



## 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 **3:00 PM (EST) on Friday, October 20, 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.**

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.



## CITY OF HAVELOCK

Post Office Box 368  
Havelock, NC 28532

**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.**

N.C.G.S 147-86.55-69 requires certification for bids with a North Carolina Local Government. The certification is required at the time when a bid is submitted. N.C.G.S 147-86.55-69 requires that contractors with a North Carolina Local Government must not utilize any subcontractor found on the State Treasurer's Final Divestment List. The State Treasurer's Final Divestment List can be found on the State Treasurer's website at the address [www.nctreasurers.com/Iran](http://www.nctreasurers.com/Iran) and will be updated every 180 days.

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: [Ltillman@havelocknc.us](mailto:Ltillman@havelocknc.us) AND cc: [Asmith@havelocknc.us](mailto:Asmith@havelocknc.us)

Questions must be received by **3:00 PM (EST) on Wednesday, October 11, 2017**. If questions are received, the City will respond no later than **5:00 PM (EST) on Friday, October 13, 2017**.

Today is September 28, 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

Total prices to furnish materials, labor, equipment, and supervision necessary to complete each of the individual project areas:

- A. Project Area 1, repair between MHG160 and G161: \$ \_\_\_\_\_
- B. Project Area 2, repair between MHG270 and MHG272: \$ \_\_\_\_\_
- C. Project Area 3, repairs at MHP36 and connected sewers: \$ \_\_\_\_\_

Base Bid: \_\_\_\_\_

NC Sales Tax: \_\_\_\_\_

Delivery Cost (if applicable): \_\_\_\_\_

Total Cost to City: \_\_\_\_\_

***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

**IRAN DIVESTMENT ACT CERTIFICATION**

**REQUIRED BY N.C.G.S 147-86.55-69**

As of the date listed below, the vendor or bidder listed above is not listed on the Final Divestment List created by the State Treasurer pursuant to N.C.G.S. 147-86.55-69. The undersigned hereby certifies that he or she is authorized by the vendor or bidder listed above to make the forgoing statement.

Authorized Signature: \_\_\_\_\_

Print Name of Authorized Signature: \_\_\_\_\_

Title: \_\_\_\_\_

**Address Bid to:** Lee Tillman, Director of Finance  
City of Havelock  
PO Drawer 368  
1 Governmental Ave  
Havelock, NC 28532

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

2017 Sewer Repairs  
Scope of Work

1. Summary of Work

- A. Point repair between manholes G160 and G161 approximately 184 feet northeast of manhole G160, as shown on Figure 1. Point repair between manholes G270 and G272 approximately 350 feet southeast of manhole G272, as shown on Figure 2. Manhole P36 and associated sewer lines shall be removed and replaced as shown on Figure 3.
- 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. Access to the CCTV inspection can be requested from the owner.
- C. Contractor shall be responsible for locating existing utilities.

2. 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. Ballast: Increase thickness of precast concrete sections or add concrete to base section, as required to prevent flotation.
- 2. Base Section: Flanged, with integrally cast wall section.
- 3. Riser Sections: Section lengths to provide depth indicated.
- 4. Top Section: Eccentric-cone type, unless concentric-cone or flat-slab-top type is indicated. Top of cone of size that matches grade rings.

5. Joint Sealant: ASTM C 990, bitumen or butyl rubber.
6. Resilient Pipe Connectors: ASTM C 923, cast or fitted into manhole walls, for each pipe connection.
7. Adjusting Rings: Interlocking rings with level or sloped edge in thickness and diameter matching manhole frame and cover. Include sealant recommended by ring manufacturer.
8. Grade Rings: Reinforced-concrete rings, 6- to 9-inch total thickness, to match diameter of manhole frame and cover.
9. 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. 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.

#### 6. 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. Contractor shall have on-hand, a 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.

## 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 the cleaning and inspection of MHP35 to MHP36 shall be performed and the CCTV inspection provided to the Owner and Engineer. This work shall be done as early in the project as possible to allow for review of the inspection and inclusion of any additional repairs that may be required.
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.

