight: 2</b>	17:47	

Distance	Fault Observation	Time	Picture
42.4	<b>Roots Fine Joint</b> <b>Position: 11 To 12</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	18:37	<p>US#1 RBO I-20 PIPE EP 0108 INLET To EP 0108 OUTLET</p> <p>12:59 94/-96' -0.9% +42.4ft</p>
42.4	<b>Roots Fine Joint</b> <b>Position: 8</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	19:08	<p>US#1 RBO I-20 PIPE EP 0108 INLET To EP 0108 OUTLET</p> <p>12:59 -150/-96' -0.9% +42.4ft</p>
46.4	<b>Roots Fine Joint</b> <b>Position: 12</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	20:31	<p>US#1 RBO I-20 PIPE T To EP 0108 OUTLET</p> <p>13:01 75/-84' +2.5% +46.3ft</p>

Distance	Fault Observation	Time	Picture
46.4	<b>Roots Fine Joint</b> <b>Position: 4</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	21:13	
50.5	<b>Roots Fine Joint</b> <b>Position: 12</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	22:07	
54.4	<b>Roots Fine Joint</b> <b>Position: 11 To 1</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	23:32	

Distance	Fault Observation	Time	Picture
54.4	<b>Roots Fine Joint</b> <b>Position: 8</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	24:03	
54.4	<b>Roots Fine Joint</b> <b>Position: 3 To 4</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	24:31	
58.4	<b>Roots Fine Joint</b> <b>Position: 11 To 4</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	25:55	

Distance	Fault Observation	Time	Picture
62.1	Discharge Point Severity: None Remarks: EP 0108 OUTLET	26:22	

Created with the  report generator

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 1:33:00 PM

Street: I-26

Length Surveyed: 62.1

Pacp Quick Overall Rating:

Height (Diameter): 18

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0108 INLET

Downstream MH: EP 0108

OUTLET

Direction of Survey:

Downstream

Material: Reinforced Concrete

Pipe

ID Number: EP 0108 INLET

(0.0) ACB - Catch Basin Remark: EP 0108 INLET

(0.0) MWL - Water Level

(2.6) MGO - General Observation Remark: 0.601

(6.0) CL - Crack Longitudinal - Position: 12

Photo Num: 2 (6.0) CL - Crack Longitudinal -  
Position: 12

(6.0) CL - Crack Longitudinal - Position: 11

(10.1) RFJ - Roots Fine Joint - Position: 5 To 6

(10.1) RFJ - Roots Fine Joint - Position: 9

(18.3) MGO - General Observation Remark: 0.632

(18.3) RFJ - Roots Fine Joint - Position: 6

(28.0) OBZ - Obstacle Other - Position: 5 To 7 -  
Cont Def: S01 Remark: DIRT IN PIPE

(26.4) RFJ - Roots Fine Joint - Position: 7

(30.4) RFJ - Roots Fine Joint - Position: 7

(34.4) RFJ - Roots Fine Joint - Position: 7 To 8

(34.4) RFJ - Roots Fine Joint - Position: 8

(38.3) RFJ - Roots Fine Joint - Position: 12

(38.3) RFJ - Roots Fine Joint - Position: 8 To 9

(41.5) OBZ - Obstacle Other - Position: 5 To 7 -  
Cont Def: F01 Remark: DIRT IN PIPE

(42.4) RFJ - Roots Fine Joint - Position: 11 To 12

(42.4) RFJ - Roots Fine Joint - Position: 8

(46.4) RFJ - Roots Fine Joint - Position: 12

(46.4) RFJ - Roots Fine Joint - Position: 4



(50.5) RFJ - Roots Fine Joint - Position: 12

(54.4) RFJ - Roots Fine Joint - Position: 11 To 1

(54.4) RFJ - Roots Fine Joint - Position: 8

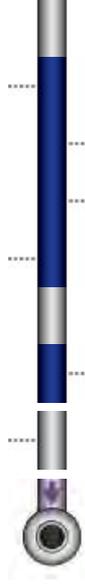
(54.4) RFJ - Roots Fine Joint - Position: 3 To 4

(58.4) RFJ - Roots Fine Joint - Position: 11 To 4

(62.1) ADP - Discharge Point Remark: EP 0108  
OUTLET

Total Distance: 62.1

ID Number: EP 0108 OUTLET



Created with the  report generator

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 1:33:00 PM

Street: I-26

Length Surveyed: 62.1

Pacp Quick Overall Rating:

Height (Diameter): 18

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0108 INLET

Downstream MH: EP 0108

OUTLET

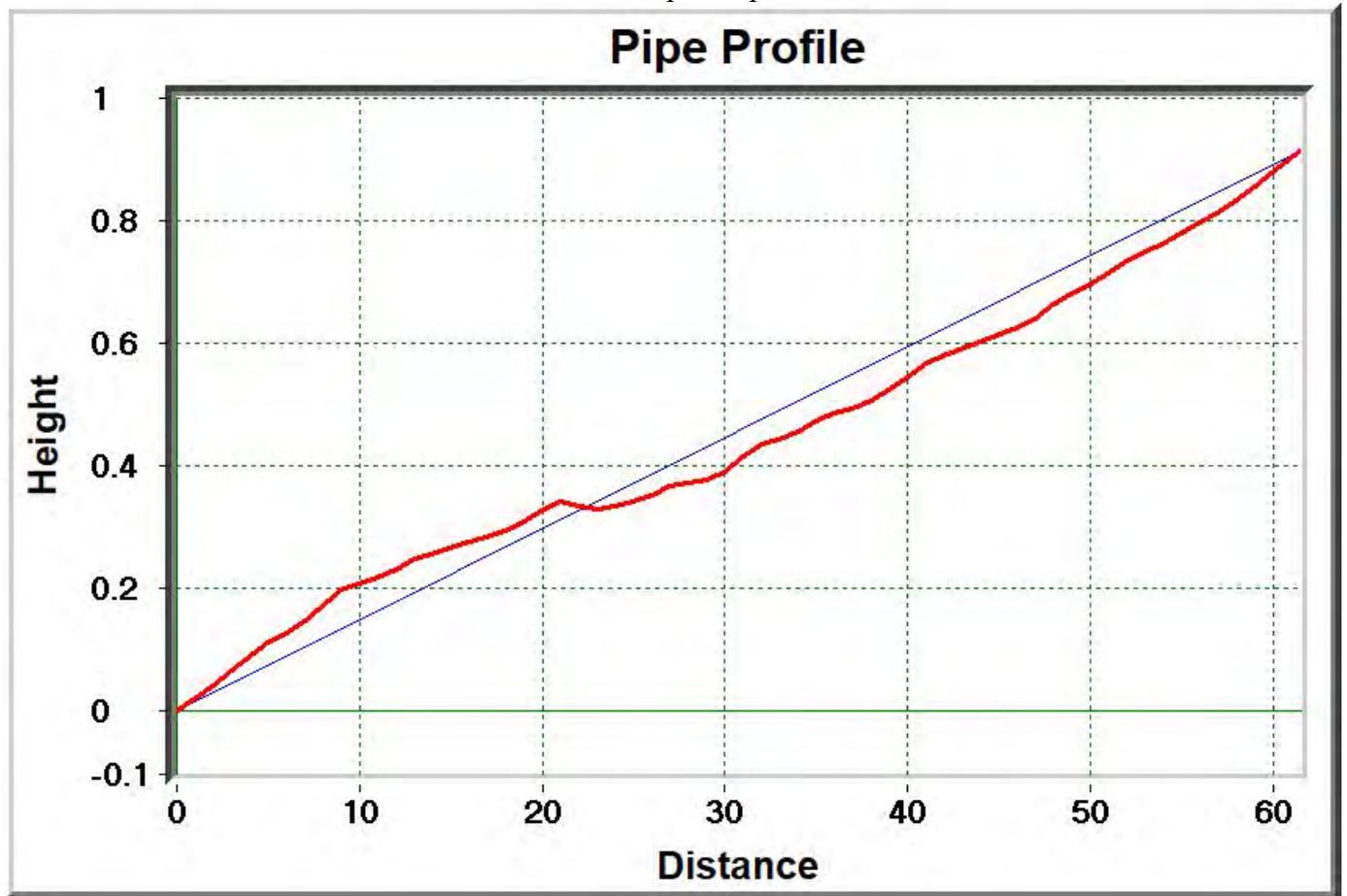
Direction of Survey:

Downstream

Material: Reinforced Concrete

Pipe

Percent Grade Mean: 1.48  
Plot Distance From: 0 To 63  
Max Percent Difference: 3  
Number of Window Values: 1  
Percent Difference Max for Windows Values: 60  
Number of Feet to Average: 1  
Final number of points plotted: 55



**US 1 Replace Bridge over I-20**  
**Alignment Cedar Rd., Station Unknown**  
**Structure EP-0111**  
**42" RCP**

**Summary:**

F&ME inspected the overall condition of a 42" RCP designated as EP-0111.

**Observations:**

- Dimensions – Verified 42" RCP. Total length measured as approximately 51 LF.
- Scan direction – Inlet to outfall.
- General notes – None.
- Observations
  - 1) 0.0 feet – Sediment and standing water in pipe.
  - 2) 4.1 feet – 2.23" gap in joint; joint patched to cover separation of joint.
  - 3) 7.7 feet – Rocks in pipe.
  - 4) 9.5 feet – 1.94" gap in joint.
  - 5) 18.4 feet – 2.38" gap in joint.
  - 6) 22.4 feet – 1.06" gap in joint.
  - 7) 26.0 feet – 1.16" gap in joint; root intrusion in joint.
  - 8) 30.3 feet – 1.36" gap in joint; fine root intrusion in joint.
  - 9) 34.4 feet – 1.19" gap in joint; fine root intrusion in joint.
  - 10) 38.6 feet – 1.94" gap in joint; fine root intrusion in joint.
  - 11) 42.2 feet – 0.83" gap in joint; fine root intrusion in joint.
  - 12) 46.4 feet – 1.33" gap in joint; root intrusion in joint.

### Project Information

<b>Surveyor Name</b>	GCS	<b>Certificate Number</b>	U-0917-07009391
<b>Owner</b>	SCDOT	<b>Customer</b>	F&ME
<b>Drainage Area</b>		<b>PO Number</b>	
<b>Pipe Segment Reference</b>		<b>Date</b>	4/4/2019 10:19
<b>Street</b>	I-26	<b>City</b>	COLUMBIA
<b>Comments</b>			

### Manhole

<b>Upstream MH</b>	EP 0111 INLET	<b>Rim to Invert (U)</b>	
<b>Grade to Invert (U)</b>		<b>Rim to Grade (U)</b>	
<b>Downstream MH</b>	EP 0111 OUTLET	<b>Rim to Invert (D)</b>	
<b>Grade to Invert (D)</b>		<b>Rim to Grade (D)</b>	
<b>Sewer Use</b>		<b>Direction of Survey</b>	Downstream

### Pipe

<b>Height (Diameter)</b>	42	<b>Width</b>	
<b>Shape</b>	Circular	<b>Material</b>	Reinforced Concrete Pipe
<b>Lining Method</b>		<b>Pipe Joint Length</b>	
<b>Total Length</b>		<b>Length Surveyed</b>	50.7
<b>Year Laid</b>		<b>Year Renewed</b>	

### Misc

<b>Flow Control</b>		<b>Media Label</b>	DVD
<b>Purpose</b>		<b>Sewer Category</b>	
<b>Pre-Cleaning</b>	Not Known	<b>Date Cleaned</b>	
<b>Weather</b>		<b>Location Code</b>	
<b>Additional Info</b>		<b>Location Details</b>	

### Custom

<b>Number of Taps</b>	0	<b>Number of Roots</b>	12
<b>Num Cracks / Fractures</b>	0	<b>Number of Broken / Holes / Collapse</b>	0
<b>Number of Deposits</b>	0	<b>Custom6</b>	
<b>Custom7</b>		<b>Struct Grade</b>	
<b>OM Grade</b>		<b>Overall Grade</b>	

### Pacp 6

<b>Reverse Setup ID</b>		<b>Sheet (Group) Number</b>	
<b>Imperial Units (US)</b>	True	<b>Pressure Value</b>	
<b>Work Order</b>		<b>Project</b>	US#1 RBO I-20 PIPE
		<b>Completed</b>	Yes

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 10:19:00 AM

Street: I-26

Length Surveyed: 50.7

Pacp Quick Overall Rating:

Height (Diameter): 42

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0111 INLET

Downstream MH: EP 0111

OUTLET

Direction of Survey:

Downstream

Material: Reinforced Concrete

Pipe

Distance	Fault Observation	Time	Picture
0.0	<p><b>Discharge Point</b>  <b>Severity: None</b>  <b>Remarks: EP 0111</b>  <b>INLET</b></p>	01:04	
0.0	<p><b>Water Level</b>  <b>Severity: None</b>  <b>Percent: 15</b></p>	01:12	
4.1	<p><b>Repair Other</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Remarks: JOINT</b>  <b>PATCHED IN</b>  <b>BLOCK TO HIDE</b>  <b>SEPARATION</b></p>	03:44	

Distance	Fault Observation	Time	Picture
4.1	<b>Roots Fine Joint</b> <b>Position: 4</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	04:13	
7.7	<b>Obstacle Rocks</b> <b>Position: 5 To 7</b> <b>Severity: None</b> <b>Percent: 10</b> <b>Maint Weight: 2</b>	05:46	
9.5	<b>General Observation</b> <b>Severity: None</b> <b>Remarks: GAP OBSERVATION</b>	07:19	

