



CITY OF HAVELOCK

Post Office Box 368
Havelock, NC 28532

INVITATION TO BID

Pursuant to North Carolina General Statutes §143-131, the City of Havelock invites informal bids on the following:

Bids must be submitted in accordance with the attached specifications. Bids must include an itemized schedule (including quantity, unit price and total) for each work element. Bids can be submitted by mail, email, fax or hand delivered. Cover sheets, envelopes, etc. should be clearly marked with the words:

“City of Havelock 2017 Sewer Repairs”

Address Bids to: **Lee Tillman, Director of Finance**
 City of Havelock
 P.O. Box 368
 1 Governmental Ave.
 Havelock, NC 28532
 Fax 252-447-0126
 Email: Ltillman@havelocknc.us

Bids will be accepted until **2:00 PM (EST) on Thursday, November 9, 2017** at which time they will be reviewed in the office of the City Finance Director. Quotes are not subject to public inspection until the contract is awarded. The bids are good for 75 days after opening.

Bidders are cautioned not to submit bids until the proposed requirements and specifications have been carefully examined. It will be considered that bidders will have satisfied themselves as to the accuracy of the specifications. No proposal will be considered unless prices are submitted for all items requested in any section. The City reserves the right to change the amount of quantities. Bidders are reminded that the City requires they be compliant with the Iran Divestment Act – N.C.G.S. 147-86.55-69.

The names of certain brands or makes denote quality standard in the article desired, but do not restrict bidders to the specific brand, make or manufacturer named. They are meant to convey to prospective bidders the general style, type, character and quality of the article desired.

The successful bidder on all construction contracts will be required to conduct the operation in accordance with all Federal, State, and Municipal health and safety rules, regulations and laws applicable to the operation. The successful bidder may be asked to provide the City with a copy of the company's safety plan prior to commencing work. For all projects over \$30,000, a general contractor's license must be furnished to the City if applicable.



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N.C.G.S. (North Carolina General Statutes), specifically §160A-20.1(b), prohibit the City from entering into contracts with contractors and subcontractors who have not complied with the requirement of Article 2 of Chapter 64. The Contractor shall submit the E-Verify Affidavit, located in the Bid Proposal section, with their bid. Bids that do not include this Affidavit will be considered non-responsive.

The City of Havelock reserves the right to reject any or all proposals and to purchase items from the state contract in the efforts to award the contract to the bidder it deems to be for the best interest of the City.

This institution is an equal opportunity provider, and employer.

Contact person(s) for information on this bid:

For questions in regards to the bid specifications, the City requires and only responds to questions submitted in writing and sent via email to: njohnson@hazenandsawyer.com

Questions must be received by **3:00 PM (EST) on Monday, October 30, 2017**. If questions are received, the City will respond no later than **5:00 PM (EST) on Thursday, November 2, 2017**.

Today is October 17, 2017.

CITY OF HAVELOCK

Lee W. Tillman
Finance Director



**STATE OF NORTH CAROLINA
AFFIDAVIT
CITY OF HAVELOCK**

I, _____ (the individual attesting below), being duly authorized by and on behalf of _____ (the entity hereinafter "Employer") after first being duly sworn hereby swears or affirms as follows:

1. Employer understands that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with NCGS §64-25(5).
2. Employer understands that Employers Must Use E-Verify. Each employer, after hiring an employee to work in the United States, shall verify the work authorization of employee through E-Verify in accordance with NCGS §64-26(a).
3. Employer is a person, business entity, or other organization that transacts business in the State and that employs 25 or more employees in this State. (mark Yes or No)
 - a. YES _____, or
 - b. NO _____
4. Employer's subcontractors comply with E-Verify, and if Employer is the winning bidder on this project Employer will ensure compliance with E-Verify by any subcontractors subsequently hired by Employer.

This _____ day of _____, 20____.

Signature of Affiant
Print or Type Name: _____

State of North Carolina County of _____

Signed and sworn to (or affirmed) before me, this the
_____ day of _____, 20____.

Signature of Notary Printed Name of Notary

My Commission Expires: _____

Bid Sheet

Base Bid: _____

Bids must include an itemized schedule by quantity, unit price and total for each work element.

Company Name: _____

Company Address: _____

Contact Person: _____

Telephone Number: _____

NC Contractor's License Type and Number _____

Number of Addendums Acknowledged (circle one): N/A 1 2 3 4

As of the date listed below, the vendor or bidder listed above is compliant with the Iran Divestment Act - N.C.G.S. 147-86.55-69.

Authorized Signature: _____

Print Name of Authorized Signature: _____

Title: _____

Address Bid to:
Lee Tillman, Director of Finance
City of Havelock
P.O. Drawer 368
1 Governmental Avenue
Havelock, NC 28532

Please indicate the Bid name on the outside of the envelope.

Havelock, NC
2017 Sewer Repairs
Proposal

BIDDER _____

DATE OF BID _____, 2017

Basis of Bid

A Lump Sum Price for furnishing all materials, labor, equipment, supervision and all else necessary for complete each of the individual project areas listed below.

A. Project Area 1, Repair between MHG160 and G161 (in words and figures):

_____ Dollars and _____ Cents
(\$ _____)

B. Project Area 2, Repair between MHG270 and MHG272 (in words and figures):

_____ Dollars and _____ Cents
(\$ _____)

C. Project Area 3, Repairs at MHP36 (in words and figures):

_____ Dollars and _____ Cents
(\$ _____)

Total for BASE BID Project Areas 1, 2, and 3, (in words and figures):

_____ Dollars and _____ Cents
(\$ _____)

Bidder must completely fill in the City of Havelock Bid Sheet. The Base Bid is the total of Project Areas 1, 2, and 3.

2017 Sewer Repairs
Scope of Work



1. Summary of Work

A. The work for this project is in three separate locations within the City of Havelock sewer collection system:

- 1) Point repair between manholes G160 and G161 approximately 184 feet northeast of manhole G160, as shown on Figure 1. Point repair includes replacement of a service lateral connection.
- 2) Point repair between manholes G270 and G272 approximately 350 feet southeast of manhole G272, as shown on Figure 2. Point repair includes grouting the annular space between the host pipe and HDPE liner to seal a hole in the HDPE liner.
- 3) Manhole and sewer replacement in the vicinity of manhole P36 as shown on Figure 3, Drawing C-1 and Drawing D-1.

B. Table 1 summarizes the defects, approximate location, and required work at each location. Inspection reports for the sections of pipe that were previously cleaned are included with this scope of work. Copies of the CCTV inspections can be requested from the owner.

C. Contractor shall be responsible for locating existing utilities.

2. Sewer Materials Materials

A. PVC Gravity Sewer Pipe

1. For existing Vitrified Clay Pipe: Replace damaged section with PVC gravity pipe, SDR 35 minimum. Gravity sewer pipe shall be in conformance with ASTM D3034.
2. PVC Service Lateral, Pipe, and Fittings: ASTM D 1785, Schedule 40 pipe, with plain ends for solvent-cemented joints with ASTM D 2466, Schedule 40, socket-type fittings.

B. Nonpressure-type Pipe Couplings

1. Couplings for joining PVC gravity sewer pipe to existing clay pipe shall be solid sleeve type suitable for all types of pipe. Material shall be ductile iron with gaskets suitable for sewer service. Coupling shall be Hymax Coupling or equal.

C. Grout

1. Chemical grout shall be water or acrylate based manufactured for use in sewer for filling the annular space between a liner and host pipe. Grout shall be injectable and able to react/cure in the presence of groundwater and sewage. Cured grout must be non-biodegradable and shall be able to withstand submergence in water without degradation.
2. Grout shall be Avanti AV-100 or Avanti AV-160, or equal.

3. Manholes

- A. Standard Precast Concrete Manholes: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for sealant joints.
 - 1. Base Section: Flanged, with integrally cast wall section.
 - 2. Riser Sections: Section lengths to provide depth indicated.
 - 3. Top Section: Eccentric-cone type, unless concentric-cone or flat-slab-top type is indicated. Top of cone of size that matches grade rings.
 - 4. Joint Sealant: ASTM C 990, bitumen or butyl rubber.
 - 5. Resilient Pipe Connectors: ASTM C 923, cast or fitted into manhole walls, for each pipe connection.
 - 6. Adjusting Rings: Interlocking rings with level or sloped edge in thickness and diameter matching manhole frame and cover. Include sealant recommended by ring manufacturer.
 - 7. Grade Rings: Reinforced-concrete rings, 6- to 9-inch total thickness, to match diameter of manhole frame and cover.
 - 8. Manhole Frames and Covers: Ferrous; 24-inch nominal ID by 7- to 9-inch riser with 4-inch- minimum width flange and 26-inch- diameter solid cover (no pick holes). Include indented top design with lettering cast into cover, using wording equivalent to "SANITARY SEWER."
 - i. Material: ASTM A 536, Grade 60-40-18 ductile iron, unless otherwise indicated.
 - ii. Protective Coating: Foundry-applied, SSPC-Paint 16, coal-tar, epoxy-polyamide paint; 10-mil minimum thickness applied to all surfaces, unless otherwise indicated.

4. Dewatering

- A. The Contractor shall dewater as required for the completion of the work. All water removed by dewatering operations shall be disposed of in accordance with the North Carolina Sedimentation Pollution Control Act.

5. Excavation and Shoring

- A. The Contractor is responsible for the design and protection of all excavation and shoring. Any shoring shall be designed and sealed by a professional engineer registered in the State of North Carolina

6. Backfill and Compaction

- A. Compaction for manholes and pipe shall be to 98% Standard Proctor.
- B. Backfill shall be completed in maximum lifts of 8 inches.

7. Erosion and Sediment Control and Surface Restoration

- A. The Contractor shall be responsible for the installation and maintenance of all erosion and sediment control in accordance with the NC Erosion and Sediment Control Manual.

- B. Construction activities shall be completed in such a manner that erosion of disturbed areas and off-site sedimentation is absolutely minimized.
- C. All disturbed areas shall be restored as soon as construction is complete. Seed type shall match existing grass in maintained areas. Follow the NC Erosion and Sediment Control Manual for seeding.
- D. Rolled erosion control matting shall be used to stabilize all disturbed slopes.