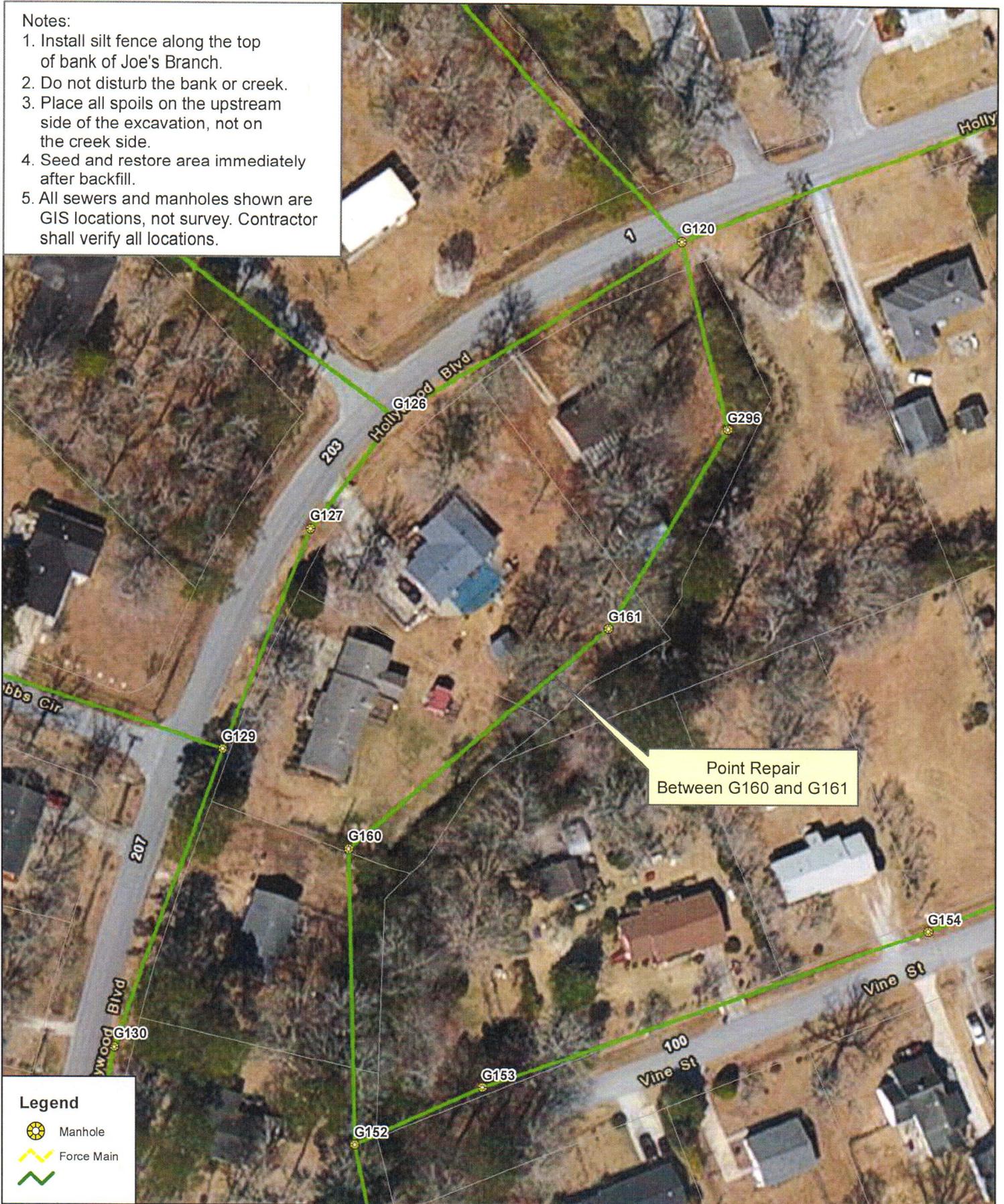
- D. Fill the annular space between the concrete host pipe and the HDPE sliplined pipe with chemical grout to seal the hole in the HDPE pipe.
  - E. Internally CCTV inspect the repair for defects and leaks. If any leaks or defects are noted the contractor shall make repairs as approved by the owner. 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 Drawing 1
- A. Contractor shall clean and CCTV inspect MHP35 to MHP36 and provide the inspection results to the owner. Inspection shall be per NASSCO standards. Owner and Engineer will confirm required repairs for the sewer between MHP35 and MHP36.
  - B. Contractor shall survey all upstream and downstream manhole inverts and the sewer pipe at the beginning point of each pipe replacement. These inverts will be used to establish the inverts for MHP36.
  - C. Install sewer bypass system and maintain until all repairs are completed.
  - D. Install and maintain necessary traffic control. Road and lane closures shall be coordinated with the City and permitted as required.
  - E. Install erosion and sediment control devices as needed to avoid sediment loss from the project site and into Joe's Branch.
  - F. 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.
  - G. Replace MHP36 and sewer pipe as indicated on Table 1 – Summary of Work.
  - H. 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.
  - I. 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.
  - J. 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		Remove existing manhole and replace with new 4ft diameter manhole.
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 to MHP36	Replace pipe from offset joint to new MHP36
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 to MHP36	Replace pipe from 305 feet to new MHP36 Contractor shall clean and inspect between MHP36 and MHP37, 310 LF. After the cleaning and inspection additional repairs for this section may be required and may be added to the project. At a minimum, a reconnection from the existing sewer to new MHP36 is required.
3	Nunn Street	P35	P36	8	Clay	Pavement/ Grass	TBD	TBD	
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	Replace pipe from new MHP36 to the joint 445 feet upstream of MHP74

