

Video Inspection Manual

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Introduction

- Video Inspection required for all Storm Drain Pipes and U-drain
- 612529 – Pipe Video Inspection
- 715000 – Perforated Pipe U-drain
- Subdivision Manual
- CCTV Manual

History

- Used for Sanitary Sewers
- DeIDOT's problems with sinkholes
 - ◆ 1990's
 - ★ \$1,000,000.00 / year
 - ◆ Rte 4
 - ★ \$300,000.00 + 3 months
 - ◆ Current Cost
 - ★ \$2 mil / year

History

- 1996 – Video required in subdivisions
- Crossroad pipes
- All pipes





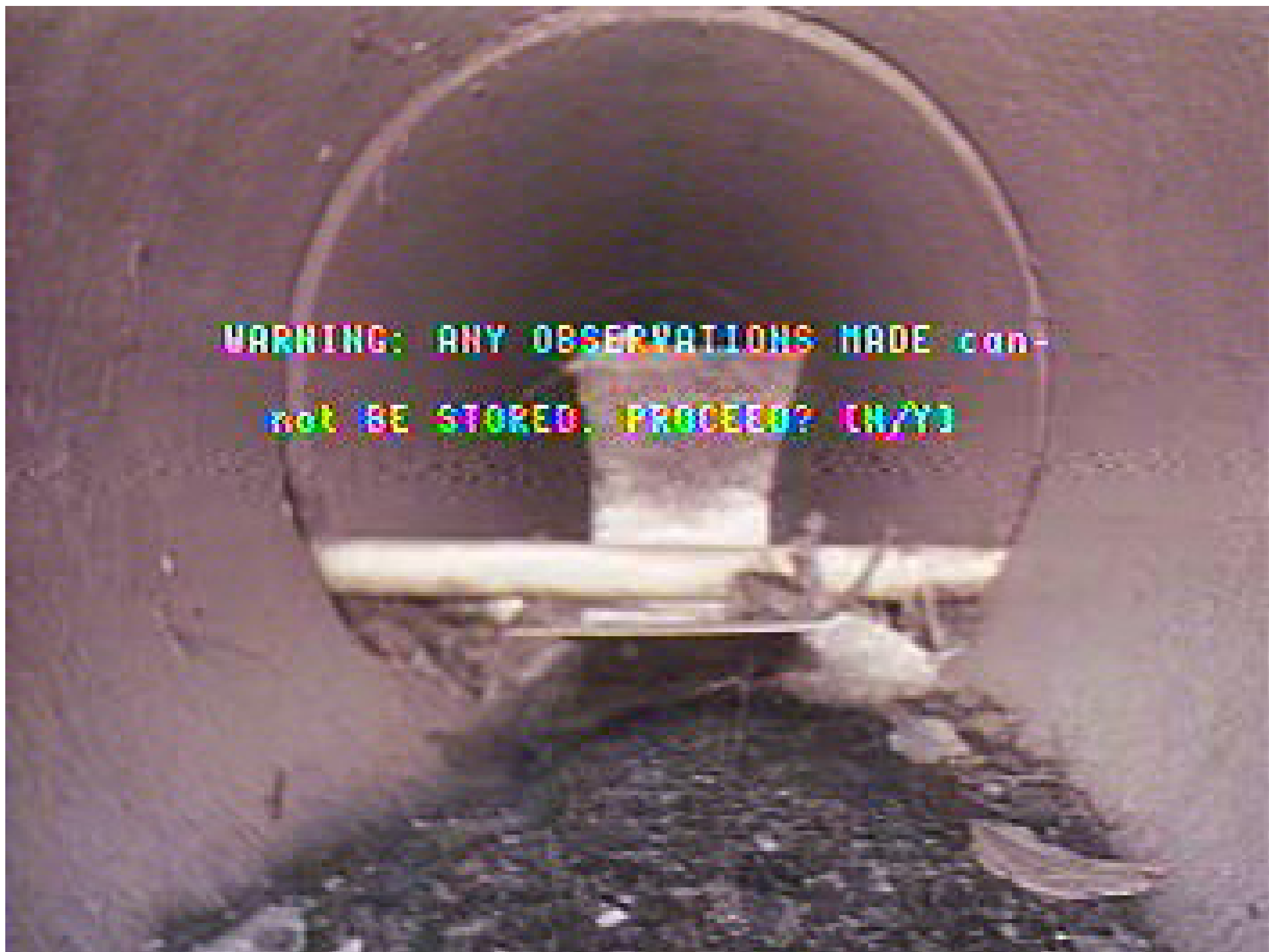
1 1300 MH
Mon Nov 15 04
13:08:36
+0044.0
CALEB TER
DELWIN
12" ROP
HYB