Distance	Fault Observation	Time	Picture
18.1	<p align="center"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: HAD TO CLEAR ROCKS</b></p>	09:01	
18.4	<p align="center"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: GAP OBSERVATION</b></p>	11:32	
22.4	<p align="center"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.063</b></p>	12:54	

Distance	Fault Observation	Time	Picture
25.4	<b>Roots Medium Joint</b> <b>Position: 7 To 8</b> <b>Severity: None</b> <b>Percent: 10</b> <b>Joint</b> <b>Maint Weight: 3</b>	13:36	
26.0	<b>Roots Fine Joint</b> <b>Position: 4 To 5</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	14:58	
26.0	<b>General Observation</b> <b>Severity: None</b> <b>Remarks: 1.163</b>	15:35	

Distance	Fault Observation	Time	Picture
30.3	<b>Roots Fine Joint</b> <b>Position: 8</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	16:40	
30.3	<b>Roots Fine Joint</b> <b>Position: 4</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	17:29	
30.3	<b>General Observation</b> <b>Severity: None</b> <b>Remarks: 1.363</b>	17:45	

Distance	Fault Observation	Time	Picture
34.4	<b>Roots Fine Joint</b> <b>Position: 7</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	18:50	
34.4	<b>Roots Fine Joint</b> <b>Position: 4</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	19:37	
34.4	<b>General Observation</b> <b>Severity: None</b> <b>Remarks: 1.192</b>	20:12	

Distance	Fault Observation	Time	Picture
38.6	<b>Roots Fine Joint</b> <b>Position: 7</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	20:40	
38.6	<b>Roots Fine Joint</b> <b>Position: 5</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	20:59	
38.6	<b>General Observation</b> <b>Severity: None</b> <b>Remarks: 1.94</b>	21:33	

Distance	Fault Observation	Time	Picture
38.6	<p style="text-align: center;"><b>Infil Stain</b>  <b>Position: 10 To 3</b>  <b>Severity: None</b>  <b>Joint</b></p>	22:46	
42.2	<p style="text-align: center;"><b>Roots Fine Joint</b>  <b>Position: 8 To 9</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b></p>	23:20	
42.2	<p style="text-align: center;"><b>Infil Stain</b>  <b>Position: 10 To 4</b>  <b>Severity: None</b>  <b>Joint</b></p>	24:05	

Distance	Fault Observation	Time	Picture
42.2	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 0.833</b></p>	24:46	
46.4	<p style="text-align: center;"><b>Roots Fine Joint</b>  <b>Position: 7</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b></p>	25:58	
46.4	<p style="text-align: center;"><b>Roots Fine Joint</b>  <b>Position: 4 To 5</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b></p>	26:19	

Distance	Fault Observation	Time	Picture
46.4	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.329</b></p>	27:42	
50.7	<p style="text-align: center;"><b>Discharge Point</b>  <b>Severity: None</b>  <b>Remarks: EP 0111</b>  <b>OUTLET</b></p>	28:25	

Created with the  report generator

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 10:19:00 AM

Street: I-26

Length Surveyed: 50.7

Pacp Quick Overall Rating:

Height (Diameter): 42

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0111 INLET

Downstream MH: EP 0111

OUTLET

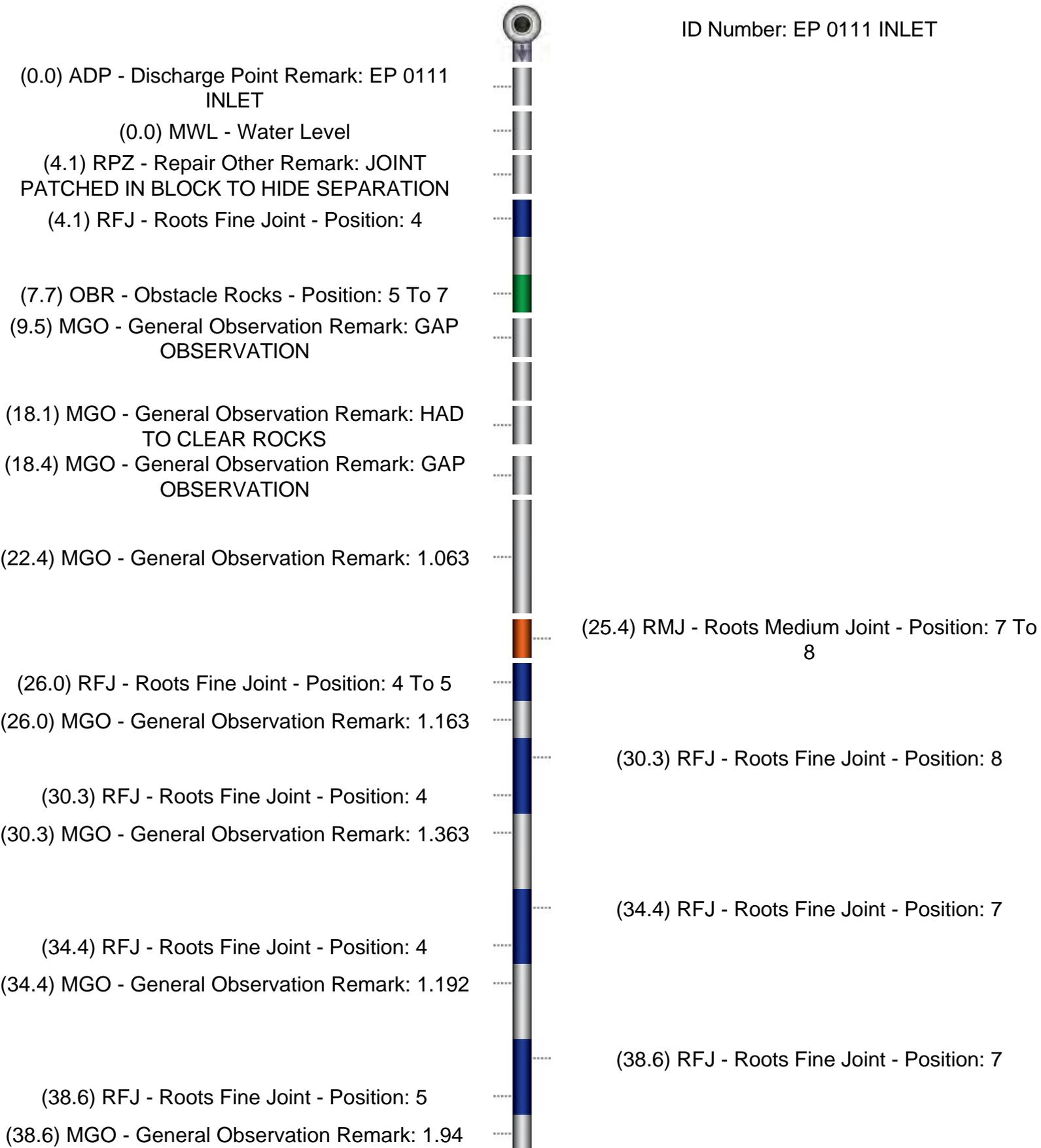
Direction of Survey:

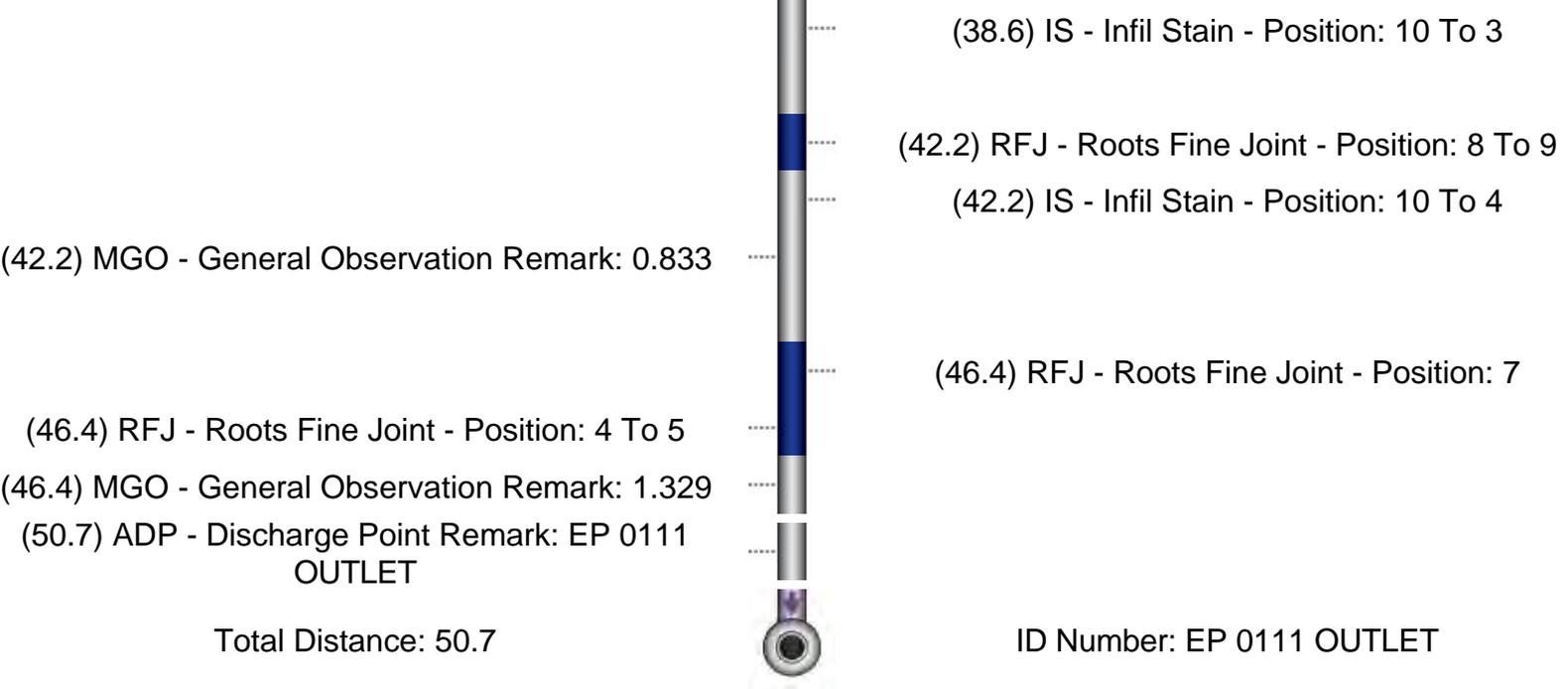
Downstream

Material: Reinforced Concrete

Pipe

ID Number: EP 0111 INLET





Created with the  report generator

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 10:19:00 AM

Street: I-26

Length Surveyed: 50.7

Pacp Quick Overall Rating:

Height (Diameter): 42

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0111 INLET

Downstream MH: EP 0111

OUTLET

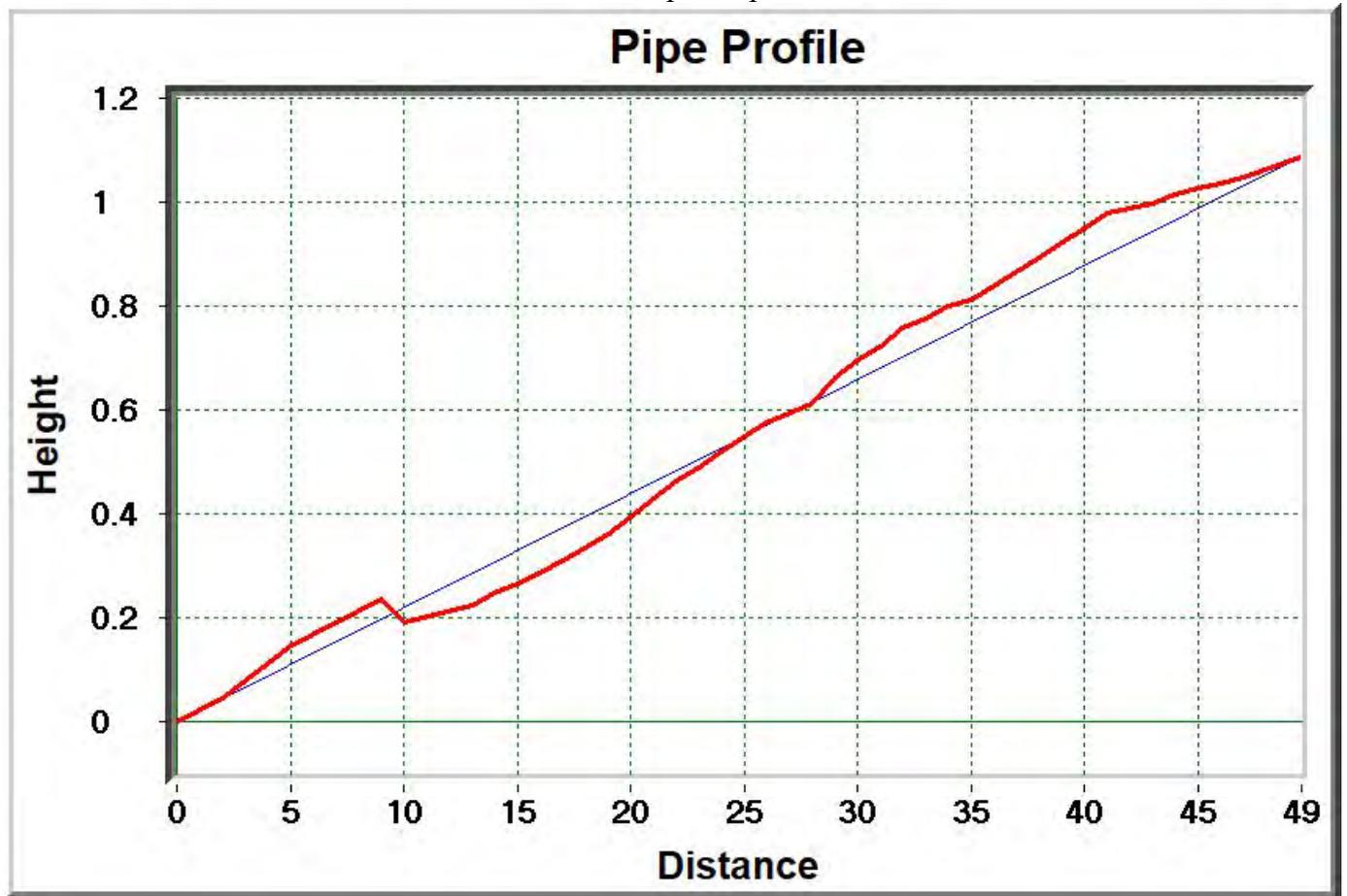
Direction of Survey:

Downstream

Material: Reinforced Concrete

Pipe

Percent Grade Mean: 2.09  
Plot Distance From: 0 To 52  
Max Percent Difference: 3  
Number of Window Values: 1  
Percent Difference Max for Windows Values: 60  
Number of Feet to Average: 1  
Final number of points plotted: 37



**US 1 Replace Bridge over I-20**  
**Alignment Cedar Rd., Station Unknown**  
**Structure EP-0112**  
**36" RCP**

**Summary:**

F&ME inspected the overall condition of a 36" RCP designated as EP-0112.