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



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

Grout Repair  
Between G270 and G272  
Approximately 177 downstream  
from MHG270



	1 inch = 250 feet	City of Havelock Water and Sewer Department 2017 Sewer Repairs	Figure 2 Point Repair Location G270 - G272
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Notes:

1. Install silt fence along the top of bank of Joe's Branch.
2. Do not disturb the bank or creek beyond what is required for the sewer replacement.
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. Repair pavement to City of Havelock standards.
6. All sewers and manholes shown are GIS locations, not survey. Contractor shall verify all locations.

Legend

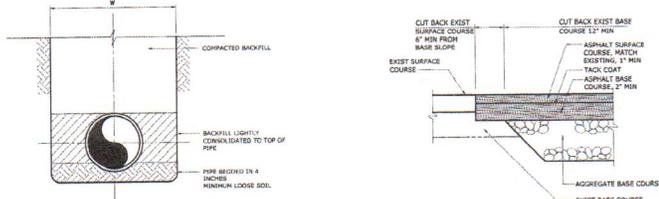
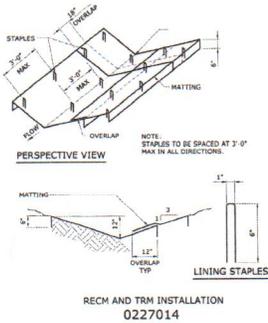
-  Manhole
-  Force Main
-  Gravity Sewer



1 inch = 100 feet

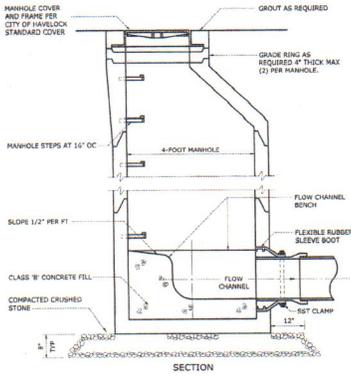
City of Havelock  
Water and Sewer Department  
2017 Sewer Repair