CRACKS





WARNING: ANY OBSERVATIONS MADE can-
not BE STORED. PROCEED? (N/Y)





REPORTED BY THE FBI



**STORM SEWER
CCTV MANUAL
FOR
STORM SEWER
ASSESSMENT
AND
ACCEPTANCE**


3/5/2009



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- **INTRODUCTION**
 - **PREPARATION**
 - **INSPECTION
PROCEDURES**
 - **DEFECT TERMS**
 - **PIPE JOINT ACCEPTANCE
CRITERIA**
 - **STORM SEWER REPAIR
TECHNIQUES**
 - **CALIBRATION**

Preparation

- Number pipe runs
- Number Drainage Inlets & Manholes
- Flush pipes if needed

Preparation

- GPS all new structures
- Proper traffic control
- Flow control

Inspection Procedures

- Schedule inspection
 - ◆ Prior to top coat of pavement
- Follow confine space rules
- Inspector must be present

Inspection Procedures

- Schedule inspection
 - ◆ Prior to top coat of pavement
- Follow confine space rules
- Inspector must be present
 - ◆ 48 hour notice

Inspection

- Flush upstream & video downstream
- Slow – stopping at every joint
- Control Lighting
- Identify all potential defects

Potential Defects

- Defect Terms
 - ◆ Close consistency with
 - ★ NASSCO / PAPC
- Specifically describing storm sewer conditions
- Operators should become familiar w/ these terms

3/5/2009

2/9/2009

2/9/2009

21

21

20



CRACK

Circular

01 06 2004 16:42



**CRACK -
longitudinal**

18 12 2003 18:21



FRACTURE

1 1300 1111
Don't forget to
13 13 13
+0044 0
CALISTO
DELWIN
12 12 12
12 12

BROKEN



HOLE

HOLE





DEFORMED

Deformed Pipe

- Flexible pipe w/ deflection greater than 5% must be corrected
- Determined by visual inspection
- Can be challenged w/ GO-NO-GO mandrel or direct measurement



COLLAPSE

06 09 2003



COLLAPSE



JOINT
Offset

1 C300 RH
Inu Jul 21 02
15:43:53
+0029.6
2419 WATWOOD DR
4701888
397019

TAPE 132

JOINT - Open



MASONRY - Displaced

3/5/2009

34

Pipe Joints Acceptance

- Joints greater than manufacturer tolerances are not watertight
- Chapter 7 describes how to measure joints

Reports

- Written report & DVD
 - ◆ List form w/ footage

TV Inspection Report

DEL DOT

-
MH 1 to MH 2

Inspected on Tuesday, May 2, 2006

WO #: 1234	Date: 5/2/2006	Status: COMP
Contractor:	Contract:	
Address: ANY STREET		
Owner: DELDOT		
<hr/>		
Inspector: JOHN DOE	Type: RCP	
Operator: BILL SMITH	Direction: DOWNSTREAM	
System:	Sub. Syst.:	JTL: 8
Log:	Truck: 24	Size: 18IN
		Comp: S/B
		Pipe Length: 80.0
<hr/>		
Up Stream: 1	Up Dp: 4	
Down Stream: 2	Dwn Dp: 5	
Video Volume:	Start: 0000	
Video File:		
Vcr:		
<hr/>		
Comment 1: TEST FOR MANUAL		
Comment 2:		
Comment 3:		

