

Marple Township

Will be forwarded when received.

Newtown Township

Will be forwarded when received.



2

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2018

- Permittee is owner and/or operator of a POTW or other sewage treatment facility
 Permittee is owner and/or operator of a collection system tributary to a POTW not owned/operated by permittee

GENERAL INFORMATION			
Permittee Name:	Radnor Township	Permit No.:	PA
Mailing Address:	301 Iven Avenue	Effective Date:	
City, State, Zip:	Wayne, PA 19087	Expiration Date:	
Contact Person:	Steve Norcini	Renewal Due Date:	
Title:	Township Engineer	Municipality:	Radnor Township
Phone:	610-688-5600	County:	Delaware
Email:	snorcini@radnor.org	Consultant Name:	Gannett Fleming, Inc.

CHAPTER 94 REPORT COMPONENTS

1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))

Check the appropriate boxes:

- Line graph for flows attached (Attachment)
 DEP Chapter 94 Spreadsheet used (Attachment)
 Section 1 is not applicable (report is for a collection system).

2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))

Check the appropriate boxes:

- Line graph for organic loads attached (Attachment)
 DEP Chapter 94 Spreadsheet used (Attachment)
 Section 2 is not applicable (report is for a collection system).

3. If the DEP Chapter 94 Spreadsheet was not used to determine projections, discuss the basis for the hydraulic and organic projections. In all cases, include a description of the time needed to expand the plant to meet the load projections, if necessary, and data used to support the projections should be included in an appendix to this report. (25 Pa. Code § 94.12(a)(3))

Page 2 of the attached report discuss hydraulic and organic loadings

4. Attach a map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map must be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served. (25 Pa. Code § 94.12(a)(4))

Check the appropriate boxes:

- Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment B**)
- List summarizing each extension or project attached (**Attachment B**)
- Schedules describing how each project will be completed over time and effects attached (**Attachment**)

Comments:

Appendix B includes a map of the projects constructed and proposed for the next five years

5. Discuss the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(5))

Maintenance and rehabilitation work was performed by the RHM Authority. The 2018 Maintenance and rehabilitation report has been included as Appendix C of this report.

6. Discuss the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, CSOs, SSOs, excessive infiltration and other system problems. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(6))

Check the appropriate boxes:

- System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.
- System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

Portions of the system are in good shape, portions of the systems are in fair shape, and some portions of the system are in poor shape. The was one SSO reported for 2018 in Rawles Run.

7. Attach a discussion on the condition of sewage pumping (pump) stations. Include a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station. (25 Pa. Code § 94.12(a)(7))

Check the appropriate boxes:

- The collection system does not contain pump stations
 The collection system does contain pump stations (Number –)
 Discussion of condition of each pump station attached (**Attachment P3**)

8. If the sewage collection system receives industrial wastes (i.e., non-sanitary wastes), attach a report with the information listed below. (25 Pa. Code § 94.12(a)(8))

- a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.
- b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.
- c. A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

Check the appropriate boxes:

- Industrial waste report as described in 8 a., b. and c. attached (**Attachment NA**)
 Industrial pretreatment report as required in an NPDES permit attached (**Attachment NA**)

9. Existing or Projected Overload.

Check the appropriate boxes:

- This report demonstrates an existing hydraulic overload condition.
 This report demonstrates a projected hydraulic overload condition.
 This report demonstrates an existing organic overload condition.
 This report demonstrates a projected organic overload condition.

If one or more boxes above have been checked, attach a Corrective Action Plan (CAP) to reduce or eliminate present or projected overloaded conditions under §§ 94.21 and/or 94.22 (relating to existing overload and projected overload). (25 Pa. Code § 94.12(a)(9))

- Corrective Action Plan attached (**Attachment NA**)

10. Where required by the NPDES permit, attach a Sewage Sludge Management inventory that demonstrates a mass balance of solids coming in and leaving the facility over the previous calendar year.

- Sewage Sludge Management Inventory attached (**Attachment NA**)

11. For facilities with CSOs and where required by the NPDES permit, attach an Annual CSO Report (including satellite combined sewer systems).

Annual CSO Report attached (Attachment NA)

12. For POTWs, attach a calibration report documenting that flow measuring, indicating and recording equipment has been calibrated annually. (25 Pa. Code § 94.13(b))

Flow calibration report attached (Attachment NA)

RESPONSIBLE OFFICIAL CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Stephen F. Norcini, PE Township Engineer

Name of Responsible Official

Signature 

610-688-5600

Telephone No.

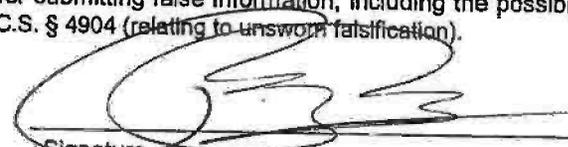
Date 4/9/14

PREPARER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Roger A. Phillips, PE

Name of Preparer

Signature 

610-650-8101

Telephone No.

Date 4/10/19

**2018
MUNICIPAL WASTELOAD
MANAGEMENT REPORT**

RADNOR TOWNSHIP

MARCH 2019

**RADNOR TOWNSHIP
MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT INFORMATION**

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APPENDICES

APPENDIX A

TABLE 1 – 2018 Average Monthly Flow

TABLE 2 – 2018 Pumping Station Flows

TABLE 3 - Projected annual average daily flows 2019 - 2023

APPENDIX B

Sewer Maintenance and Repair

APPENDIX C

Map of Proposed Projects

1. INTRODUCTION

Radnor Township's sanitary sewer collection system consists of a gravity collection system and five (5) pumping stations and associated force mains and does not contain any combined sewers. Radnor Township's sewer system receives sewage from Tredyffrin Township at two metered locations (T-1 and T-2) and from Newtown Township at four-meter locations (Earlton, Area C, Malin Road and Doe Lane). The majority of the sewage from the Township (including the above) flow into the Radnor Haverford Marple Sewer Authority (RHM) interceptor sewers. These interceptors convey flow into the R-1 and R-2 meters located in Haverford Township. Both of the interceptors ultimately convey flow to the DELCORA system. A small amount of sewage from the east side of the Township is conveyed into the Upper Merion and Lower Merion systems and sewage from the south east corner is conveyed to the Haverford system which then flows into the Cobbs Creek Interceptor System.

The age of the Township system ranges from over 100 years old to less than 5 years old. The table below shows size and lengths of sewers in the Township.

Gravity Line Pipe Size (Inches)	Pipe Length (Feet)
24	5,344
20	14,208
18	5,955
16	3,898
14	9,657
12	6,704
8	621,173
6	765

The Township has 4 pumping stations. The Courtney Lane pumping station was taken off line in 2016. They are listed below with the length and size of the associated Force Main.

Pump Station	Force Main Length	Force Main Size
King of Prussia	2,670	10
Hermitage	1,410	4
Woods	925	4
Ithan Mills	820	4

2. HYDRAULIC AND ORGANIC LOADINGS

The 2017 combined average daily flow from the R-1 and R-2 meters are listed monthly in Table 1 of Appendix A. The hydraulic loading data presented in Table 2 of Appendix A shows the annual average daily flow from calendar year 2014 through 2018. The flow for the last five years were determined from actual flow meter records. The base flow (4.116 mgd) used for projections is the average of the 2014 through 2018 metered flows.

3. 5 –YEAR HYDRAULIC AND ORGANIC LOADING PROJECTIONS

Table 3 of Appendix A shows the projected annual average daily flow for the calendar years 2019 through 2023. Projected flows are based on the current base flow and a growth allowance of 42 EDUs for 2019, 248 EDUs FOR 2020, 26 EDUs for 2021, 18 EDUs for 2022, and 12 EDUs for 2023. Wastewater flow from new connections has been estimated at 262.5 gallons per day (gpd) per EDU. The projections above are based on actual know projects to date. Currently due to downstream capacity issues, connections not previously approved through the Springfield Township connection management plan are not being allowed.

Organic loading data reflecting the estimated annual average daily organic loadings for calendar years 2014 through 2018 is set forth in Table 2 (Appendix A). The projected annual average daily organic loadings for calendar years 2019 through 2023 are shown in Table 3 (Appendix A). Since

there are no industrial waste contributors within the Township, organic loadings are based on a standard BOD₅ concentration of 200 mg/l for domestic wastewater.

4. SEWER EXTENSIONS

There were no sanitary sewer extensions completed in 2018.

5. PROGRAM FOR SEWER SYSTEM MONITORING, MAINTENANCE AND REPAIR

All pump stations and generators are checked on a daily basis by the sewer department.

During 2018, maintenance and rehabilitation work was performed by the RHM Authority. A copy of the maintenance work is located in Appendix C of this report.

6. CONDITION OF THE SEWER SYSTEM

Portion of the systems are in good shape (PVC pipe), portions of the system are in fair shape (AC pipe), and portions of the system are in poor shape (VCP).

7. WASTEWATER PUMPING STATIONS

The Township four pump stations are in good condition and have not had any major problems this past year. All maintenance at the Pumping Stations in 2018 was routine. The Township's Sewer Department performs routine maintenance and cleaning of the wet wells. If there is a problem with a pumping station that cannot be addressed in house, Municipal Maintenance will be brought in to correct the problem. The Courtney Lane pumping station was taken off line in 2016 and a gravity extension constructed. In 2017 there was an emergency replacement of the King of Prussia Road Force main. 2,350 LF of 10" IPS SDR 17 (3.41 ID) was replaced the same quantity of 10" OD AC FM.

A brief description of each pumping station is as follows:

King of Prussia Station

This pumping station contains two (2) Chicago centrifugal pumps with variable frequency drives, capability of discharging 600,000 gallons per day through a 10 inch 2,670 LF force main. This station has an emergency generator and an emergency dialer system. An upgrade of the pumping station was completed in 2003.

Woods Lane Station

This is an ejector pump station that uses compressed air to discharge sewage from 33 dwelling units. This station is equipped with an emergency call out dialer system and an emergency generator.

Hermitage Lane Station

This is an ejector pump station that uses compressed air to discharge sewage from 40 dwelling units. This station is equipped with an emergency call out dialer system and an emergency generator.

Ithan Mills Station

This is an ejector pump station that uses compressed air to discharge sewage from 52 dwelling units. This station is equipped with an emergency call out dialer system and an emergency generator.

8. INDUSTRIAL WASTE REPORT

There is no industrial waste currently being discharged into the DELCORA system from Radnor Township

9. CORRECTIVE ACTION PLANS

This section is not applicable; No corrective action plans are required for the Radnor Township system.

10. CALIBRATION REPORTS

The pumping stations are not metered, there are no calibration reports.

APPENDIX A

Table 1

Radnor Township
RHM Meters
2018 Hydraulic and Organic Loadings

Month	Average Daily Flow (mgd)	Influent BOD* (mg/l)	Influent BOD (lb/day)
January	3.372	200	5,624
February	4.117	200	6,867
March	4.643	200	7,745
April	4.197	200	7,001
May	4.074	200	6,796
June	3.904	200	6,512
July	3.360	200	5,604
August	3.687	200	6,150
September	4.923	200	8,212
October	4.340	200	7,239
November	5.620	200	9,374
December	5.495	200	9,166
Average	4.311	200	7,191

* estimated BOD concentration in mg/l

3 month hydraulic maximum - 5.151
1 month organic maximum - 6,225

TABLE 2
Radnor Township

5-Year Hydraulic and Organic Loading Data

Year	Annual Average Daily Flow (AADF) (mgd)	* Max. 3 Month Average Daily Flow (mgd)	Ratio of 3 Month Max. to AADF	Annual Average Daily Organic Loading (lbs/day) (1)
2014	4.928	6.187	1.255	8,220
2015	4.205	5.139	1.222	7,014
2016	3.844	4.521	1.176	6,412
2017	3.294	3.774	1.146	5,495
2018	4.311	5.151	1.195	4,814
AVERAGE	4.116	4.954	1.199	6,391

(1) Organic Loading = AADF x 200 mg/l BOD-5 x 8.34

Table 3

Radnor Township

Hydraulic and Organic Loading Projections

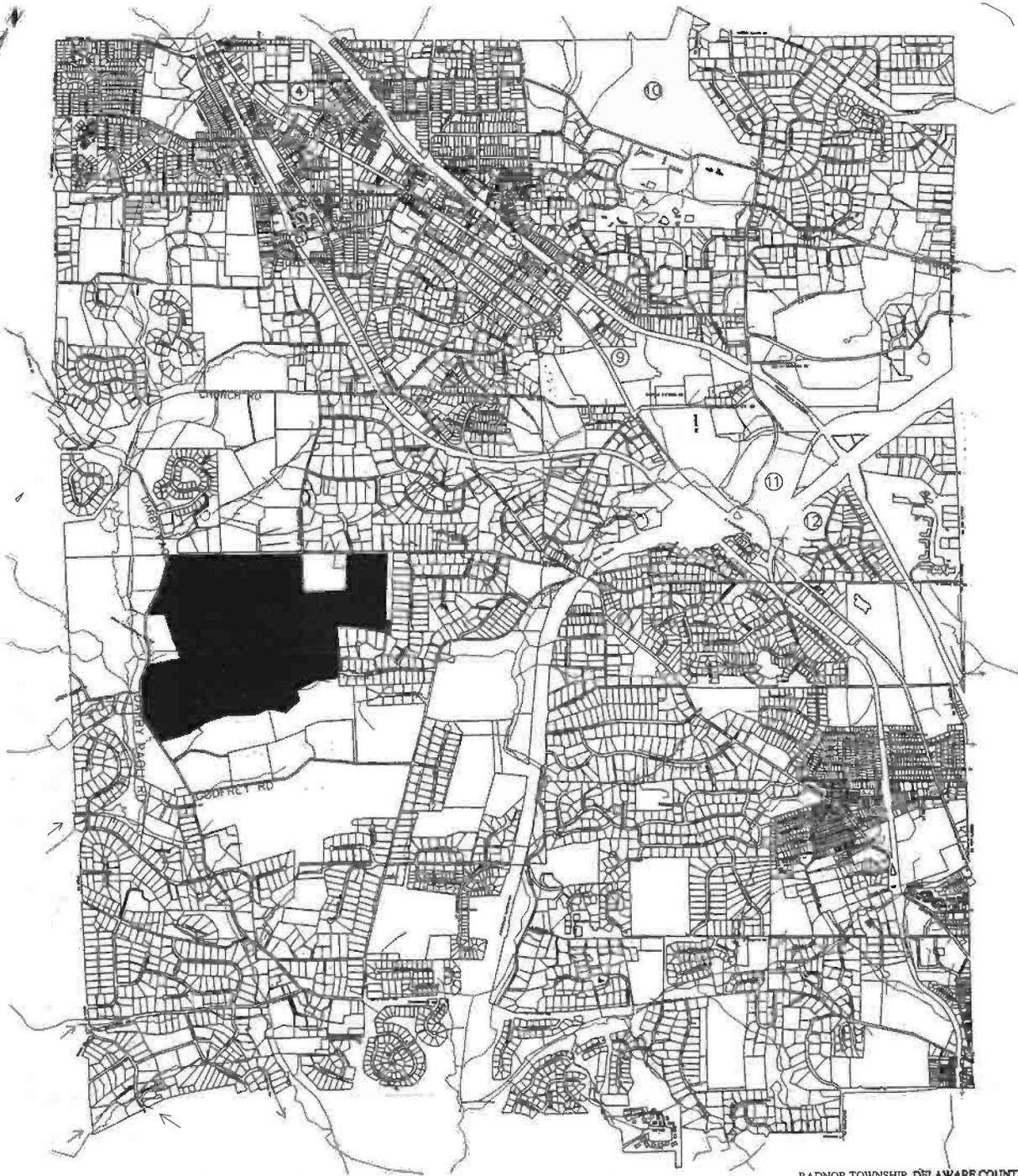
Year	Base Flow (mgd)	Projected Additional EDUS Connected	Projected Flow Increase (mgd) (1)	Projected Total Flow (mgd)	Projected Total Organic Loading (lbs/day) (2)
Base (3)	-----		-----	4.116	6,865
2019	4.116	42	0.0110	4.127	6,884
2020	4.127	248	0.0651	4.192	6,992
2021	4.192	26	0.0068	4.199	7,004
2022	4.199	18	0.0047	4.204	7,012
2023	4.204	12	0.0032	4.207	7,017

(1) Projected flow increase based on EDUs x 262.5 gpd / EDU

(2) Projected organic loadings are based on a raw wastewater BOD-5 concentration of 200 mg/l.

(3) Average flow for previous 5 years.

APPENDIX B



- 2018 PROJECTS**
- ① ARDROSSAN FARM
 - ② 227/229 PLANT AVENUE

- FUTURE PROJECTS**
- ③ WAWA
 - ④ 427 EAST LANCASTER
 - ⑤ FIRST RESOURCE BANK
 - ⑥ 310216 BLOOMINGDALE AVENUE
 - ⑦ 409411/113 EAST LANCASTER
 - ⑧ 415 MAPLEWOOD
 - ⑨ 104 & 119 CAMBRIA
 - ⑩ CABRINS
 - ⑪ PENN MEDICINE
 - ⑫ VILLANOVA LANCASTER AVENUE HOUSING
 - ⑬ ARDENT CREDIT UNION

**RADNOR TOWNSHIP, DELAWARE COUNTY
WASTEWATER COLLECTION AND
CONVEYANCE SYSTEM
MARCH 2019**



2018 PROJECTS: 
 FUTURE PROJECTS: 

APPENDIX C

2018
TV UNIT DATA BASE SUMMARY

RADNOR TWP.

SANITARY SEWER CAMERA FOOTAGE; 60,252 FEET
STORM SEWER CAMERA FOOTAGE; 200 FEET
EMERGENCY CALLS; 7 REQUESTS

HVERFORD TWP.

SANITARY SEWER CAMERA FOOTAGE; 24,782 FEET
STORM SEWER CAMERA FOOTAGE; 0 FEET
EMERGENCY CALLS; 0 REQUESTS

MARPLE TWP.

SANITARY SEWER CAMERA FOOTAGE; 41,876 FEET
STORM SEWER CAMERA FOOTAGE; 848 FEET
EMERGENCY CALLS; 40 REQUESTS

NEWTOWN TWP.

SANITARY SEWER CAMERA FOOTAGE; 21,422 FEET
STORM SEWER CAMERA FOOTAGE; 439 FEET
EMERGENCY CALLS; 3 REQUESTS

TREDYFFRIN TWP.

SANITARY SEWER CAMERA FOOTAGE; 14,019 FEET
STORM SEWER CAMERA FOOTAGE; 0 FEET
EMERGENCY CALLS; 0 REQUESTS

TOTAL FOR ALL TOWNSHIPS

SANITARY SEWER CAMERA FOOTAGE; 162,351 FEET
STORM SEWER CAMERA FOOTAGE; 1,487 FEET
EMERGENCY CALL REQUESTS; 50

2018 EMERGENCY CALLS

RADNOR TWP.

JET TRUCK: 1 REQUEST / ROOT CUTTING: 0 REQUESTS / MINI-CAM: 0 REQUESTS

T.V. UNIT: 7 REQUEST

REHAB UNIT: 0 REQUESTS

HVERFORD TWP.

JET TRUCK: 0 REQUESTS / ROOT CUTTING: 0 REQUESTS / MINI CAM: 0 REQUESTS

T.V. UNIT: 0 REQUESTS

REHAB UNIT: 0 REQUESTS

MARPLE TWP.

JET TRUCK: 3 REQUESTS / ROOT CUTTING: 1 REQUEST / MINI CAM: 4 REQUESTS

T.V. UNIT: 40 REQUESTS

REHAB UNIT: 2 REQUESTS

NEWTOWN TWP.

JET TRUCK: 5 REQUESTS / ROOT CUTTING: 1 REQUEST / MINI CAM: 0 REQUESTS

T.V. UNIT: 3 REQUESTS

REHAB UNIT: 0 REQUESTS

TREDYFFRIN TWP.

JET TRUCK: 0 REQUESTS / ROOT CUTTING: 0 REQUESTS / MINI CAM: 0 REQUESTS

T.V. UNIT: 0 REQUESTS

REHAB UNIT: 0 REQUESTS

TOTAL TOWNSHIPS COMBINED

JET TRUCK: 9

ROOT CUTTING: 2

MINI CAM: 4

T.V. UNIT: 50

REHAB UNIT: 2

TOTAL REQUESTS: 67

2018

RADNOR TWP.

REHAB UNIT

INFILTRATION:

3-2-2018 M.H. # 18-14 R/W MALIN RD.
WEIR READING 115 G.P.D. BEFORE QUICK PLUG
WEIR READING AFTER 0
TOTAL G.P.D. STOPPED 115

3-13-2018 M.H. # 18-15 R/W MALIN RD.
WEIR READING 1,064 G.P.D. BEFORE QUICK PLUG
WEIR READING AFTER 0
TOTAL G.P.D. STOPPED 1,064

6-15-2018 M.H. # 252-69-2 KENILWORTH RD.
WEIR READING 115 G.P.D. BEFORE GROUT
WEIR READING AFTER 0
TOTAL G.P.D. STOPPED 115

6-15-2018 M.H. # 252-69-7 ASHWOOD RD.
WEIR READING 115 G.P.D. BEFORE GROUT
WEIR READING AFTER 0
TOTAL G.P.D. STOPPED 115

6-19-2018 M.H. # 252-69-6 ASHWOOD RD.
WEIR READING 115 G.P.D. BEFORE GROUT
WEIR READING AFTER 0
TOTAL G.P.D. STOPPED 115

6-19-2018 M.H. # 252-69-20 HILLDALE RD.
WEIR READING 57 G.P.D. BEFORE GROUT
WEIR READING AFTER 0
TOTAL G.P.D. STOPPED 57

6-20-2018 M.H. # 252-26-26 HILLDALE RD.
WEIR READING 57 G.P.D. BEFORE GROUT
WEIR READING AFTER 0
TOTAL G.P.D. STOPPED 57

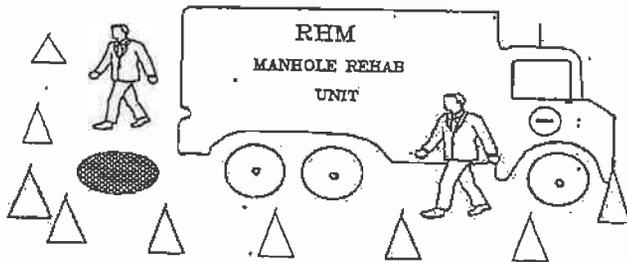
6-20-2018 M.H. # 252-69-1 KENILWORTH RD.
WEIR READING 260 G.P.D. BEFORE GROUT
WEIR READING AFTER 0
TOTAL G.P.D. STOPPED 260

6-22-2018 M.H. # 107-1 OAKFORD RD.
WEIR READING 57 G.P.D. BEFORE GROUT
WEIR READING AFTER 0
TOTAL G.P.D. STOPPED 57

7-5-2018 M.H. # 215-14 R/W HAVILAND DR.
WEIR READING 115 G.P.D. BEFORE GROUT
WEIR READING AFTER 0
TOTAL G.P.D. STOPPED 115

TOTAL G.P.D. STOPPED OVER ALL: 2,070

DL 6/11/18

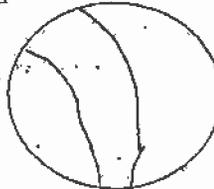


R.H.M. SEWER AUTHORITY
600 GLENDALE ROAD
HAVERTOWN, PA. 19083
446-0867

Remember Safety First

LOCATION R/W Malin Rd
TOWNSHIP Kadnor Twp
MANHOLE CONDITION Fair
MANHOLE TYPE Pre-Cast
INFILTRATION Yes
MANHOLE DEPTH 7'8"
BASE SIZE 4
INSPECTOR/OPERATOR Kyle/Tom

INDICATE IN THE CIRCLE: LINES OR LATERALS
HOUSE ADDRESS OF LATERAL



MANHOLE # 18-14

FLOW: HIGH AVERAGE LOW

EMERGENCY REPORT

DATE:

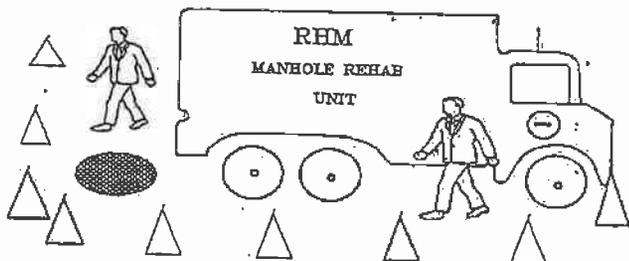
REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

3-2-18

Scrap/clean Iron Deposit. Applied quick plug to stop leak.