Figure 3  
Manhole P36 Replacement

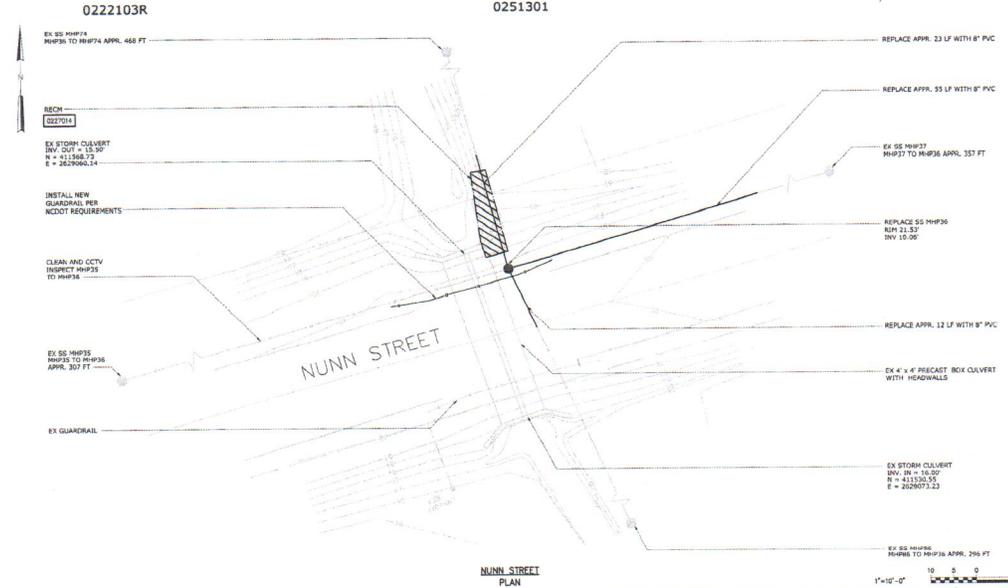


- NOTES:
1. ALL WORK SHALL BE PERFORMED WITHIN THE RIGHT OF WAY. NO EQUIPMENT OR MATERIALS SHALL BE STORED ON PRIVATE PROPERTY.
  2. CCTV OF MH#25 TO MH#36 SHALL BE PROVIDED TO THE OWNER. OWNER AND ENGINEER WILL CONFER REQUIRED REPAIRS FOR THE SEWER BETWEEN MH#33 AND MH#36.
  3. CONTRACTOR SHALL SURVEY ALL MANHOLE INVERTS FOR MH#33, MH#37, MH#36, AND MH#74. THESE INVERTS WILL BE USED TO ESTABLISH THE BENCHMARKS FOR MH#36.
  4. COORDINATE ANY REQUIRED ROAD AND LAKE CLOSURES WITH THE CITY AND OBTAIN PERMITS AS REQUIRED.
  5. ALL REQUIRED SHEETING AND SHORING SHALL BE DESIGNED BY AN ENGINEER LICENSED IN NORTH CAROLINA AND SHALL MEET NC DOT STANDARDS AND REQUIREMENTS.
  6. INTERNALLY CCTV INSPECT THE REPAIRS 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.
  7. IMMEDIATELY UPON BACKFILL, FINAL GRADE SHALL BE ESTABLISHED. THE AREA SHALL BE SEDED AND STABILIZED. BANK DISTURBANCE SHALL BE STABILIZED WITH ROLLED BRASSON CONTROL MATTING.
  8. ALL PAVEMENT REPAIRS SHALL BE COMPLETED TO NC DOT STANDARDS AND TO THE SATISFACTION OF THE CITY OF HAVELOCK. CONTRACTOR TO PROVIDE COURSE OF REMOVED SEWER AND MANHOLE OFFSETS.

RECM AND TRM INSTALLATION  
0227014



SECTION  
0260101



NUNN STREET  
PLAN

1"=10'-0"

PROJECT ENGINEER:	N. JOHNSON
DRAWN BY:	
CHECKED BY:	
ISSUED FOR BIDDING:	8/20/17 NSJ
ISSUED FOR:	



**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:	SEPTEMBER 2017
HAZEN NO.:	30906-006
CONTRACT NO.:	1
DRAWING NUMBER:	1