Footage	SF	WRC	Observation	Modifier	Image File	Struct	O&M
0.0		ST	<START INSPECTION>	00>12:58:56			
8.0		GO	"JOINT W/GASKET EXPOSED"				
0.0		ST	<START INSPECTION>	00>13:13:37			
8.0		GO	"RADIAL CRACK"				
16.0		GO	"SURFACE DAM / PEELING"				
24.0		GO	"PARTIAL COLLAPSE"				
32.0		GO	"JOINT FRACTURE"				
40.0		GO	"WIDE JOINT"				
48.0		GO	"JOINT W/GASKET EXPOSED"				
56.0		GO	"HOLE IN PIPE"				
64.0		GO	"BROKEN JOINT"				
72.0		GO	"JOINT LEAK"				
80.0		FH	<COMPLETE INSPECTION>	00>13:22:36			

Total Length of Line	80.0
Total Length Inspected	80.0
Total Upstream Footage	0.0

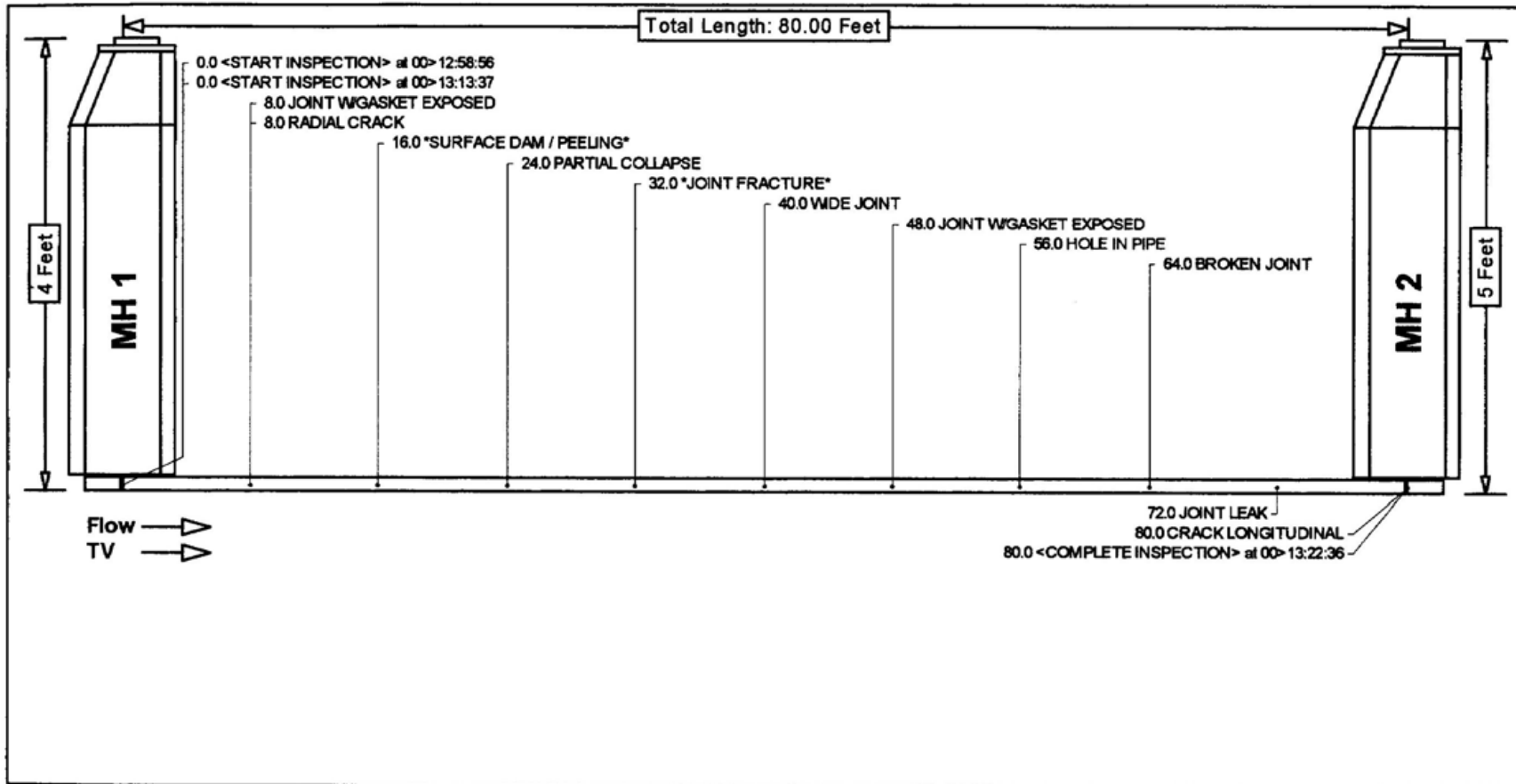
Reports

- Written report & DVD
 - ◆ List form w/ footage
 - ◆ Map of pipe run in plan view or cross-sectional view

DEL DOT

<p>Flow ↓</p>	<p>MH# 1</p> <p>0.0 <START INSPECTION> at 00>12:58:56 0.0 <START INSPECTION> at 00>13:13:37</p>	<p>TV ↓</p>
	<p>8.0 JOINT WGASKET EXPOSED 8.0 RADIAL CRACK</p>	
	<p>16.0 "SURFACE DAM / PEELING"</p>	
	<p>24.0 PARTIAL COLLAPSE</p>	
	<p>32.0 "JOINT FRACTURE"</p>	
	<p>40.0 WIDE JOINT</p>	
	<p>48.0 JOINT WGASKET EXPOSED</p>	
	<p>56.0 HOLE IN PIPE</p>	
	<p>64.0 BROKEN JOINT</p>	
	<p>72.0 JOINT LEAK</p>	
	<p>80.0 CRACK LONGITUDINAL 80.0 <COMPLETE INSPECTION> at 00>13:22:36</p> <p>MH# 2</p>	
<p>Address: ANY STREET Owner: DELDOT</p> <p>MH: 1 to 2</p>		
