

SANITARY SEWER SYSTEM INVESTIGATION

Minuteman and Shattuck Road area
Andover, MA

December 2021 and January 2022

Sewer Video Investigation Conducted by:
BMC Corp., Billerica, MA

Prepared For:
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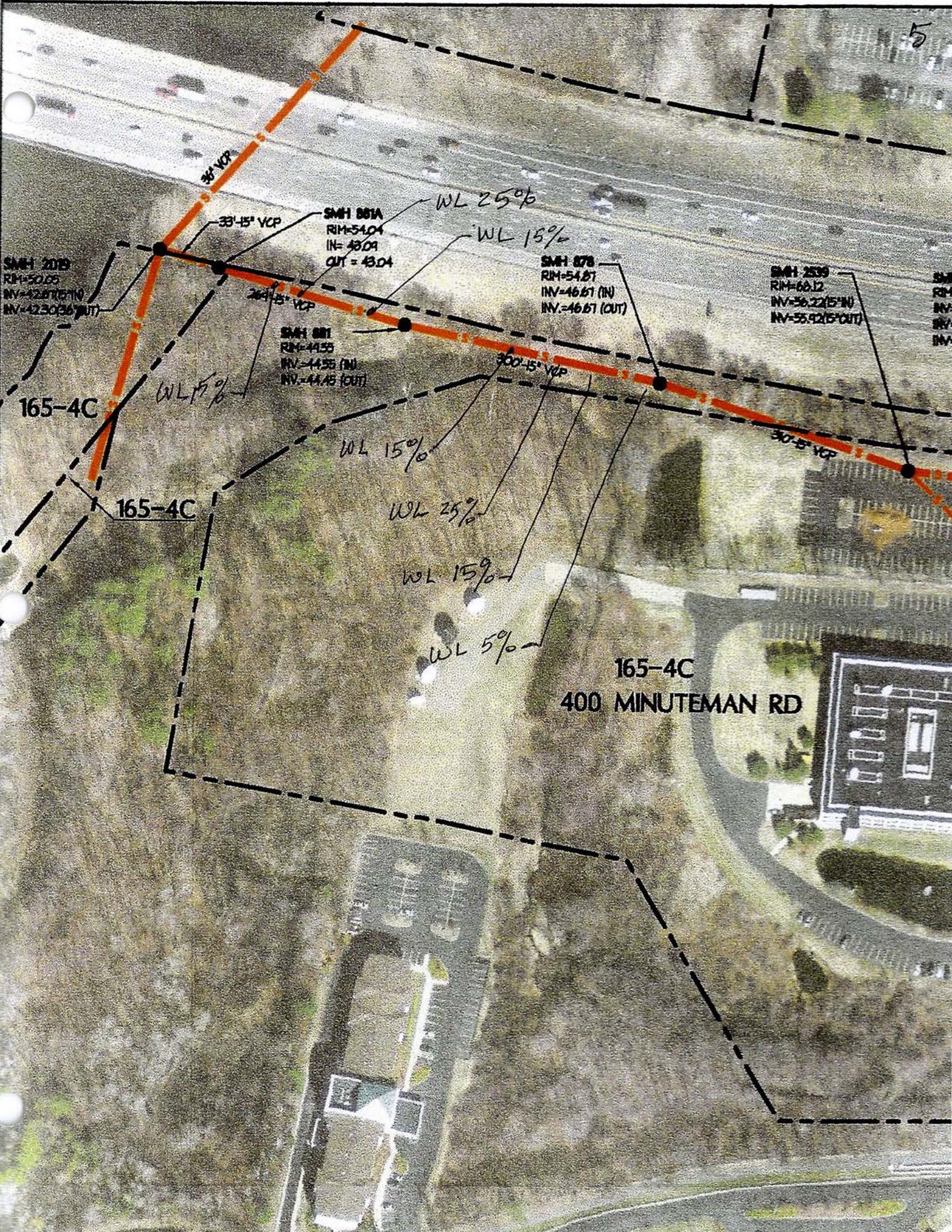
SANITARY SEWER INVESTIGATION
Minuteman and Shattuck Road Area
Andover, MA
December 2021 and January 2022

GENERAL NOTES

1. This sewer investigation study was conducted by BMC Corp., Billerica, MA between December 14, 2021, and January 21, 2022.
2. This study segments the sewer lines shown on the two locus maps (North and South) into enlarged plans with comments added to the plans based on the video study of the sewer lines.
3. The enlarged sewer system plans are organized in a north to south direction.
4. The notes added to the enlarged sewer plans are based on the sewer line reports that follow the enlarged sewer plans. The details of the items noted on the enlarges plans are contained in those reports.
5. The entire video record of the pipe inspections is available upon request.

SEWER LINE A

SEWER LINE A-1

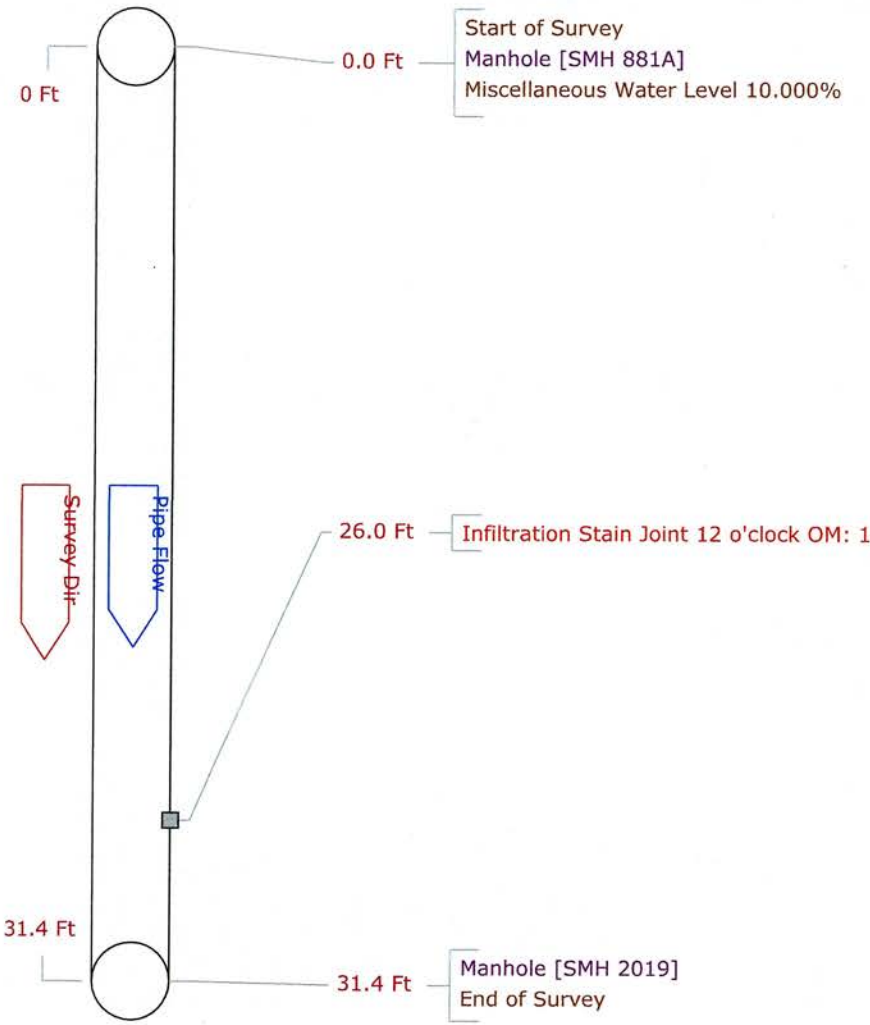


6

Pipe Graphic Report of PLR SMH 881A

G for Liden Engineering

Setup	56	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	9:53	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Minuteman Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	15	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	31.40 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 881A	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2019	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 881A for Liden Engineering

Setup	56	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	9:53	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Inspection Status	Complete Inspection	Consequence Of Failure		Pressure		Direction	Down
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other						

Street	Minuteman Rd	City	Andover	Drainage area	
Location Code		Pipe Use	Sanitary Sewage Pipe		
Location details		Height	15	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe		
Coating		Pipe Joint length	Ft	Total length	Ft
Length Surveyed	31.4	Year Constructed		Year Renewed	
Up	SMH 881A	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Down	SMH 2019	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Coordinate System		Vertical Datum			
GPS Accuracy		<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional			
Additional info					

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole SMH 881A
0.0		MWL			10.000					Miscellaneous Water Level
26.0		ISJ				J	12			Infiltration Stain Joint
31.4		AMH								Manhole SMH 2019
31.4		FH								End of Survey

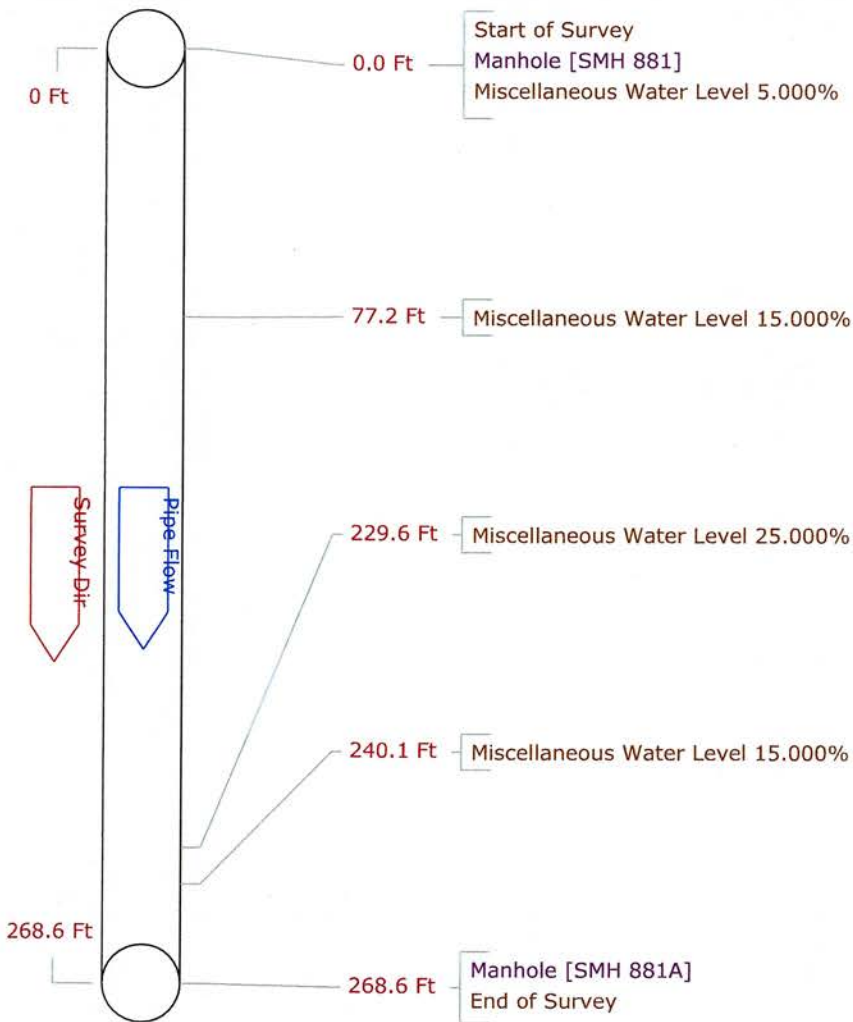
31.4 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 1	Pipe Ratings Index 1	Quick Rating 1100
	Overall	Pipe Rating 1	Pipe Ratings Index 1	Quick Rating 1100

Pipe Graphic Report of PLR SMH 881

G for Liden Engineering

Setup	55	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	9:44	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Minuteman Rd	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	15	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	268.60 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH 881	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 881A	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 881

for Liden Engineering

Setup	55	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	9:44	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Inspection Status	Complete Inspection	Consequence Of Failure		Pressure		Direction	Down
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other						

Street	Minuteman Rd	City	Andover	Drainage area	
Location Code		Pipe Use	Sanitary Sewage Pipe		
Location details		Height	15	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe		
Coating		Pipe Joint length	Ft	Total length	Ft
Length Surveyed	268.6 Ft	Year Constructed		Year Renewed	
Up	SMH 881	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Down	SMH 881A	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Coordinate System		Vertical Datum			
GPS Accuracy		<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional			
Additional info					

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST	Start of Survey							
0.0		AMH	Manhole							
0.0		MWL	Miscellaneous Water Level							
77.2		MWL	Miscellaneous Water Level							
229.6		MWL	Miscellaneous Water Level							
240.1		MWL	Miscellaneous Water Level							
268.6		AMH	Manhole							
268.6		FH	End of Survey							

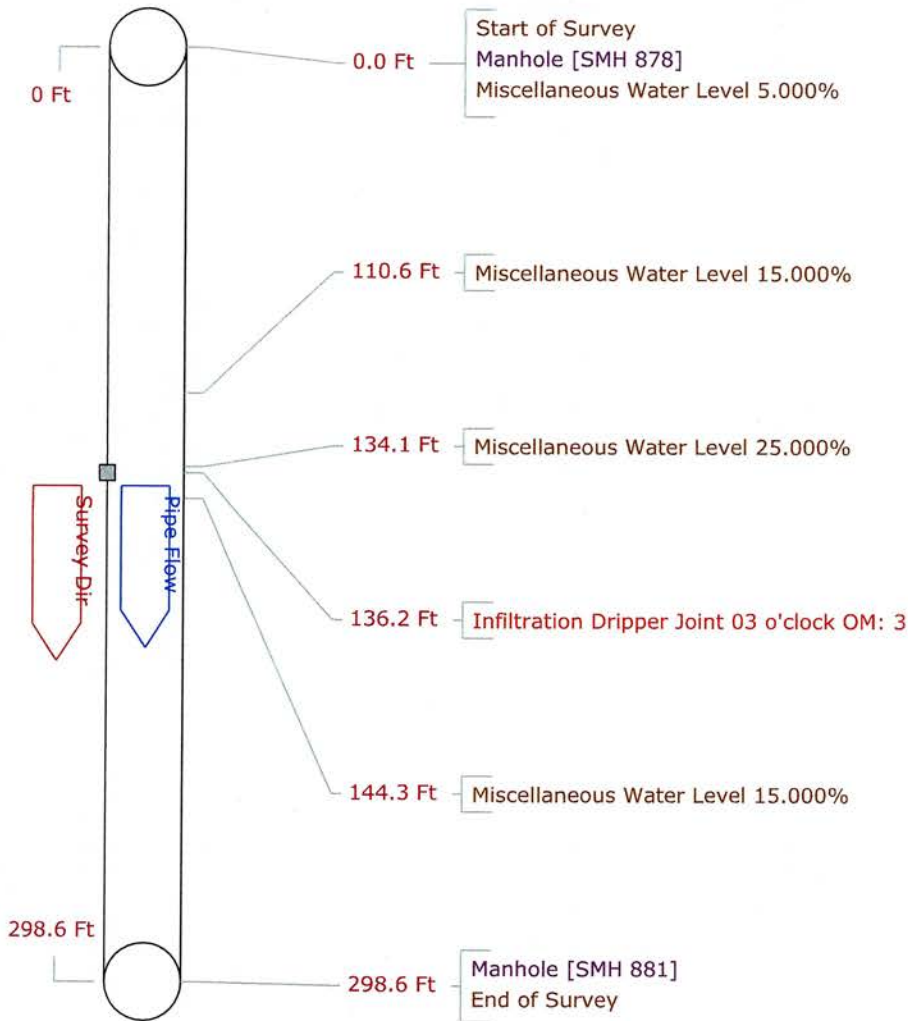
268.6 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

Pipe Graphic Report of PLR SMH 878

G for Liden Engineering

Setup	54	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	9:34	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Minuteman Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	15	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	298.60 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 878	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 881	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 878

for Liden Engineering

Setup 54	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/17	Time 9:34	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	Direction Down
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street Minuteman Rd	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 15	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 298.6 Ft	Year Constructed	Year Renewed
Up SMH 878	Rim to invert	Grade to invert
Northing	Easting	Elevation
Down SMH 881	Rim to invert	Grade to invert
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M	
Additional info	<input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole SMH 878
0.0		MWL			5.000					Miscellaneous Water Level
110.6		MWL			15.000					Miscellaneous Water Level
134.1		MWL			25.000					Miscellaneous Water Level
136.2		IDJ				J	03			Infiltration Dripper Joint
144.3		MWL			15.000					Miscellaneous Water Level
298.6		AMH								Manhole SMH 881
298.6		FH								End of Survey

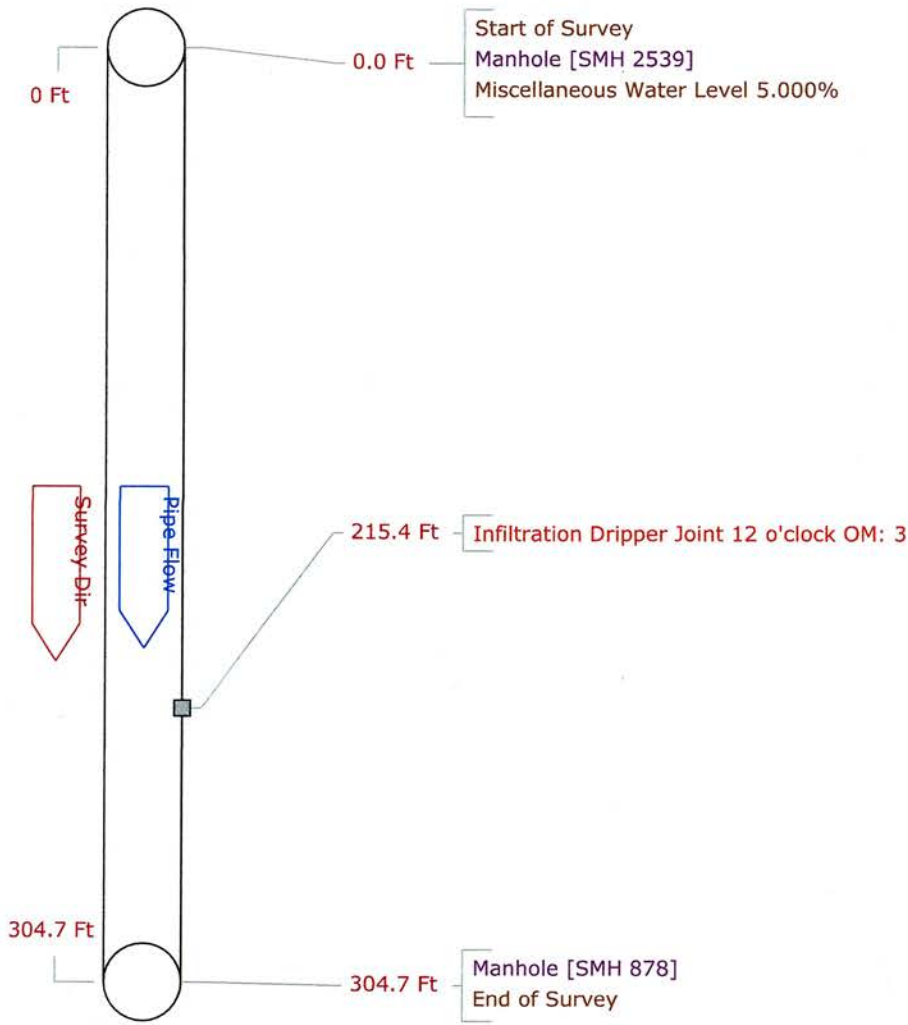
298.6 Ft Total Length Surveyed

Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 3	Pipe Ratings Index 3	Quick Rating 3100
	Overall Pipe Rating 3	Pipe Ratings Index 3	Quick Rating 3100

Pipe Graphic Report of PLR SMH 2539

G for Liden Engineering

Setup	53	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	9:13	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Minuteman Rd	City	Andover	Drainage area			
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	15	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	304.70 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH 2539	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 878	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 2539 for Liden Engineering

Setup 53 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/17 **Time** 9:13 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Down
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Minuteman Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 15 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 304.7 Ft **Year Constructed** **Year Renewed**
Up SMH 2539 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 878 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy Structural O & M
Additional info Miscellaneous Constructional

Count	Video	CD	Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0			ST Start of Survey								
0.0			AMH Manhole								SMH 2539
0.0			MWL Miscellaneous Water Level			5.000					
215.4			IDJ Infiltration Dripper Joint				J	12			
304.7			AMH Manhole								SMH 878
304.7			FH End of Survey								

304.7 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 3	Pipe Ratings Index 3	Quick Rating 3100
	Overall	Pipe Rating 3	Pipe Ratings Index 3	Quick Rating 3100

SMH 2539
RIM=66.12
INV=56.22(5"IN)
INV=55.92(5"OUT)

SMH 2538
RIM=70.43
INV=62.8(10"IN)
INV=61.95(5"IN)
INV=61.28(5"OUT)

SMH 877
RIM=71.14
INV=62.64(10"IN)
INV=62.64(10"OUT)

SMH 876
RIM=71.63
INV=63.59(10"IN)
INV=63.36(10"OUT)

See
Previous
sheet

30'-5" VCP

184'-5" VCP

17'-10" VCP

14'-10" VCP

WL 5%

SMH 2537
RIM=72.03
INV=63.13(5"IN)
INV=62.83(5"OUT)

SMH 875
RIM=71.87
INV=63.20(10"IN)
INV=62.75(OUT)

SMH 874
RIM=71.69
INV=63.44(5"IN)
INV=63.45(5"OUT)
INV=63.39(5"OUT)

Confirm Connection
to 400 MM

244'-10" PVC

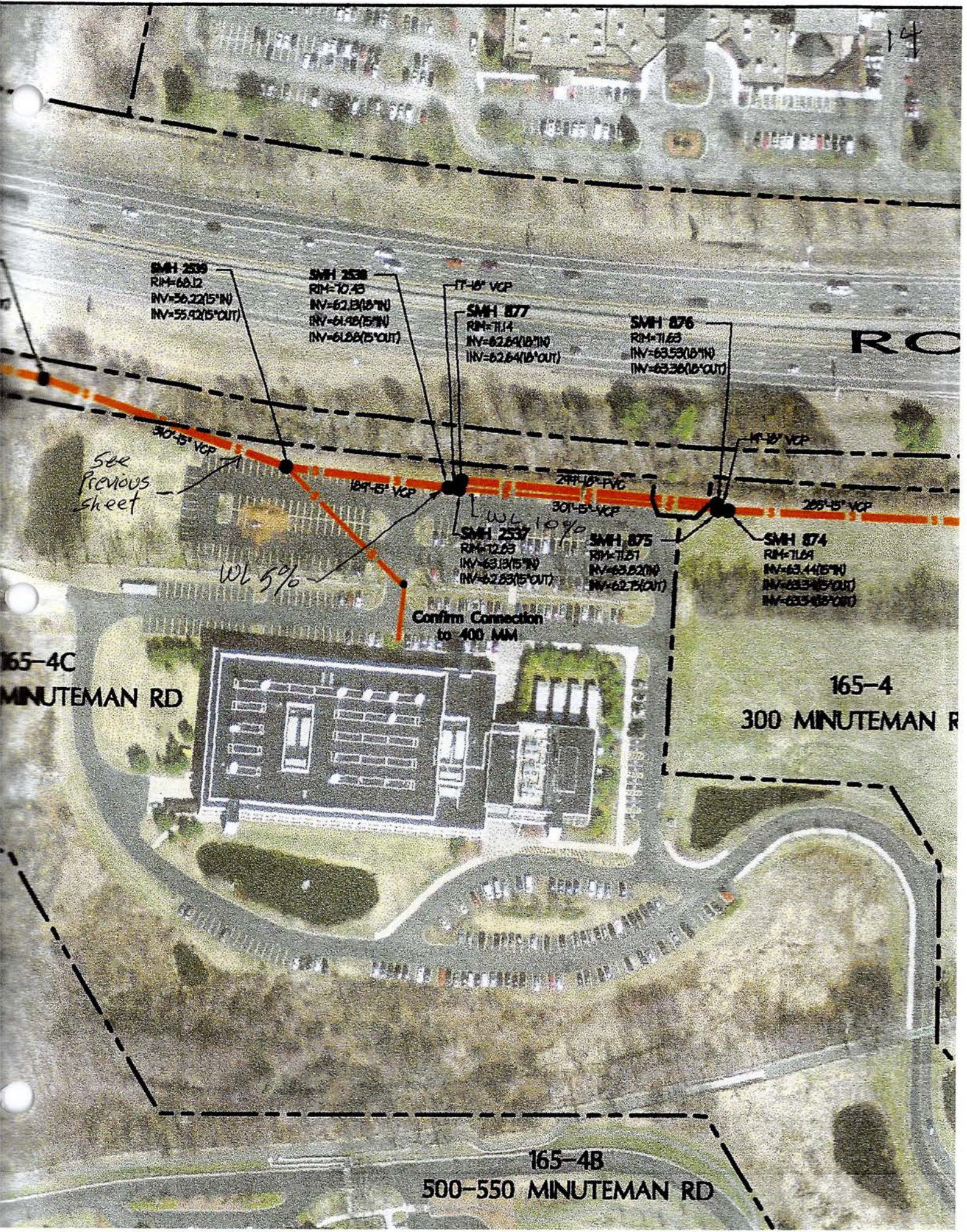
301'-5" VCP

225'-5" VCP

165-4C
MINUTEMAN RD

165-4
300 MINUTEMAN R

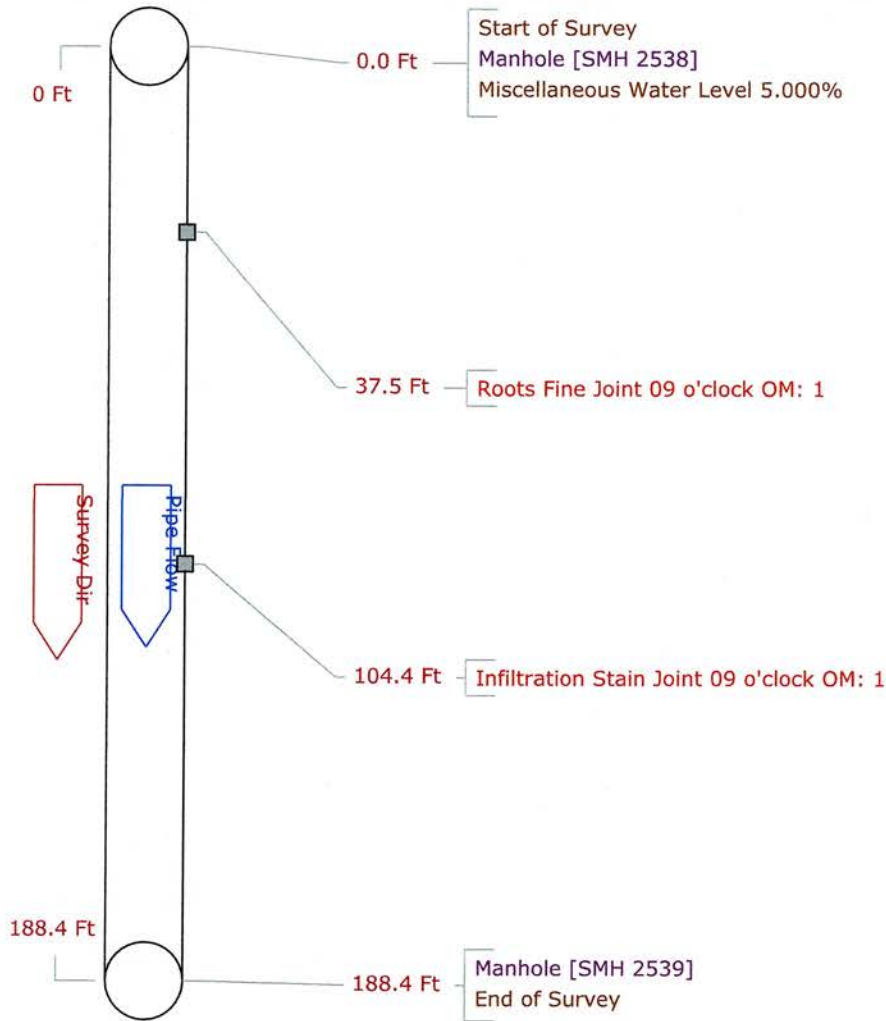
165-4B
500-550 MINUTEMAN RD



Pipe Graphic Report of PLR SMH 2538

D for Liden Engineering

Setup 49	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/17	Time 8:25	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Direction Downstream
Street Minuteman Rd	City Andover		Drainage area
Location Code		Pipe Use	Sanitary Sewage Pipe
Location details		Height 15	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining	
Coating	Pipe Joint length	Ft Total length	Ft
Length Surveyed 188.40 Ft	Year Constructed	Year Renewed	Structural O & M Miscellaneous Constructional
Additional info			
Up SMH 2538	Rim to invert	Grade to invert	Rim to grade Ft
Down SMH 2539	Rim to invert	Grade to invert	Rim to grade Ft



Tabular Report of PSR SMH 2538

for **Liden Engineering**

Setup 49	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/17	Time 8:25	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	Direction Down
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street Minuteman Rd	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 15	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 188.4 Ft	Year Constructed	Year Renewed
Up SMH 2538	Rim to invert	Grade to invert
Northing	Easting	Elevation
Down SMH 2539	Rim to invert	Grade to invert
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M	
Additional info	<input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST Start of Survey								
0.0		AMH Manhole								SMH 2538
0.0		MWL Miscellaneous Water Level			5.000					
37.5		RFJ Roots Fine Joint				J	09			
104.4		ISJ Infiltration Stain Joint				J	09			
188.4		AMH Manhole								SMH 2539
188.4		FH End of Survey								

188.4 Ft Total Length Surveyed

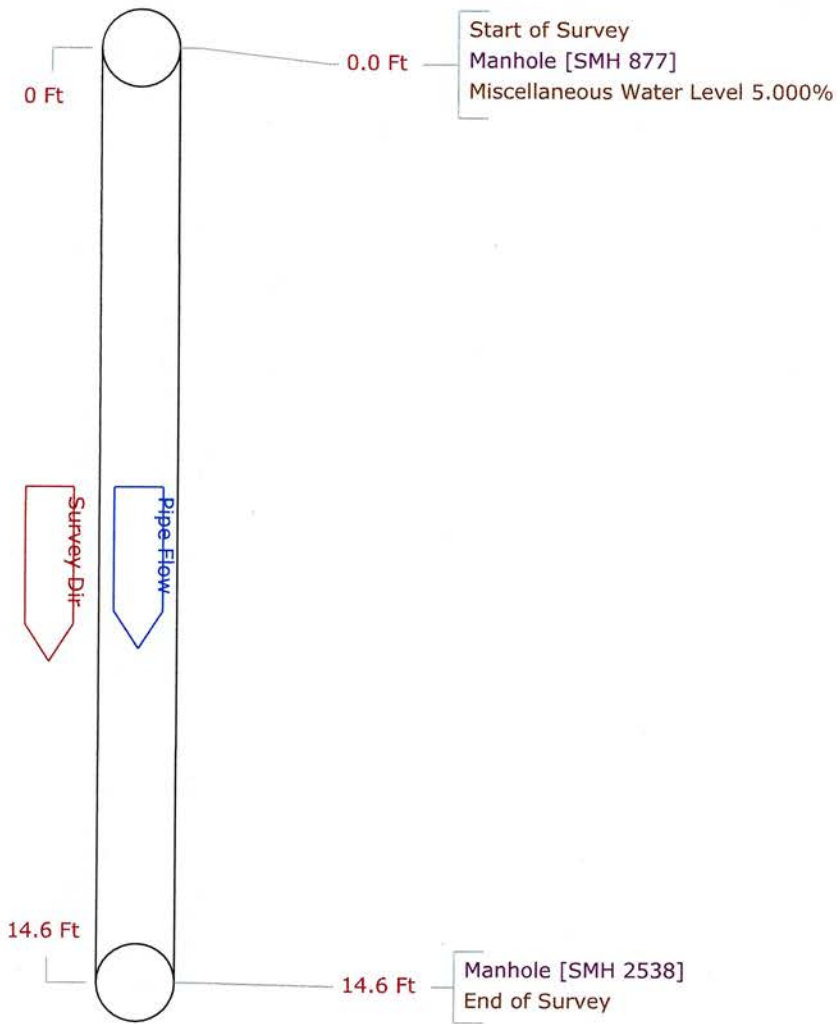
Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 2	Pipe Ratings Index 1	Quick Rating 1200
	Overall	Pipe Rating 2	Pipe Ratings Index 1	Quick Rating 1200

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Pipe Graphic Report of PLR SMH 877

G for Liden Engineering

Setup	52	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	9:05	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Minuteman Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	18	Width	ins		
Shape	Circular	Material	Polyvinyl Chloride	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	14.60 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 877	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2538	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 877 for Liden Engineering

Setup 52	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/17	Time 9:05	Weather	Pre-Cleaning N Date Cleaned
Flow control	Survey Purpose		Direction Down
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

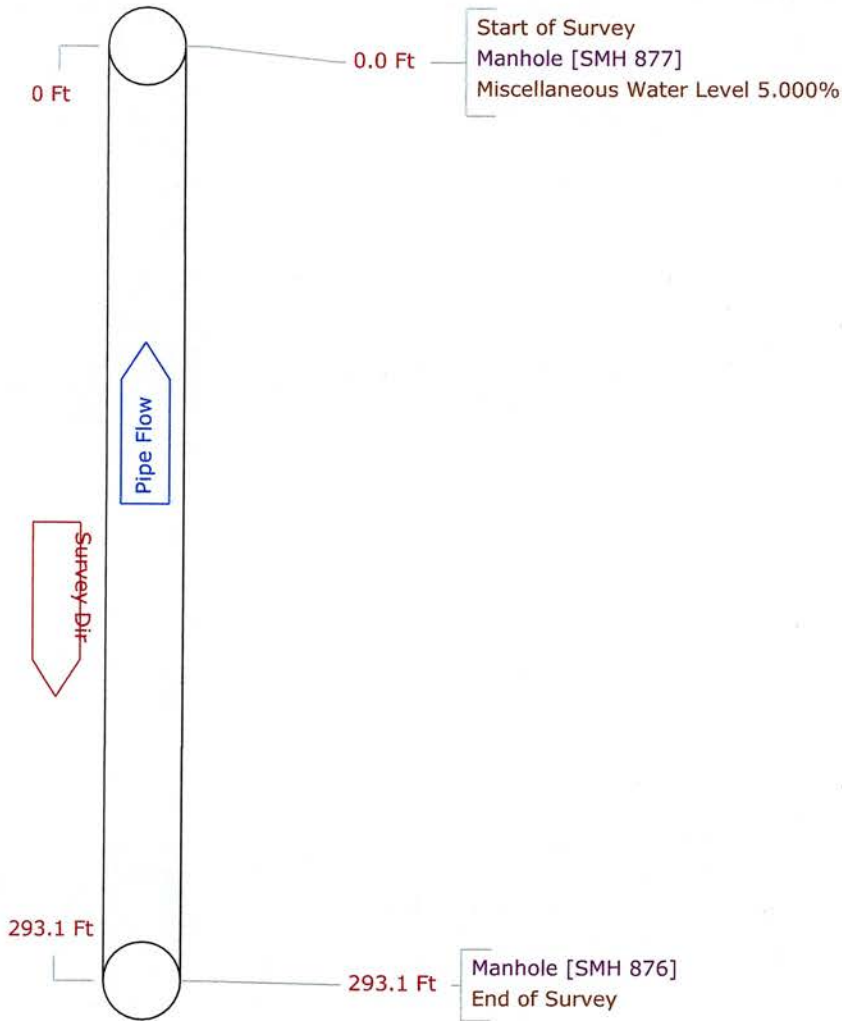
Street Minuteman Rd	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 18 Width ins	
Shape Circular	Material Polyvinyl Chloride	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 14.6 Ft	Year Constructed	Year Renewed
Up SMH 877	Rim to invert	Grade to invert Rim to grade Ft
Northing	Easting	Elevation
Down SMH 2538	Rim to invert	Grade to invert Rim to grade Ft
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	
Additional info		

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH 877
0.0	MWL			5.000					Miscellaneous Water Level
14.6	AMH								Manhole SMH 2538
14.6	FH								End of Survey

14.6 Ft Total Length Surveyed

Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

Setup	50	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	8:51	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Minuteman Rd	City	Andover	Drainage area			
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	18	Width	ins
Shape	Circular	Material	Polyvinyl Chloride	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	293.10 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH 876	Rim to invert	876.00	Grade to invert		Rim to grade	Ft
Down	SMH 877	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 876 for Liden Engineering

Setup	50	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	8:51	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Inspection Status	Complete Inspection	Consequence Of Failure		Pressure		Direction	Up
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other						

Street	Minuteman Rd	City	Andover	Drainage area	
Location Code		Pipe Use	Sanitary Sewage Pipe		
Location details		Height	18	Width	ins
Shape	Circular	Material	Polyvinyl Chloride		
Coating		Pipe Joint length	Ft	Total length	Ft
Length Surveyed	293.1 Ft	Year Constructed		Year Renewed	
Up	SMH 876	Rim to invert	876.00	Grade to invert	
Northing		Easting		Elevation	
Down	SMH 877	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Coordinate System		Vertical Datum			
GPS Accuracy		<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional			
Additional info					

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST	Start of Survey							
0.0		AMH	Manhole							
0.0		MWL	Miscellaneous Water Level							
293.1		AMH	Manhole							
293.1		FH	End of Survey							

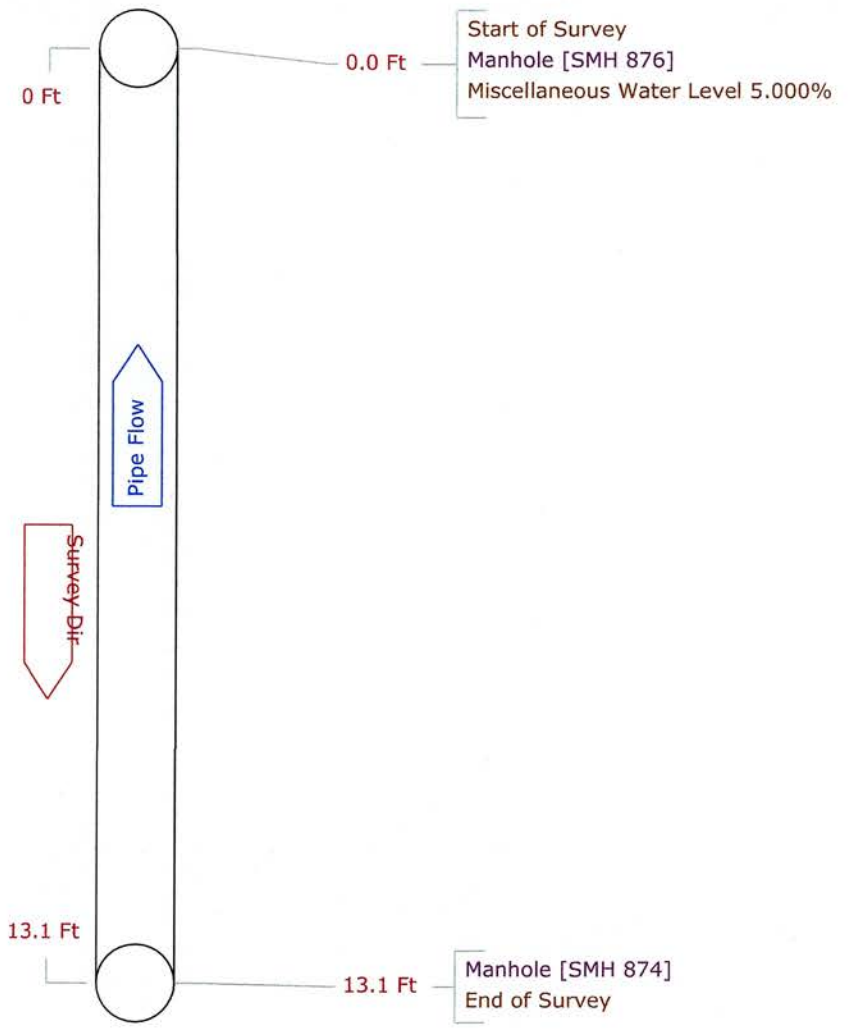
293.1 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
	O&M:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
	Overall	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000

Pipe Graphic Report of PLR SMH 874

G for Liden Engineering

Setup	51	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	9:00	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Minuteman Rd	City	Andover	Drainage area			
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	18	Width	ins
Shape	Circular	Material	Polyvinyl Chloride	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	13.10 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 874	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 876	Rim to invert	876.00	Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 874

for Liden Engineering

Setup 51 Surveyed By DR Certificate # 0821-70402733 Owner
 Reviewed By Reviewer # Work Order
 Customer P/O #
 Media Label Project Liden Engineering
 Date 2021/12/17 Time 9:00 Weather Pre-Cleaning N Date Cleaned
 Flow control Survey Purpose Direction Up
 Inspection Status Complete Inspection Consequence Of Failure Pressure
 Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Minuteman Rd City Andover Drainage area
 Location Code Pipe Use Sanitary Sewage Pipe
 Location details Height 18 Width ins
 Shape Circular Material Polyvinyl Chloride Lining
 Coating Pipe Joint length Ft Total length Ft
 Length Surveyed 13.1 Ft Year Constructed Year Renewed
 Up SMH 874 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Down SMH 876 Rim to invert 876.00 Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Coordinate System Vertical Datum
 GPS Accuracy
 Additional info

Structural	O & M
Miscellaneous	Constructional

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole SMH 876
0.0		MWL			5.000					Miscellaneous Water Level
13.1		AMH								Manhole SMH 874
13.1		FH								End of Survey

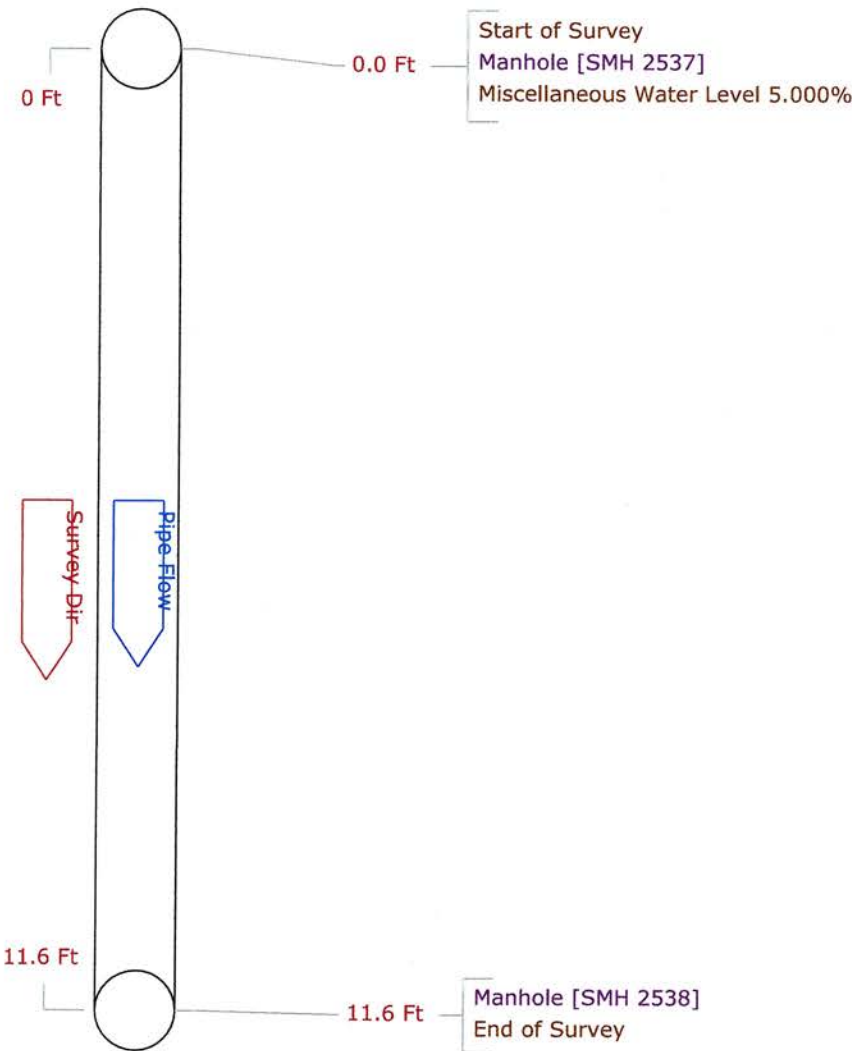
13.1 Ft Total Length Surveyed

Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

Pipe Graphic Report of PLR SMH 2537

D for Liden Engineering

Setup	48	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	8:20	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Minuteman Rd	City	Andover			Drainage area	
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	15	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	11.60 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH 2537	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2538	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 2537 for Liden Engineering

Setup 48 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/17 **Time** 8:20 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Down
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used

<input type="checkbox"/> CCTV	<input type="checkbox"/> Laser	<input type="checkbox"/> Sonar	<input type="checkbox"/> Sidewall	<input type="checkbox"/> Zoom	<input type="checkbox"/> Other
-------------------------------	--------------------------------	--------------------------------	-----------------------------------	-------------------------------	--------------------------------

Street Minuteman Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 15 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 11.6 Ft **Year Constructed** **Year Renewed**
Up SMH 2537 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 2538 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy
Additional info

Structural	O & M
Miscellaneous	Constructional

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST Start of Survey								
0.0		AMH Manhole								SMH 2537
0.0		MWL Miscellaneous Water Level			5.000					
11.6		AMH Manhole								SMH 2538
11.6		FH End of Survey								