RESERVED FOR PRINTING



## 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



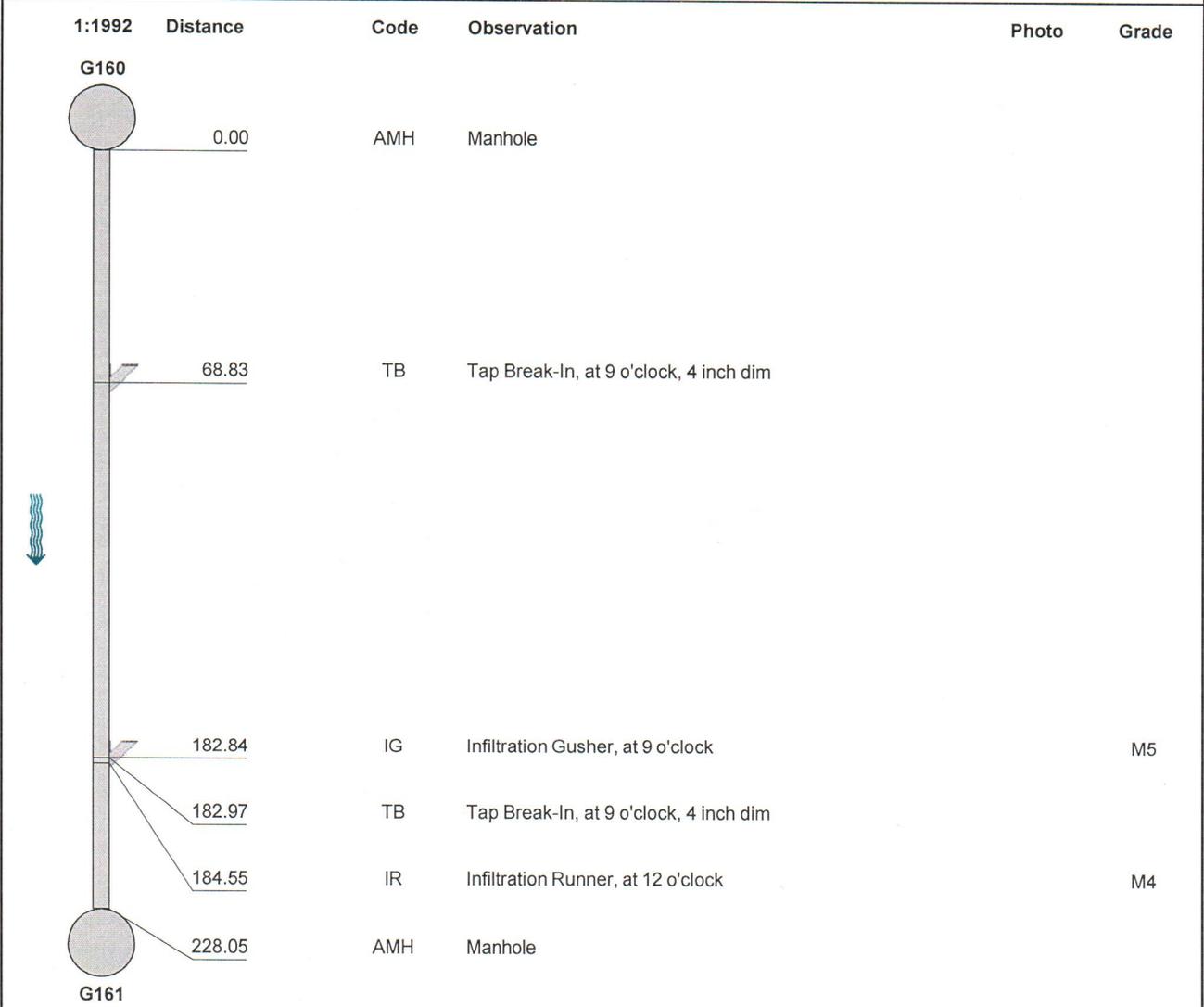
### Inspection report

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

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

Pipe shape: <b>Circular</b>	Sewer Use: <b>Sanitary</b>
Pipe size: <b>10</b>	Sewer Category: <b>SEC</b>
Pipe material: <b>Vitrified Clay Pipe</b>	Purpose: <b>Routine Assessment</b>
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,  
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 Tap Break-In, at 9 o'clock, 4 inch dim



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 Infiltration Gusher, at 9 o'clock



G160 G161\_3c4c3644-cfe2-4fd1-ad6b-c565f6a13c6c.bmp,  
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 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





