

**Date:** 8/19/2019

**To:** Craig White, Michael Forester, PE

**cc:** file

**From:** Victor Godfrey, PE

**Subject:** SVWRF Pipe & Structure

### Background

As part of the South Valley Sewer District's (SVSD) River Bottom Trunk Line Assessment - Phase 1, PEC received additional inspection videos containing a pipe segment and junction box to be assessed near the SVWRF. This pipe segment and junction box belongs to the South Valley Water Reclamation Facility (SVWRF), located at the north end of the SVSD project, see Figure 1. The pipe segment is an existing 96-inch diameter Reinforced Concrete Pipe (RCP) and the concrete junction box is divided by North and South access points. An individual pipe report and junction box report, showing the defects found, have been included as an attachment to this technical memorandum.

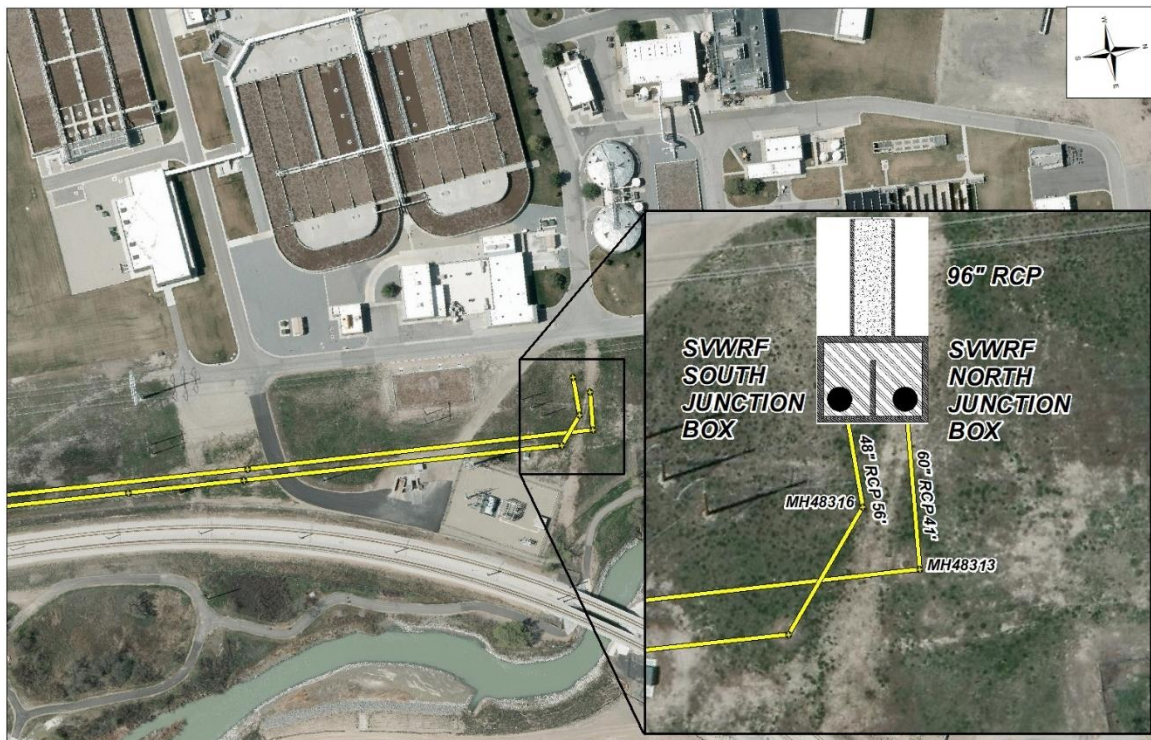


Figure 1 SVWRF Map

### Findings

A total of 1 pipe segment (174 feet), and 1 junction structure (unknown dimensions), were assessed for this addition. The first seven columns of Tables 1 and 2 show information such as:

upstream/downstream manholes, material, diameter, number of sewer lateral connections, CCTV length, and location of pipe segments.