11.6 Ft Total Length Surveyed

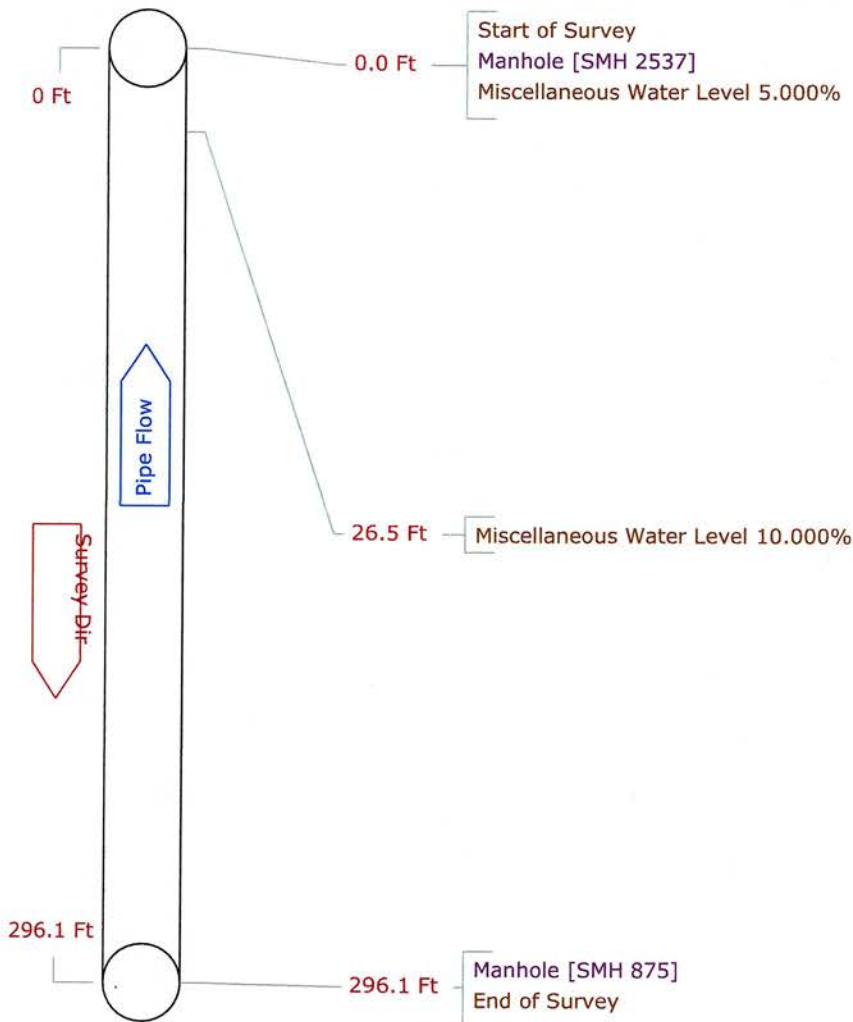
Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

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Pipe Graphic Report of PLR SMH 875

D for Liden Engineering

Setup	44	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	7:18	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Minuteman Rd	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	15	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	296.10 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 875	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2537	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 875

for Liden Engineering

Setup 44	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/17	Time 7:18	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	Direction Up
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street Minuteman Rd	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 15	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 296.1 Ft	Year Constructed	Year Renewed
Up SMH 875	Rim to invert	Grade to invert
Northing	Easting	Elevation
Down SMH 2537	Rim to invert	Grade to invert
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M	
Additional info	<input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	

Count	Video	CD	Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0			ST Start of Survey								
0.0			AMH Manhole								SMH 2537
0.0			MWL Miscellaneous Water Level			5.000					
26.5			MWL Miscellaneous Water Level			10.000					
296.1			AMH Manhole								SMH 875
296.1			FH End of Survey								

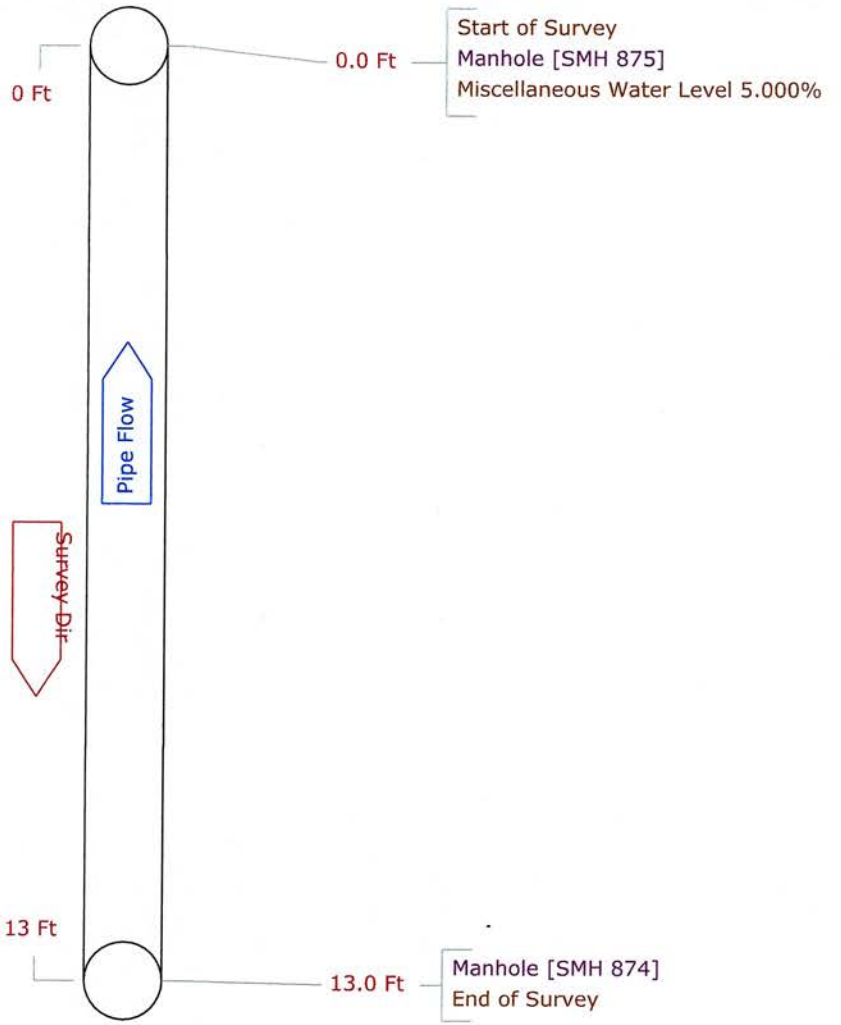
296.1 Ft Total Length Surveyed

Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

Pipe Graphic Report of PLR SMH 874

D for Liden Engineering

Setup	45	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	7:29	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Minuteman Rd	City	Andover	Drainage area			
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	15	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	13.00 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH 874	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 875	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 874 for Liden Engineering

Setup 45 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/17 **Time** 7:29 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Up
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

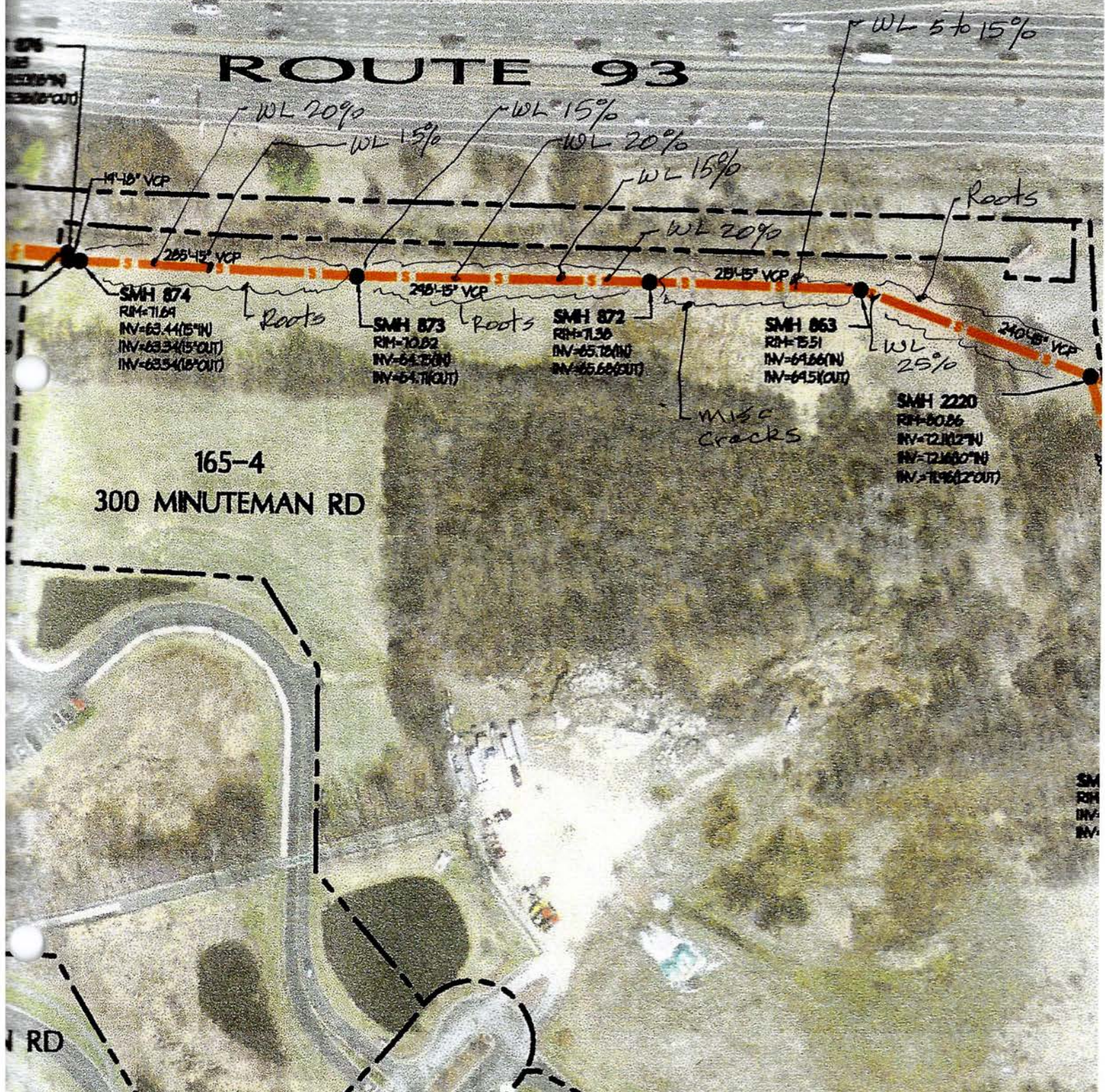
Street Minuteman Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 15 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 13.0 Ft **Year Constructed** **Year Renewed**
Up SMH 874 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 875 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy **Additional info** Structural O & M
 Miscellaneous Constructional

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH 875
0.0	MWL			5.000					Miscellaneous Water Level
13.0	AMH								Manhole SMH 874
13.0	FH								End of Survey

13.0 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

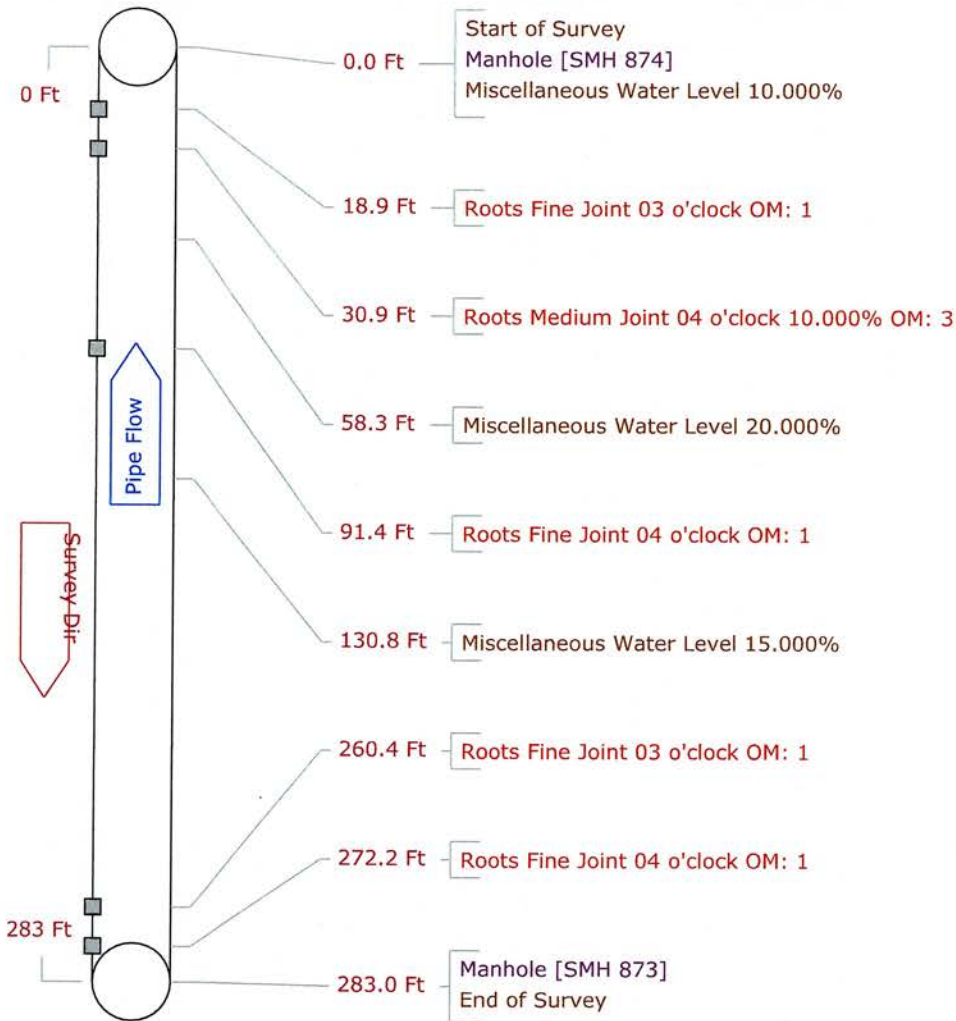
ROUTE 93



Pipe Graphic Report of PLR SMH 873

D for Liden Engineering

Setup 46	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/17	Time 7:31	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Street Minuteman Rd	City Andover		Drainage area
Location Code		Pipe Use	Sanitary Sewage Pipe
Location details		Height 15	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining	
Coating	Pipe Joint length Ft	Total length Ft	Structural O & M
Length Surveyed 283.00 Ft	Year Constructed	Year Renewed	Miscellaneous Constructional
Additional info			
Up SMH 873	Rim to invert	Grade to invert	Rim to grade Ft
Down SMH 874	Rim to invert	Grade to invert	Rim to grade Ft



Tabular Report of PSR SMH 873 for Liden Engineering

Setup 46	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/17	Time 7:31	Weather	Pre-Cleaning N Date Cleaned
Flow control	Survey Purpose		Direction Up
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street Minuteman Rd	City Andover	Drainage area	
Location Code	Pipe Use Sanitary Sewage Pipe		
Location details	Height 15	Width ins	
Shape Circular	Material Vitrified Clay Pipe	Lining	
Coating	Pipe Joint length Ft	Total length Ft	
Length Surveyed 283.0 Ft	Year Constructed	Year Renewed	
Up SMH 873	Rim to invert	Grade to invert	Rim to grade Ft
Northing	Easting	Elevation	
Down SMH 874	Rim to invert	Grade to invert	Rim to grade Ft
Northing	Easting	Elevation	
Coordinate System	Vertical Datum		
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional		
Additional info			

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH 874
0.0	MWL			10.000					Miscellaneous Water Level
18.9	RFJ				J	03			Roots Fine Joint
30.9	RMJ			10.000	J	04			Roots Medium Joint
58.3	MWL			20.000					Miscellaneous Water Level
91.4	RFJ				J	04			Roots Fine Joint
130.8	MWL			15.000					Miscellaneous Water Level
260.4	RFJ				J	03			Roots Fine Joint
272.2	RFJ				J	04			Roots Fine Joint
283.0	AMH								Manhole SMH 873
283.0	FH								End of Survey

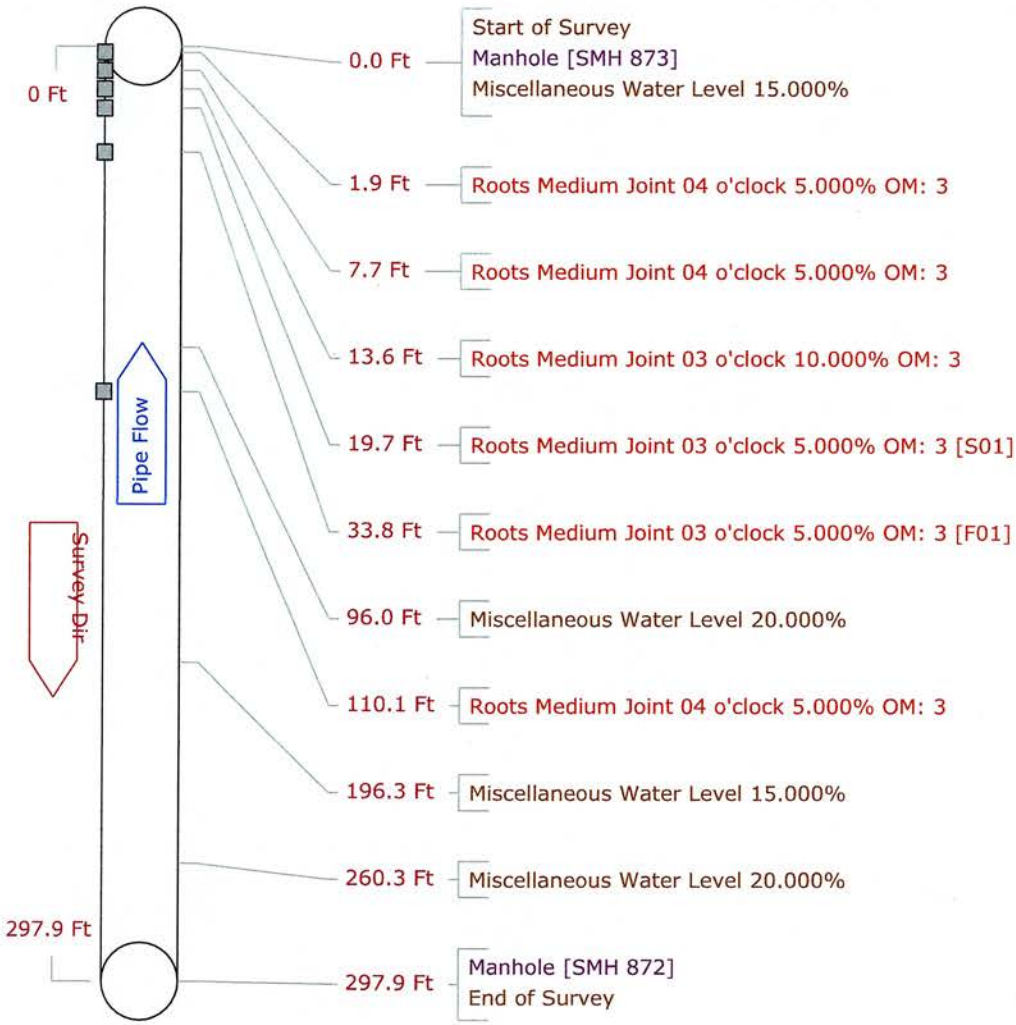
283.0 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 7	Pipe Ratings Index 1.4	Quick Rating 3114
	Overall	Pipe Rating 7	Pipe Ratings Index 1.4	Quick Rating 3114

Pipe Graphic Report of PLR SMH 872

D for Liden Engineering

Setup 47	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/17	Time 7:42	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Street Minuteman Rd	City Andover	Drainage area	
Location Code		Pipe Use Sanitary Sewage Pipe	
Location details		Height 15	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining	
Coating	Pipe Joint length	Ft	Total length
Length Surveyed 297.90 Ft	Year Constructed	Year Renewed	Ft
Additional info			
Up SMH 872	Rim to invert	Grade to invert	Rim to grade Ft
Down SMH 873	Rim to invert	Grade to invert	Rim to grade Ft



Tabular Report of PSR SMH 872 for Liden Engineering

Setup 47	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/17	Time 7:42	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	Direction Up
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street Minuteman Rd	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 15	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 297.9 Ft	Year Constructed	Year Renewed
Up SMH 872	Rim to invert	Grade to invert
Northing	Easting	Elevation
Down SMH 873	Rim to invert	Grade to invert
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M	
Additional info	<input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST Start of Survey								
0.0		AMH Manhole								SMH 873
0.0		MWL Miscellaneous Water Level			15.000					
1.9		RMJ Roots Medium Joint			5.000	J	04			
7.7		RMJ Roots Medium Joint			5.000	J	04			
13.6		RMJ Roots Medium Joint			10.000	J	03			
19.7		S01 RMJ Roots Medium Joint			5.000	J	03			
33.8		F01 RMJ Roots Medium Joint			5.000	J	03			
96.0		MWL Miscellaneous Water Level			20.000					
110.1		RMJ Roots Medium Joint			5.000	J	04			
196.3		MWL Miscellaneous Water Level			15.000					
260.3		MWL Miscellaneous Water Level			20.000					
297.9		AMH Manhole								SMH 872
297.9		FH End of Survey								

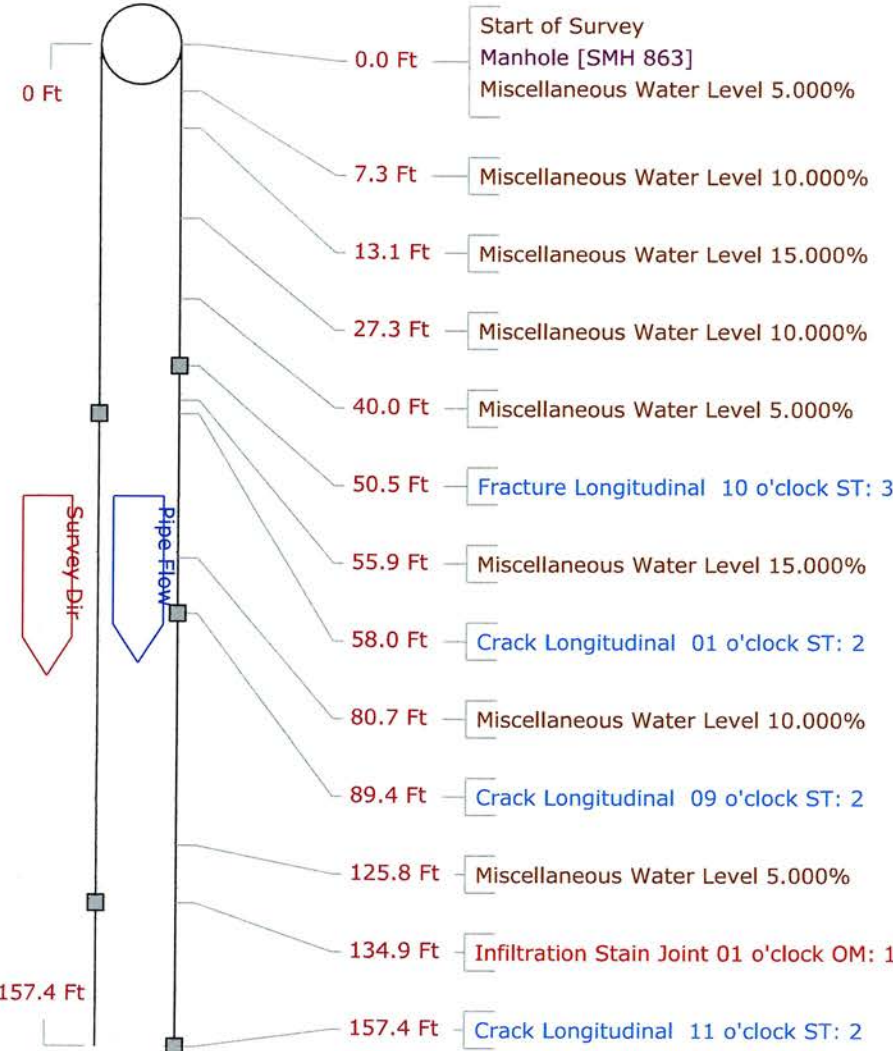
297.9 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 21	Pipe Ratings Index 3	Quick Rating 3700
	Overall	Pipe Rating 21	Pipe Ratings Index 3	Quick Rating 3700

Pipe Graphic Report of PLR SMH 863

G for Liden Engineering

Setup	71	Surveyed By	DR	Certificate #	U-0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order		P/O #	
Customer		Project	Liden Engineering	Pre-Cleaning N		Date Cleaned	
Media Label		Date	2021/12/28	Time	8:16	Weather	
Flow control		Survey Purpose		Direction	Downstream		
Street	Old River Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe	Height	15	Width	ins
Location details		Material	Vitrified Clay Pipe	Lining			
Shape	Circular	Pipe Joint length		Ft	Total length		
Coating		Year Constructed		Year Renewed			
Length Surveyed	158.20 Ft						
Additional info							
Up	SMH 863	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 872	Rim to invert		Grade to invert		Rim to grade	Ft

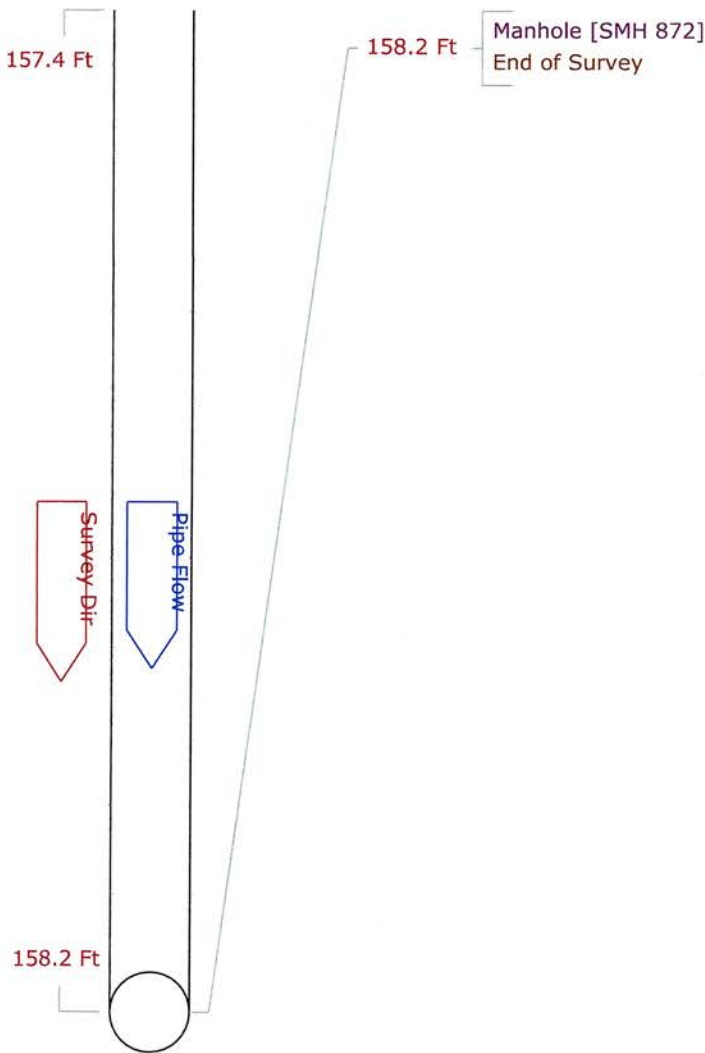


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Pipe Graphic Report of PLR SMH 863

G for Liden Engineering

Setup	71	Surveyed By	DR	Certificate #	U-0821-70402733	Owner					
Reviewed By		Reviewer #		Work Order							
Customer				P/O #							
Media Label		Project	Liden Engineering								
Date	2021/12/28	Time	8:16	Weather		Pre-Cleaning	N				
Flow control		Survey Purpose				Date Cleaned					
Street	Old River Rd	City	Andover			Drainage area					
Location Code				Pipe Use	Sanitary Sewage Pipe						
Location details				Height	15	Width	ins				
Shape	Circular	Material	Vitrified Clay Pipe	Lining							
Coating		Pipe Joint length		Ft	Total length	Ft	<table border="1"> <tr> <td>Structural</td> <td>O & M</td> </tr> <tr> <td>Miscellaneous</td> <td>Constructional</td> </tr> </table>	Structural	O & M	Miscellaneous	Constructional
Structural	O & M										
Miscellaneous	Constructional										
Length Surveyed	158.20 Ft	Year Constructed		Year Renewed							
Additional info											
Up	SMH 863	Rim to invert		Grade to invert		Rim to grade	Ft				
Down	SMH 872	Rim to invert		Grade to invert		Rim to grade	Ft				



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Tabular Report of PSR SMH 863

for Liden Engineering

Setup 71 Surveyed By DR Certificate # U-0821-70402733 Owner
 Reviewed By Reviewer # Work Order
 Customer P/O #
 Media Label Project Liden Engineering
 Date 2021/12/28 Time 8:16 Weather Pre-Cleaning N Date Cleaned
 Flow control Survey Purpose Direction Down
 Inspection Status Complete Inspection Consequence Of Failure Pressure
 Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Old River Rd City Andover Drainage area
 Location Code Pipe Use Sanitary Sewage Pipe
 Location details Height 15 Width ins
 Shape Circular Material Vitrified Clay Pipe Lining
 Coating Pipe Joint length Ft Total length Ft
 Length Surveyed 158.2 Ft Year Constructed Year Renewed
 Up SMH 863 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Down SMH 872 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Coordinate System Vertical Datum
 GPS Accuracy Structural O & M
 Additional info Miscellaneous Constructional

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST Start of Survey								
0.0		AMH Manhole								SMH 863
0.0		MWL Miscellaneous Water Level			5.000					
7.3		MWL Miscellaneous Water Level			10.000					
13.1		MWL Miscellaneous Water Level			15.000					
27.3		MWL Miscellaneous Water Level			10.000					
40.0		MWL Miscellaneous Water Level			5.000					
50.5		FL Fracture Longitudinal					10			
55.9		MWL Miscellaneous Water Level			15.000					
58.0		CL Crack Longitudinal					01			
80.7		MWL Miscellaneous Water Level			10.000					
89.4		CL Crack Longitudinal					09			
125.8		MWL Miscellaneous Water Level			5.000					
134.9		ISJ Infiltration Stain Joint				J	01			
157.4		CL Crack Longitudinal					11			
158.2		AMH Manhole								SMH 872
158.2		FH End of Survey								

158.2 Ft Total Length Surveyed

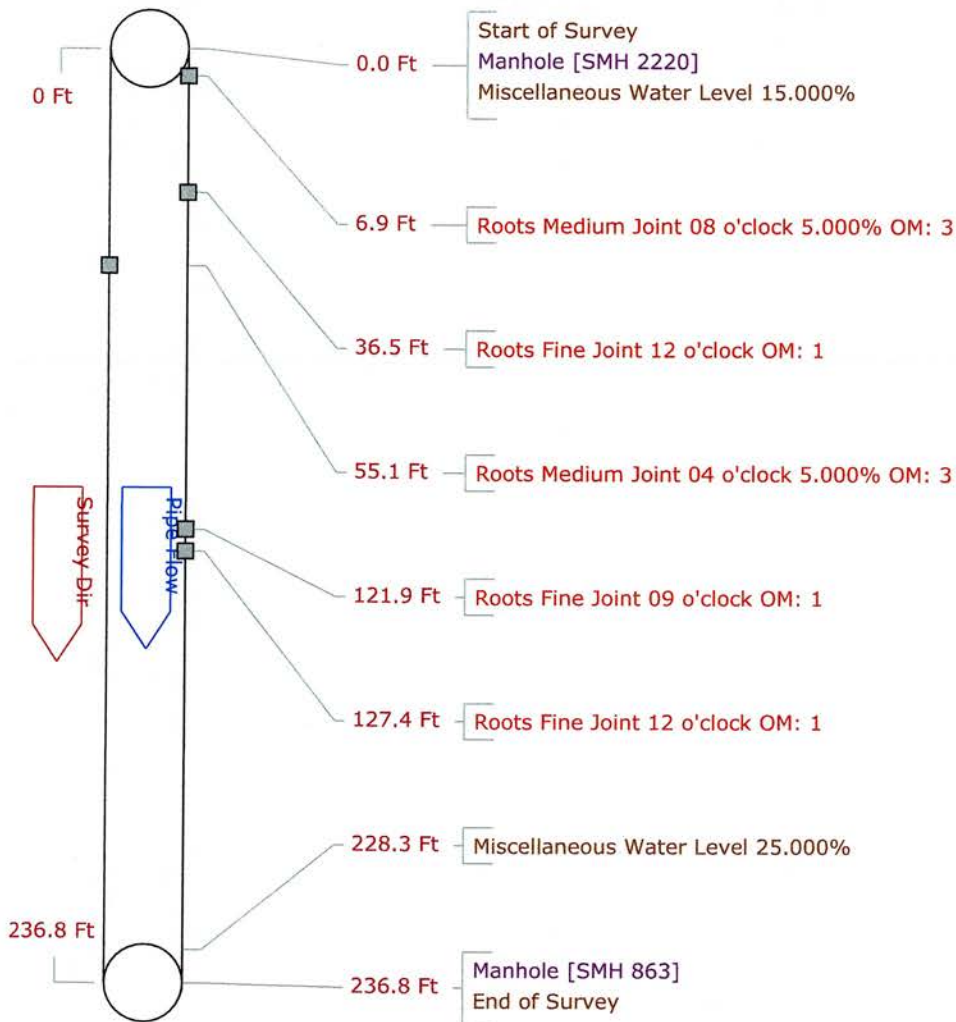
Scores	Structural:	Pipe Rating	9	Pipe Ratings Index	2.3	Quick Rating	3123
	O&M:	Pipe Rating	1	Pipe Ratings Index	1	Quick Rating	1100
	Overall	Pipe Rating	10	Pipe Ratings Index	3.3	Quick Rating	3123

Pipe Graphic Report of PLR SMH 2220

G for Liden Engineering

Setup 68	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/28	Time 12:28	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Street Old River Rd	City Andover		Drainage area
Location Code		Pipe Use	Sanitary Sewage Pipe
Location details		Height 15	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining	
Coating	Pipe Joint length	Ft Total length	Ft
Length Surveyed 236.80 Ft	Year Constructed	Year Renewed	
Additional info			
Up SMH 2220	Rim to invert	Grade to invert	Rim to grade Ft
Down SMH 863	Rim to invert	Grade to invert	Rim to grade Ft

Structural	O & M
Miscellaneous	Constructional



Tabular Report of PSR SMH 2220 for Liden Engineering

Setup 68 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/28 **Time** 12:28 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Down
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Old River Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 15 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 236.8 Ft **Year Constructed** **Year Renewed**
Up SMH 2220 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 863 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy Structural O & M
Additional info Miscellaneous Constructional

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	lmRef	Remarks
0.0		ST Start of Survey								
0.0		AMH Manhole								SMH 2220
0.0		MWL Miscellaneous Water Level			15.000					
6.9		RMJ Roots Medium Joint			5.000	J	08			
36.5		RFJ Roots Fine Joint				J	12			
55.1		RMJ Roots Medium Joint			5.000	J	04			
121.9		RFJ Roots Fine Joint				J	09			
127.4		RFJ Roots Fine Joint				J	12			
228.3		MWL Miscellaneous Water Level			25.000					
236.8		AMH Manhole								SMH 863
236.8		FH End of Survey								

236.8 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 9	Pipe Ratings Index 1.8	Quick Rating 3213
	Overall	Pipe Rating 9	Pipe Ratings Index 1.8	Quick Rating 3213

See previous plan

Grease

SMH 2221
RIM=83.13
INV=73.13(IN)
INV=72.98(OUT)

131-R RIVER RD

165-1

SMH 2218
RIM=80.41
INV=73.875(VCP1 IN)
INV=74.318(VCP2 IN)
INV=74.660(VCP OUT)
INV=73.818(VCP OUT)

SMH 2217
RIM=83.16
INV=76.05 (B'VCP1 IN)
INV=76.20 (B'VCP2 IN)
INV=76.05 (B'VCP OUT)
INV=76.10 (B'CLAY OUT)

SMH 2220
RIM=80.86
INV=72.10(2"IN)
INV=72.16(8"IN)
INV=71.96(12"OUT)

240'-8" VCP

185'-10" VCP

200'-0" VCP

18" VCP

6" VCP

6" VCP

108'-8" VCP

6" VCP

6" VCP

WL 10%

Roots

Roots

SMH 1342
RIM=85.62
INV=77.11(12"IN)
INV=77.62(12"OUT)

165-1E

128 RIVER RD

WL 15%

WL 75%

WL 60%

WL 50%

WL 30%

SMH 3303
RIM=40.41
INV=84.55(12"IN)
INV=84.44(12"OUT)

64'-12" VCP

165-1B

138 RIVER RD

165-1D

131 RIVER RD

SMH 1259
RIM=44.63
INV=86.63(12"IN)
INV=86.63(18"IN)
INV=86.63(12"OUT)

6'-12" VCP

Roots

6'-18" VCP

Roots

SMH 1258
RIM=44.48
INV=86.48(12"IN)
INV=86.68(12"OUT)

6" VCP

SMH 1257
RIM=85.56
INV=86.56 (8"IN)
INV=86.56 (18"IN)
INV=86.56 (18"OUT)

165-1

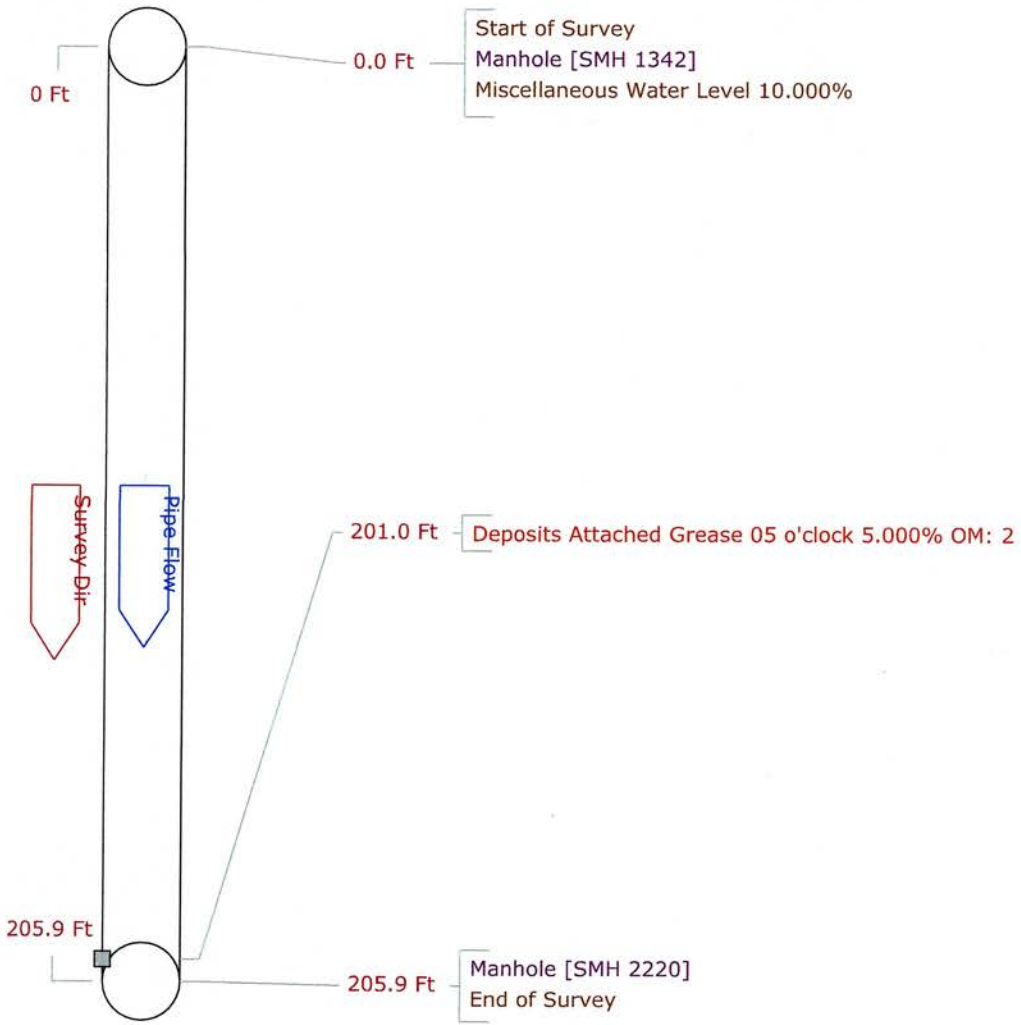
139 RIVER RD

40

Pipe Graphic Report of PLR SMH 1342

D for Liden Engineering

Setup	35	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	11:18	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover	Drainage area			
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	12	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	205.90 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH 1342	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2220	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 1342

for Liden Engineering

Setup 35 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/16 **Time** 11:18 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Down
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Old River Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 12 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 205.9 Ft **Year Constructed** **Year Renewed**
Up SMH 1342 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 2220 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy **Structural** **O & M**
Additional info **Miscellaneous** **Constructional**

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole SMH 1342
0.0		MWL			10.000					Miscellaneous Water Level
201.0		DAGS			5.000		05			Deposits Attached Grease
205.9		AMH								Manhole SMH 2220
205.9		FH								End of Survey

205.9 Ft Total Length Surveyed

Scores

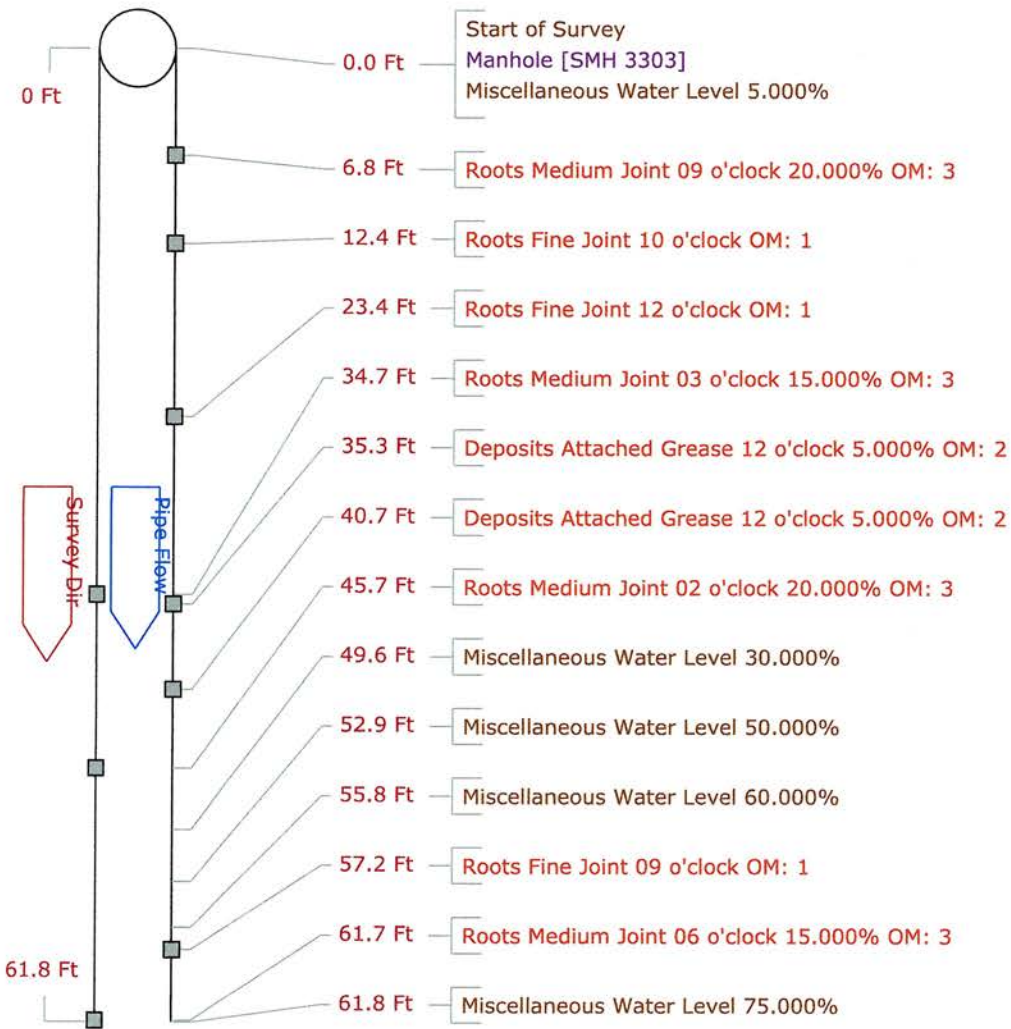
Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
O&M:	Pipe Rating 2	Pipe Ratings Index 2	Quick Rating 2100
Overall	Pipe Rating 2	Pipe Ratings Index 2	Quick Rating 2100

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Pipe Graphic Report of PLR SMH 3303