**Observations:**

- Dimensions – Verified as partially 36" RCP. Total length could not be measured. Inspected length was approximately 46 LF.
- Scan direction – Outfall to inlet.
- General notes – 46 feet from the outfall, the pipe entered a blind junction box that stepped up to a smaller pipe. Outfall side of the pipe was not accessible as it is the outfall of a pond.
- Observations:
  - 1) 0.0 feet – Water in pipe.
  - 2) 5.8 feet – 2.79" chip in spigot with visible sealing ring; fine root intrusion in joint.
  - 3) 13.7 feet – 1.26" gap in joint; intruding sealing ring.
  - 4) 21.6 feet – 0.82" gap in joint; intruding sealing ring; longitudinal crack in pipe at 12 o'clock position.
  - 5) 29.8 feet – 1.71" gap in joint.
  - 6) 37.9 feet – 1.06" gap in joint; 3.59" crack in spigot with visible sealing ring.
  - 7) 42.3 to 44.3 feet – Longitudinal crack in pipe at 1 o'clock with infiltration staining.
  - 8) 46.2 feet – Blind junction box.

### Project Information

<b>Surveyor Name</b>	GCS	<b>Certificate Number</b>	U-0917-07009391
<b>Owner</b>	SCDOT	<b>Customer</b>	F&ME
<b>Drainage Area</b>		<b>PO Number</b>	
<b>Pipe Segment Reference</b>		<b>Date</b>	4/4/2019 14:38
<b>Street</b>	I-26	<b>City</b>	COLUMBIA
<b>Comments</b>			

### Manhole

<b>Upstream MH</b>	EP 0112 INLET	<b>Rim to Invert (U)</b>	
<b>Grade to Invert (U)</b>		<b>Rim to Grade (U)</b>	
<b>Downstream MH</b>	EP 0112 OUTLET	<b>Rim to Invert (D)</b>	
<b>Grade to Invert (D)</b>		<b>Rim to Grade (D)</b>	
<b>Sewer Use</b>		<b>Direction of Survey</b>	Upstream

### Pipe

<b>Height (Diameter)</b>	36	<b>Width</b>	
<b>Shape</b>	Circular	<b>Material</b>	Reinforced Concrete Pipe
<b>Lining Method</b>		<b>Pipe Joint Length</b>	
<b>Total Length</b>		<b>Length Surveyed</b>	46.2
<b>Year Laid</b>		<b>Year Renewed</b>	

### Misc

<b>Flow Control</b>		<b>Media Label</b>	DVD
<b>Purpose</b>		<b>Sewer Category</b>	
<b>Pre-Cleaning</b>	Not Known	<b>Date Cleaned</b>	
<b>Weather</b>		<b>Location Code</b>	
<b>Additional Info</b>		<b>Location Details</b>	

### Custom

<b>Number of Taps</b>	0	<b>Number of Roots</b>	2
<b>Num Cracks / Fractures</b>	3	<b>Number of Broken / Holes / Collapse</b>	1
<b>Number of Deposits</b>	0	<b>Custom6</b>	
<b>Custom7</b>		<b>Struct Grade</b>	
<b>OM Grade</b>		<b>Overall Grade</b>	

### Pacp 6

<b>Reverse Setup ID</b>		<b>Sheet (Group) Number</b>	
<b>Imperial Units (US)</b>	True	<b>Pressure Value</b>	
<b>Work Order</b>		<b>Project</b>	US#1 RBO I-20 PIPE
		<b>Completed</b>	Yes

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 2:38:00 PM

Street: I-26

Length Surveyed: 46.2

Pacp Quick Overall Rating:

Height (Diameter): 36

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0112 INLET

Downstream MH: EP 0112

OUTLET

Direction of Survey: Upstream

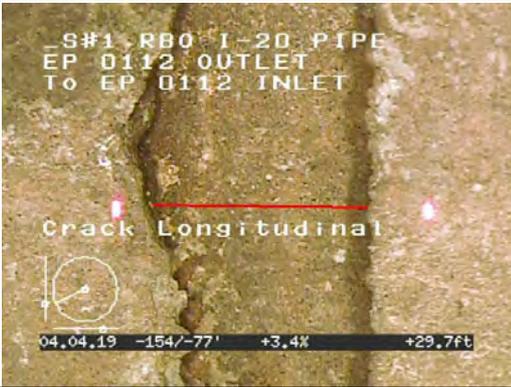
Material: Reinforced Concrete  
Pipe

Distance	Fault Observation	Time	Picture
0.0	<p>Discharge Point Severity: None Remarks: EP 0112 OUTLET</p>	01:03	
0.0	<p>Water Level Severity: None Percent: 10</p>	01:16	
5.8	<p>Broken Position: 11 Severity: None Joint Remarks: CHIPPED SPIGOT TAR VISIBLE Struct Weight: 3</p>	02:43	

Distance	Fault Observation	Time	Picture
5.8	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 2.79</b></p>	02:59	
5.8	<p style="text-align: center;"><b>Roots Fine Joint</b>  <b>Position: 6</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b></p>	03:38	
5.8	<p style="text-align: center;"><b>Roots Fine Joint</b>  <b>Position: 3</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b></p>	03:58	

Distance	Fault Observation	Time	Picture
13.7	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.258</b></p>	6:10	
13.7	<p style="text-align: center;"><b>Intruding Sealing Ring</b>  <b>Position: 12 To 3</b>  <b>Severity: None</b>  <b>Percent: 5</b>  <b>Maint Weight: 2</b></p>	07:05	
21.6	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 0.817</b></p>	08:31	

Distance	Fault Observation	Time	Picture
21.6	<b>Intruding Sealing Ring</b> <b>Position: 12 To 2</b> <b>Severity: None</b> <b>Percent: 5</b> <b>Maint Weight: 2</b>	09:15	 <p>US#1 RBO I-20 PIPE EP 0112 OUTLET To EP 0112 INLET</p> <p>13:55 72/-77' +4.4% +21.6ft</p>
21.6	<b>Crack Longitudinal</b> <b>Position: 12</b> <b>Severity: None</b> <b>Joint</b> <b>Struct Weight: 2</b>	09:30	 <p>_S#1 RBO I-20 PIPE EP 0112 OUTLET To EP 0112 INLET</p> <p>13:55 95/-108' +4.4% +21.6ft</p>
21.6	<b>Picture Number: 2</b> <b>Crack Longitudinal</b> <b>Position: 12</b>	0	 <p>US#1 RBO I-20 PIPE EP 0112 OUTLET To EP 0112 INLET</p> <p>Crack Longitudinal</p> <p>13:56 87/-61' +4.4% +21.6ft</p>

Distance	Fault Observation	Time	Picture
29.8	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.712</b></p>	11:30	
37.9	<p style="text-align: center;"><b>Intruding Sealing Ring</b>  <b>Position: 1 To 1</b>  <b>Severity: None</b>  <b>Percent: 5</b>  <b>Remarks: TAR VISIBLE AT CHIPPED SPIGOT</b>  <b>Maint Weight: 2</b></p>	12:43	
37.9	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 3.588</b></p>	13:50	

Distance	Fault Observation	Time	Picture
37.9	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.062</b></p>	14:52	
42.3	<p style="text-align: center;"><b>Crack Longitudinal</b>  <b>Position: 1</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Remarks: CRACK WITH STAIN</b>  <b>Struct Weight: 2</b></p>	15:05	
44.3	<p style="text-align: center;"><b>Crack Longitudinal</b>  <b>Position: 2</b>  <b>Severity: None</b>  <b>Struct Weight: 2</b></p>	15:32	

Distance	Fault Observation	Time	Picture
46.2	<p style="text-align: center;"> <b>Junction Box</b>  <b>Severity: None</b>  <b>Remarks: EP 0112</b>  <b>INLET</b> </p>	13	

Created with the  report generator

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 2:38:00 PM

Street: I-26

Length Surveyed: 46.2

Pacp Quick Overall Rating:

Height (Diameter): 36

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0112 INLET

Downstream MH: EP 0112  
OUTLET

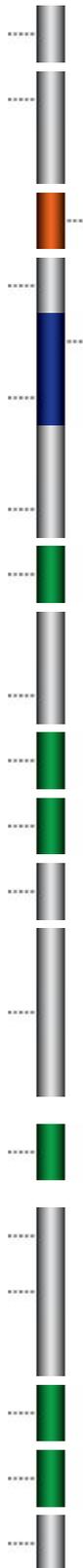
Direction of Survey: Upstream

Material: Reinforced Concrete  
Pipe

ID Number: EP 0112 OUTLET

(0.0) ADP - Discharge Point Remark: EP 0112  
OUTLET

(0.0) MWL - Water Level



(5.8) B - Broken - Position: 11 Remark: CHIPPED  
SPIGOT TAR VISIBLE

(5.8) RFJ - Roots Fine Joint - Position: 6

(5.8) MGO - General Observation Remark: 2.79

(5.8) RFJ - Roots Fine Joint - Position: 3

(13.7) MGO - General Observation Remark: 1.258

(13.7) ISSR - Intruding Sealing Ring - Position: 12  
To 3

(21.6) MGO - General Observation Remark: 0.817

(21.6) ISSR - Intruding Sealing Ring - Position: 12  
To 2

(21.6) CL - Crack Longitudinal - Position: 12

Photo Num: 2 (21.6) CL - Crack Longitudinal -  
Position: 12

(29.8) MGO - General Observation Remark: 1.712

(37.9) ISSR - Intruding Sealing Ring - Position: 1  
To 1 Remark: TAR VISIBLE AT CHIPPED  
SPIGOT

(37.9) MGO - General Observation Remark: 3.588

(37.9) MGO - General Observation Remark: 1.062

(42.3) CL - Crack Longitudinal - Position: 1  
Remark: CRACK WITH STAIN

(44.3) CL - Crack Longitudinal - Position: 2

(46.2) AJB - Junction Box Remark: EP 0112  
INLET

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 2:38:00 PM

Street: I-26

Length Surveyed: 46.2

Pacp Quick Overall Rating:

Height (Diameter): 36

Street: I-26

Pipe Segment Reference:

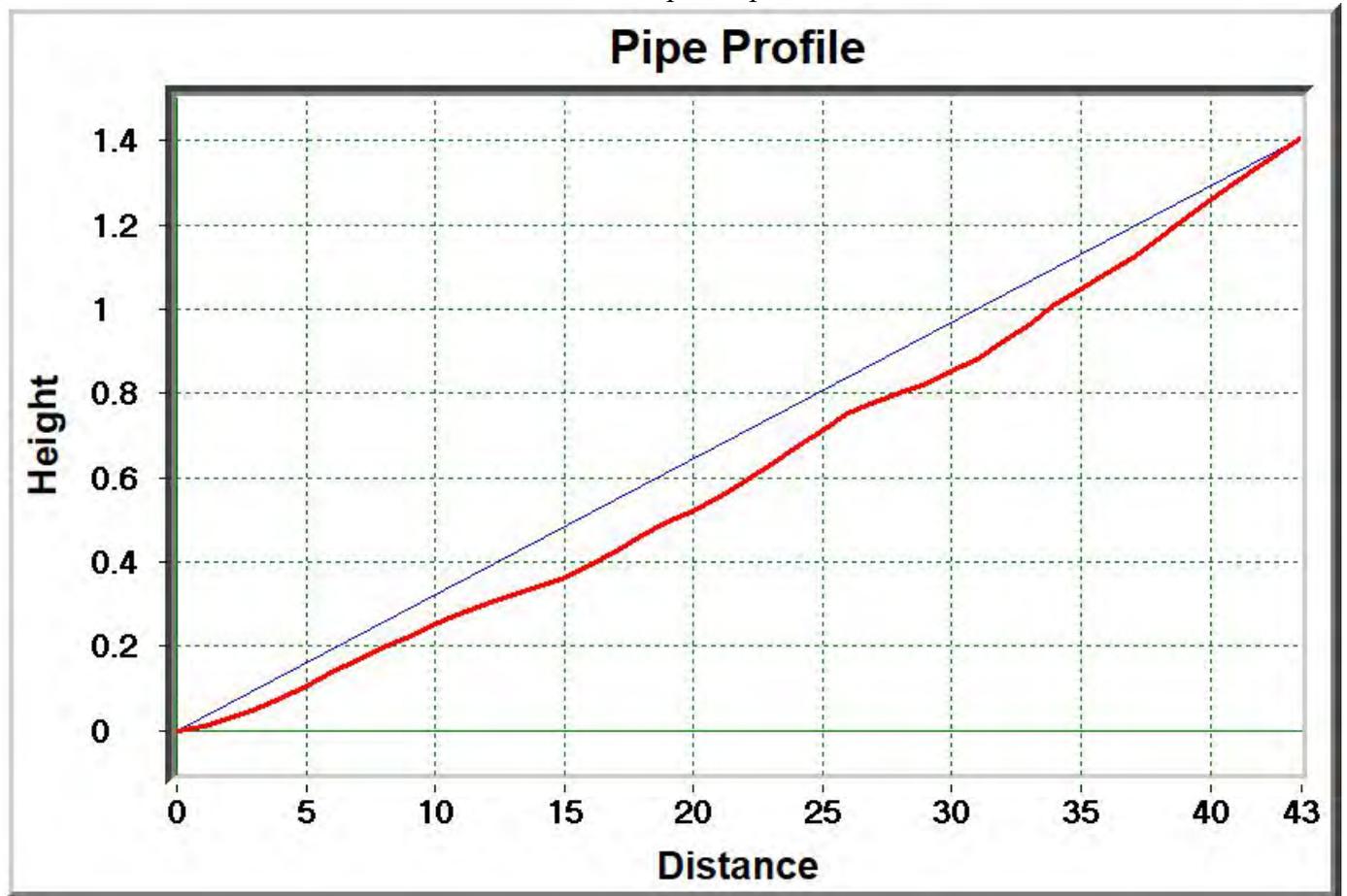
Upstream MH: EP 0112 INLET

Downstream MH: EP 0112  
OUTLET

Direction of Survey: Upstream

Material: Reinforced Concrete  
Pipe

Percent Grade Mean: 3.16  
Plot Distance From: 0 To 47  
Max Percent Difference: 3  
Number of Window Values: 1  
Percent Difference Max for Windows Values: 60  
Number of Feet to Average: 1  
Final number of points plotted: 44



# US 1 Replace Bridge over I-20

Alignment US1, Station 302+32

Structure EP-0113

24" RCP

## **Summary:**

F&ME inspected the overall condition of a 24" RCP designated as EP-0113.

## **Observations:**

- Dimensions – Verified 24" RCP. Total length measured as approximately 61 LF.
- Scan direction – Outfall to inlet.
- General notes – None.
- Observations:
  - 1) 4.3 feet – 0.59" gap in joint; fine root intrusion in joint.
  - 2) 8.0 feet – Joint offset.
  - 3) 8.1 feet – 1.33" gap in joint.
  - 4) 12.0 feet – 2.22" gap in joint; fine root intrusion in joint.
  - 5) 13.6 feet – Longitudinal and circumferential cracking in pipe between 11 o'clock and 1 o'clock.
  - 6) 14.3 feet – Circumferential crack in pipe between 9 o'clock and 11 o'clock.
  - 7) 15.3 feet – Longitudinal crack in pipe with infiltration staining at 12 o'clock.
  - 8) 21.2 feet – Longitudinal crack in pipe at 12 o'clock.
  - 9) 27.2 feet – Longitudinal crack in pipe at 12 o'clock.
  - 10) 30.0 feet – Longitudinal crack in pipe at 12 o'clock.
  - 11) 32.9 feet – Longitudinal crack in pipe at 12 o'clock.
  - 12) 36.0 feet – Longitudinal crack in pipe at 12 o'clock.
  - 13) 39.0 feet – Longitudinal crack in pipe at 12 o'clock.
  - 14) 41.9 feet – Longitudinal crack in pipe at 12 o'clock.
  - 15) 45.0 feet – Longitudinal crack in pipe at 12 o'clock.
  - 16) 51.0 feet – 0.85" gap in joint; fine root intrusion in joint.
  - 17) 54.8 feet – 0.87" gap in joint; fine root intrusion in joint; debris in pipe.
  - 18) 59.1 feet – 1.11" gap in joint; fine root intrusion in joint.
  - 19) 61.3 feet – Longitudinal crack in pipe at 3 o'clock.
  - 20) 61.5 feet – Catch basin.

### Project Information

<b>Surveyor Name</b>	GCS	<b>Certificate Number</b>	U-0917-07009391
<b>Owner</b>	SCDOT	<b>Customer</b>	F&ME
<b>Drainage Area</b>		<b>PO Number</b>	
<b>Pipe Segment Reference</b>		<b>Date</b>	4/4/2019 09:05
<b>Street</b>	I-26	<b>City</b>	COLUMBIA
<b>Comments</b>			

### Manhole

<b>Upstream MH</b>	EP 0113 INLET	<b>Rim to Invert (U)</b>	
<b>Grade to Invert (U)</b>		<b>Rim to Grade (U)</b>	
<b>Downstream MH</b>	EP 0113 OUTLET	<b>Rim to Invert (D)</b>	
<b>Grade to Invert (D)</b>		<b>Rim to Grade (D)</b>	
<b>Sewer Use</b>		<b>Direction of Survey</b>	Upstream

### Pipe

<b>Height (Diameter)</b>	24	<b>Width</b>	
<b>Shape</b>	Circular	<b>Material</b>	Reinforced Concrete Pipe
<b>Lining Method</b>		<b>Pipe Joint Length</b>	
<b>Total Length</b>		<b>Length Surveyed</b>	61.5
<b>Year Laid</b>		<b>Year Renewed</b>	

### Misc

<b>Flow Control</b>		<b>Media Label</b>	DVD
<b>Purpose</b>		<b>Sewer Category</b>	
<b>Pre-Cleaning</b>	Not Known	<b>Date Cleaned</b>	
<b>Weather</b>		<b>Location Code</b>	
<b>Additional Info</b>		<b>Location Details</b>	

### Custom

<b>Number of Taps</b>	0	<b>Number of Roots</b>	11
<b>Num Cracks / Fractures</b>	10	<b>Number of Broken / Holes / Collapse</b>	0
<b>Number of Deposits</b>	0	<b>Custom6</b>	
<b>Custom7</b>		<b>Struct Grade</b>	
<b>OM Grade</b>		<b>Overall Grade</b>	

### Pacp 6

<b>Reverse Setup ID</b>		<b>Sheet (Group) Number</b>	
<b>Imperial Units (US)</b>	True	<b>Pressure Value</b>	
<b>Work Order</b>		<b>Project</b>	US#1 RBO I-20 PIPE
		<b>Completed</b>	Yes

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 9:05:00 AM

Street: I-26

Length Surveyed: 61.5

Pacp Quick Overall Rating:

Height (Diameter): 24

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0113 INLET

Downstream MH: EP 0113

OUTLET

Direction of Survey: Upstream

Material: Reinforced Concrete  
Pipe

Distance	Fault Observation	Time	Picture
0.0	Catch Basin Severity: None Remarks: EP 0113 OUTLET	30	
0.0	Water Level Severity: None Percent: 5	46	
4.3	Roots Fine Joint Position: 7 Severity: None Joint Maint Weight: 1	03:13	

Distance	Fault Observation	Time	Picture
8.0	<p align="center"> <b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: SLIGHT OFFSET</b> </p>	04:36	
8.1	<p align="center"> <b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 1.334</b> </p>	06:03	
12.0	<p align="center"> <b>Roots Fine Joint</b>  <b>Position: 7</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Maint Weight: 1</b> </p>	07:02	

Distance	Fault Observation	Time	Picture
12.0	<p style="text-align: center;"><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: 2.215</b></p>	08:16	
13.6	<p style="text-align: center;"><b>Crack Multiple</b>  <b>Position: 11 To 1</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Struct Weight: 3</b></p>	11:07	
14.3	<p style="text-align: center;"><b>Crack Circumferential</b>  <b>Position: 9 To 11</b>  <b>Severity: None</b>  <b>Struct Weight: 1</b></p>	10:10	

Distance	Fault Observation	Time	Picture
14.3	Picture Number: 2 Crack Circumferential Position: 9 To 11	0	
15.3	Crack Longitudinal Position: 12 Severity: None Joint Remarks: CRACK WITH STAIN Struct Weight: 2	12:12	
21.2	Crack Longitudinal Position: 12 Severity: None Joint Struct Weight: 2	14:15	

Distance	Fault Observation	Time	Picture
24.2	<b>Roots Fine Joint</b> <b>Position: 7</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	15:48	
27.2	<b>Crack Longitudinal</b> <b>Position: 12</b> <b>Severity: None</b> <b>Joint</b> <b>Struct Weight: 2</b>	17:24	
30.0	<b>Crack Longitudinal</b> <b>Position: 12</b> <b>Severity: None</b> <b>Joint</b> <b>Struct Weight: 2</b>	18:29	

Distance	Fault Observation	Time	Picture
30.0	<b>Roots Fine Joint</b> <b>Position: 7 To 8</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	18:59	
32.9	<b>Crack Longitudinal</b> <b>Position: 12</b> <b>Severity: None</b> <b>Joint</b> <b>Struct Weight: 2</b>	20:02	
36.0	<b>Crack Longitudinal</b> <b>Position: 12</b> <b>Severity: None</b> <b>Joint</b> <b>Struct Weight: 2</b>	21:08	

Distance	Fault Observation	Time	Picture
39.0	<b>Crack Longitudinal</b> <b>Position: 12</b> <b>Severity: None</b> <b>Cont Defect: S02</b> <b>Joint</b> <b>Struct Weight: 2</b>	23:00	
39.0	<b>Picture Number: 2</b> <b>Crack Longitudinal</b> <b>Position: 12</b>	0	
41.9	<b>Picture Number: 3</b> <b>Crack Longitudinal</b> <b>Position: 12</b>	0	

Distance	Fault Observation	Time	Picture
45.0	<b>Picture Number: 4</b> <b>Crack Longitudinal</b> <b>Position: 12</b>	0	<p>US#1 RBO I-20 PIPE EP 0113 OUTLET To EP 0113 INLET</p> <p>8:40 -66/42' +2.7% +45.0ft</p>
45.0	<b>RootsFineJoint</b> <b>Position:7</b> <b>Severity:None</b> <b>Joint</b> <b>MaintWeight:1</b> <b>0.62"</b>	26:00	<p>US#1 RBO I-20 PIPE EP 0113 OUTLET To EP 0113 INLET</p> <p>8:39 -114/-85' +2.7% +45.0ft</p>
47.9	<b>Roots Fine Joint</b> <b>Position: 5</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	27:57	<p>US#1 RBO I-20 PIPE EP 0113 OUTLET To EP 0113 INLET</p> <p>8:41 -51/-81' +3.3% +47.9ft</p>

Distance	Fault Observation	Time	Picture
51.0	<b>Roots Fine Joint</b> <b>Position: 7</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	29:46	 <p>US#1 RBO I-20 PIPE EP 0113 OUTLET To EP 0113 INLET</p> <p>04,04,19 -121/-82' +1.8% +50.9ft</p>
51.0	<b>Roots Fine Joint</b> <b>Position: 4 To 5</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	30:09	 <p>US#1 RBO I-20 PIPE EP 0113 OUTLET To EP 0113 INLET</p> <p>8:43 -35/-90' +1.9% +50.9ft</p>
51.0	<b>General Observation</b> <b>Severity: None</b> <b>Remarks: 0.851</b>	30:51	 <p>US#1 RBO I-20 PIPE EP 0113 OUTLET To EP 0113 INLET</p> <p>04,04,19 109/-87' +1.9% +50.9ft</p>

Distance	Fault Observation	Time	Picture
54.8	<b>Roots Fine Joint</b> <b>Position: 7</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	32:07	
54.8	<b>Roots Fine Joint</b> <b>Position: 5</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	32:29	
54.8	<b>Obstacle Other</b> <b>Position: 6</b> <b>Severity: None</b> <b>Percent: 10</b> <b>Remarks: DEBRIS</b> <b>IN PIPE</b> <b>Maint Weight: 2</b>	33:16	

Distance	Fault Observation	Time	Picture
59.1	<b>Roots Fine Joint</b> <b>Position: 5</b> <b>Severity: None</b> <b>Joint</b> <b>Maint Weight: 1</b>	34:50	
59.1	<b>General Observation</b> <b>Severity: None</b> <b>Remarks: 1.107</b>	35:28	
61.3	<b>Crack Longitudinal</b> <b>Position: 12</b> <b>Severity: None</b> <b>Cont Defect: F02</b> <b>Joint</b> <b>Struct Weight: 2</b>	36:18	