Weir Reading 115 GPD
After Quick plug 0 GPD

DL 6/11/18

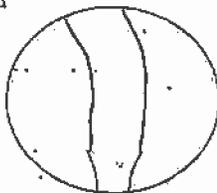


R.H.M. SEWER AUTHORITY
600 GLENDALE ROAD
HAVERTOWN, PA. 19083
446-0867

Remember Safety First

LOCATION R/W Main Rd
TOWNSHIP Rdgortwp
MANHOLE CONDITION Fair
MANHOLE TYPE Pvc-16lb
INFILTRATION Yes
MANHOLE DEPTH 10'
BASE SIZE 4'
INSPECTOR/OPERATOR Kyle/Chip

INDICATE IN THE CIRCLE: LINES OR LATERALS
HOUSE ADDRESS OF LATERAL



MANHOLE # 1815

FLOW: HIGH AVERAGE LOW

DATE:

REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

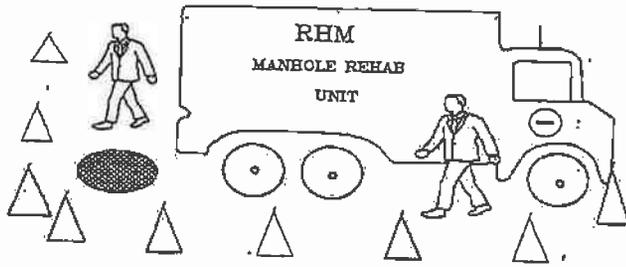
EMERGENCY REPORT

3-13-18

Scrap/clean Iron deposit around seam. Applied quickplug to stop leak.

Weir Reading 1064 GPD
After Quickplug 0 GPD

02 7/15/18

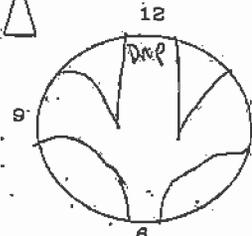


R.H.M. SEWER AUTHORITY
 600 GLENDALE ROAD
 HAVERTOWN, PA. 19083
 446-0867

Remember Safety First

LOCATION Kenilworth Rd
 TOWNSHIP Radnor Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE Pre-cast
 INFILTRATION Yes
 MANHOLE DEPTH 9'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Zak

INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL



MANHOLE #252-6A-2

FLOW: HIGH AVERAGE X LOW

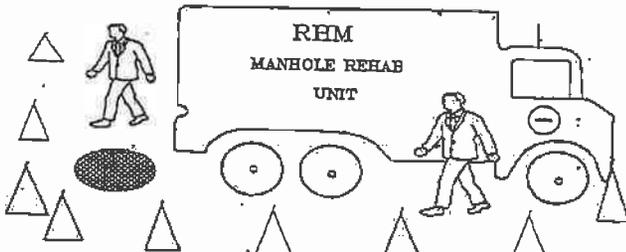
DATE:

REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

EMERGENCY REPORT

6-15-18	Drilled one hole in tower. Pumped 1.5 Gallons of Grout to stop leak. Patched hole with quickplug. Weir Reading 115 GPD After Grout 0 GPD * seal top of tower. *
---------	--

DL 7/19/18

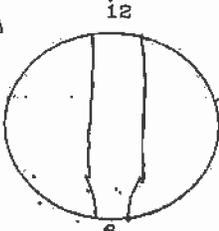


R.H.M. SEWER AUTHORITY
 600 GLENDALE ROAD
 HAVERTOWN, PA. 19083
 446-0867

LOCATION Ashwood Rd
 TOWNSHIP Kocher Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE Pre-fab/brick top
 INFILTRATION YES
 MANHOLE DEPTH 6'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Zak

Remember Safety First

INDICATE IN THE CIRCLE: LINES OR LATERALS
HOUSE ADDRESS OF LATERAL



MANHOLE #252-187

FLOW: HIGH _____ AVERAGE _____ LOW X

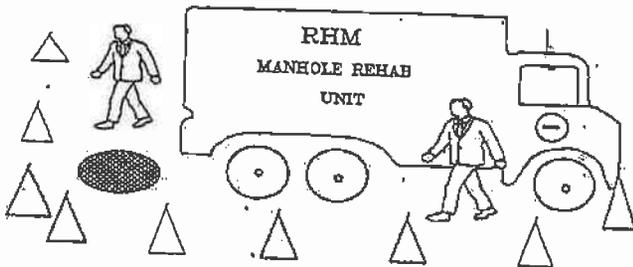
DATE:

REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

EMERGENCY REPORT

6-15-18	Drilled one hole in tower. Pumped 2 Gallons of
	Grout to stop leak. Patched hole with ectocrete.
	Weir Reading 115 GPD
	After Grout 0 GPD
	* Seal top o.f tower. *

DL 7/19/18

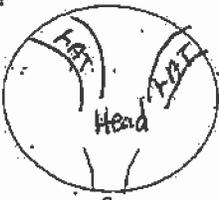


R.H.M. SEWER AUTHORITY
 600 GLENDALE ROAD
 HAVERTOWN, PA. 19083
 446-0867

Remember Safety First

LOCATION Ashwood Rd
 TOWNSHIP Radnor Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE Rehab
 INFILTRATION Yes
 MANHOLE DEPTH 9'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle/Chip

INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL



MANHOLE # 252-69-6

FLOW: HIGH AVERAGE LOW

DATE:

REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

EMERGENCY REPORT

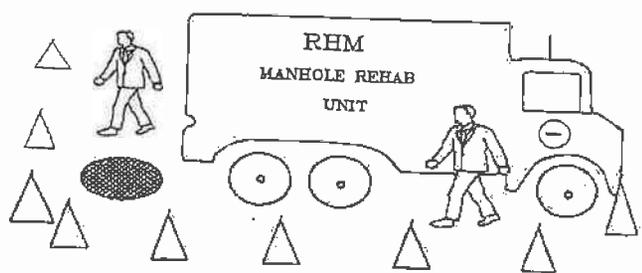
6-19-18

Drilled one hole in tower. Pumped 3 Gallons of Grout to stop leak. Patched hole with octowrite.

Weir Reading 115 GPD
 After Grout 0 GPD

* Seal top of tower *

DL 7/19/18

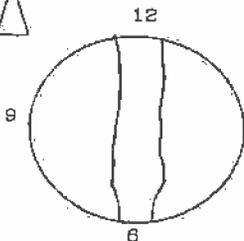


R.H.M. SEWER AUTHORITY
 600 GLENDALE ROAD
 HAVERTOWN, PA. 19083
 446-0867

LOCATION Hilldale Rd
 TOWNSHIP Rodman Twp
 MANHOLE CONDITION fair
 MANHOLE TYPE Pre-tab
 INFILTRATION 1/8
 MANHOLE DEPTH 9'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Chip

Remember Safety First

INDICATE IN THE CIRCLE: LINES OR LATERALS
HOUSE ADDRESS OF LATERAL



MANHOLE #252-69-20

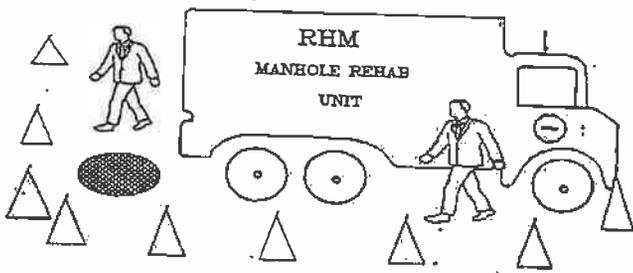
FLOW: HIGH AVERAGE LOW X

DATE: REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

EMERGENCY REPORT

6-19-18	Drilled one in tower. Pumped 1 Gallon of Grout to stop leak. Patched hole with quickplug.
	Wear Reading 57 GPD After Grout 0 GPD
	* seal top of tower. *

DL 7/19/18

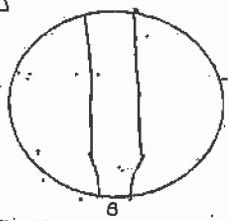


R.H.M. SEWER AUTHORITY
 600 GLENDALE ROAD
 HAVERTOWN, PA. 19083
 446-0867

Remember Safety First

LOCATION Hilldale Rd
 TOWNSHIP Radiant Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE Pre-fab
 INFILTRATION YES
 MANHOLE DEPTH 13'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle/Chip

INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL



MANHOLE # 252-69-26

FLOW: HIGH AVERAGE X LOW

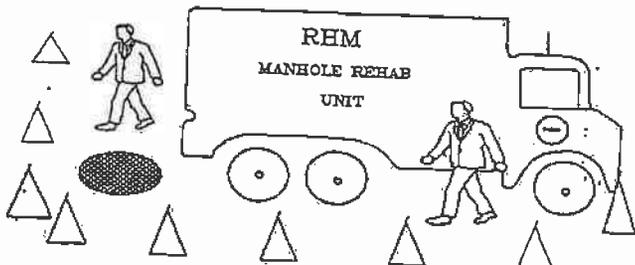
EMERGENCY REPORT

DATE:

REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

6-2018	Drilled one hole in tower. Pumped 1.5 Gallon of Grout to stop leak. patched hole with quick plug. Weir Reading 57 GPD After Grout 0 GPD

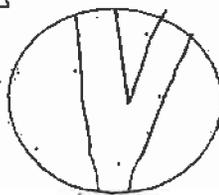
02 7/19/18



R.H.M. SEWER AUTHORITY
600 GLENDALE ROAD
HAVERTOWN, PA. 19083
446-0867

LOCATION Kerilworth Rd
TOWNSHIP Ridgely Twp
MANHOLE CONDITION Fair
MANHOLE TYPE Brick
INFILTRATION Yes
MANHOLE DEPTH 8'
BASE SIZE 4'
INSPECTOR/OPERATOR Kyle/Chip

Remember Safety First



INDICATE IN THE CIRCLE: LINES OR LATERALS
HOUSE ADDRESS OF LATERAL

MANHOLE # 252-09-1

FLOW: HIGH AVERAGE X LOW

EMERGENCY REPORT

DATE:

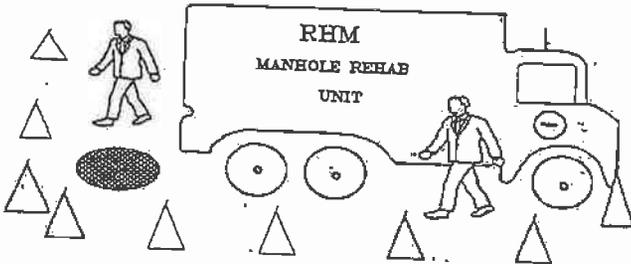
REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

6-20-18

Drilled one hole in tower. Pumped 3 Gallons of GROUT to stop leak. Patched hole with concrete.

Wfr Reading 260 GPD
After GROUT 0 GPD

DL 7/19/18

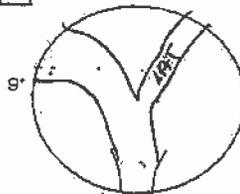


R.H.M. SEWER AUTHORITY
600 GLENDALE ROAD
HAVERTOWN, PA. 19083
446-0867

Remember Safety First

LOCATION Oakford Rd
TOWNSHIP Reading Twp
MANHOLE CONDITION Fair
MANHOLE TYPE Brick
INFILTRATION Yes
MANHOLE DEPTH 7'10"
BASE SIZE 4'
INSPECTOR/OPERATOR Kyle Chip

INDICATE IN THE CIRCLE: LINES OR LATERALS
HOUSE ADDRESS OF LATERAL



MANHOLE # 107-1
FLOW: HIGH AVERAGE X LOW

EMERGENCY REPORT

DATE:

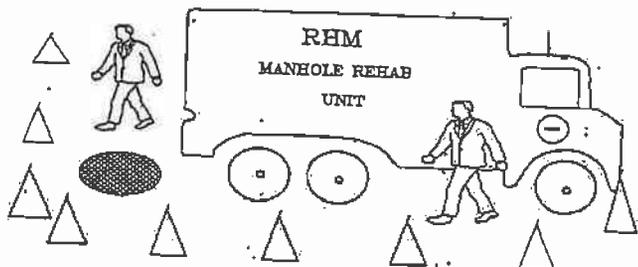
REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

6-22-18

Drilled one hole in lower pumped 1.5 Gallons of Graft to stop leak. Patched hole with acetone.

Wear Reading 57 GPD
After Graft 0 GPD

DL 7/19/18

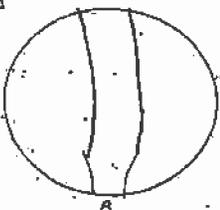


R.H.M. SEWER AUTHORITY
600 GLENDALE ROAD
HAVERTOWN, PA. 19083
446-0867

Remember Safety First

LOCATION Haviland Dr.
TOWNSHIP Reading Twp
MANHOLE CONDITION Fair
MANHOLE TYPE Rehab
INFILTRATION Yes
MANHOLE DEPTH 12'
BASE SIZE 4'
INSPECTOR/OPERATOR Kyle John

INDICATE IN THE CIRCLE: LINES OR LATERALS
HOUSE ADDRESS OF LATERAL



MANHOLE # 215-14

FLOW: HIGH AVERAGE X LOW

EMERGENCY REPORT

DATE:

REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

7-5-18

Drilled one hole under seam. Pumped 2 Gallons of Grout
to stop leak. Patched hole with concrete.

W/Gr Reading 115 GPD
After Grout 0 GPD.

2018

RADNOR TWP.

REHAB UNIT

MANHOLES SEALED AROUND TOP COURSES:

116 MANHOLES WERE SEALED AROUND TOP TO STOP INFILTRATION

RESET RING & LID:

4 MANHOLES WERE RESET

RAISED MANHOLES:

0 MANHOLES WERE RAISED

CHANNEL REPAIR WORK:

0 CHANNELS WERE REPAIRED

INFLOW DISHES INSTALLED:

0 INFLOW DISHES WERE INSTALLED

RAZOROOTER

RADNOR 2018

MH#	RAZOROOTER / STREET	DATE
627-14	BROWNING LA	5/9/2018
627-15	BROWNING LA	5/9/2018
627-16	BROWNING LA	5/9/2018
627-6	BROWNING LA	5/9/2018
640-2	BUCKINGHAM RD.	5/10/2018
640-1-1	BLACKFRIAR RD	5/10/2018
640-1-2	BLACKFRIAR RD	5/10/2018
640-2-3	HAWTHORNE RD.	5/11/2018
640-1	BUCKINGHAM RD.	5/11/2018
641	BUCKINGHAM RD.	5/11/2018
622-2	ROCKINGHAM RD	5/14/2018
640-2-2	HAWTHORNE RD.	5/14/2018
431-1-1	RAWLES RUN LA.	5/14/2018
622-2-1	DREER LA.	5/14/2018
615-12	BAILEY RD.	5/14/2018
245-25	CAMPWOODS RD.	5/15/2018
245-32	R/W CAMPWOODS RD.	5/15/2018
245-29	R/W ATERBURY RD.	5/15/2018
245-30	R/W ATERBURY RD.	5/15/2018
245-30-1	ATERBURY RD	5/15/2018
245-30-2	ATERBURY RD	5/16/2018
417-2-3	DREXEL LA	5/16/2018
207-4-4	HEATHER LA	5/16/2018
207-10-2	HEATHER LA	5/16/2018
23-11-3-2	MILMAR RD	5/17/2018
23-11-3-1	MILMAR RD	5/22/2018
25-20	MILMAR RD	5/22/2018
205-3-8	CORNERSTONE DR	5/22/2018
243-3-2	TOWER RD	5/23/2018
243-3-3	TOWER RD	5/23/2018
232-8	BARKLAY RD	5/23/2018

232-11	BARKLAY RD	5/23/2018
221-2-7	DRAKES DRUM DR	5/24/2018
25-2-3	HUNT RD	5/24/2018
232-5	BARKLAY RD	5/24/2018
411-4-2	NORTHWINDS DR	5/24/2018
305-34	WOODLAND CT	5/25/2018
305-33	WOODLAND CT	5/25/2018
291-75	HIGHLAND AVE	5/25/2018
291-74	HIGHLAND AVE	5/25/2018
305-21	POPLAR AVE	5/29/2018
37-1	BRIARWOOD RD	5/29/2018
25-14-2	LOUDEN LA	5/29/2018
225-30	WYLDHAVEN RD	5/29/2018
1011-7-5	WALNUT AVE	5/30/2018
252-89	WOODED-LA	5/30/2018
622-7-1	BAILEY RD.	5/30/2018
45-28-5	GOVENER CIR	5/30/2018
417-4	BRYN MAWR AVE	5/31/2018
417-3	BRYN MAWR AVE	5/31/2018
417-2	BRYN MAWR AVE	5/31/2018
PS4-2-1	HAYMARKET LA	5/31/2018
109-24	VALLEYFORGE TER	6/1/2018
109-25	VALLEYFORGE TER	6/1/2018
37-2	BRIARWOOD RD	6/1/2018
101-5	CRESTVIEW CIR	6/4/2018
136	WEST AVE	6/4/2018
305-26	WALNUT AVE	6/4/2018
607-2	ROBINHOOD LA	6/4/2018
451-1	ARTHUR RD	6/5/2018
451-1-1	ARTHUR RD	6/5/2018
283-1-3	ST DAVIDS RD	6/5/2018
400	RAMBLEWOOD RD	6/5/2018
18-17-3	SPRINGHOUSE RD	6/6/2018
407-2	RAMBLEWOOD RD	6/6/2018
25-21-1	R/W MILMAR RD	8/6/2018
25-21-2	R/W MILMAR RD	8/6/2018
23-11-3-3	MILMAR RD	8/6/2018
45-16	LAKEVIEW CIR	8/6/2018
45-17	LAKEVIEW CIR	8/6/2018
28-19-1-1	HAMILTON RD	8/7/2018
28-19-1-3	HAMILTON RD	8/7/2018
615-13	BAILEY RD.	8/8/2018
615-14	BAILEY RD.	8/8/2018

253-1	GALER DR	8/8/2018
PS4-5	R/W HAYMARKET	8/9/2018
PS4-6	R/W HAYMARKET	8/9/2018
291-76	FAIRVIEW AVE.	8/9/2018
75-12-4-1	R/W JULIP RD	8/10/2018
75-12-4-2	R/W JULIP RD	8/10/2018
75-12-7	R/W JULIP RD	8/10/2018
443-8	LOCUST GROVE	10/29/2018
443-7	LOCUST GROVE	10/29/2018
604-12	WOODLEA RD.	10/29/2018
269-26-1	BROOKSIDE CIR.	10/30/2018
18-7	R/W MEADOWBROOK LA.	10/30/2018
269-26	R/W BROOKSIDE RD.	10/30/2018
413-10	R/W DAWN LA.	10/30/2018
287-3	MIDLAND CIR.	10/31/2018
642	BARLEY CONE LA.	10/31/2018
643	BARLEY CONE LA.	10/31/2018
264-5	MEADOWBROOK CIR.	10/31/2018
291-125	OVERHILL RD.	11/2/2018
634-2	HICKORY LA.	11/2/2018
225-46	WYLDHAVEN RD	11/2/2018

TOTAL FOOTAGE: 20,235

TOTAL OUNCES: 1,581

Tredyffrin Township

Tredyffrin Township

Radnor-Haverford-Marple
Drainage Basin
2018 Municipal Wasteload
Management Annual Report

Prepared for
Tredyffrin Township
Chester County, Pennsylvania
February 19, 2019

Radnor-Haverford-Marple Drainage Basin 2018 Municipal Wasteload Management Annual Report

Prepared for
Tredyffrin Township
Chester County, Pennsylvania
February 19, 2019



Two Radnor Corporate Center
100 Matsonford Road, Ste 250
Radnor, PA 19087

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	Table 3 – Hydraulic and Organic Loading Projections
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The 2018 average daily flows from the Sugartown Road and North Wayne Avenue flow meters are listed in **Table 1** Appendix A. Approximately 49 equivalent dwelling units (EDUs) of flow from Easttown Township are conveyed through the Sugartown Road flow meter.

Table 2 in Appendix A presents the average daily flows on an annual basis from calendar years 2014 through 2018, based on actual flow records. The base flow used for projections is the average of the 2014 through 2018 flows. Development has been limited in recent years, and growth in this drainage basin is considered minor.

The projected annual flow is presented in **Table 3** of Appendix A. The following are details concerning the projected annual flow:

- Projected flow uses a growth allowance of two EDUs per year for the time period of 2019 through 2023.
- Sixty-nine EDUs are anticipated in 2019 for Brightview Senior Living and, in 2020, seven EDUs for Peyton's Crossing.
- Tredyffrin Township uses the rate of 275 gallons per day per EDU.

Annual average daily organic loadings for calendar years 2014 through 2018 are included in **Table 2** of Appendix A. The projected annual average daily organic loadings for calendar years 2019 through 2023 are shown in **Table 3** of Appendix A.

There are no industrial loadings within the Radnor-Haverford-Marple (RHM) Drainage Basin, so the organic loadings are based on a residential-strength sewage of biochemical oxygen demand-5 (BOD-5) of 200 milligrams per liter.

Not applicable. No overload conditions currently exist nor are they anticipated to exist in the future.

There are currently no industrial discharges to Tredyffrin Township's sewer system; thus, no discharge monitoring is performed. Tredyffrin Township's Ordinances HR-184 and HR-256 regulate industrial and sanitary discharges to the Strafford Drainage Area of the Tredyffrin Township sewer collection system. Neither of these ordinances was revised in 2018.

There were no sewer extensions within the collection system for the calendar year 2018.

During 2018, the following maintenance and rehabilitation work was performed by RHM (refer to Appendix B for detailed work orders and documentation of work):

- Applied chemical root control to local sewers (Razerooter treatments)
- Manhole grouting and repair
- Closed-circuit television inspection of collection system

The sewer collection system is in good condition and receives consistent oversight and maintenance.

There are no wastewater pumping stations in the Strafford Drainage Basin.

Appendix A: Tables

Table 1 – 2018 Hydraulic and Organic Loadings

Table 2 – 5-Year Hydraulic and Organic Loadings

Table 3 – Hydraulic and Organic Loading Projections

Table 1

Tredyffrin Township
 Radnor-Haverford-Marple Drainage Basin
 2018 Hydraulic and Organic Loadings

Month	Flow, MGD ¹	Average Daily Flow (gpd)	Influent BOD (mg/L) ²	Influent BOD (lbs/day)
January	11.9	383,871	200	640
February	15.0	483,871	200	807
March	20.1	648,387	200	1,082
April	17.4	580,000	200	967
May	18.3	590,323	200	985
June	18.0	600,000	200	1,001
July	15.3	493,548	200	823
August	17.0	548,387	200	915
September	22.2	716,129	200	1,195
October	20.3	654,839	200	1,092
November	25.6	853,333	200	1,423
December	26.6	858,065	200	1,431
Average	19.0	617,563	200	1,030

¹ Source: RHM Flow Data dated 1/22/2019 from RHM

² Estimated concentration for BOD-5, mg/L

3 month hydraulic maximum = 788,746 gpd
 1 month organic maximum = 1,082 lbs/day

0.051986301

Table 2

Tredyffrin Township
 Radnor-Haverford-Marple Drainage Basin
 5-Year Hydraulic and Organic Loadings

Year	Annual Average Daily Flow (AADF) mgd	Max 3 month Average Daily Flow (mgd)	Ration of 3 Month Max to AADF	Annual Average Daily Organix Loading (lbs/day) ¹
2014	0.616	0.817	1.326	1027
2015	0.508	0.638	1.256	847
2016	0.428	0.566	1.322	714
2017	0.393	0.614	1.562	656
2018	0.052	0.591	11.364	87
AVERAGE	0.399	0.645	3.366	666

¹ Organic loading = AADF x 200 mg/L BOD-5 x 8.34

Table 3

Tredyffrin Township
 Radnor-Haverford-Marple Drainage Basin
 Hydraulic and Organic Loading Projections

Year	Base Flow (mgd)	Projected Connected Additional EDU	¹ Projected Flow Increase (mgd)	Projected Total Flow (mgd)	² Projected Total Organic Loading (lbs/day)
Base ³					
2019	0.399	69	0.019	0.418	698
2020	0.399	7	0.002	0.401	669
2021	0.399	2	0.001	0.400	667
2022	0.399	2	0.001	0.400	667
2023	0.399	2	0.001	0.400	667

¹ Based on projected connected Additional EDUs plus Base Flow (MGD)

² Organic loading = Projected Total Flow x 200 mg/L BOD-5 x 8.34

³ Annual Average Daily Flow, MGD averaged from 2014 - 2018

Appendix B: Inspection Reports

DL 11/2/18

RADNOR - HAVERFORD - MARPLE
SEWER AUTHORITY

Tredyffrin Twp 2018

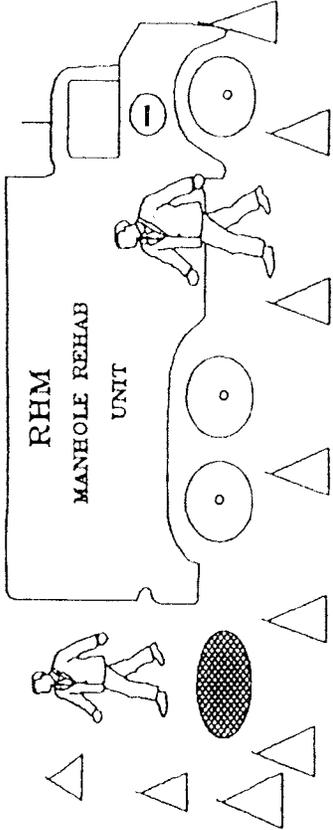
600 Glendale Rd
Havertown, PA 19083

RAZORROOTER II

EPA # 64898-8
Phone # 610-446-0867

TRUCK # 206 OPERATOR: Joe/Tim Jet John

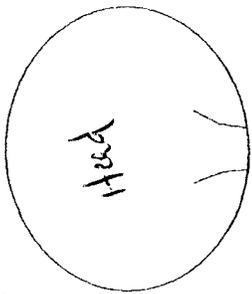
DATE:	OZ. USED	TWP:	PIPE SIZE:	LENGTH:	M.H.#	LOCATION:
10/22	32	Twp	8	400	364	Robinwood RD
10/22	29	Tre	8	385	362	Robinwood RD
10/23	1	Tre	8	20	335	Rlw Hillside RD
10/23	12	Tre	8	140	334	Rlw Hillside RD
10/23	8	Tre	8	85	333	Rlw Hillside RD
10/23	24	Tre	8	315	326	walnut Ave
10/23	17	Tre	8	220	349	McMull Dr.
10/23	12	Tre	8	157	350	McMull Dr.
10/24	4	Tre	8	54	408	Red Fox LA.
10/24	24	Tre	8	290	404	Red Fox LA.
10/24	32	Tre	8	397	405	Red Fox LA.
10/25	10	Tre	8	130	357	School LA.
10/25	17	Tre	8	215	95	Steeple Chase LA
10/25	18	Tre	8	242	96	Steeple Chase LA
10/25	16	Tre	8	190	106	Steeple Chase LA
10/26	30	Tre	8	387	402	Holly RD
10/26	26	Tre	8	327	321	Princeton RD
10/26	8	Tre	8	98	211	Schoolhouse LA
TOTAL:				TOTAL:		