D for Liden Engineering

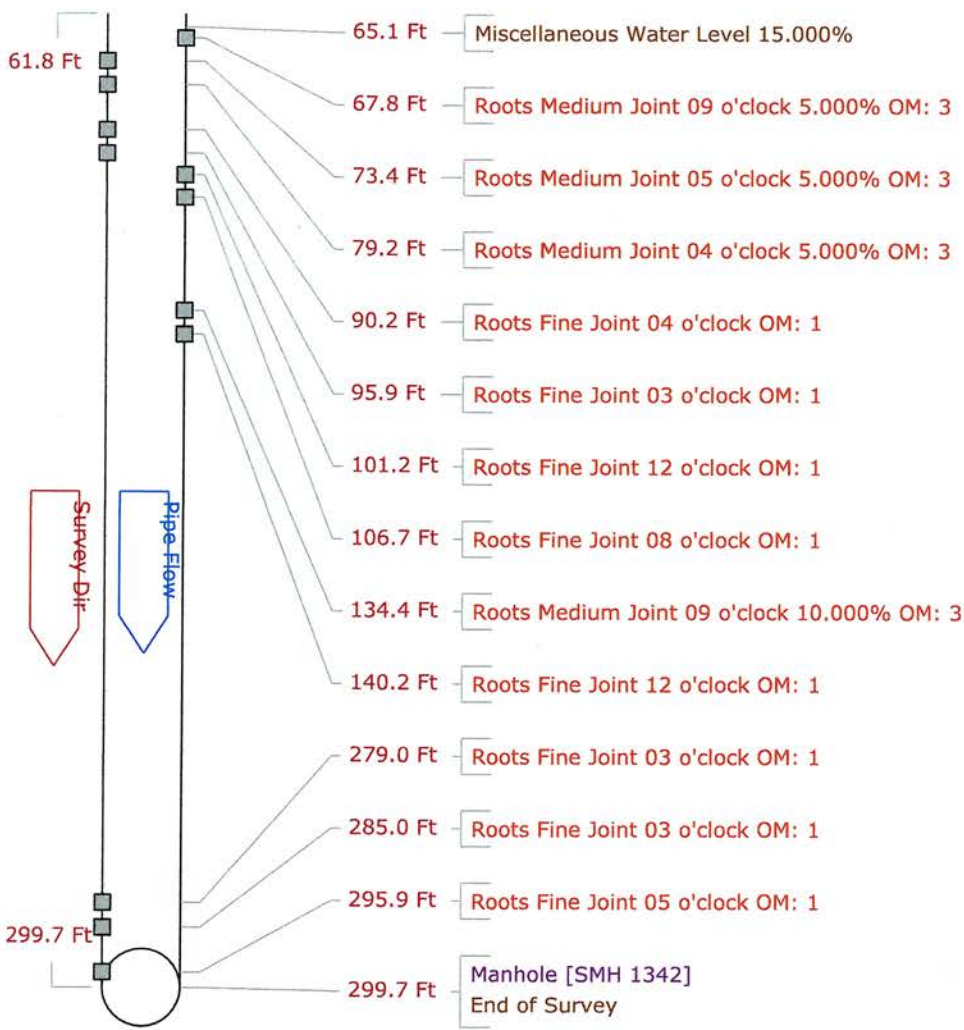
Setup	34	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	10:46	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	12	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	299.70 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 3303	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1342	Rim to invert		Grade to invert		Rim to grade	Ft



Pipe Graphic Report of PLR SMH 3303

D for Liden Engineering

Setup	34	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	10:46	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	12	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	299.70 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH 3303	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1342	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 3303

for Liden Engineering

Setup 34	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/16	Time 10:46	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street Old River Rd	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 12	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 299.7 Ft	Year Constructed	Year Renewed
Up SMH 3303	Rim to invert	Grade to invert
Northing	Easting	Elevation
Down SMH 1342	Rim to invert	Grade to invert
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M	
Additional info	<input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole
0.0		MWL			5.000					Miscellaneous Water Level
6.8		RMJ			20.000	J	09			Roots Medium Joint
12.4		RFJ				J	10			Roots Fine Joint
23.4		RFJ				J	12			Roots Fine Joint
34.7		RMJ			15.000	J	03			Roots Medium Joint
35.3		DAGS			5.000		12			Deposits Attached Grease
40.7		DAGS			5.000		12			Deposits Attached Grease
45.7		RMJ			20.000	J	02			Roots Medium Joint
49.6		MWL			30.000					Miscellaneous Water Level
52.9		MWL			50.000					Miscellaneous Water Level
55.8		MWL			60.000					Miscellaneous Water Level
57.2		RFJ				J	09			Roots Fine Joint
61.7		RMJ			15.000	J	06			Roots Medium Joint
61.8		MWL			75.000					Miscellaneous Water Level
65.1		MWL			15.000					Miscellaneous Water Level
67.8		RMJ			5.000	J	09			Roots Medium Joint
73.4		RMJ			5.000	J	05			Roots Medium Joint
79.2		RMJ			5.000	J	04			Roots Medium Joint
90.2		RFJ				J	04			Roots Fine Joint
95.9		RFJ				J	03			Roots Fine Joint
101.2		RFJ				J	12			Roots Fine Joint

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Tabular Report of PSR SMH 3303

for Liden Engineering

Setup 34 **Date** 2021/12/16 **Time** 10:46 **Up** SMH 3303 **Down** SMH 1342

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
106.7		RFJ Roots Fine Joint				J	08			
134.4		RMJ Roots Medium Joint			10.000	J	09			
140.2		RFJ Roots Fine Joint				J	12			
279.0		RFJ Roots Fine Joint				J	03			
285.0		RFJ Roots Fine Joint				J	03			
295.9		RFJ Roots Fine Joint				J	05			
299.7		AMH Manhole								SMH 1342
299.7		FH End of Survey								

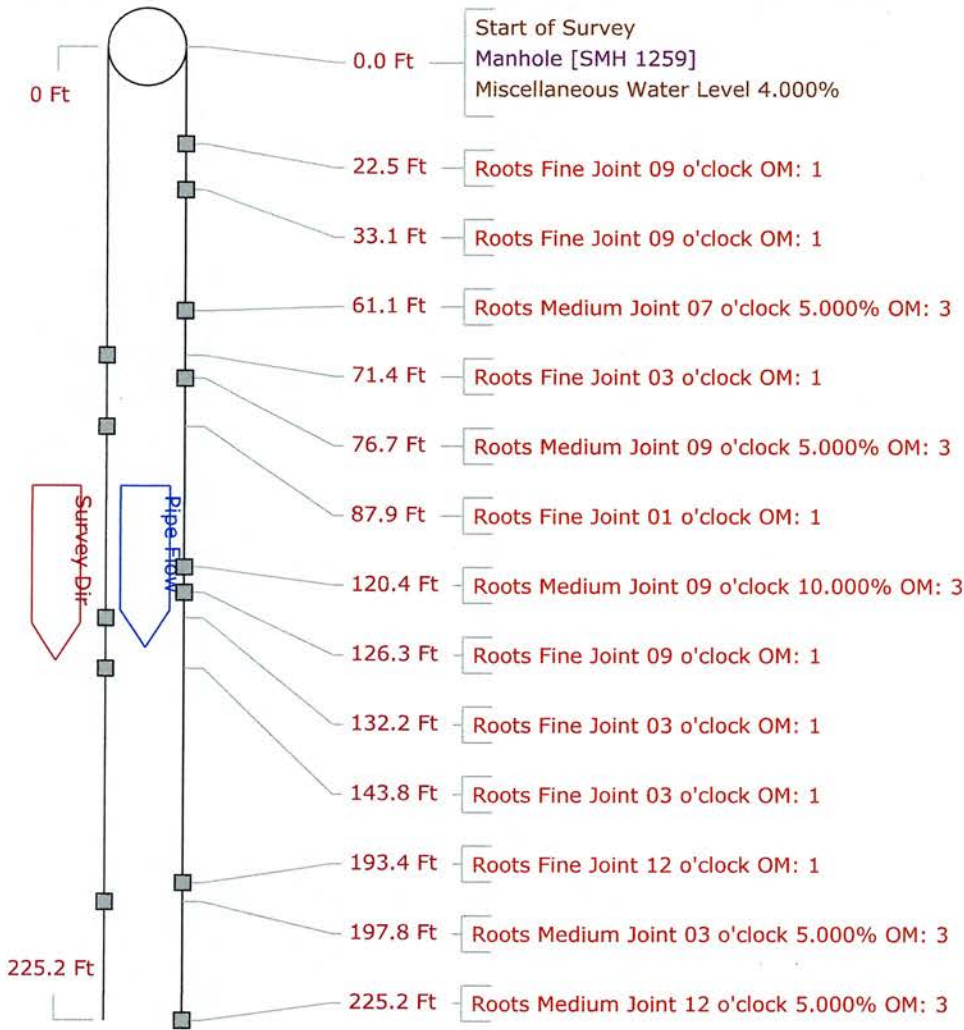
299.7 Ft Total Length Surveyed

Scores						
Structural:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
O&M:	Pipe Rating	39	Pipe Ratings Index	1.9	Quick Rating	3822
Overall	Pipe Rating	39	Pipe Ratings Index	1.9	Quick Rating	3822

Pipe Graphic Report of PLR SMH 1259

D for Liden Engineering

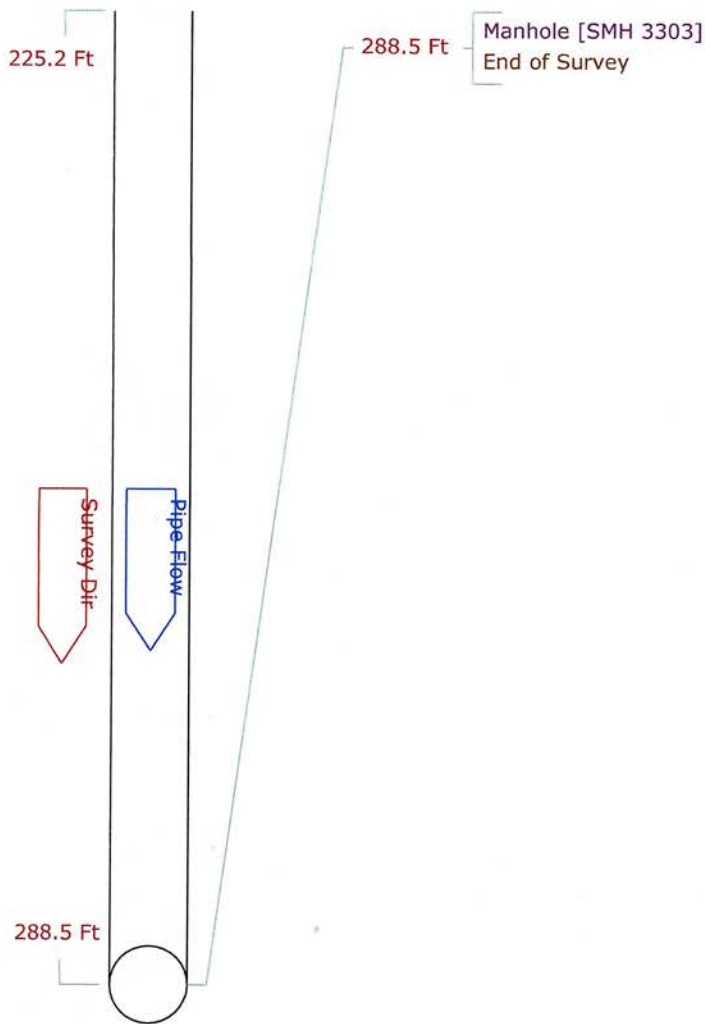
Setup	33	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	10:14	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Direction	Downstream
Street	Old River Rd	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	12	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	288.50 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 1259	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 3303	Rim to invert		Grade to invert		Rim to grade	Ft



Pipe Graphic Report of PLR SMH 1259

D for Liden Engineering

Setup	33	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	10:14	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	12	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	288.50 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 1259	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 3303	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 1259

for Liden Engineering

Setup	33	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	10:14	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Inspection Status	Complete Inspection	Consequence Of Failure		Pressure		Direction	Down
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other						

Street	Old River Rd	City	Andover	Drainage area	
Location Code		Pipe Use	Sanitary Sewage Pipe		
Location details		Height	12	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe		
Coating		Lining			
Length Surveyed	288.5 Ft	Pipe Joint length	Ft	Total length	Ft
Up	SMH 1259	Year Constructed		Year Renewed	
Northing		Rim to invert		Grade to invert	
Down	SMH 3303	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Coordinate System		Vertical Datum			
GPS Accuracy		Structural	O & M		
Additional info		Miscellaneous	Constructional		

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole SMH 1259
0.0		MWL			4.000					Miscellaneous Water Level
22.5		RFJ				J	09			Roots Fine Joint
33.1		RFJ				J	09			Roots Fine Joint
61.1		RMJ			5.000	J	07			Roots Medium Joint
71.4		RFJ				J	03			Roots Fine Joint
76.7		RMJ			5.000	J	09			Roots Medium Joint
87.9		RFJ				J	01			Roots Fine Joint
120.4		RMJ			10.000	J	09			Roots Medium Joint
126.3		RFJ				J	09			Roots Fine Joint
132.2		RFJ				J	03			Roots Fine Joint
143.8		RFJ				J	03			Roots Fine Joint
193.4		RFJ				J	12			Roots Fine Joint
197.8		RMJ			5.000	J	03			Roots Medium Joint
225.2		RMJ			5.000	J	12			Roots Medium Joint
288.5		AMH								Manhole SMH 3303
288.5		FH								End of Survey

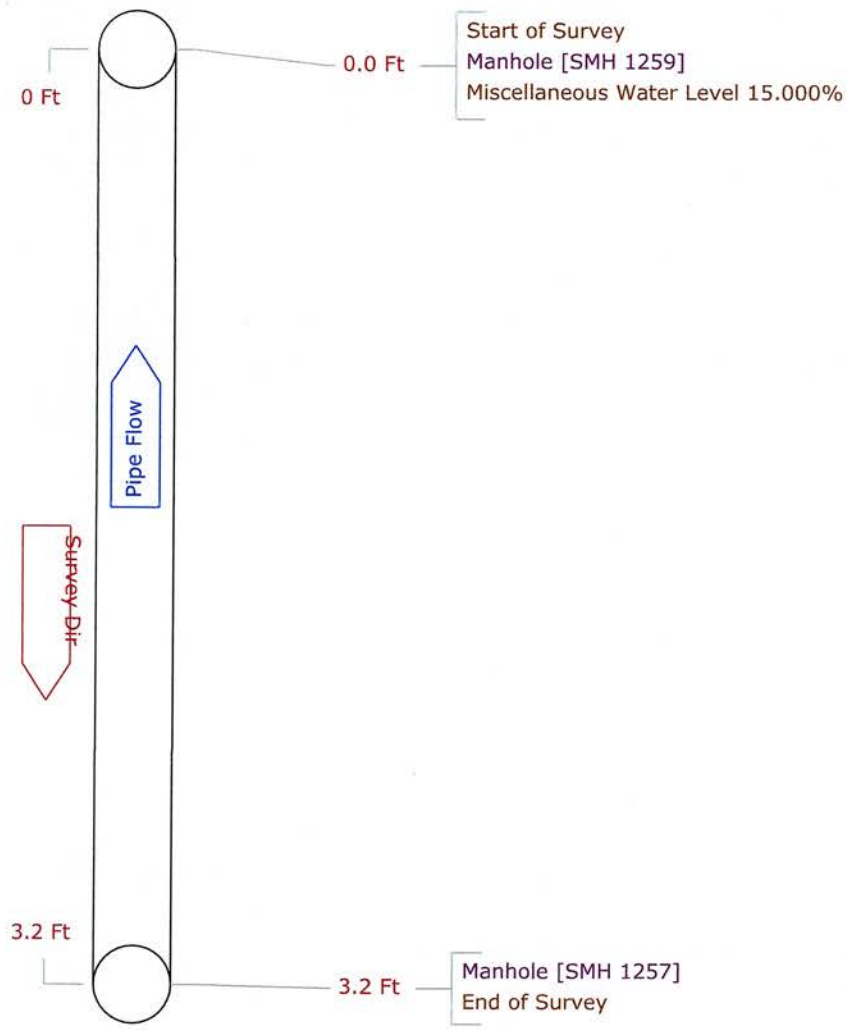
288.5 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
	O&M:	Pipe Rating	23	Pipe Ratings Index	1.8	Quick Rating	3518
	Overall	Pipe Rating	23	Pipe Ratings Index	1.8	Quick Rating	3518

Pipe Graphic Report of PLR SMH 1257

D for Liden Engineering

Setup 38	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/16	Time 12:07	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Street Old River Rd	City Andover		Drainage area
Location Code		Pipe Use	Sanitary Sewage Pipe
Location details		Height 18	Width ins
Shape Circular	Material Polyvinyl Chloride	Lining	
Coating	Pipe Joint length	Ft Total length	Ft
Length Surveyed 03.20 Ft	Year Constructed	Year Renewed	Structural O & M Miscellaneous Constructional
Additional info			
Up SMH 1257	Rim to invert	Grade to invert	Rim to grade Ft
Down SMH 1259	Rim to invert	Grade to invert	Rim to grade Ft



Tabular Report of PSR SMH 1257 for Liden Engineering

Setup 38	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/16	Time 12:07	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	Direction Up
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street Old River Rd	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 18	Width ins
Shape Circular	Material Polyvinyl Chloride	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 3.2 Ft	Year Constructed	Year Renewed
Up SMH 1257	Rim to invert	Grade to invert
Northing	Easting	Elevation
Down SMH 1259	Rim to invert	Grade to invert
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	
Additional info		

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH 1259
0.0	MWL			15.000					Miscellaneous Water Level
3.2	AMH								Manhole SMH 1257
3.2	FH								End of Survey

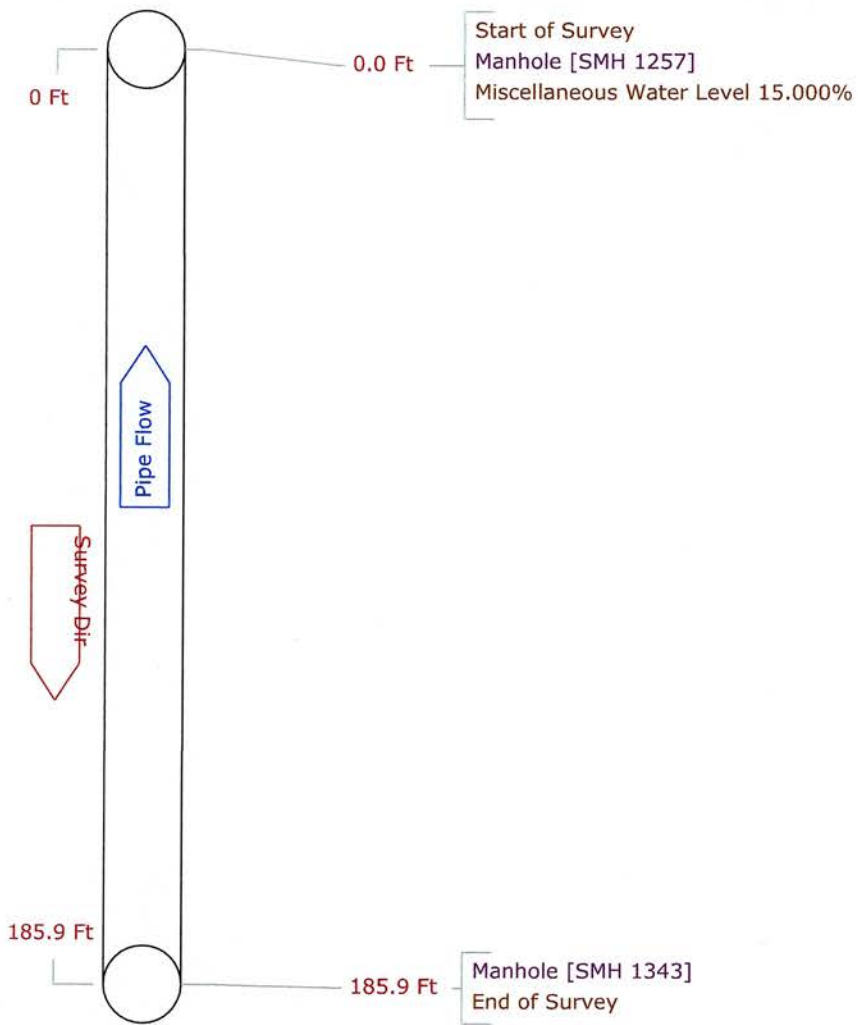
3.2 Ft Total Length Surveyed

Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

Pipe Graphic Report of PLR SMH 1343

D for Liden Engineering

Setup	39	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	12:31	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	18	Width	ins		
Shape	Circular	Material	Polyvinyl Chloride	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	185.90 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 1343	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1257	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 1343 for Liden Engineering

Setup 39 Surveyed By DR Certificate # 0821-70402733 Owner
 Reviewed By Reviewer # Work Order
 Customer P/O #
 Media Label Project Liden Engineering
 Date 2021/12/16 Time 12:31 Weather Pre-Cleaning N Date Cleaned
 Flow control Survey Purpose Direction Up
 Inspection Status Complete Inspection Consequence Of Failure Pressure
 Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Old River Rd City Andover Drainage area
 Location Code Pipe Use Sanitary Sewage Pipe
 Location details Height 18 Width ins
 Shape Circular Material Polyvinyl Chloride Lining
 Coating Pipe Joint length Ft Total length Ft
 Length Surveyed 185.9 Ft Year Constructed Year Renewed
 Up SMH 1343 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Down SMH 1257 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Coordinate System Vertical Datum
 GPS Accuracy
 Additional info
 Structural O & M
 Miscellaneous Constructional

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST Start of Survey								
0.0		AMH Manhole								SMH 1257
0.0		MWL Miscellaneous Water Level			15.000					
185.9		AMH Manhole								SMH 1343
185.9		FH End of Survey								

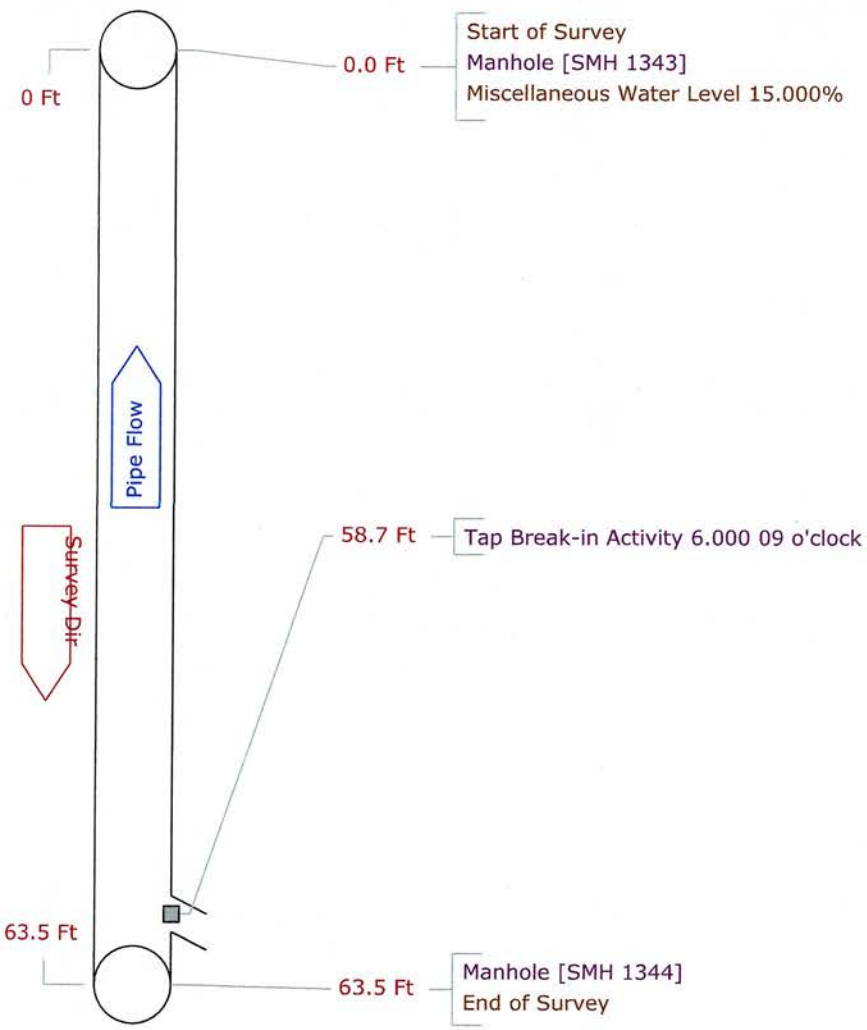
185.9 Ft Total Length Surveyed

Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

Pipe Graphic Report of PLR SMH 1344

D for Liden Engineering

Setup	40	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	12:39	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover	Drainage area			
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	18	Width	ins
Shape	Circular	Material	Polyvinyl Chloride	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	63.50 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 1344	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1343	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 1344 for Liden Engineering

Setup 40 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/16 **Time** 12:39 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Up
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Old River Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 18 **Width** ins
Shape Circular **Material** Polyvinyl Chloride **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 63.5 Ft **Year Constructed** **Year Renewed**

Up SMH 1344	Rim to invert	Grade to invert	Rim to grade	Ft
Northing	Easting	Elevation		
Down SMH 1343	Rim to invert	Grade to invert	Rim to grade	Ft
Northing	Easting	Elevation		

Coordinate System **Vertical Datum**
GPS Accuracy **Structural** **O & M**
Additional info **Miscellaneous** **Constructional**

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole
0.0		MWL			15.000					Miscellaneous Water Level
58.7		TBA	6.000				09			Tap Break-in Activity
63.5		AMH								Manhole
63.5		FH								End of Survey

63.5 Ft Total Length Surveyed

Scores

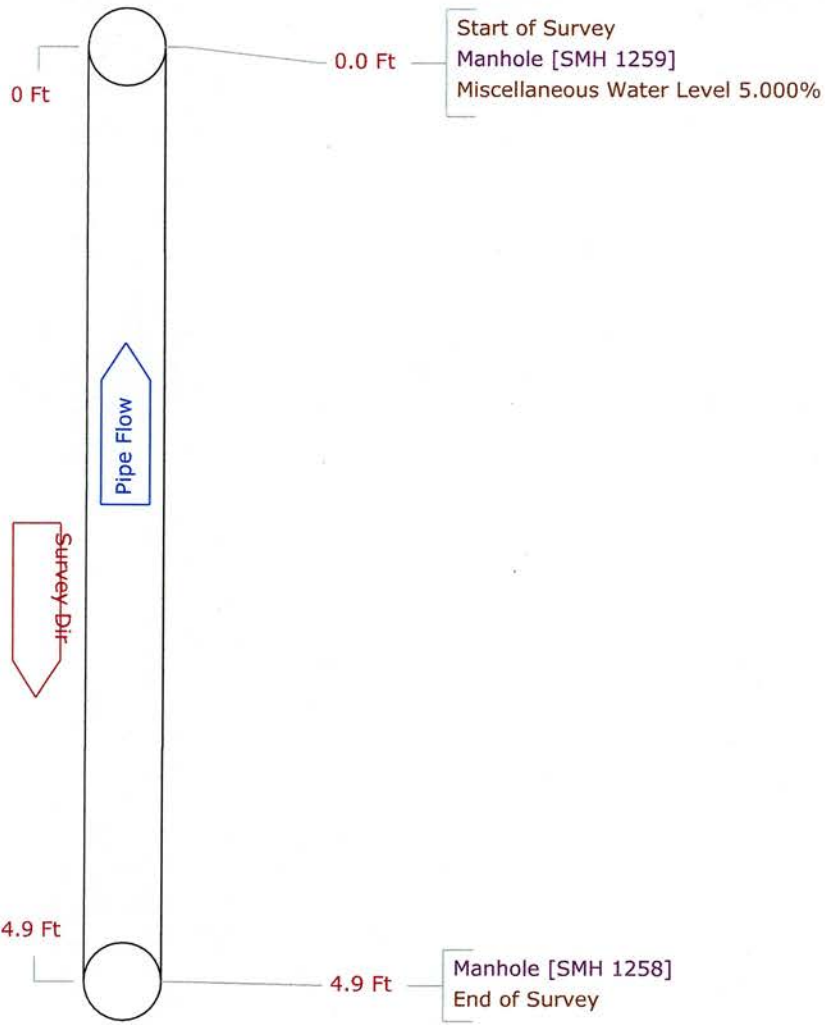
Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
O&M:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
Overall	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

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Pipe Graphic Report of PLR SMH 1258

D for Liden Engineering

Setup	36	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	11:40	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	12	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M
Length Surveyed	04.90 Ft	Year Constructed		Year Renewed			Miscellaneous Constructional
Additional info							
Up	SMH 1258	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1259	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 1258 for Liden Engineering

Setup	36	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	11:40	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Inspection Status	Complete Inspection	Consequence Of Failure		Pressure		Direction	Up
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other						

Street	Old River Rd	City	Andover	Drainage area	
Location Code		Pipe Use	Sanitary Sewage Pipe		
Location details		Height	12	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe		
Coating		Pipe Joint length	Ft	Total length	Ft
Length Surveyed	4.9	Year Constructed		Year Renewed	
Up	SMH 1258	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Down	SMH 1259	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Coordinate System		Vertical Datum			
GPS Accuracy		<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional			
Additional info					

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole SMH 1259
0.0		MWL			5.000					Miscellaneous Water Level
4.9		AMH								Manhole SMH 1258
4.9		FH								End of Survey

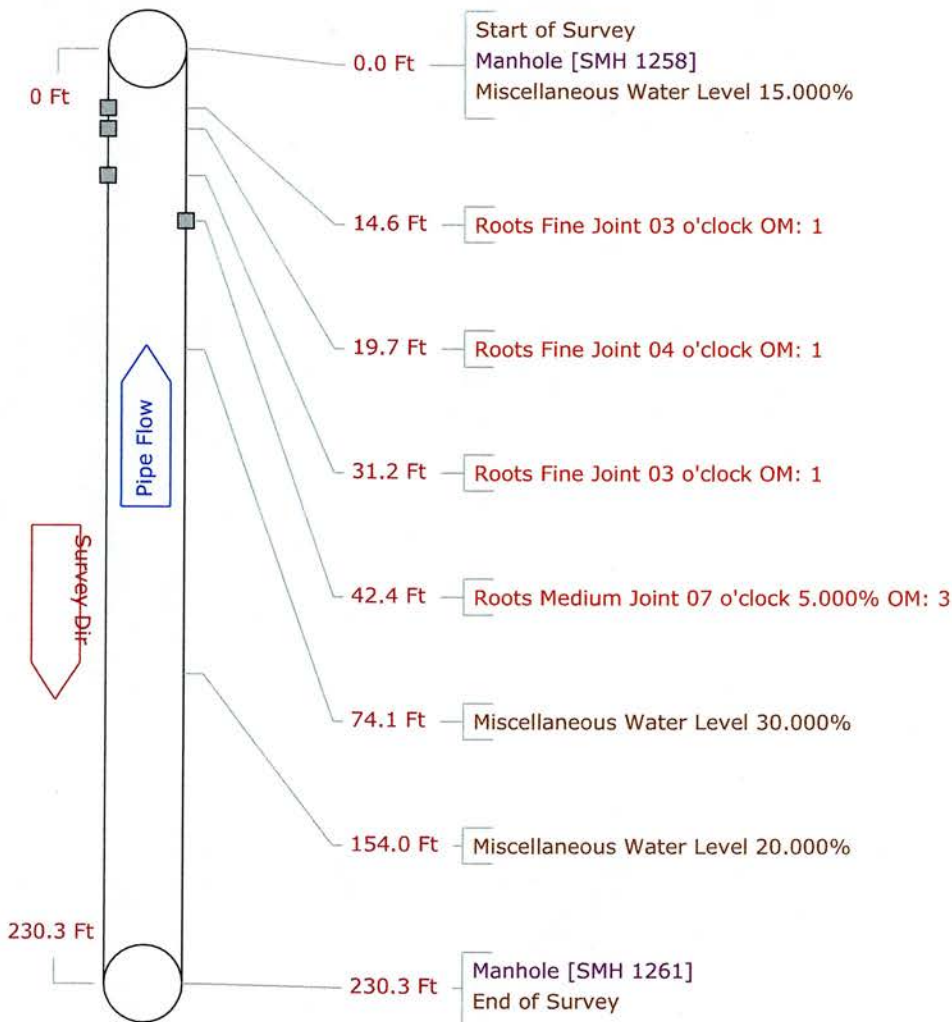
4.9 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
	O&M:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
	Overall	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000

Pipe Graphic Report of PLR SMH 1261

D for Liden Engineering

Setup	37	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	11:50	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover	Drainage area			
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	12	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	230.30 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 1261	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1258	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 1261 for Liden Engineering

Setup 37	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/16	Time 11:50	Weather	Pre-Cleaning N Date Cleaned
Flow control	Survey Purpose		Direction Up
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street Old River Rd	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 12 Width ins	
Shape Circular	Material Vitrified Clay Pipe	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 230.3 Ft	Year Constructed	Year Renewed
Up SMH 1261	Rim to invert	Grade to invert Rim to grade Ft
Northing	Easting	Elevation
Down SMH 1258	Rim to invert	Grade to invert Rim to grade Ft
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	
Additional info		

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH 1258
0.0	MWL			15.000					Miscellaneous Water Level
14.6	RFJ				J	03			Roots Fine Joint
19.7	RFJ				J	04			Roots Fine Joint
31.2	RFJ				J	03			Roots Fine Joint
42.4	RMJ			5.000	J	07			Roots Medium Joint
74.1	MWL			30.000					Miscellaneous Water Level
154.0	MWL			20.000					Miscellaneous Water Level
230.3	AMH								Manhole SMH 1261
230.3	FH								End of Survey

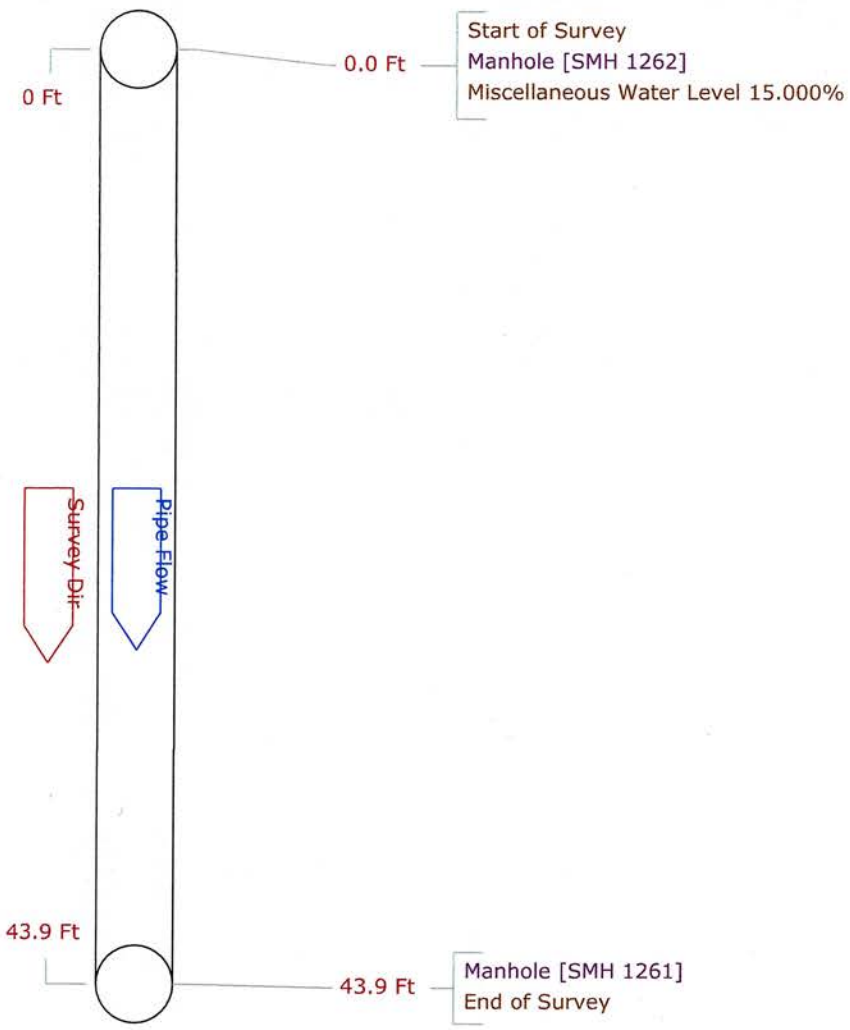
230.3 Ft Total Length Surveyed

Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 6	Pipe Ratings Index 1.5	Quick Rating 3113
	Overall Pipe Rating 6	Pipe Ratings Index 1.5	Quick Rating 3113

Pipe Graphic Report of PLR SMH 1262

D for Liden Engineering

Setup	41	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	13:06	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	12	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M
Length Surveyed	43.90 Ft	Year Constructed		Year Renewed			Miscellaneous Constructional
Additional info							
Up	SMH 1262	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1261	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 1262 for Liden Engineering

Setup	41	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	13:06	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Inspection Status	Complete Inspection	Consequence Of Failure		Pressure		Direction	Down
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other						

Street	Old River Rd	City	Andover	Drainage area	
Location Code		Pipe Use	Sanitary Sewage Pipe		
Location details		Height	12	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe		
Coating		Pipe Joint length	Ft	Total length	Ft
Length Surveyed	43.9 Ft	Year Constructed		Year Renewed	
Up	SMH 1262	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Down	SMH 1261	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Coordinate System		Vertical Datum			
GPS Accuracy		<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional			
Additional info					

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST	Start of Survey							
0.0		AMH	Manhole							SMH 1262
0.0		MWL	Miscellaneous Water Level		15.000					
43.9		AMH	Manhole							SMH 1261
43.9		FH	End of Survey							

43.9 Ft Total Length Surveyed

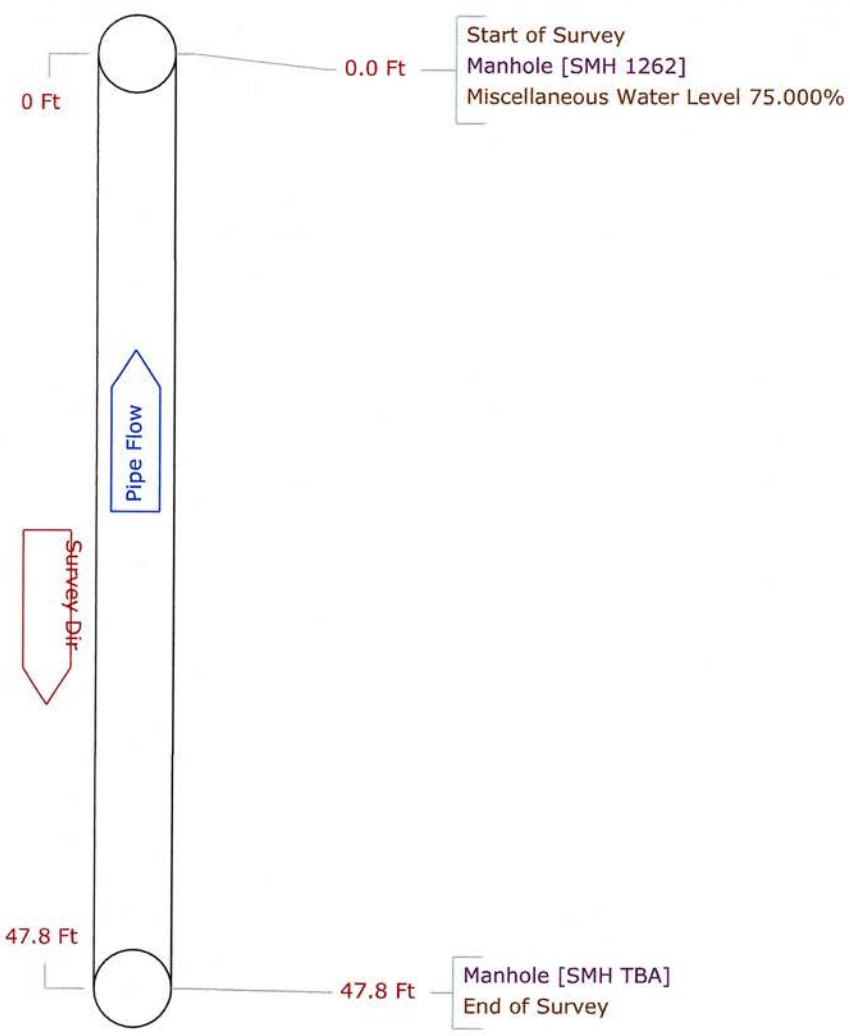
Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

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Pipe Graphic Report of PLR SMH TBA

D for Liden Engineering

Setup	29	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	8:39	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	47.80 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH TBA	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1262	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH TBA

for Liden Engineering

Setup 29	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/16	Time 8:39	Weather	Pre-Cleaning N Date Cleaned
Flow control	Survey Purpose		Direction Up
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street Old River	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 8	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 47.8 Ft	Year Constructed	Year Renewed
Up SMH TBA	Rim to invert	Grade to invert Rim to grade Ft
Northing	Easting	Elevation
Down SMH 1262	Rim to invert	Grade to invert Rim to grade Ft
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	
Additional info		

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH 1262
0.0	MWL			75.000					Miscellaneous Water Level
47.8	AMH								Manhole SMH TBA
47.8	FH								End of Survey

47.8 Ft Total Length Surveyed

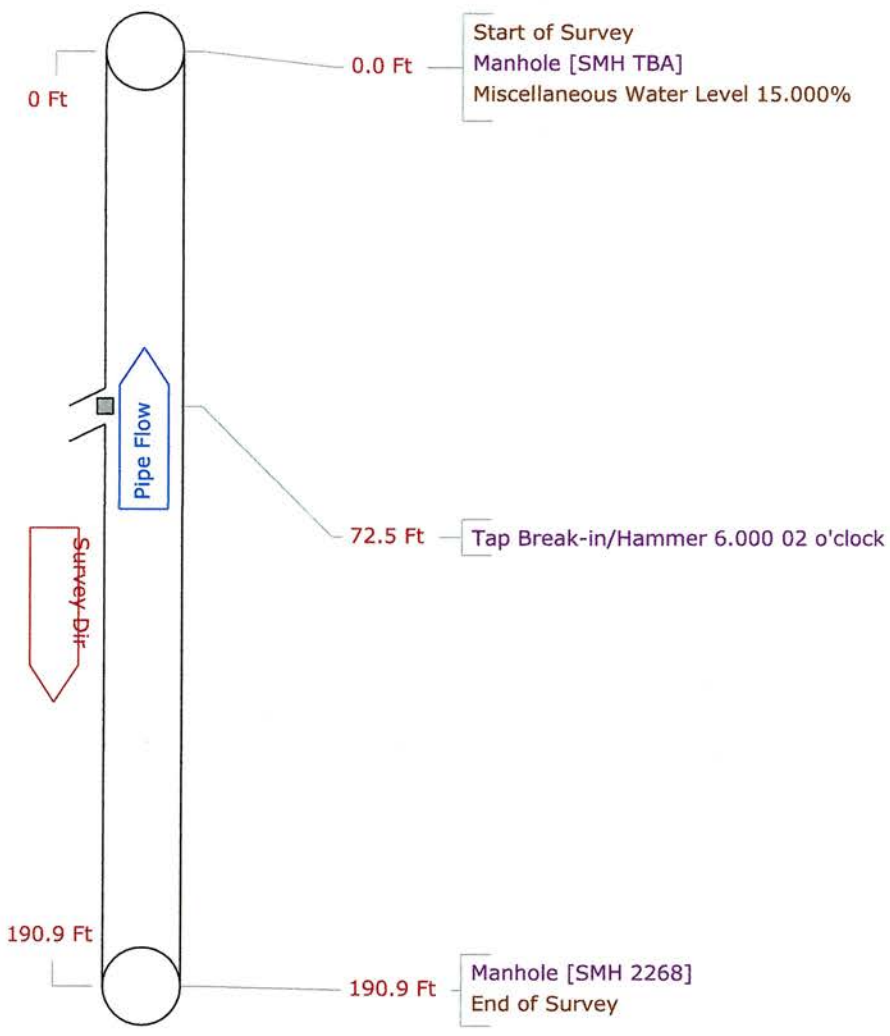
Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

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Pipe Graphic Report of PLR SMH 2268

D for Liden Engineering

Setup	30	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	8:57	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M
Length Surveyed	190.90 Ft	Year Constructed		Year Renewed			Miscellaneous Constructional
Additional info							
Up	SMH 2268	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH TBA	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 2268

for Liden Engineering

Setup	30	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	8:57	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Inspection Status	Complete Inspection	Consequence Of Failure		Pressure		Direction	Up
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other						

Street	Old River Rd	City	Andover	Drainage area	
Location Code		Pipe Use	Sanitary Sewage Pipe		
Location details		Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe		
Coating		Pipe Joint length	Ft	Total length	Ft
Length Surveyed	190.9 Ft	Year Constructed		Year Renewed	
Up	SMH 2268	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Down	SMH TBA	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Coordinate System		Vertical Datum			
GPS Accuracy		<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional			
Additional info					

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole
0.0	MWL			15.000					Miscellaneous Water Level
72.5	TB	6.000				02			Tap Break-in/Hammer
190.9	AMH								Manhole
190.9	FH								End of Survey

190.9 Ft Total Length Surveyed

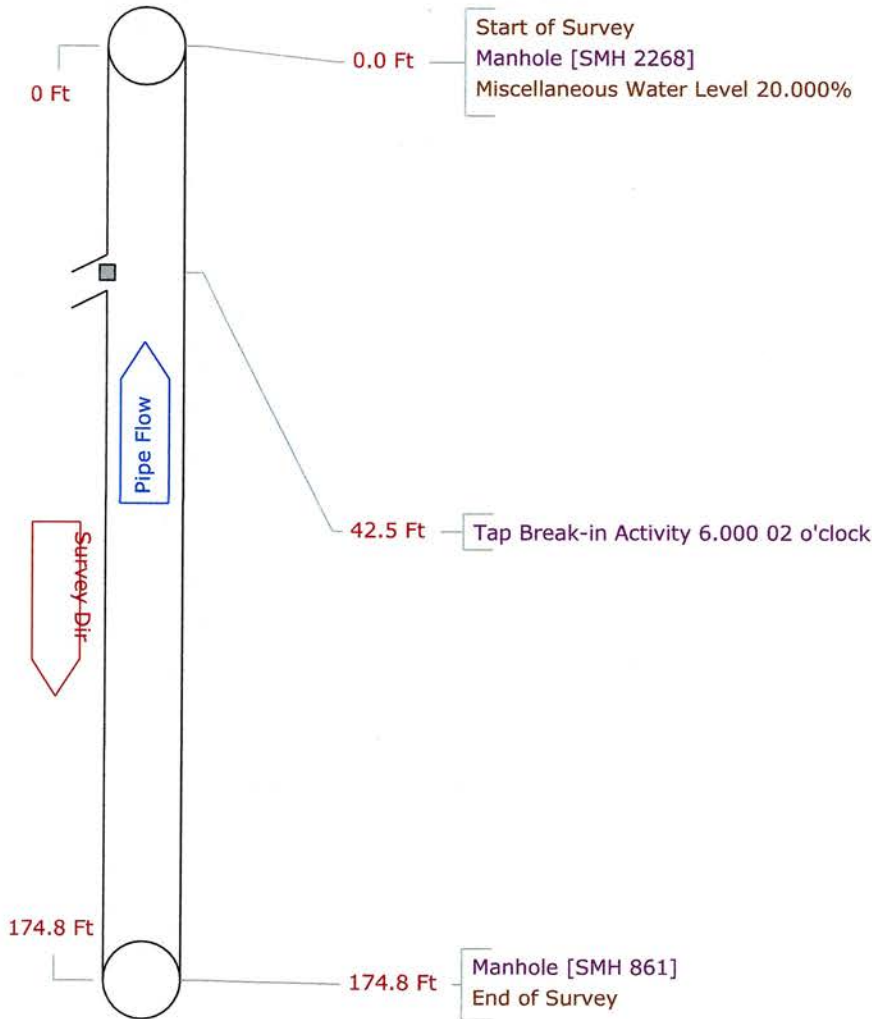
Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