8. Bypass Pumping

- A. Bypass pumping will be required to allow for point repairs and manhole replacement. Flows in much of the system are such that repairs cannot be completed without a bypass pump system in operation.
- B. The Contractor is required to design and furnish all materials, labor, equipment, power, fuel, fuel storage, maintenance, etc. to implement a temporary pumping system for the purpose of diverting the existing flow around the work area on a daily basis, for the duration of the project. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction. Contractor shall also be responsible for any fines imposed by local, state, and/or federal agencies for failure to maintain flows or contain spills and/or overflows.
- C. Continuous bypass pumping is allowed in all project areas. Bypass pumping operation must be manned or be set up with floats and automatic on/off mode at all times that pumps are operating. Bypass pumping shall not be allowed to occur during weekends and holidays unless the Contractor receives approval to work during those times and said work requires temporary bypass pumping. When possible, bypass systems shall be removed prior to rain events so that no portion of the bypass system impedes the flow of the sewer.
- D. The minimum pumping capacity of the bypass pumps should match the table below for the diameter of pipe being bypassed:

Pipe Diameter	Pump Capacity
8" – 10"	1500 gpm
15"	2000 gpm

- E. For each size pump, Contractor shall have on-hand, a minimum of one spare standby pump with the minimum pumping capacity required.
- F. Contractor shall be responsible for the maintenance and operation of the bypass pumping for the duration of the installation. Overflows that occur shall be the responsibility of the contractor including cleanup and any fines assessed or damages caused to private or public property.

9. Bore and Jack

- A. The casing pipe shall be smooth wall or spiral welded steel pipe, minimum thickness

of 0.25 inches. Casing pipe shall be leak-proof construction and be capable of withstanding highway loadings. Casing pipe shall be manufactured from steel having a minimum yield stress strength of 35,000 psi. Actual thickness shall be determined and certified after design by the Contractor. All joints shall be butt welded with a full depth, single "V" groove weld. The casing pipe shall conform to ASTM A 139, Grade B (without hydro-test) or ASTM A53, Grade B (without hydro-test).

- B. The Contractor shall be responsible for the final structural design of the casing pipe. The Contractor shall submit certification that the casing pipe has been designed to resist all loads implied and reasonably anticipated plus other loadings stipulated in the N.C. Building Code in strict conformance with Section 16 of the standard Specifications for Highway Bridges adopted by AASHTO, latest revision. The certification shall also state that the design of the casing pipe has been performed by a professional engineer registered in the State of North Carolina.
- C. The Contractor shall be responsible for the design, adequacy and methodology of the bored and jacked casing pipe installation.

10. Access

- A. Each project area is within an existing City of Havelock easement or within City street right of way.
- B. The easement along Joe's Branch is linear with access from Hollywood Blvd. If additional access is required through private property the Contractor shall coordinate access with the property owner(s) and restore all disturbed area to the satisfaction of the property owner(s).

CONSTRUCTION SEQUENCE

- 1. General Sequence
 - A. The total construction time for this project shall not exceed 90 days.
 - B. The repairs between MHG160 and MHG161 and MHG270 and MHG272 shall be performed first.
 - C. As the first two repairs are underway survey of the manholes and sewers at MHP36 shall be completed with the invert information provided to the Engineer so that invert elevations for the new manholes can be established.
- 2. Construction Sequence for Project Area 1, repair between MHG160 and MHG161 – Reference Figure 1.
 - A. Coordinate all work and service outage with the City of Havelock and the property owner where the service connection is to be replaced.
 - B. Install sewer bypass system and maintain service until point repair is complete.
 - C. Install erosion control devices as needed to avoid sedimentation loss into Joe's Branch.
 - D. Excavate and dewater the area around the pipe to be replaced.
 - E. Remove and replace the damaged section of pipe and service connection between approximately 178 ft and 189 ft downstream of MHG160. Contractor to field verify location of exact repair.
 - F. Reconnect existing service lateral to sewer line with a sewer saddle or in-line wye

- fitting.
- G. Internally CCTV inspect the repair for defects and leaks. If any leaks or defects are noted the contractor shall make repairs as approved by the owner. Provide a copy of the final CCTV inspection to the owner.
 - H. Immediately upon backfill, final grade shall be established. The area shall be seeded and stabilized.
3. Construction Sequence for Project Area 2, repair between MHG270 and MHG272 – Reference Figure 2
- A. Install erosion control devices as need to avoid sedimentation loss from the excavation area.
 - B. Excavate and dewater the area around the pipe defect at approximately 177 ft downstream from MHG270.
 - C. Break a small hole in the existing concrete host pipe to provide an opening for chemical grout installation.
 - D. Fill the annular space between the concrete host pipe and the HDPE sliplined pipe with chemical grout to seal the hole in the HDPE pipe.
 - E. Internally CCTV inspect the repair for defects and leaks. If any leaks or defects are noted the contractor shall make repairs as approved by the owner. Provide a copy of the final CCTV inspection to the owner.
 - F. Immediately upon backfill, final grade shall be established. The area shall be seeded and stabilized.
4. Construction Sequence for Project Area 3, MHP36 replacement – Reference Figure 3 and Drawings C-1 and D-1
- A. Contractor shall survey all upstream and downstream manhole inverts and the sewer pipe at the location of each of the proposed manholes to be installed on existing sewers. These inverts will be used to establish the inverts for the proposed manholes.
 - B. Install sewer bypass system and maintain until all repairs are completed.
 - C. Install and maintain necessary traffic control. Road and lane closures shall be coordinated with the City and permitted as required.
 - D. Install erosion and sediment control devices as needed to avoid sediment loss from the project site and into Joe's Branch.
 - E. Provide all sheeting and shoring required to support Nunn St. Required active shoring shall be designed by an engineer licensed in North Carolina. All sheeting and shoring shall meet NCDOT standards and requirements.
 - F. Install proposed manholes and sewer as shown on sheet C-1.
 - G. Internally CCTV inspect the repair for defects and leaks. If any leaks or defects are noted the contractor shall make repairs as approved by the owner. Provide a copy of the final CCTV inspection to the owner.
 - H. Immediately upon backfill, final grade shall be established. The area shall be seeded and stabilized. Bank disturbance shall be stabilized with rolled erosion control matting.
 - I. All pavement repairs shall be completed to NCDOT standards and to the satisfaction of the City of Havelock.

**2017 Sewer Repairs
Table 1 - Summary of Work**

Project Area	Location	Upstream Manhole	Downstream Manhole	Pipe Size	Pipe Material	Ground Surface	Defect Description	Approximate Location	Rehabilitation Method
1	In easement behind 202 Hollywood Blvd next to Joe's Branch Creek.	G160	G161	10	Clay	Grass easement	Broken pipe with infiltration around service lateral.	Lateral is 182.97 feet downstream from MHG160	Perform a point repair from approximately 178ft to 189ft downstream of MHG160. Replace existing 4 inch lateral connection at 182.97ft including connection to the service lateral.
2	In easement between Fontana Blvd and the WWTP	G270	G272	15	HDPE pipe inside original host pipe	Easement through wooded area	Hole in the pipe at 4 o'clock position with infiltration	177 feet down stream from MHG270	External grout repair. Grout the annular space between the HDPE slip lined pipe and the host pipe.
3	Nunn Street next to Joe's Branch creek	P36				Grass on the side of the road	Manhole has settled		Existing manhole will be abandoned in place and a new manhole installed. Fill pipe between the existing manhole and the new manhole with flowable fill.
3	In easement along Joe's Branch creek between Speight St and Nunn St.	P86	P36	8	Clay	Pavement	Large offset joint. Settled pipe.	285 feet downstream of MHP86	Install new MH3 and pipe to new MH 4 with approximately 11 ft of 8" PVC pipe. Fill remaining pipe between MH3 and old MHP36 with flowable fill.
3	Nunn Street	P37	P36	8	PVC/Clay	Pavement	Leaking at material change from clay to PVC at previous point repair. Settled pipe.	305 feet downstream of MHP37	Replace pipe from 305 feet to new MHP36
3	Nunn Street	P35	P36	8	Clay	Pavement/ Grass	Large offset joint. Settled pipe.	289 feet downstream of MHP35	Install new MH1 at the location of the dropped joint. Fill the remaining pipe between the new manhole and MHP36 with flowable fill or concrete.
3	Nunn Street	New MH1	New MH2	8	PVC	Pavement	New pipe		Install a new MH2 in Nunn St. Distance between MH1 and MH 2 is approximately 15 ft.
3	Nunn Street	New MH2	New MH4	8	PVC	Pavement	New pipe		Install approximately 16 ft of 16" steel casing under the existing storm water culverts with approximately 29 ft of 8" PVC pipe between new MH2 and new MH4.
3	Nunn Street	New MH3	New MH4	8	PVC	Pavement	New pipe		Install approximately 11 ft of 8" PVC pipe between MH3 and MH4
3	In easement along Joe's Branch creek between Nunn St and Bryan St	P36	P74	8	Clay	Grass easement along creek bank	Infiltration at joint. Settled pipe.	445 feet upstream of MHP74	Install new MH4 approximately 445 feet upstream of MHP74. Install approximately 14 ft of 8" PVC pipe between new MH5 to new MHP36. Fill the remaining pipe between new MH5



EX SS MHP74
MHP36 TO MHP74 APPR. 468 FT

PROPOSED MANHOLE 5

ABANDON EX MH P36 AND APPR.
65' OF 8" SANITARY SEWER
RIM 21.53'
INV 10.06'

2 EX 4' X 4' PRECAST BOX
CULVERTS WITH HEADWALLS
INV. OUT = 15.50'
N = 411568.73
E = 2629060.14

INSTALL NEW GUARDRAIL PER NCDOT
REQUIREMENTS. REMOVE AND DISPOSE
OF EXISTING GUARDRAIL

PROPOSED MANHOLE 1

EX SS MHP35
MHP35 TO MHP36
APPR. 307 FT

PROPOSED MANHOLE 2

REMOVE AND REPLACE
EX GUARDRAIL AS
REQUIRED

JOE'S BRANCH CREEK

NUNN STREET

NUNN STREET
PLAN

REMOVE AND REPLACE EX
CORRUGATED PLASTIC
PIPE AS REQUIRED

REPLACE APPR. 43 LF WITH 8" PVC

EX SS MHP37
MHP37 TO MHP36 APPR. 357 FT

PROPOSED MANHOLE P36

PROPOSED MANHOLE 4

EX DIP WATERLINE

PROPOSED MANHOLE 3

16" STEEL CASING UNDER CULVERT
INSTALLED BY BORE AND JACK
MINIMUM LENGTH OF 16 FT

2 EX 4' X 4' PRECAST BOX
CULVERTS WITH HEADWALLS
INV. IN = 16.00'
N = 411530.55
E = 2629073.23

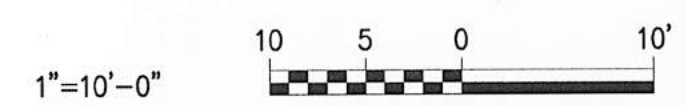
EX SS MHP86
MHP86 TO MHP36 APPR. 296 FT

NOTES:

1. ALL WORK SHALL BE PERFORMED WITHIN THE RIGHT OF WAY AND PROPERTY OWNED BY THE CITY OF HAVELOCK. NO EQUIPMENT OR MATERIALS SHALL BE STORED ON PRIVATE PROPERTY.
2. CONTRACTOR SHALL SURVEY ALL EXISTING MANHOLE INVERTS FOR MHP35, MHP37, MHP86, AND MHP74, AS WELL AS THE INVERTS OF THE EXISTING SANITARY SEWER AT THE LOCATION OF ALL PROPOSED MANHOLES. THESE INVERTS WILL BE USED TO ESTABLISH THE INVERTS FOR THE PROPOSED MANHOLES.
3. COORDINATE ANY REQUIRED ROAD AND LANE CLOSURES WITH THE CITY AND OBTAIN PERMITS AS REQUIRED.
4. ALL REQUIRED SHEETING AND SHORING SHALL BE DESIGNED BY AN ENGINEER LICENSED IN NORTH CAROLINA AND SHALL MEET NCDOT STANDARDS AND REQUIREMENTS.
5. INSTALL SILT FENCE ALONG THE TOP OF THE BANK OF JOE'S BRANCH.
6. DO NOT DISTURB THE BANK OR CREEK BEYOND WHAT IS REQUIRED FOR THE SEWER AND MANHOLE INSTALLATION.
7. PLACE ALL SPOILS ON THE UPSTREAM SIDE OF THE EXCAVATION, NOT ON THE CREEK SIDE.
8. INTERNALLY CCTV INSPECT NEW AND REPLACED SEWER FOR LEAKS AND DEFECTS. IF ANY LEAKS OR DEFECTS ARE NOTED, THE CONTRACTOR SHALL MAKE REPAIRS AS APPROVED BY THE OWNER. PROVIDE A COPY OF THE FINAL CCTV INSPECTION TO THE OWNER.
9. IMMEDIATELY UPON BACKFILL, FINAL GRADE SHALL BE ESTABLISHED. THE AREA SHALL BE SEEDED AND STABILIZED. ALL BANK AND DITCH DISTURBANCE SHALL BE STABILIZED WITH ROLLED EROSION CONTROL MATTING.
10. ALL PAVEMENT REPAIRS SHALL BE COMPLETED TO NCDOT STANDARDS AND TO THE SATISFACTION OF THE CITY OF HAVELOCK.
11. CONTRACTOR TO PROPERLY DISPOSE OF REMOVED PIPE, MANHOLE, AND OTHER MATERIALS OFFSITE.

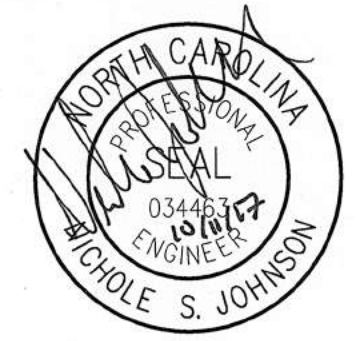
SEWER AND MANHOLE ABANDONMENT:

1. ABANDON MHP36 IN PLACE.
2. REMOVE THE RING AND COVER, GRADE RINGS, AND CONE SECTION OF MHP36 AND DISPOSE OF PROPERLY OFFSITE.
3. FILL SEWER LINES TO BE ABANDONED IN PLACE WITH FLOWABLE FILL.
4. FILL THE PORTION OF MANHOLE TO REMAIN IN PLACE WITH STONE.
5. BACKFILL AND COMPACT THE AREA WITH SUITABLE SOIL.



File: C:\Users\johanson\Documents\2017 Sewer Repairs\CONDUCT MANHOLE P36.dwg Save date: 10/11/2017 10:39 AM
 PLOT DATE: 10/17/2017 10:39 AM BY: TJS/DFC

PROJECT ENGINEER:	
DESIGNED BY:	N. JOHNSON
DRAWN BY:	
CHECKED BY:	
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	ISSUED FOR BIDDING 10/2017 NSJ
REV	ISSUED FOR DATE BY