Distance	Fault Observation	Time	Picture
61.5	Catch Basin Severity: None Remarks: EP 0113 INLET	37:17	

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# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 9:05:00 AM

Street: I-26

Length Surveyed: 61.5

Pacp Quick Overall Rating:

Height (Diameter): 24

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0113 INLET

Downstream MH: EP 0113

OUTLET

Direction of Survey: Upstream

Material: Reinforced Concrete  
Pipe

ID Number: EP 0113 OUTLET

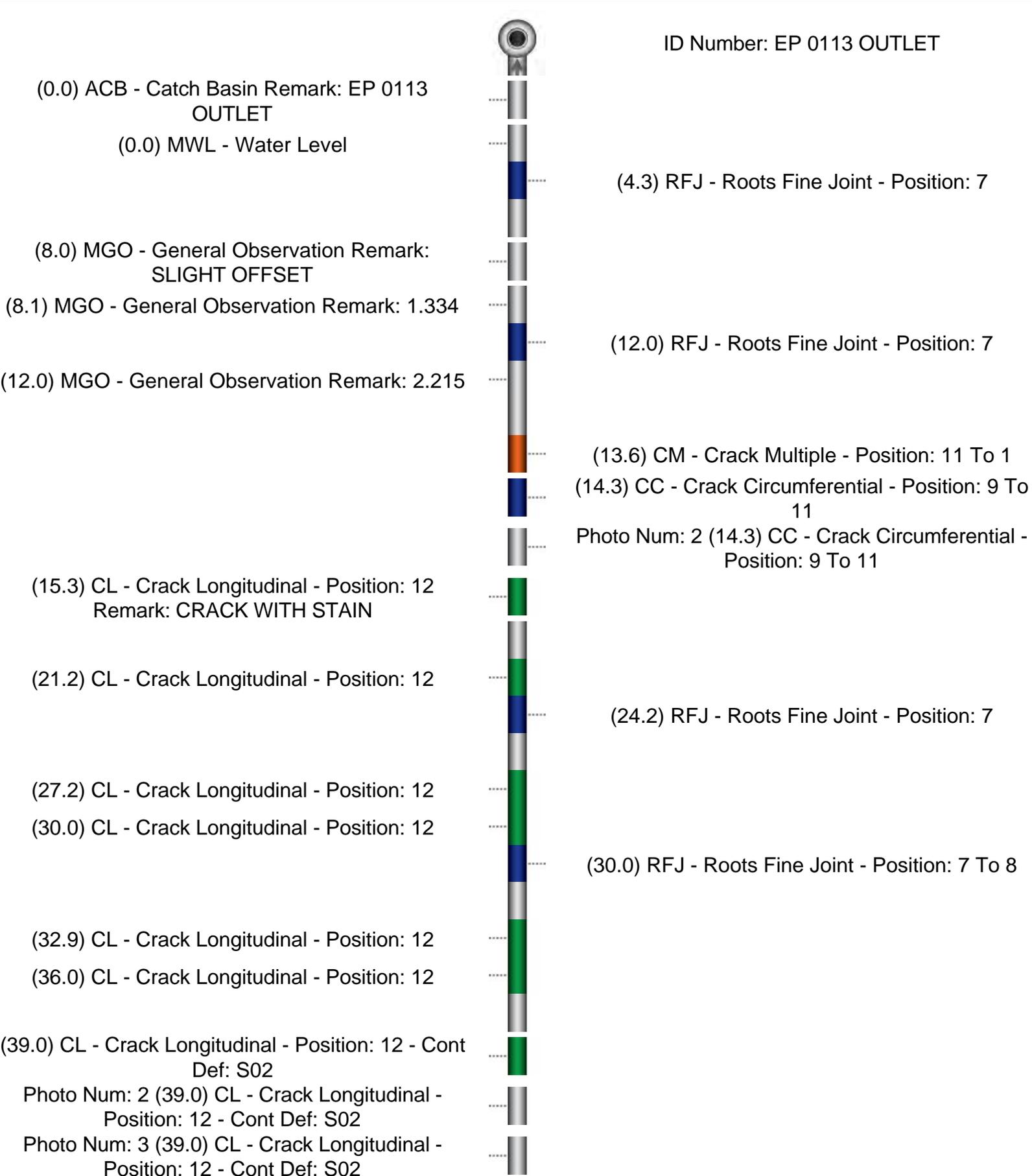


Photo Num: 4 (39.0) CL - Crack Longitudinal -  
Position: 12 - Cont Def: S02

(47.9) RFJ - Roots Fine Joint - Position: 5

(51.0) RFJ - Roots Fine Joint - Position: 4 To 5

(51.0) MGO - General Observation Remark: 0.851

(54.8) RFJ - Roots Fine Joint - Position: 5

(45.0) RFJ - Roots Fine Joint - Position: 7

(51.0) RFJ - Roots Fine Joint - Position: 7

(54.8) RFJ - Roots Fine Joint - Position: 7

(54.8) OBZ - Obstacle Other - Position: 6 Remark:  
DEBRIS IN PIPE

(59.1) RFJ - Roots Fine Joint - Position: 5

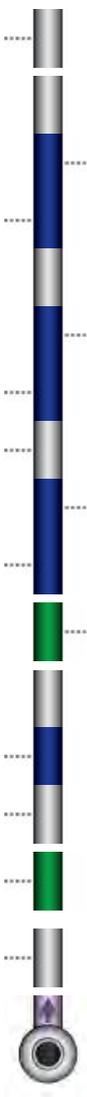
(59.1) MGO - General Observation Remark: 1.107

(61.3) CL - Crack Longitudinal - Position: 12 - Cont  
Def: F02

(61.5) ACB - Catch Basin Remark: EP 0113  
INLET

Total Distance: 61.5

ID Number: EP 0113 INLET



# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 9:05:00 AM

Street: I-26

Length Surveyed: 61.5

Pacp Quick Overall Rating:

Height (Diameter): 24

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0113 INLET

Downstream MH: EP 0113

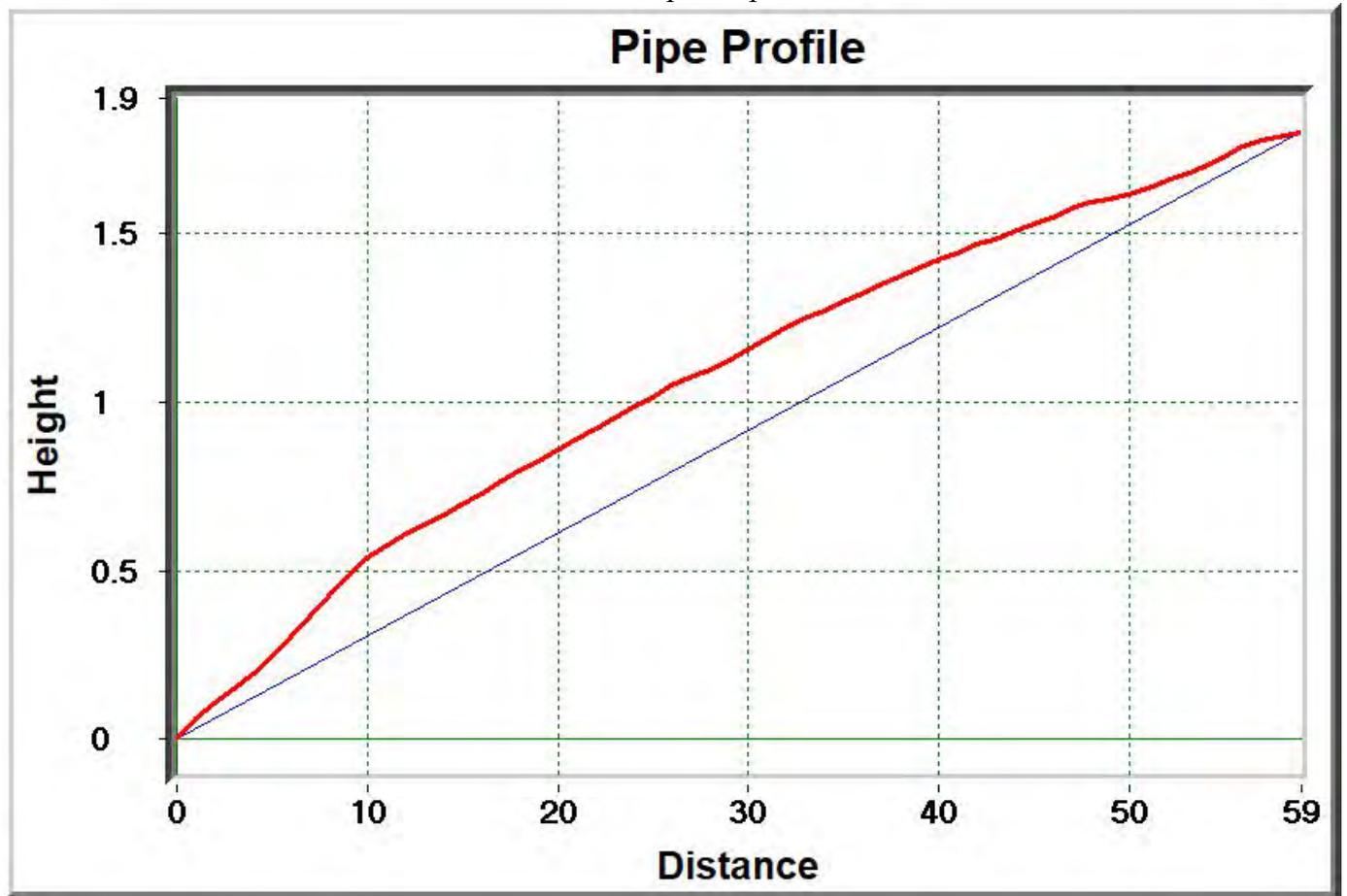
OUTLET

Direction of Survey: Upstream

Material: Reinforced Concrete

Pipe

Percent Grade Mean: 3.13  
Plot Distance From: 0 To 63  
Max Percent Difference: 3  
Number of Window Values: 1  
Percent Difference Max for Windows Values: 60  
Number of Feet to Average: 1  
Final number of points plotted: 58



# US 1 Replace Bridge over I-20

Alignment US1, Station 299+25

Structure EP-0115

18" RCP

## **Summary:**

F&ME inspected the overall condition of an 18" RCP designated as EP-0115.

## **Observations:**

- Dimensions – Verified 18" RCP. Total length could not be measured. Inspected length was approximately 5 LF.
- Scan direction – Outfall to inlet.
- General notes – None.
- Observations:
  - 1) 0.0 feet – Excessive sediment and debris in pipe. Unable to inspect.

### Project Information

<b>Surveyor Name</b>	GCS	<b>Certificate Number</b>	U-0917-07009391
<b>Owner</b>	SCDOT	<b>Customer</b>	F&ME
<b>Drainage Area</b>		<b>PO Number</b>	
<b>Pipe Segment Reference</b>		<b>Date</b>	4/4/2019 08:34
<b>Street</b>	I-26	<b>City</b>	COLUMBIA
<b>Comments</b>			

### Manhole

<b>Upstream MH</b>	EP 0115 INLET	<b>Rim to Invert (U)</b>	
<b>Grade to Invert (U)</b>		<b>Rim to Grade (U)</b>	
<b>Downstream MH</b>	EP 0115 OUTLET	<b>Rim to Invert (D)</b>	
<b>Grade to Invert (D)</b>		<b>Rim to Grade (D)</b>	
<b>Sewer Use</b>		<b>Direction of Survey</b>	Upstream

### Pipe

<b>Height (Diameter)</b>	18	<b>Width</b>	
<b>Shape</b>	Circular	<b>Material</b>	Reinforced Concrete Pipe
<b>Lining Method</b>		<b>Pipe Joint Length</b>	
<b>Total Length</b>		<b>Length Surveyed</b>	4.5
<b>Year Laid</b>		<b>Year Renewed</b>	

### Misc

<b>Flow Control</b>		<b>Media Label</b>	DVD
<b>Purpose</b>		<b>Sewer Category</b>	
<b>Pre-Cleaning</b>	Not Known	<b>Date Cleaned</b>	
<b>Weather</b>		<b>Location Code</b>	
<b>Additional Info</b>		<b>Location Details</b>	

### Custom

<b>Number of Taps</b>	0	<b>Number of Roots</b>	0
<b>Num Cracks / Fractures</b>	0	<b>Number of Broken / Holes / Collapse</b>	0
<b>Number of Deposits</b>	0	<b>Custom6</b>	
<b>Custom7</b>		<b>Struct Grade</b>	
<b>OM Grade</b>		<b>Overall Grade</b>	

### Pacp 6

<b>Reverse Setup ID</b>		<b>Sheet (Group) Number</b>	
<b>Imperial Units (US)</b>	True	<b>Pressure Value</b>	
<b>Work Order</b>		<b>Project</b>	US#1 RBO I-20 PIPE
		<b>Completed</b>	No

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 8:34:00 AM

Street: I-26

Length Surveyed: 4.5

Pacp Quick Overall Rating:

Height (Diameter): 18

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0115 INLET

Downstream MH: EP 0115

OUTLET

Direction of Survey: Upstream

Material: Reinforced Concrete Pipe

Distance	Fault Observation	Time	Picture
0.0	<p><b>Catch Basin</b>  <b>Severity: None</b>  <b>Remarks: EP 0115</b>  <b>OUTLET</b></p>	31	
0.0	<p><b>Water Level</b>  <b>Severity: None</b>  <b>Percent: 15</b></p>	46	
0.0	<p><b>Obstacle Other</b>  <b>Position: 4 To 8</b>  <b>Severity: None</b>  <b>Percent: 20</b>  <b>Remarks: WATER</b>  <b>AND MUD IN PIPE</b>  <b>Maint Weight: 3</b></p>	01:28	