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Pipe Graphic Report of PLR SMH 861

D for Liden Engineering

Setup	31	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	9:09	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	174.80 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 861	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2268	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 861

for Liden Engineering

Setup 31	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/16	Time 9:09	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	Direction Up
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street Old River Rd	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 8	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 174.8 Ft	Year Constructed	Year Renewed
Up SMH 861	Rim to invert	Grade to invert
Northing	Easting	Elevation
Down SMH 2268	Rim to invert	Grade to invert
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	
Additional info		

Count Video	CD Code	Val1	Val2	%	Jnt	Fr To	ImRef	Remarks
0.0	ST							Start of Survey
0.0	AMH							Manhole SMH 2268
0.0	MWL			20.000				Miscellaneous Water Level
42.5	TBA	6.000				02		Tap Break-in Activity
174.8	AMH							Manhole SMH 861
174.8	FH							End of Survey

174.8 Ft Total Length Surveyed

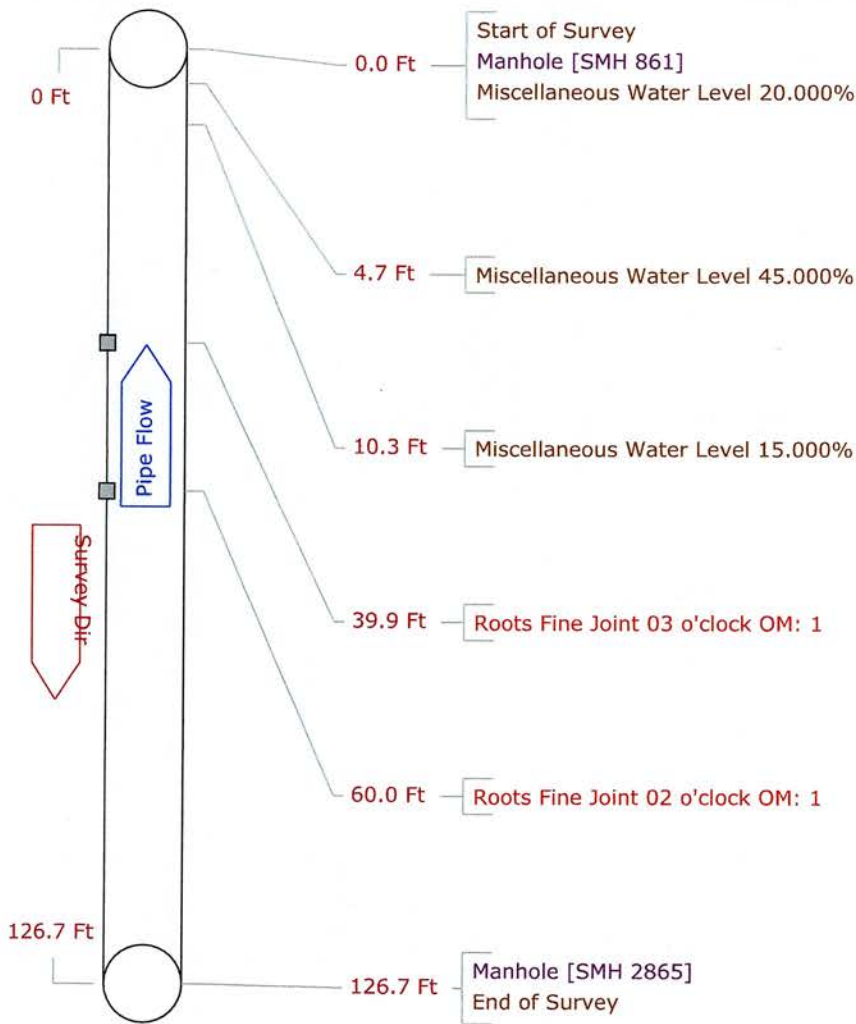
Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

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Pipe Graphic Report of PLR SMH 2865

D for Liden Engineering

Setup	32	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	9:20	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M
Length Surveyed	126.70 Ft	Year Constructed		Year Renewed			Miscellaneous Constructional
Additional info							
Up	SMH 2865	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 861	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 2865 for Liden Engineering

Setup	32	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	9:20	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Inspection Status	Complete Inspection	Consequence Of Failure		Pressure		Direction	Up
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other						

Street	Old River Rd	City	Andover	Drainage area	
Location Code		Pipe Use	Sanitary Sewage Pipe		
Location details		Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe		
Coating		Pipe Joint length	Ft	Total length	Ft
Length Surveyed	126.7 Ft	Year Constructed		Year Renewed	
Up	SMH 2865	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Down	SMH 861	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Coordinate System		Vertical Datum			
GPS Accuracy					
Additional info					<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr To	ImRef	Remarks
0.0		ST Start of Survey							
0.0		AMH Manhole							SMH 861
0.0		MWL Miscellaneous Water Level			20.000				
4.7		MWL Miscellaneous Water Level			45.000				
10.3		MWL Miscellaneous Water Level			15.000				
39.9		RFJ Roots Fine Joint				J	03		
60.0		RFJ Roots Fine Joint				J	02		
126.7		AMH Manhole							SMH 2865
126.7		FH End of Survey							

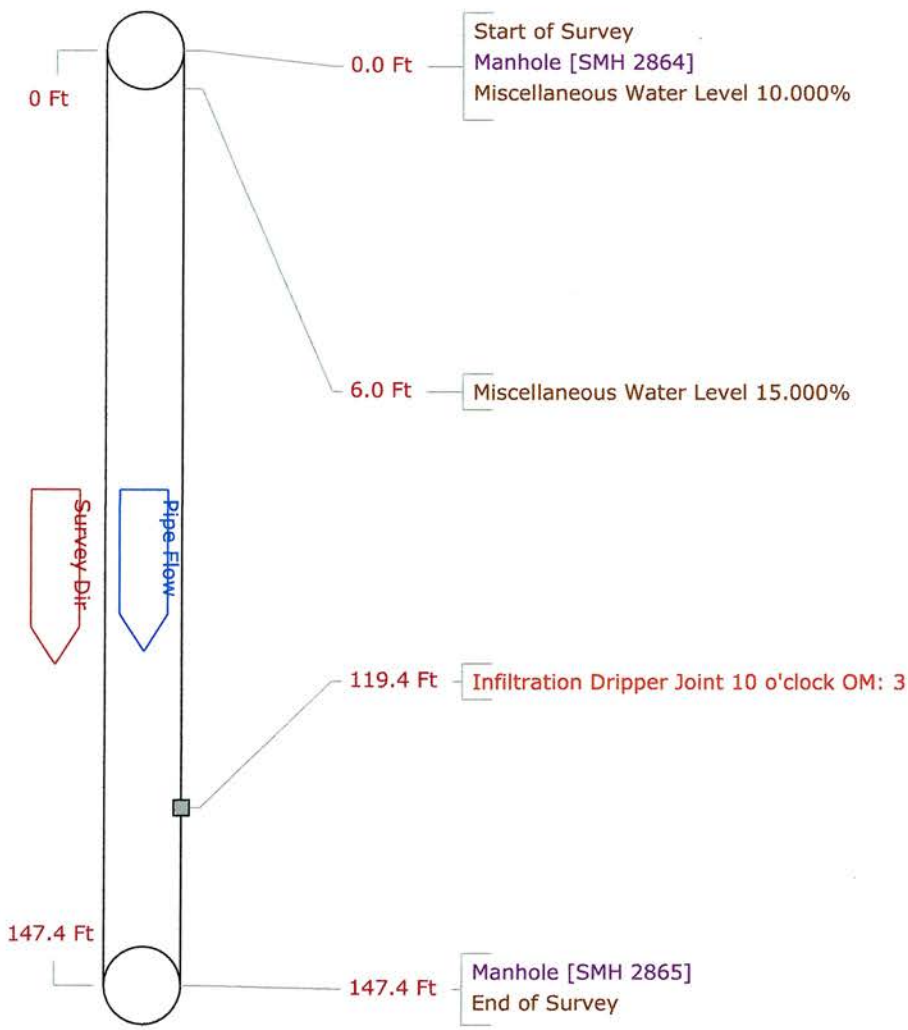
126.7 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 2	Pipe Ratings Index 1	Quick Rating 1200
	Overall	Pipe Rating 2	Pipe Ratings Index 1	Quick Rating 1200

Pipe Graphic Report of PLR SMH 2864

G for Liden Engineering

Setup	65	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/28	Time	10:15	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	River Rd	City	Andover	Drainage area			
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	147.40 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH 2864	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2865	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 2864 for Liden Engineering

Setup 65	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/28	Time 10:15	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	Direction Down
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

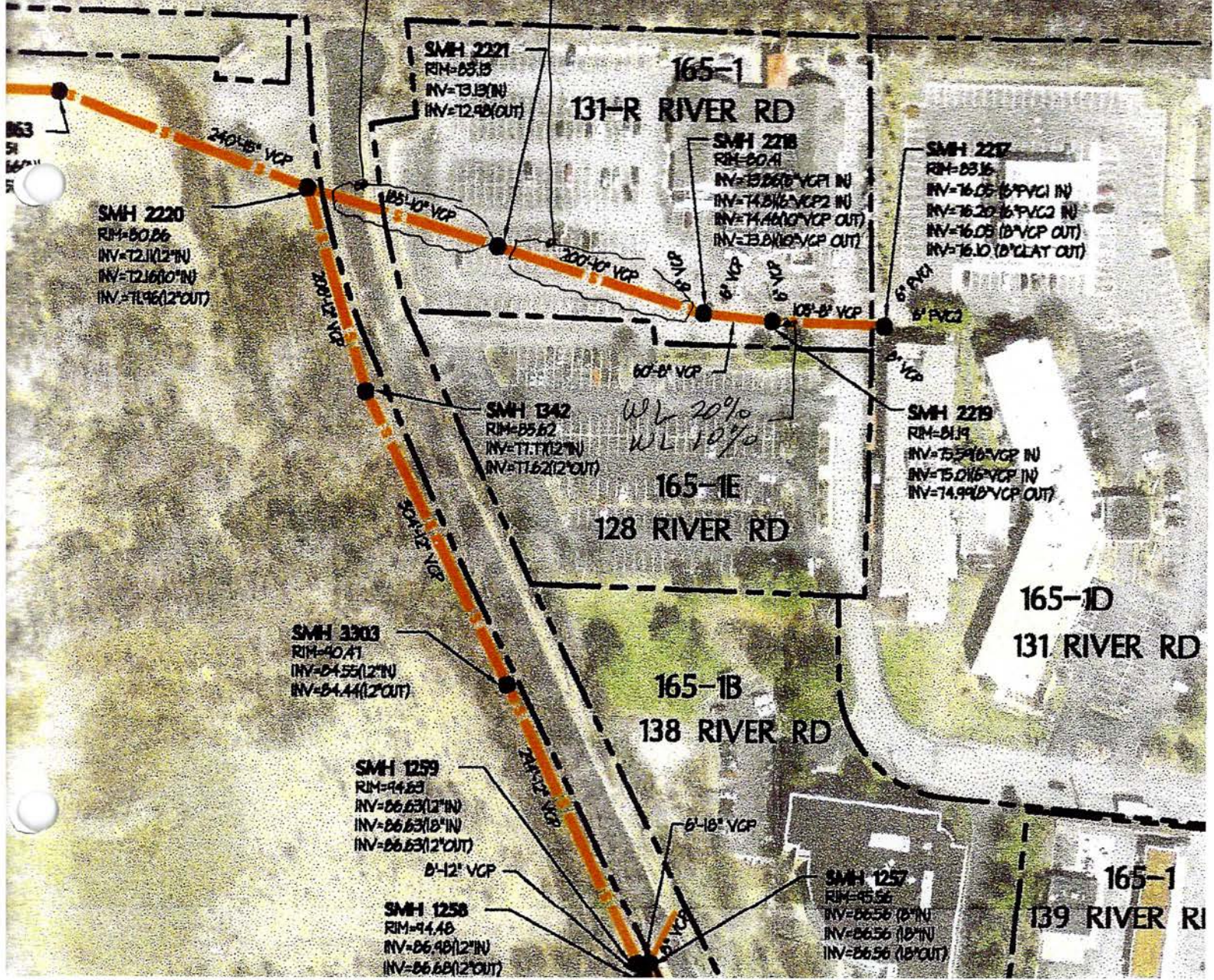
Street River Rd	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 8	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 147.4 Ft	Year Constructed	Year Renewed
Up SMH 2864	Rim to invert	Grade to invert
Northing	Easting	Elevation
Down SMH 2865	Rim to invert	Grade to invert
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M	
Additional info	<input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST Start of Survey								
0.0	AMH Manhole								SMH 2864
0.0	MWL Miscellaneous Water Level			10.000					
6.0	MWL Miscellaneous Water Level			15.000					
119.4	IDJ Infiltration Dripper Joint				J	10			
147.4	AMH Manhole								SMH 2865
147.4	FH End of Survey								

147.4 Ft Total Length Surveyed

Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 3	Pipe Ratings Index 3	Quick Rating 3100
	Overall Pipe Rating 3	Pipe Ratings Index 3	Quick Rating 3100

WL 5% to 40%
WL 10% to 25%



SMH 2220
RIM=50.86
INV=72.11(12" IN)
INV=72.16(10" IN)
INV=71.96(12" OUT)

SMH 2221
RIM=53.13
INV=73.13(12" IN)
INV=72.98(12" OUT)

165-1
131-R RIVER RD

SMH 2218
RIM=50.41
INV=73.26(8" VCP1 IN)
INV=74.31(8" VCP2 IN)
INV=74.60(10" VCP OUT)
INV=73.81(8" VCP OUT)

SMH 2217
RIM=53.16
INV=76.05(8" PVC1 IN)
INV=76.20(8" PVC2 IN)
INV=76.05(8" VCP OUT)
INV=76.10(8" CLAY OUT)

SMH 1342
RIM=55.62
INV=71.71(12" IN)
INV=71.62(12" OUT)

WL 20%
WL 10%

SMH 2219
RIM=51.19
INV=75.51(8" VCP IN)
INV=75.01(8" VCP IN)
INV=74.99(8" VCP OUT)

165-1E
128 RIVER RD

SMH 3303
RIM=40.71
INV=64.55(12" IN)
INV=64.44(12" OUT)

165-1B
138 RIVER RD

165-1D
131 RIVER RD

SMH 1259
RIM=44.63
INV=66.63(12" IN)
INV=66.63(18" IN)
INV=66.63(12" OUT)

SMH 1258
RIM=44.48
INV=66.48(12" IN)
INV=66.68(12" OUT)

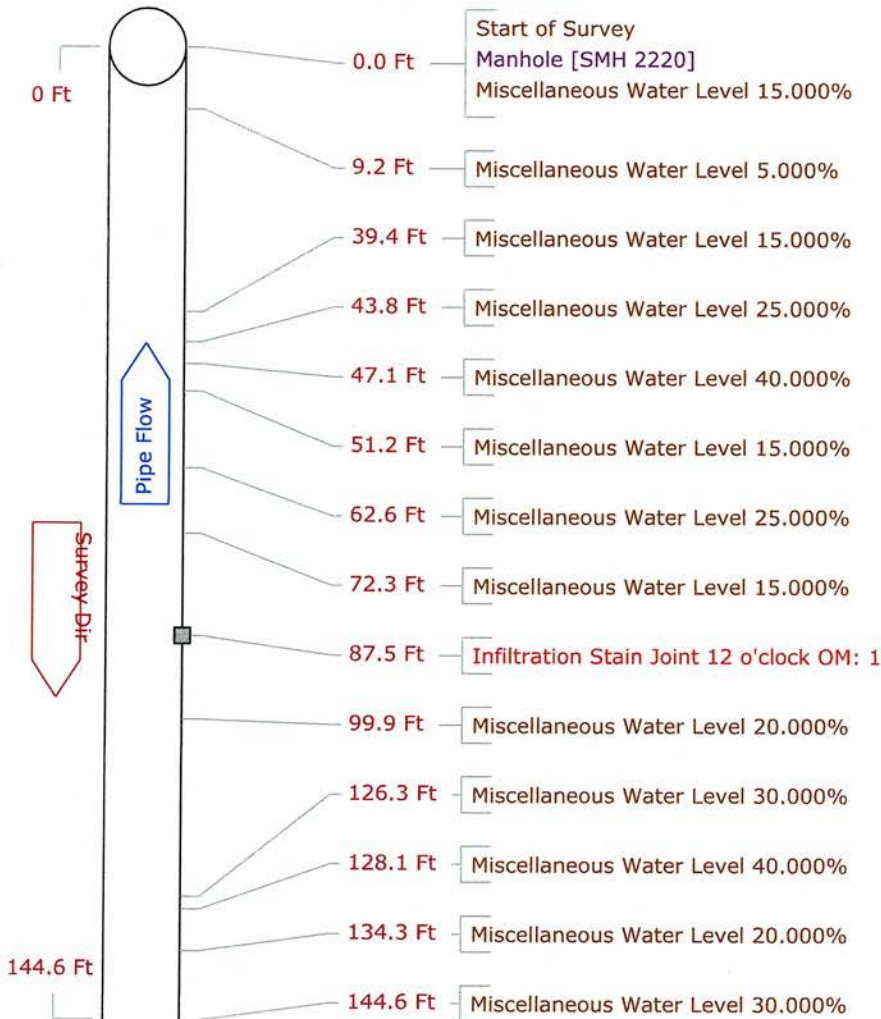
SMH 1257
RIM=45.56
INV=66.56(18" IN)
INV=66.56(18" IN)
INV=66.56(18" OUT)

165-1
139 RIVER RD

Pipe Graphic Report of PLR SMH 2221

E for Liden Engineering

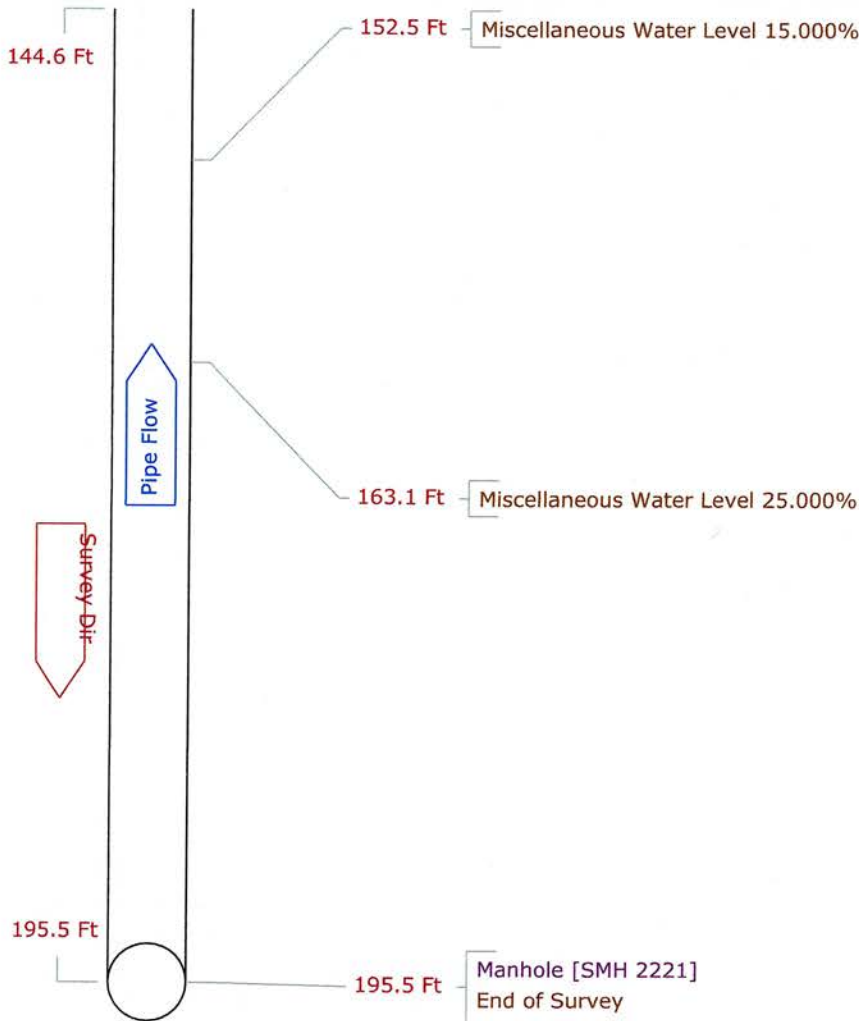
Setup	69	Surveyed By	DR	Certificate #	0821-70402733	Owner					
Reviewed By		Reviewer #		Work Order							
Customer				P/O #							
Media Label		Project	Liden Engineering								
Date	2021/12/28	Time	13:13	Weather		Pre-Cleaning H	Date Cleaned				
Flow control		Survey Purpose					Direction Upstream				
Street	Old River Rd	City	Andover			Drainage area					
Location Code				Pipe Use	Sanitary Sewage Pipe						
Location details				Height	10	Width	ins				
Shape	Circular	Material	Vitrified Clay Pipe	Lining							
Coating		Pipe Joint length		Ft	Total length	Ft	<table border="1"> <tr> <td>Structural</td> <td>O & M</td> </tr> <tr> <td>Miscellaneous</td> <td>Constructional</td> </tr> </table>	Structural	O & M	Miscellaneous	Constructional
Structural	O & M										
Miscellaneous	Constructional										
Length Surveyed	195.50 Ft	Year Constructed		Year Renewed							
Additional info											
Up	SMH 2221	Rim to invert		Grade to invert		Rim to grade	Ft				
Down	SMH 2220	Rim to invert		Grade to invert		Rim to grade	Ft				



Pipe Graphic Report of PLR SMH 2221

E for Liden Engineering

Setup	69	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/28	Time	13:13	Weather		Pre-Cleaning H	Date Cleaned
Flow control		Survey Purpose					Direction
Street	Old River Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	10	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	195.50 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 2221	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2220	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 2221 for Liden Engineering

Setup 69 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/28 **Time** 13:13 **Weather** **Pre-Cleaning** H **Date Cleaned**
Flow control **Survey Purpose** **Direction** Up
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Old River Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 10' **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 195.5 Ft **Year Constructed** **Year Renewed**
Up SMH 2221 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 2220 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy Structural O & M
Additional info Miscellaneous Constructional

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole SMH 2220
0.0		MWL			15.000					Miscellaneous Water Level
9.2		MWL			5.000					Miscellaneous Water Level
39.4		MWL			15.000					Miscellaneous Water Level
43.8		MWL			25.000					Miscellaneous Water Level
47.1		MWL			40.000					Miscellaneous Water Level
51.2		MWL			15.000					Miscellaneous Water Level
62.6		MWL			25.000					Miscellaneous Water Level
72.3		MWL			15.000					Miscellaneous Water Level
87.5		ISJ				J	12			Infiltration Stain Joint
99.9		MWL			20.000					Miscellaneous Water Level
126.3		MWL			30.000					Miscellaneous Water Level
128.1		MWL			40.000					Miscellaneous Water Level
134.3		MWL			20.000					Miscellaneous Water Level
144.6		MWL			30.000					Miscellaneous Water Level
152.5		MWL			15.000					Miscellaneous Water Level
163.1		MWL			25.000					Miscellaneous Water Level
195.5		AMH								Manhole SMH 2221
195.5		FH								End of Survey

195.5 Ft Total Length Surveyed

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Tabular Report of PSR SMH 2221

for Liden Engineering

Setup 69 **Date** 2021/12/28 **Time** 13:13 **Up** SMH 2221 **Down** SMH 2220

Scores

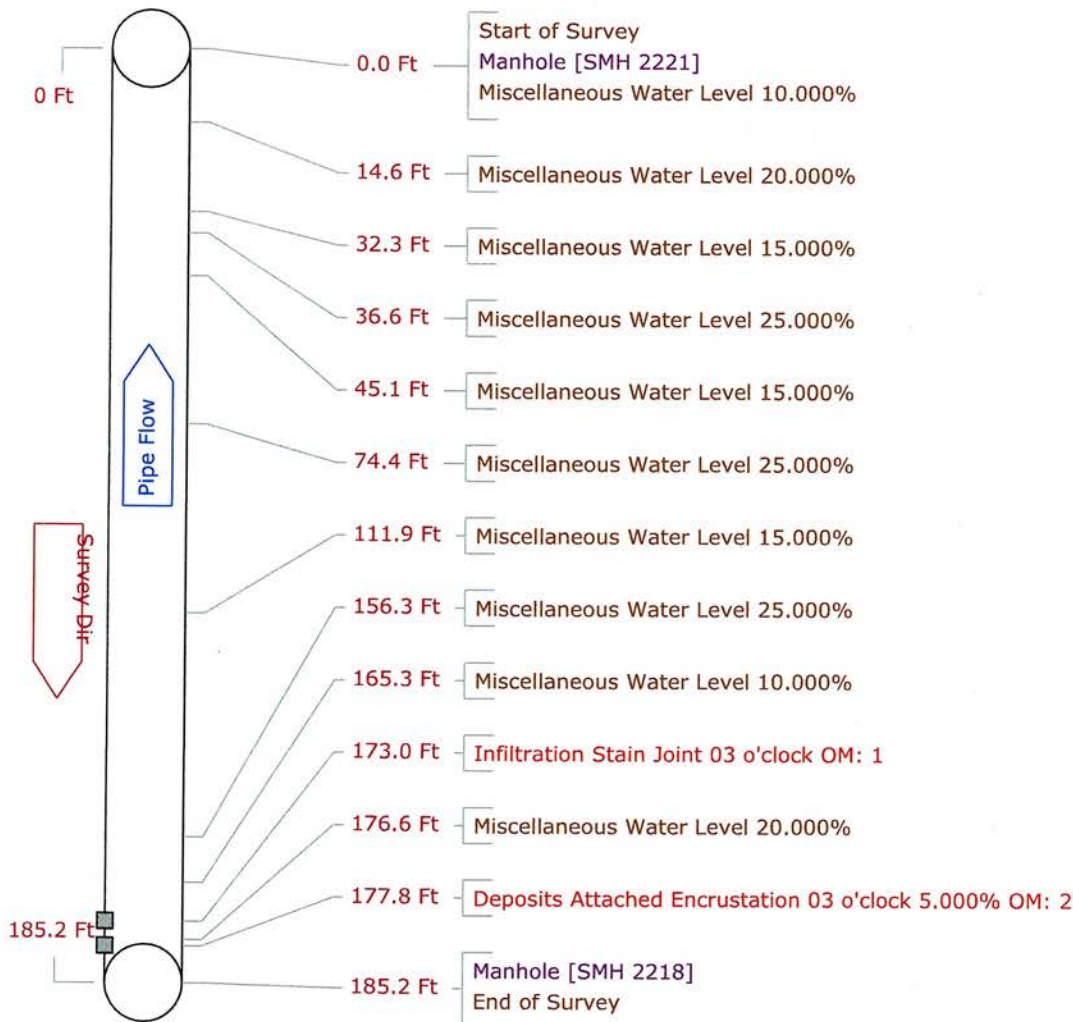
Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
O&M:	Pipe Rating 1	Pipe Ratings Index 1	Quick Rating 1100
Overall	Pipe Rating 1	Pipe Ratings Index 1	Quick Rating 1100

121
R

Pipe Graphic Report of PLR SMH 2218

G for Liden Engineering

Setup	58	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	11:07	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	10	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	185.20 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH 2218	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2221	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 2218

for Liden Engineering

102
80

Setup 58 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/17 **Time** 11:07 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Up
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Old River Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 10 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 185.2 Ft **Year Constructed** **Year Renewed**

Up SMH 2218	Rim to invert	Grade to invert	Rim to grade	Ft
Northing	Easting	Elevation		
Down SMH 2221	Rim to invert	Grade to invert	Rim to grade	Ft
Northing	Easting	Elevation		

Coordinate System **Vertical Datum**
GPS Accuracy **Structural** **O & M**
Additional info **Miscellaneous** **Constructional**

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole SMH 2221
0.0		MWL			10.000					Miscellaneous Water Level
14.6		MWL			20.000					Miscellaneous Water Level
32.3		MWL			15.000					Miscellaneous Water Level
36.6		MWL			25.000					Miscellaneous Water Level
45.1		MWL			15.000					Miscellaneous Water Level
74.4		MWL			25.000					Miscellaneous Water Level
111.9		MWL			15.000					Miscellaneous Water Level
156.3		MWL			25.000					Miscellaneous Water Level
165.3		MWL			10.000					Miscellaneous Water Level
173.0		ISJ					J	03		Infiltration Stain Joint
176.6		MWL			20.000					Miscellaneous Water Level
177.8		DAE			5.000			03		Deposits Attached Encrustation
185.2		AMH								Manhole SMH 2218
185.2		FH								End of Survey

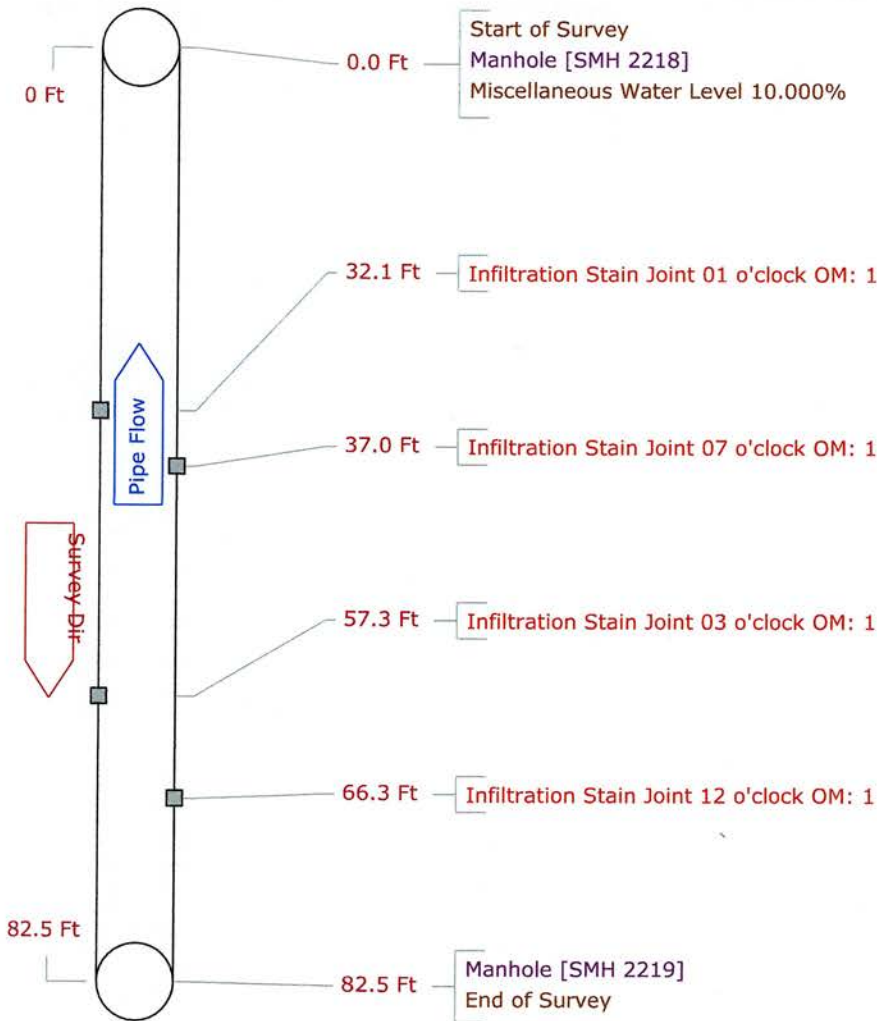
185.2 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 3	Pipe Ratings Index 1.5	Quick Rating 2111
	Overall	Pipe Rating 3	Pipe Ratings Index 1.5	Quick Rating 2111

Pipe Graphic Report of PLR SMH 2219

G for Liden Engineering

Setup	59	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	11:44	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	82.50 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 2219	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2218	Rim to invert		Grade to invert		Rim to grade	Ft



82

Tabular Report of PSR SMH 2219

for Liden Engineering

Setup 59 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/17 **Time** 11:44 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Up
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Old River Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 8 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 82.5 Ft **Year Constructed** **Year Renewed**
Up SMH 2219 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 2218 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy **Structural** **O & M**
Additional info **Miscellaneous** **Constructional**

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole
0.0		MWL			10.000					Miscellaneous Water Level
32.1		ISJ				J	01			Infiltration Stain Joint
37.0		ISJ				J	07			Infiltration Stain Joint
57.3		ISJ				J	03			Infiltration Stain Joint
66.3		ISJ				J	12			Infiltration Stain Joint
82.5		AMH								Manhole
82.5		FH								End of Survey

82.5 Ft Total Length Surveyed

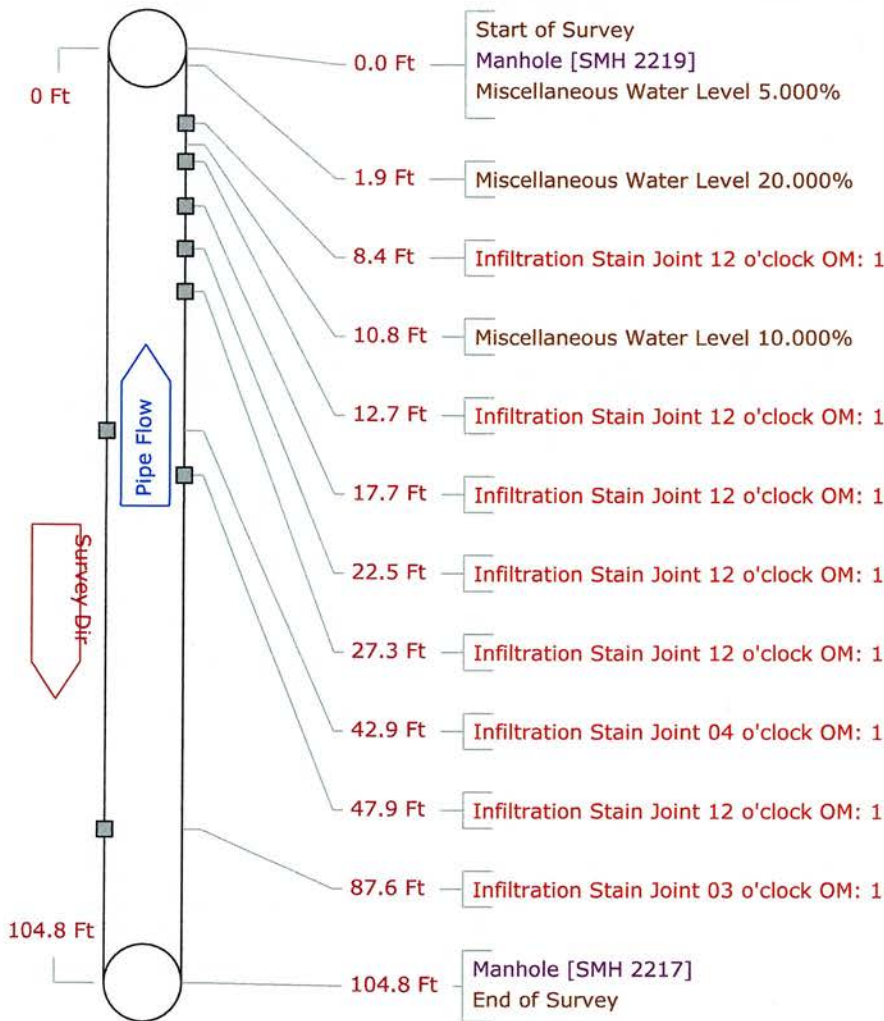
Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 4	Pipe Ratings Index 1	Quick Rating 1400
	Overall	Pipe Rating 4	Pipe Ratings Index 1	Quick Rating 1400

Pipe Graphic Report of PLR SMH 2217

G for Liden Engineering

Setup	60	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/17	Time	11:51	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover			Direction	Upstream
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	
Length Surveyed	104.80 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH 2217	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2219	Rim to invert		Grade to invert		Rim to grade	Ft

Structural	O & M
Miscellaneous	Constructional



Tabular Report of PSR SMH 2217

for Liden Engineering

Setup 60 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/17 **Time** 11:51 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Up
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Old River Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 8 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 104.8 Ft **Year Constructed** **Year Renewed**
Up SMH 2217 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 2219 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy Structural O & M
Additional info Miscellaneous Constructional

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST Start of Survey								
0.0		AMH Manhole								SMH 2219
0.0		MWL Miscellaneous Water Level			5.000					
1.9		MWL Miscellaneous Water Level			20.000					
8.4		ISJ Infiltration Stain Joint				J	12			
10.8		MWL Miscellaneous Water Level			10.000					
12.7		ISJ Infiltration Stain Joint				J	12			
17.7		ISJ Infiltration Stain Joint				J	12			
22.5		ISJ Infiltration Stain Joint				J	12			
27.3		ISJ Infiltration Stain Joint				J	12			
42.9		ISJ Infiltration Stain Joint				J	04			
47.9		ISJ Infiltration Stain Joint				J	12			
87.6		ISJ Infiltration Stain Joint				J	03			
104.8		AMH Manhole								SMH 2217
104.8		FH End of Survey								

104.8 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
	O&M:	Pipe Rating	8	Pipe Ratings Index	1	Quick Rating	1800
	Overall	Pipe Rating	8	Pipe Ratings Index	1	Quick Rating	1800

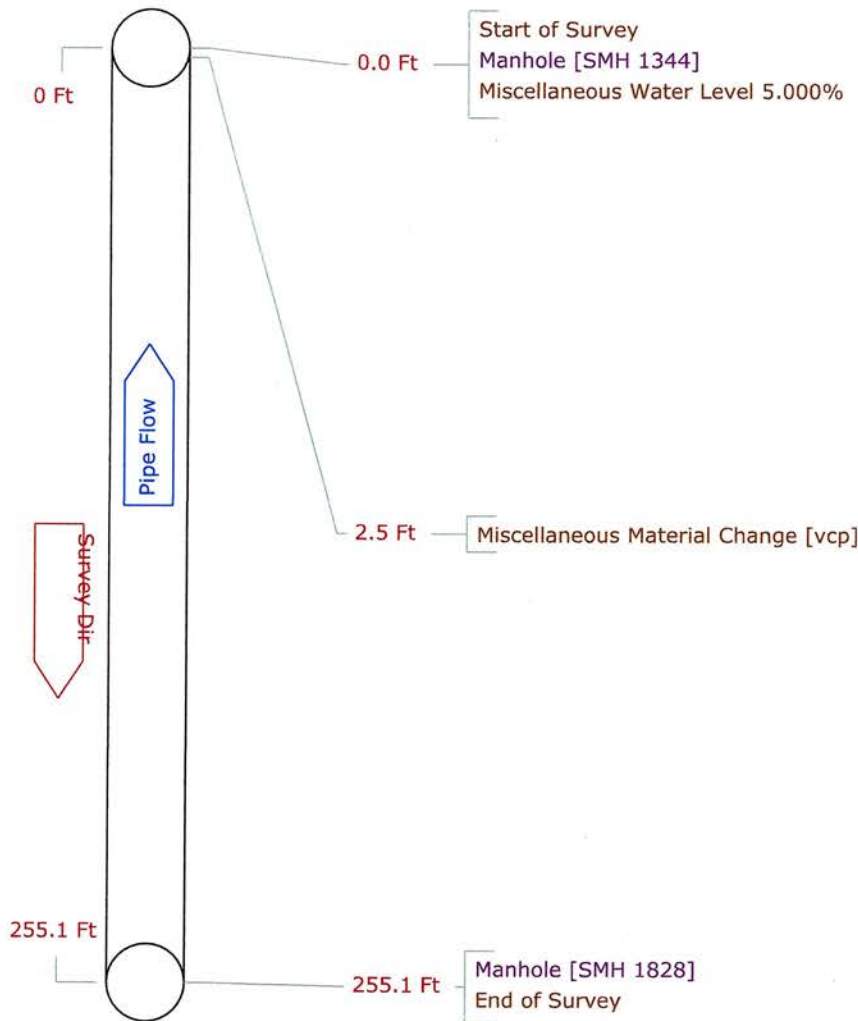
SEWER LINE B

BT

Pipe Graphic Report of PLR SMH 1828

D for Liden Engineering

Setup	42	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	13:37	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	12	Width	ins		
Shape	Circular	Material	Polyvinyl Chloride	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	255.10 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 1828	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1344	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 1828 for Liden Engineering

Setup 42	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/16	Time 13:37	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	Direction Up
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street Old River Rd	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 12	Width ins
Shape Circular	Material Polyvinyl Chloride	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 255.1 Ft	Year Constructed	Year Renewed
Up SMH 1828	Rim to invert	Grade to invert
Northing	Easting	Elevation
Down SMH 1344	Rim to invert	Grade to invert
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	
Additional info		

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH 1344
0.0	MWL			5.000					Miscellaneous Water Level
2.5	MMC								Miscellaneous Material Change vcp
255.1	AMH								Manhole SMH 1828
255.1	FH								End of Survey

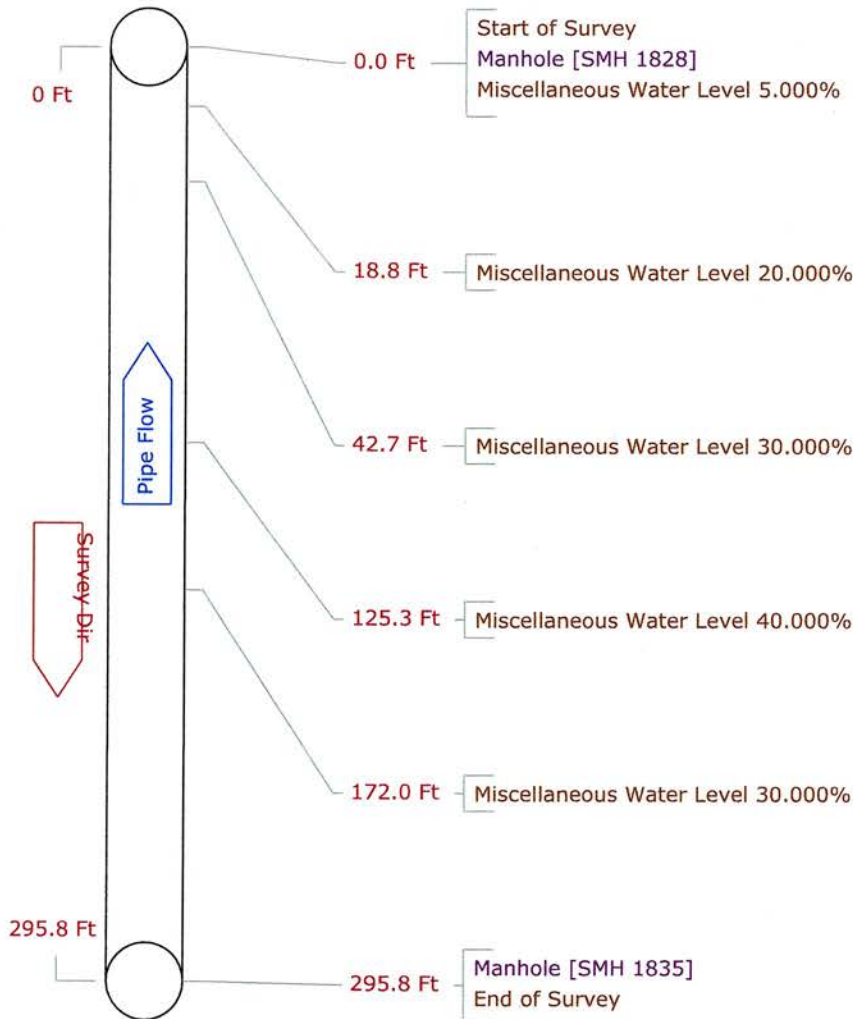
255.1 Ft Total Length Surveyed

Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

Pipe Graphic Report of PLR SMH 1835

D for Liden Engineering

Setup	43	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	13:51	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Old River Rd	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	12	Width	ins
Shape	Circular	Material	Polyvinyl Chloride	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	295.80 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 1835	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1828	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 1835

for Liden Engineering

Setup 43	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/16	Time 13:51	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	Direction Up
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street Old River Rd	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 12	Width ins
Shape Circular	Material Polyvinyl Chloride	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 295.8 Ft	Year Constructed	Year Renewed
Up SMH 1835	Rim to invert	Grade to invert
Northing	Easting	Elevation
Down SMH 1828	Rim to invert	Grade to invert
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M	
Additional info	<input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH 1828
0.0	MWL			5.000					Miscellaneous Water Level
18.8	MWL			20.000					Miscellaneous Water Level
42.7	MWL			30.000					Miscellaneous Water Level
125.3	MWL			40.000					Miscellaneous Water Level
172.0	MWL			30.000					Miscellaneous Water Level
295.8	AMH								Manhole SMH 1835
295.8	FH								End of Survey