Hazen
 HAZEN AND SAWYER
 4011 WESTCHASE BOULEVARD, SUITE 500
 RALEIGH, NORTH CAROLINA 27607
 LICENSE NO. : C-0381

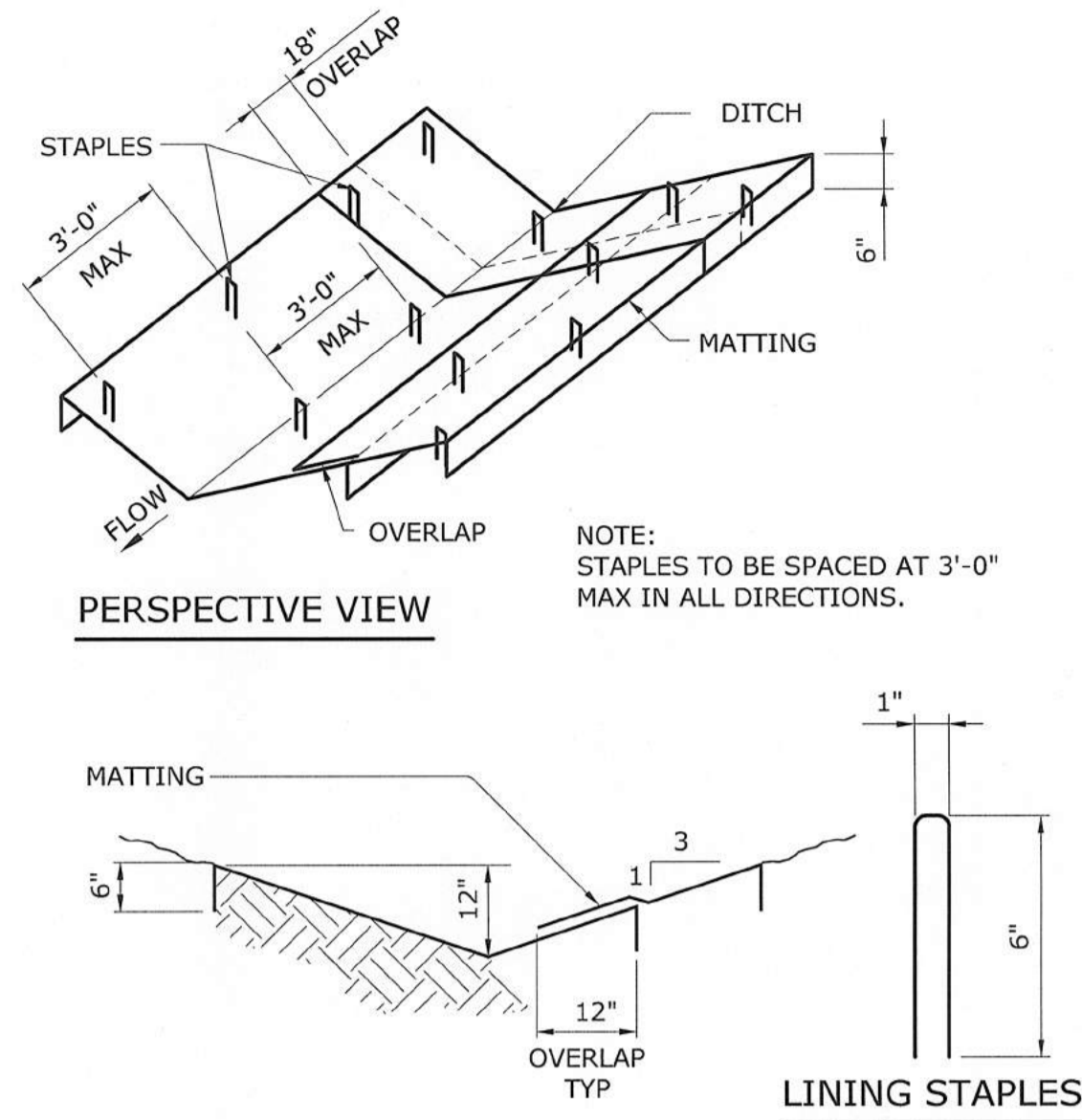
CITY OF HAVELOCK
 NORTH CAROLINA

2017 SEWER REPAIRS

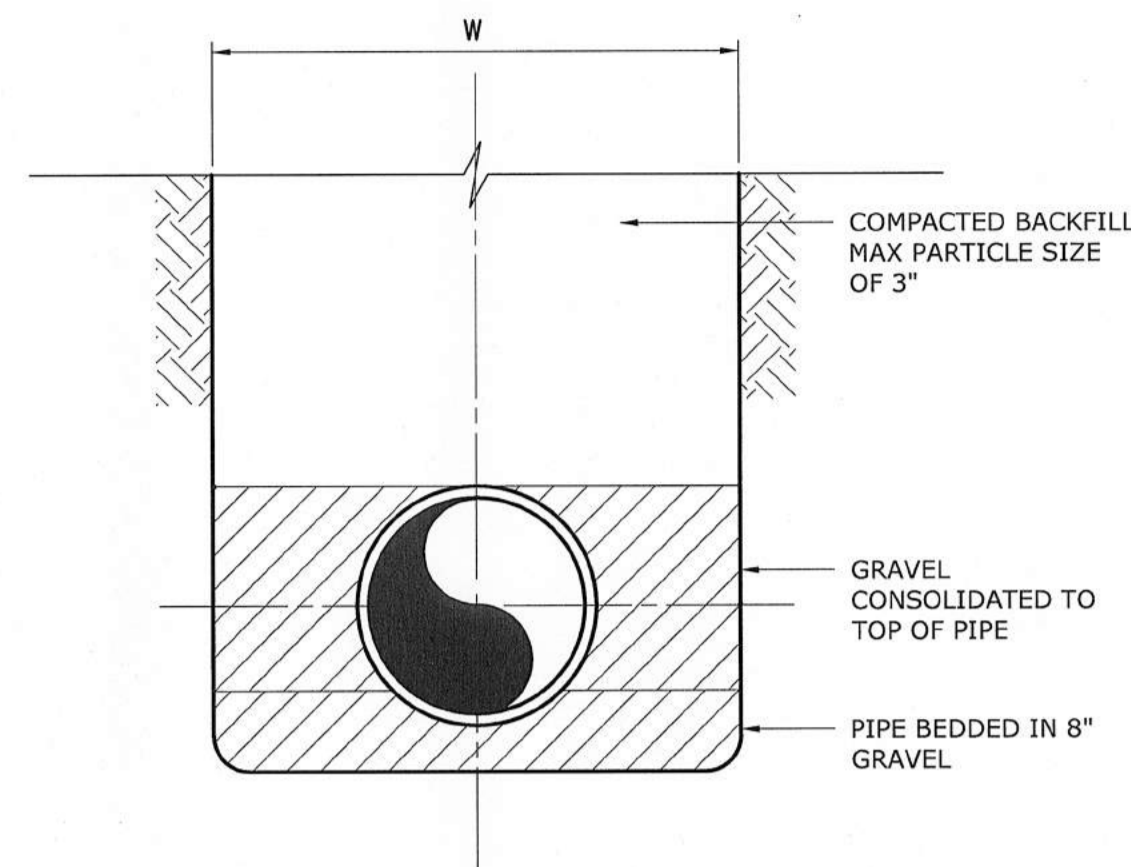
NUNN STREET
 MANHOLE P36 REPLACEMENT

DATE:	OCTOBER 2017
HAZEN NO.:	30906-006
CONTRACT NO.:	1
DRAWING NUMBER:	C-1

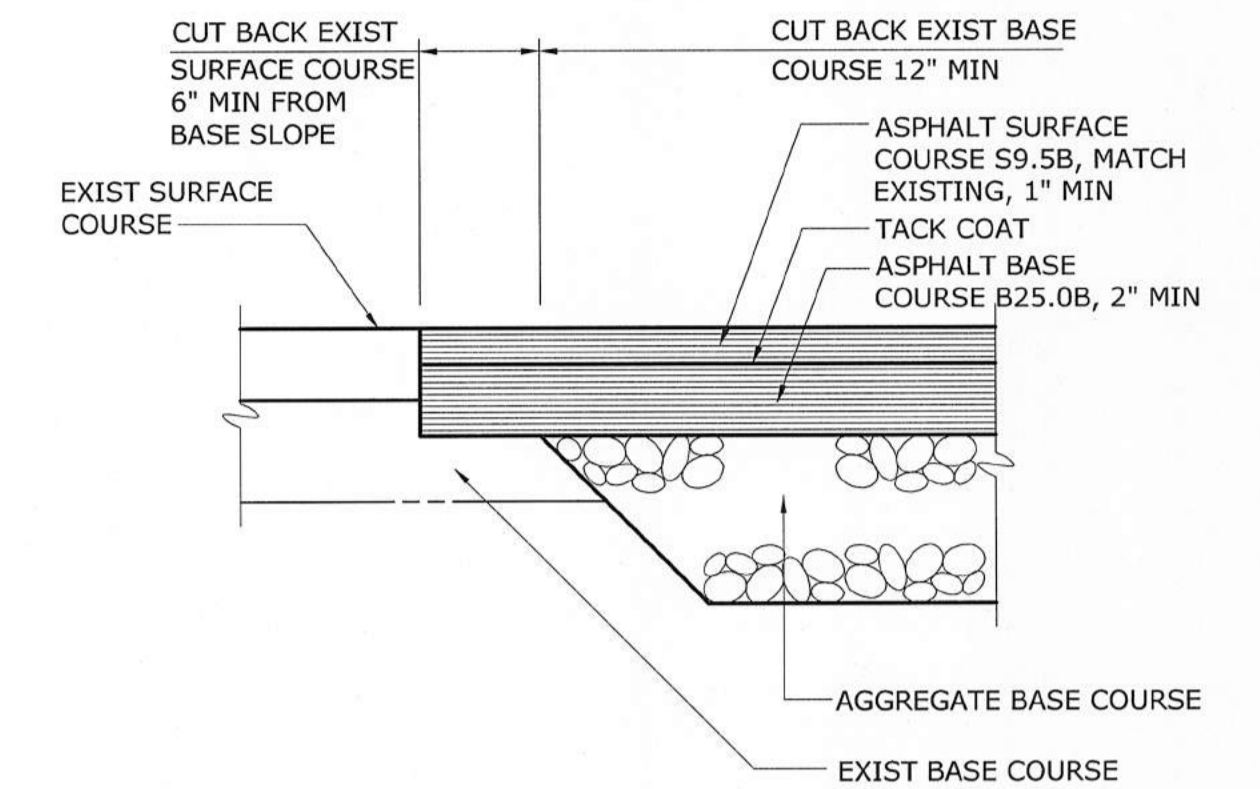
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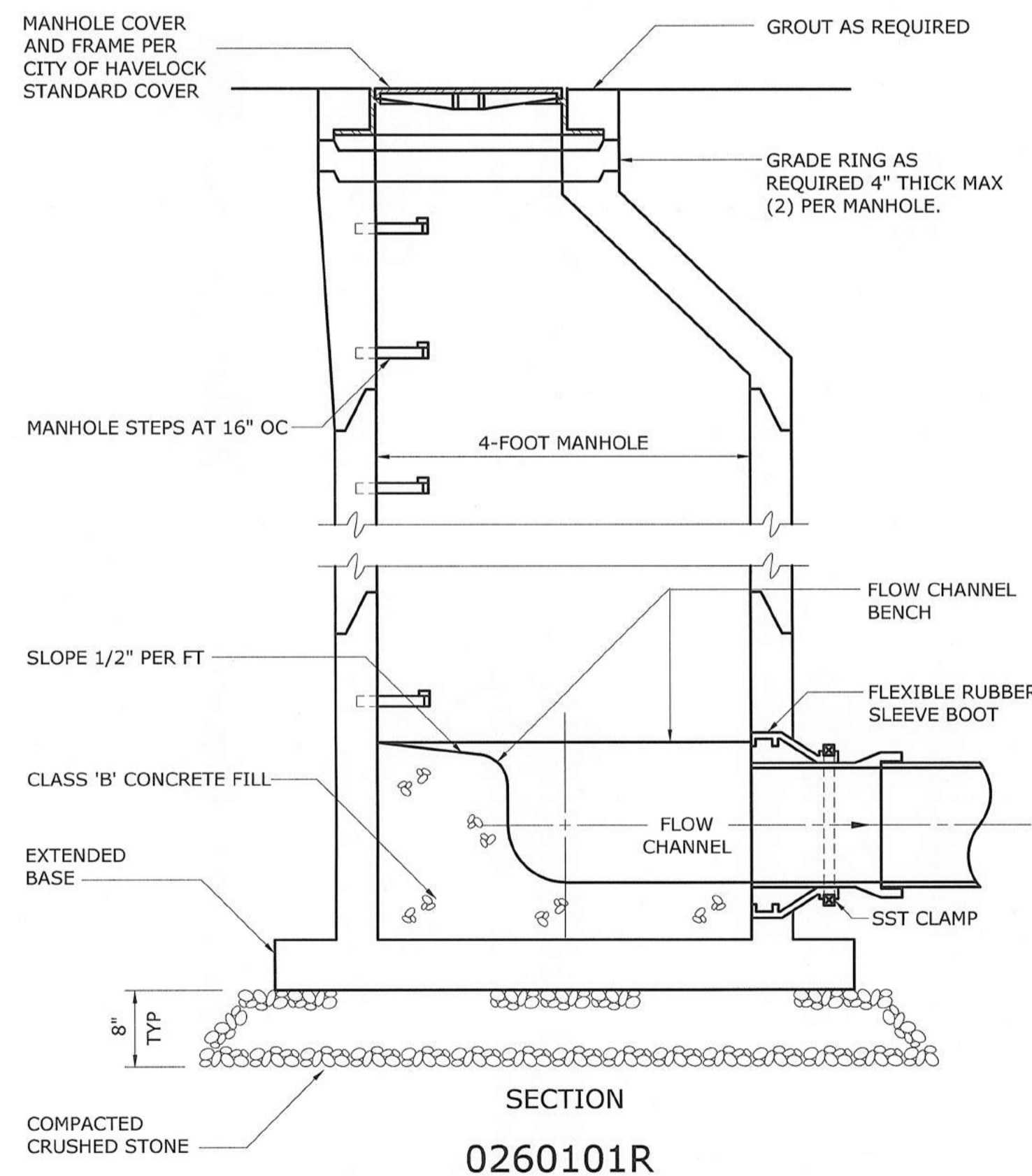
REC M AND TR M INSTALLATION
0227014