**PipeView Technologies**  
613 Raleigh Ave, Carolina Beach, NC 28428  
Tel. 703-625-0270  
meredith@pipeviewtech.com

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



**PipeView Technologies**  
 613 Raleigh Ave, Carolina Beach, NC 28428  
 Tel. 703-625-0270  
 meredith@pipeviewtech.com

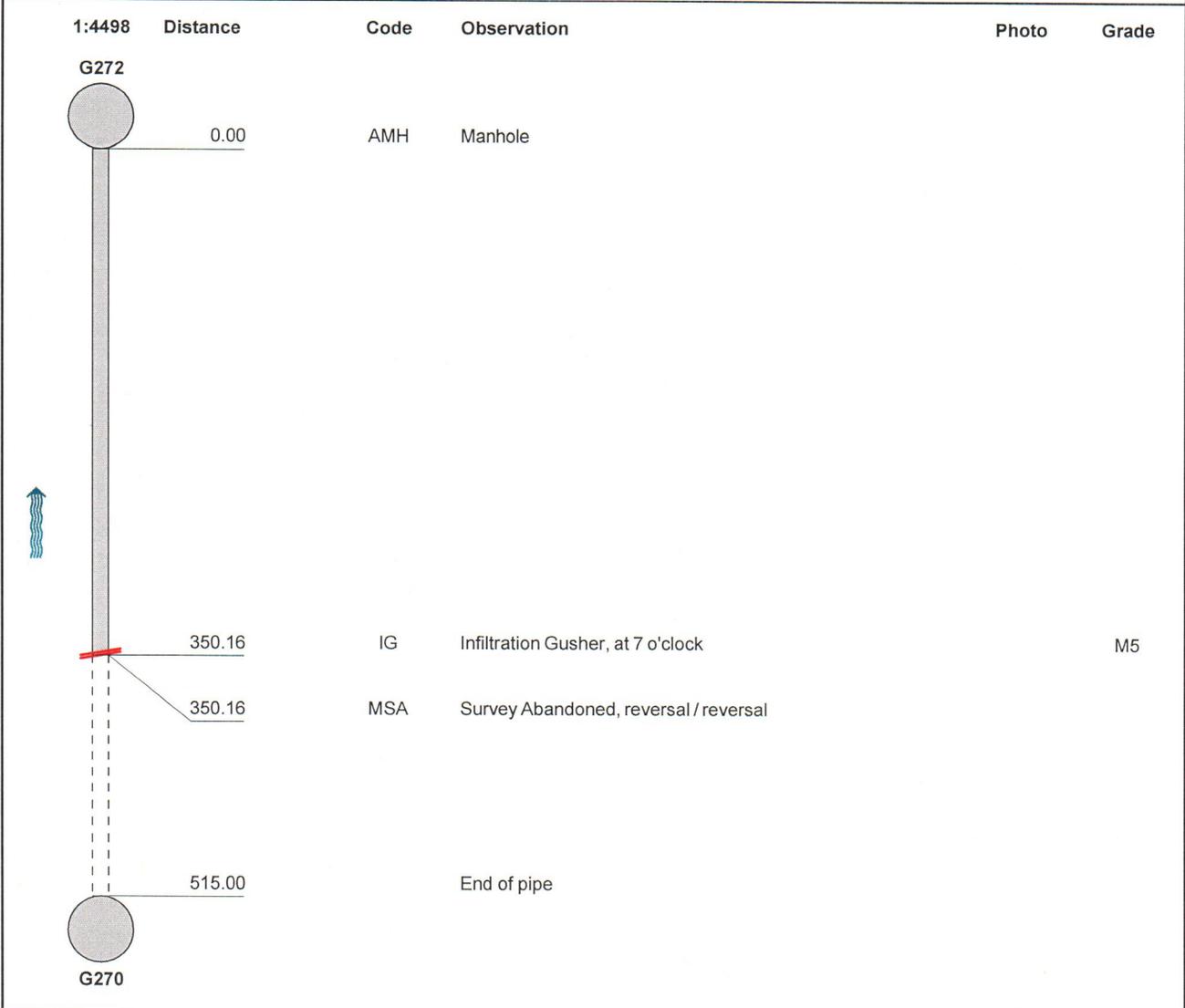
### Inspection report

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

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

Pipe shape: <b>Circular</b>	Sewer Use: <b>Sanitary</b>
Pipe size: <b>15</b>	Sewer Category: <b>SEC</b>
Pipe material: <b>Polyethylene</b>	Purpose: <b>Routine Assessment</b>
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