295.8 Ft Total Length Surveyed

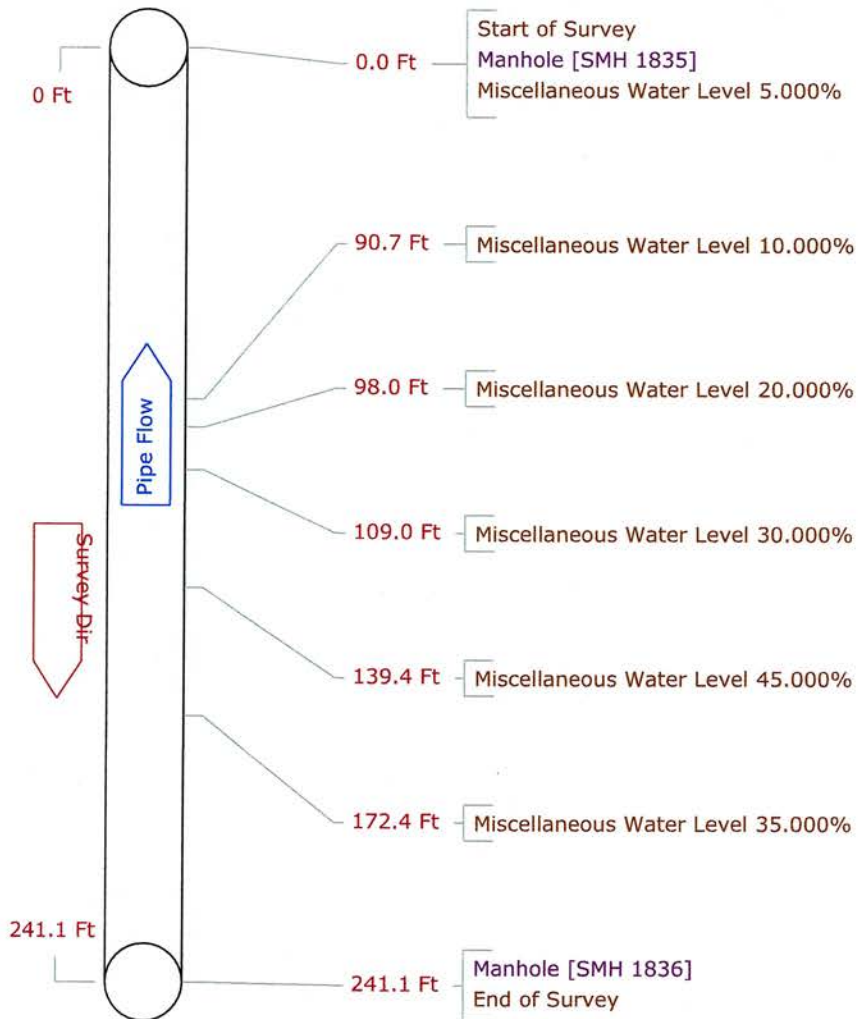
Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

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Pipe Graphic Report of PLR SMH 1836

G for Liden Engineering

Setup	67	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/28	Time	11:00	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	River Rd	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	241.10 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 1836	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1835	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 1836

for Liden Engineering

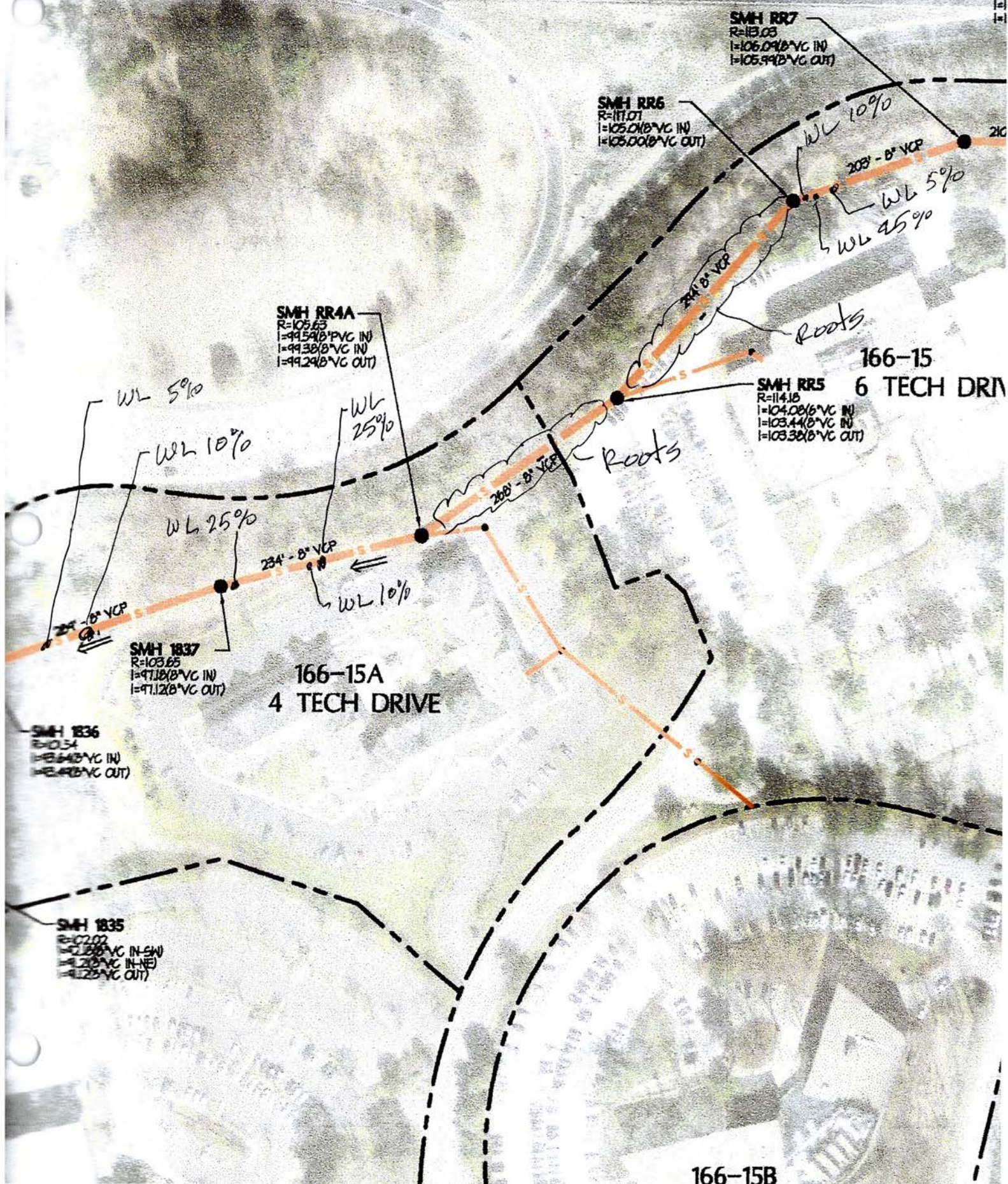
Setup 67	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/28	Time 11:00	Weather	Pre-Cleaning N Date Cleaned
Flow control	Survey Purpose		Direction Up
Inspection Status Complete Inspection	Consequence Of Failure		Pressure
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street River Rd	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 8	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 241.1 Ft	Year Constructed	Year Renewed
Up SMH 1836	Rim to invert	Grade to invert Rim to grade Ft
Northing	Easting	Elevation
Down SMH 1835	Rim to invert	Grade to invert Rim to grade Ft
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	
Additional info		

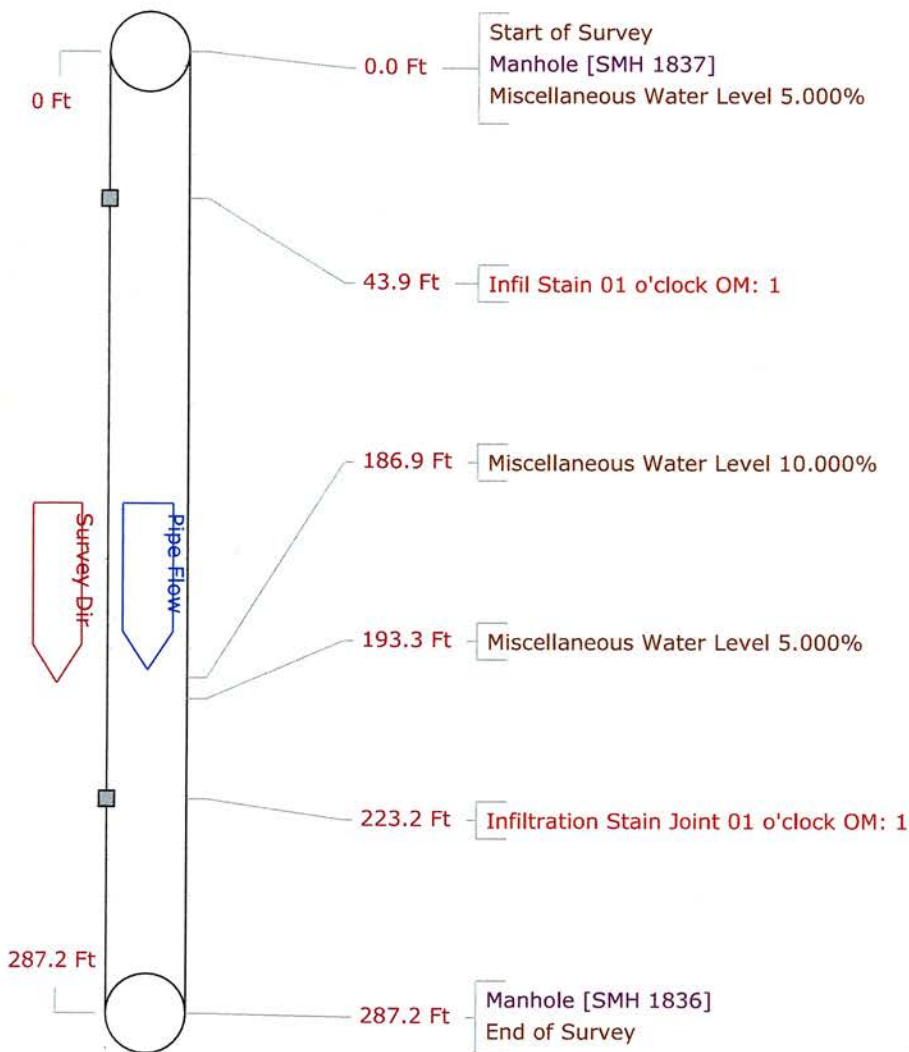
Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole SMH 1835
0.0		MWL			5.000					Miscellaneous Water Level
90.7		MWL			10.000					Miscellaneous Water Level
98.0		MWL			20.000					Miscellaneous Water Level
109.0		MWL			30.000					Miscellaneous Water Level
139.4		MWL			45.000					Miscellaneous Water Level
172.4		MWL			35.000					Miscellaneous Water Level
241.1		AMH								Manhole SMH 1836
241.1		FH								End of Survey

241.1 Ft Total Length Surveyed

Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000



Setup	70	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order		P/O #	
Customer		Project	Liden Engineering				
Media Label		Date	2022/01/21	Time	7:19	Weather	
Flow control		Pre-Cleaning	N	Date Cleaned		Direction	Downstream
Street	Tech Dr	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	287.20 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 1837	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1836	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 1837

for Liden Engineering

Setup 70 Surveyed By DR Certificate # 0821-70402733 Owner
 Reviewed By Reviewer # Work Order
 Customer P/O #
 Media Label Project Liden Engineering
 Date 2022/01/21 Time 7:19 Weather Pre-Cleaning N Date Cleaned
 Flow control Survey Purpose Direction Down
 Inspection Status Complete Inspection Consequence Of Failure Pressure
 Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Tech Dr City Andover Drainage area
 Location Code Pipe Use Sanitary Sewage Pipe
 Location details Height 8 Width ins
 Shape Circular Material Vitrified Clay Pipe Lining
 Coating Pipe Joint length Ft Total length Ft
 Length Surveyed 287.2 Ft Year Constructed Year Renewed
 Up SMH 1837 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Down SMH 1836 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Coordinate System Vertical Datum
 GPS Accuracy Structural O & M
 Additional info Miscellaneous Constructional

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH 1837
0.0	MWL			5.000					Miscellaneous Water Level
43.9	IS					01			Infil Stain
186.9	MWL			10.000					Miscellaneous Water Level
193.3	MWL			5.000					Miscellaneous Water Level
223.2	ISJ				J	01			Infiltration Stain Joint
287.2	AMH								Manhole SMH 1836
287.2	FH								End of Survey

287.2 Ft Total Length Surveyed

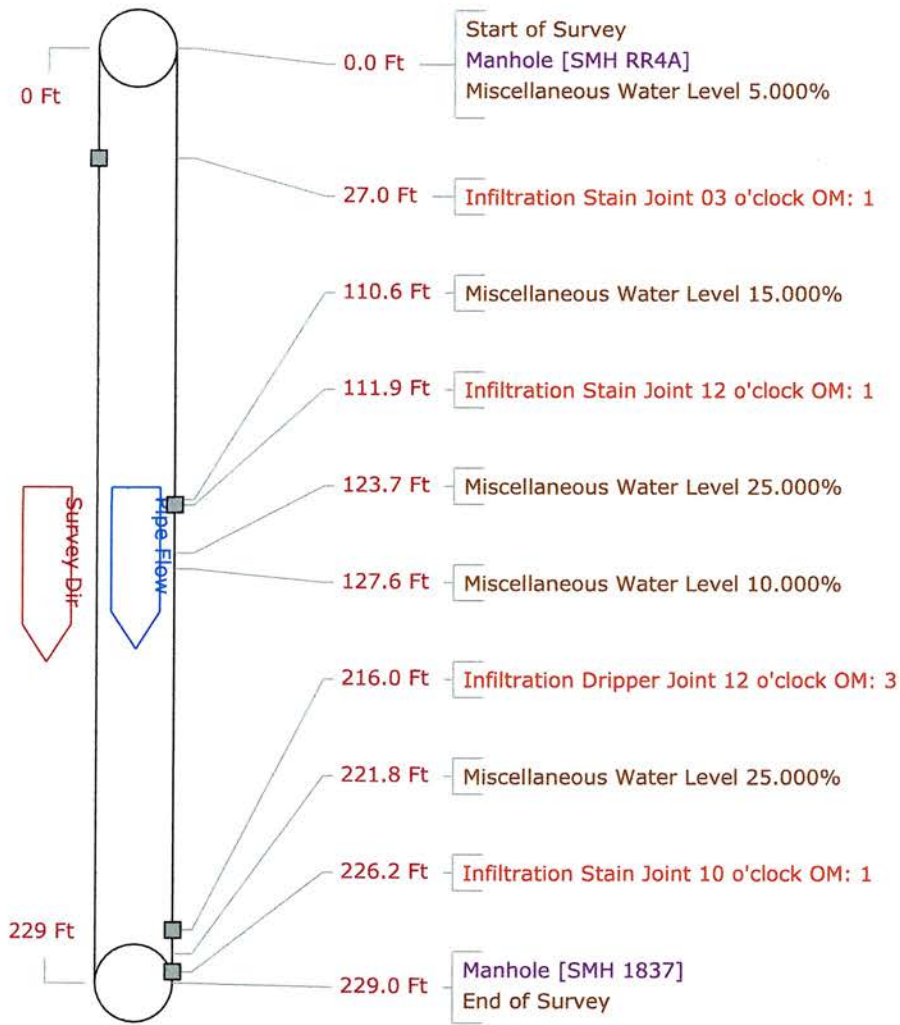
Scores	Structural:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
	O&M:	Pipe Rating	2	Pipe Ratings Index	1	Quick Rating	1200
	Overall	Pipe Rating	2	Pipe Ratings Index	1	Quick Rating	1200

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Pipe Graphic Report of PLR SMH RR4A

X for Liden Engineering

Setup	20	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/14	Time	11:10	Weather		Pre-Cleaning L	Date Cleaned
Flow control		Survey Purpose					Direction Downstream
Street	Tech Dr	City	Andover			Drainage area	
Location Code				Pipe Use		Stormwater Pipe	
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	229.00 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH RR4A	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1837	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH RR4A for Liden Engineering

Setup 20 Surveyed By DR Certificate # 0821-70402733 Owner
 Reviewed By Reviewer # Work Order
 Customer P/O #
 Media Label Project Liden Engineering
 Date 2021/12/14 Time 11:10 Weather Pre-Cleaning L Date Cleaned
 Flow control Survey Purpose Direction Down
 Inspection Status Complete Inspection Consequence Of Failure Pressure
 Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Tech Dr City Andover Drainage area
 Location Code Pipe Use Stormwater Pipe
 Location details Height 8 Width ins
 Shape Circular Material Vitrified Clay Pipe Lining
 Coating Pipe Joint length Ft Total length Ft
 Length Surveyed 229.0 Ft Year Constructed Year Renewed
 Up SMH RR4A Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Down SMH 1837 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Coordinate System Vertical Datum
 GPS Accuracy
 Additional info

Structural	O & M
Miscellaneous	Constructional

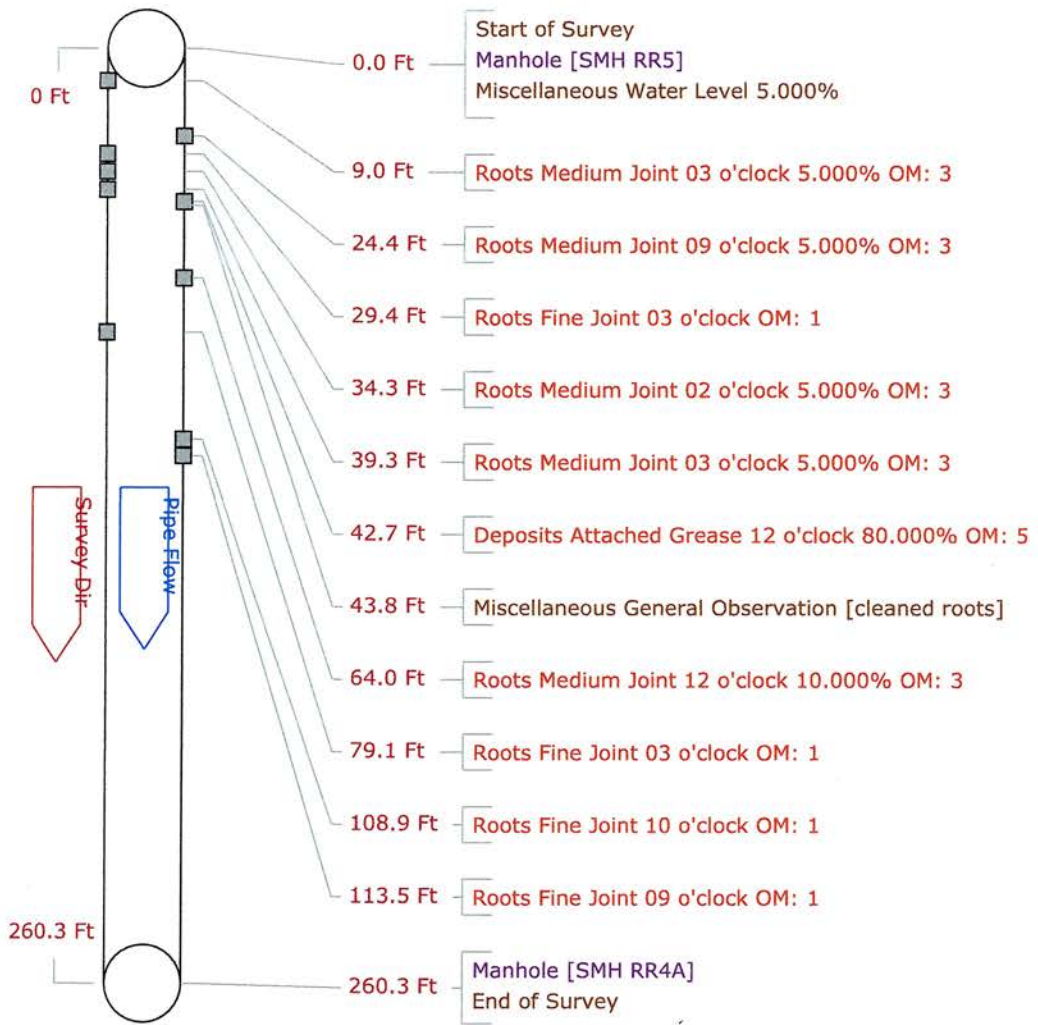
Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH RR4A
0.0	MWL			5.000					Miscellaneous Water Level
27.0	ISJ				J	03			Infiltration Stain Joint
110.6	MWL			15.000					Miscellaneous Water Level
111.9	ISJ				J	12			Infiltration Stain Joint
123.7	MWL			25.000					Miscellaneous Water Level
127.6	MWL			10.000					Miscellaneous Water Level
216.0	IDJ				J	12			Infiltration Dripper Joint
221.8	MWL			25.000					Miscellaneous Water Level
226.2	ISJ				J	10			Infiltration Stain Joint
229.0	AMH								Manhole SMH 1837
229.0	FH								End of Survey

229.0 Ft Total Length Surveyed

Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 6	Pipe Ratings Index 1.5	Quick Rating 3113
	Overall Pipe Rating 6	Pipe Ratings Index 1.5	Quick Rating 3113

Pipe Graphic Report of PLR SMH RR5 X for Liden Engineering

Setup	19	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/14	Time	10:11	Weather		Pre-Cleaning L	Date Cleaned
Flow control		Survey Purpose					Direction Downstream
Street	Tech Dr	City	Andover			Drainage area	
Location Code				Pipe Use		Stormwater Pipe	
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	260.30 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH RR5	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH RR4A	Rim to invert		Grade to invert		Rim to grade	Ft



14699

Tabular Report of PSR SMH RR5 for Liden Engineering

Setup	19	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/14	Time	10:11	Weather		Pre-Cleaning	L
Flow control		Survey Purpose				Date Cleaned	
Inspection Status	Complete Inspection	Consequence Of Failure		Pressure		Direction	Down
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other						

Street	Tech Dr	City	Andover	Drainage area	
Location Code		Pipe Use	Stormwater Pipe		
Location details		Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining	
Coating		Pipe Joint length	Ft	Total length	Ft
Length Surveyed	260.3 Ft	Year Constructed		Year Renewed	
Up	SMH RR5	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Down	SMH RR4A	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Coordinate System		Vertical Datum			
GPS Accuracy					
Additional info					<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional

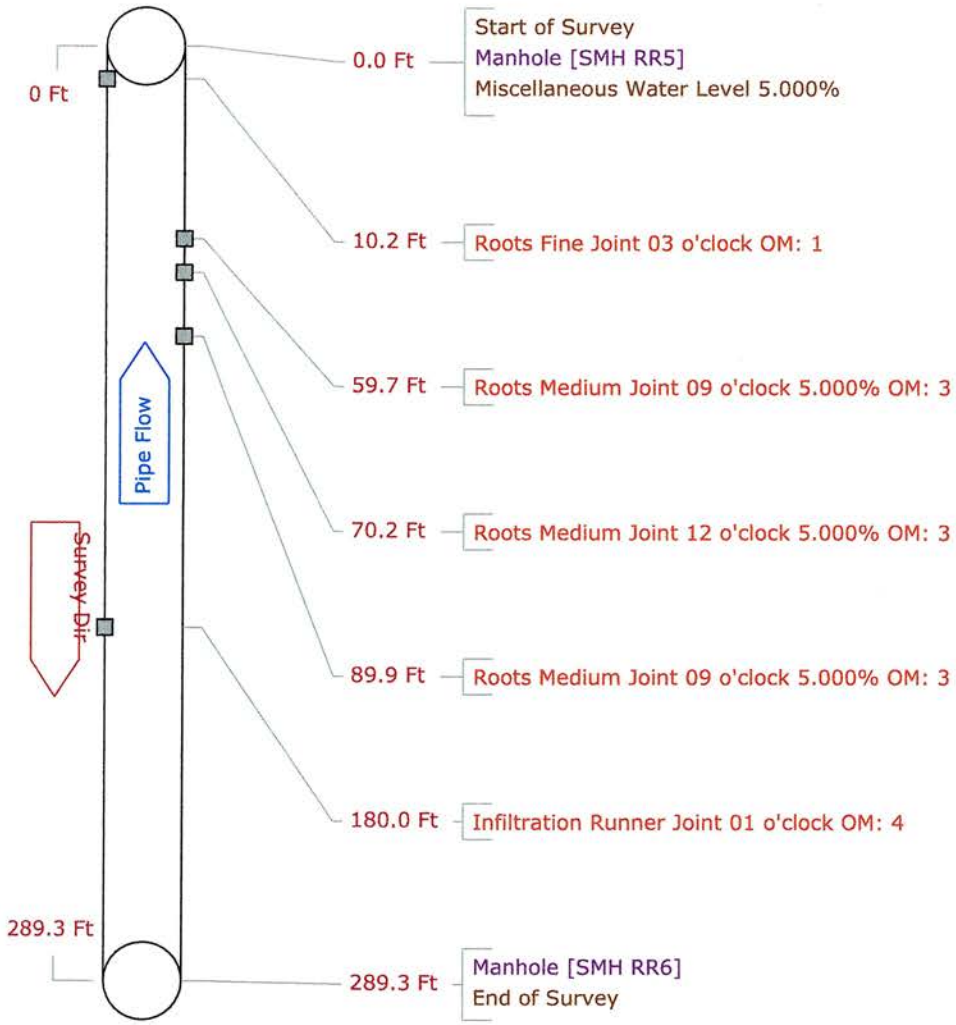
Count	Video	CD Code	Val1	Val2	%	Jnt	Fr To	ImRef	Remarks
0.0		ST Start of Survey							
0.0		AMH Manhole							SMH RR5
0.0		MWL Miscellaneous Water Level			5.000				
9.0		RMJ Roots Medium Joint			5.000	J	03		
24.4		RMJ Roots Medium Joint			5.000	J	09		
29.4		RFJ Roots Fine Joint				J	03		
34.3		RMJ Roots Medium Joint			5.000	J	02		
39.3		RMJ Roots Medium Joint			5.000	J	03		
42.7		DAGS Deposits Attached Grease			80.000		12		
43.8		MGO Miscellaneous General Observation							cleaned roots
64.0		RMJ Roots Medium Joint			10.000	J	12		
79.1		RFJ Roots Fine Joint				J	03		
108.9		RFJ Roots Fine Joint				J	10		
113.5		RFJ Roots Fine Joint				J	09		
260.3		AMH Manhole							SMH RR4A
260.3		FH End of Survey							

260.3 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 24	Pipe Ratings Index 2.4	Quick Rating 5135
	Overall	Pipe Rating 24	Pipe Ratings Index 2.4	Quick Rating 5135

Pipe Graphic Report of PLR SMH RR6 X for Liden Engineering

Setup	17	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/14	Time	7:37	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Tech Dr	City	Andover	Drainage area			
Location Code				Pipe Use	Stormwater Pipe		
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	289.30 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH RR6	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH RR5	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH RR6 for Liden Engineering

Setup 17 Surveyed By DR Certificate # 0821-70402733 Owner
 Reviewed By Reviewer # Work Order
 Customer P/O #
 Media Label Project Liden Engineering
 Date 2021/12/14 Time 7:37 Weather Pre-Cleaning N Date Cleaned
 Flow control Survey Purpose Direction Up
 Inspection Status Complete Inspection Consequence Of Failure Pressure
 Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Tech Dr City Andover Drainage area
 Location Code Pipe Use Stormwater Pipe
 Location details Height 8 Width ins
 Shape Circular Material Vitrified Clay Pipe Lining
 Coating Pipe Joint length Ft Total length Ft
 Length Surveyed 289.3 Ft Year Constructed Year Renewed
 Up SMH RR6 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Down SMH RR5 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Coordinate System Vertical Datum
 GPS Accuracy
 Additional info

Structural	O & M
Miscellaneous	Constructional

Count Video	CD Code	Val1	Val2	%	Jnt	Fr To	ImRef	Remarks
0.0	ST							Start of Survey
0.0	AMH							Manhole SMH RR5
0.0	MWL			5.000				Miscellaneous Water Level
10.2	RFJ				J	03		Roots Fine Joint
59.7	RMJ			5.000	J	09		Roots Medium Joint
70.2	RMJ			5.000	J	12		Roots Medium Joint
89.9	RMJ			5.000	J	09		Roots Medium Joint
180.0	IRJ				J	01		Infiltration Runner Joint
289.3	AMH							Manhole SMH RR6
289.3	FH							End of Survey

289.3 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 14	Pipe Ratings Index 2.8	Quick Rating 4133
	Overall	Pipe Rating 14	Pipe Ratings Index 2.8	Quick Rating 4133

CCTV Picture List of SMH RR6
X for Liden Engineering

Work Order		Setup 17
Video	Survey Date	2021/12/14
Path to picture files	F:\Snaps\2021 ANDOVER-3\	
Path to video files	F:\Movies\2021 ANDOVER-3\	
Path to media files	F:\Media\2021 ANDOVER-3\	



BMC Corp
Phone: 781-273-0398
Address: 7 Everett Farmer Rd Unit A, Billerica, MA

15
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CCTV Picture List of SMH RR6
X for Liden Engineering

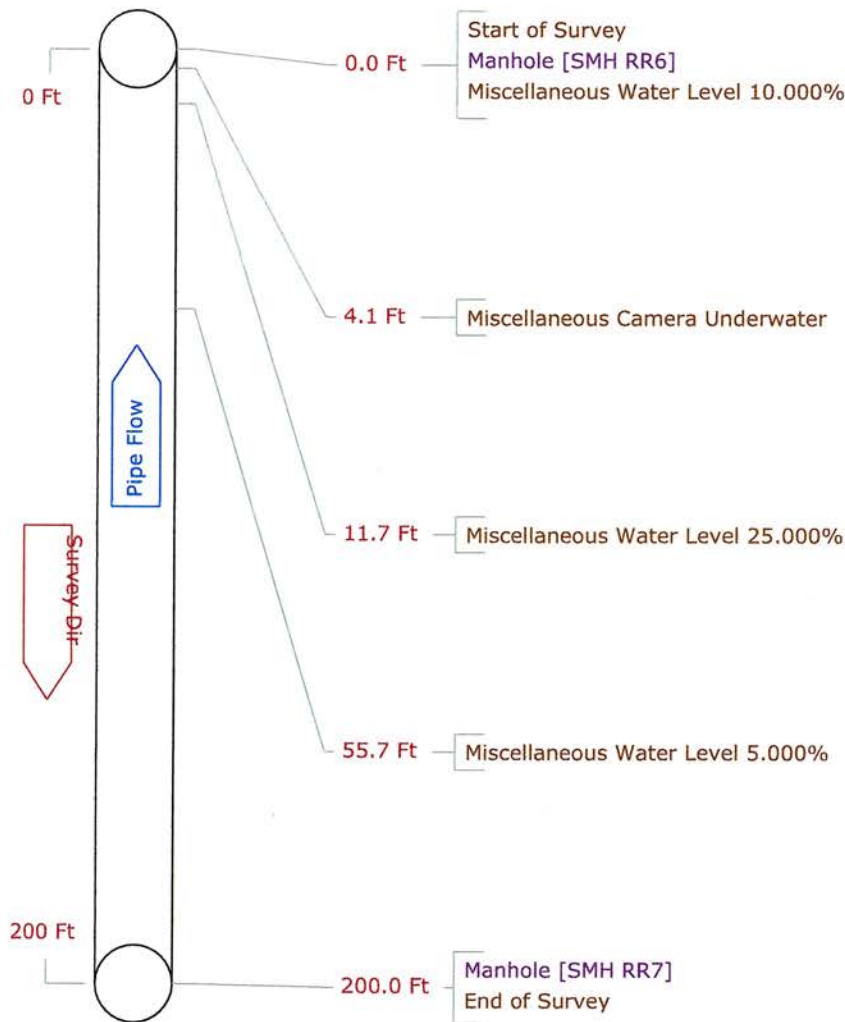
Work Order		Setup 17
Video	Survey Date	2021/12/14
Path to picture files	F:\Snaps\2021 ANDOVER-3\	
Path to video files	F:\Movies\2021 ANDOVER-3\	
Path to media files	F:\Media\2021 ANDOVER-3\	



Video Index **Count** 180.0 Ft
Code Infiltration Runner Joint
Remarks
File Name 55.jpg

Pipe Graphic Report of PLR SMH RR7 X for Liden Engineering

Setup	18	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/14	Time	9:29	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Tech Dr	City	Andover	Drainage area			
Location Code				Pipe Use	Stormwater Pipe		
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	200.00 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH RR7	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH RR6	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH RR7 for Liden Engineering

Setup 18 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/14 **Time** 9:29 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Up
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Tech Dr **City** Andover **Drainage area**
Location Code **Pipe Use** Stormwater Pipe
Location details **Height** 8 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 200.0 Ft **Year Constructed** **Year Renewed**
Up SMH RR7 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH RR6 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy Structural O & M
Additional info Miscellaneous Constructional

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH RR6
0.0	MWL			10.000					Miscellaneous Water Level
4.1	MCU								Miscellaneous Camera Underwater
11.7	MWL			25.000					Miscellaneous Water Level
55.7	MWL			5.000					Miscellaneous Water Level
200.0	AMH								Manhole SMH RR7
200.0	FH								End of Survey

200.0 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 4	Pipe Ratings Index 4	Quick Rating 4100
	Overall	Pipe Rating 4	Pipe Ratings Index 4	Quick Rating 4100

TE 93

Water Mark
90%

Roots

Roots

WL 10%
WL 35%
WL 20%
WL 5%

SMH RR7
R=113.03
I=106.09(8"VC IN)
I=105.94(8"VC OUT)

SMH RR8
R=126.72
I=114.67(8"VC IN)
I=114.62(8"VC OUT)

SMH 5
R=121.01
I=120.52/115.16(6"VC IN)
I=115.45(8"VC IN)
I=115.47(8"VC OUT)

SMH 2842
R=123.36
I=116.22(6"VC IN)
I=116.34(6"VC IN)
I=116.06(8"VC OUT)

SMH 3C
RM=106.36
SERVICE IN = 100.6
SMH 3 IN = 100.66
2842 OUT = 102.56

RR6

203' - 8" VCP

210' - 8" VCP

156' 8" VC

167' 8" VC

205' - 8" VC

101' - 8" VC

WL 40%
WL 25%

Broken
Repair

Infiltration
Stains

166-15
6 TECH DRIVE

SMH RR5
R=114.18
I=104.08(6"VC IN)
I=103.44(8"VC IN)
I=103.38(8"VC OUT)

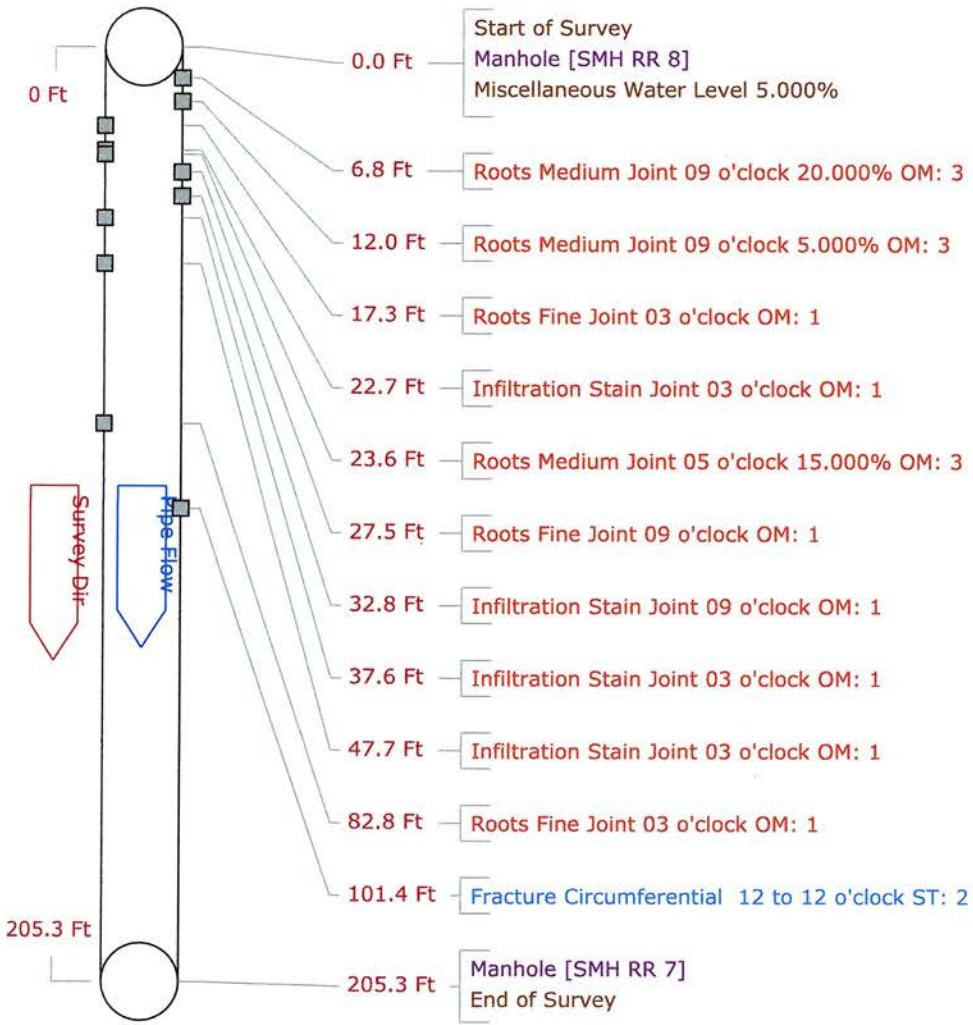
167-12A

15 SHATTUCK RD

Pipe Graphic Report of PLR SMH RR 8

G for Liden Engineering

Setup	25	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order		P/O #	
Customer		Project	Liden Engineering				
Media Label		Weather		Pre-Cleaning	N	Date Cleaned	
Date	2021/12/14	Time	13:09				
Flow control		Survey Purpose				Direction	Downstream
Street	Corporate Drive	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	205.30 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH RR 8	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH RR 7	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH RR 8 for Liden Engineering

Setup 25	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/14	Time 13:09	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	Direction Down
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		
Street Corporate Drive	City Andover	Drainage area	
Location Code		Pipe Use	Sanitary Sewage Pipe
Location details		Height 8	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining	
Coating	Pipe Joint length Ft	Total length	Ft
Length Surveyed 205.3 Ft	Year Constructed	Year Renewed	
Up SMH RR 8	Rim to invert	Grade to invert	Rim to grade Ft
Northing	Easting	Elevation	
Down SMH RR 7	Rim to invert	Grade to invert	Rim to grade Ft
Northing	Easting	Elevation	
Coordinate System	Vertical Datum		
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M		
Additional info	<input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional		

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole SMH RR 8
0.0		MWL			5.000					Miscellaneous Water Level
6.8		RMJ			20.000	J	09			Roots Medium Joint
12.0		RMJ			5.000	J	09			Roots Medium Joint
17.3		RFJ				J	03			Roots Fine Joint
22.7		ISJ				J	03			Infiltration Stain Joint
23.6		RMJ			15.000	J	05			Roots Medium Joint
27.5		RFJ				J	09			Roots Fine Joint
32.8		ISJ				J	09			Infiltration Stain Joint
37.6		ISJ				J	03			Infiltration Stain Joint
47.7		ISJ				J	03			Infiltration Stain Joint
82.8		RFJ				J	03			Roots Fine Joint
101.4		FC					12	12		Fracture Circumferential
205.3		AMH								Manhole SMH RR 7
205.3		FH								End of Survey

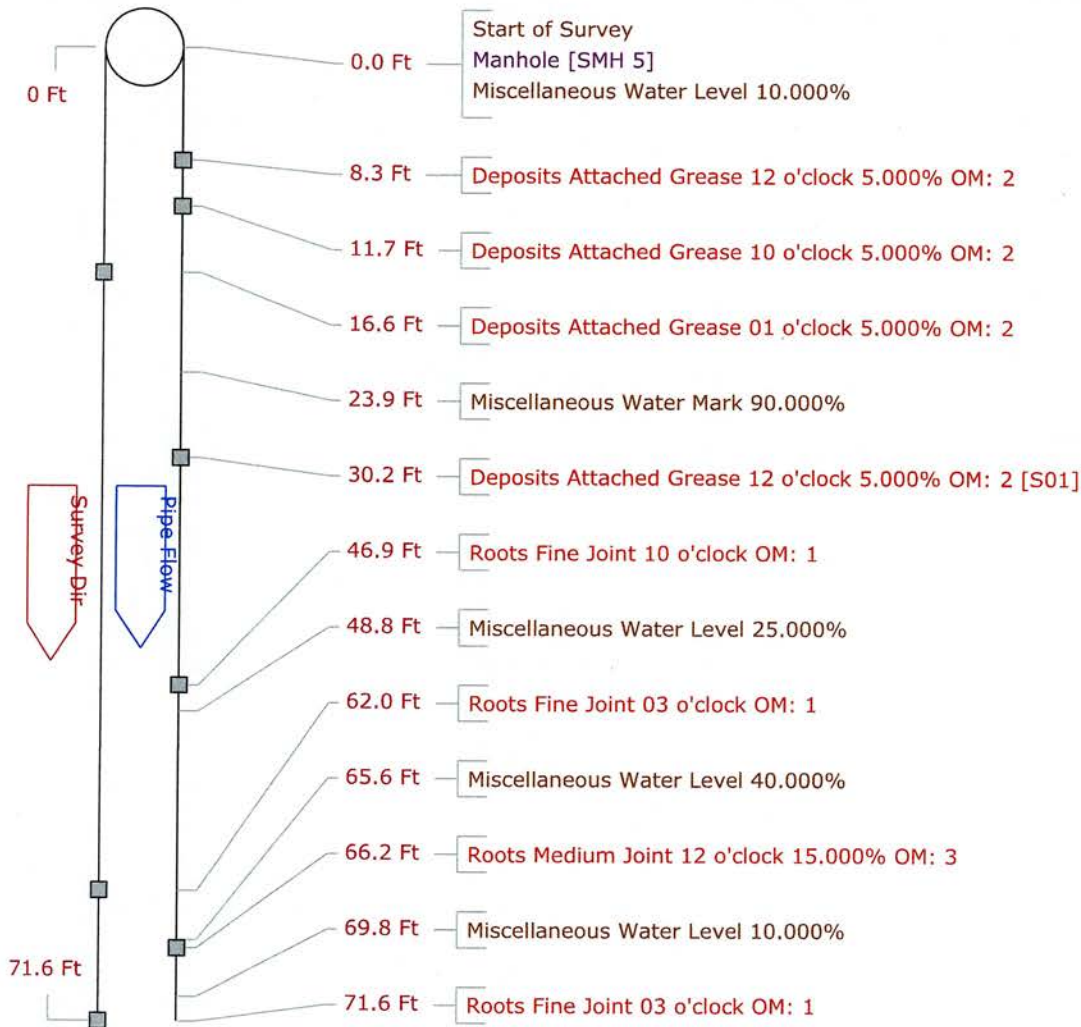
205.3 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 2	Pipe Ratings Index 2	Quick Rating 2100
	O&M:	Pipe Rating 16	Pipe Ratings Index 1.6	Quick Rating 3317
	Overall	Pipe Rating 18	Pipe Ratings Index 3.6	Quick Rating 3321

Pipe Graphic Report of PLR SMH 5

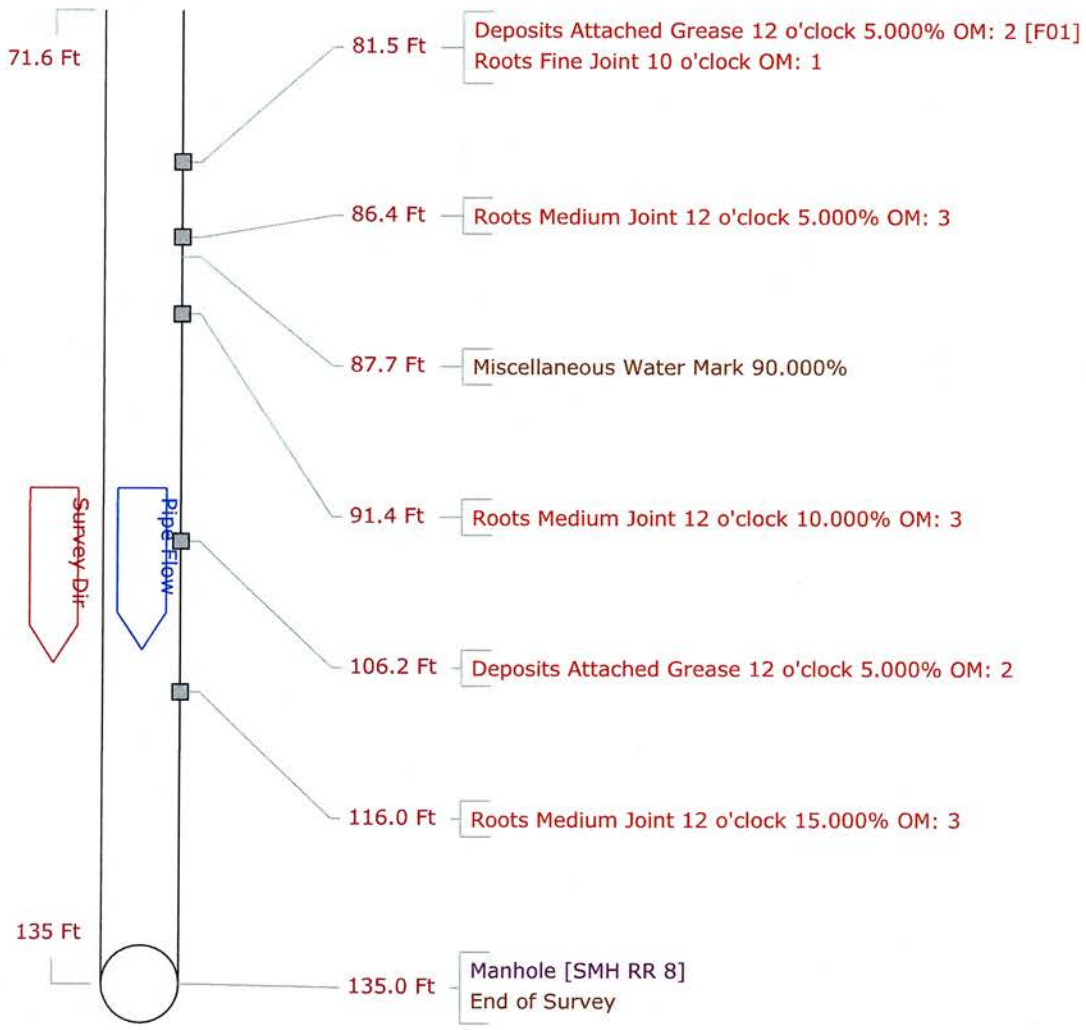
G for Liden Engineering

Setup	24	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/14	Time	12:48	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Corporate Drive	City	Andover	Drainage area			
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	135.00 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 5	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH RR 8	Rim to invert		Grade to invert		Rim to grade	Ft