TYPE C
0222103R



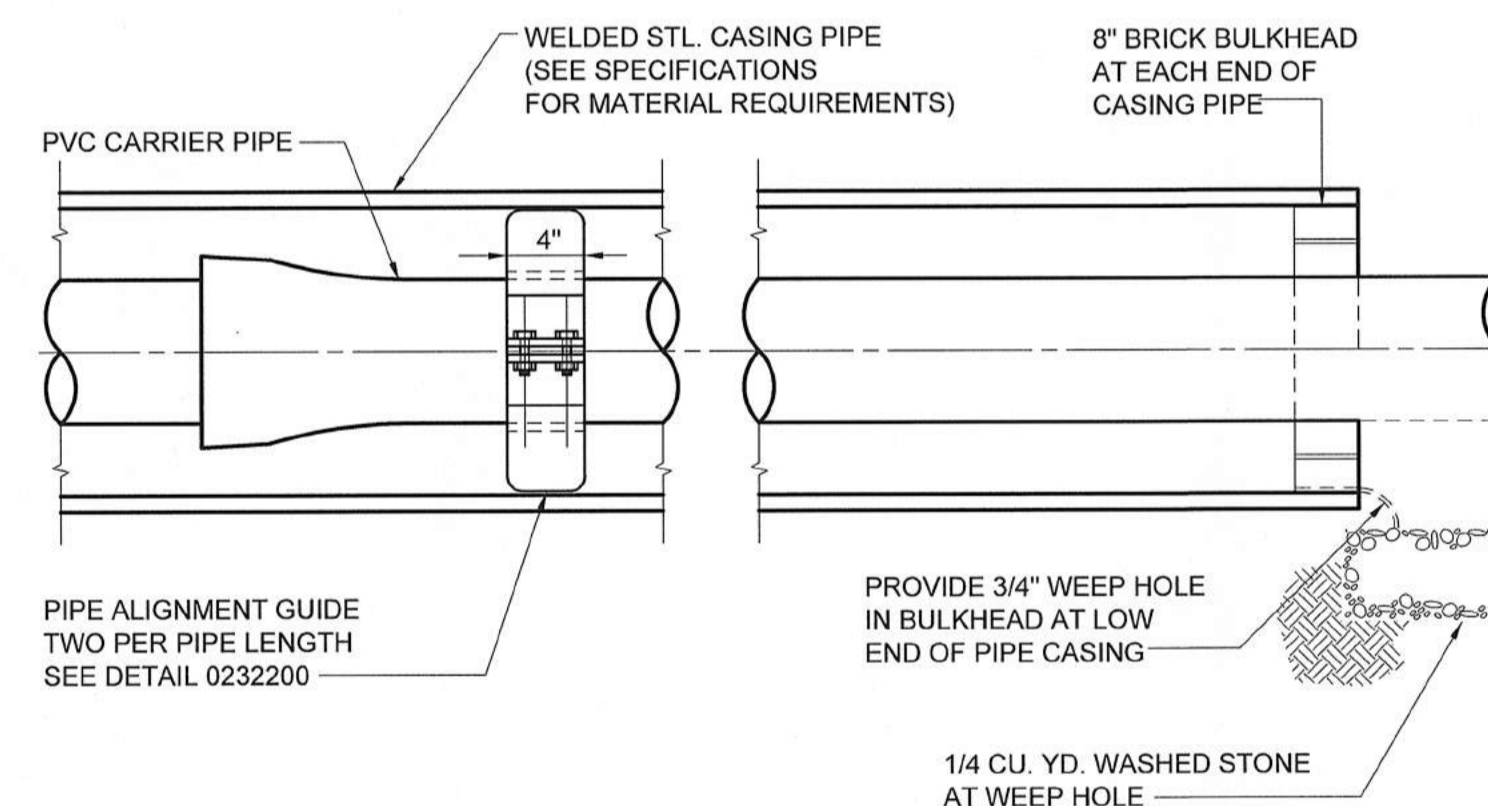
TYPICAL PAVEMENT JUNCTION
0251301R



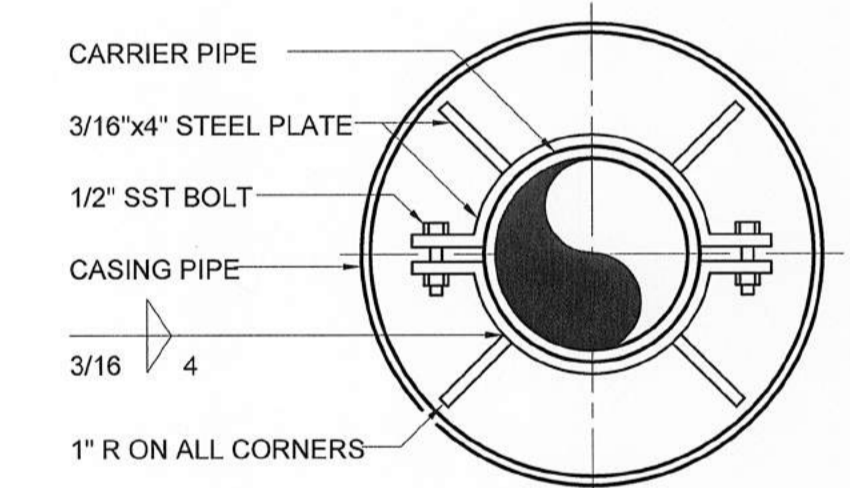
SECTION
0260101R

NOTES:

- GIVEN THE CONDITION OF THE PIPES AND MANHOLES, DEFINING THE INVERT ELEVATIONS FROM THE CURRENT CONDITION IS NOT RELIABLE. FIELD CORING THE MANHOLES FOR FIELD INSTALLATION OF FLEXIBLE BOOT IS REQUIRED.



TYPICAL CASING
0232203



PIPE ALIGNMENT GUIDE
0232200

File: 0:\0303\03\DRAWINGS\2017 SEWER REPAIRS\DWG\1. Sewer by TLLS\07. Sew date: 10/17/2017 1:48 PM
PLOT DATE: 10/17/2017 1:48 PM BY: TLLS/GOF

REV	ISSUED FOR	DATE	BY
1	ISSUED FOR BIDDING	10/2017	NSJ
	ISSUED FOR		

PROJECT ENGINEER:	
DESIGNED BY:	N. JOHNSON
DRAWN BY:	
CHECKED BY:	
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO. : C-0381

CITY OF HAVELOCK
NORTH CAROLINA

2017 SEWER REPAIRS

NUNN STREET
MISCELLANEOUS DETAILS

DATE:	OCTOBER 2017
HAZEN NO.:	30906-006
CONTRACT NO.:	1
DRAWING NUMBER:	D-1

ISSUED FOR BIDDING

Notes:

1. Install silt fence along the top of bank of Joe's Branch.
2. Do not disturb the bank or creek.
3. Place all spoils on the upstream side of the excavation, not on the creek side.
4. Seed and restore area immediately after backfill.
5. All sewers and manholes shown are GIS locations, not survey. Contractor shall verify all locations.



Legend

- Manhole
- Force Main
- Force Main



1 inch = 80 feet

City of Havelock
Water and Sewer Department
2017 Sewer Repairs

Figure 1
Point Repair Location
G160 - G161


Notes:

1. Seed and restore area immediately after backfill.
2. All sewers and manholes shown are GIS locations, not survey. Contractor shall verify all locations.

Legend

-  Manhole
-  Force Main
-  Gravity Sewer








 1 inch = 250 feet

**City of Havelock
Water and Sewer Department
2017 Sewer Repairs**

**Figure 2
Point Repair Location
G270 - G272**

Notes:
1. All sewers and manholes shown are GIS locations, not survey. Contractor shall verify all locations.

Legend

-  Manhole
-  Force Main
-  Gravity Sewer
-  Private Property
-  City of Havelock Property





Cover Page

Project

Project

City of Havelock

WinCan Import in Miraculix Standard

Start Date

5/25/2017

Client

Company

AC Schultes of Carolina

Responsible person

Kyle Jefferys

Street

3887 S. NC 41 Hwy

City

Wallace, NC 28466

Phone

910-285-7465

E-Mail



Project Information

Project
City of Havelock

5/25/2017

Client

Company: AC Schultes of Carolina
Responsible person: Kyle Jefferys
Division:
Street: 3887 S. NC 41 Hwy
City: Wallace, NC 28466
Phone: 910-285-7465
Fax:
Mobile:
E-Mail:

Manager

Company:
Responsible person:
Division:
Street:
City:
Phone:
Fax:
Mobile:
E-Mail:

Contractor

Company: PipeView Technologies
Responsible person: Meredith Sullivan
Division:
Street: 613 Raleigh Ave
City: Carolina Beach, NC 28428
Phone: 703-625-0270
Fax:
Mobile:
E-Mail: meredith@pipeviewtech.com



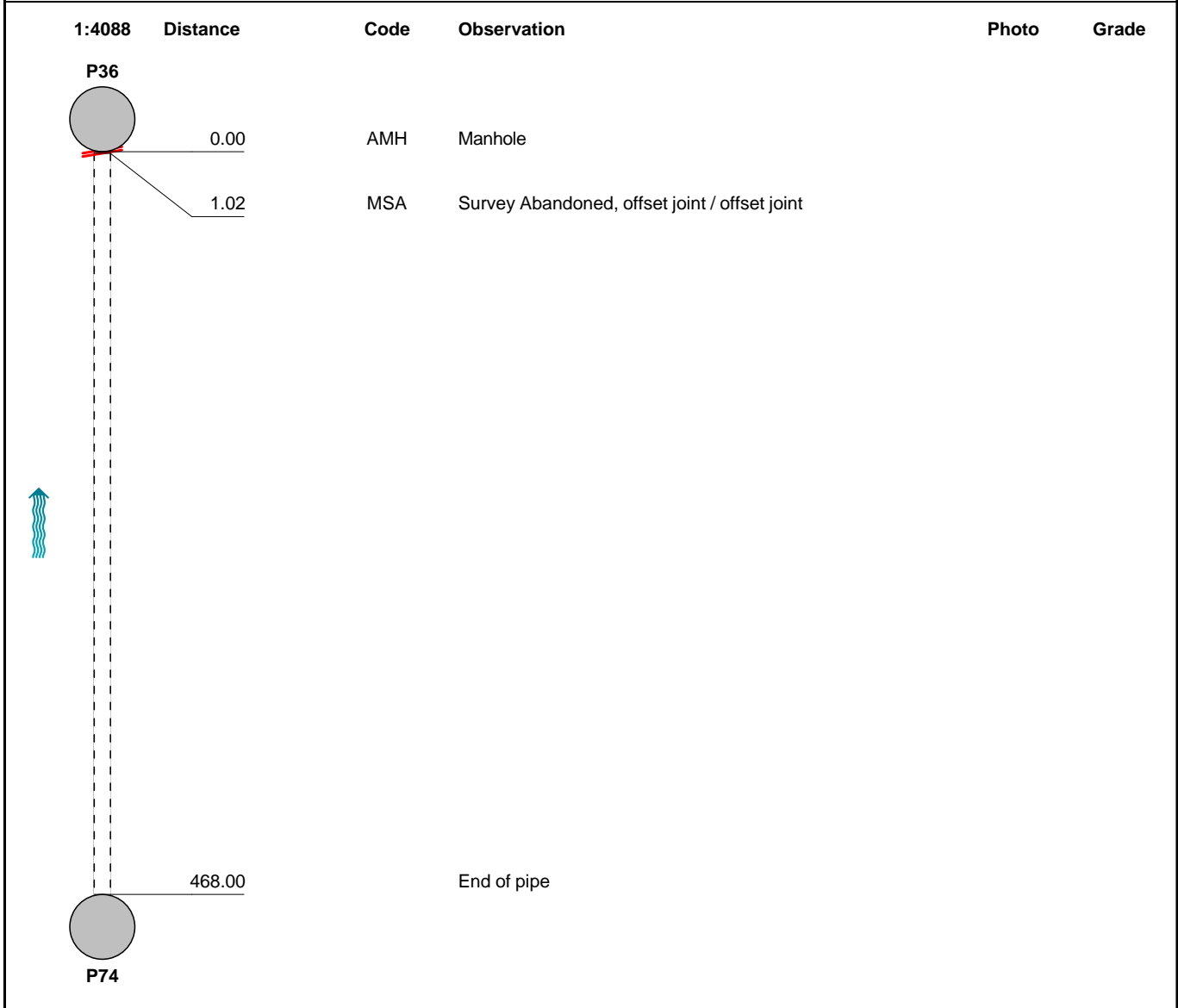
Inspection report

Date : 5/1/2017	Work Order : U-0780	Weather : Dry	Surveyed By : Meredith	Certificate Number : U-314-06020906	Pipe Segment Ref. : P36 - P74
Year laid :	Pre-cleaning: Jetting	Direction : Upstream	Pipe Joint Length : 0.0	Total Length : 468.0	Length Surveyed : 1.0