R.H.M. SEWER AUTHORITY
 600 GLENDALE ROAD
 HAVERTOWN, PA. 19083
 446-0867

LOCATION Bal Vista
 TOWNSHIP Jonestown
 MANHOLE CONDITION fair
 MANHOLE TYPE PVC-600
 INFILTRATION NO
 MANHOLE DEPTH 9.30'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle/Rob

Remember Safety First
 12



INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL

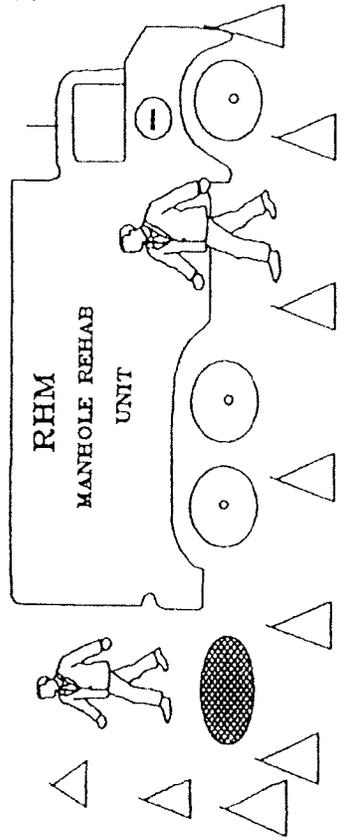
3 MANHOLE # East 6

FLOW: HIGH ___ AVERAGE ___ LOW ___

EMERGENCY REPORT

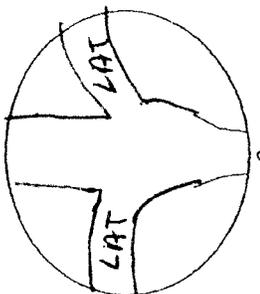
DATE: 9-4-18 REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

patched top under ring with concrete To seal to finish
 with sealant



R.H.M. SEWER AUTHORITY
 600 GLENDALE ROAD
 HAVERTOWN, PA. 19083
 446-0867

Remember Safety First
 12



INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL

LOCATION Steeplechase Rd
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION fair
 MANHOLE TYPE brick
 INFILTRATION no
 MANHOLE DEPTH 9.5'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Rylee Zak

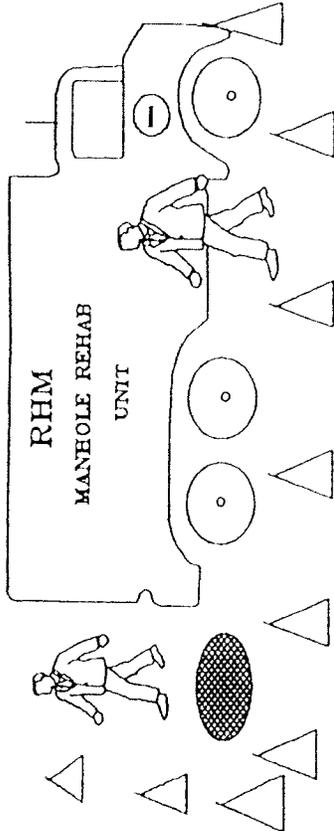
MANHOLE # 1109

FLOW: HIGH AVERAGE LOW X

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

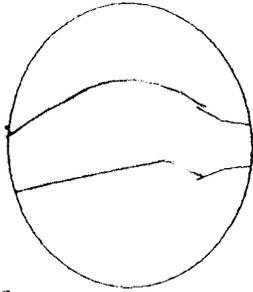
9-5-18 Patched top under ring with octocrete To seal to finish with sealcrete.



R.H.M. SEWER AUTHORITY
 600 GLENDALE ROAD
 HAVERTOWN, PA. 19083
 446-0867

Remember Safety First

12



INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # 92

FLOW: HIGH _____ AVERAGE _____ LOW X

LOCATION Hunter's Lane
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION fair
 MANHOLE TYPE brick
 INFILTRATION no
 MANHOLE DEPTH 3.5'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Zalk

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

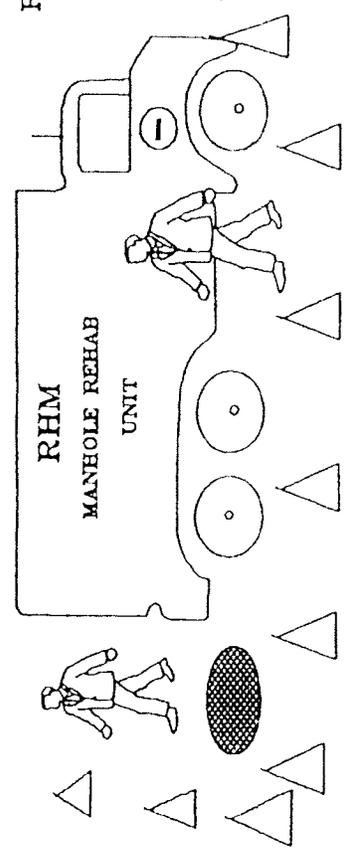
9-5-18 Patched top under ring with astutech. To seal to finish with sealcrete.

LOCATION Hunters Lane
 TOWNSHIP Indulbin Twp
 MANHOLE CONDITION FAIR
 MANHOLE TYPE brick
 INFILTRATION no
 MANHOLE DEPTH 9'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Hyler Zak

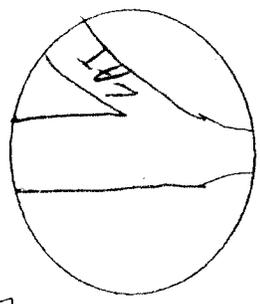
R.H.M. SEWER AUTHORITY
 600 GLENDALE ROAD
 HAVERTOWN, PA. 19083
 446-0867

Remember Safety First

12



INDICATE IN THE CIRCLE: LINES OR LATERALS 9
 HOUSE ADDRESS OF LATERAL _____



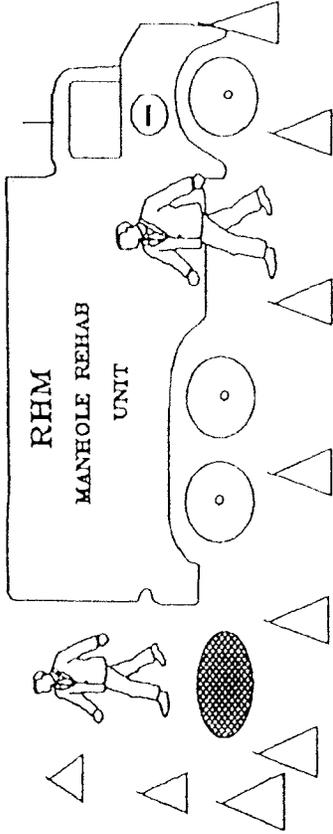
3 MANHOLE #93

FLOW: HIGH AVERAGE LOW X

EMERGENCY REPORT

DATE: 9-6-18 REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

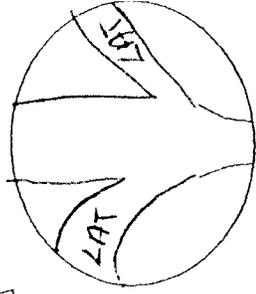
Patched top under ring with concrete. To seal to finish
 with sealcrete.



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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL

3 MANHOLE # 231

FLOW: HIGH AVERAGE LOW

LOCATION School Lane
 TOWNSHIP Wedge from Tow
 MANHOLE CONDITION Fair
 MANHOLE TYPE Block
 INFILTRATION None
 MANHOLE DEPTH 8
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Zak

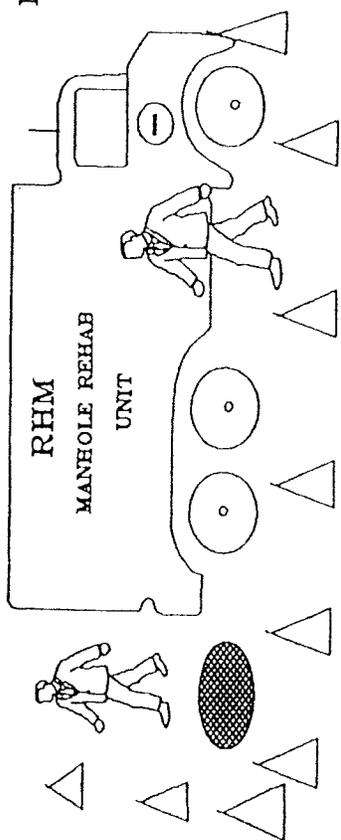
EMERGENCY REPORT

DATE:

REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

9-7-18

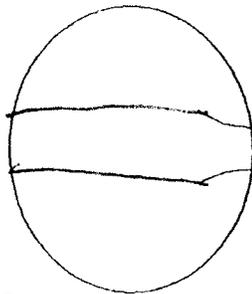
patched top under ring with concrete. To seal to finish with sealcrete.



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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # East 5

FLOW: HIGH _____ AVERAGE _____ LOW X

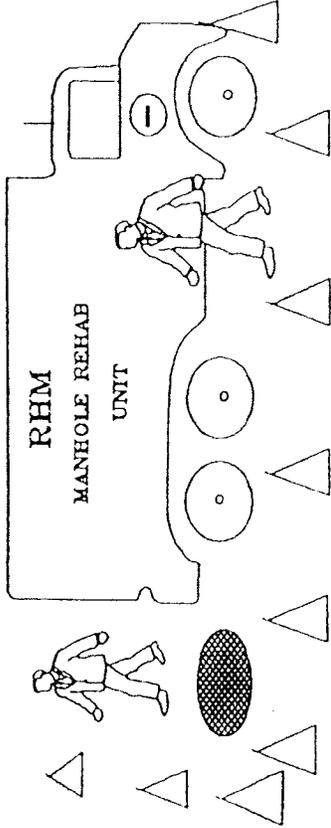
LOCATION Bell Vista Rd
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE Pre-fab
 INFILTRATION No
 MANHOLE DEPTH 9'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle/Rob

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

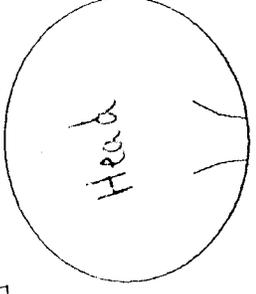
9-4-18

Jacked up frozen lid. Patch top under ring with octacrete to seal to finish with Seglucife.



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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL

MANHOLE # 361

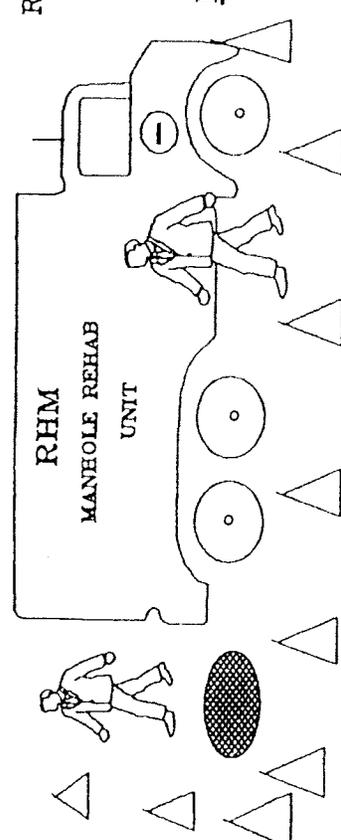
FLOW: HIGH AVERAGE LOW

LOCATION School Lane
 TOWNSHIP Wedge Penn Top
 MANHOLE CONDITION fair
 MANHOLE TYPE brick
 INFILTRATION NO
 MANHOLE DEPTH 8'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Zulk

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

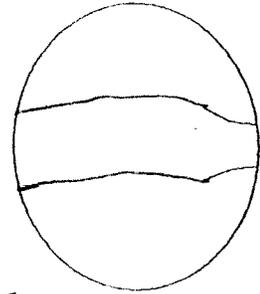
9-7-18 Seal top of tower



R.H.M. SEWER AUTHORITY
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 HAVERTOWN, PA. 19083
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LOCATION School House Rd
 TOWNSHIP Svedu from Top
 MANHOLE CONDITION Fair
 MANHOLE TYPE Block
 INFILTRATION N
 MANHOLE DEPTH 7 1/2'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle / Zak

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 12



INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # 216

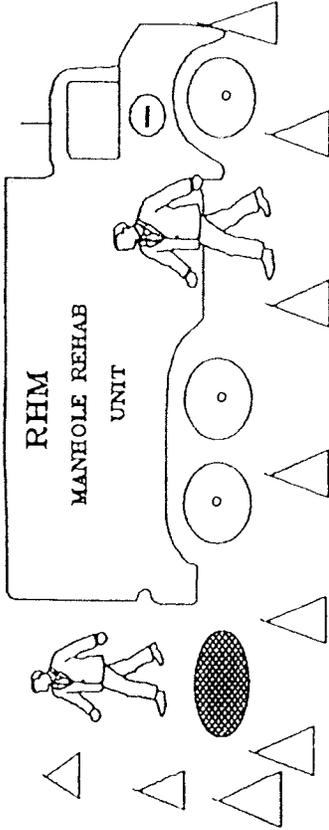
FLOW: HIGH ___ AVERAGE ___ LOW ✓

EMERGENCY REPORT

DATE:

REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

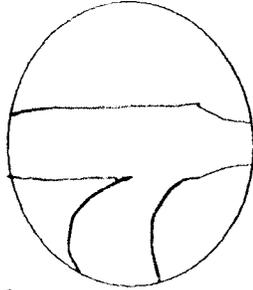
9-7-18 Patched top under ring with concrete to seal to finish with sealcrete.



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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL

9

3 MANHOLE # 211

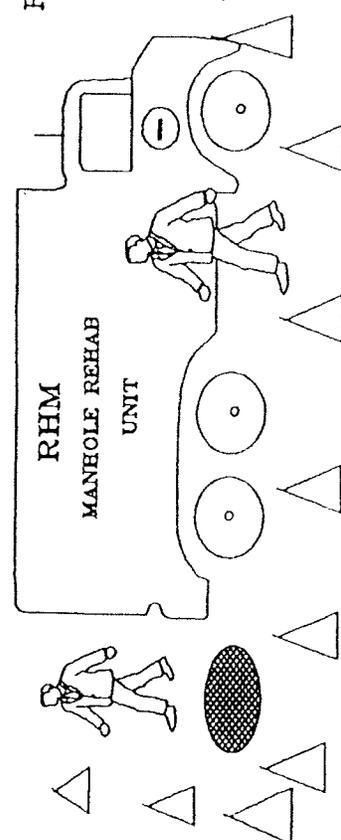
FLOW: HIGH AVERAGE LOW

LOCATION School House Lane
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE brick
 INFILTRATION No
 MANHOLE DEPTH 11'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Zuk

EMERGENCY REPORT

DATE: 9-6-18 REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

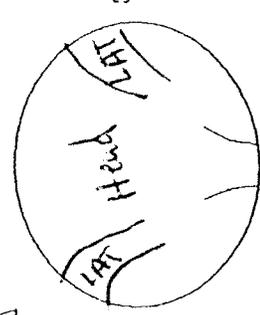
patched top under ring with concrete to seal to finish with sealcrete.



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LOCATION Clermont Rd
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE Block
 INFILTRATION NE
 MANHOLE DEPTH 9'7"
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Zuk

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 12



INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

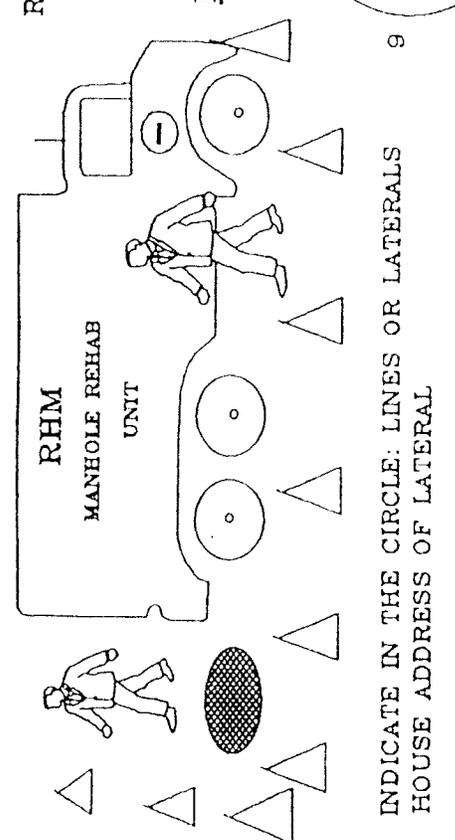
3 MANHOLE #215

FLOW: HIGH ___ AVERAGE ___ LOW 7

EMERGENCY REPORT

DATE: 9-7-18 REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

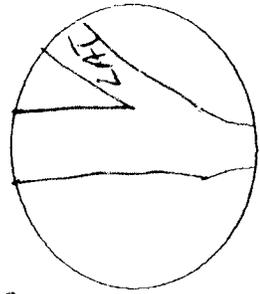
patched top under ring with concrete. To seal to finish with sealcrete.



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LOCATION School House Lane
 TOWNSHIP Tredyfflin Twp
 MANHOLE CONDITION POOR
 MANHOLE TYPE Brick
 INFILTRATION Ns
 MANHOLE DEPTH 11'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Zalk

Remember Safety First
 12



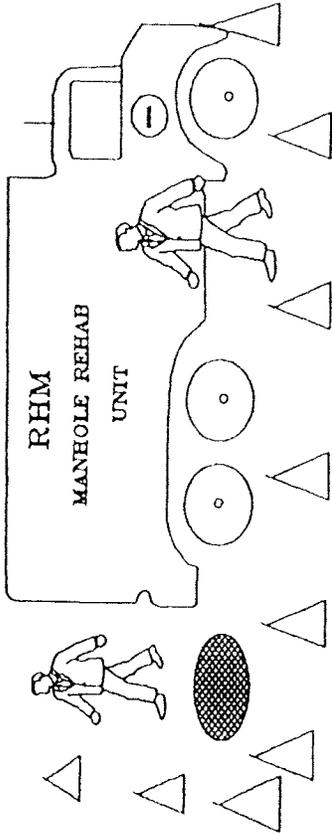
INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # 212
 FLOW: HIGH ___ AVERAGE ___ LOW X

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

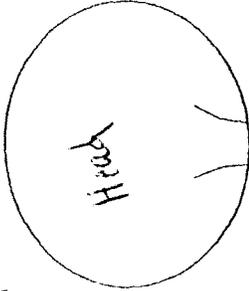
9-6-18 Patched top under ring with a concrete To seal to finish with sealcrete



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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL

9

3 MANHOLE # First 10

FLOW: HIGH ___ AVERAGE ___ LOW X

DATE:

9-4-18

REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

Patched top under ring with concrete to seal to finish
 with sealcrete.

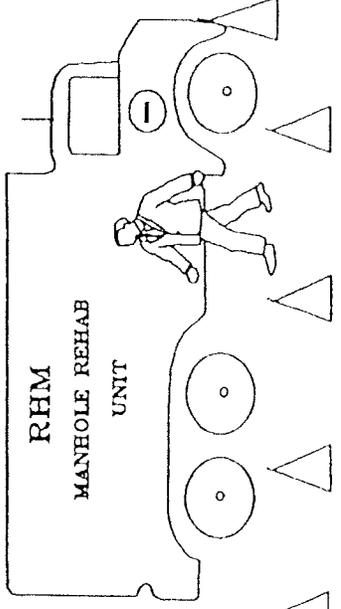
EMERGENCY REPORT

LOCATION Docet Rd
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION Seal
 MANHOLE TYPE Pre-cast
 INFILTRATION N₂
 MANHOLE DEPTH 8'6"
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Bob

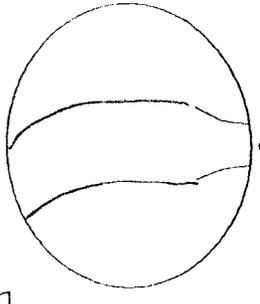
LOCATION Stroblechase Rd
 TOWNSHIP Wedgeton Twp
 MANHOLE CONDITION fair
 MANHOLE TYPE brick
 INFILTRATION no
 MANHOLE DEPTH 3.5'
 BASE SIZE 4
 INSPECTOR/OPERATOR Kyle Zuk

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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____



3 MANHOLE # 91

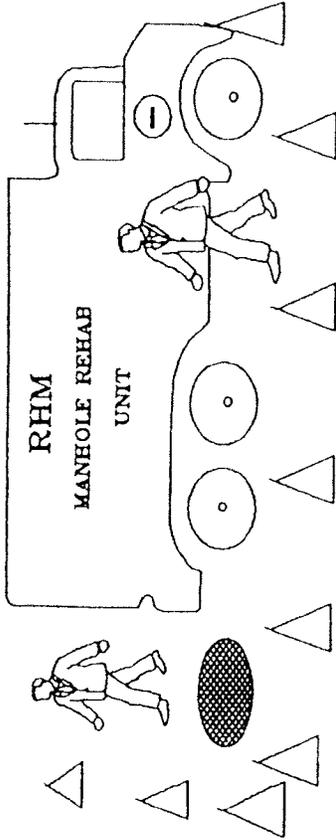
FLOW: HIGH --- AVERAGE --- LOW ---

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

9-5-18 Patched top under ring with concrete. To seal to finish with sealant.

DL 3/1/18



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 12



INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL

3 MANHOLE # 130A

FLOW: HIGH AVERAGE LOW

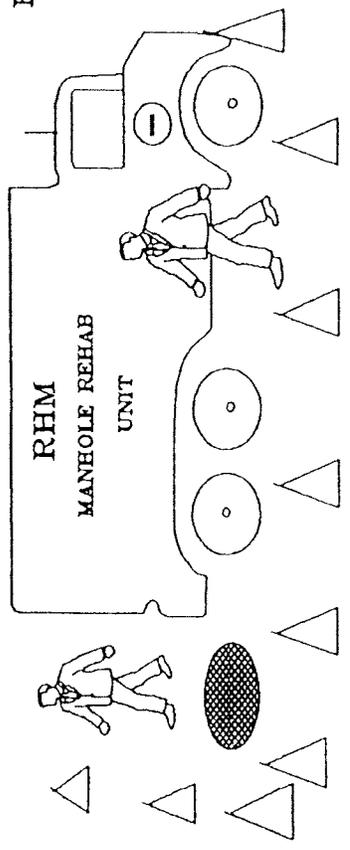
LOCATION Forest Lane
 TOWNSHIP Treddeford Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE Brick
 INFILTRATION No
 MANHOLE DEPTH 9'
 BASE SIZE 4'
 INSPECTOR/OPERATOR
 Kyle Chip

EMERGENCY REPORT

DATE: 2-21-18 REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

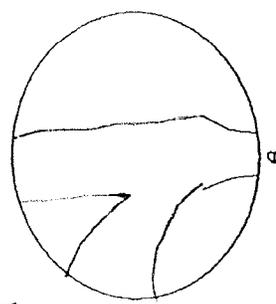
seal top of tower

DL 3/1/18



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 12



INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # 130

FLOW: HIGH ___ AVERAGE ___ LOW ___

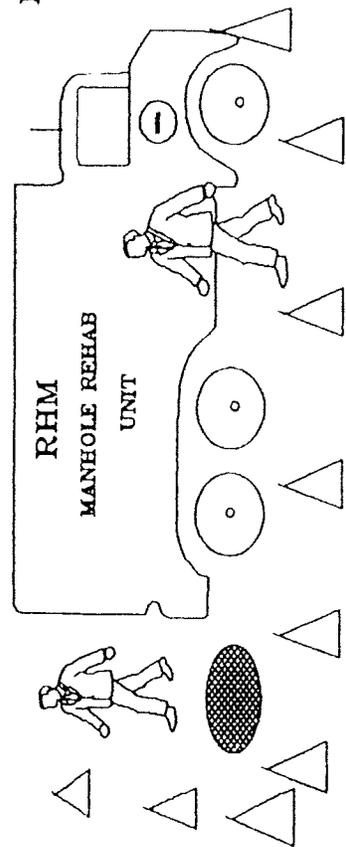
LOCATION Forest Lane
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE Block
 INFILTRATION N3
 MANHOLE DEPTH 8.8'
 BASE SIZE 4
 INSPECTOR/OPERATOR Kyle Chip

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

2-21-18 Patched top under ring with sealer. To seal to finish with sealer.