### Condition Assessment

The primary material of both the pipe segment and junction box is RCP. During our assessment the worst structural defect code currently found in the pipe segment was aggregate visible. This defect was the worst structural defect detected in the junction box. The Operational & Maintenance defect found in the pipe segment was a “Left Alignment”, which according to NASSCO standards is a change in the pipe alignment to the left side. This O&M defect typically is not recommended for rehab since is considered a construction feature. The structural condition of both the pipe segment and junction box is expected to continue to deteriorate due to sewer gas exposure. Eventually, structural defects such as aggregate projecting, rebar visible, and rebar missing will be visible. Tables 1 and 2 show the structural and O/M defects found in the pipe segment and the junction box. More detailed information about the location and continuity of these defects is provided in the individual reports attached to this memo. Once all the structural and O&M defects were recorded, the pipe segment was scored and a “Quick Rating” was obtained. This Quick Rating shows the structural grade of the worst defect found in the pipe segment (first digit) and the number of times this defect was repeated (second digit). The third digit represents the second structural grade of the second worst defect, and the fourth digit represents the number of times this defect repeats. The aggregate visible defect score in pipe segment and junction box is a structural grade 2 (see Tables 1 and 2).

### Recommendations

Typically, these defects would put the pipe and structure on a list to be re-inspected in 5 Years, however since there will be a rehabilitation project occurring immediately adjacent to this structure and pipe, PEC recommends that the SVWRF consider including this work in the rehabilitation project. The last column in Tables 1 and 2 shows the recommended action for pipe segment and junction structure.

Table 1. Pipe Segment Structural and O&M Grades and Recommendation Summary

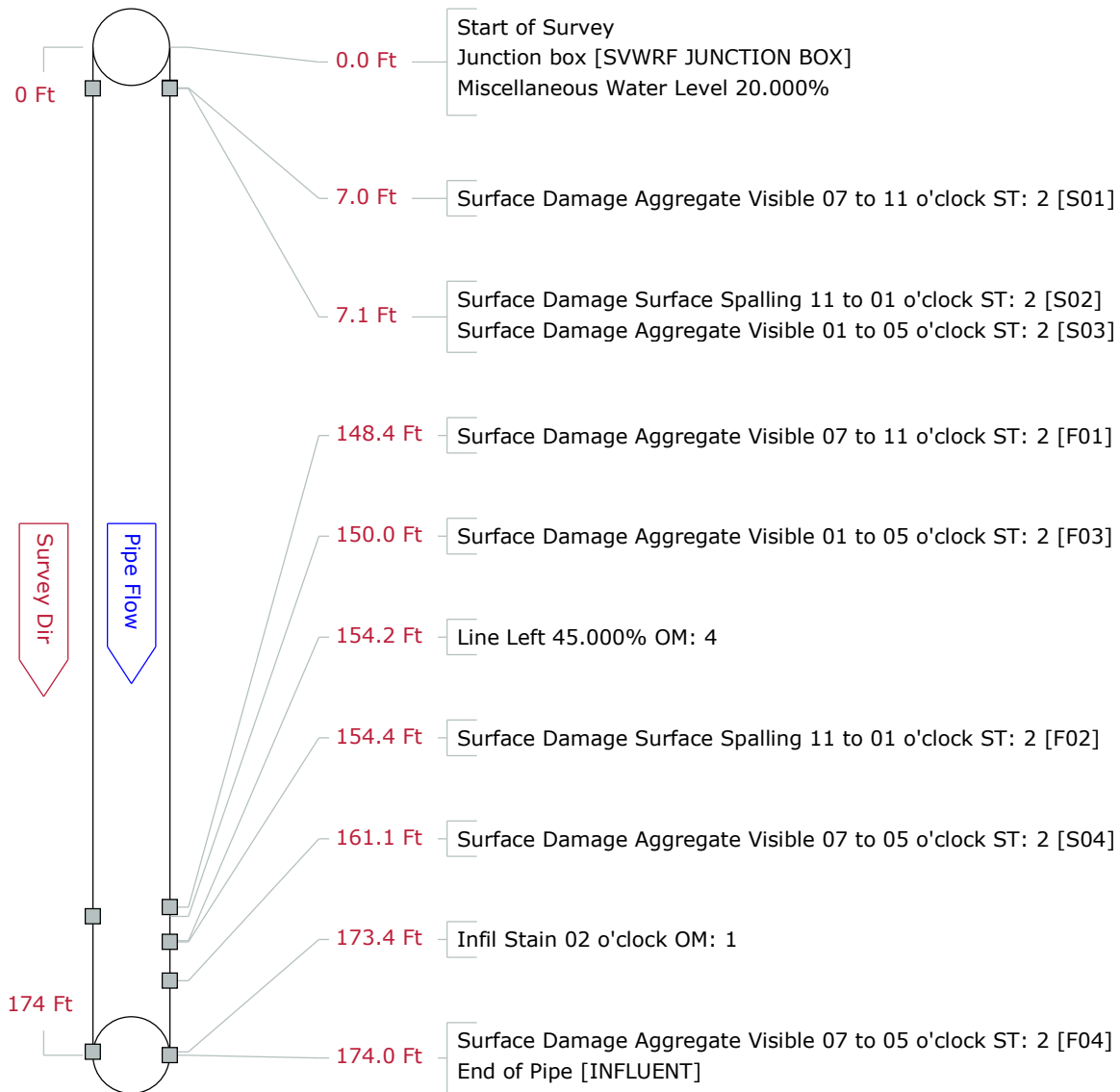
Upstream Manhole	Downstream Manhole	Location	Pipe Diameter (IN)	Pipe Material Type	Segment Length (FT)	Sewer Lateral Connections	Structural			O&M			Recommended Action
							Quick Rating	Grade	Defect Type	Quick Rating	Grade	Defect Type	
SVWRF BOX	INFLUENT	SVWRF	96"	RCP	174.0	0	2P00	2	SAV	4111	2.5	LL	Rehabilitation in 0 to 5 years