City : Havelock	Drainage Area :	Upstream MH : P74
Street : Nunn St	Media Label :	Up Rim to Invert : 0.0
Location Code : Light highway	Flow Control : Plugged	Downstream MH : P36
Location Details :	Sheet Number :	Down Rim to Invert : 0.0

Pipe shape: Circular	Sewer Use: Sanitary
Pipe size: 8	Sewer Category : SEC
Pipe material: Vitrified Clay Pipe	Purpose: Routine Assessment
Lining Method :	Owner :

Additional Info :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0.0	0.0	0.0	0.0	0.0	0.0

City Havelock	Street Nunn St	Date 5/1/2017	Pipe Segment Reference P36 - P74	Sewer Cleaning and
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P36 P74_fdd61753-f9be-410f-844d-23e9d200c77e.bmp,
 NaN:NaN:, 1.02
 Survey Abandoned, offset joint



P36 P74_db4e454f-3ba2-473e-9445-4154ee93850e.bmp,
 NaN:NaN:, 1.02
 Survey Abandoned, offset joint



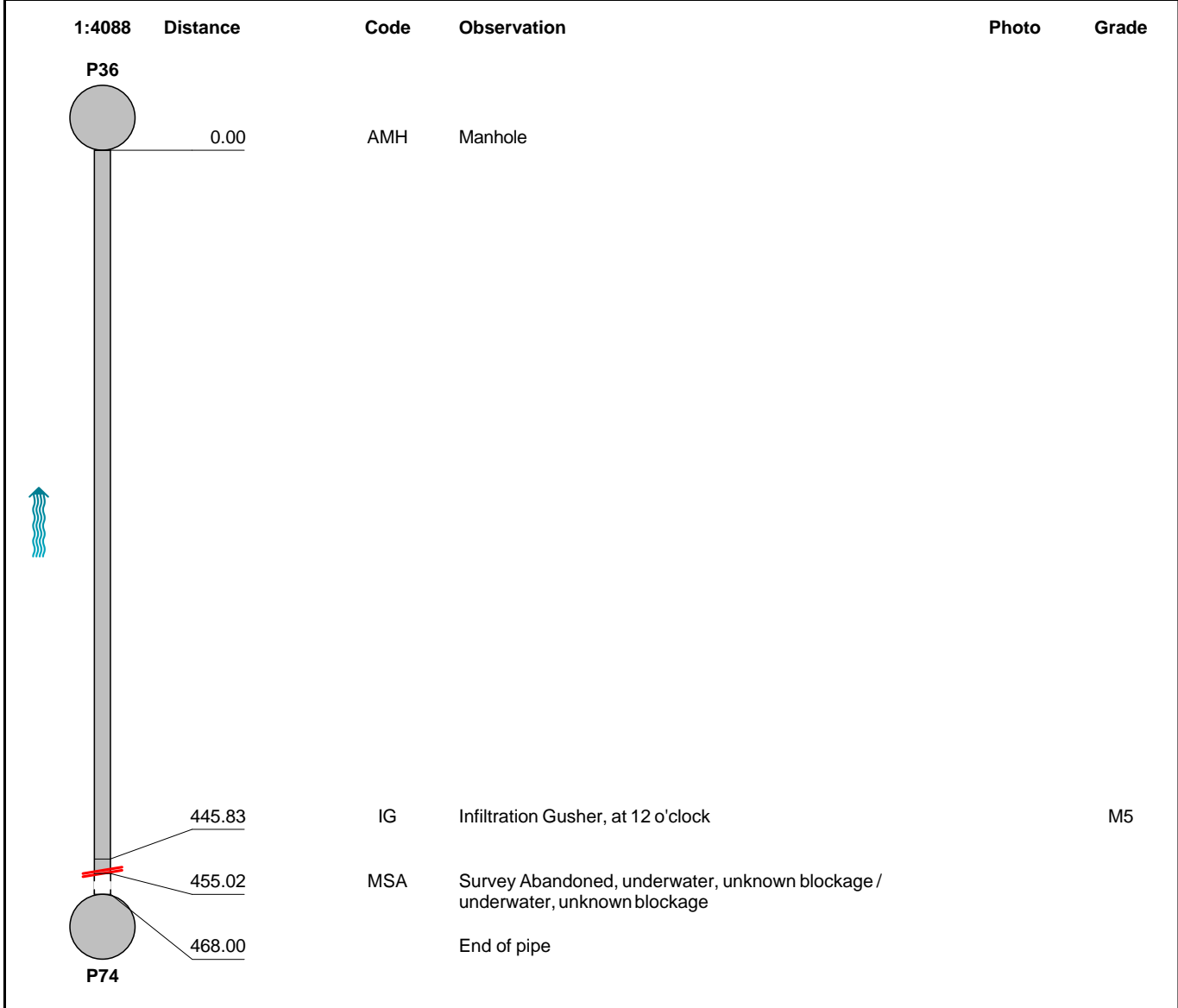
Inspection report

Date : 5/1/2017	Work Order : U-0780	Weather : Dry	Surveyed By : Meredith	Certificate Number : U-314-06020906	Pipe Segment Ref. : P36 - P74 (2)
Year laid :	Pre-cleaning: Jetting	Direction: Upstream	Pipe Joint Length : 0.0	Total Length : 468.0	Length Surveyed : 454.0

City : Havelock	Drainage Area :	Upstream MH : P74
Street : Nunn St	Media Label :	Up Rim to Invert : 0.0
Location Code : Light highway	Flow Control : Plugged	Downstream MH : P36
Location Details :	Sheet Number :	Down Rim to Invert : 0.0

Pipe shape: Circular	Sewer Use: Sanitary
Pipe size: 8	Sewer Category : SEC
Pipe material: Vitrified Clay Pipe	Purpose: Routine Assessment
Lining Method :	Owner :

Additional Info :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5100	0.0	5.0	5.0	0.0	5.0	5.0

City Havelock	Street Nunn St	Date 5/1/2017	Pipe Segment Reference P36 - P74 (2)	Sewer Cleaning and
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P36 P74 (2)_1d7db7c9-9892-4522-b16b-7c32cfc485b6.bmp,
 00:09:07, 445.83
 Infiltration Gusher, at 12 o'clock



P36 P74 (2)_9b4765d7-43cb-4a3a-abae-ec9aa74b7b7f.bmp,
 00:10:02, 455.02
 Survey Abandoned, underwater, unknown blockage



Inspection report

Date : 5/2/2017	Work Order : U-0780	Weather : Dry	Surveyed By : Meredith	Certificate Number : U-314-06020906	Pipe Segment Ref. : P37 - P36
Year laid :	Pre-cleaning: Jetting	Direction: Downstream	Pipe Joint Length : 0.0	Total Length : 357.0	Length Surveyed : 350.2

City : Havelock	Drainage Area :	Upstream MH : P37
Street : Nunn St	Media Label :	Up Rim to Invert : 0.0
Location Code : Light highway	Flow Control : Plugged	Downstream MH : P36
Location Details :	Sheet Number :	Down Rim to Invert : 0.0

Pipe shape: Circular	Sewer Use: Sanitary
Pipe size: 8	Sewer Category : SEC
Pipe material: Polyvinyl Chloride	Purpose: Routine Assessment
Lining Method :	Owner :

Additional Info :

1:3118	Distance	Code	Observation	Photo	Grade		
	P37						
	0.00	AMH	Manhole				
	8.37	MMC	Material Change, Vitrified clay pipe				
	79.40	IW	Infiltration Weeper, at 4 o'clock		M2		
	146.13	TFA	Tap Factory Made Active, at 3 o'clock, 4 inch dim				
	153.41	TF	Tap Factory Made, at 9 o'clock, 4 inch dim				
	175.49	TF	Tap Factory Made, at 3 o'clock, 4 inch dim				
	182.61	TF	Tap Factory Made, at 9 o'clock, 4 inch dim				
	304.66	IR	Infiltration Runner, at 11 o'clock		M4		
	304.66	MMC	Material Change, Polyvinyl chloride				
	342.42	MCU	Camera Underwater				
	350.20	AMH	Manhole				
	P36						
QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4121	0.0	6.0	6.0	0.0	3.0	3.0

City Havelock	Street Nunn St	Date 5/2/2017	Pipe Segment Reference P37 - P36	Sewer Cleaning and
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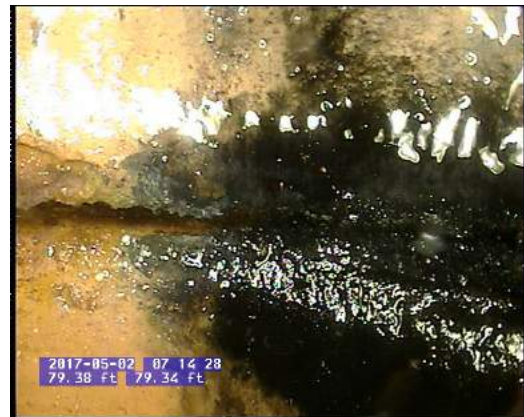
P37 P36_2b950ddc-6a67-4b33-93b8-4f85cf56f1a3.bmp,
 00:00:17, 8.37
 Material Change, Vitrified clay pipe



P37 P36_7e6232c3-7cf3-427c-9535-e85cba75259d.bmp,
 00:05:36, 175.49
 Tap Factory Made, at 3 o'clock, 4 inch dim



P37 P36_739d1293-6cb2-4798-b2ef-a10506e25cc0.bmp,
 00:04:31, 146.13
 Tap Factory Made Active, at 3 o'clock, 4 inch dim



P37 P36_6e7177d3-16e3-4271-b7c2-5739d3d25ec2.bmp,
 00:02:43, 79.40
 Infiltration Weeper, at 4 o'clock

City Havelock	Street Nunn St	Date 5/2/2017	Pipe Segment Reference P37 - P36	Sewer Cleaning and
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P37 P36_81c10840-7713-459b-a284-64e64fec1ddc.bmp,
 00:04:52, 153.41
 Tap Factory Made, at 9 o'clock, 4 inch dim



P37 P36_353786e2-1fe4-41bd-b20f-ac543e8f9d10.bmp,
 00:08:40, 304.66
 Infiltration Runner, at 11 o'clock



P37 P36_b7094d30-0d4d-454a-88c2-8114f941e086.bmp,
 00:05:55, 182.61
 Tap Factory Made, at 9 o'clock, 4 inch dim



P37 P36_7e60fdcf-9e22-4153-8ffd-2fcf3339ff8f.bmp,
 00:10:51, 342.42
 Camera Underwater