**PipeView Technologies**  
613 Raleigh Ave, Carolina Beach, NC 28428  
Tel. 703-625-0270  
meredith@pipeviewtech.com

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





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



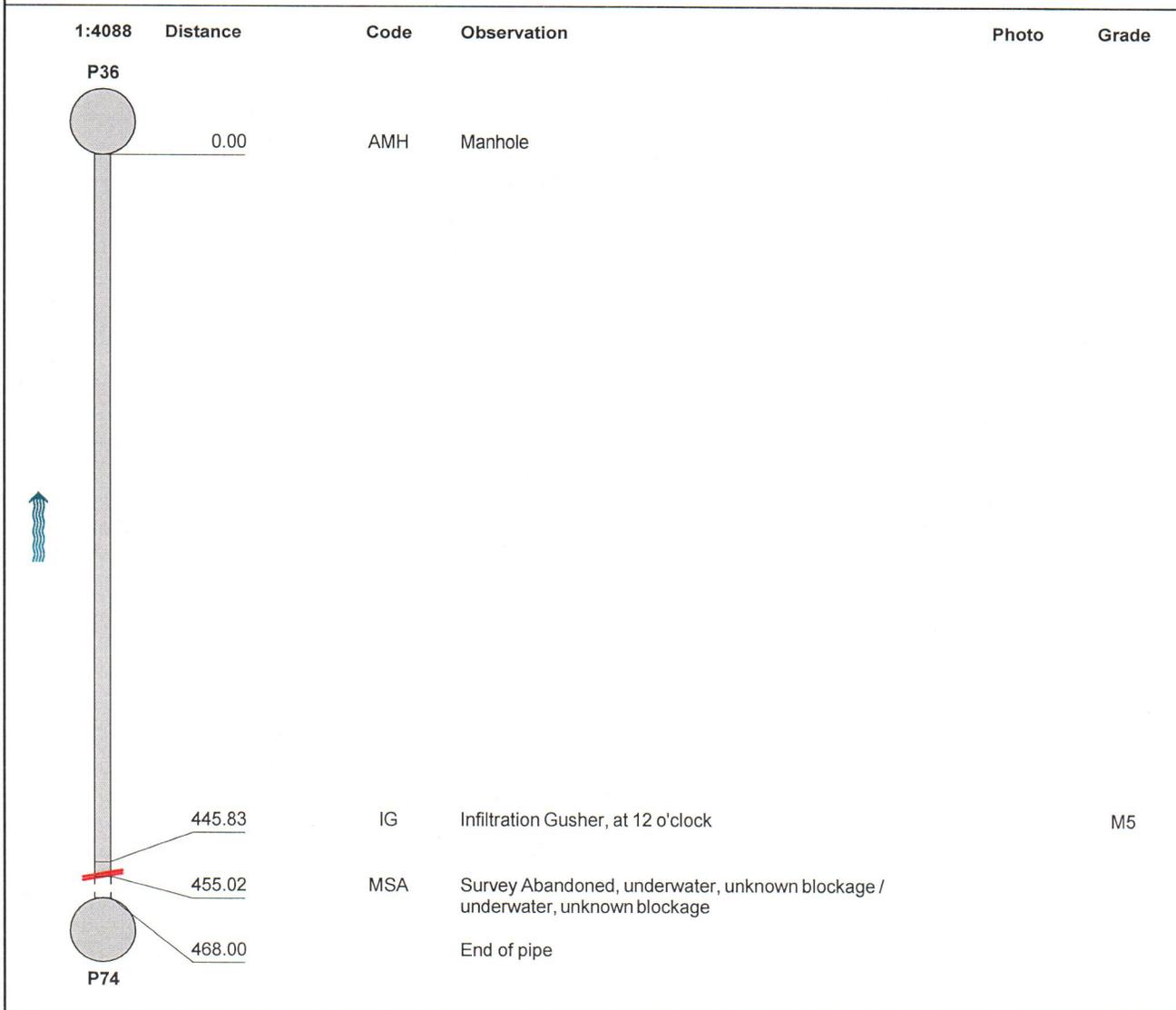
### Inspection report

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

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

Pipe shape: <b>Circular</b>	Sewer Use: <b>Sanitary</b>
Pipe size: <b>8</b>	Sewer Category: <b>SEC</b>
Pipe material: <b>Vitrified Clay Pipe</b>	Purpose: <b>Routine Assessment</b>
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 : <b>5/2/2017</b>	Work Order : <b>U-0780</b>	Weather : <b>Dry</b>	Surveyed By : <b>Meredith</b>	Certificate Number : <b>U-314-06020906</b>	Pipe Segment Ref. : <b>P37 - P36</b>
Year laid :	Pre-cleaning : <b>Jetting</b>	Direction : <b>Downstream</b>	Pipe Joint Length : <b>0.0</b>	Total Length : <b>357.0</b>	Length Surveyed : <b>350.2</b>

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

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

Additional Info :

1:3118	Distance	Code	Observation	Photo	Grade
<b>P37</b>					
	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		
<b>P36</b>					

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,  
00:08:36, 304.66  
Material Change, Polyvinyl chloride



### Inspection report

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

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

Pipe shape: <b>Circular</b>	Sewer Use: <b>Sanitary</b>
Pipe size: <b>8</b>	Sewer Category: <b>SEC</b>
Pipe material: <b>Vitrified Clay Pipe</b>	Purpose: <b>Routine Assessment</b>
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