Table 2. Junction Box Structural and O&M Grades and Recommendation Summary

Manhole ID	Location	Material Type	Structural			O&M			Recommended Action
			Quick Rating	Grade	Defect Type	Quick Rating	Grade	Defect Type	
SVWRF SOUTH BOX	SVWRF	RCP	2P00	2	SAV	0000	0	No defects	Rehabilitation in 0 to 5 years
SVWRF NORTH BOX	SVWRF	RCP	2P00	2	SAV	0000	0	No defects	Rehabilitation in 0 to 5 years

**Pipe Graphic Report of PLR** SVWRF JUNCTION BOX for **SVSD**

<b>Setup</b> 1	<b>Surveyed By</b> G PANTOJA	<b>Certificate #</b> U-806-2900	<b>Owner</b>
<b>Reviewed By</b>	<b>Reviewer #</b>	<b>Work Order</b>	
<b>Customer</b>		<b>P/O #</b>	
<b>Media Label</b>	<b>Project</b> RIVERBOTTOM TRUNK LINE ASSESSMENT		
<b>Date</b> 2019/08/16	<b>Time</b> 8:08	<b>Weather</b>	<b>Pre-Cleaning</b> X
<b>Flow control</b>	<b>Survey Purpose</b>	<b>Date Cleaned</b>	
<b>Street</b> 7495 S. 1300 W.	<b>City</b> WEST JORDAN	<b>Drainage area</b>	
<b>Location Code</b>		<b>Pipe Use</b> Sanitary Sewage Pipe	
<b>Location details</b>		<b>Height</b> 96	<b>Width</b> ins
<b>Shape</b> Circular	<b>Material</b> Reinforced Concrete Pipe	<b>Lining</b>	
<b>Coating</b>	<b>Pipe Joint length</b>	<b>Ft</b>	<b>Total length</b>
<b>Length Surveyed</b> 174.00 Ft	<b>Year Constructed</b>	<b>Year Renewed</b>	<b>Ft</b>
<b>Additional info</b>			
<b>Up</b> SVWRF JUNCTION BOX	<b>Rim to invert</b>	<b>Grade to invert</b>	<b>Rim to grade</b> Ft
<b>Down</b> INFLUENT	<b>Rim to invert</b>	<b>Grade to invert</b>	<b>Rim to grade</b> Ft



**Project Engineering Consultants**  
**Phone: 702-360-1044**  
**Fax: 702-228-3490**

**CCTV pictures of SWWRF JUNCTION BOX**

**for SVSD**

<b>Work Order</b>	<b>Video</b>	<b>Surveyed On</b> 2019/08/16	<b>Direction</b> Downstream	<b>Setup</b> 1
<b>Street Name</b> 7495 S. 1300 W.	<b>City Name</b> WEST JORDAN	<b>Weather</b>		
<b>Location</b>	<b>From Manhole</b> SVWRF JUNCTION BOX	<b>To Manhole</b> INFLUENT		