Distance	Fault Observation	Time	Picture
4.5	Abandoned Survey Severity: None Remarks: TOO MUCH MUD IN PIPE	06:14	

Created with the  report generator

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 8:34:00 AM

Street: I-26

Length Surveyed: 4.5

Pacp Quick Overall Rating:

Height (Diameter): 18

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0115 INLET

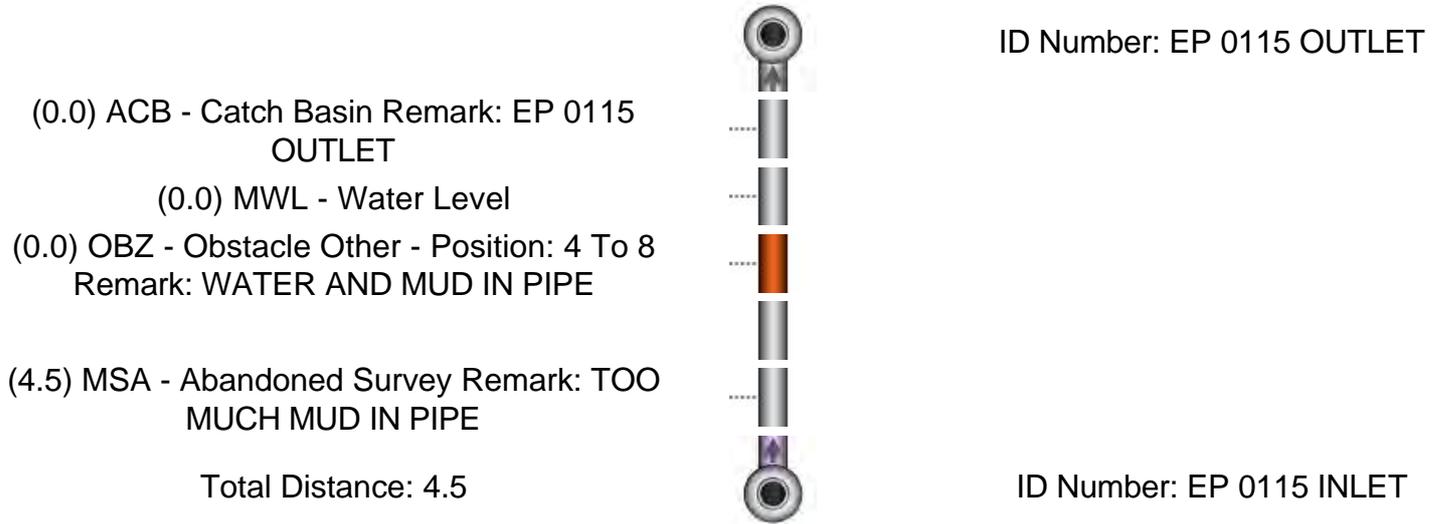
Downstream MH: EP 0115

OUTLET

Direction of Survey: Upstream

Material: Reinforced Concrete

Pipe



# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 8:34:00 AM

Street: I-26

Length Surveyed: 4.5

Pacp Quick Overall Rating:

Height (Diameter): 18

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0115 INLET

Downstream MH: EP 0115

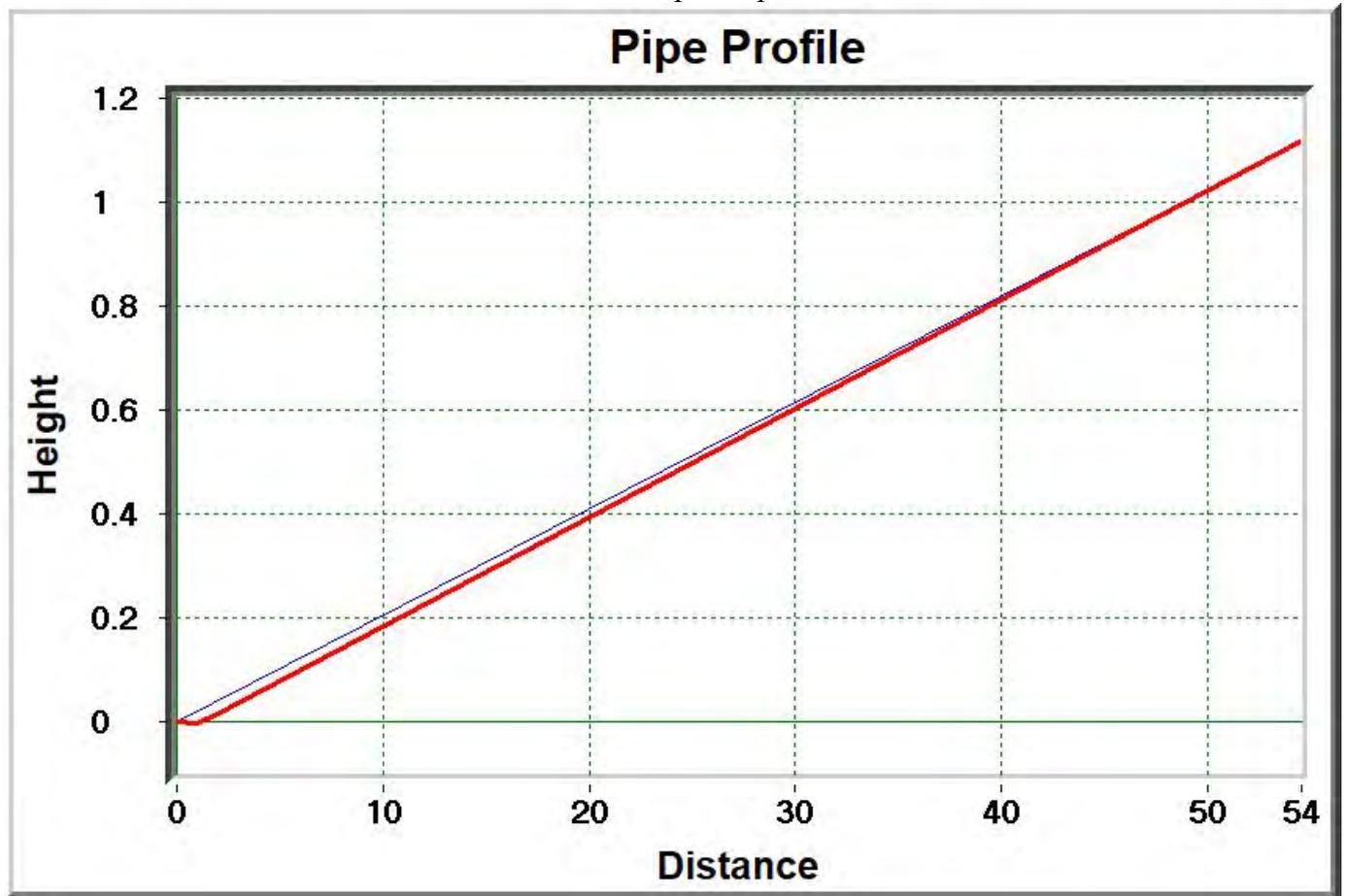
OUTLET

Direction of Survey: Upstream

Material: Reinforced Concrete

Pipe

Percent Grade Mean: 1.82  
Plot Distance From: 0 To 5  
Max Percent Difference: 3  
Number of Window Values: 1  
Percent Difference Max for Windows Values: 60  
Number of Feet to Average: 1  
Final number of points plotted: 4



# US 1 Replace Bridge over I-20

Alignment US1, Station 295+88

Structure EP-0116

36" RCP

## **Summary:**

F&ME inspected the overall condition of a 36" RCP designated as EP-0116.

## **Observations:**

- Dimensions – Verified partially 36" RCP. Total length measured as approximately 57 LF.
- Scan direction – Inlet to outfall.
- General notes – Inlet is 36" RCP. Crossing switches to a rectangular concrete box culvert under the road. Culvert is 18" to 24" wide and 30" to 36" tall. Exact measurement of the culvert was not made
- Observations:
  - 1) 0.0 feet – Sediment in pipe.
  - 2) 1.4 feet – 1.77" chip in spigot.
  - 3) 8.7 feet – Crossing changes to rectangular culvert.
  - 4) 10.3 feet – Metal used for hole patch in culvert at 12 o'clock.
  - 5) 41.5 feet – Wood used for patch or form at 12 o'clock.
  - 6) 47.5 feet – 0.91" separation in joint with visible soil.
  - 7) 57.4 feet – Catch basin.

### Project Information

<b>Surveyor Name</b>	GCS	<b>Certificate Number</b>	U-0917-07009391
<b>Owner</b>	SCDOT	<b>Customer</b>	F&ME
<b>Drainage Area</b>		<b>PO Number</b>	
<b>Pipe Segment Reference</b>		<b>Date</b>	4/4/2019 07:33
<b>Street</b>	I-26	<b>City</b>	COLUMBIA
<b>Comments</b>			

### Manhole

<b>Upstream MH</b>	EP 0116 INLET	<b>Rim to Invert (U)</b>	
<b>Grade to Invert (U)</b>		<b>Rim to Grade (U)</b>	
<b>Downstream MH</b>	EP 0116 OUTLET	<b>Rim to Invert (D)</b>	
<b>Grade to Invert (D)</b>		<b>Rim to Grade (D)</b>	
<b>Sewer Use</b>		<b>Direction of Survey</b>	Downstream

### Pipe

<b>Height (Diameter)</b>	36	<b>Width</b>	
<b>Shape</b>	Circular	<b>Material</b>	Reinforced Concrete Pipe
<b>Lining Method</b>		<b>Pipe Joint Length</b>	
<b>Total Length</b>		<b>Length Surveyed</b>	57.4
<b>Year Laid</b>		<b>Year Renewed</b>	

### Misc

<b>Flow Control</b>		<b>Media Label</b>	DVD
<b>Purpose</b>		<b>Sewer Category</b>	
<b>Pre-Cleaning</b>	Not Known	<b>Date Cleaned</b>	
<b>Weather</b>		<b>Location Code</b>	
<b>Additional Info</b>		<b>Location Details</b>	

### Custom

<b>Number of Taps</b>	0	<b>Number of Roots</b>	0
<b>Num Cracks / Fractures</b>	0	<b>Number of Broken / Holes / Collapse</b>	1
<b>Number of Deposits</b>	0	<b>Custom6</b>	
<b>Custom7</b>		<b>Struct Grade</b>	
<b>OM Grade</b>		<b>Overall Grade</b>	

### Pacp 6

<b>Reverse Setup ID</b>		<b>Sheet (Group) Number</b>	
<b>Imperial Units (US)</b>	True	<b>Pressure Value</b>	
<b>Work Order</b>		<b>Project</b>	US#1 RBO I-20 PIPE
		<b>Completed</b>	Yes

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 7:33:00 AM

Street: I-26

Length Surveyed: 57.4

Pacp Quick Overall Rating:

Height (Diameter): 36

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0116 INLET

Downstream MH: EP 0116

OUTLET

Direction of Survey:

Downstream

Material: Reinforced Concrete

Pipe

Distance	Fault Observation	Time	Picture
0.0	<p><b>Catch Basin</b>  <b>Severity: None</b>  <b>Remarks: EP 0116</b>  <b>INLET</b></p>	20	
0.0	<p><b>Water Level</b>  <b>Severity: None</b>  <b>Percent: 0</b></p>	32	
1.4	<p><b>Broken</b>  <b>Position: 12</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Remarks: CHIPPED</b>  <b>SPIGOT 1.772</b>  <b>Struct Weight: 4</b></p>	02:39	

Distance	Fault Observation	Time	Picture
5.0	<p><b>Obstacle Other</b>  <b>Position: 5 To 7</b>  <b>Severity: None</b>  <b>Cont Defect: S01</b>  <b>Percent: 10</b>  <b>Remarks: DIRT IN PIPE</b>  <b>Maint Weight: 2</b></p>	04:35	
8.7	<p><b>General Observation</b>  <b>Severity: None</b>  <b>Remarks: CHANGE TO RECTANGLE CULVERT</b></p>	05:20	
10.3	<p><b>Repair Other</b>  <b>Severity: None</b>  <b>Joint</b>  <b>Remarks: METAL USED FOR PATCH</b></p>	07:01	

Distance	Fault Observation	Time	Picture
41.5	<p>Repair Other Severity: None Joint Remarks: WOOD USED FOR PATCH OR FORM</p>	08:41	
47.5	<p>Joint Separated Medium Severity: None Remarks: SEPARATED 0.908 INCH SOIL VISIBLE Struct Weight: 1</p>	11:12	
57.4	<p>Obstacle Other Position: 5 To 7 Severity: None Cont Defect: F01 Percent: 10 Remarks: DIRT IN PIPE Maint Weight: 2</p>	13:57	

Distance	Fault Observation	Time	Picture
57.4	Catch Basin Severity: None Remarks: EP 0116 OUTLET	14:11	

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# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 7:33:00 AM

Street: I-26

Length Surveyed: 57.4

Pacp Quick Overall Rating:

Height (Diameter): 36

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0116 INLET

Downstream MH: EP 0116

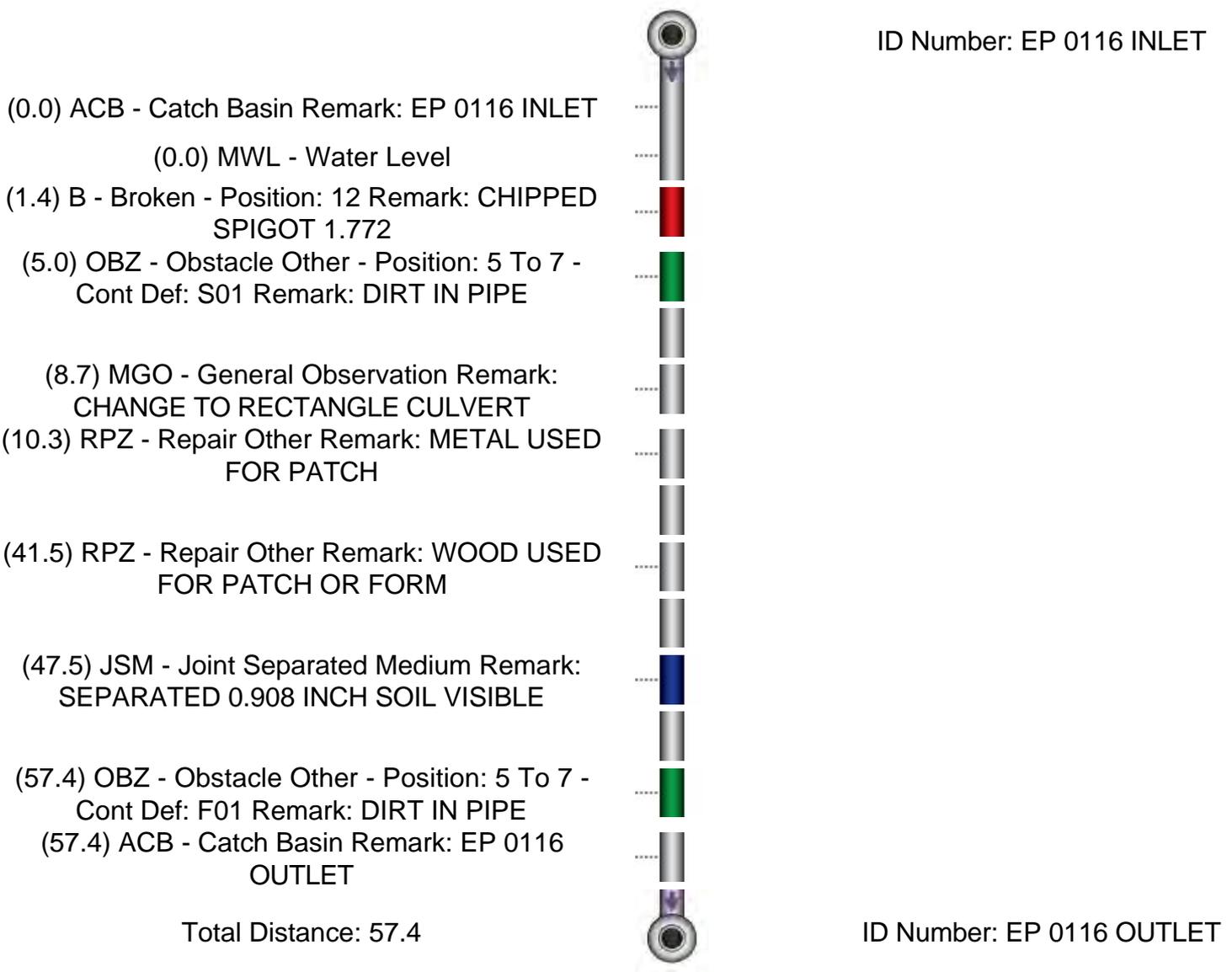
OUTLET

Direction of Survey:

Downstream

Material: Reinforced Concrete

Pipe



# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 7:33:00 AM

Street: I-26

Length Surveyed: 57.4

Pacp Quick Overall Rating:

Height (Diameter): 36

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0116 INLET

Downstream MH: EP 0116

OUTLET

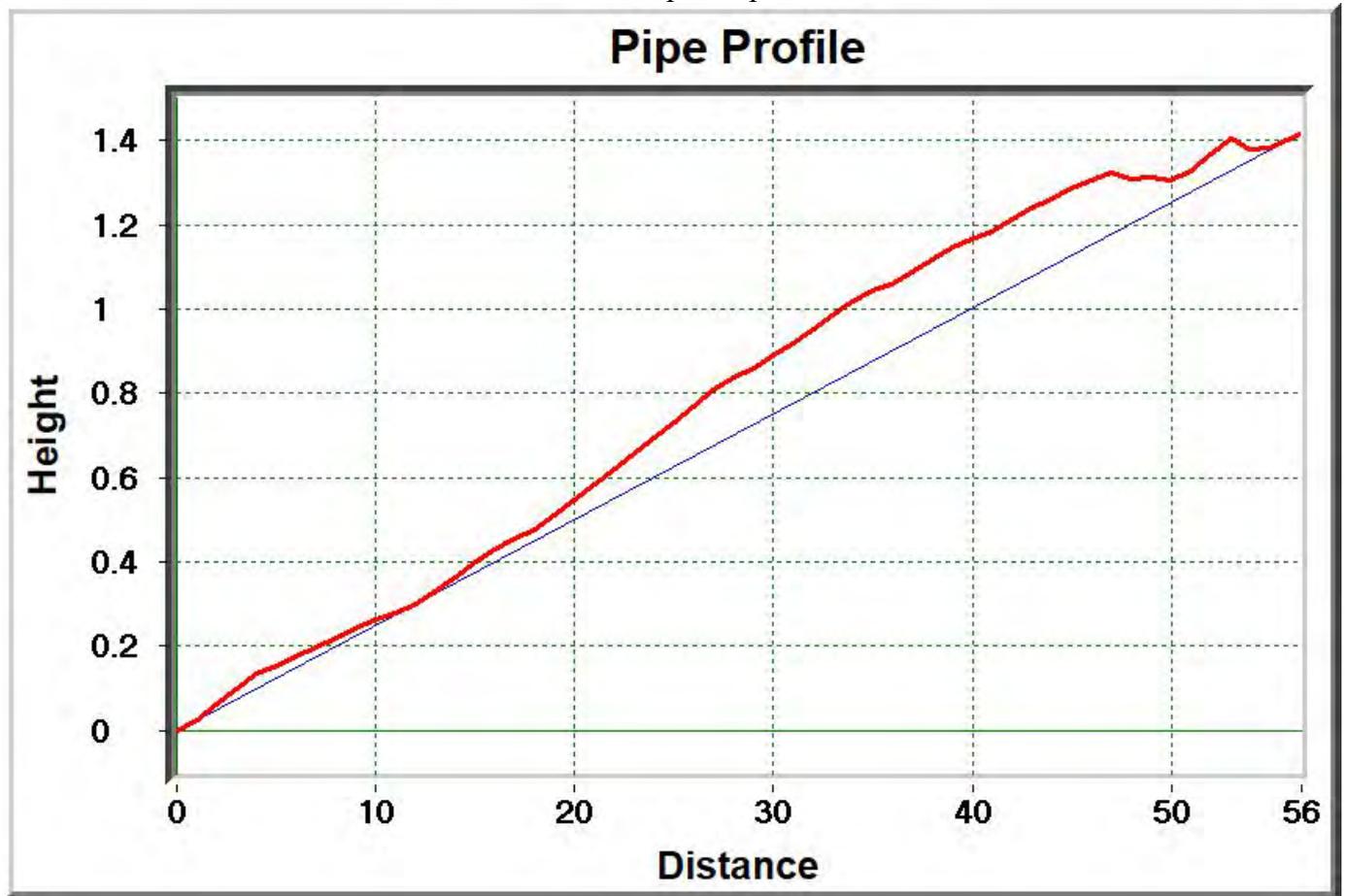
Direction of Survey:

Downstream

Material: Reinforced Concrete

Pipe

Percent Grade Mean: 2.46  
Plot Distance From: 0 To 58  
Max Percent Difference: 3  
Number of Window Values: 1  
Percent Difference Max for Windows Values: 60  
Number of Feet to Average: 1  
Final number of points plotted: 53



# US 1 Replace Bridge over I-20

Alignment US1, Station 295+88

Structure EP-0116A

36" RCP

## **Summary:**

F&ME inspected the overall condition of a 36" RCP designated as EP-0116A.

## **Observations:**

- Dimensions – Verified 36" RCP. Total length measured as approximately 13 LF.
- Scan direction – Inlet to outfall.
- General notes – None.
- Observations:
  - 1) 6.9 feet – 1.05" gap in joint.

### Project Information

<b>Surveyor Name</b>	GCS	<b>Certificate Number</b>	U-0917-07009391
<b>Owner</b>	SCDOT	<b>Customer</b>	F&ME
<b>Drainage Area</b>		<b>PO Number</b>	
<b>Pipe Segment Reference</b>		<b>Date</b>	4/4/2019 08:00
<b>Street</b>	I-26	<b>City</b>	COLUMBIA
<b>Comments</b>			

### Manhole

<b>Upstream MH</b>	EP 0116A INLET	<b>Rim to Invert (U)</b>	
<b>Grade to Invert (U)</b>		<b>Rim to Grade (U)</b>	
<b>Downstream MH</b>	EP 0116A OUTLET	<b>Rim to Invert (D)</b>	
<b>Grade to Invert (D)</b>		<b>Rim to Grade (D)</b>	
<b>Sewer Use</b>		<b>Direction of Survey</b>	Downstream

### Pipe

<b>Height (Diameter)</b>	36	<b>Width</b>	
<b>Shape</b>	Circular	<b>Material</b>	Reinforced Concrete Pipe
<b>Lining Method</b>		<b>Pipe Joint Length</b>	
<b>Total Length</b>		<b>Length Surveyed</b>	12.8
<b>Year Laid</b>		<b>Year Renewed</b>	

### Misc

<b>Flow Control</b>		<b>Media Label</b>	DVD
<b>Purpose</b>		<b>Sewer Category</b>	
<b>Pre-Cleaning</b>	Not Known	<b>Date Cleaned</b>	
<b>Weather</b>		<b>Location Code</b>	
<b>Additional Info</b>		<b>Location Details</b>	

### Custom

<b>Number of Taps</b>	0	<b>Number of Roots</b>	0
<b>Num Cracks / Fractures</b>	0	<b>Number of Broken / Holes / Collapse</b>	0
<b>Number of Deposits</b>	0	<b>Custom6</b>	
<b>Custom7</b>		<b>Struct Grade</b>	
<b>OM Grade</b>		<b>Overall Grade</b>	

### Pacp 6

<b>Reverse Setup ID</b>		<b>Sheet (Group) Number</b>	
<b>Imperial Units (US)</b>	True	<b>Pressure Value</b>	
<b>Work Order</b>		<b>Project</b>	US#1 RBO I-20 PIPE
		<b>Completed</b>	Yes

# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 8:00:00 AM

Street: I-26

Length Surveyed: 12.8

Pacp Quick Overall Rating:

Height (Diameter): 36

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0116A INLET

Downstream MH: EP 0116A

OUTLET

Direction of Survey:

Downstream

Material: Reinforced Concrete

Pipe

Distance	Fault Observation	Time	Picture
0.0	Discharge Point Severity: None Remarks: EP 0116A INLET	21	
0.0	Water Level Severity: None Percent: 0	39	
6.9	General Observation Severity: None Remarks: 1.049	03:22	

Distance	Fault Observation	Time	Picture
12.8	Catch Basin Severity: None Remarks: EP 0116A OUTLET	04:52	

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# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 8:00:00 AM

Street: I-26

Length Surveyed: 12.8

Pacp Quick Overall Rating:

Height (Diameter): 36

Street: I-26

Pipe Segment Reference:

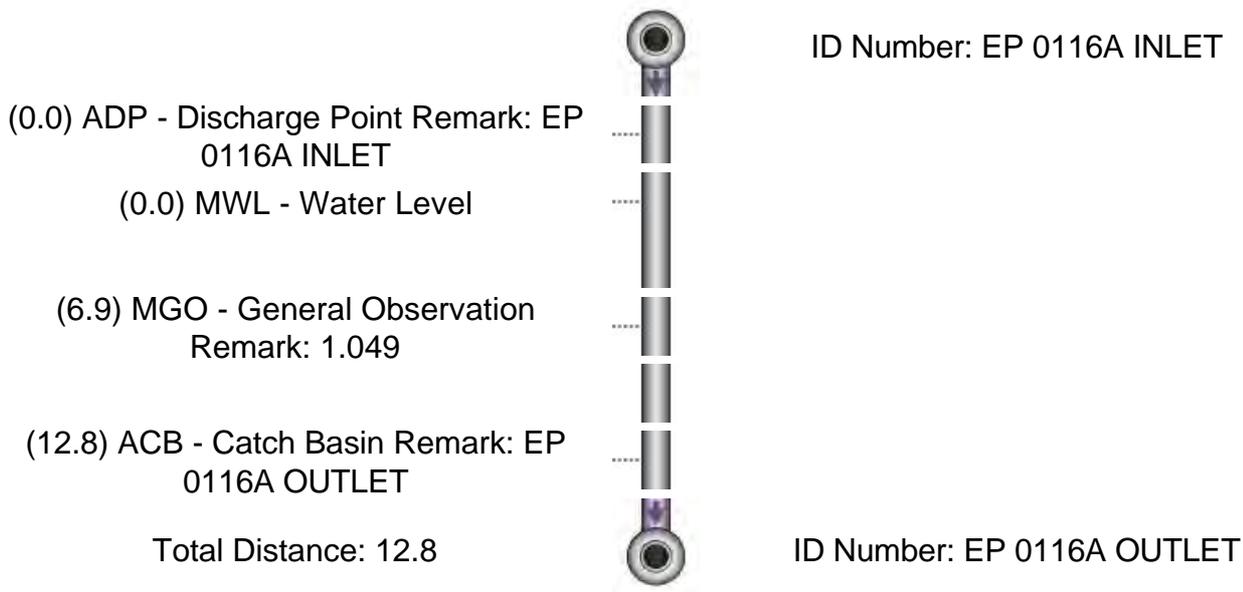
Upstream MH: EP 0116A INLET

Downstream MH: EP 0116A  
OUTLET

Direction of Survey:

Downstream

Material: Reinforced Concrete  
Pipe



# Project: US#1 RBO I-20 PIPE

Date: 4/4/2019 8:00:00 AM

Street: I-26

Length Surveyed: 12.8

Pacp Quick Overall Rating:

Height (Diameter): 36

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0116A INLET

Downstream MH: EP 0116A

OUTLET

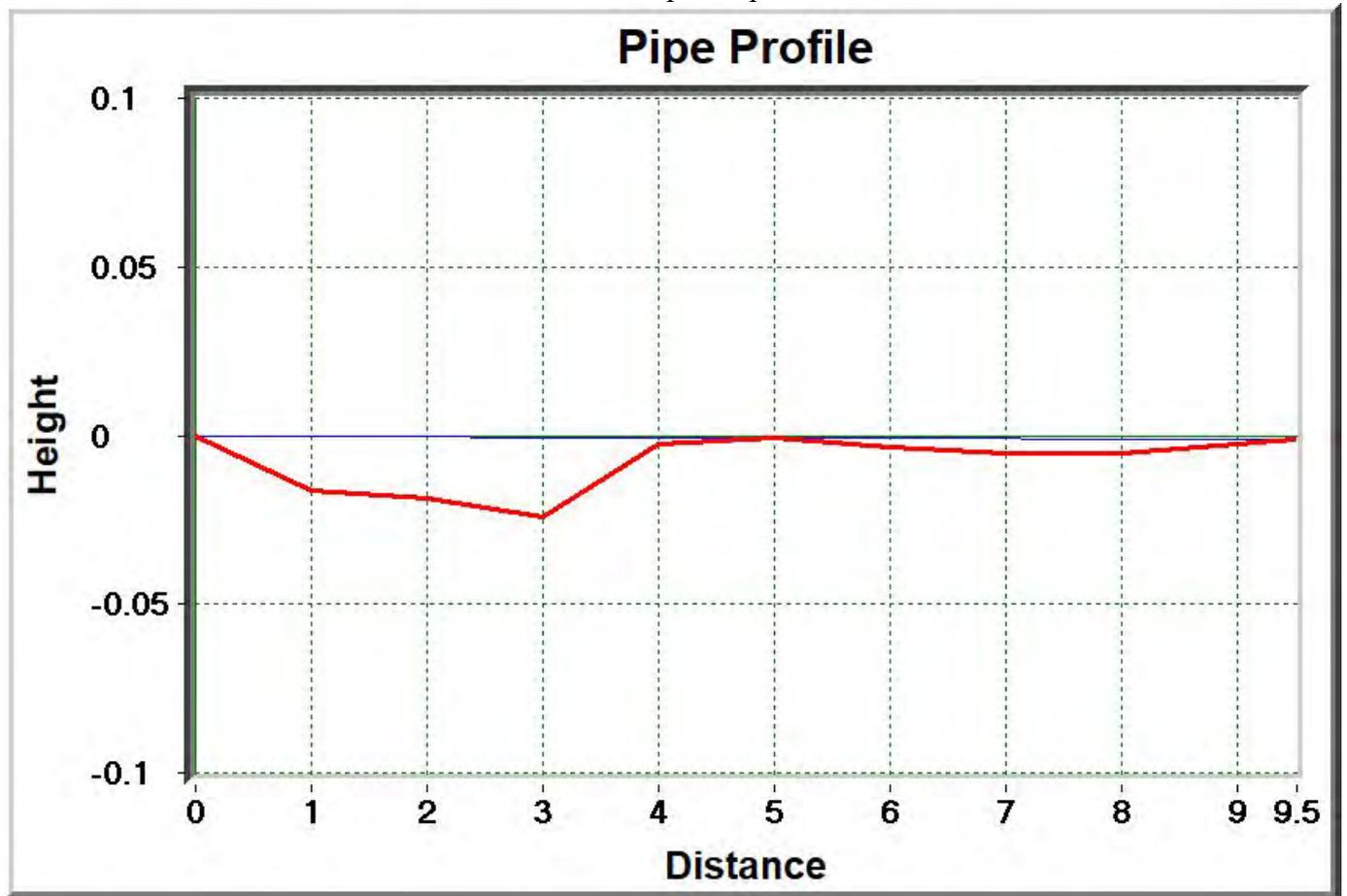
Direction of Survey:

Downstream

Material: Reinforced Concrete

Pipe

Percent Grade Mean: 0.07  
Plot Distance From: 0 To 14  
Max Percent Difference: 3  
Number of Window Values: 1  
Percent Difference Max for Windows Values: 60  
Number of Feet to Average: 1  
Final number of points plotted: 10



# US 1 Replace Bridge over I-20

Alignment US1, Station 293+15

Structure EP-0117

24" RCP

## **Summary:**

F&ME inspected the overall condition of a 24" RCP designated as EP-0117.

## **Observations:**

- Dimensions – Verified as 24" RCP. Total length could not be measured. Inspected length was approximately 37 LF
- Scan direction – Outfall to inlet.
- General notes – Inspection was terminated 37 LF from outfall due to excessive sediment and debris in pipe.
- Observations:
  - 1) 0.0 feet – Sediment and debris in pipe.
  - 2) 21.7 feet – Circumferential cracking between 8 and 10 o'clock in joint parging.
  - 3) 33.7 feet – 1.16" gap in joint.
  - 4) 36.8 feet – Debris blocking pipe. Inspection terminated.

### Project Information

<b>Surveyor Name</b>	GCS	<b>Certificate Number</b>	U-0917-07009391
<b>Owner</b>	SCDOT	<b>Customer</b>	F&ME
<b>Drainage Area</b>		<b>PO Number</b>	
<b>Pipe Segment Reference</b>		<b>Date</b>	4/3/2019 13:34
<b>Street</b>	I-26	<b>City</b>	COLUMBIA
<b>Comments</b>			

### Manhole

<b>Upstream MH</b>	EP 0117 INLET	<b>Rim to Invert (U)</b>	
<b>Grade to Invert (U)</b>		<b>Rim to Grade (U)</b>	
<b>Downstream MH</b>	EP 0117 OUTLET	<b>Rim to Invert (D)</b>	
<b>Grade to Invert (D)</b>		<b>Rim to Grade (D)</b>	
<b>Sewer Use</b>		<b>Direction of Survey</b>	Upstream

### Pipe

<b>Height (Diameter)</b>	24	<b>Width</b>	
<b>Shape</b>	Circular	<b>Material</b>	Reinforced Concrete Pipe
<b>Lining Method</b>		<b>Pipe Joint Length</b>	
<b>Total Length</b>		<b>Length Surveyed</b>	36.8
<b>Year Laid</b>		<b>Year Renewed</b>	

### Misc

<b>Flow Control</b>		<b>Media Label</b>	DVD
<b>Purpose</b>		<b>Sewer Category</b>	
<b>Pre-Cleaning</b>	Not Known	<b>Date Cleaned</b>	
<b>Weather</b>		<b>Location Code</b>	
<b>Additional Info</b>		<b>Location Details</b>	

### Custom

<b>Number of Taps</b>	0	<b>Number of Roots</b>	0
<b>Num Cracks / Fractures</b>	1	<b>Number of Broken / Holes / Collapse</b>	0
<b>Number of Deposits</b>	0	<b>Custom6</b>	
<b>Custom7</b>		<b>Struct Grade</b>	
<b>OM Grade</b>		<b>Overall Grade</b>	

### Pacp 6

<b>Reverse Setup ID</b>		<b>Sheet (Group) Number</b>	
<b>Imperial Units (US)</b>	True	<b>Pressure Value</b>	
<b>Work Order</b>		<b>Project</b>	US#1 RBO I-20 PIPE
		<b>Completed</b>	No

# Project: US#1 RBO I-20 PIPE

Date: 4/3/2019 1:34:00 PM

Street: I-26

Length Surveyed: 36.8

Pacp Quick Overall Rating:

Height (Diameter): 24

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0117 INLET

Downstream MH: EP 0117

OUTLET

Direction of Survey: Upstream

Material: Reinforced Concrete Pipe

Distance	Fault Observation	Time	Picture
0.0	<p><b>Catch Basin</b>  <b>Severity: None</b>  <b>Remarks: EP 0117</b>  <b>OUTLET</b></p>	40	
0.0	<p><b>Water Level</b>  <b>Severity: None</b>  <b>Percent: 0</b></p>	54	
2.0	<p><b>Obstacle Other</b>  <b>Position: 4 To 8</b>  <b>Severity: None</b>  <b>Percent: 20</b>  <b>Remarks: DIRT IN</b>  <b>PIPE</b>  <b>Maint Weight: 3</b></p>	01:40	

Distance	Fault Observation	Time	Picture
21.7	<p align="center"><b>Crack</b></p> <p align="center"><b>Circumferential</b></p> <p align="center"><b>Position: 8 To 10</b></p> <p align="center"><b>Severity: None</b></p> <p align="center"><b>Joint</b></p> <p align="center"><b>Remarks: CRACKS</b></p> <p align="center"><b>IN PARGING</b></p> <p align="center"><b>Struct Weight: 1</b></p>	05:59	<p>US#1 RBO I-20 PIPE EP 0117 OUTLET To EP 0117 INLET</p> <p>1.02</p> <p>04.03.19 166/-102' +5.1% +21.7ft</p>
31.8	<p align="center"><b>Obstacle Other</b></p> <p align="center"><b>Position: 3 To 9</b></p> <p align="center"><b>Severity: None</b></p> <p align="center"><b>Percent: 30</b></p> <p align="center"><b>Remarks: YARD</b></p> <p align="center"><b>TRASH DEBRIS</b></p> <p align="center"><b>Maint Weight: 4</b></p>	10:33	<p>US#1 RBO I-20 PIPE EP 0117 OUTLET To EP 0117 INLET</p> <p>12:51 2/-3' -4.5% +31.8ft</p>
33.7	<p align="center"><b>General</b></p> <p align="center"><b>Observation</b></p> <p align="center"><b>Severity: None</b></p> <p align="center"><b>Remarks: 1.16</b></p>	08:42	<p>US#1 RBO I-20 PIPE EP 0117 OUTLET To EP 0117 INLET</p> <p>12:49 142/-89' +4.9% +33.7ft</p>

Distance	Fault Observation	Time	Picture
36.8	Abandoned Survey Severity: None Remarks: YARD DEBRIS BLOCKAGE	15:36	

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# Project: US#1 RBO I-20 PIPE

Date: 4/3/2019 1:34:00 PM

Street: I-26

Length Surveyed: 36.8

Pacp Quick Overall Rating:

Height (Diameter): 24

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0117 INLET

Downstream MH: EP 0117

OUTLET

Direction of Survey: Upstream

Material: Reinforced Concrete

Pipe

ID Number: EP 0117 OUTLET

(0.0) ACB - Catch Basin Remark: EP 0117  
OUTLET

(0.0) MWL - Water Level

(2.0) OBZ - Obstacle Other - Position: 4 To 8  
Remark: DIRT IN PIPE

(21.7) CC - Crack Circumferential - Position: 8 To  
10 Remark: CRACKS IN PARGING

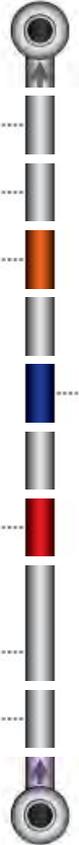
(31.8) OBZ - Obstacle Other - Position: 3 To 9  
Remark: YARD TRASH DEBRIS

(33.7) MGO - General Observation Remark: 1.16

(36.8) MSA - Abandoned Survey Remark: YARD  
DEBRIS BLOCKAGE

Total Distance: 36.8

ID Number: EP 0117 INLET



# Project: US#1 RBO I-20 PIPE

Date: 4/3/2019 1:34:00 PM

Street: I-26

Length Surveyed: 36.8

Pacp Quick Overall Rating:

Height (Diameter): 24

Street: I-26

Pipe Segment Reference:

Upstream MH: EP 0117 INLET

Downstream MH: EP 0117

OUTLET

Direction of Survey: Upstream

Material: Reinforced Concrete

Pipe

Percent Grade Mean: 3.96  
Plot Distance From: 0 To 38  
Max Percent Difference: 3  
Number of Window Values: 1  
Percent Difference Max for Windows Values: 60  
Number of Feet to Average: 1  
Final number of points plotted: 32