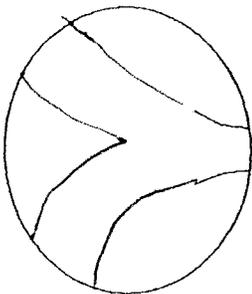
DE 3/1/18



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 HAVERTOWN, PA. 19083
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12



9

INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # 331

FLOW: HIGH _____ AVERAGE _____ LOW X

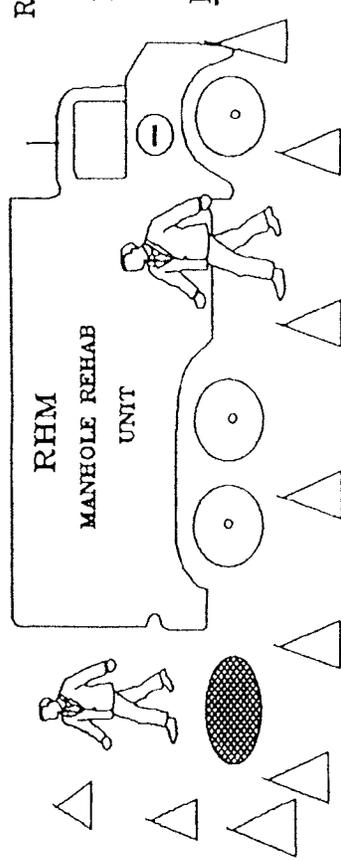
LOCATION Avon Rd
 TOWNSHIP Jordan Hill Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE Base
 INFILTRATION No
 MANHOLE DEPTH 4
 BASE SIZE 4
 INSPECTOR/OPERATOR Kyle Chip

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

2-21-18 Patched top under ring with concrete to seal to finish with sealant

DL 3/1/18

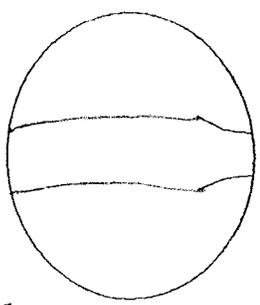


R.H.M. SEWER AUTHORITY
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LOCATION Avon Rd
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION Flow
 MANHOLE TYPE Bank
 INFILTRATION N
 MANHOLE DEPTH 14'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Clug

Remember Safety First

12



INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # 33E

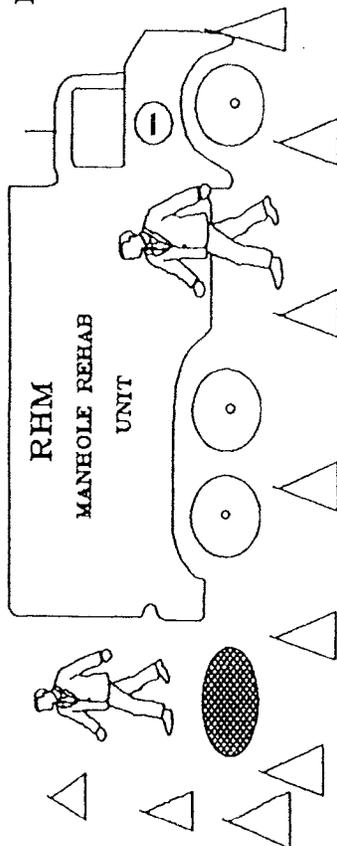
FLOW: HIGH _____ AVERAGE X LOW _____

EMERGENCY REPORT

DATE: 2-22-18 REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

Patched top under ring with concrete to seal to finish with sealant.

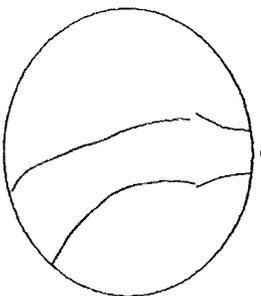
DL 3/1/18



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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # 33 D-2

FLOW: HIGH _____ AVERAGE _____ LOW _____

LOCATION Awn Rd
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE Pre-cast Block top
 INFILTRATION As
 MANHOLE DEPTH 7.5'
 BASE SIZE 4'
 INSPECTOR/OPERATOR _____

Kyle Chip

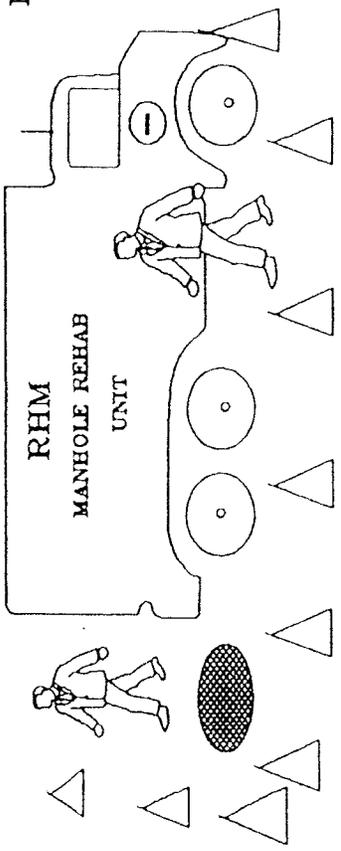
EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

2-22-18

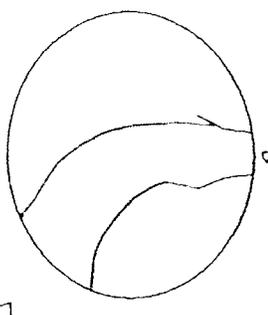
Patched top under ring with seal to finish
 with sealant

DC 3/1/18



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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL

3 MANHOLE # 33 D-1

FLOW: HIGH AVERAGE LOW

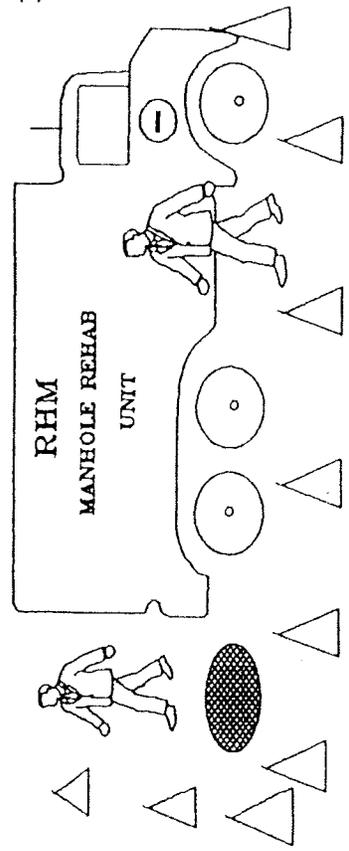
LOCATION Avon Rd
 TOWNSHIP Tredyfflin Twp
 MANHOLE CONDITION Full
 MANHOLE TYPE RC-44B
 INFILTRATION no
 MANHOLE DEPTH 15'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Chip

EMERGENCY REPORT

DATE: REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

2-22-18 Patched top under ring with concrete. To seal to finish with sealcrete.

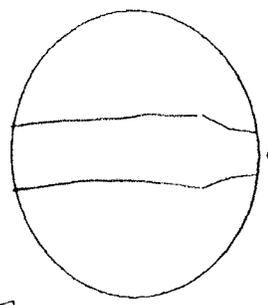
DL 3/1/18



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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # 230

FLOW: HIGH _____ AVERAGE _____ LOW 7

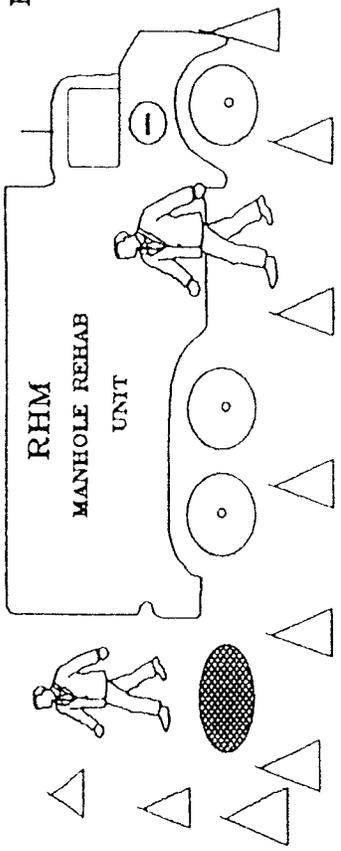
LOCATION School Lane
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE brick
 INFILTRATION No
 MANHOLE DEPTH 3'5"
 BASE SIZE 4'
 INSPECTOR/OPERATOR Walt Chyq

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

2-23-18 patched top under ring with concrete to seal to finish with sealcrete.

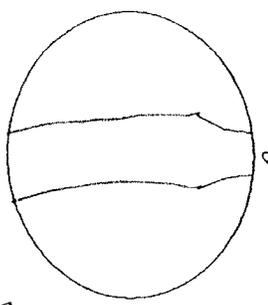
DL 3/1/18



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 800 GLENDALE ROAD
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9

INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL

3 MANHOLE # 2190

FLOW: HIGH ___ AVERAGE ___ LOW X

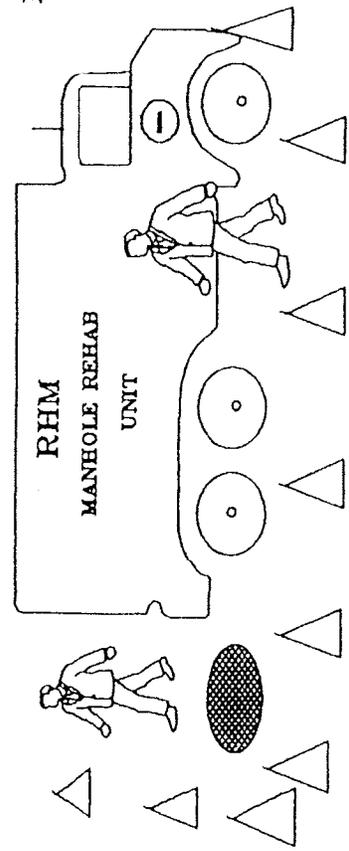
LOCATION School Lane
 TOWNSHIP Reduction Top
 MANHOLE CONDITION fair
 MANHOLE TYPE brick
 INFILTRATION no
 MANHOLE DEPTH 7'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Chip

EMERGENCY REPORT

DATE: 2-23-18 REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

patched top under ring with concrete to seal to finish with seacrete

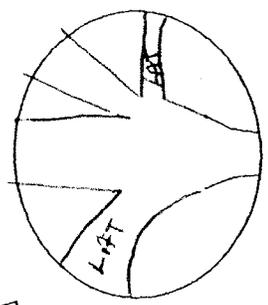
2/3/18



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12



INDICATE IN THE CIRCLE: LINES OR LATERALS
HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # 359

FLOW: HIGH AVERAGE LOW

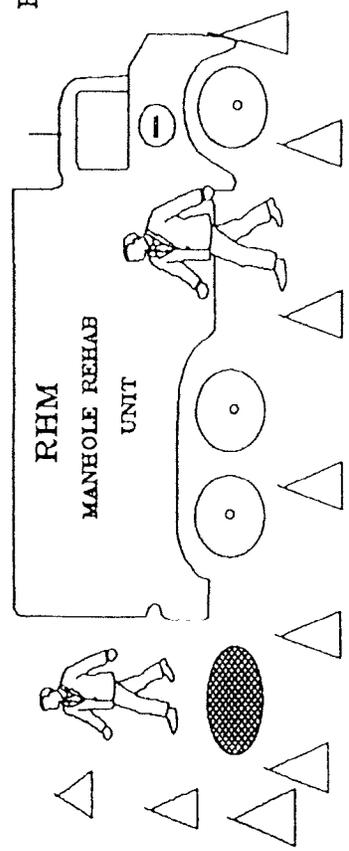
LOCATION School Lane
TOWNSHIP Schuylkill Twp
MANHOLE CONDITION fair
MANHOLE TYPE brick
INFILTRATION no
MANHOLE DEPTH 7'4"
BASE SIZE 4"
INSPECTOR/OPERATOR Kyk/Chip

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

2-23-18 Patched top under ring with concrete. To seal to finish with sealcrete.

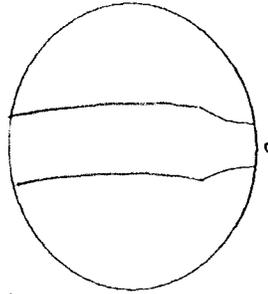
DL 6/12/18



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12



INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE #10

FLOW: HIGH AVERAGE LOW X

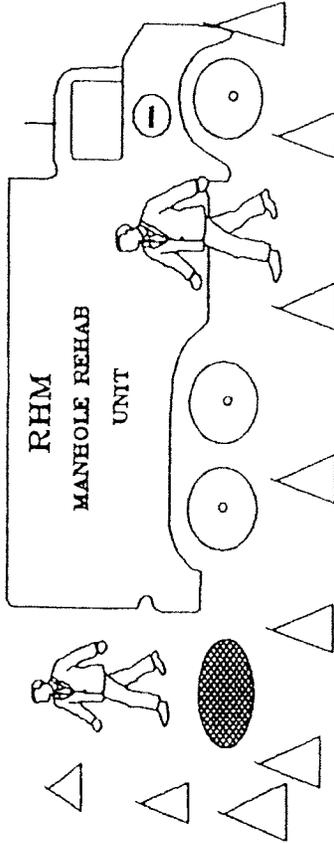
LOCATION Valley Forge Rd
 TOWNSHIP Rediffon Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE Pre-Cast
 INFILTRATION No
 MANHOLE DEPTH 3'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Tom

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

6-4-18 Seal top of tower.

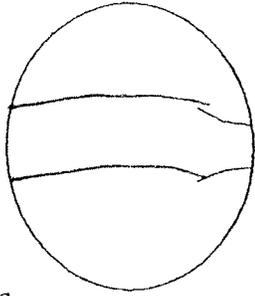
DL 6/12/18



R.H.M. SEWER AUTHORITY
 600 GLENDALE ROAD
 HAVERTOWN, PA. 19083
 446-0867

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12



9

INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # East 4

FLOW: HIGH _____ AVERAGE _____ LOW _____

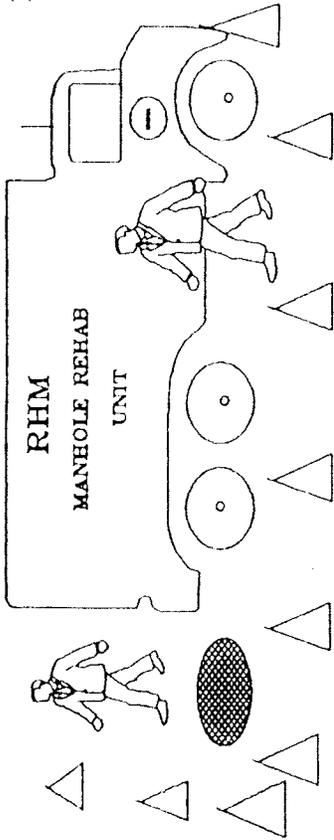
LOCATION Bell Vista Rd
 TOWNSHIP Islandton
 MANHOLE CONDITION FCIF
 MANHOLE TYPE Re-lin
 INFILTRATION No
 MANHOLE DEPTH 5'6"
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Tim

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

6-4-18 Jacked up Frozen lid. Patched top under ring with concrete To seal to finish with sealcrete.

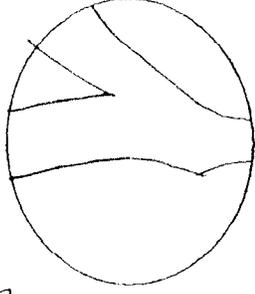
DL 6/12/18



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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # EW 2

FLOW: HIGH ___ AVERAGE ___ LOW ___

LOCATION Bec Kley Rd
 TOWNSHIP Jerby Flody Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE 8x10
 INFILTRATION ADD
 MANHOLE DEPTH 6'
 BASE SIZE 1'
 INSPECTOR/OPERATOR KR TIVA

EMERGENCY REPORT

DATE: REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

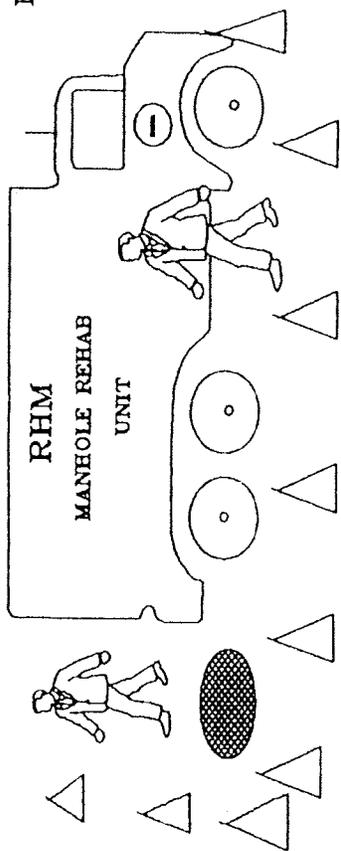
6-4-18	seal top of tower.

92 6/18/18

LOCATION School Lane
TOWNSHIP Tredahon Twp
MANHOLE CONDITION Fair
MANHOLE TYPE brick
INFILTRATION As
MANHOLE DEPTH 7.5'
BASE SIZE 4'
INSPECTOR/OPERATOR Kyle Timm

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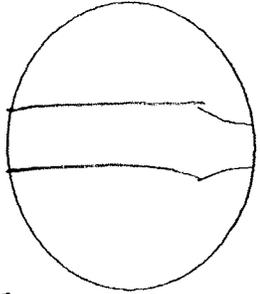
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INDICATE IN THE CIRCLE: LINES OR LATERALS
HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # 357

FLOW: HIGH ___ AVERAGE ___ LOW Δ

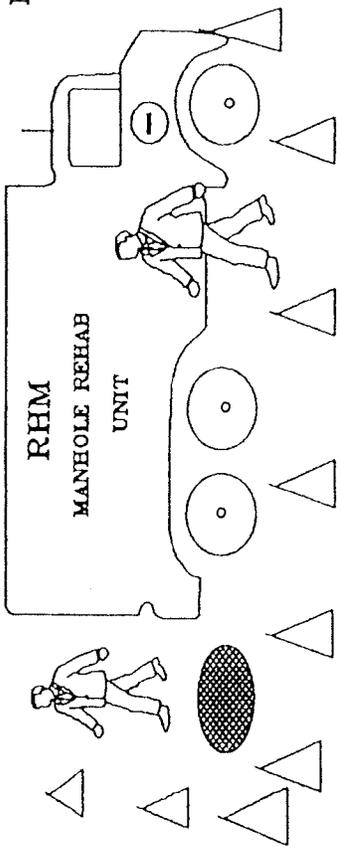


EMERGENCY REPORT

DATE: 10-5-18 REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

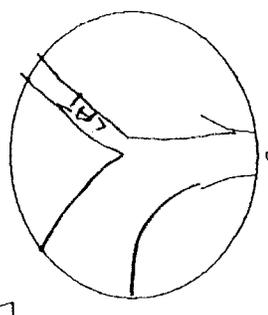
Seal top of tower.

DL 12/18



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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

LOCATION R/W W. Valley Rd
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE brick
 INFILTRATION No
 MANHOLE DEPTH 3'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle From

3 MANHOLE # 192

FLOW: HIGH _____ AVERAGE 1 LOW _____

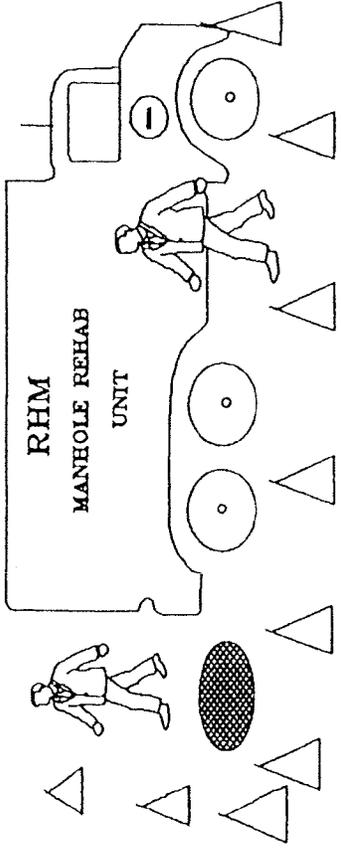
EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

6-5-18 patched top under ring with concrete to seal to finish with sealcrete.

(Turn)

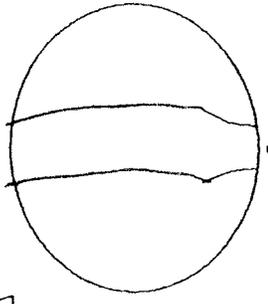
DL 6/12/18



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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE #134

FLOW: HIGH _____ AVERAGE LOW _____

LOCATION Storford Ave
 TOWNSHIP Troyton Twp
 MANHOLE CONDITION fair
 MANHOLE TYPE PK-60
 INFILTRATION No _____
 MANHOLE DEPTH 8 ft
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Tim

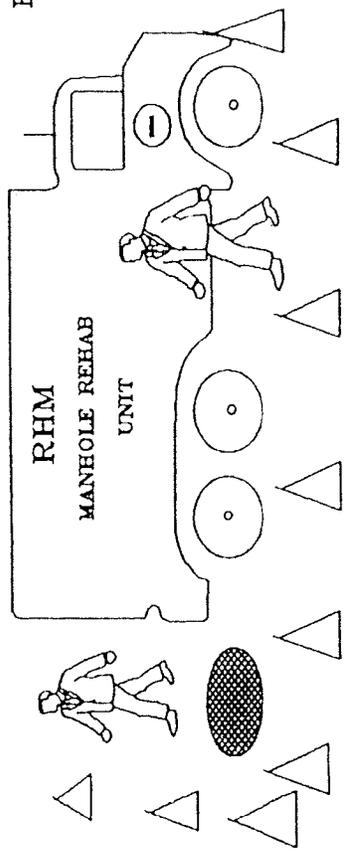
EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

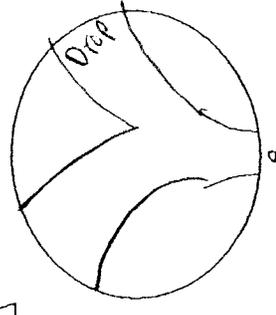
6-5-18 Spliced top under ring with outcure to seal to finish with sealcrete.