**Date:** 2019/08/16  
**Distance:** 7.0 Ft  
**Obs:** Surface Damage  
 Aggregate Visible



**Comments:**

**Date:** 2019/08/16  
**Distance:** 7.1 Ft  
**Obs:** Surface Damage  
 Surface Spalling



**Comments:**

**Date:** 2019/08/16  
**Distance:** 7.1 Ft  
**Obs:** Surface Damage  
 Aggregate Visible



**Comments:**

**Date:** 2019/08/16  
**Distance:** 148.4 Ft  
**Obs:** Surface Damage  
 Aggregate Visible



**Comments:**

**CCTV pictures of SWRF JUNCTION BOX**

**for SVSD**

<b>Work Order</b>	<b>Video</b>	<b>Surveyed On</b> 2019/08/16	<b>Direction</b> Downstream	<b>Setup</b> 1
<b>Street Name</b> 7495 S. 1300 W.	<b>City Name</b> WEST JORDAN	<b>Weather</b>		
<b>Location</b>	<b>From Manhole</b> SVWRF JUNCTION BOX	<b>To Manhole</b> INFLUENT		

**Date:** 2019/08/16  
**Distance:** 150.0 Ft  
**Obs:** Surface Damage  
 Aggregate Visible



**Comments:**

**Date:** 2019/08/16  
**Distance:** 154.2 Ft  
**Obs:** Line Left



**Comments:**

**Date:** 2019/08/16  
**Distance:** 154.4 Ft  
**Obs:** Surface Damage  
 Surface Spalling



**Comments:**

**Date:** 2019/08/16  
**Distance:** 161.1 Ft  
**Obs:** Surface Damage  
 Aggregate Visible



**Comments:**

**CCTV pictures of SWWRF JUNCTION BOX**

**for SVSD**

<b>Work Order</b>	<b>Video</b>	<b>Surveyed On</b> 2019/08/16	<b>Direction</b> Downstream	<b>Setup</b> 1
<b>Street Name</b> 7495 S. 1300 W.	<b>City Name</b> WEST JORDAN	<b>Weather</b>		
<b>Location</b>	<b>From Manhole</b> SVWRF JUNCTION BOX	<b>To Manhole</b> INFLUENT		

**Date:** 2019/08/16  
**Distance:** 173.4 Ft  
**Obs:** Infil Stain



**Comments:**

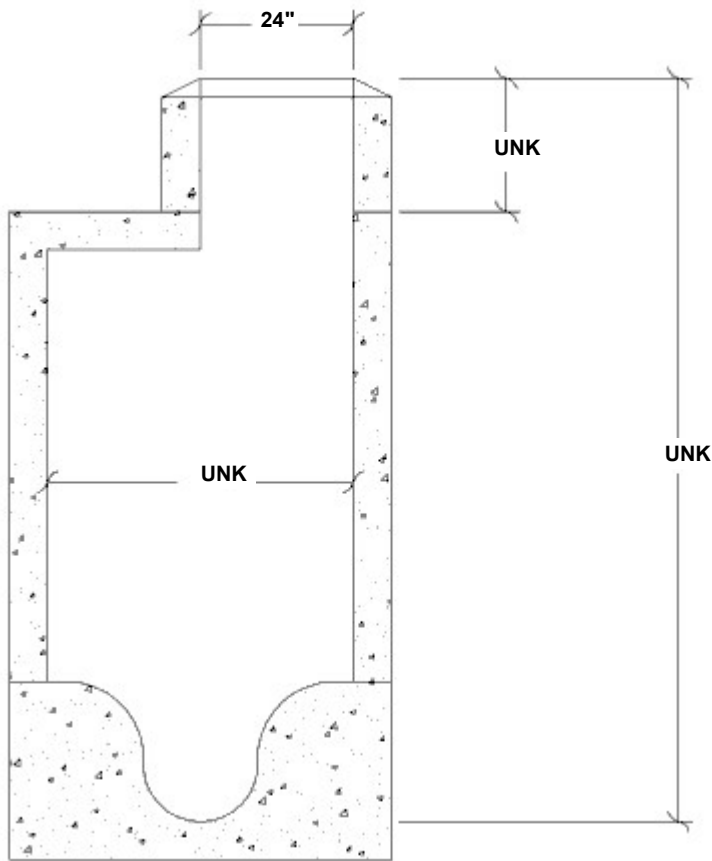
**Date:** 2019/08/16  
**Distance:** 174.0 Ft  
**Obs:** End of Pipe