<p>Contractor: Type: RCP WO #: 1234 Size: 18N Date: 5/2/2006 Status: COMP Length: 80.00 Feet <input checked="" type="checkbox"/> =Image Attached Direction: DOWNSTREAM <input checked="" type="checkbox"/> =Video Clip Attached Comp: S/B Insp/Oper: JOHN DOE, BILL SMITH Truck: 24 Vcr/Start: /0000 Comment 1: TEST FOR MANUAL</p>		
		<p>Cobra Information Management System © 2003 Optical Robotics, LLC. For information Call 1-800-443-3761</p>

DEL DOT



Address: ANY STREET	Owner: DELDOT	MH: 1 to 2
Contractor:	Type: RCP	<input type="checkbox"/> =Image Attached
WO #: 1234	Size: 18IN	<input checked="" type="checkbox"/> =Video Clip Attached
Date: 5/2/2006	Direction: DOWNSTREAM	
Length: 80.00 Feet	Comp: S/B	
Truck: 24	Insp/Oper: JOHN DOE, BILL SMITH	
Vcr/Start: /0000	Status: COMP	
Comment 1: TEST FOR MANUAL		

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Reports

- DVD
 - ◆ Mpeg format
 - ◆ Commentary

Reports

- GPS Report
 - ◆ 2 dimensional coordinates
 - ★ Northing and Easting
 - ◆ Drainage Inlets, Manholes and intake or outlet ends of pipe
 - ◆ NPDES database

Repair Techniques

- Replace or repair
- Trenchless technology
 - ◆ Chemical Grouting
 - ◆ Cure-in-place lining
 - ◆ Fold-N-Form Pipe
 - ◆ Slip Lining

*THANK
YOU*



http://www.deldot.gov/information/pubs_forms/manuals/pipe_video/video_pipe_manual_optimized.pdf