City Havelock	Street Nunn St	Date 5/2/2017	Pipe Segment Reference P37 - P36	Sewer Cleaning and
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P37 P36_96f667c2-ef13-41d9-a588-bd7fb5b76af9.bmp,
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Material Change, Polyvinyl chloride



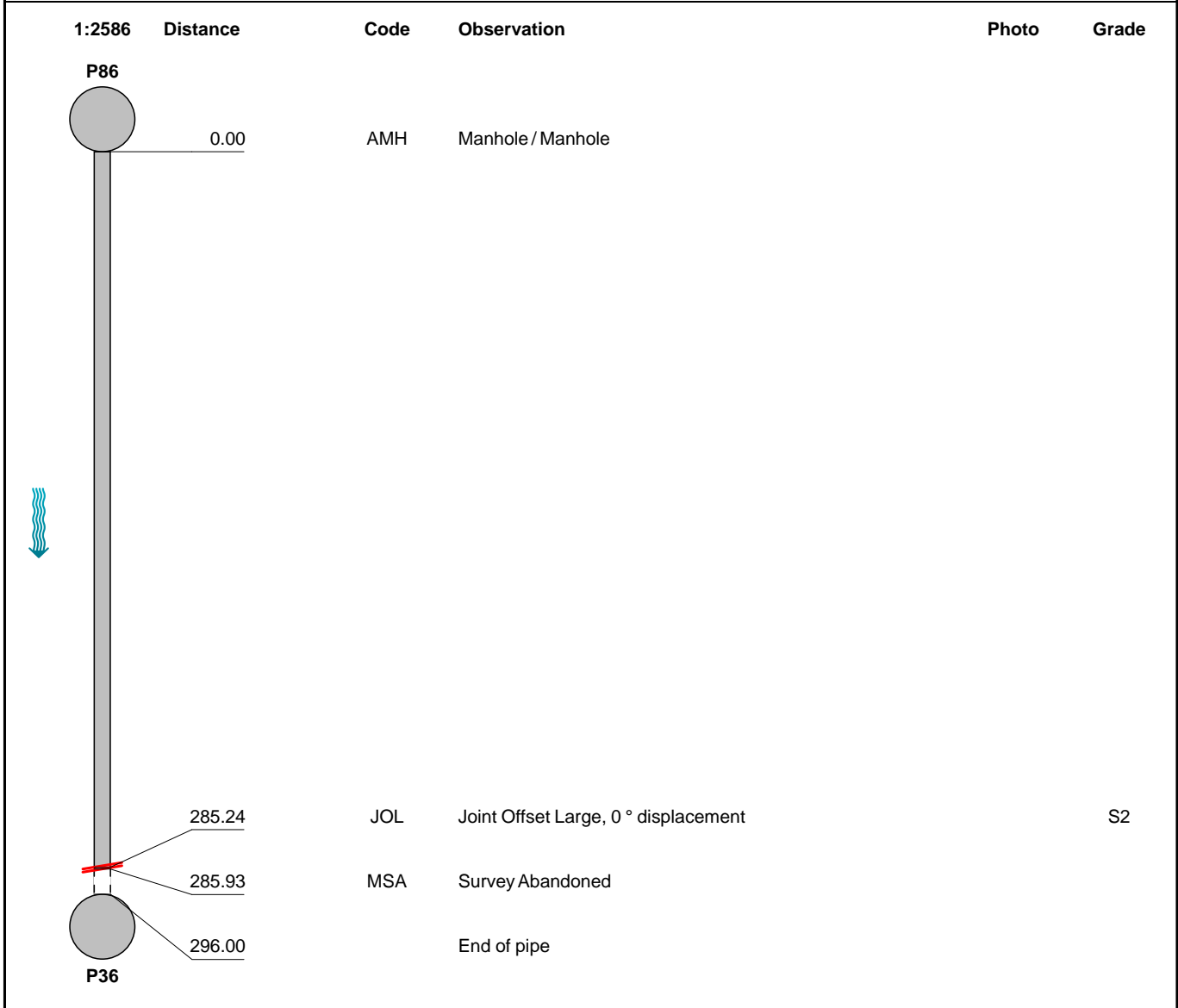
Inspection report

Date : 5/2/2017	Work Order : U-0780	Weather : Dry	Surveyed By : Meredith	Certificate Number : U-314-06020906	Pipe Segment Ref. : P86 - P36
Year laid :	Pre-cleaning: Jetting	Direction: Downstream	Pipe Joint Length : 0.0	Total Length : 296.0	Length Surveyed : 285.9

City : Havelock	Drainage Area :	Upstream MH : P86
Street : Speight St	Media Label :	Up Rim to Invert : 0.0
Location Code : Light highway	Flow Control : Plugged	Downstream MH : P36
Location Details :	Sheet Number :	Down Rim to Invert : 0.0

Pipe shape: Circular	Sewer Use: Sanitary
Pipe size: 8	Sewer Category : SEC
Pipe material: Vitrified Clay Pipe	Purpose: Routine Assessment
Lining Method :	Owner :

Additional Info :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
2100	0000	2.0	0.0	2.0	2.0	0.0	2.0

City Havelock	Street Speight St	Date 5/2/2017	Pipe Segment Reference P86 - P36	Sewer Cleaning and
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P86 P36_6c59f69c-2e0f-43af-9dd0-b94bcb7fe39a.bmp,
00:05:23, 285.24
Joint Offset Large, 0 ° displacement



P86 P36_ca8557df-ae5b-47e3-97c0-49cc43cfcda.bmp,
00:05:47, 285.93
Survey Abandoned



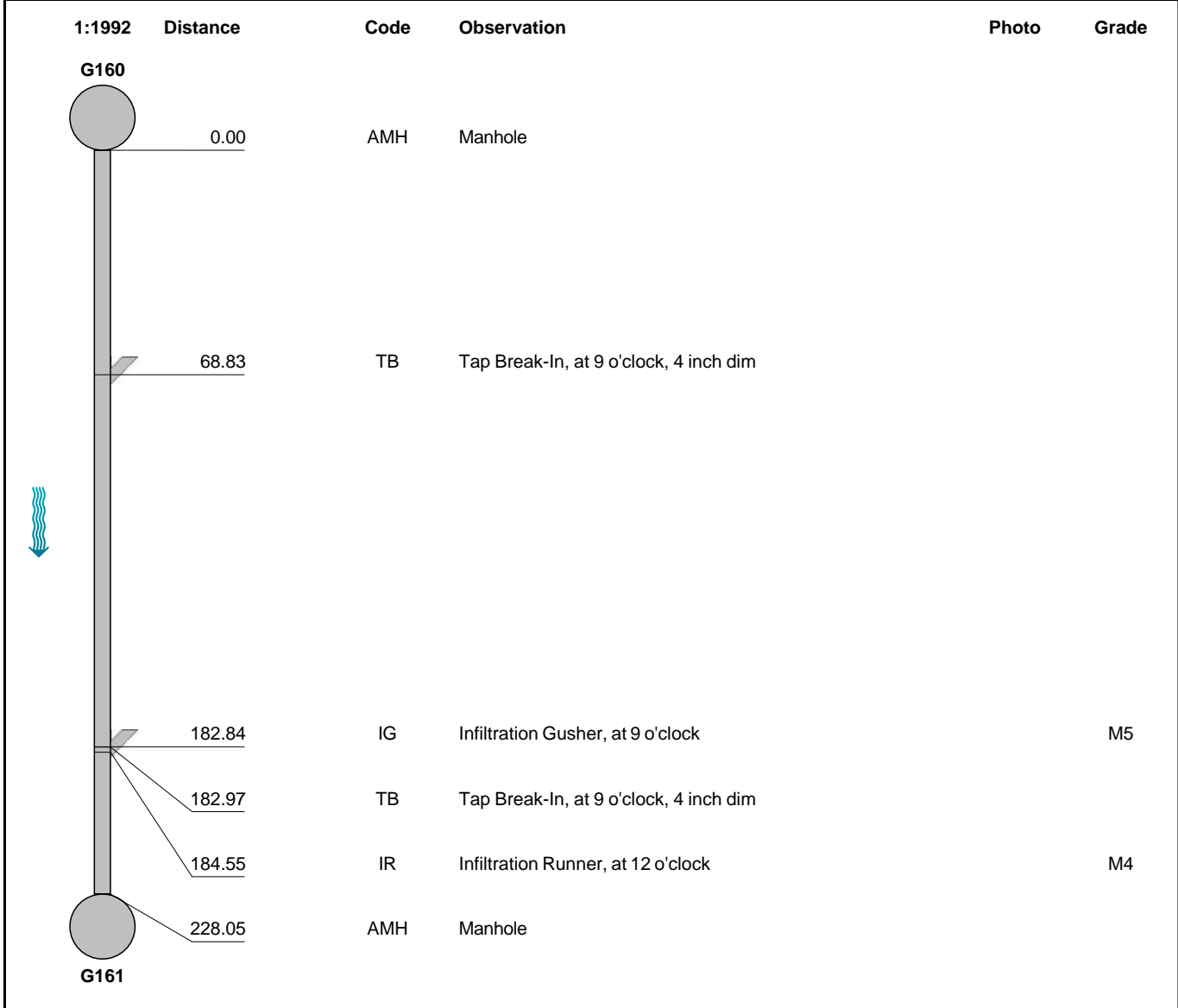
Inspection report

Date : 5/11/2017	Work Order : U-0780	Weather : Dry	Surveyed By : Meredith	Certificate Number : U-314-06020906	Pipe Segment Ref. : G160 - G161
Year laid :	Pre-cleaning: Jetting	Direction: Downstream	Pipe Joint Length : 0.0	Total Length : 228.0	Length Surveyed : 228.1

City : Havelock	Drainage Area :	Upstream MH : G160
Street : Vine St	Media Label :	Up Rim to Invert : 0.0
Location Code : Woods	Flow Control : Plugged	Downstream MH : G161
Location Details :	Sheet Number :	Down Rim to Invert : 0.0

Pipe shape: Circular	Sewer Use: Sanitary
Pipe size: 10	Sewer Category : SEC
Pipe material: Vitrified Clay Pipe	Purpose: Routine Assessment
Lining Method :	Owner :

Additional Info :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5141	0.0	9.0	9.0	0.0	4.5	4.5

City Havelock	Street Vine St	Date 5/11/2017	Pipe Segment Reference G160 - G161	Sewer Cleaning and
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G160 G161_48d84a4b-2377-4ee4-9a3f-ed6f8c312317.bmp,
 00:02:08, 68.83
 Tap Break-In, at 9 o'clock, 4 inch dim