**Comments:**  
 INFLUENT

**Overview**

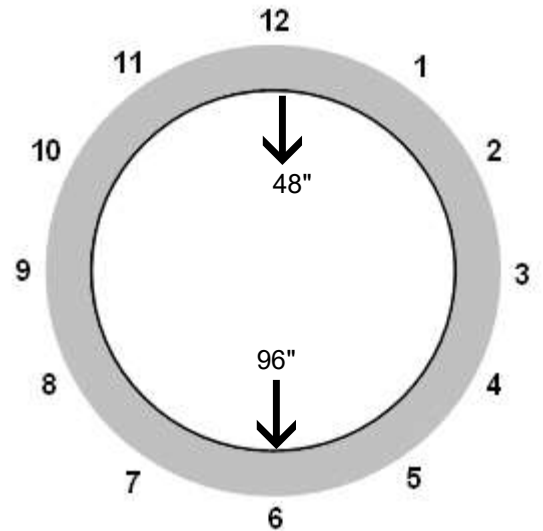
Surveyor's Name: <b>G PANTOJA</b>	Certification Number: <b>U-806-2900</b>	TMH Elevation:	Date: <b>8/16/2019</b>
Manhole Number: <b>SOUTH BOX</b>	Inspection Status: <b>Remote Inspection</b>	Invert Elevation:	Time: <b>1028</b>
Map Number:	Location: <b>S. 1100 W. S. VALLEY WATER</b>	Rim to Grade:	MH Age:
Evidence of Surge: <b>No</b>	Evidence of Infiltration: <b>None</b>	Rim to Invert: <b>UNK</b>	



NOT TO SCALE

Overall Manhole Condition:

**POOR - 3**



Manhole Number:

**SOUTH BOX**

**Manhole Cover & Frame**

Manhole Surface Type: **Concrete Collar**

Cover/ Frame Fit: **2 - Good**      Cover Material: **Cast iron**      Cover Insert: **None**

Cover Type:       Solid       Vented/Slots       Bolted       Inner Cover       Locking       Bolt Missing

Cover Condition:       Sound       Cracked       Broken       Missing       Corroded/Pitted

Frame Condition:       Sound       Cracked       Broken       Missing       Corroded/Pitted/Worn       Coated

**Chimney & Cone**

Chimney Material: **Precast Concrete**

Chimney Interior Coating/Liner: **None - No coating**

Cone Material: **Precast Concrete**

Cone Interior Coating/Liner: **None- No coating**

Cone Type: **FT-Flat top**

**Wall**

Material: **Precast Concrete**

Interior Wall Coating/ Liner: **None - No Coating**

Manhole Steps: **6**      Steps/Rungs: **Metal**

**Bench**

Present: **Partial**      Material: **Poured-in-place**

Interior Coating/Liner: **None - No Coating**

**Channel**

Present: **Yes**      Material: **Poured-in-place**

Distance	MH Component	PACP Defect	Cont. Defect	S/M/L	Inches		% Intrus.	JT	At From	To	Image Ref	Remarks
					1st	2nd						
	Chimney	SSS							12	12		
	Cone	SSS							12	12		
	Wall	SAV							12	12		
	Bench	SAV										

Additional Information:

Manhole Number: **SOUTH BOX**



**CCTV pictures of SVWRF SOUTH BOX**

**for SVSD**

<b>Work Order</b>	<b>Video</b>	<b>Surveyed On</b> 2019/08/19	<b>Direction</b> Upstream	<b>Setup</b> 2
<b>Street Name</b> SVWRF	<b>City Name</b> SOUTH JORDAN	<b>Weather</b>		
<b>Location</b>	<b>From Manhole</b> SVWRF SOUTH	<b>To Manhole</b> SVWRF SOUTH BOX		