8/21/18

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HAVERTOWN, PA. 19083
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INDICATE IN THE CIRCLE: LINES OR LATERALS 9
HOUSE ADDRESS OF LATERAL

3 MANHOLE # East 9

FLOW: HIGH AVERAGE LOW

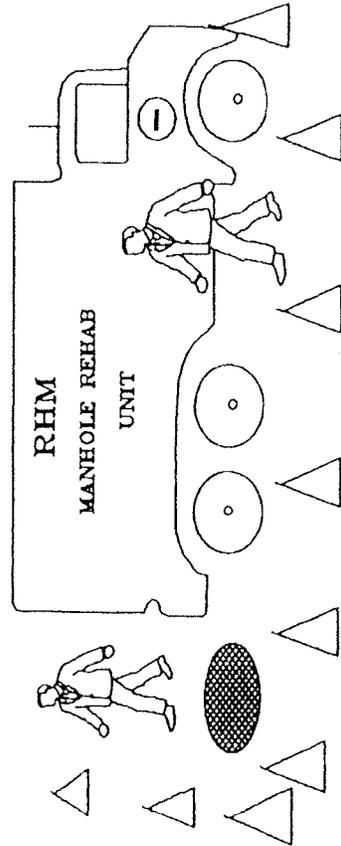
LOCATION Quincy Rd
TOWNSHIP Wedgeville Twp
MANHOLE CONDITION Fair
MANHOLE TYPE WV-40
INFILTRATION No
MANHOLE DEPTH 14' 3"
BASE SIZE 4
INSPECTOR/OPERATOR Kyle Tim

EMERGENCY REPORT

DATE: 8-21-18 REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

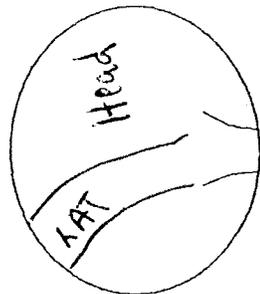
Seal top of tower

DC 6/12/18



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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # East 3

FLOW: HIGH _____ AVERAGE _____ LOW h

EMERGENCY REPORT

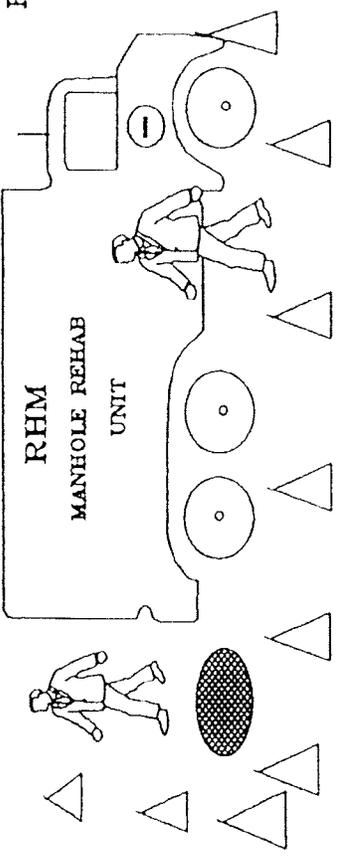
DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

12-6-18 Jacked up frozen lid. Drilled one hole in tower, pumped 2 Gallons of Grout to stop leak Patched hole with quickplug

weir Reading 115 GPD
 After Grout 0 GPD

* Patched top under ring with concrete. To seal to finish with Sealcrete *

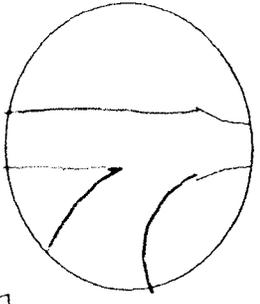
DC 6/12/18



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12



6

INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE #491

FLOW: HIGH _____ AVERAGE LOW _____

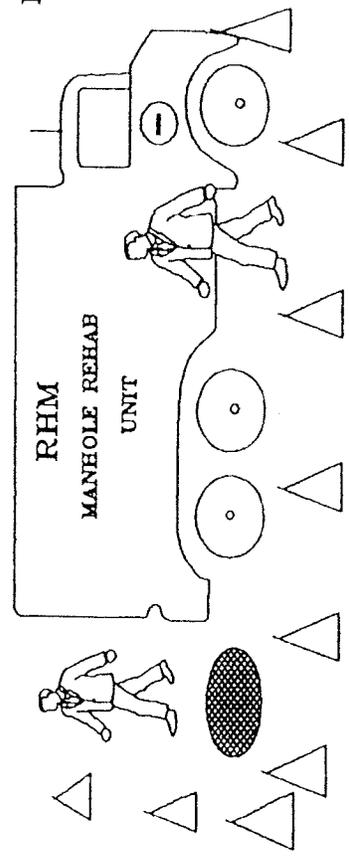
LOCATION GREEN AVE
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION fair
 MANHOLE TYPE 18-18b
 INFILTRATION NO. _____
 MANHOLE DEPTH 0'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle Tom

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

6-10-18 Jacked up frozen lid. & seal top of tower. *

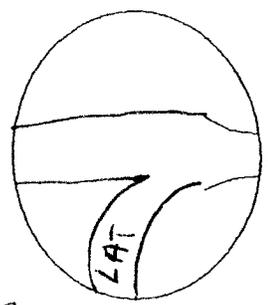
DL 6/12/18



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 HAVERTOWN, PA. 19083
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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE #51

FLOW: HIGH _____ AVERAGE LOW _____

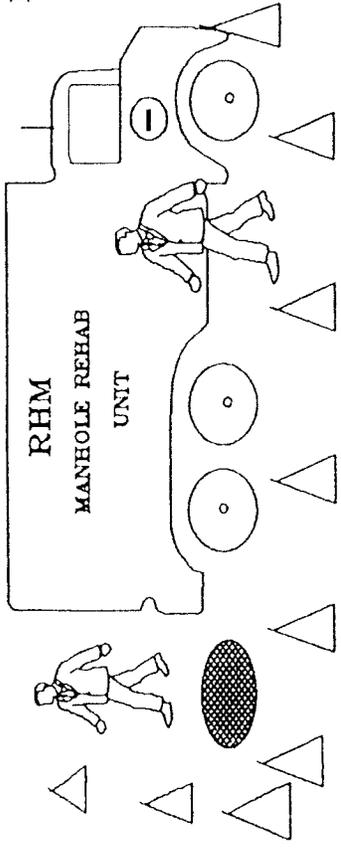
LOCATION Chestnut Ave
 TOWNSHIP Treykonia Twp
 MANHOLE CONDITION FAV
 MANHOLE TYPE brick
 INFILTRATION IN
 MANHOLE DEPTH U
 BASE SIZE 4
 INSPECTOR/OPERATOR Kyle Tim

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

6-7-18 Seal top of tower.

DL 6/12/18

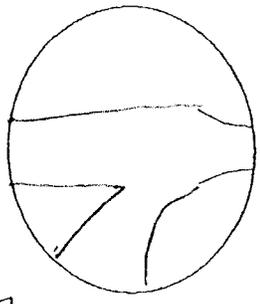


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 446-0867

LOCATION Valley Forge
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE 18" dia
 INFILTRATION No
 MANHOLE DEPTH 13'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyle/Tim

Remember Safety First

12



9

INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # Exit 8

FLOW: HIGH _____ AVERAGE LOW _____

EMERGENCY REPORT

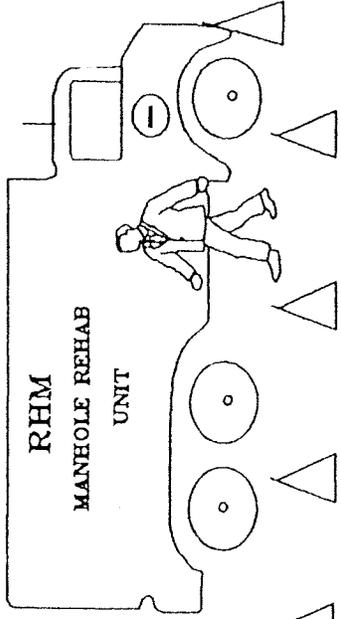
DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

6-7-18 Seal top of tower.

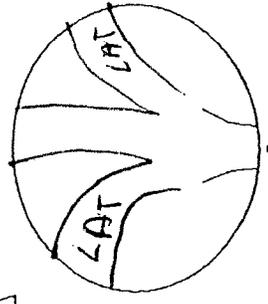
DL 6/12/18

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HAVERTOWN, PA. 19083
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INDICATE IN THE CIRCLE: LINES OR LATERALS
HOUSE ADDRESS OF LATERAL _____



MANHOLE # 330

FLOW: HIGH AVERAGE LOW

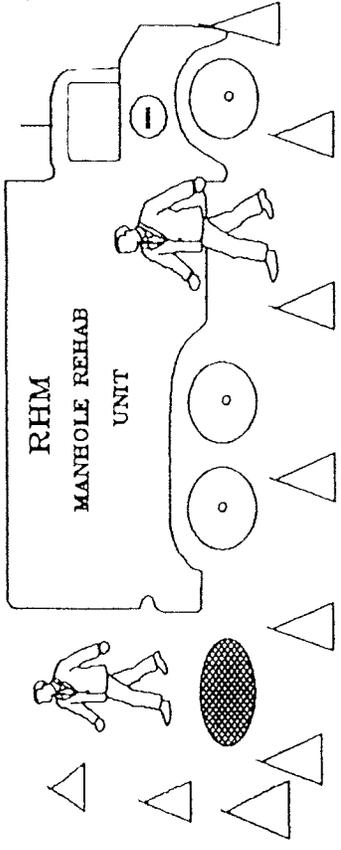
LOCATION Quigley Ave
TOWNSHIP Tredyffrin Twp
MANHOLE CONDITION Fair
MANHOLE TYPE Block
INFILTRATION No
MANHOLE DEPTH 8'
BASE SIZE 4'
INSPECTOR/OPERATOR Kyle Tim

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

6-7-18 Seal top of tower

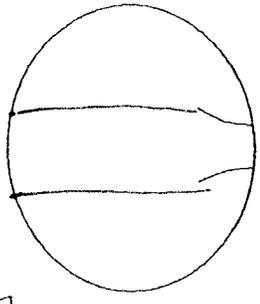
DC 6/12/18



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 HAVERTOWN, PA. 19083
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8

9

INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # 916

FLOW: HIGH _____ AVERAGE _____ LOW ✓

INSPECTOR/OPERATOR

Kyle Zalk

LOCATION Steepchase Rd
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE Brick
 INFILTRATION No
 MANHOLE DEPTH 10' 11"
 BASE SIZE 4'

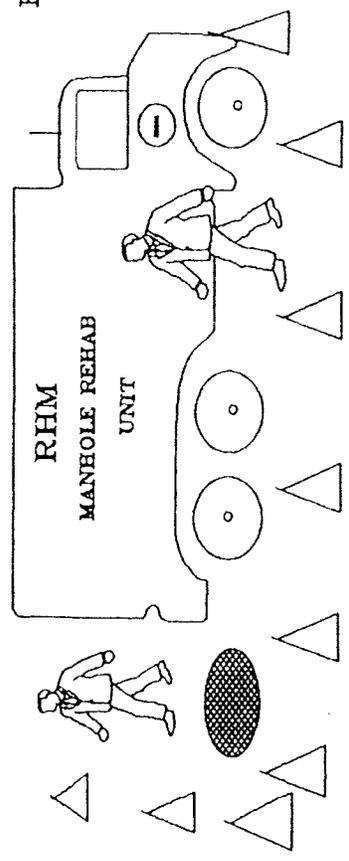
EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

~~6-8-18~~
 Seal top of tower

6-8-18

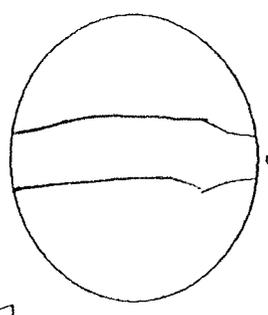
DL 6/12/18



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 HAVERTOWN, PA. 19083
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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # 95

FLOW: HIGH _____ AVERAGE _____ LOW X

LOCATION Steeplechase Rd
 TOWNSHIP Tredyffrin Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE Brick
 INFILTRATION No
 MANHOLE DEPTH 8'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Ryk/Zak

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

6-8-18 Seal top of tower.

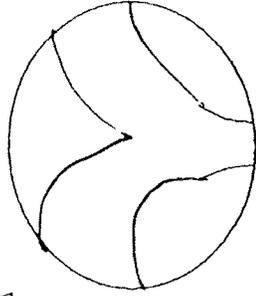
DL 6/12/18

LOCATION Steele Chase Rd
 TOWNSHIP Weymouth Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE brick
 INFILTRATION no
 MANHOLE DEPTH 8'
 BASE SIZE 4'
 INSPECTOR/OPERATOR 15416 Zyk

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 HAVERTOWN, PA. 19083
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9

INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

FLOW: HIGH _____ AVERAGE _____ LOW X

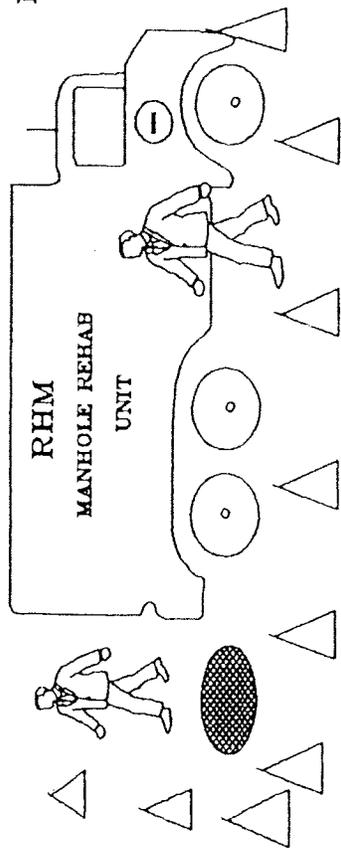
EMERGENCY REPORT

DATE:

REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

6-8-18 Patched top under ring with concrete & seal to finish with sealcrete.

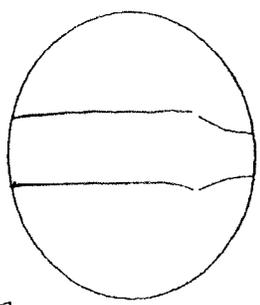
DX 6/12/18



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INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____

3 MANHOLE # 98

FLOW: HIGH ___ AVERAGE ___ LOW ___

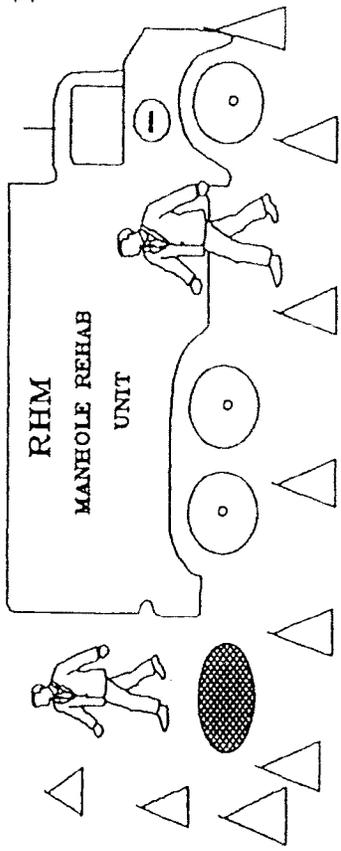
LOCATION STERIOR CHUR RD
 TOWNSHIP Tredyfflow Twp
 MANHOLE CONDITION Fair
 MANHOLE TYPE brick
 INFILTRATION no
 MANHOLE DEPTH 4'
 BASE SIZE 4'
 INSPECTOR/OPERATOR KSK/ZAK

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

6-8-18 Patched top under ring with concrete to seal to finish with sealcrete.

DC 6/12/18

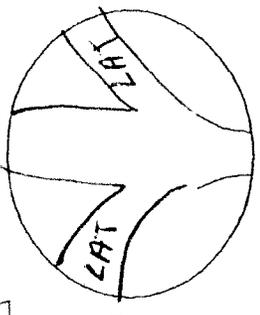


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LOCATION Steele Chase Rd
 TOWNSHIP Tredahon Twp
 MANHOLE CONDITION fair
 MANHOLE TYPE brick
 INFILTRATION no
 MANHOLE DEPTH 8'
 BASE SIZE 4'
 INSPECTOR/OPERATOR Kyler Zink

INDICATE IN THE CIRCLE: LINES OR LATERALS
 HOUSE ADDRESS OF LATERAL _____



3 MANHOLE # 104

FLOW: HIGH AVERAGE LOW X

EMERGENCY REPORT

DATE: _____ REMARKS: WORK THAT WAS DONE OR NEED TO BE FINISHED

6-8-18 seal top of tower



DL 10/9/18

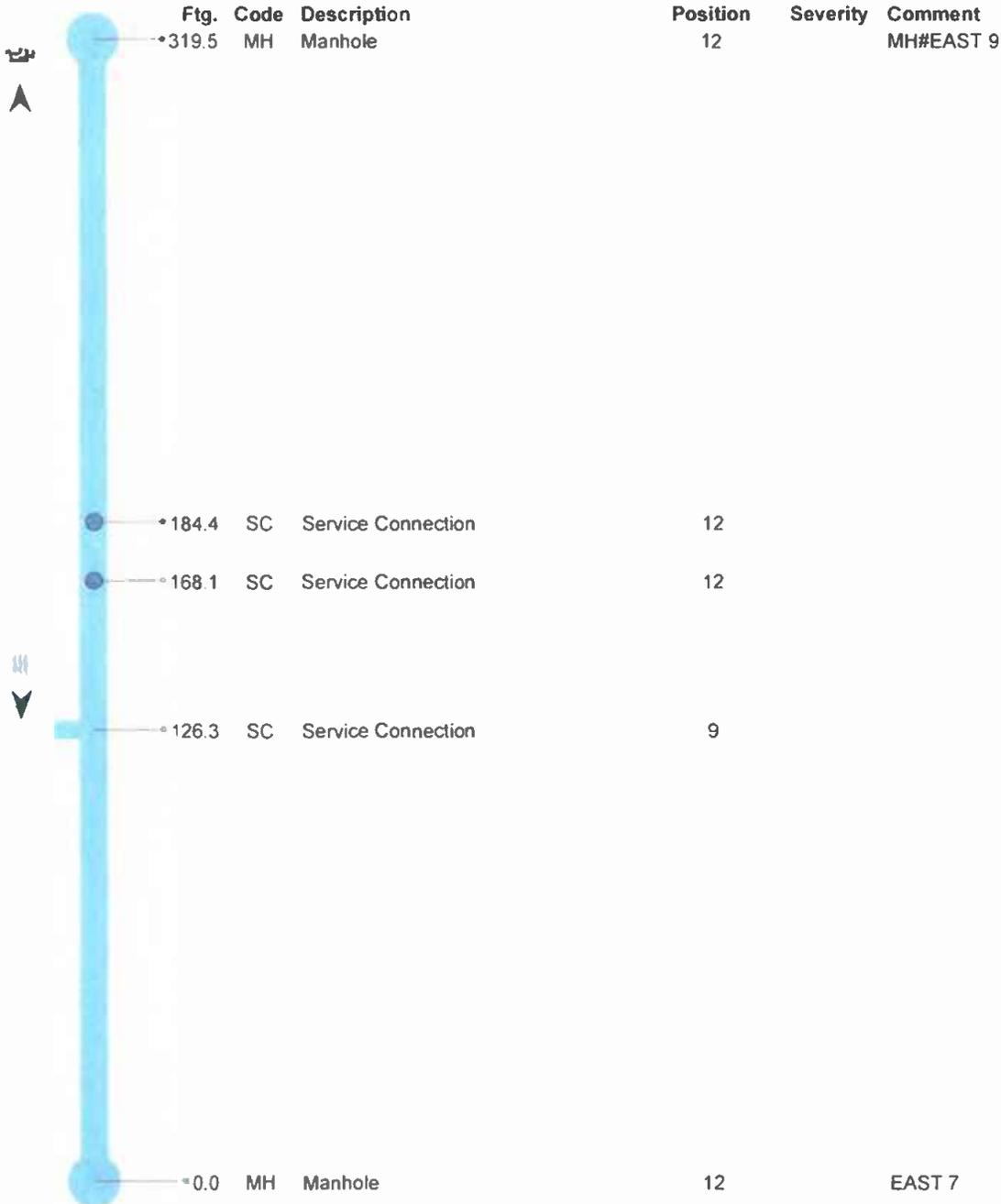
Peninsular Technologies

555 Ada Drive

Ada, MI 49301

Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH EAST 9	Downstream MH EAST 7	Date 01-Oct-2018
Surveyor PATRICK	Street CHESTER RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 319.5





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Ada, MI 49301

Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH EAST 6	Downstream MH EAST 7	Date 01-Oct-2018
Surveyor PATRICK	Street BELL VISTA RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 391

	Ftg.	Code	Description	Position	Severity	Comment
	391.0	MH	Manhole	12		MH#EAST 6
	391.0	SC	Service Connection	12		
	369.3	SC	Service Connection	12		
	359.4	SC	Service Connection	12		
	308.0	SC	Service Connection	12		
	304.3	SC	Service Connection	3		
	275.5	SC	Service Connection	12		
	214.1	SC	Service Connection	9		
	165.9	SC	Service Connection	3		
	46.6	SC	Service Connection	9		
0.0	MH	Manhole	12		MH#EAST 7	

DL 10/9/18

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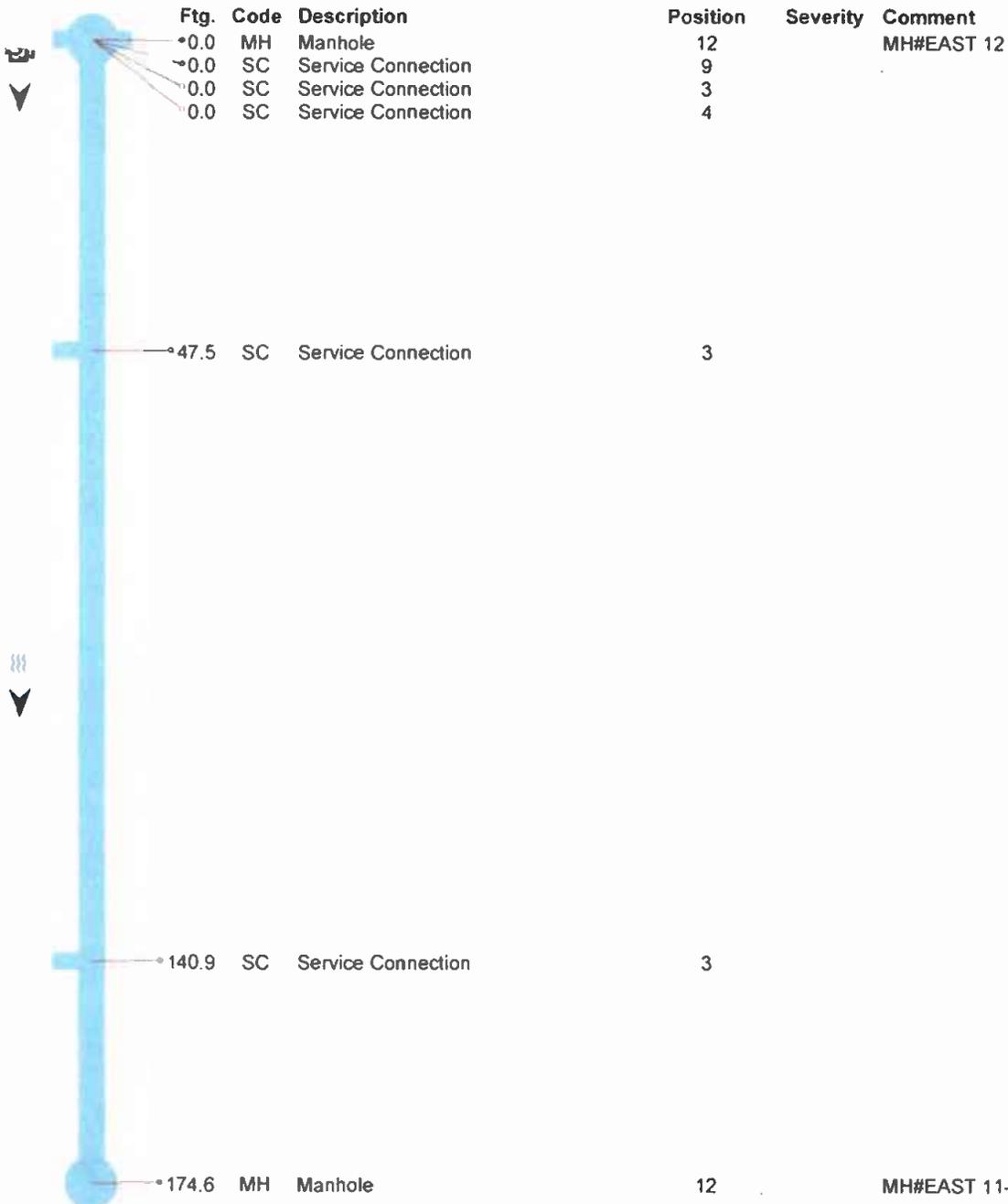


Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH EAST 7	Downstream MH EAST 8	Date 01-Oct-2018
Surveyor PATRICK	Street CHESTER RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 325

	Ftg.	Code	Description	Position	Severity	Comment
↑	0.0	MH	Manhole	12		MH#EAST 7
▼	17.2	SC	Service Connection	3		
	78.9	SC	Service Connection	9		
	81.9	SC	Service Connection	3		
	157.1	SC	Service Connection	9		
III ▼	262.8	SC	Service Connection	3		
	311.5	GO	General Obse at	3		DR (J)
	325.0	MH	Manhole	12		MH#EAST 8



Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH EAST 12	Downstream MH EAST 11-1	Date 01-Oct-2018
Surveyor PATRICK	Street DORSET RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 174.6