G160 G161_c0caf2a2-9e76-4e62-adbb-02af314ea669.bmp,
 00:07:39, 182.84
 Infiltration Gusher, at 9 o'clock



G160 G161_3c4c3644-cfe2-4fd1-ad6b-c565f6a13c6c.bmp,
 00:06:31, 182.97
 Tap Break-In, at 9 o'clock, 4 inch dim



G160 G161_01c89cc4-169b-4891-8b8c-66de64491820.bmp,
 00:08:17, 184.55
 Infiltration Runner, at 12 o'clock



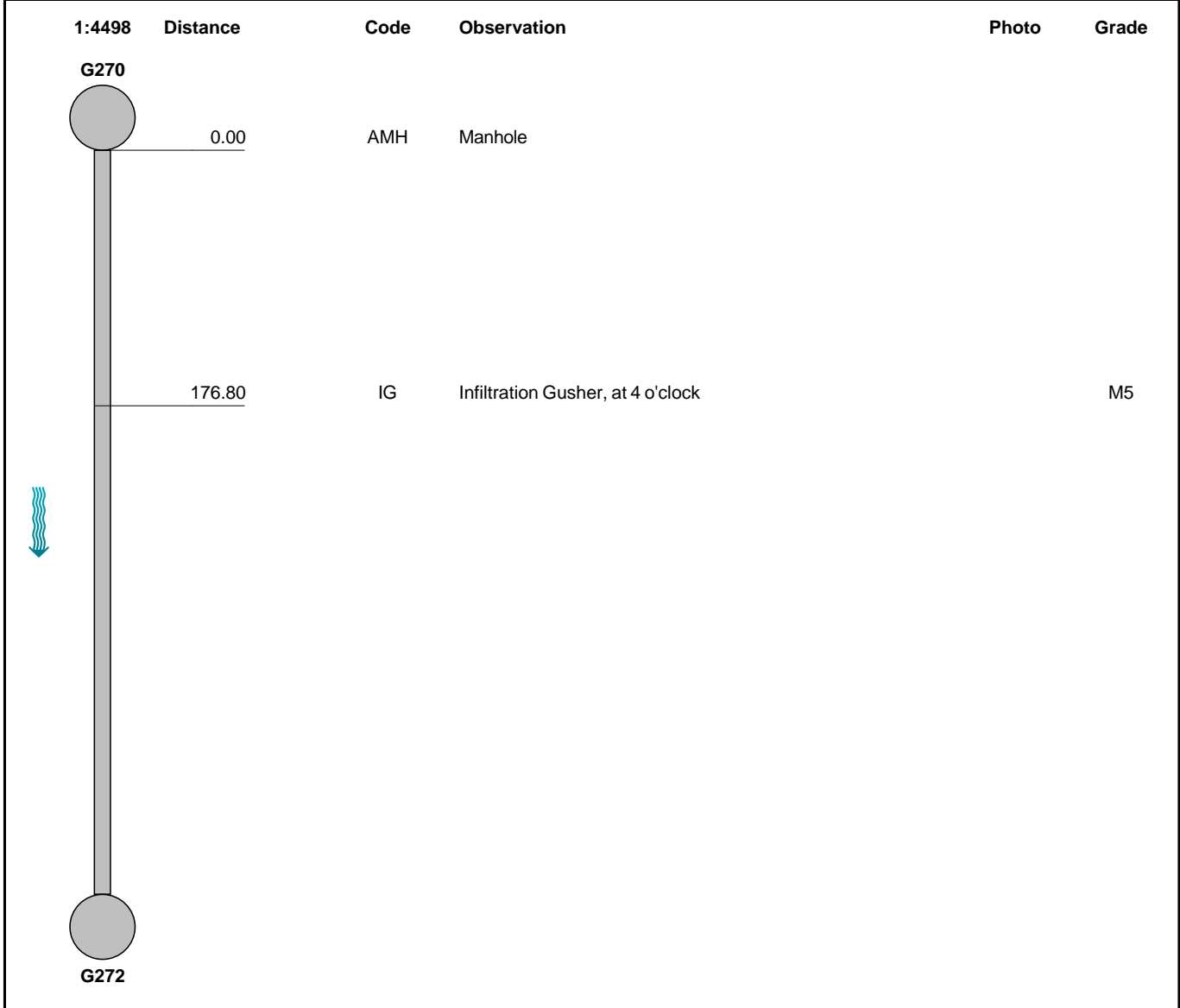
Inspection report

Date : 5/18/2017	Work Order : U-0780	Weather : Dry	Surveyed By : Meredith	Certificate Number : U-314-06020906	Pipe Segment Ref. : G270 - G272
Year laid :	Pre-cleaning: Jetting	Direction : Downstream	Pipe Joint Length : 0.0	Total Length : 515.0	Length Surveyed : 176.8

City : Havelock	Drainage Area :	Upstream MH : G270
Street : Jackson Dr	Media Label :	Up Rim to Invert : 0.0
Location Code : Woods	Flow Control : Plugged	Downstream MH : G272
Location Details :	Sheet Number :	Down Rim to Invert : 0.0

Pipe shape: Circular	Sewer Use: Sanitary
Pipe size: 15	Sewer Category : SEC
Pipe material: Polyethylene	Purpose: Routine Assessment
Lining Method :	Owner :

Additional Info :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5100	0.0	5.0	5.0	0.0	5.0	5.0

City Havelock	Street Jackson Dr	Date 5/18/2017	Pipe Segment Reference G270 - G272	Sewer Cleaning and
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G270 G272_d3e0174d-46f3-4bf9-8d25-161e05baba4b.bmp,
00:03:55, 176.80
Infiltration Gusher, at 4 o'clock



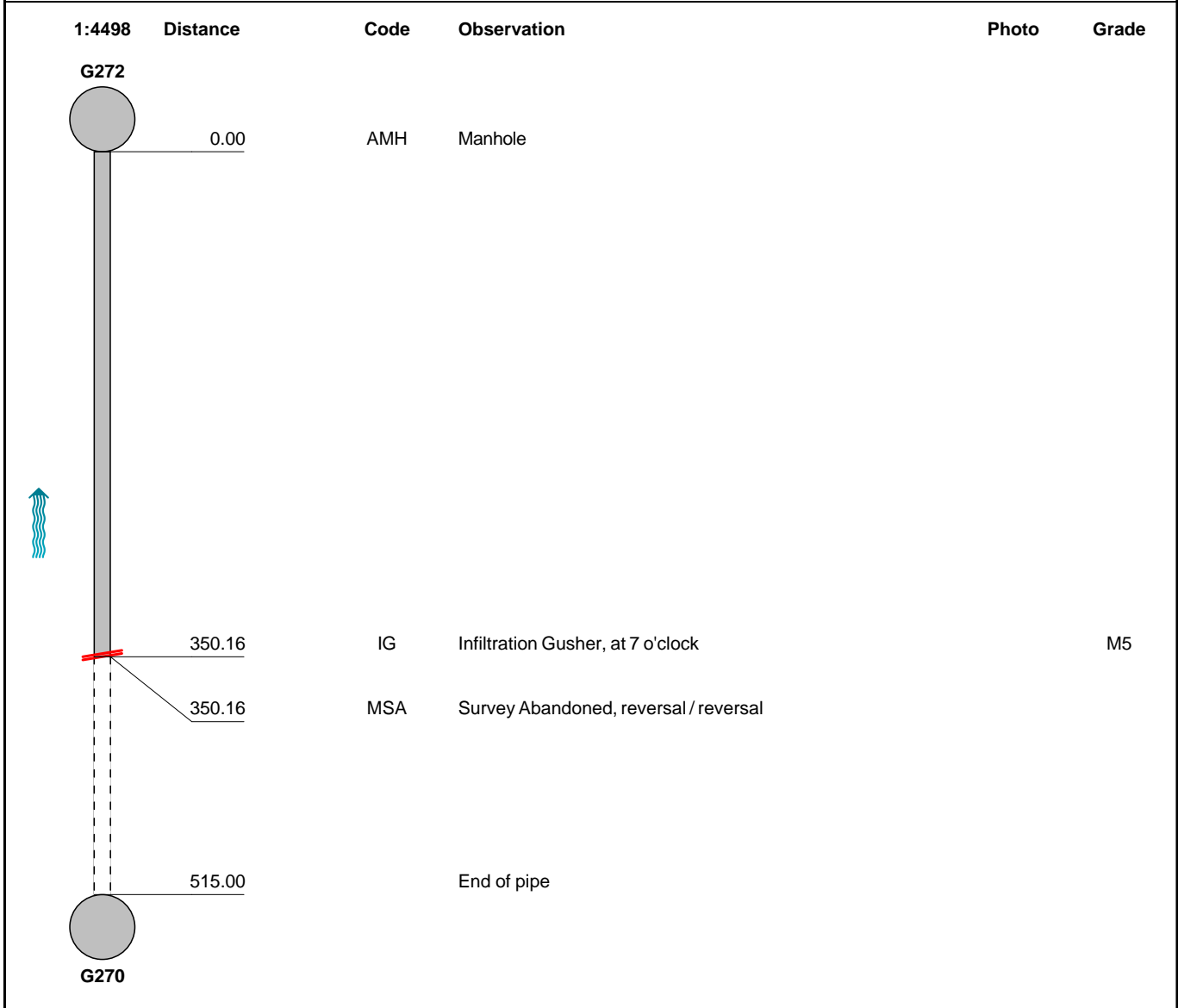
Inspection report

Date : 5/19/2017	Work Order : U-0780	Weather : Dry	Surveyed By : Meredith	Certificate Number : U-314-06020906	Pipe Segment Ref. : G270 - G272 (2)
Year laid :	Pre-cleaning: Jetting	Direction: Upstream	Pipe Joint Length : 0.0	Total Length : 515.0	Length Surveyed : 350.2

City : Havelock	Drainage Area :	Upstream MH : G270
Street : Jackson Dr	Media Label :	Up Rim to Invert : 0.0
Location Code : Woods	Flow Control : Plugged	Downstream MH : G272
Location Details :	Sheet Number :	Down Rim to Invert : 0.0

Pipe shape: Circular	Sewer Use: Sanitary
Pipe size: 15	Sewer Category : SEC
Pipe material: Polyethylene	Purpose: Routine Assessment
Lining Method :	Owner :

Additional Info :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5100	0.0	5.0	5.0	0.0	5.0	5.0

City Havelock	Street Jackson Dr	Date 5/19/2017	Pipe Segment Reference G270 - G272 (2)	Sewer Cleaning and
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G270 G272
(2)_05a80d6b-e23c-4b7a-aa80-91fc93d0f1f1.bmp, 00:06:05,
350.16