**Date:** 2019/08/19  
**Distance:** 0.0 Ft  
**Obs:** Surface Damage  
 Aggregate Visible



**Comments:**  
 WALL

**Date:** 2019/08/19  
**Distance:** 0.0 Ft  
**Obs:** Surface Damage  
 Surface Spalling



**Comments:**  
 WALL

**Date:** 2019/08/19  
**Distance:** 0.0 Ft  
**Obs:** Surface Damage  
 Surface Spalling



**Comments:**

**Date:** 2019/08/19  
**Distance:** 0.0 Ft  
**Obs:** Surface Damage  
 Surface Spalling



**Comments:**

**CCTV pictures of SVWRF SOUTH BOX**

**for SVSD**

<b>Work Order</b>	<b>Video</b>	<b>Surveyed On</b> 2019/08/19	<b>Direction</b> Upstream	<b>Setup</b> 2
<b>Street Name</b> SVWRF	<b>City Name</b> SOUTH JORDAN	<b>Weather</b>		
<b>Location</b>	<b>From Manhole</b> SVWRF SOUTH	<b>To Manhole</b> SVWRF SOUTH BOX		

**Date:** 2019/08/19  
**Distance:** 0.0 Ft  
**Obs:** Surface Damage  
 Aggregate Visible



**Comments:**

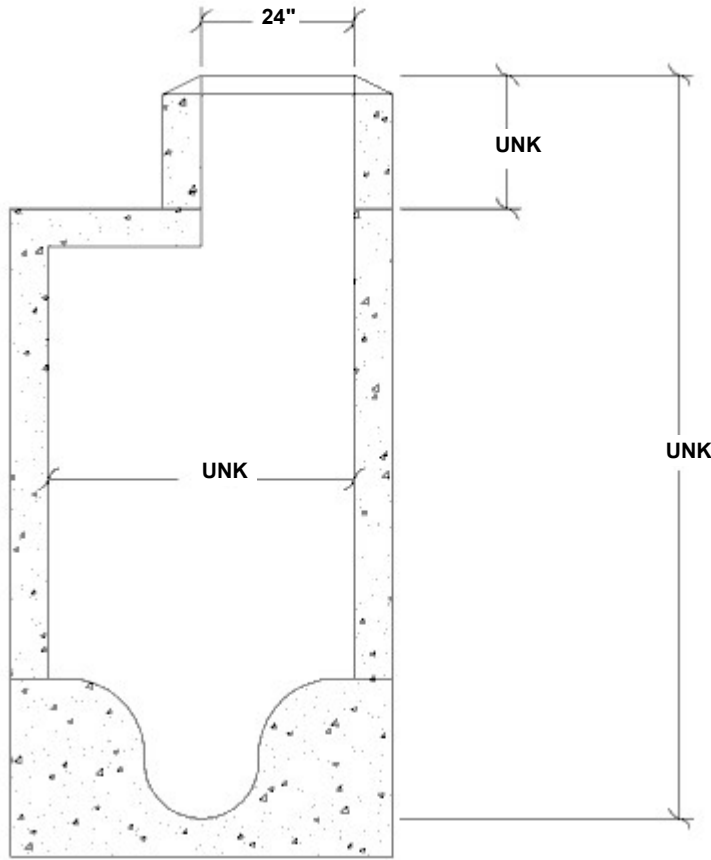
**Date:** 2019/08/19  
**Distance:** 0.0 Ft  
**Obs:** Surface Damage  
 Surface Spalling



**Comments:**

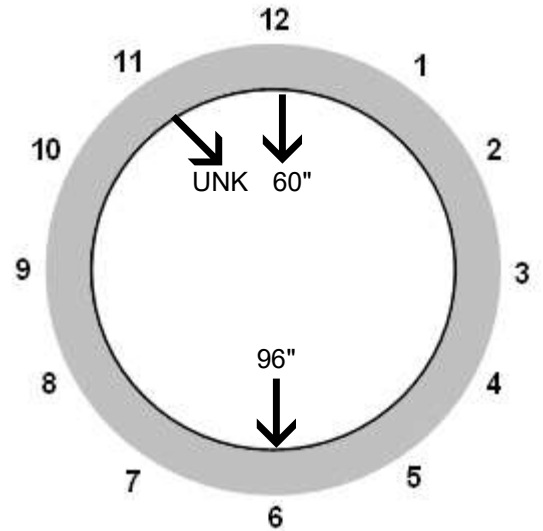
**Overview**

Surveyor's Name: <b>G PANTOJA</b>	Certification Number: <b>U-806-2900</b>	TMH Elevation:	Date: <b>8/16/2019</b>
Manhole Number: <b>NORTH BOX</b>	Inspection Status: <b>Remote Inspection</b>	Invert Elevation:	Time: <b>1211</b>
Map Number:	Location: <b>S. 1100 W. S. VALLEY WATER</b>	Rim to Grade:	MH Age:
Evidence of Surcharge: <b>No</b>	Evidence of Infiltration: <b>None</b>	Rim to Invert: <b>UNK</b>	