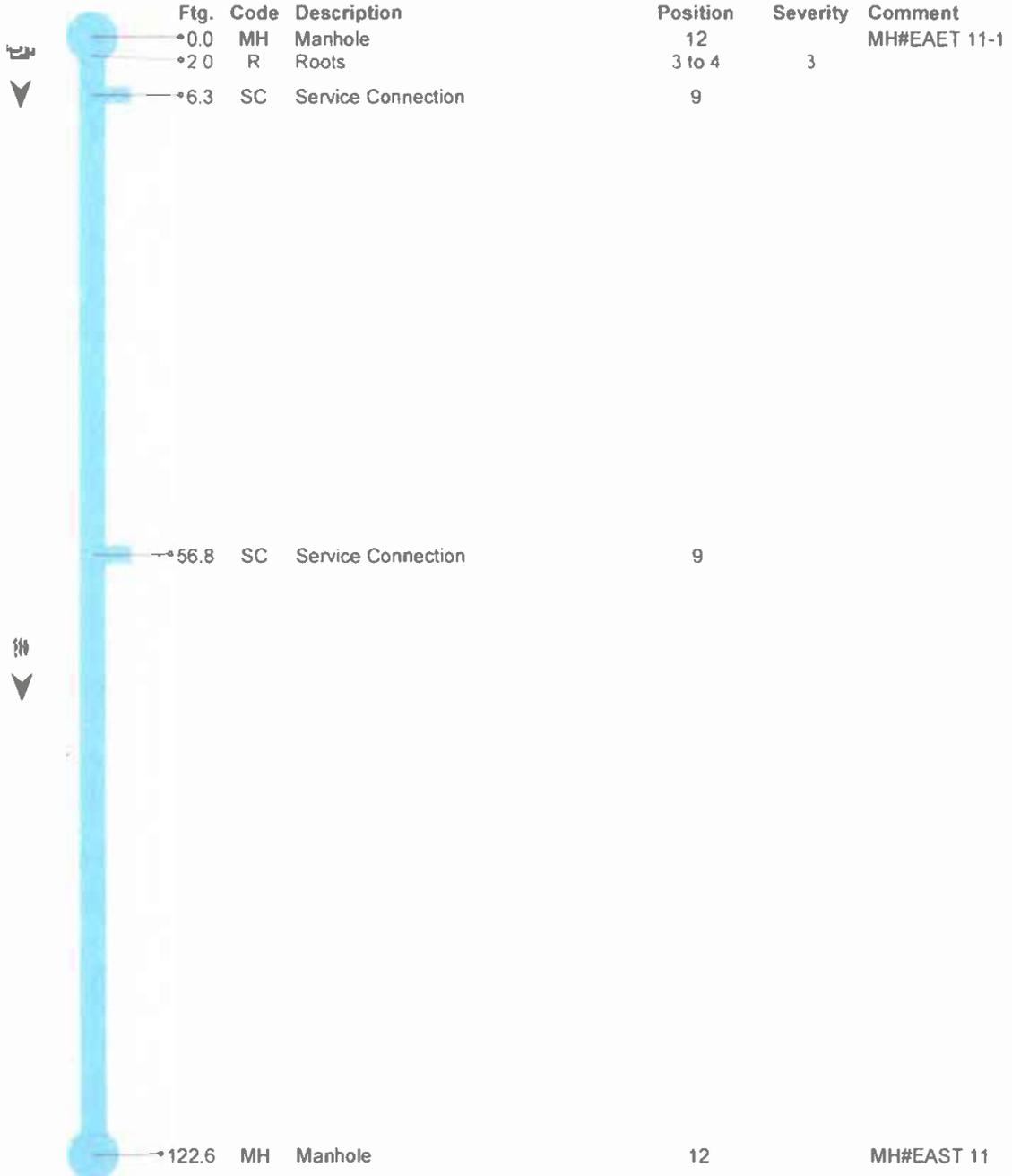


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555 Ada Drive
Ada, MI 49301
Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH EAST 11-1	Downstream MH EAST 11	Date 01-Oct-2018
Surveyor PATRICK	Street DORSET RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments RAZOROOTER:MINOR ROOTS IN MAIN			Pre-Cleaning No Pre-Cleaning	TV Length 122.6





DL 10/9/18

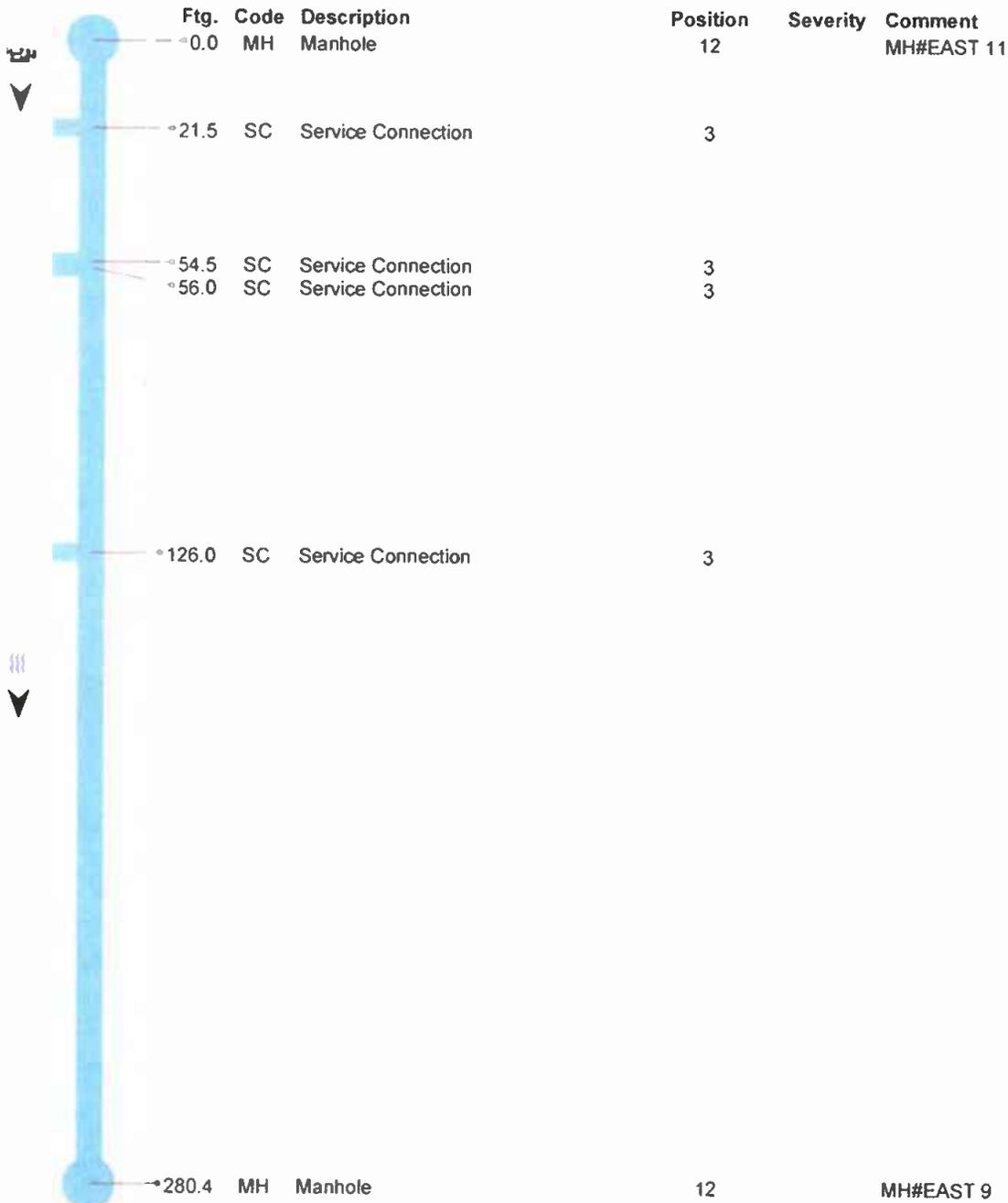
Peninsular Technologies

555 Ada Drive

Ada, MI 49301

Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH EAST 11	Downstream MH EAST 9	Date 01-Oct-2018
Surveyor PATRICK	Street DORSET RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 280.4



DL 10/9/18



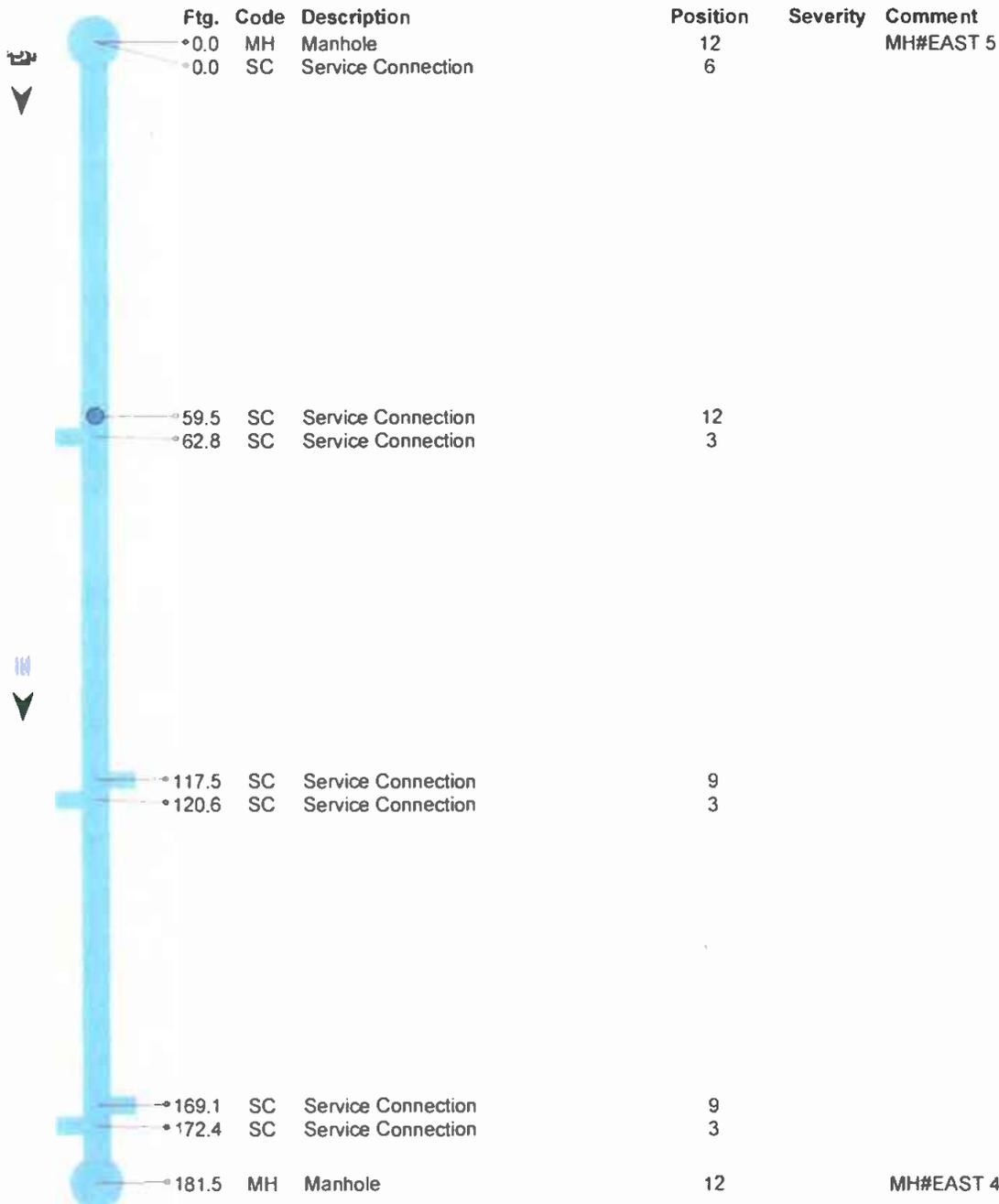
Peninsular Technologies

555 Ada Drive

Ada, MI 49301

Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH EAST 5	Downstream MH EAST 4	Date 01-Oct-2018
Surveyor PATRICK	Street BELL VISTA RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 181.5





Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH EAST 4	Downstream MH EAST 2	Date 01-Oct-2018
Surveyor PATRICK	Street BELL VISTA RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 190

	Ftg.	Code	Description	Position	Severity	Comment
0.0	MH	Manhole		12		MH#EAST 4
44.0	SC	Service Connection		9		
52.0	SC	Service Connection		3		
110.0	SC	Service Connection		3		
168.0	SC	Service Connection		9		
190.0	MH	Manhole		12		MH#EAST 2

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555 Ada Drive

Ada, MI 49301

Phone: (616) 676-9811



Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 407	Downstream MH 405	Date 02-Oct-2018
Surveyor PATRICK	Street RED FOX LA.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments JET:BLOCKAGE IN MAIN			Pre-Cleaning No Pre-Cleaning	TV Length 400



DL 10/9/18



Peninsular Technologies

555 Ada Drive

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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 405	Downstream MH 404	Date 02-Oct-2018
Surveyor PATRICK	Street RED FOX LA.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments RAZOROOTER:MINOR ROOTS IN MAIN			Pre-Cleaning No Pre-Cleaning	TV Length 395.5

	Ftg.	Code	Description	Position	Severity	Comment
	0.0	MH	Manhole	12		MH#405
	0.0	SC	Service Connection	3		
	55.2	SC	Service Connection	9		
	222.9	SC	Service Connection	3		
	236.8	SC	Service Connection	9		
	354.2	SC	Service Connection	9		ROOTS AROUND LATERAL
	381.3	SC	Service Connection	3		
	395.5	SC	Service Connection	3		
	395.5	MH	Manhole	12		MH#404

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Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 404	Downstream MH 408	Date 02-Oct-2018
Surveyor PATRICK	Street RED FOX LA.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments RAZOROOTER:MINOR ROOTS IN MAIN			Pre-Cleaning No Pre-Cleaning	TV Length 288.1

	Ftg.	Code	Description	Position	Severity	Comment
	0.0	MH	Manhole	12		MH#404
	0.0	SC	Service Connection	3		
	24.5	R	Roots	3 to 6	3	
	34.8	SC	Service Connection	9		
	126.2	SC	Service Connection	3		
	217.7	SC	Service Connection	9		
	288.1	SC	Service Connection	3		
	288.1	MH	Manhole	12		MH#408



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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 364	Downstream MH 362	Date 02-Oct-2018
Surveyor PATRICK	Street ROBINWOOD RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments RAZOROOTER:ROOTS IN MAIN, JET:BLOCKAGE IN MAIN			Pre-Cleaning No Pre-Cleaning	TV Length 400

	Ftg.	Code	Description	Position	Severity	Comment
▼	-0.0	MH	Manhole	12		MH#364
	-0.0	SC	Service Connection	8		
	-0.0	SC	Service Connection	4		
	-38.6	SC	Service Connection	3		
	-70.4	SC	Service Connection	9		
	-194.6	SC	Service Connection	9		
	-208.4	SC	Service Connection	3		
⊘	-24	GO	General Observer	to 9		BLOCKAGE IN MAIN UNABLE TO PASS
	400.0	MH	Manhole	12		MH#362

DL 10/3/18



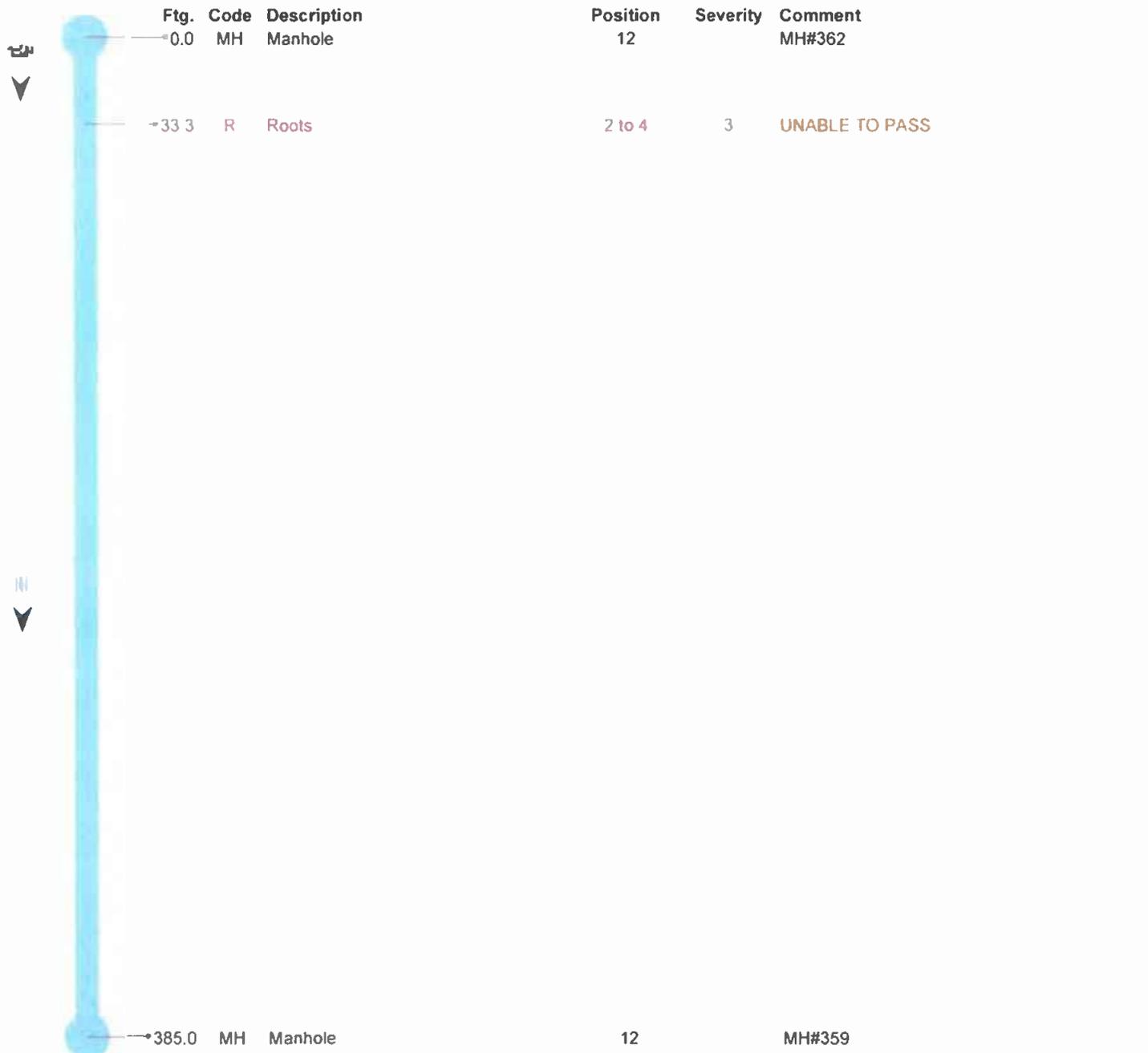
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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 362	Downstream MH 359	Date 03-Oct-2018
Surveyor PATRICK	Street ROBINWOOD RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments RAZOROOTER:ROOTS IN MAIN			Pre-Cleaning No Pre-Cleaning	TV Length 385





DL 10/9/18

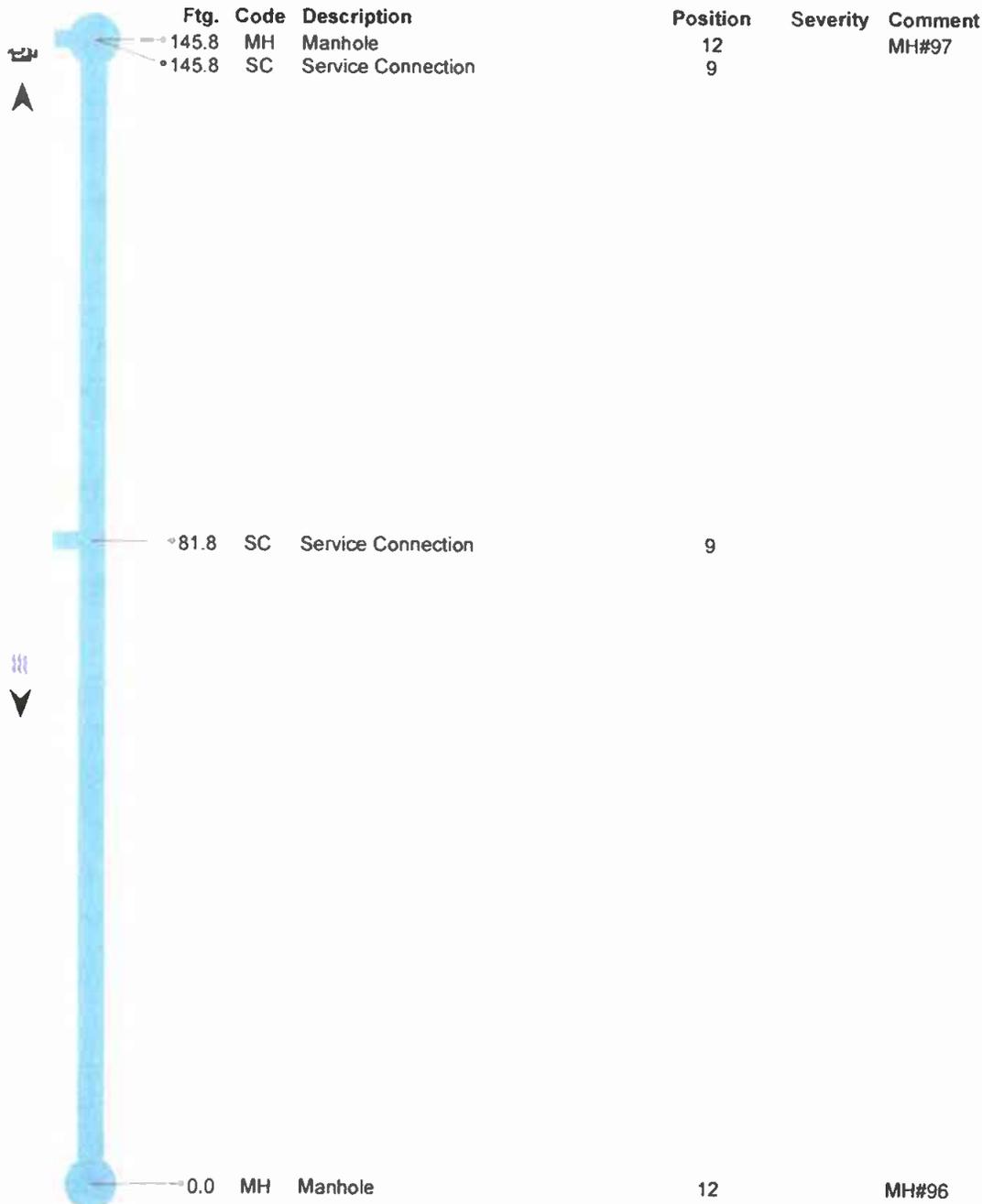
Peninsular Technologies

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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 97	Downstream MH 96	Date 03-Oct-2018
Surveyor PATRICK	Street STEEPLECHASE RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 145.8



DL 10/3/18



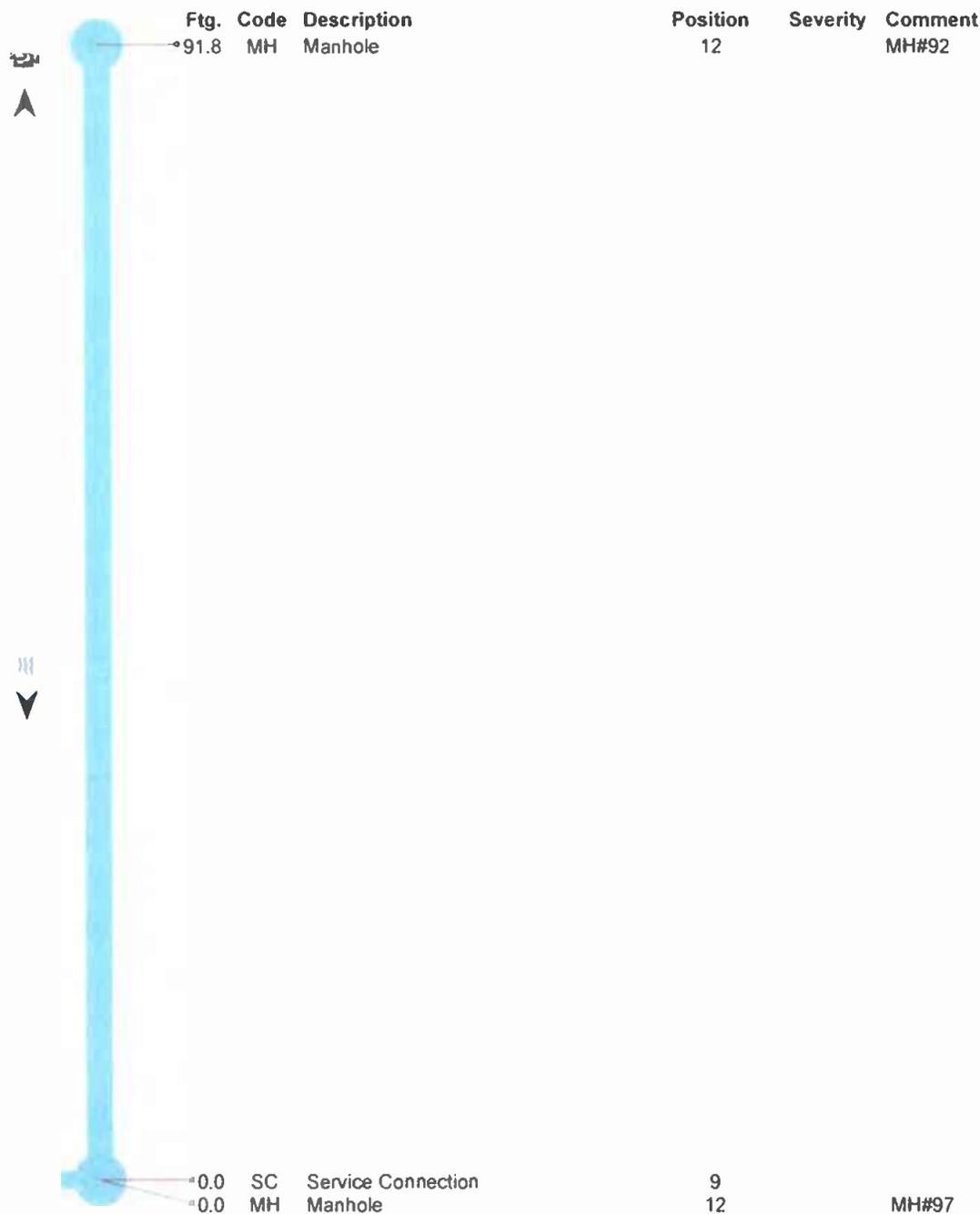
Peninsular Technologies

555 Ada Drive

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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 92	Downstream MH 97	Date 03-Oct-2018
Surveyor PATRICK	Street STEEPLECHASE RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 91.8