Pipe Graphic Report of PLR SMH 5 G for Liden Engineering

Setup 24	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/14	Time 12:48	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Street Corporate Drive	City Andover	Drainage area	
Location Code		Pipe Use Sanitary Sewage Pipe	
Location details		Height 8	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining	
Coating	Pipe Joint length	Ft	Total length
Length Surveyed 135.00 Ft	Year Constructed	Year Renewed	
Additional info			
Up SMH 5	Rim to invert	Grade to invert	Rim to grade Ft
Down SMH RR 8	Rim to invert	Grade to invert	Rim to grade Ft



Tabular Report of PSR SMH 5

for Liden Engineering

011

Setup 24 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/14 **Time** 12:48 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Down
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Corporate Drive **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 8 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 135.0 Ft **Year Constructed** **Year Renewed**
Up SMH 5 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH RR 8 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy **Structural** **O & M**
Additional info **Miscellaneous** **Constructional**

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole SMH 5
0.0		MWL			10.000					Miscellaneous Water Level
8.3		DAGS			5.000		12			Deposits Attached Grease
11.7		DAGS			5.000		10			Deposits Attached Grease
16.6		DAGS			5.000		01			Deposits Attached Grease
23.9		MWM			90.000					Miscellaneous Water Mark
30.2		S01			5.000		12			DAGS Deposits Attached Grease
46.9		RFJ					J 10			Roots Fine Joint
48.8		MWL			25.000					Miscellaneous Water Level
62.0		RFJ					J 03			Roots Fine Joint
65.6		MWL			40.000					Miscellaneous Water Level
66.2		RMJ			15.000		J 12			Roots Medium Joint
69.8		MWL			10.000					Miscellaneous Water Level
71.6		RFJ					J 03			Roots Fine Joint
81.5		F01			5.000		12			DAGS Deposits Attached Grease
81.5		RFJ					J 10			Roots Fine Joint
86.4		RMJ			5.000		J 12			Roots Medium Joint
87.7		MWM			90.000					Miscellaneous Water Mark
91.4		RMJ			10.000		J 12			Roots Medium Joint
106.2		DAGS			5.000		J 12			Deposits Attached Grease
116.0		RMJ			15.000		J 12			Roots Medium Joint
135.0		AMH								Manhole SMH RR 8

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Tabular Report of PSR SMH 5 for Liden Engineering

Setup 24 Date 2021/12/14 Time 12:48 Up SMH 5 Down SMH RR 8

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
135.0	FH								End of Survey

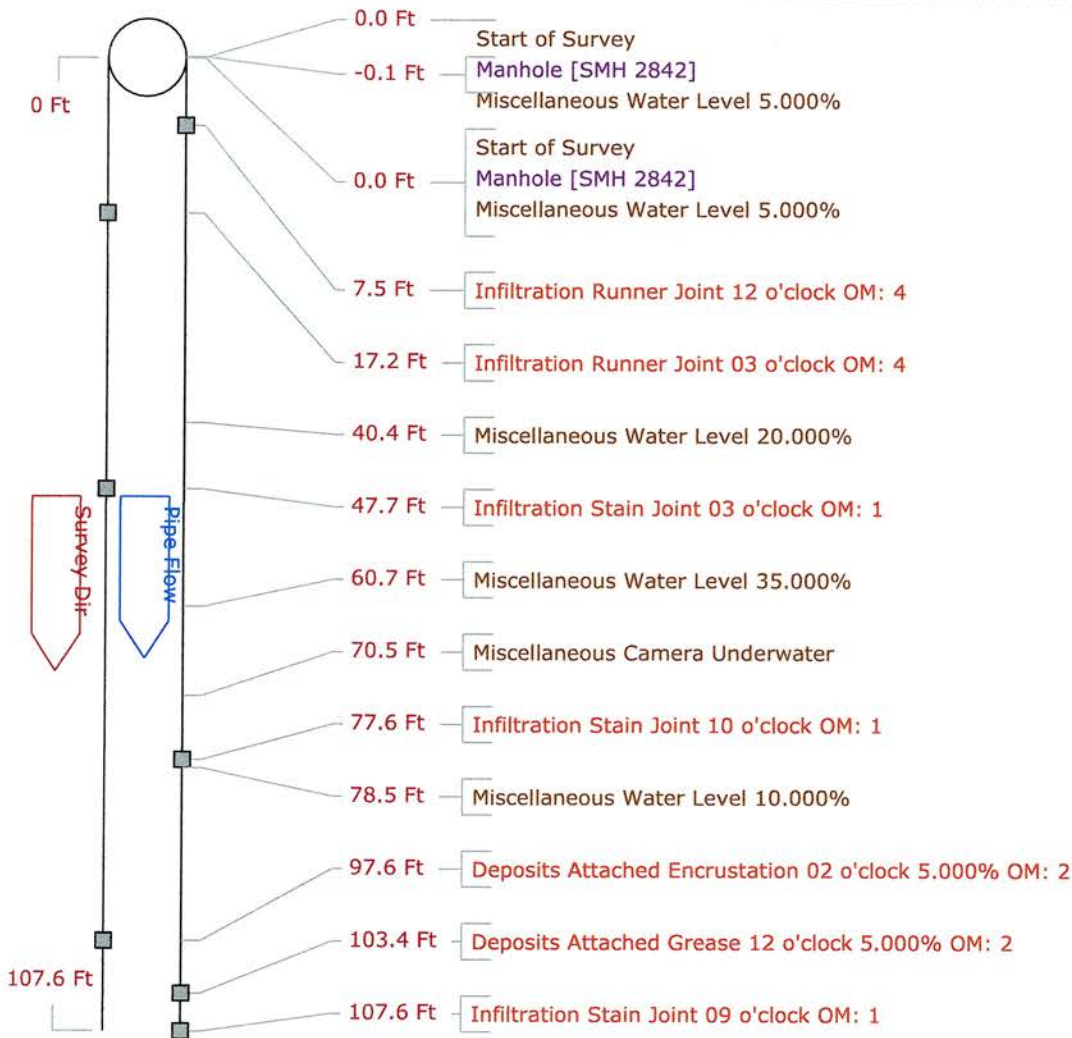
135.0 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 44	Pipe Ratings Index 2	Quick Rating 342A
	Overall	Pipe Rating 44	Pipe Ratings Index 2	Quick Rating 342A

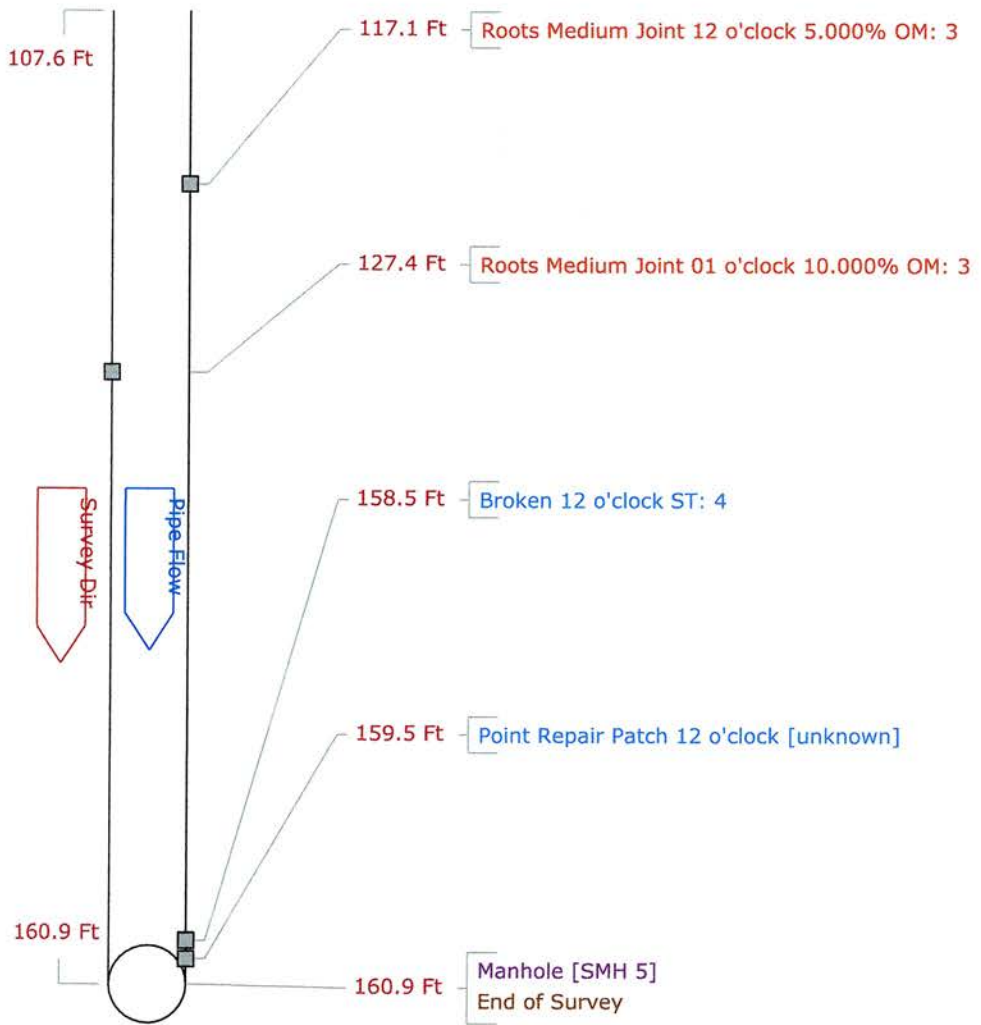
Pipe Graphic Report of PLR SMH 2842

G for Liden Engineering

Setup	23	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/14	Time	12:23	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Corporate Drive	City	Andover			Drainage area	
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	160.90 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 2842	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 5	Rim to invert		Grade to invert		Rim to grade	Ft



Setup 23	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/14	Time 12:23	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Direction Downstream
Street Corporate Drive	City Andover		Drainage area
Location Code		Pipe Use	Sanitary Sewage Pipe
Location details		Height 8	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining	
Coating	Pipe Joint length	Ft	Total length
Length Surveyed 160.90 Ft	Year Constructed	Year Renewed	Ft
Additional info			
Up SMH 2842	Rim to invert	Grade to invert	Rim to grade Ft
Down SMH 5	Rim to invert	Grade to invert	Rim to grade Ft



Tabular Report of PSR SMH 2842

for Liden Engineering

Setup 23 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/14 **Time** 12:23 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Down
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Corporate Drive **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 8 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 160.9 Ft **Year Constructed** **Year Renewed**
Up SMH 2842 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 5 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy **Additional info** Structural O & M
 Miscellaneous Constructional

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
-0.1		RMJ			5.000	J	04			
0.0		ST								
0.0		AMH								SMH 2842
0.0		MWL			5.000					
7.5		IRJ				J	12			
17.2		IRJ				J	03			
40.4		MWL			20.000					
47.7		ISJ				J	03			
60.7		MWL			35.000					
70.5		MCU								
77.6		ISJ				J	10			
78.5		MWL			10.000					
97.6		DAE			5.000	J	02			
103.4		DAGS			5.000		12			
107.6		ISJ				J	09			
117.1		RMJ			5.000	J	12			
127.4		RMJ			10.000	J	01			
158.5		B					12			
159.5		RPP					12			unknown
160.9		AMH								SMH 5
160.9		FH								

160.9 Ft Total Length Surveyed

CCTV Picture List of SMH 2842 for Liden Engineering
G

Work Order		Setup 23
Video	Survey Date	2021/12/14
Path to picture files	F:\Snaps\2021 ANDOVER-3\	
Path to video files	F:\Movies\2021 ANDOVER-3\	
Path to media files	F:\Media\2021 ANDOVER-3\	

CCTV Picture List of SMH 2842 for Liden Engineering
G

Work Order			Setup 23
Video	Survey Date	2021/12/14	
Path to picture files	F:\Snaps\2021 ANDOVER-3\		
Path to video files	F:\Movies\2021 ANDOVER-3\		
Path to media files	F:\Media\2021 ANDOVER-3\		



Video Index **Count** 158.5 Ft
Code Broken
Remarks
File Name 62.jpg



Video Index **Count** 158.5 Ft
Code Broken
Remarks
File Name 63.jpg



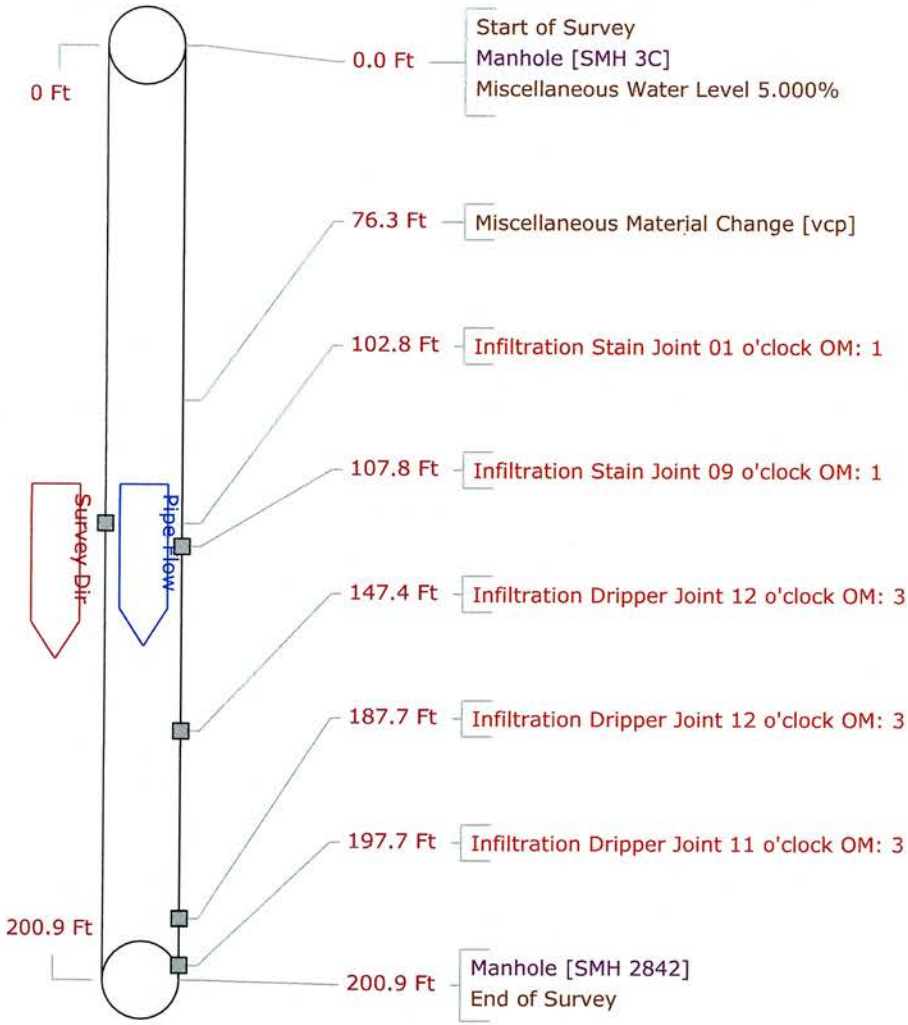
Video Index **Count** 158.5 Ft
Code Broken
Remarks
File Name 64.jpg



Pipe Graphic Report of PLR SMH 3C

G for Liden Engineering

Setup	22	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/14	Time	12:07	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Corporate Drive	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Polyvinyl Chloride	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	200.90 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 3C	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2842	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 3C for Liden Engineering

Setup 22 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/14 **Time** 12:07 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Down
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Corporate Drive **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 8 **Width** ins
Shape Circular **Material** Polyvinyl Chloride **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 200.9 Ft **Year Constructed** **Year Renewed**
Up SMH 3C **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 2842 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy **Additional info**
 Structural O & M
 Miscellaneous Constructional

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH 3C
0.0	MWL			5.000					Miscellaneous Water Level
76.3	MMC								Miscellaneous Material Change vcp
102.8	ISJ				J	01			Infiltration Stain Joint
107.8	ISJ				J	09			Infiltration Stain Joint
147.4	IDJ				J	12			Infiltration Dripper Joint
187.7	IDJ				J	12			Infiltration Dripper Joint
197.7	IDJ				J	11			Infiltration Dripper Joint
200.9	AMH								Manhole SMH 2842
200.9	FH								End of Survey

200.9 Ft Total Length Surveyed

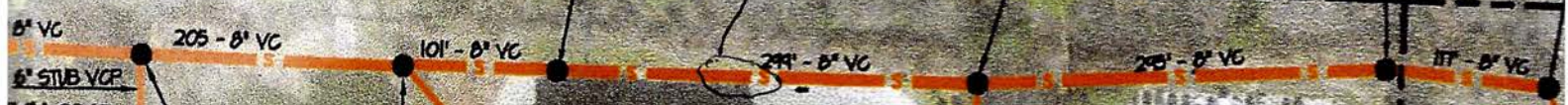
Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 11	Pipe Ratings Index 2.2	Quick Rating 3312
	Overall Pipe Rating 11	Pipe Ratings Index 2.2	Quick Rating 3312

Roots

SMH 3
R=181.57
I=124.27(8" PVC IN)
I=123.55(8" PVC IN)
I=123.53(8" PVC OUT)

SMH 2844
R=133.39
I=126.46(8" PVC IN)
I=125.87(8" PVC IN)
I=125.80(8" PVC OUT)

SMH 2845
R=139.77
I=133.71(8" PVC IN)
I=133.02(8" PVC OUT)



SMH 2842
R=128.36
I=116.28(8" PVC IN)
I=116.31(8" PVC IN)
I=116.06(8" PVC OUT)

SMH 3C
RIM=125.36
SERVICE IN = 121.16
SMH 3 IN = 120.66
2842 OUT = 120.56

167-12
4 CORPORATE DRIVE

1 CORPORATE DRIVE

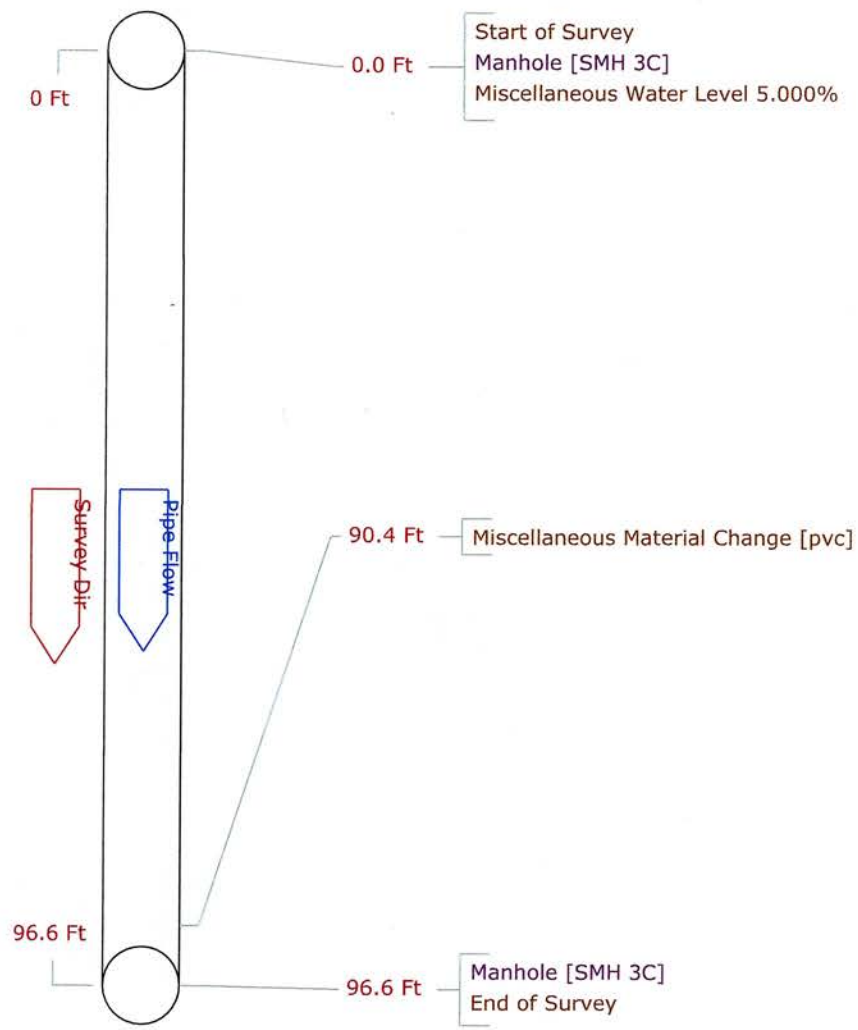
167-13
7 SHATT

K RD

121

Pipe Graphic Report of PLR SMH 3 X for Liden Engineering

Setup	21	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/14	Time	11:30	Weather		Pre-Cleaning L	Date Cleaned
Flow control		Survey Purpose					Direction Downstream
Street	Corporate Drive	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	96.60 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 3	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 3C	Rim to invert		Grade to invert		Rim to grade	Ft



122

Tabular Report of PSR SMH 3

for **Liden Engineering**

Setup 21	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/14	Time 11:30	Weather	Pre-Cleaning L
Flow control	Survey Purpose		Date Cleaned
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	Direction Down
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street Corporate Drive	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 8	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 96.6 Ft	Year Constructed	Year Renewed
Up SMH 3	Rim to invert	Grade to invert
Northing	Easting	Elevation
Down SMH 3C	Rim to invert	Grade to invert
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M	
Additional info	<input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH 3C
0.0	MWL			5.000					Miscellaneous Water Level
90.4	MMC								Miscellaneous Material Change pvc
96.6	AMH								Manhole SMH 3C
96.6	FH								End of Survey

96.6 Ft Total Length Surveyed

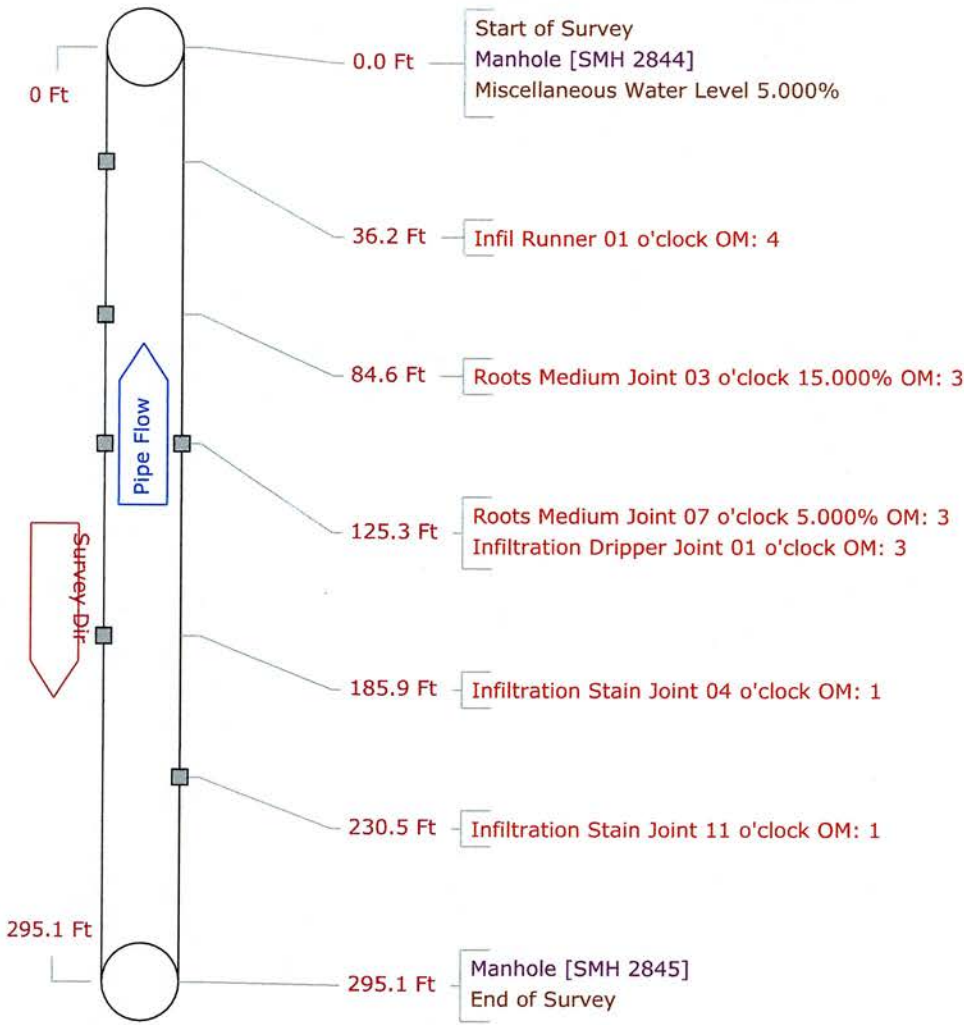
Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

123

Pipe Graphic Report of PLR SMH 2845

G for Liden Engineering

Setup	26	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order		P/O #	
Customer		Project	Liden Engineering				
Media Label		Date	2021/12/16	Time	7:22	Weather	
Flow control		Survey Purpose		Pre-Cleaning	N	Date Cleaned	
Street	Corporate Drive	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	295.10 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 2844	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 3	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 2845 for Liden Engineering

Setup 26 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/16 **Time** 7:22 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Up
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Corporate Drive **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 8 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 295.1 Ft **Year Constructed** **Year Renewed**
Up SMH 2844 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 3 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy **Structural** **O & M**
Additional info **Miscellaneous** **Constructional**

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST Start of Survey								
0.0		AMH Manhole								SMH 2844
0.0		MWL Miscellaneous Water Level			5.000					
36.2		IR Infil Runner					01			
84.6		RMJ Roots Medium Joint			15.000	J	03			
125.3		RMJ Roots Medium Joint			5.000	J	07			
125.3		IDJ Infiltration Dripper Joint				J	01			
185.9		ISJ Infiltration Stain Joint				J	04			
230.5		ISJ Infiltration Stain Joint				J	11			
295.1		AMH Manhole								SMH 2845
295.1		FH End of Survey								

295.1 Ft Total Length Surveyed

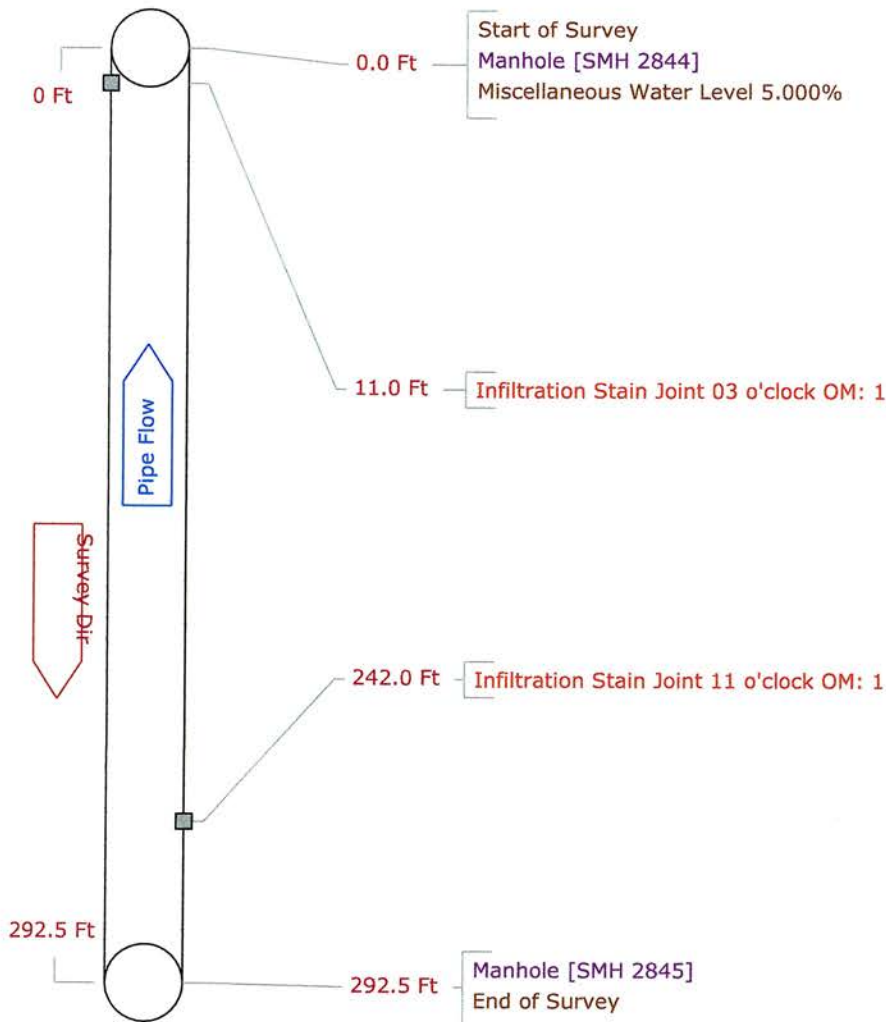
Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 15	Pipe Ratings Index 2.5	Quick Rating 4133
	Overall Pipe Rating 15	Pipe Ratings Index 2.5	Quick Rating 4133

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Pipe Graphic Report of PLR SMH 2845

D for Liden Engineering

Setup	27	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	7:36	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Corporate Drive	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	292.50 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 2845	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2844	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 2845

for Liden Engineering

Setup 27 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/16 **Time** 7:36 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Up
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Corporate Drive **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 8 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 292.5 Ft **Year Constructed** **Year Renewed**
Up SMH 2845 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 2844 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy **Structural** **O & M**
Additional info **Miscellaneous** **Constructional**

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole SMH 2844
0.0		MWL			5.000					Miscellaneous Water Level
11.0		ISJ				J	03			Infiltration Stain Joint
242.0		ISJ				J	11			Infiltration Stain Joint
292.5		AMH								Manhole SMH 2845
292.5		FH								End of Survey

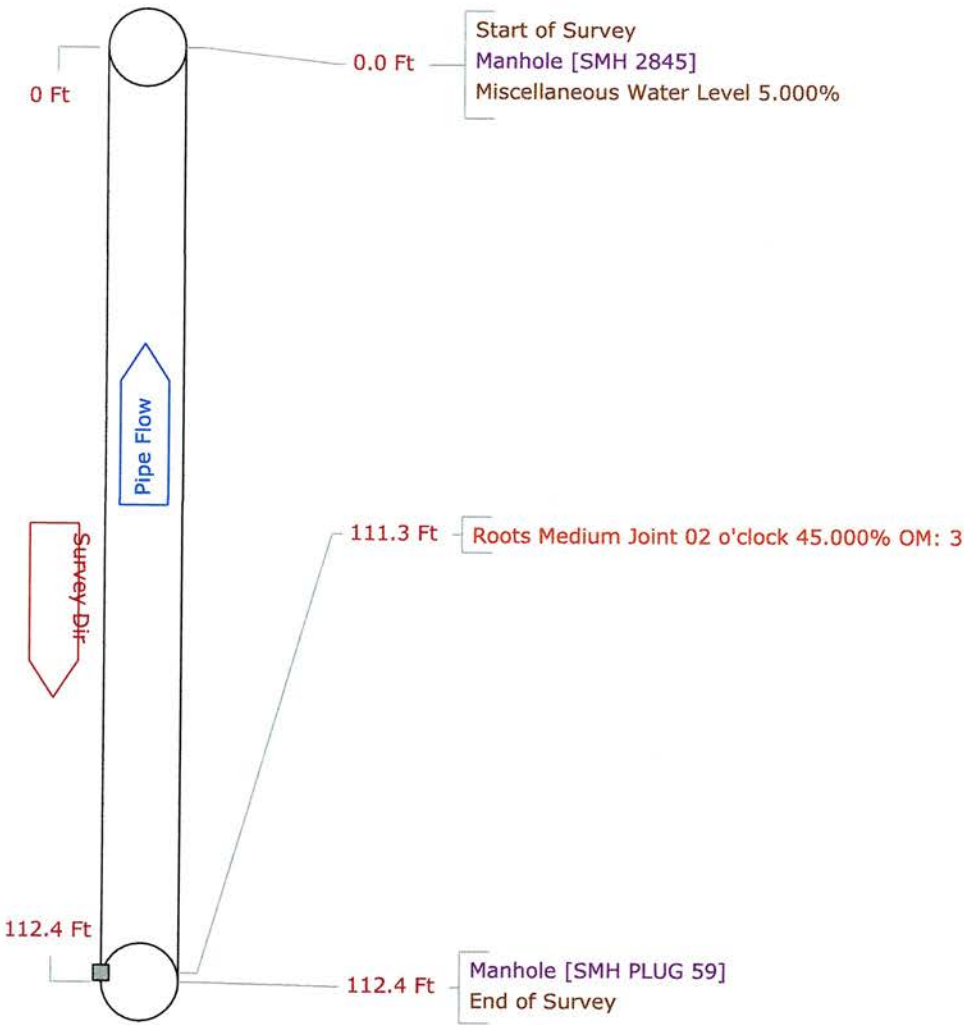
292.5 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 2	Pipe Ratings Index 1	Quick Rating 1200
	Overall	Pipe Rating 2	Pipe Ratings Index 1	Quick Rating 1200

Pipe Graphic Report of PLR SMH PLUG 59

D for Liden Engineering

Setup	28	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/16	Time	7:50	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Corporate Drive	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	112.40 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH PLUG 59	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2845	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH PLUG 59 for Liden Engineering

Setup 28 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/16 **Time** 7:50 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Up
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Corporate Drive **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 8 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 112.4 Ft **Year Constructed** **Year Renewed**

Up	SMH PLUG 59	Rim to invert	Grade to invert	Rim to grade	Ft
Northing		Easting	Elevation		
Down	SMH 2845	Rim to invert	Grade to invert	Rim to grade	Ft
Northing		Easting	Elevation		

Coordinate System **Vertical Datum**
GPS Accuracy
Additional info
 Structural O & M
 Miscellaneous Constructional

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole
0.0		MWL			5.000					Miscellaneous Water Level
111.3		RMJ			45.000	J	02			Roots Medium Joint
112.4		AMH								Manhole
112.4		FH								End of Survey

112.4 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 3	Pipe Ratings Index 3	Quick Rating 3100
	Overall	Pipe Rating 3	Pipe Ratings Index 3	Quick Rating 3100

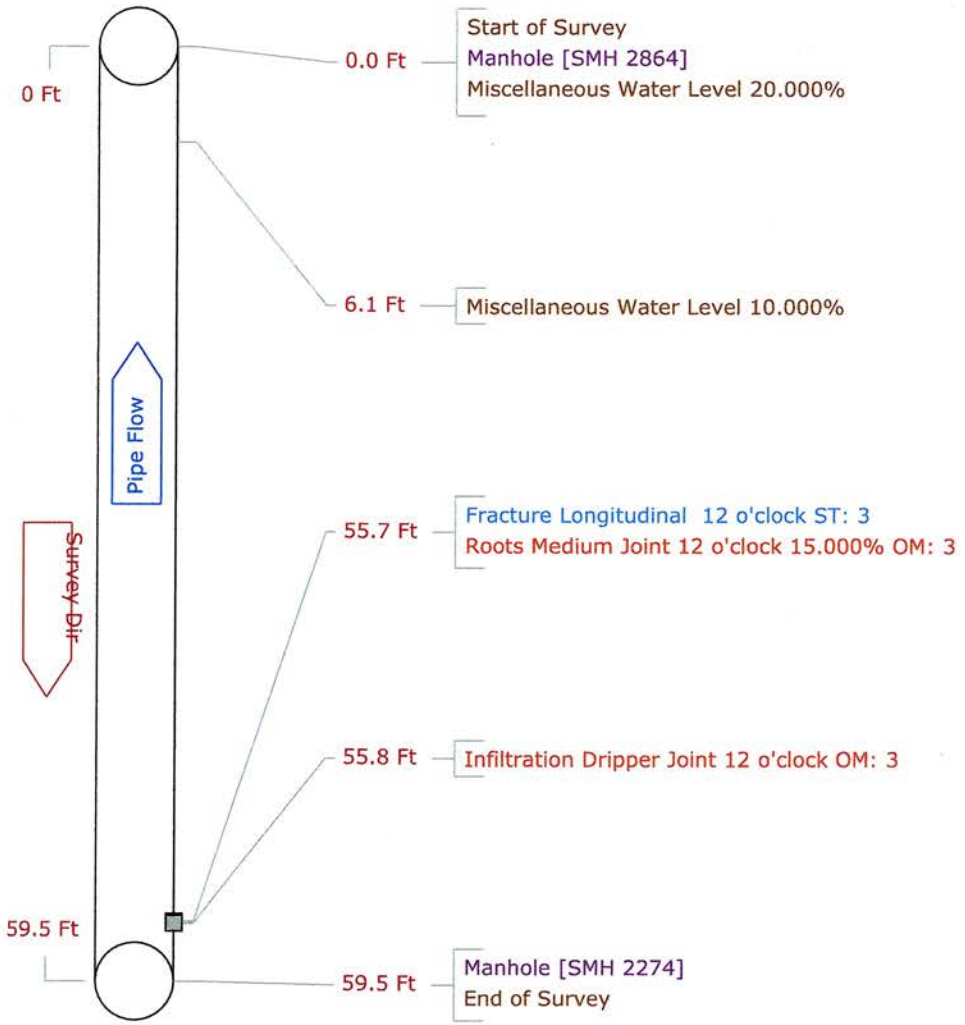
SEWER LINE C

132

Pipe Graphic Report of PLR SMH 2274

G for Liden Engineering

Setup	66	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/28	Time	10:32	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	River Rd	City	Andover	Drainage area			
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	59.50 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH 2274	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2864	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 2274 for Liden Engineering

Setup 66	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/28	Time 10:32	Weather	Pre-Cleaning N Date Cleaned
Flow control	Survey Purpose		Direction Up
Inspection Status	Complete Inspection	Consequence Of Failure	Pressure
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		
Street River Rd	City Andover	Drainage area	
Location Code		Pipe Use	Sanitary Sewage Pipe
Location details		Height 8	Width ins
Shape Circular	Material Vitrified Clay Pipe	Lining	
Coating	Pipe Joint length Ft	Total length	Ft
Length Surveyed 59.5 Ft	Year Constructed	Year Renewed	
Up SMH 2274	Rim to invert	Grade to invert	Rim to grade Ft
Northing	Easting	Elevation	
Down SMH 2864	Rim to invert	Grade to invert	Rim to grade Ft
Northing	Easting	Elevation	
Coordinate System	Vertical Datum		
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M		
Additional info	<input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional		

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST Start of Survey								
0.0		AMH Manhole								SMH 2864
0.0		MWL Miscellaneous Water Level			20.000					
6.1		MWL Miscellaneous Water Level			10.000					
55.7		FL Fracture Longitudinal					12			
55.7		RMJ Roots Medium Joint			15.000	J	12			
55.8		IDJ Infiltration Dripper Joint				J	12			
59.5		AMH Manhole								SMH 2274
59.5		FH End of Survey								

59.5 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 3	Pipe Ratings Index 3	Quick Rating 3100
	O&M:	Pipe Rating 6	Pipe Ratings Index 3	Quick Rating 3200
	Overall	Pipe Rating 9	Pipe Ratings Index 6	Quick Rating 3300

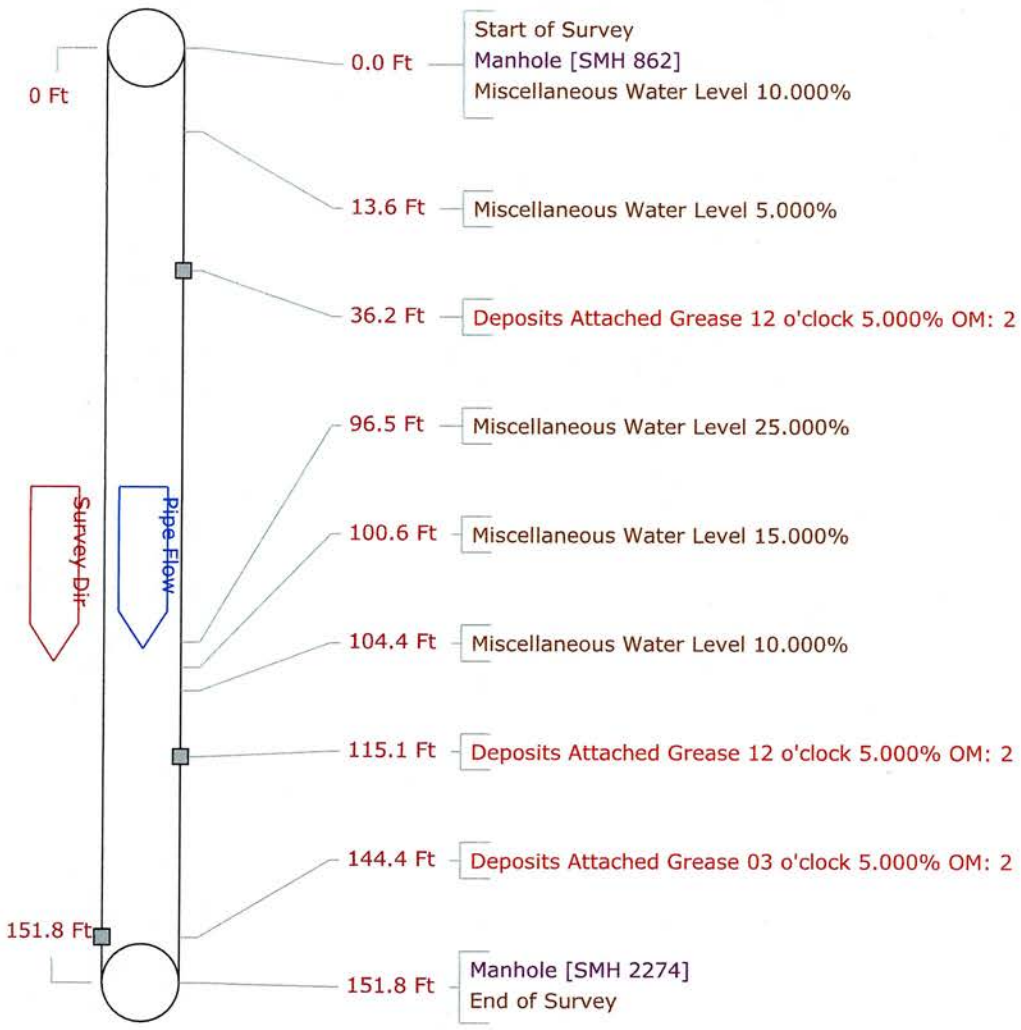
Pipe Graphic Report of PLR SMH 862 X for Liden Engineering

Setup	12	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	12:55	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	

Street	Shattuck Rd	City	Andover	Drainage area	
Location Code		Pipe Use	Sanitary Sewage Pipe		
Location details		Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining	
Coating		Pipe Joint length	Ft	Total length	Ft
Length Surveyed	151.80 Ft	Year Constructed		Year Renewed	
Additional info					

Structural	O & M
Miscellaneous	Constructional

Up	SMH 862	Rim to invert	Grade to invert	Rim to grade	Ft
Down	SMH 2274	Rim to invert	Grade to invert	Rim to grade	Ft