Overall Manhole Condition:

**POOR - 3**



Manhole Number:

**NORTH BOX**

**Manhole Cover & Frame**

Manhole Surface Type: **Concrete Collar**

Cover/ Frame Fit: <b>2 - Good</b>	Cover Material: <b>Cast iron</b>	Cover Insert: <b>None</b>
Cover Type: <input type="checkbox"/> Solid <input checked="" type="checkbox"/> Vented/Slots <input type="checkbox"/> Bolted <input type="checkbox"/> Inner Cover <input type="checkbox"/> Locking <input type="checkbox"/> Bolt Missing		
Cover Condition: <input checked="" type="checkbox"/> Sound <input type="checkbox"/> Cracked <input type="checkbox"/> Broken <input type="checkbox"/> Missing <input type="checkbox"/> Corroded/Pitted		
Frame Condition: <input checked="" type="checkbox"/> Sound <input type="checkbox"/> Cracked <input type="checkbox"/> Broken <input type="checkbox"/> Missing <input type="checkbox"/> Corroded/Pitted/Worn <input type="checkbox"/> Coated		

**Chimney & Cone**

Chimney Material: **Precast Concrete**

Chimney Interior Coating/Liner: **None - No coating**

Cone Material: **Precast Concrete**

Cone Interior Coating/Liner: **None- No coating**

Cone Type: **FT-Flat top**

**Wall**

Material: **Precast Concrete**

Interior Wall Coating/ Liner: **None - No Coating**

Manhole Steps: **6** Steps/Rungs: **Metal**

**Bench**

Present: **Partial** Material: **Poured-in-place**

Interior Coating/Liner: **None - No Coating**

**Channel**

Present: **Yes** Material: **Poured-in-place**

Distance	MH Component	PACP Defect	Cont. Defect	S/M/L	Inches		% Intrus.	JT	At From	To	Image Ref	Remarks
					1st	2nd						
	Chimney	SSS							12	12		
	Cone	SSS							12	12		
	Wall	SAV							12	12		
	Bench	SAV										

Additional Information:

Manhole Number: **NORTH BOX**

**CCTV pictures of SVWRF NORTH**

**for SVSD**

<b>Work Order</b>	<b>Video</b>	<b>Surveyed On</b> 2019/08/19	<b>Direction</b> Downstream	<b>Setup</b> 3
<b>Street Name</b> SVWRF	<b>City Name</b> SOUTH JORDAN	<b>Weather</b>		
<b>Location</b>	<b>From Manhole</b> SVWRF NORTH	<b>To Manhole</b> SVWRF NORTH BOX		

**Date:** 2019/08/19  
**Distance:** 0.0 Ft  
**Obs:** Surface Damage  
 Aggregate Visible



**Comments:**

**Date:** 2019/08/19  
**Distance:** 0.0 Ft  
**Obs:** Surface Damage  
 Aggregate Visible



**Comments:**

**Date:** 2019/08/19  
**Distance:** 0.0 Ft  
**Obs:** Surface Damage  
 Surface Spalling



**Comments:**

**Date:** 2019/08/19  
**Distance:** 0.0 Ft  
**Obs:** Surface Damage  
 Aggregate Visible



**Comments:**

**CCTV pictures of SVWRF NORTH**

**for SVSD**

<b>Work Order</b>	<b>Video</b>	<b>Surveyed On</b> 2019/08/19	<b>Direction</b> Downstream	<b>Setup</b> 3
<b>Street Name</b> SVWRF	<b>City Name</b> SOUTH JORDAN	<b>Weather</b>		
<b>Location</b>	<b>From Manhole</b> SVWRF NORTH	<b>To Manhole</b> SVWRF NORTH	<b>BOX</b>	

**Date:** 2019/08/19  
**Distance:** 0.0 Ft  
**Obs:** Surface Damage  
Surface Spalling

**Comments:**