135

Tabular Report of PSR SMH 862 for Liden Engineering

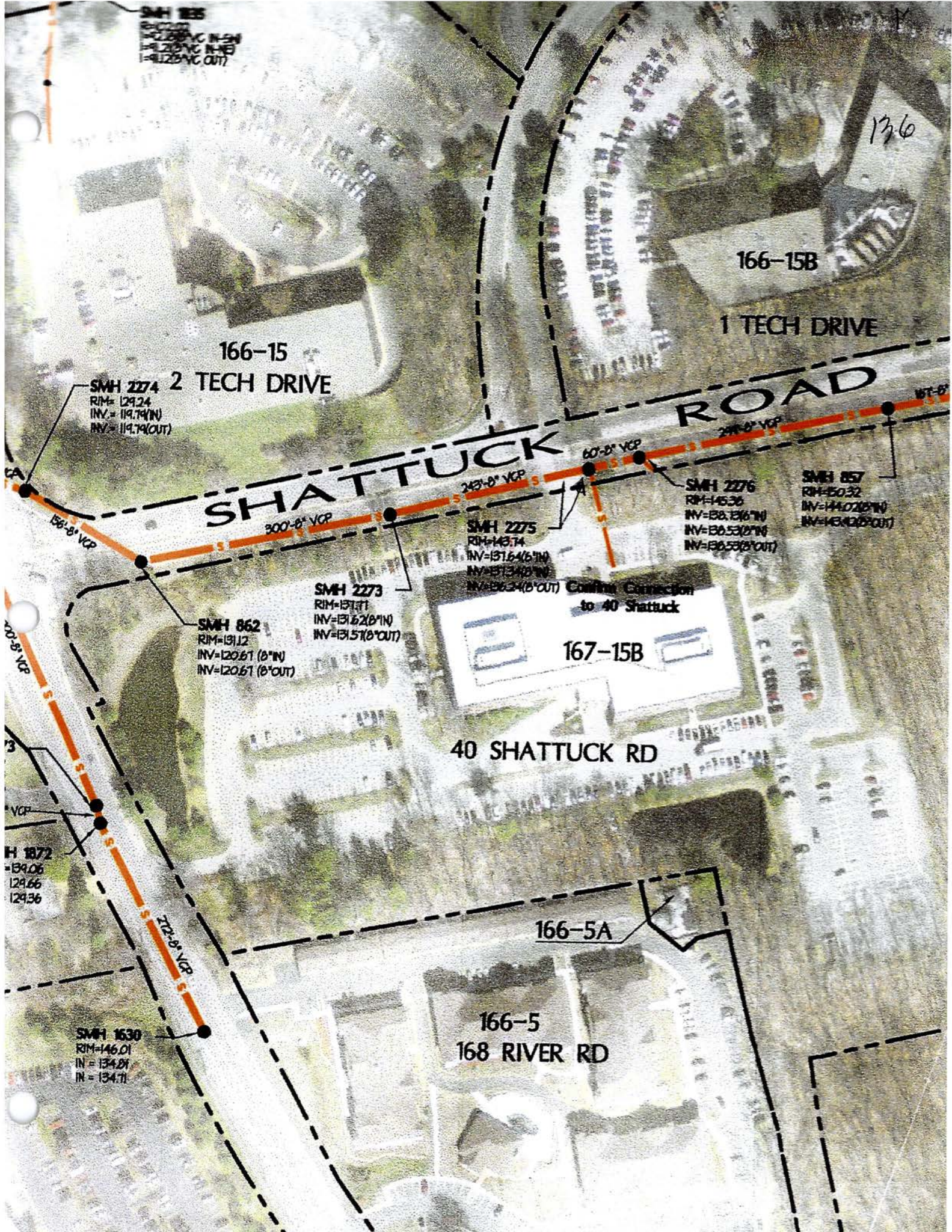
Setup 12 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/08 **Time** 12:55 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Down
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used
 CCTV
 Laser
 Sonar
 Sidewall
 Zoom
 Other

Street Shattuck Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 8 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 151.8 Ft **Year Constructed** **Year Renewed**
Up SMH 862 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 2274 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy Structural O & M
Additional info Miscellaneous Constructional

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST Start of Survey								
0.0		AMH Manhole								SMH 862
0.0		MWL Miscellaneous Water Level			10.000					
13.6		MWL Miscellaneous Water Level			5.000					
36.2		DAGS Deposits Attached Grease			5.000	12				
96.5		MWL Miscellaneous Water Level			25.000					
100.6		MWL Miscellaneous Water Level			15.000					
104.4		MWL Miscellaneous Water Level			10.000					
115.1		DAGS Deposits Attached Grease			5.000	12				
144.4		DAGS Deposits Attached Grease			5.000	03				
151.8		AMH Manhole								SMH 2274
151.8		FH End of Survey								

151.8 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 6	Pipe Ratings Index 2	Quick Rating 2300
	Overall	Pipe Rating 6	Pipe Ratings Index 2	Quick Rating 2300



SMH 185
RIM=129.24
INV=119.74(IN)
INV=119.74(OUT)

136

166-15B

1 TECH DRIVE

166-15
2 TECH DRIVE

SMH 2274
RIM=129.24
INV=119.74(IN)
INV=119.74(OUT)

SHATTUCK ROAD

156'-8" VCP

300'-0" VCP

243'-0" VCP

60'-0" VCP

249'-0" VCP

WT-0"

SMH 2276
RIM=145.36
INV=136.16(IN)
INV=136.53(OUT)
INV=136.53(OUT)

SMH 857
RIM=150.32
INV=140.28(IN)
INV=140.32(OUT)

SMH 2275
RIM=143.74
INV=131.64(IN)
INV=131.34(IN)
INV=132.4(OUT)

Continue Connection
to 40 Shattuck

167-15B

40 SHATTUCK RD

SMH 862
RIM=131.12
INV=120.61 (0"IN)
INV=120.61 (0"OUT)

SMH 2273
RIM=131.71
INV=131.62(0"IN)
INV=131.51(0"OUT)

SMH 1872
RIM=139.06
INV=129.66
INV=129.36

VCP

272'-0" VCP

166-5A

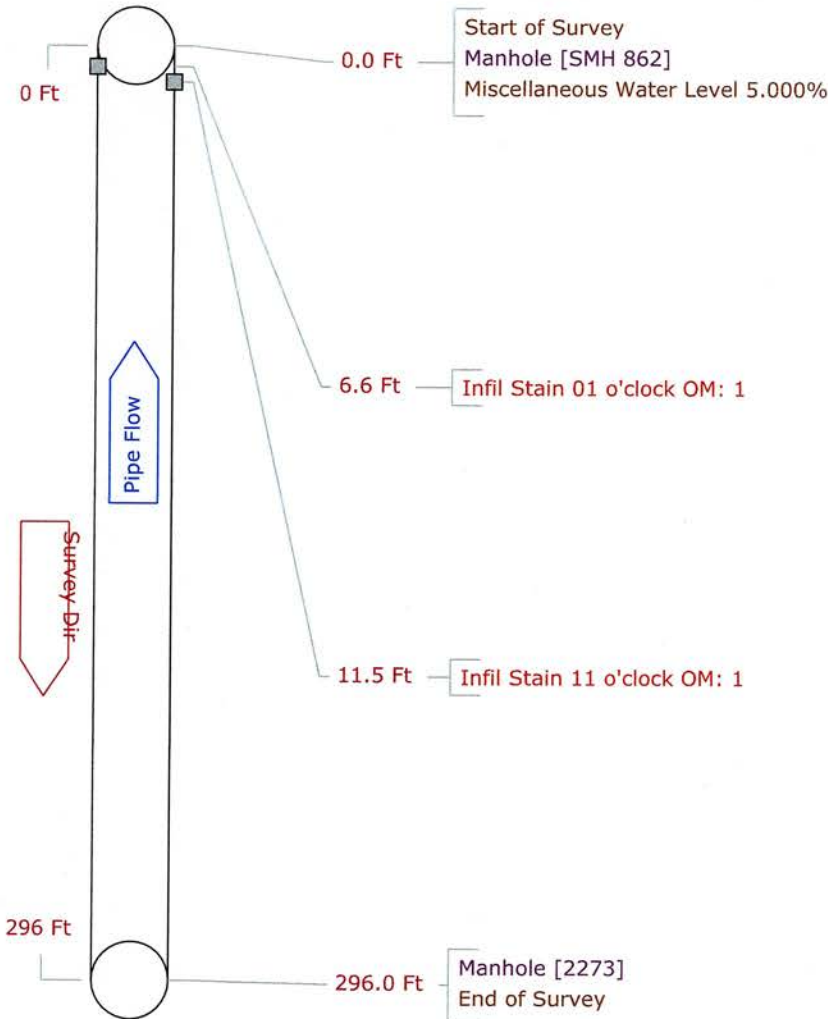
166-5
168 RIVER RD

SMH 1630
RIM=146.01
IN = 134.01
IN = 134.71

Pipe Graphic Report of PLR 2273

X for Liden Engineering

Setup	10	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	11:55	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Shattuck Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	296.00 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 2273	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 862	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR 2273 for Liden Engineering

Setup 10 Surveyed By DR Certificate # 0821-70402733 Owner
 Reviewed By Reviewer # Work Order
 Customer P/O #
 Media Label Project Liden Engineering
 Date 2021/12/08 Time 11:55 Weather Pre-Cleaning N Date Cleaned
 Flow control Survey Purpose Direction Up
 Inspection Status Complete Inspection Consequence Of Failure Pressure
 Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Shattuck Rd City Andover Drainage area
 Location Code Pipe Use Sanitary Sewage Pipe
 Location details Height 8 Width ins
 Shape Circular Material Vitrified Clay Pipe Lining
 Coating Pipe Joint length Ft Total length Ft
 Length Surveyed 296.0 Ft Year Constructed Year Renewed
 Up SMH 2273 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Down SMH 862 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Coordinate System Vertical Datum
 GPS Accuracy
 Additional info

Structural	O & M
Miscellaneous	Constructional

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST Start of Survey								
0.0	AMH Manhole								SMH 862
0.0	MWL Miscellaneous Water Level			5.000					
6.6	IS Infil Stain					01			
11.5	IS Infil Stain					11			
296.0	AMH Manhole								2273
296.0	FH End of Survey								

296.0 Ft Total Length Surveyed

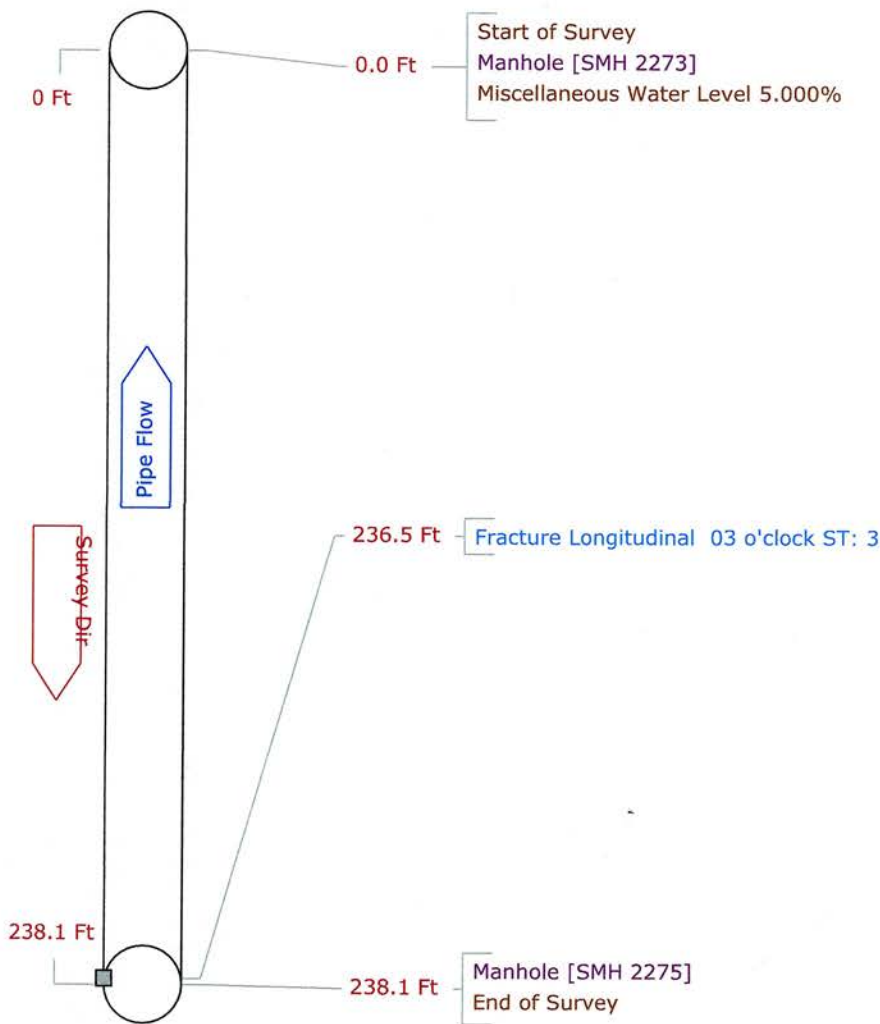
Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 2	Pipe Ratings Index 1	Quick Rating 1200
	Overall Pipe Rating 2	Pipe Ratings Index 1	Quick Rating 1200

139

Pipe Graphic Report of PLR SMH 2275

X for Liden Engineering

Setup	11	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	12:14	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Shattuck Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	238.10 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 2275	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2273	Rim to invert		Grade to invert		Rim to grade	Ft



140

Tabular Report of PSR SMH 2275

for Liden Engineering

Setup	11	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	12:14	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Inspection Status	Complete Inspection	Consequence Of Failure		Pressure		Direction	Up
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other						
Street	Shattuck Rd		City	Andover	Drainage area		
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	8	Width	ins
Shape	Circular		Material	Vitrified Clay Pipe		Lining	
Coating		Pipe Joint length	Ft	Total length	Ft		
Length Surveyed	238.1	Ft	Year Constructed		Year Renewed		
Up	SMH 2275	Rim to invert		Grade to invert		Rim to grade	Ft
Northing		Easting		Elevation			
Down	SMH 2273	Rim to invert		Grade to invert		Rim to grade	Ft
Northing		Easting		Elevation			
Coordinate System		Vertical Datum					
GPS Accuracy		<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional					
Additional info							

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole
0.0		MWL			5.000					Miscellaneous Water Level
236.5		FL					03			Fracture Longitudinal
238.1		AMH								Manhole
238.1		FH								End of Survey

238.1 Ft Total Length Surveyed

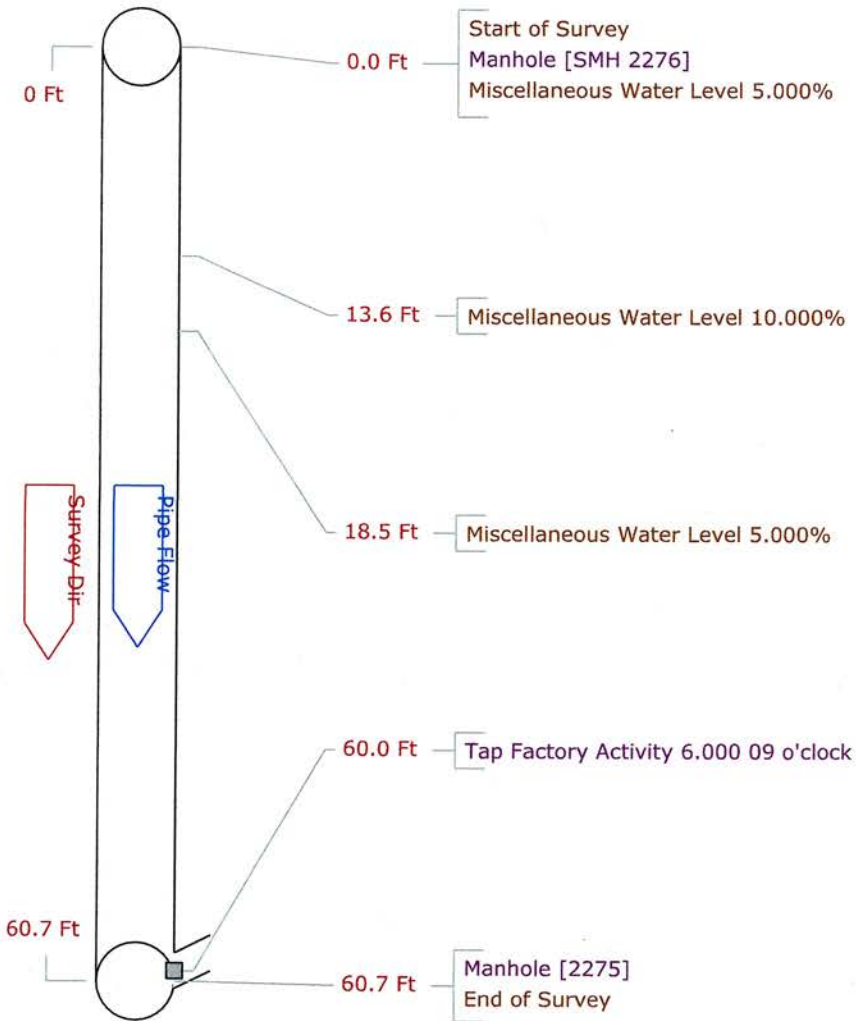
Scores	Structural:	Pipe Rating 3	Pipe Ratings Index 3	Quick Rating 3100
	O&M:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall	Pipe Rating 3	Pipe Ratings Index 3	Quick Rating 3100

141

Pipe Graphic Report of PLR SMH 2276

X for Liden Engineering

Setup	9	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	10:31	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Shattuck Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	60.70 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 2276	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2275	Rim to invert		Grade to invert		Rim to grade	Ft



142

Tabular Report of PSR SMH 2276

for Liden Engineering

Setup 9 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/08 **Time** 10:31 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Down
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Shattuck Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 8 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 60.7 Ft **Year Constructed** **Year Renewed**
Up SMH 2276 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 2275 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy **Structural** **O & M**
Additional info **Miscellaneous** **Constructional**

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole SMH 2276
0.0		MWL			5.000					Miscellaneous Water Level
13.6		MWL			10.000					Miscellaneous Water Level
18.5		MWL			5.000					Miscellaneous Water Level
60.0		TFA	6.000				09			Tap Factory Activity
60.7		AMH								Manhole 2275
60.7		FH								End of Survey

60.7 Ft Total Length Surveyed

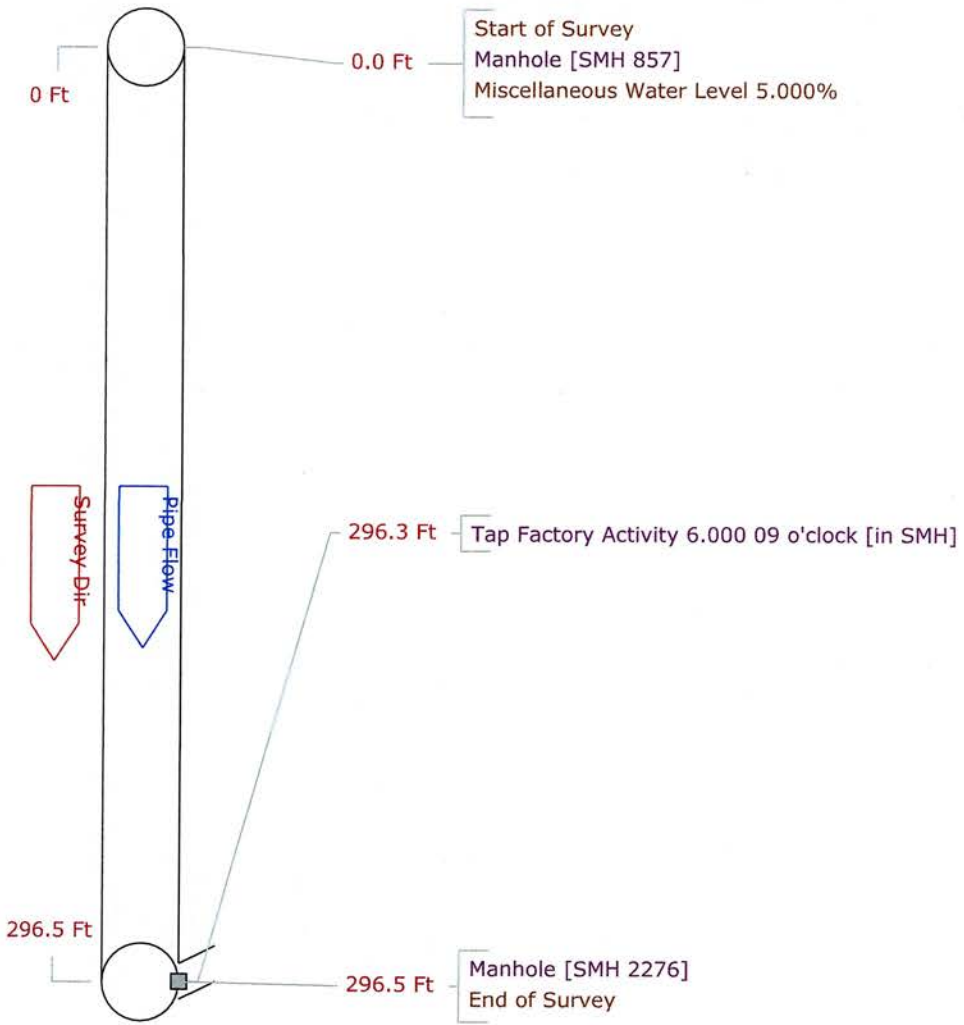
Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

1432

Pipe Graphic Report of PLR SMH 857

X for Liden Engineering

Setup	8	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	10:12	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Shattuck Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	296.50 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 857	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2276	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 857 for Liden Engineering

Setup 8 Surveyed By DR Certificate # 0821-70402733 Owner
 Reviewed By Reviewer # Work Order
 Customer P/O #
 Media Label Project Liden Engineering
 Date 2021/12/08 Time 10:12 Weather Pre-Cleaning N Date Cleaned
 Flow control Survey Purpose Direction Down
 Inspection Status Complete Inspection Consequence Of Failure Pressure
 Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Shattuck Rd City Andover Drainage area
 Location Code Pipe Use Sanitary Sewage Pipe
 Location details Height 8 Width ins
 Shape Circular Material Vitrified Clay Pipe Lining
 Coating Pipe Joint length Ft Total length Ft
 Length Surveyed 296.5 Ft Year Constructed Year Renewed
 Up SMH 857 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Down SMH 2276 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Coordinate System Vertical Datum
 GPS Accuracy
 Additional info
 Structural O & M
 Miscellaneous Constructional

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST Start of Survey								
0.0	AMH Manhole								SMH 857
0.0	MWL Miscellaneous Water Level			5.000					
296.3	TFA Tap Factory Activity	6.000				09			in SMH
296.5	AMH Manhole								SMH 2276
296.5	FH End of Survey								

296.5 Ft Total Length Surveyed

Scores

Structural: Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
O&M: Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
Overall Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000

145

167-12A
15 SHATTUCK RD

SMH 854
RM=51.22
INV=150.33 (6" IN)
INV=150.120 (1" IN)
INV=150.120 (OUT)

SMH 855
RM=55.65
INV=151.108 (1" IN)
INV=151.108 (1" IN)
INV=151.65 (2" OUT)

DRIVE
AD

B57

SMH TBA2
RM=152.88
INV=146.440 (PVC IN)
INV=146.490 (VCP IN)
INV=146.490 (VCP IN)

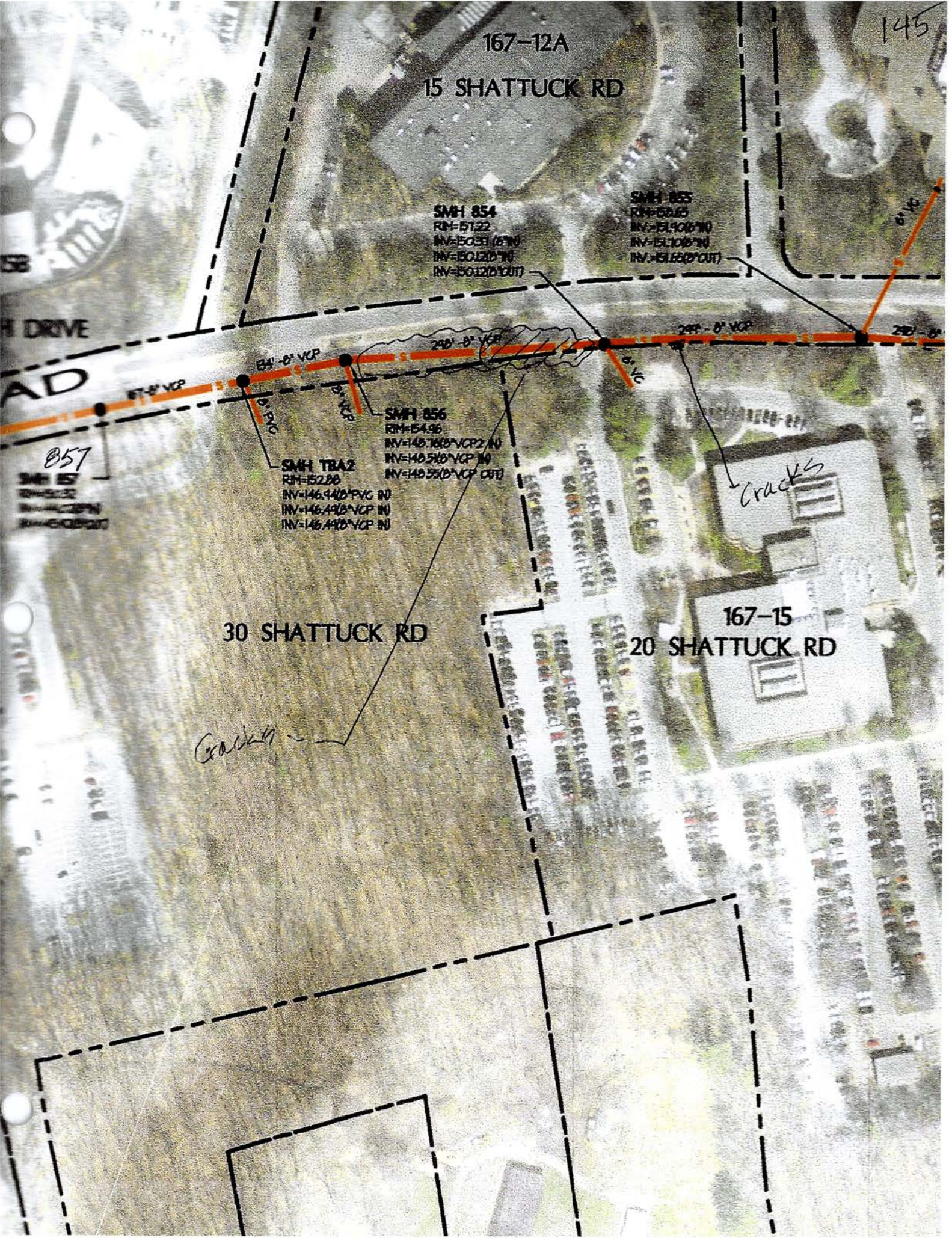
SMH 856
RM=54.96
INV=148.768 (VCP 2 IN)
INV=148.510 (VCP IN)
INV=148.550 (VCP OUT)

30 SHATTUCK RD

167-15
20 SHATTUCK RD

Cracks

Cracks

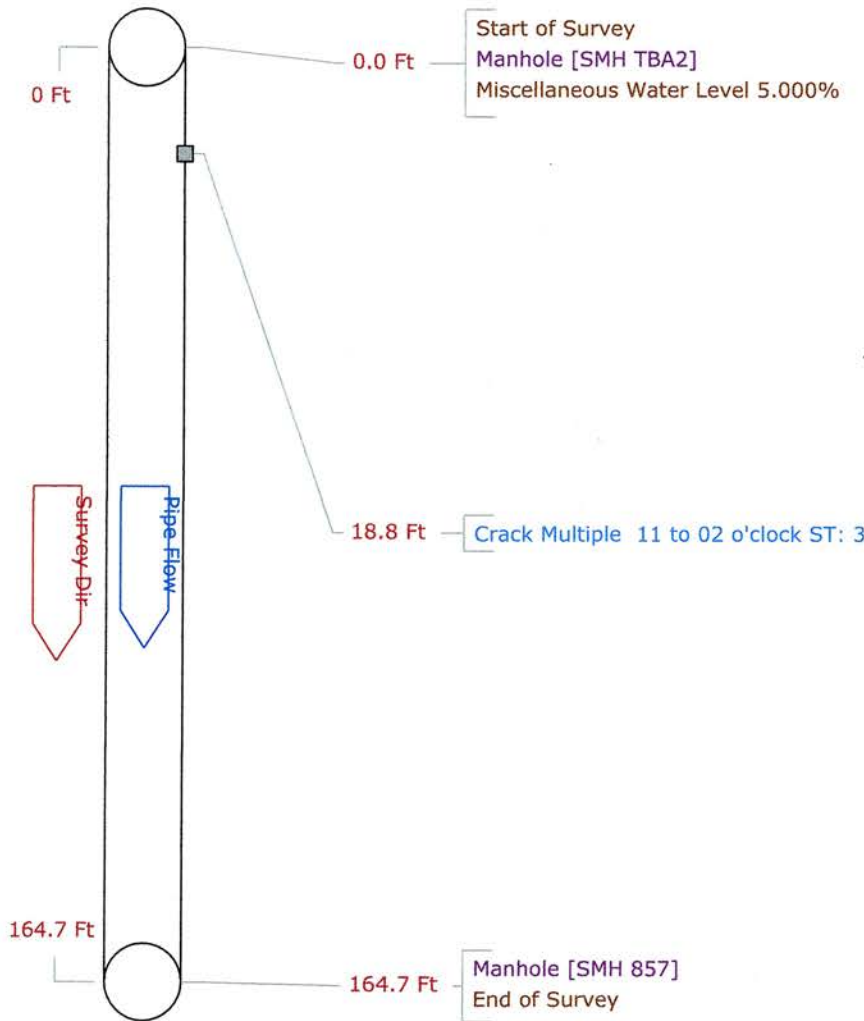


1466

Pipe Graphic Report of PLR SMH TBA2

X for Liden Engineering

Setup	7	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	10:03	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Direction	Downstream
Street	Shattuck Rd	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	164.70 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH TBA2	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 857	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH TBA2 for Liden Engineering

Setup 7 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/08 **Time** 10:03 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Down
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other
Street Shattuck Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 8 **Width** ins
Shape Circular **Material** Vitrified Clay Pipe **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 164.7 Ft **Year Constructed** **Year Renewed**
Up SMH TBA2 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 857 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy Structural O & M
Additional info Miscellaneous Constructional

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole
0.0		MWL			5.000					Miscellaneous Water Level
18.8		CM					11	02		Crack Multiple
164.7		AMH								Manhole
164.7		FH								End of Survey

164.7 Ft Total Length Surveyed

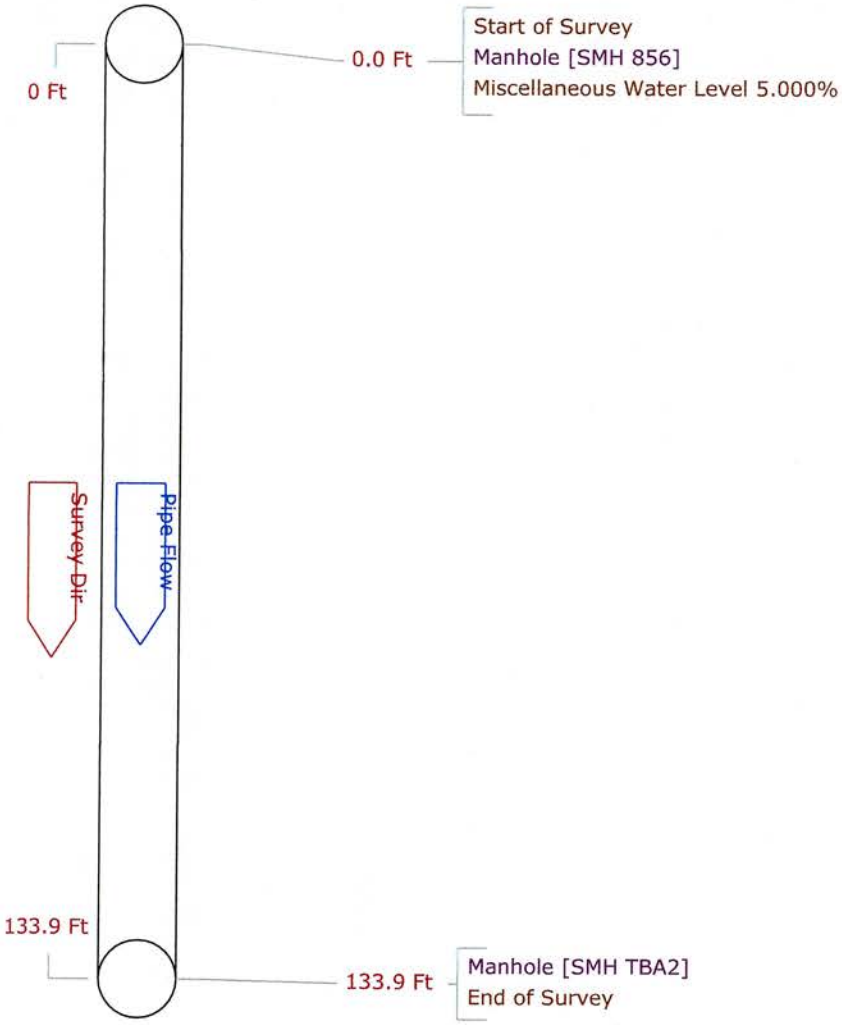
Scores	Structural	Pipe Rating	Pipe Ratings Index	Quick Rating
	Structural	Pipe Rating 3	Pipe Ratings Index 3	Quick Rating 3100
	O&M	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall	Pipe Rating 3	Pipe Ratings Index 3	Quick Rating 3100

Pipe Graphic Report of PLR SMH 856 X for Liden Engineering

Setup 6	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/08	Time 9:53	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned

Street Shattuck Rd	City Andover	Drainage area				
Location Code		Pipe Use Sanitary Sewage Pipe				
Location details		Height 8 Width ins				
Shape Circular	Material Vitrified Clay Pipe	Lining				
Coating	Pipe Joint length Ft	Total length Ft				
Length Surveyed 133.90 Ft	Year Constructed	Year Renewed				
Additional info		<table border="1"> <tr> <td>Structural</td> <td>O & M</td> </tr> <tr> <td>Miscellaneous</td> <td>Constructional</td> </tr> </table>	Structural	O & M	Miscellaneous	Constructional
Structural	O & M					
Miscellaneous	Constructional					

Up SMH 856	Rim to invert	Grade to invert	Rim to grade	Ft
Down SMH TBA2	Rim to invert	Grade to invert	Rim to grade	Ft



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Tabular Report of PSR SMH 856

for Liden Engineering

Setup	6	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	9:53	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Inspection Status	Complete Inspection	Consequence Of Failure		Pressure		Direction	Down
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other						

Street	Shattuck Rd	City	Andover	Drainage area	
Location Code		Pipe Use	Sanitary Sewage Pipe		
Location details		Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe		
Coating		Lining			
Length Surveyed	133.9 Ft	Pipe Joint length	Ft	Total length	Ft
Year Constructed		Year Renewed			
Up	SMH 856	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Down	SMH TBA2	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Coordinate System		Vertical Datum			
GPS Accuracy		Structural	O & M		
Additional info		Miscellaneous	Constructional		

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole
0.0	MWL			5.000					Miscellaneous Water Level
133.9	AMH								Manhole
133.9	FH								End of Survey

133.9 Ft Total Length Surveyed

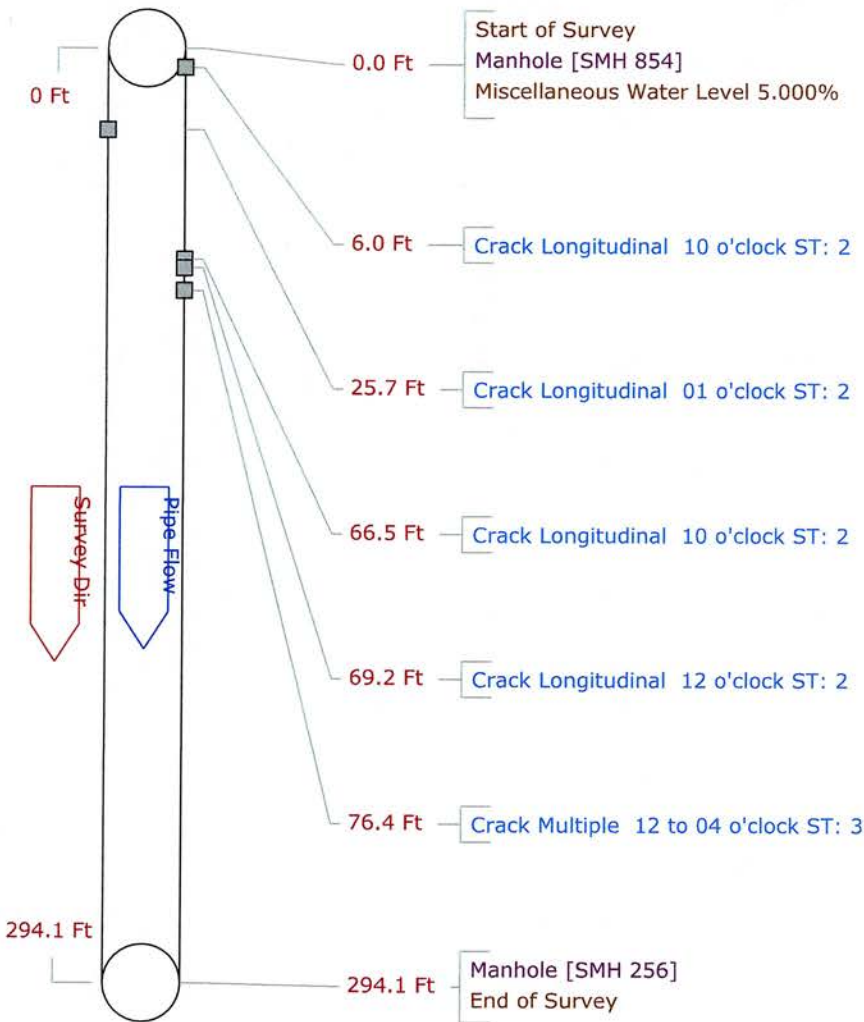
Scores	Structural:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
	O&M:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
	Overall	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000

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Pipe Graphic Report of PLR SMH 854

X for Liden Engineering

Setup	5	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	9:36	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Shattuck Rd	City	Andover	Drainage area			
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	294.10 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH 854	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 856	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 854 for Liden Engineering

Setup	5	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	9:36	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Inspection Status	Complete Inspection	Consequence Of Failure		Pressure		Direction	Down
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other						

Street	Shattuck Rd	City	Andover	Drainage area	
Location Code		Pipe Use	Sanitary Sewage Pipe		
Location details		Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe		
Coating		Lining			
		Pipe Joint length	Ft	Total length	Ft
Length Surveyed	294.1 Ft	Year Constructed		Year Renewed	
Up	SMH 854	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Down	SMH 856	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Coordinate System		Vertical Datum			
GPS Accuracy		<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional			
Additional info					

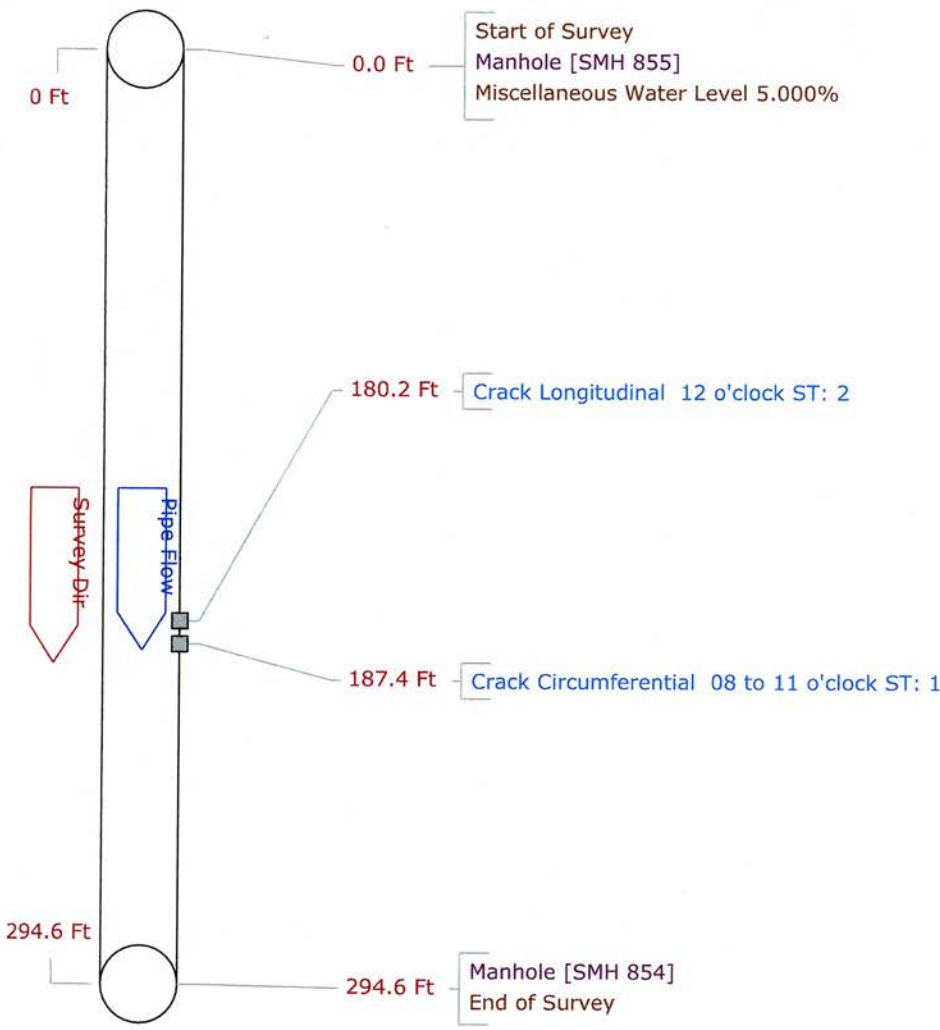
Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST Start of Survey								
0.0		AMH Manhole								SMH 854
0.0		MWL Miscellaneous Water Level			5.000					
6.0		CL Crack Longitudinal					10			
25.7		CL Crack Longitudinal					01			
66.5		CL Crack Longitudinal					10			
69.2		CL Crack Longitudinal					12			
76.4		CM Crack Multiple					12	04		
294.1		AMH Manhole								SMH 256
294.1		FH End of Survey								

294.1 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 11	Pipe Ratings Index 2.2	Quick Rating 3124
	O&M:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall	Pipe Rating 11	Pipe Ratings Index 2.2	Quick Rating 3124

Pipe Graphic Report of PLR SMH 855 X for Liden Engineering

Setup	4	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	8:33	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Shattuck Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	294.60 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 855	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 854	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 855

for Liden Engineering

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Setup	4	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	8:33	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Inspection Status	Complete Inspection	Consequence Of Failure		Pressure		Direction	Down
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other						

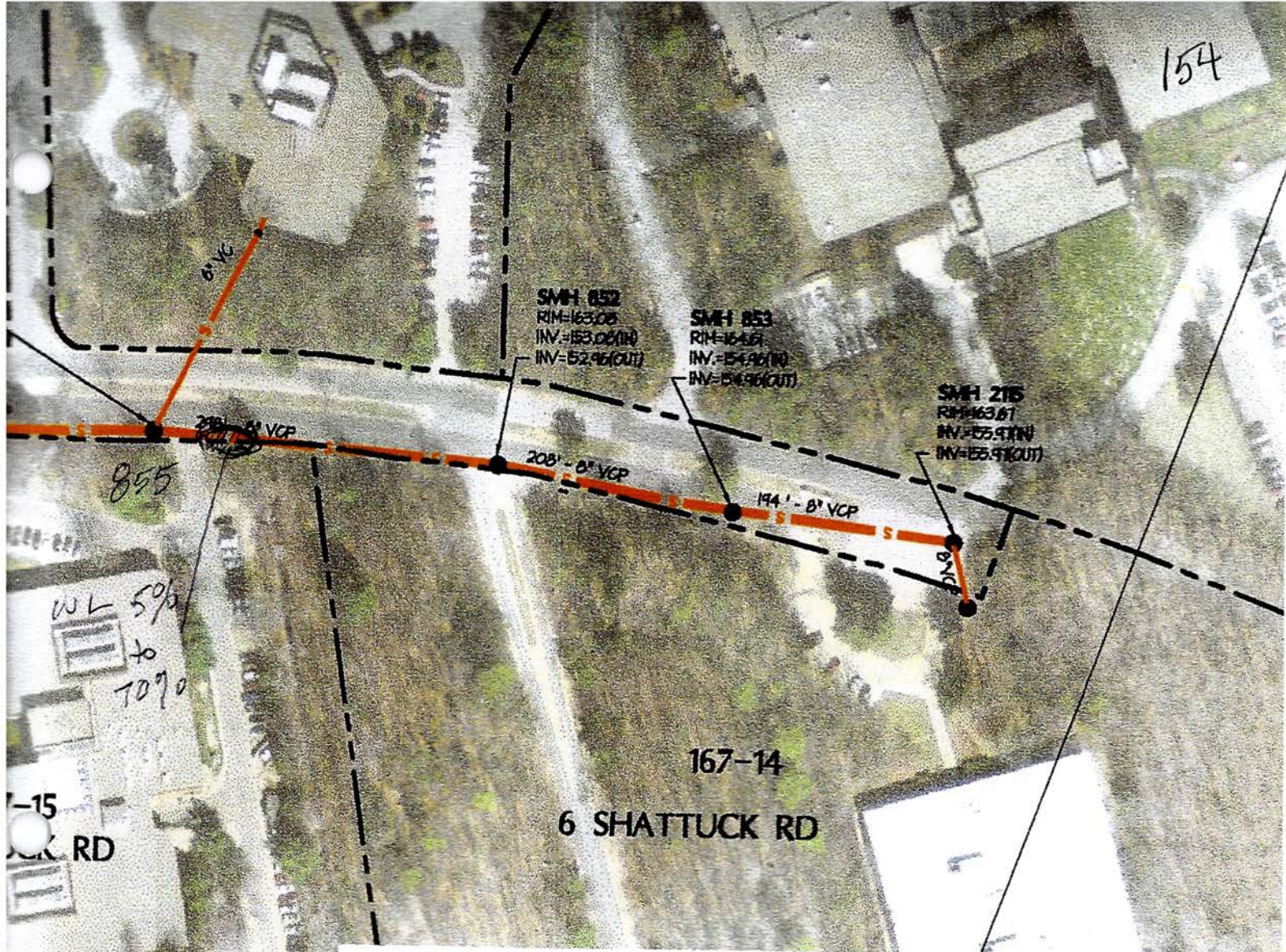
Street	Shattuck Rd	City	Andover	Drainage area	
Location Code		Pipe Use	Sanitary Sewage Pipe		
Location details		Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe		
Coating		Lining			
		Pipe Joint length	Ft	Total length	Ft
Length Surveyed	294.6 Ft	Year Constructed		Year Renewed	
Up	SMH 855	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Down	SMH 854	Rim to invert		Grade to invert	
Northing		Easting		Elevation	
Coordinate System		Vertical Datum			
GPS Accuracy					
Additional info					

Structural	O & M
Miscellaneous	Constructional

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole
0.0	MWL			5.000					Miscellaneous Water Level
180.2	CL					12			Crack Longitudinal
187.4	CC					08	11		Crack Circumferential
294.6	AMH								Manhole
294.6	FH								End of Survey

294.6 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 3	Pipe Ratings Index 1.5	Quick Rating 2111
	O&M:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall	Pipe Rating 3	Pipe Ratings Index 1.5	Quick Rating 2111



LEGEND:

- SMH Sewer Manhole
- 6" PVC
S = 0.010 Sanitary Sewer (showing size, type of pipe, slope, and direction of flow)

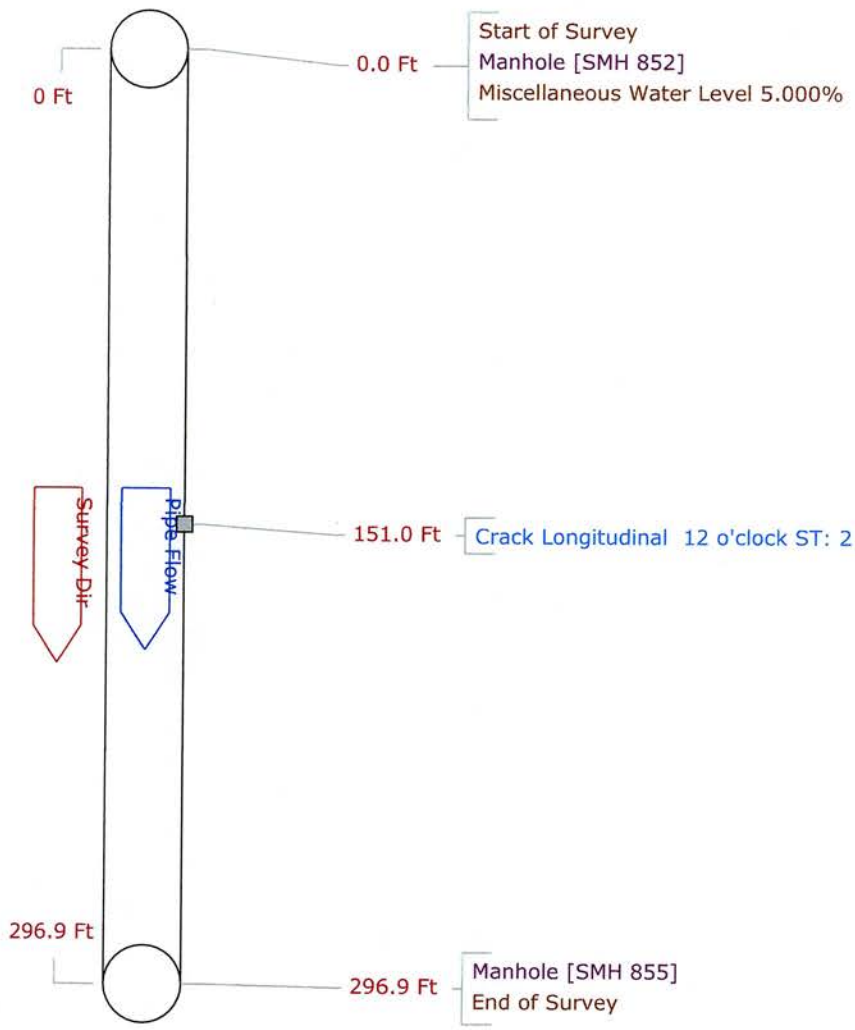
NOTES:

1. Existing conditions taken from plan entitled "Existing Conditions Plan, prepared by dated

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Pipe Graphic Report of PLR SMH 852 X for Liden Engineering

Setup	3	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	8:16	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Shattuck Rd	City	Andover	Drainage area			
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M
Length Surveyed	296.90 Ft	Year Constructed		Year Renewed			Miscellaneous Constructional
Additional info							
Up	SMH 852	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 855	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 852

for Liden Engineering

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Setup 3 Surveyed By DR Certificate # 0821-70402733 Owner
 Reviewed By Reviewer # Work Order
 Customer P/O #
 Media Label Project Liden Engineering
 Date 2021/12/08 Time 8:16 Weather Pre-Cleaning N Date Cleaned
 Flow control Survey Purpose Direction Down
 Inspection Status Complete Inspection Consequence Of Failure Pressure
 Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Shattuck Rd City Andover Drainage area
 Location Code Pipe Use Sanitary Sewage Pipe
 Location details Height 8 Width ins
 Shape Circular Material Vitrified Clay Pipe Lining
 Coating Pipe Joint length Ft Total length Ft
 Length Surveyed 296.9 Ft Year Constructed Year Renewed
 Up SMH 852 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Down SMH 855 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Coordinate System Vertical Datum
 GPS Accuracy
 Additional info Structural O & M
 Miscellaneous Constructional

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH 852
0.0	MWL			5.000					Miscellaneous Water Level
151.0	CL					12			Crack Longitudinal
296.9	AMH								Manhole SMH 855
296.9	FH								End of Survey

296.9 Ft Total Length Surveyed

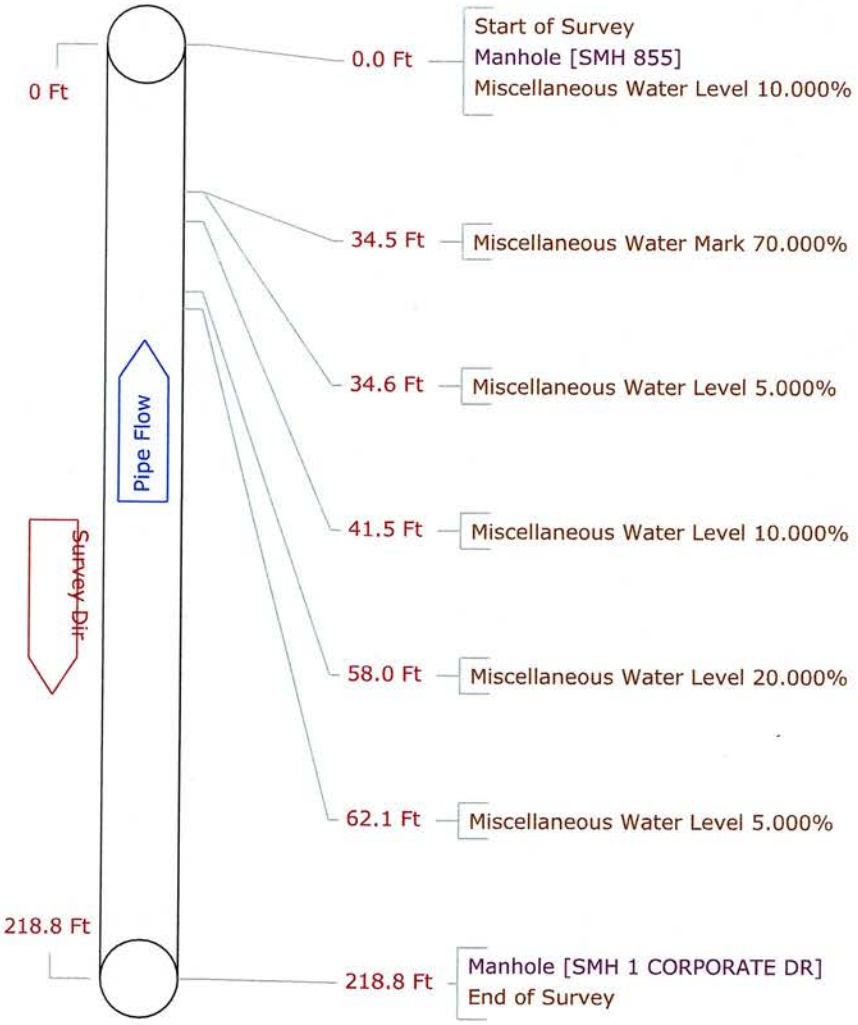
Scores	Structural: Pipe Rating 2	Pipe Ratings Index 2	Quick Rating 2100
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall Pipe Rating 2	Pipe Ratings Index 2	Quick Rating 2100

Pipe Graphic Report of PLR 1 CORPORATE DR for Liden Engineering

Setup 13	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/10	Time 7:32	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned

Street Shattuck Rd	City Andover	Drainage area				
Location Code		Pipe Use Sanitary Sewage Pipe				
Location details		Height 6 Width ins				
Shape Circular	Material Polyvinyl Chloride	Lining				
Coating	Pipe Joint length Ft	Total length Ft				
Length Surveyed 218.80 Ft	Year Constructed	Year Renewed				
Additional info		<table border="1"> <tr> <td>Structural</td> <td>O & M</td> </tr> <tr> <td>Miscellaneous</td> <td>Constructional</td> </tr> </table>	Structural	O & M	Miscellaneous	Constructional
Structural	O & M					
Miscellaneous	Constructional					

Up SMH 1 CORPORATE DR	Rim to invert	Grade to invert	Rim to grade	Ft
Down SMH 855	Rim to invert	Grade to invert	Rim to grade	Ft



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Tabular Report of PSR 1 CORPORATE DR for Liden Engineering

Setup 13 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/10 **Time** 7:32 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Up
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Shattuck Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 6 **Width** ins
Shape Circular **Material** Polyvinyl Chloride **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 218.8 Ft **Year Constructed** **Year Renewed**
Up SMH 1 CORPORATE DR **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 855 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy **Additional info** Structural O & M
 Miscellaneous Constructional

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole
0.0		MWL			10.000					Miscellaneous Water Level
34.5		MWM			70.000					Miscellaneous Water Mark
34.6		MWL			5.000					Miscellaneous Water Level
41.5		MWL			10.000					Miscellaneous Water Level
58.0		MWL			20.000					Miscellaneous Water Level
62.1		MWL			5.000					Miscellaneous Water Level
218.8		AMH								Manhole
218.8		FH								End of Survey

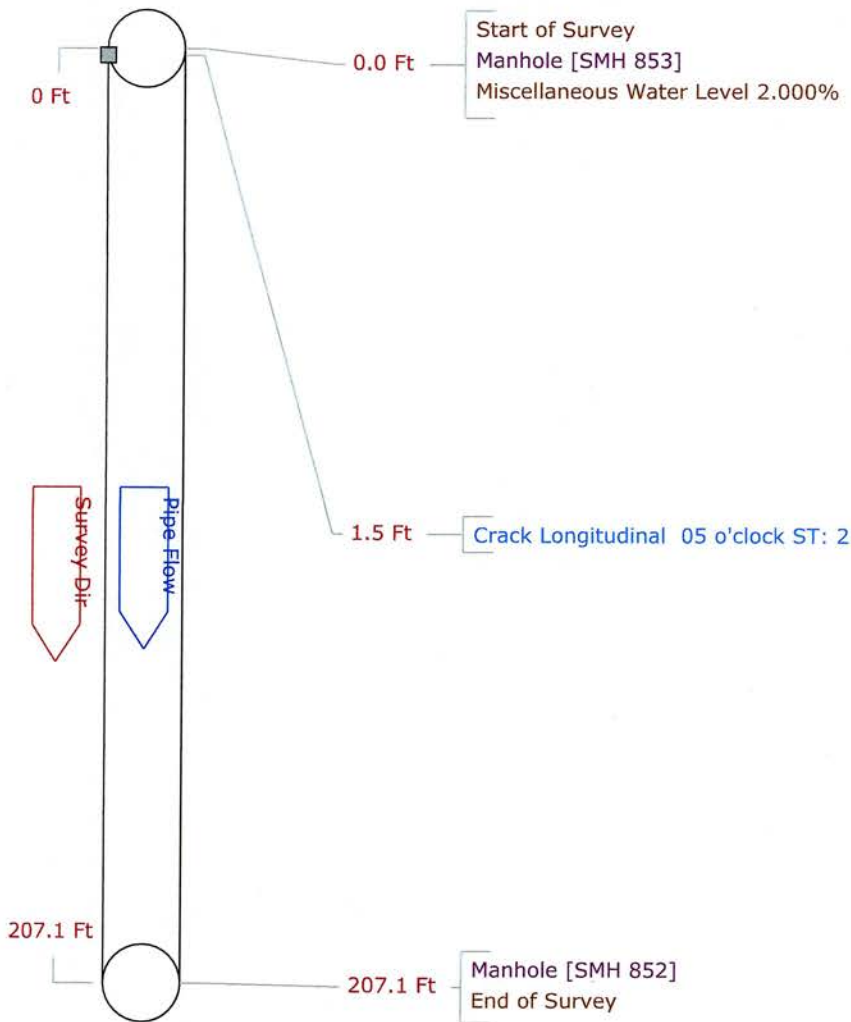
218.8 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
	O&M:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
	Overall	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000

Pipe Graphic Report of PLR SMH 853

X for Liden Engineering

Setup	2	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	8:04	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Shattuck Rd	City	Andover	Drainage area			
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	207.10 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH 853	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 852	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 853 for Liden Engineering

Setup 2 Surveyed By DR Certificate # 0821-70402733 Owner
 Reviewed By Reviewer # Work Order
 Customer P/O #
 Media Label Project Liden Engineering
 Date 2021/12/08 Time 8:04 Weather Pre-Cleaning N Date Cleaned
 Flow control Survey Purpose Direction Down
 Inspection Status Complete Inspection Consequence Of Failure Pressure
 Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Shattuck Rd City Andover Drainage area
 Location Code Pipe Use Sanitary Sewage Pipe
 Location details Height 8 Width ins
 Shape Circular Material Vitrified Clay Pipe Lining
 Coating Pipe Joint length Ft Total length Ft
 Length Surveyed 207.1 Ft Year Constructed Year Renewed
 Up SMH 853 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Down SMH 852 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Coordinate System Vertical Datum
 GPS Accuracy
 Additional info

Structural	O & M
Miscellaneous	Constructional

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0	ST Start of Survey								
0.0	AMH Manhole								SMH 853
0.0	MWL Miscellaneous Water Level			2.000					
1.5	CL Crack Longitudinal					05			
207.1	AMH Manhole								SMH 852
207.1	FH End of Survey								

207.1 Ft Total Length Surveyed

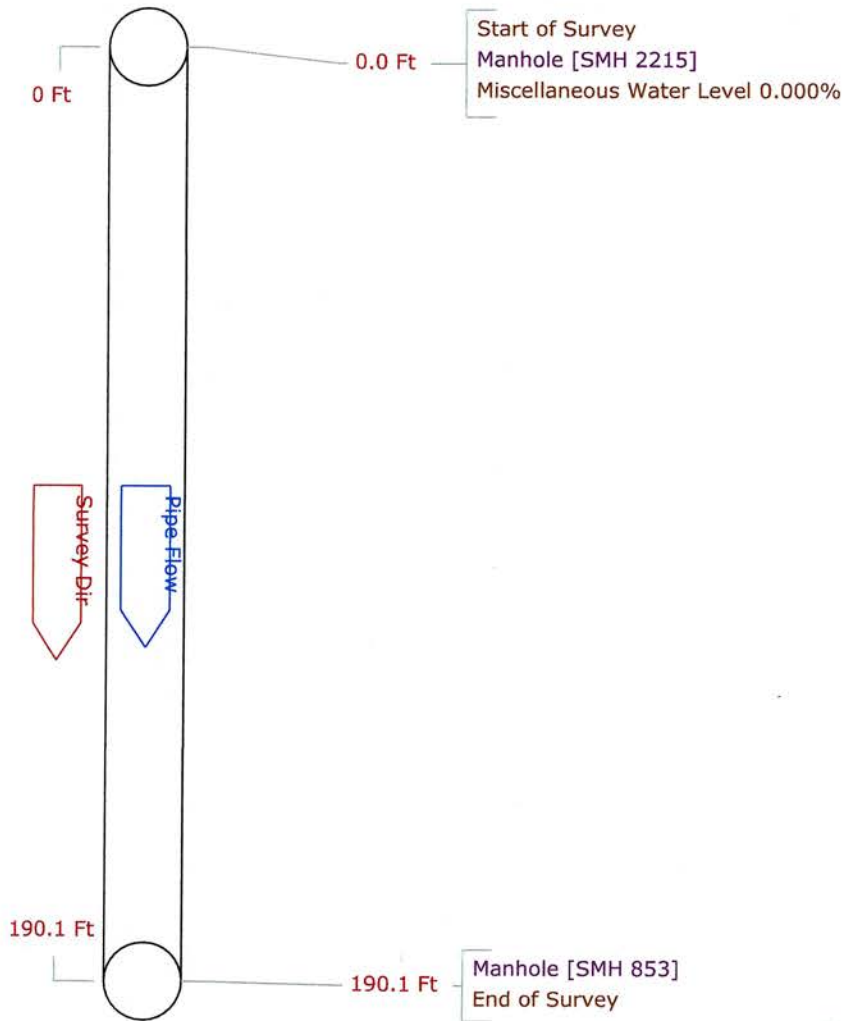
Scores	Structural: Pipe Rating	2	Pipe Ratings Index	2	Quick Rating	2100
	O&M: Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
	Overall Pipe Rating	2	Pipe Ratings Index	2	Quick Rating	2100

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Pipe Graphic Report of PLR SMH 2215

X for Liden Engineering

Setup	1	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/08	Time	7:53	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	Shattuck Rd	City	Andover	Drainage area			
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	8	Width	ins
Shape	Circular	Material	Vitrified Clay Pipe	Lining			
Coating		Pipe Joint length		Ft	Total length	Ft	Structural O & M Miscellaneous Constructional
Length Surveyed	190.10 Ft	Year Constructed		Year Renewed			
Additional info							
Up	SMH 2215	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 853	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 2215

for Liden Engineering

Setup 1 Surveyed By DR Certificate # 0821-70402733 Owner
 Reviewed By Reviewer # Work Order
 Customer P/O #
 Media Label Project Liden Engineering
 Date 2021/12/08 Time 7:53 Weather Pre-Cleaning N Date Cleaned
 Flow control Survey Purpose Direction Down
 Inspection Status Complete Inspection Consequence Of Failure Pressure
 Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street Shattuck Rd City Andover Drainage area
 Location Code Pipe Use Sanitary Sewage Pipe
 Location details Height 8 Width ins
 Shape Circular Material Vitrified Clay Pipe Lining
 Coating Pipe Joint length Ft Total length Ft
 Length Surveyed 190.1 Ft Year Constructed Year Renewed
 Up SMH 2215 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Down SMH 853 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Coordinate System Vertical Datum
 GPS Accuracy
 Additional info Structural O & M
 Miscellaneous Constructional

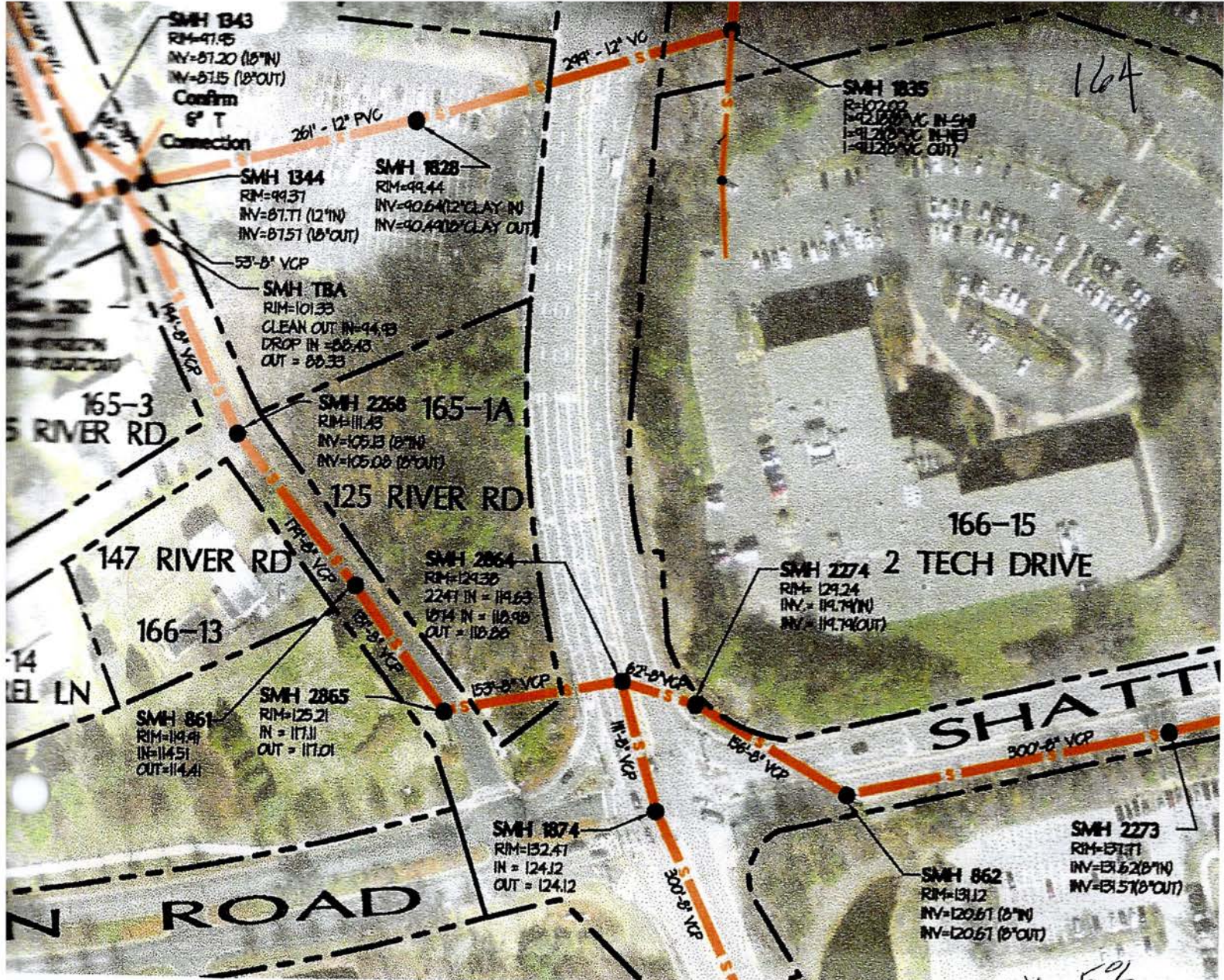
Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole
0.0		MWL			0.000					Miscellaneous Water Level
190.1		AMH								Manhole
190.1		FH								End of Survey

190.1 Ft Total Length Surveyed

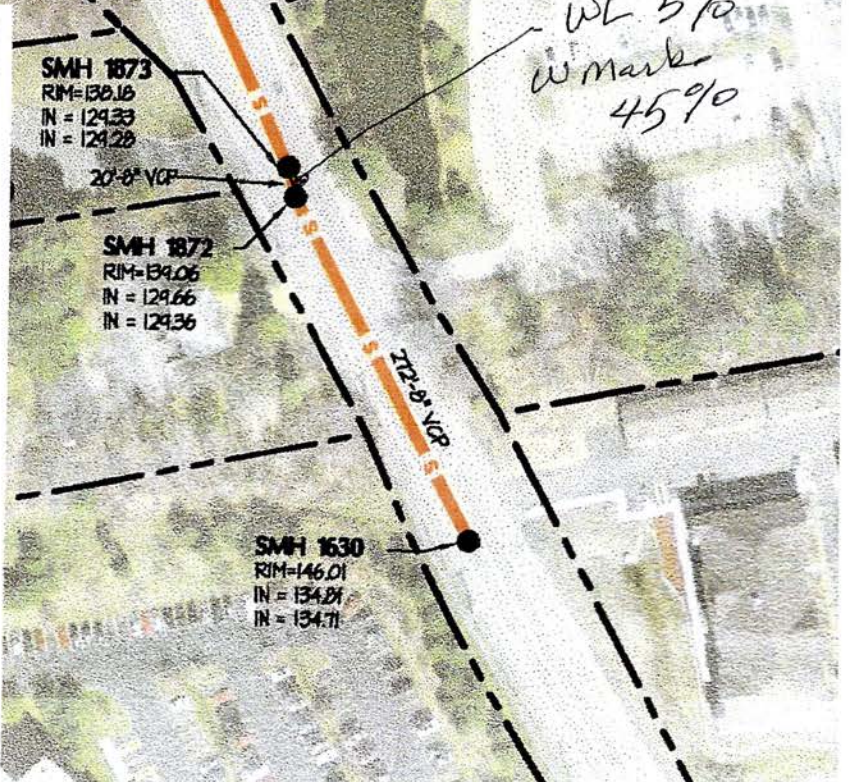
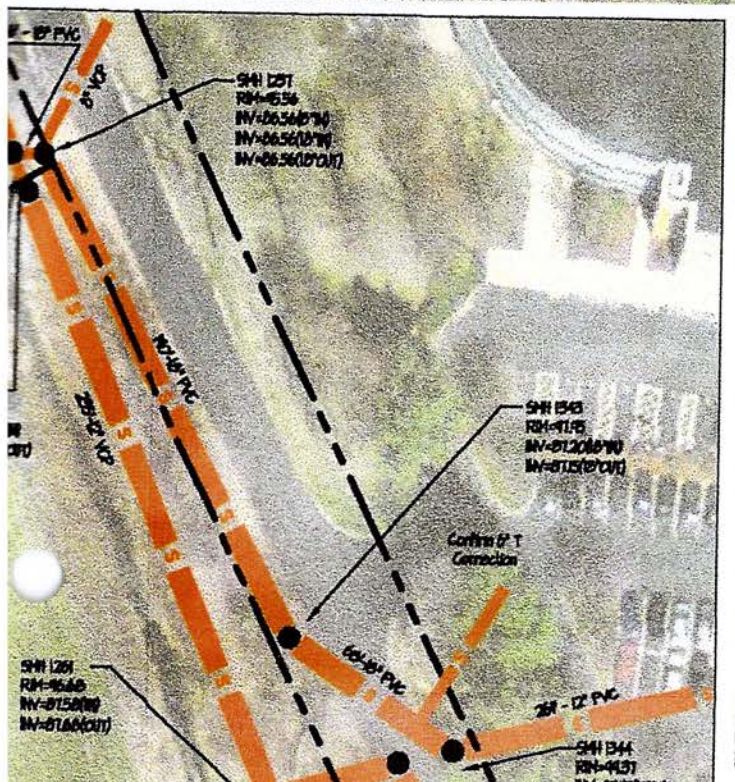
Scores

Structural:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
O&M:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
Overall:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000

SEWER LINE C-1



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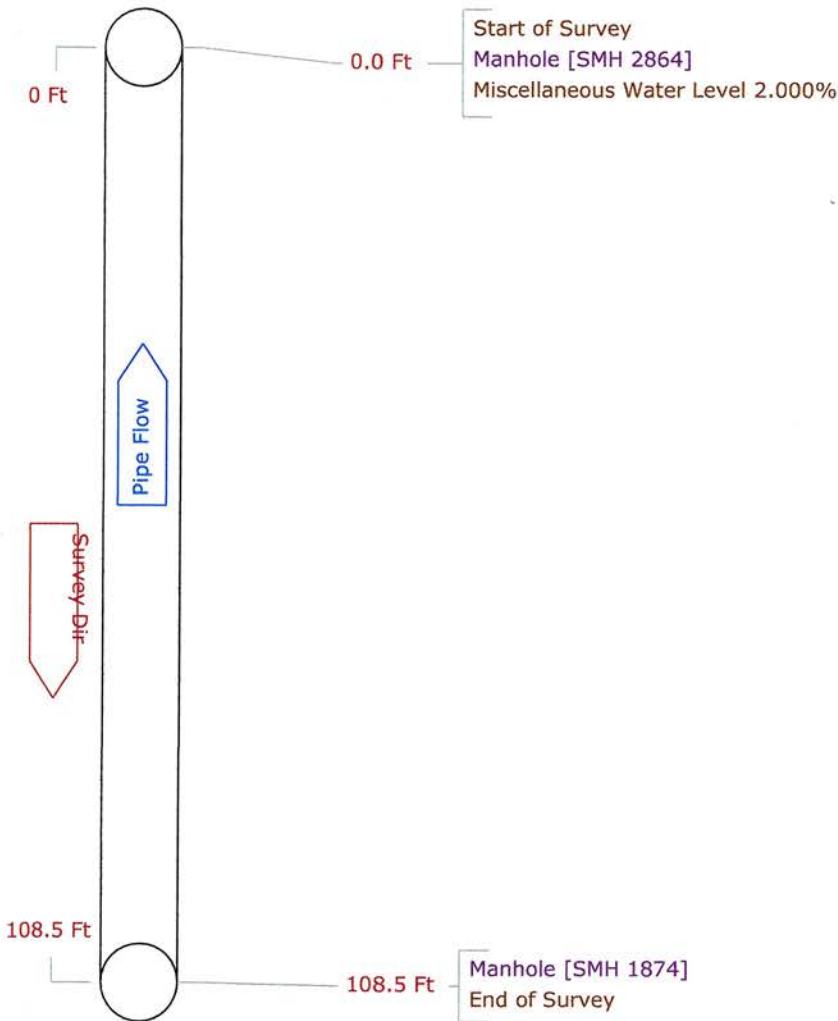
WL 5%
w mark
45%

165

Pipe Graphic Report of PLR SMH 1874

G for Liden Engineering

Setup	61	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/28	Time	8:22	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	River Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Polyvinyl Chloride	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	108.50 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 1874	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 2864	Rim to invert		Grade to invert		Rim to grade	Ft



Tabular Report of PSR SMH 1874

for Liden Engineering

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Setup 61	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/28	Time 8:22	Weather	Pre-Cleaning N Date Cleaned
Flow control	Survey Purpose		Direction Up
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		
Street River Rd	City Andover	Drainage area	
Location Code		Pipe Use Sanitary Sewage Pipe	
Location details		Height 8 Width ins	
Shape Circular	Material Polyvinyl Chloride	Lining	
Coating	Pipe Joint length Ft	Total length Ft	
Length Surveyed 108.5 Ft	Year Constructed	Year Renewed	
Up SMH 1874	Rim to invert	Grade to invert	Rim to grade Ft
Northing	Easting	Elevation	
Down SMH 2864	Rim to invert	Grade to invert	Rim to grade Ft
Northing	Easting	Elevation	
Coordinate System	Vertical Datum		
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional		
Additional info			

Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST Start of Survey								
0.0		AMH Manhole								SMH 2864
0.0		MWL Miscellaneous Water Level			2.000					
108.5		AMH Manhole								SMH 1874
108.5		FH End of Survey								

108.5 Ft Total Length Surveyed

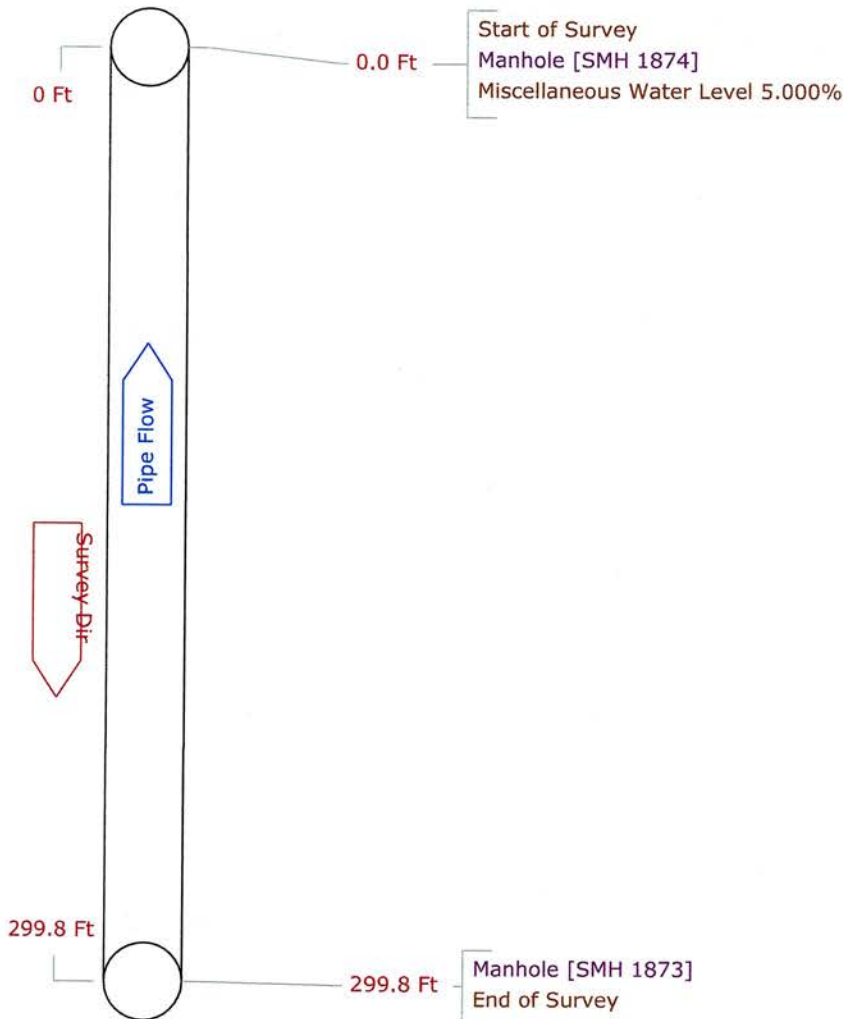
Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

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Pipe Graphic Report of PLR SMH 1873

G for Liden Engineering

Setup	62	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/28	Time	8:29	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	River Rd	City	Andover			Drainage area	
Location Code				Pipe Use		Sanitary Sewage Pipe	
Location details				Height	8	Width	ins
Shape	Circular	Material	Polyvinyl Chloride	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	299.80 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 1873	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1874	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 1873 for Liden Engineering

Setup 62 **Surveyed By** DR **Certificate #** 0821-70402733 **Owner**
Reviewed By **Reviewer #** **Work Order**
Customer **P/O #**
Media Label **Project** Liden Engineering
Date 2021/12/28 **Time** 8:29 **Weather** **Pre-Cleaning** N **Date Cleaned**
Flow control **Survey Purpose** **Direction** Up
Inspection Status Complete Inspection **Consequence Of Failure** **Pressure**
Inspection Technology Used

<input type="checkbox"/> CCTV	<input type="checkbox"/> Laser	<input type="checkbox"/> Sonar	<input type="checkbox"/> Sidewall	<input type="checkbox"/> Zoom	<input type="checkbox"/> Other
-------------------------------	--------------------------------	--------------------------------	-----------------------------------	-------------------------------	--------------------------------

Street River Rd **City** Andover **Drainage area**
Location Code **Pipe Use** Sanitary Sewage Pipe
Location details **Height** 8 **Width** ins
Shape Circular **Material** Polyvinyl Chloride **Lining**
Coating **Pipe Joint length** Ft **Total length** Ft
Length Surveyed 299.8 Ft **Year Constructed** **Year Renewed**
Up SMH 1873 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Down SMH 1874 **Rim to invert** **Grade to invert** **Rim to grade** Ft
Northing **Easting** **Elevation**
Coordinate System **Vertical Datum**
GPS Accuracy
Additional info

Structural	O & M
Miscellaneous	Constructional

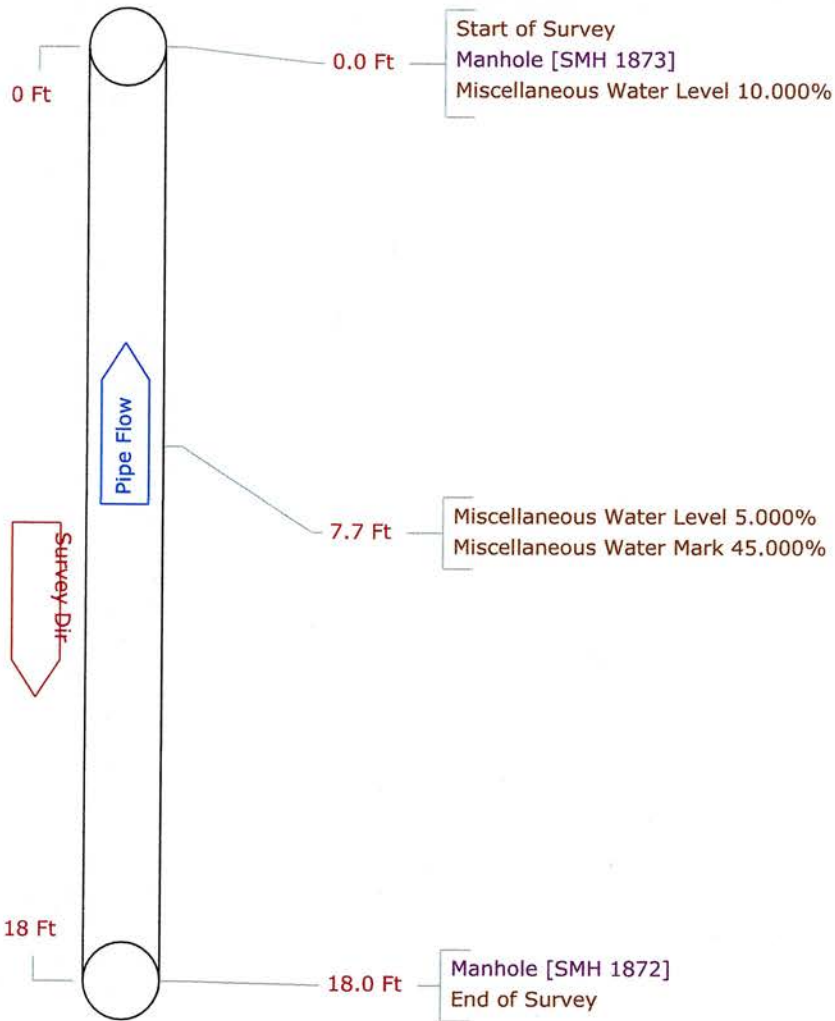
Count	Video	CD Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST								Start of Survey
0.0		AMH								Manhole
0.0		MWL			5.000					Miscellaneous Water Level
299.8		AMH								Manhole
299.8		FH								End of Survey

299.8 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
	O&M:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
	Overall	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000

Pipe Graphic Report of PLR SMH 1872 G for Liden Engineering

Setup	63	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/28	Time	8:41	Weather		Pre-Cleaning N	Date Cleaned
Flow control		Survey Purpose					Direction Upstream
Street	River Rd	City	Andover			Drainage area	
Location Code				Pipe Use	Sanitary Sewage Pipe		
Location details				Height	8	Width	ins
Shape	Circular	Material	Polyvinyl Chloride	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	18.00 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 1872	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1873	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 1872 for Liden Engineering

Setup 63	Surveyed By DR	Certificate # 0821-70402733	Owner
Reviewed By	Reviewer #	Work Order	
Customer		P/O #	
Media Label	Project Liden Engineering		
Date 2021/12/28	Time 8:41	Weather	Pre-Cleaning N
Flow control	Survey Purpose		Date Cleaned
Inspection Status Complete Inspection	Consequence Of Failure	Pressure	Direction Up
Inspection Technology Used	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		

Street River Rd	City Andover	Drainage area
Location Code	Pipe Use Sanitary Sewage Pipe	
Location details	Height 8	Width ins
Shape Circular	Material Polyvinyl Chloride	Lining
Coating	Pipe Joint length Ft	Total length Ft
Length Surveyed 18.0 Ft	Year Constructed	Year Renewed
Up SMH 1872	Rim to invert	Grade to invert
Northing	Easting	Elevation
Down SMH 1873	Rim to invert	Grade to invert
Northing	Easting	Elevation
Coordinate System	Vertical Datum	
GPS Accuracy	<input type="checkbox"/> Structural <input type="checkbox"/> O & M	
Additional info	<input type="checkbox"/> Miscellaneous <input type="checkbox"/> Constructional	

Count Video	CD Code	Val1	Val2	%	Jnt	Fr	To	lmRef	Remarks
0.0	ST								Start of Survey
0.0	AMH								Manhole SMH 1873
0.0	MWL			10.000					Miscellaneous Water Level
7.7	MWL			5.000					Miscellaneous Water Level
7.7	MWM			45.000					Miscellaneous Water Mark
18.0	AMH								Manhole SMH 1872
18.0	FH								End of Survey

18.0 Ft Total Length Surveyed

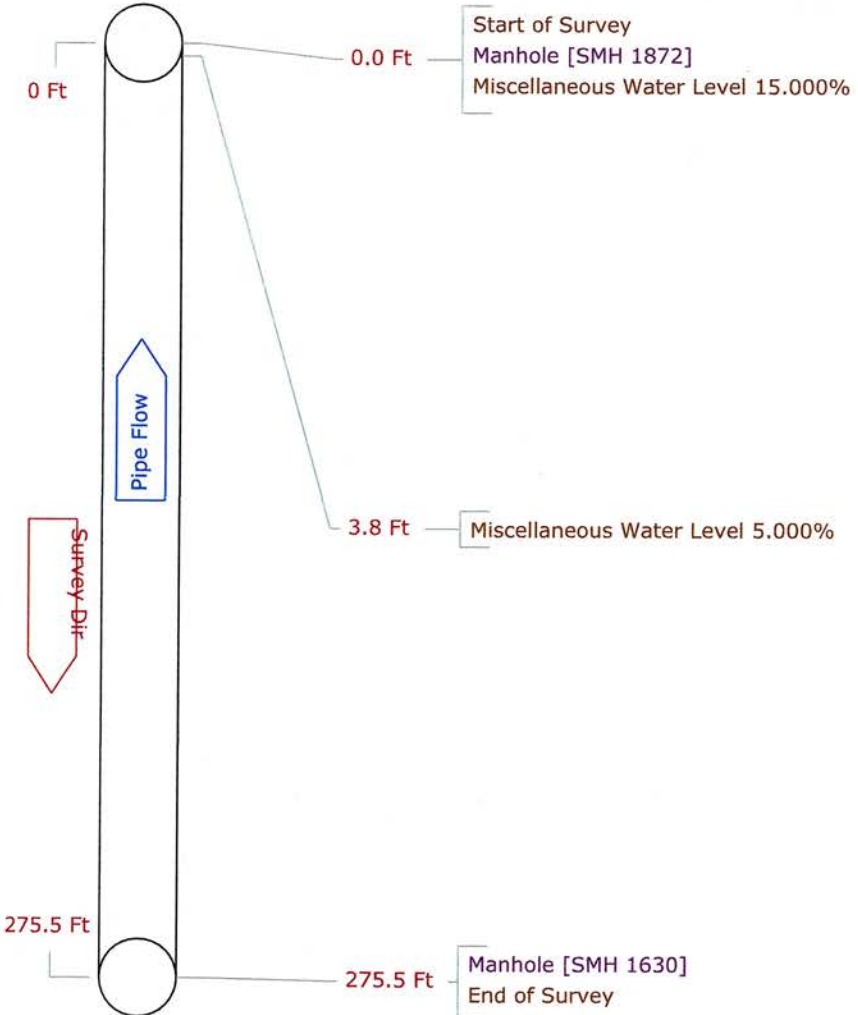
Scores	Structural: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M: Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	Overall Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000

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Pipe Graphic Report of PLR SMH 1630

G for Liden Engineering

Setup	64	Surveyed By	DR	Certificate #	0821-70402733	Owner	
Reviewed By		Reviewer #		Work Order			
Customer				P/O #			
Media Label		Project	Liden Engineering				
Date	2021/12/28	Time	8:46	Weather		Pre-Cleaning	N
Flow control		Survey Purpose				Date Cleaned	
Street	River Rd	City	Andover	Drainage area			
Location Code		Pipe Use	Sanitary Sewage Pipe				
Location details		Height	8	Width	ins		
Shape	Circular	Material	Polyvinyl Chloride	Lining			
Coating		Pipe Joint length	Ft	Total length	Ft	Structural	O & M
Length Surveyed	275.50 Ft	Year Constructed		Year Renewed		Miscellaneous	Constructional
Additional info							
Up	SMH 1630	Rim to invert		Grade to invert		Rim to grade	Ft
Down	SMH 1872	Rim to invert		Grade to invert		Rim to grade	Ft



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Tabular Report of PSR SMH 1630 for Liden Engineering

Setup 64 Surveyed By DR Certificate # 0821-70402733 Owner
 Reviewed By Reviewer # Work Order
 Customer P/O #
 Media Label Project Liden Engineering
 Date 2021/12/28 Time 8:46 Weather Pre-Cleaning N Date Cleaned
 Flow control Survey Purpose Direction Up
 Inspection Status Complete Inspection Consequence Of Failure Pressure
 Inspection Technology Used CCTV Laser Sonar Sidewall Zoom Other

Street River Rd City Andover Drainage area
 Location Code Pipe Use Sanitary Sewage Pipe
 Location details Height 8 Width ins
 Shape Circular Material Polyvinyl Chloride Lining
 Coating Pipe Joint length Ft Total length Ft
 Length Surveyed 275.5 Ft Year Constructed Year Renewed
 Up SMH 1630 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Down SMH 1872 Rim to invert Grade to invert Rim to grade Ft
 Northing Easting Elevation
 Coordinate System Vertical Datum
 GPS Accuracy
 Additional info Structural O & M
Miscellaneous Constructional

Count	Video	CD	Code	Val1	Val2	%	Jnt	Fr	To	ImRef	Remarks
0.0		ST	Start of Survey								
0.0		AMH	Manhole								SMH 1872
0.0		MWL	Miscellaneous Water Level			15.000					
3.8		MWL	Miscellaneous Water Level			5.000					
275.5		AMH	Manhole								SMH 1630
275.5		FH	End of Survey								

275.5 Ft Total Length Surveyed

Scores

Structural:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
O&M:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000
Overall:	Pipe Rating	0	Pipe Ratings Index	0	Quick Rating	0000