DL 10/9/18



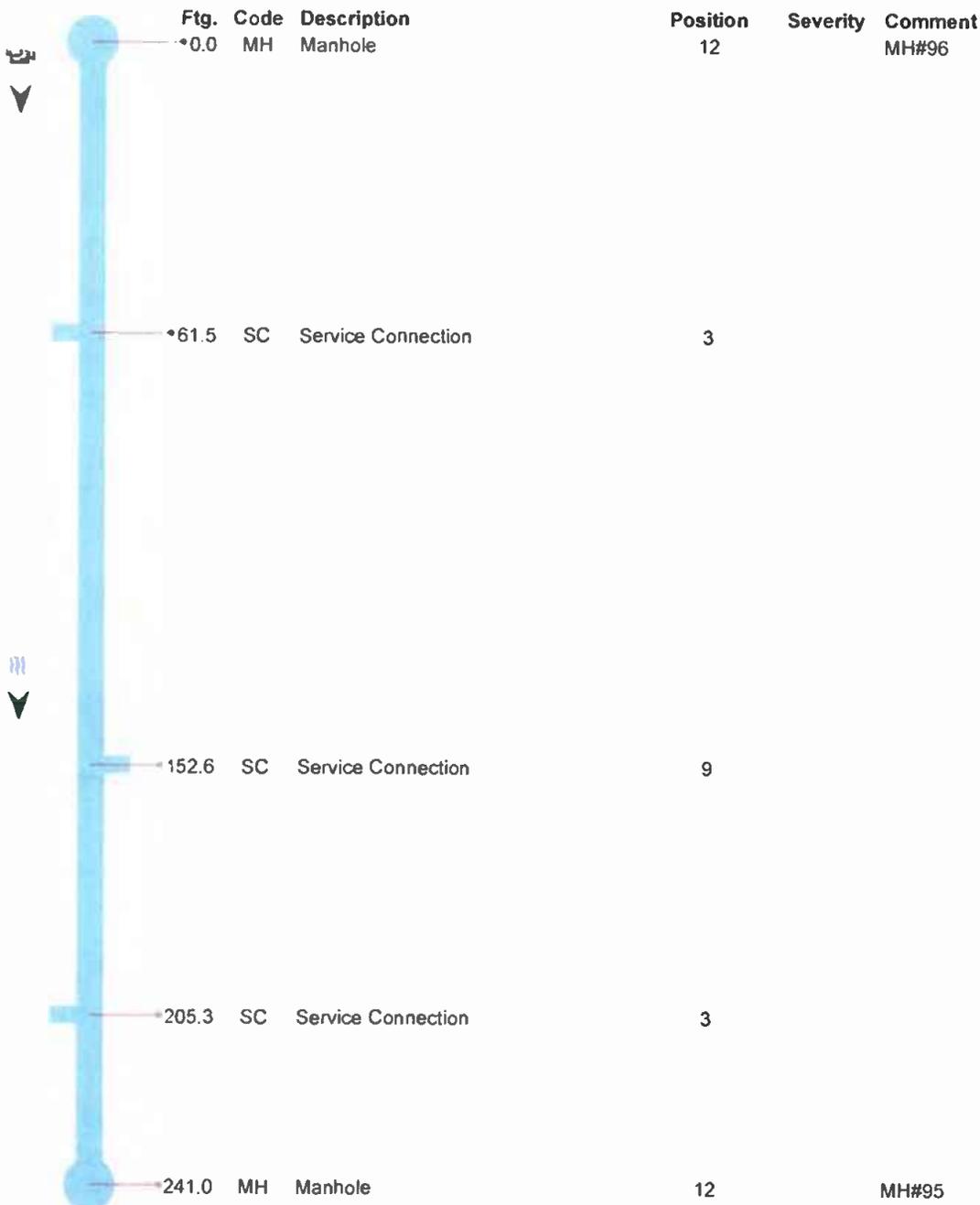
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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 96	Downstream MH 95	Date 03-Oct-2018
Surveyor PATRICK	Street STEEPELECHASE RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments RAZOROOTER:MINOR ROOTS IN MAIN			Pre-Cleaning No Pre-Cleaning	TV Length 241





Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 95	Downstream MH 91	Date 03-Oct-2018
Surveyor PATRICK	Street STEEPELECHASE RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments RAZOROOTER:ROOTS IN MAIN			Pre-Cleaning No Pre-Cleaning	TV Length 210

	Ftg.	Code	Description	Position	Severity	Comment
↑	0.0	MH	Manhole	12		MH#95
↓						
	33.4	SC	Service Connection	9		CAP
	40.2	SC	Service Connection	9		
↓						
	150.5	SC	Service Connection	9		
	152.6	SC	Service Connection	3		ROOT MASS COMING FROM LATERAL
	164.2	SC	Service Connection	3		CAP
	4	CO	General			DROP
	210.0	MH	Manhole	12		MH#91



DL 10/9/18

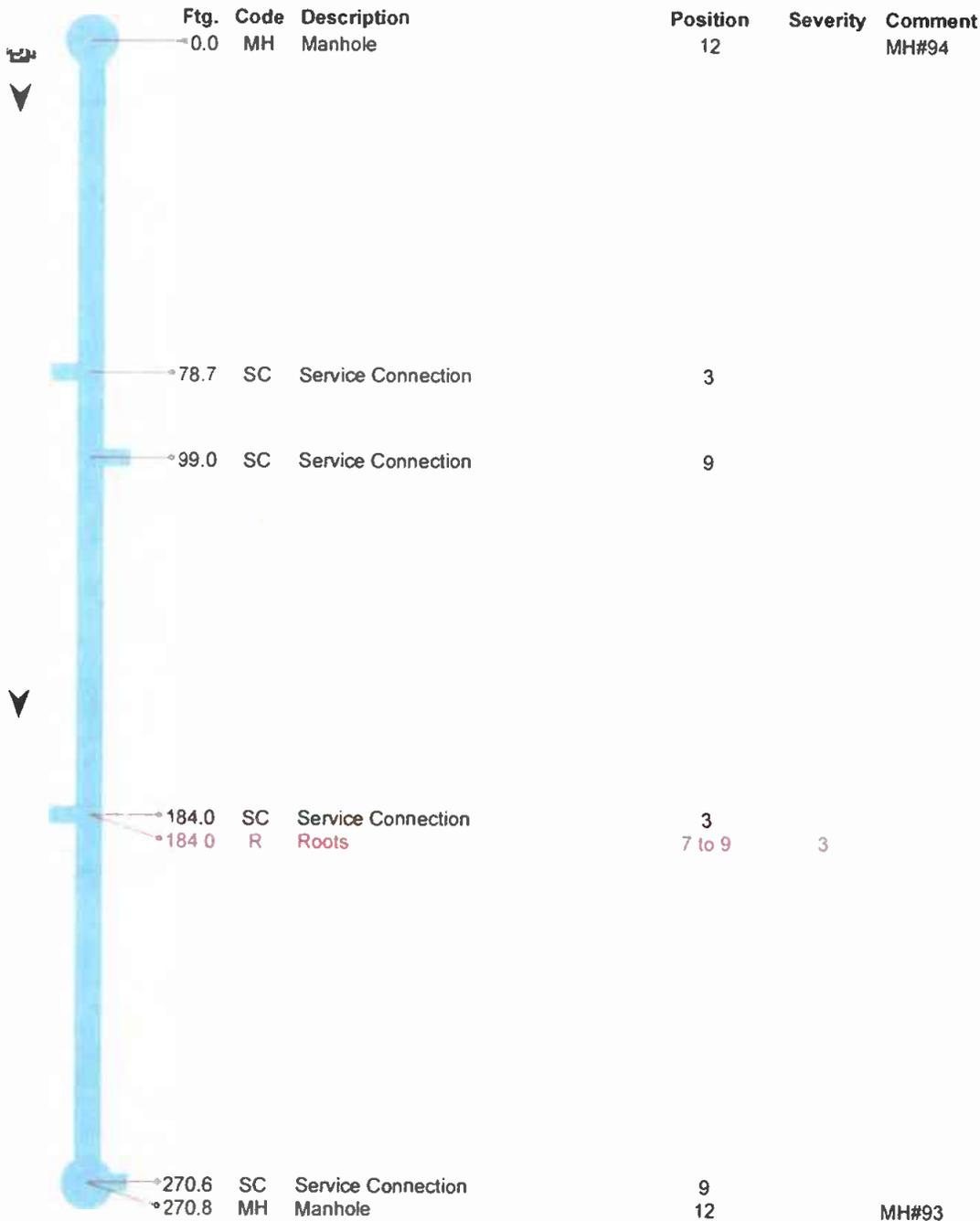
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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 94	Downstream MH 93	Date 03-Oct-2018
Surveyor PATRICK	Street HUNTERS LA.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments REHAB:TOP WORK, RAZOROOTER:ROOTS IN MAIN			Pre-Cleaning No Pre-Cleaning	TV Length 270.8



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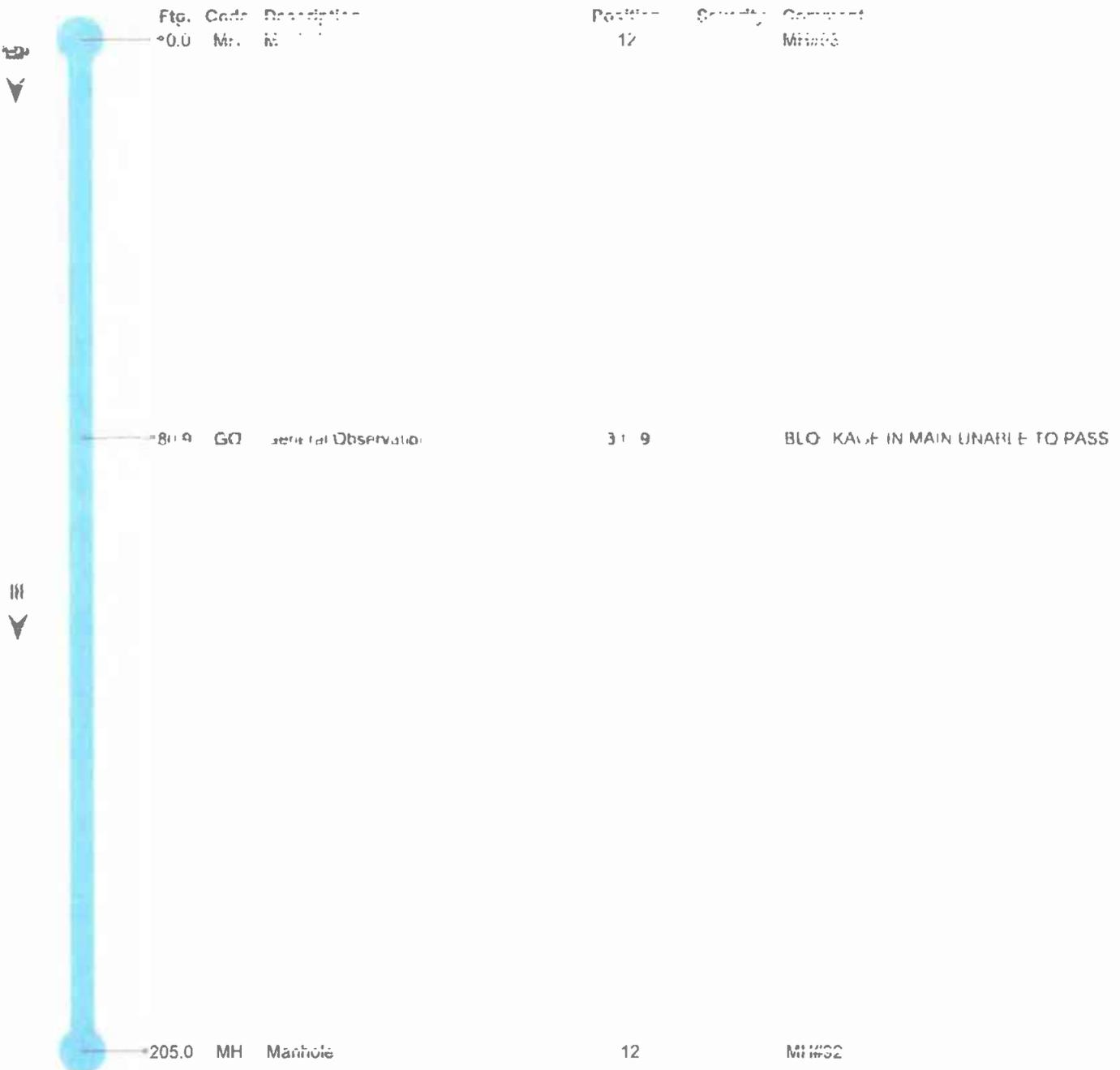
Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 93	Downstream MH 92	Date 03-Oct-2018
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Surveyor HARRICK	Street HUNTERS LA.	City	Weather Dry
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Size 8	Material Transition	Sewer Use Sanitary	Purpose Routine Assessment	Length
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Comments ... IN MAIN	Pre-Cleaning [...]	TV Length 205
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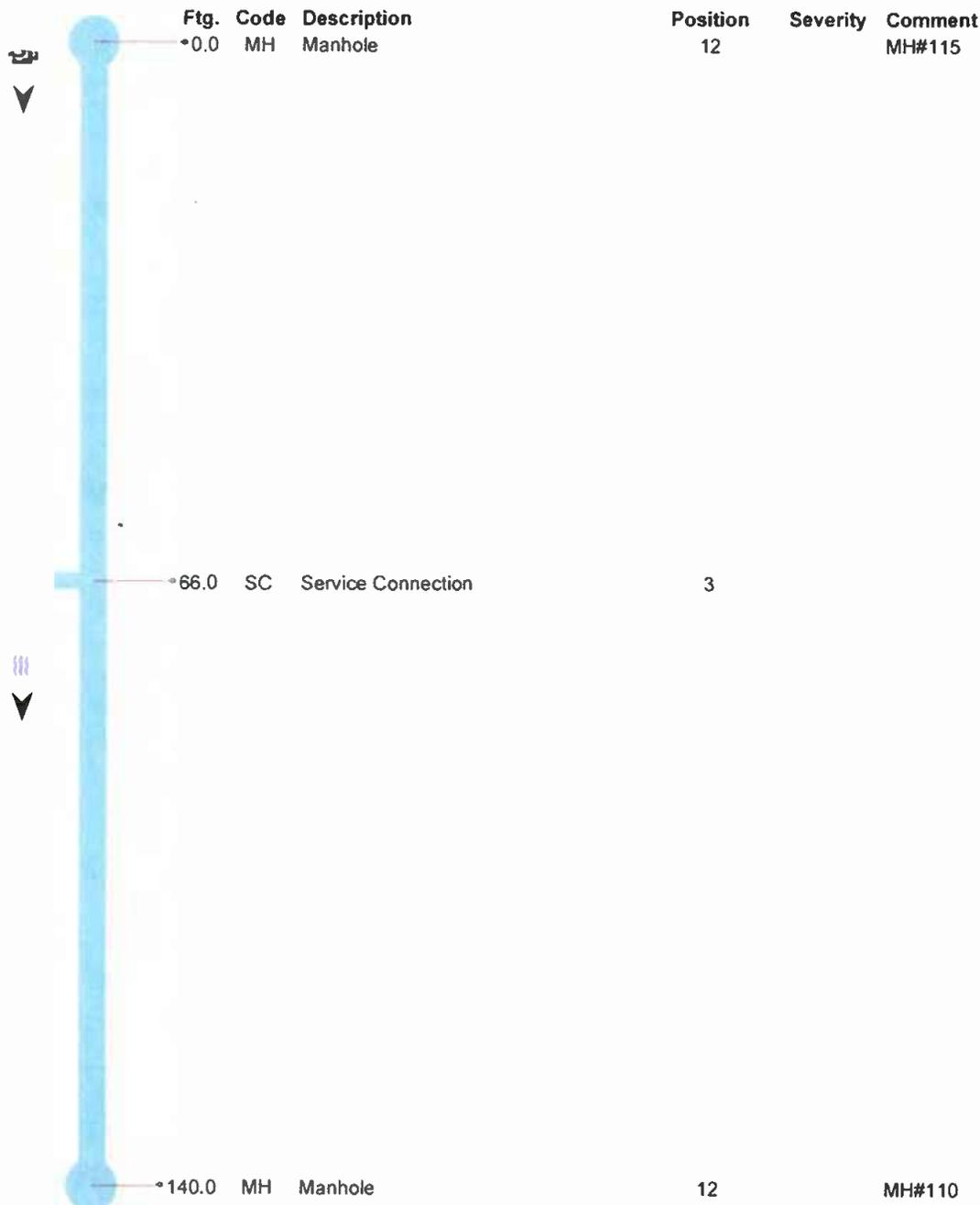
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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 115	Downstream MH 110	Date 04-Oct-2018
Surveyor PATRICK	Street SUNSET RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 140



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Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 117	Downstream MH 115	Date 04-Oct-2018
Surveyor PATRICK	Street SUNSET RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments JET:BRICK IN MAIN			Pre-Cleaning No Pre-Cleaning	TV Length 385

	Ftg.	Code	Description	Position	Severity	Comment
↑	385.0	MH	Manhole	12		MH#117
↑			Observer	51		BRICK IN MAIN UNABLE TO PA
	175.3	SC	Service Connection	9		
∇	161.5	SC	Service Connection	3		
	70.3	SC	Service Connection	9		
	27.9	SC	Service Connection	3		
	0.0	MH	Manhole	12		MH#115

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Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 171	Downstream MH 170	Date 04-Oct-2018
Surveyor PATRICK	Street HOMESTEAD RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 99.8



DL 10/9/18



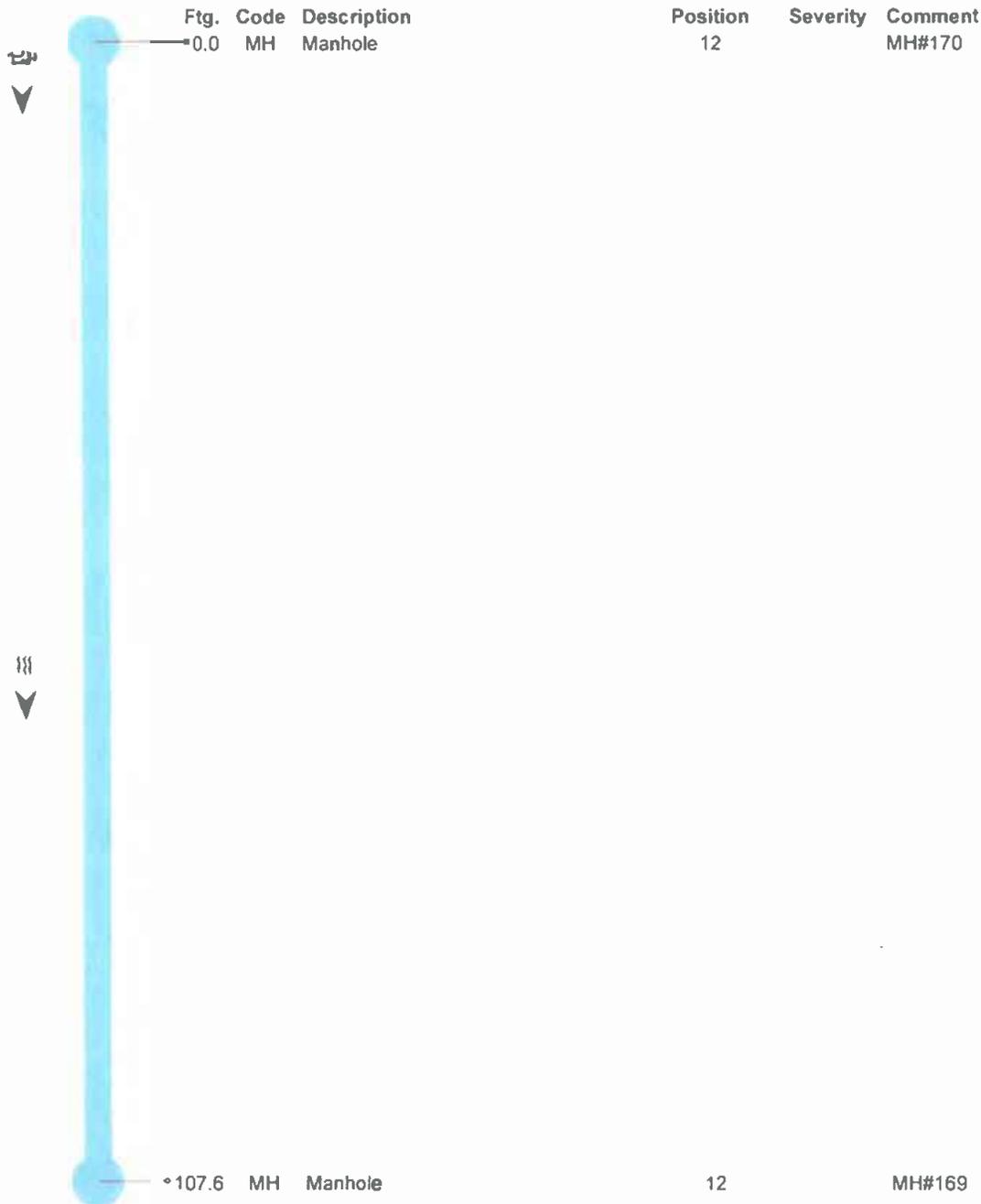
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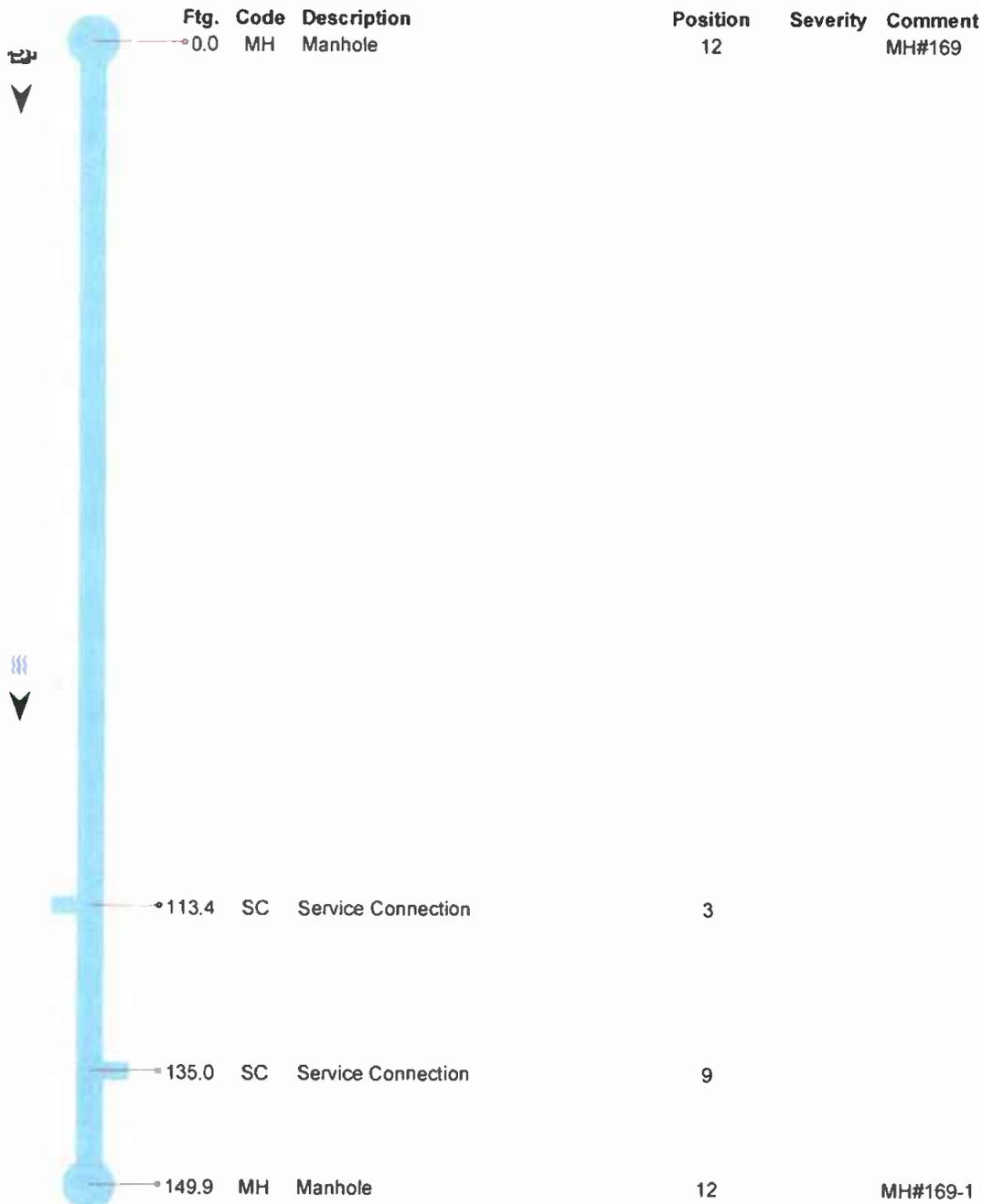
Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 170	Downstream MH 169	Date 04-Oct-2018
Surveyor PATRICK	Street HOMESTEAD RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments REHAB:TOP WORK			Pre-Cleaning No Pre-Cleaning	TV Length 107.6





Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 169	Downstream MH 169-1	Date 04-Oct-2018
Surveyor PATRICK	Street HOMESTEAD RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments REHAB:TOP WORK			Pre-Cleaning No Pre-Cleaning	TV Length 149.9



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Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 169-1	Downstream MH 158	Date 04-Oct-2018
Surveyor PATRICK	Street HOMESTEAD RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments REHAB: TOP WORK			Pre-Cleaning No Pre-Cleaning	TV Length 200





DL 10/5/18

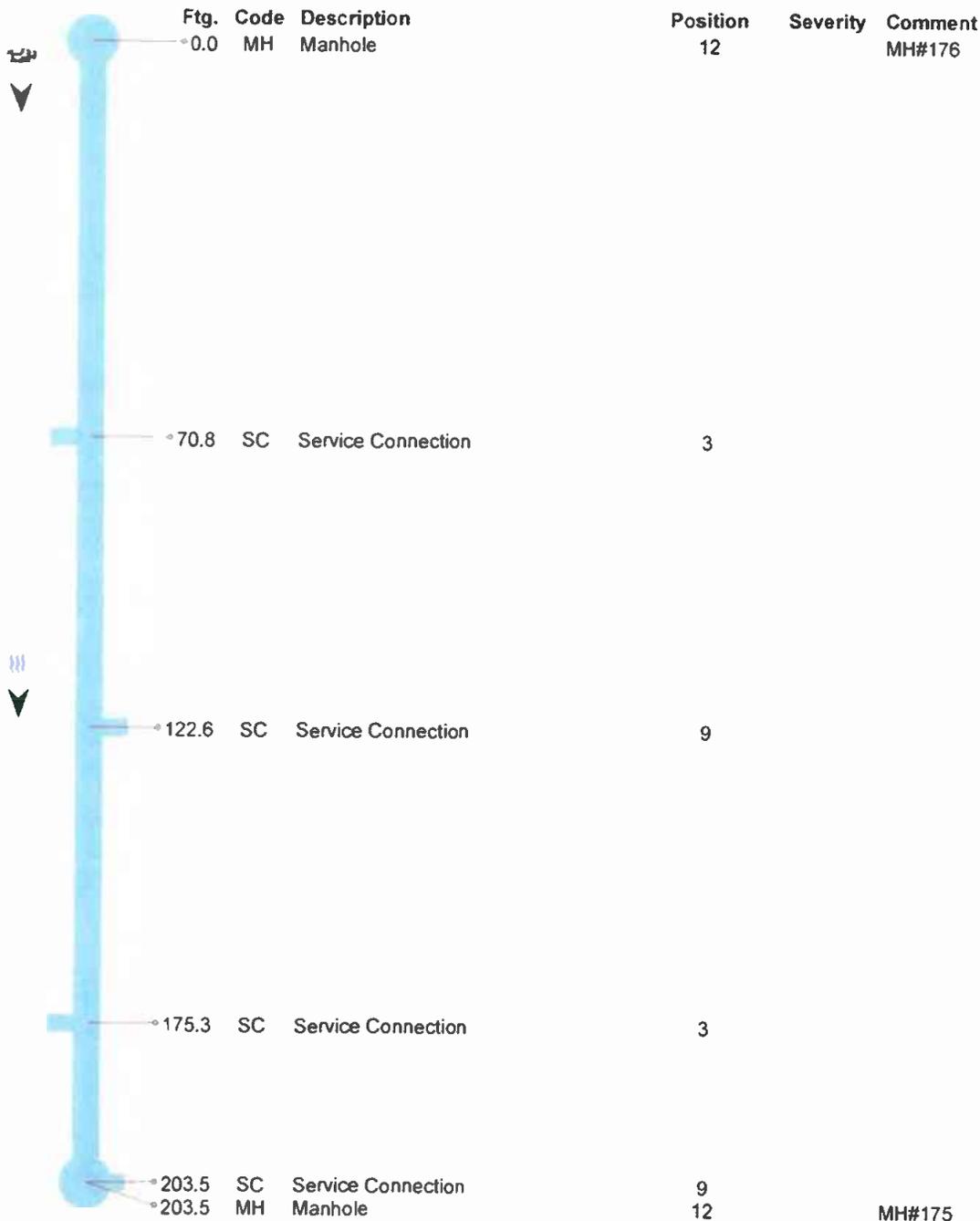
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Ada, MI 49301

Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 176	Downstream MH 175	Date 05-Oct-2018
Surveyor PATRICK	Street HOMESTEAD RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 203.5



DL 10/9/18

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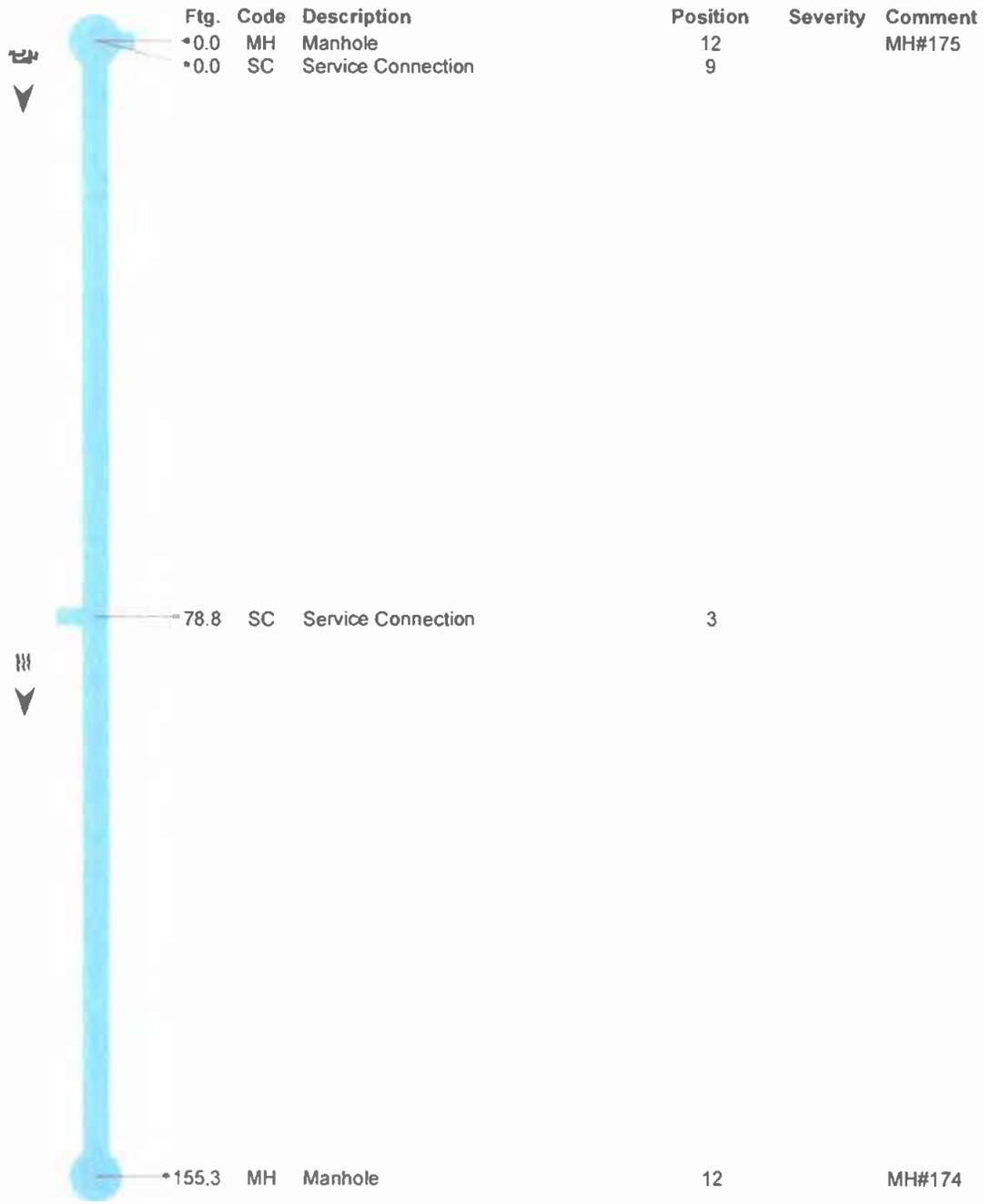
555 Ada Drive

Ada, MI 49301

Phone: (616) 676-9811



Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 175	Downstream MH 174	Date 05-Oct-2018
Surveyor PATRICK	Street HOMESTEAD RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 155.3





DC 10/9/18

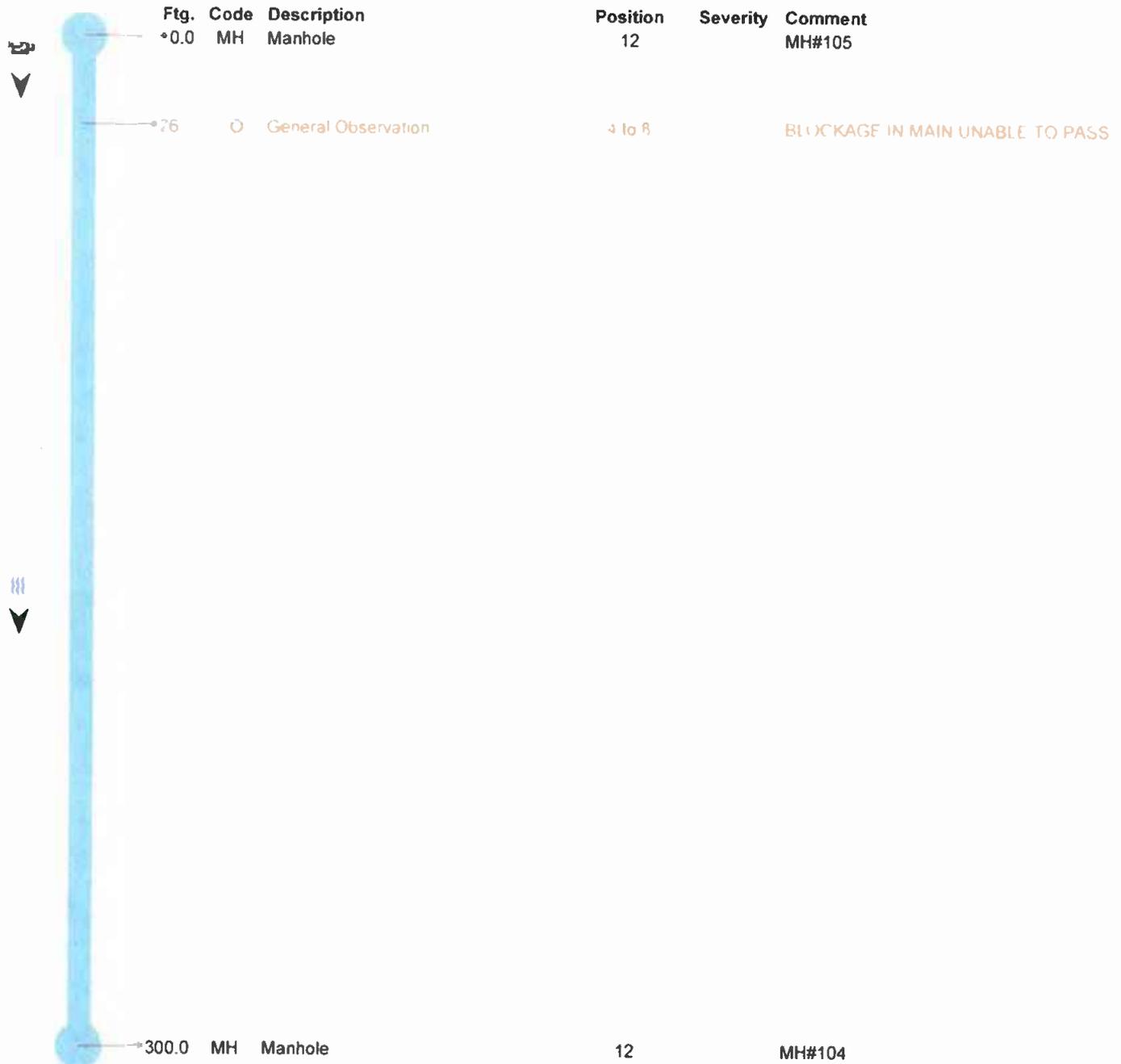
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555 Ada Drive

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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 105	Downstream MH 104	Date 05-Oct-2018
Surveyor PATRICK	Street STEEPLCHASE RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments JET:BLOCKAGE IN MAIN			Pre-Cleaning No Pre-Cleaning	TV Length 300



DL 10/7/18



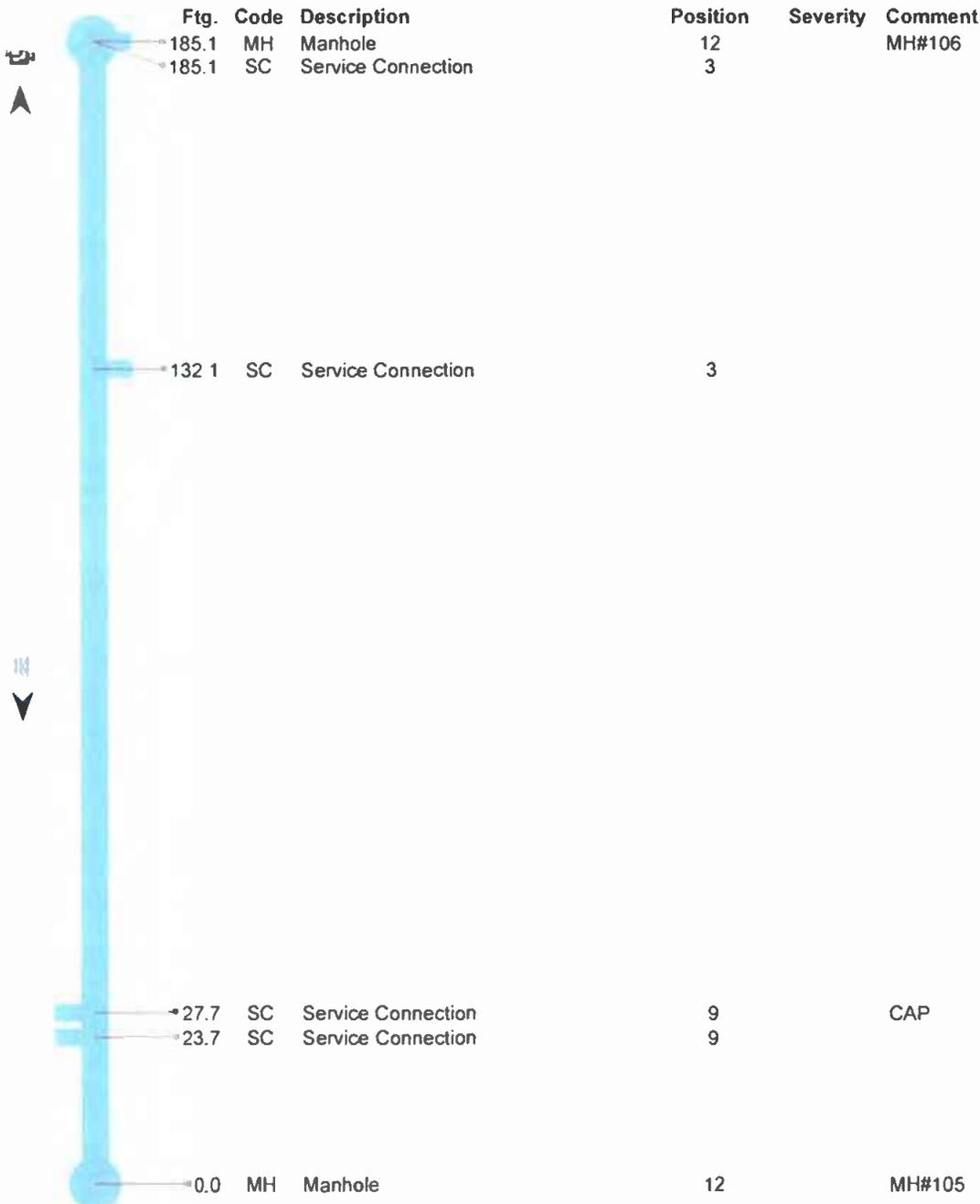
Peninsular Technologies

555 Ada Drive

Ada, MI 49301

Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 106	Downstream MH 105	Date 05-Oct-2018
Surveyor PATRICK	Street STEEPLECHASE RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments RAZOROOTER:ROOTS IN MAIN			Pre-Cleaning No Pre-Cleaning	TV Length 185.1





DL 6/12/18

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Phone: (616) 676-9811

Owner: TREDYFFRIN TWP. Customer: TREDYFFRIN TWP. Upstream MH: 44 Downstream MH: 38 Date: 30-Mar-2018

Surveyor: PATRICK Street: SOUTH VALLEY FORGE RD. City: Weather: Dry

Size: 8 Material: Transite Pipe Sewer Use: Sanitary Purpose: Routine Assessment Length:

Comments: SEWER MAIN IN GOOD CONDITION Pre-Cleaning: No Pre-Cleaning TV Length: 355

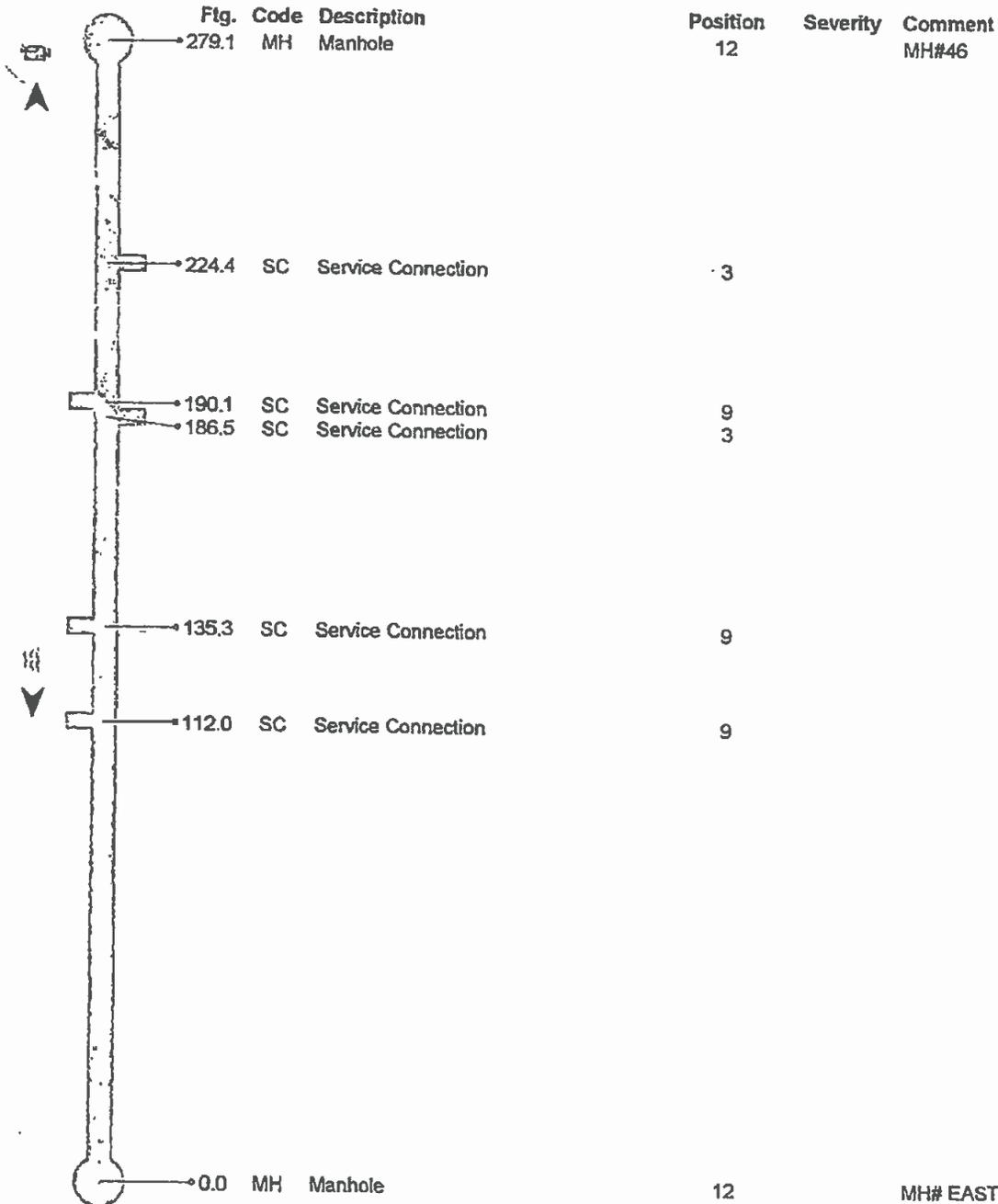
Fig.	Code	Description	Position	Severity	Comment
•0.0	MH	Manhole	12		MH#44
•6.5	SC	Service Connection	3		
•96.9	SC	Service Connection	9		
•130.3	SC	Service Connection	3		
•157.3	SC	Service Connection	10		
•213.4	SC	Service Connection	3		
•351.0	GO	Line at O	1		DRGP
•355.0	MH	Manhole	12		MH#38



DL 6/12/18

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Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 46	Downstream MH EAST 8	Date 30-Mar-2018
Surveyor PATRICK	Street SOUTH VALLEY FORGE RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION				Pre-Cleaning No Pre-Cleaning
				TV Length 279.1





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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 45	Downstream MH 44	Date 30-Mar-2018
Surveyor PATRICK	Street SOUTH VALLEY FORGE RD.	City	Weather Dry	
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 392.5

	Ftg.	Code	Description	Position	Severity	Comment
⊞	•0.0	MH	Manhole	12		MH#45
▼						
	•61.7	SC	Service Connection	9		
	•85.4	SC	Service Connection	3		
	•87.7	SC	Service Connection	3		
	•123.0	SC	Service Connection	9		
	•160.5	SC	Service Connection	3		
	•198.1	SC	Service Connection	9		
⊞	•225.9	SC	Service Connection	3		
▼	•245.9	SC	Service Connection	3		
	•269.9	SC	Service Connection	9		
	•285.5	SC	Service Connection	3		
	•325.0	SC	Service Connection	3		
	•337.5	SC	Service Connection	9		
	•370.6	SC	Service Connection	3		
	•386.1	SC	Service Connection	9		
	•392.5	MH	Manhole	12		MH#44



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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH EAST 8	Downstream MH 45	Date 30-Mar-2018
Surveyor PATRICK	Street SOUTH VALLEY FORGE RD.	City	Weather Dry	
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments JET MINOR DEBRIS IN MAIN			Pre-Cleaning No Pre-Cleaning	TV Length 21.3





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Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 41-1	Downstream MH 37	Date 29-Mar-2018
Surveyor PATRICK	Street POPLAR AVE.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments JET:BLOCKAGE UNDER FLOW UNABLE TO SEE WHAT IT IS MAIN NEEDS TO BE CLEANED				Pre-Cleaning No Pre-Cleaning
				TV Length 302

	Ftg.	Code	Description	Position	Severity	Comment
	•0.0	MH	Manhole	12		MH#41-1
	•4.3	SC	Service Connection	3		
	•22.8	SC	Service Connection	9		
	•47.9	SC	Service Connection	12		
	•61.4	SC	Service Connection	3		
	•34			110'	R	UNABLE
					F	
	•302.0	MH	Manhole	12		MH#37



DL 6/12/18

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555 Ada Drive

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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 41	Downstream MH 41-1	Date 29-Mar-2018
Surveyor PATRICK	Street POPLAR AVE.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments LATERAL INFILTRATION IN MAIN NEEDS WEIR READING			Pre-Cleaning No Pre-Cleaning	TV Length 396.6

	Ftg.	Code	Description	Position	Severity	Comment
	•0.0	MH	Manhole	12		MH#41
	•0.0	SC	Service Connection	3		
	•27.0	SC	Service Connection	3		
	•83.7	SC	Service Connection	9		
	•85.9	SC	Service Connection	9		LATERAL INFILTRATION
	•170.5	SC	Service Connection	9		
	•236.1	SC	Service Connection	9		
	•240.5	SC	Service Connection	3		
	•243.7	SC	Service Connection	9		
	•327.9	SC	Service Connection	9		
	•350.0	SC	Service Connection	3		
	•396.6	MH	Manhole	12		MH#41-1



DL 6/12/18

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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 42	Downstream MH 42-1	Date 29-Mar-2018
Surveyor PATRICK	Street POPLAR AVE.	City	Weather Dry	
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 199.9

	Ftg.	Code	Description	Position	Severity	Comment
	•199.9	MH	Manhole	12		MH#42
	•189.3	SC	Service Connection	9		
	•175.4	SC	Service Connection	3		
	•124.1	SC	Service Connection	3		
	•93.7	SC	Service Connection	9		
	•73.6	SC	Service Connection	3		
	•24.0	SC	Service Connection	3		
	•0.0	MH	Manhole	12		MH#42-1

DL 6/12/18



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Ada, MI 49301

Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 42-1	Downstream MH 41	Date 29-Mar-2018
Surveyor PATRICK	Street POPLAR AVE.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments HEAVY LATERAL INFILTRATION NEEDS WEIR READING			Pre-Cleaning No Pre-Cleaning	TV Length 200.8





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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 333	Downstream MH 331	Date 28-Mar-2018
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Surveyor PATRICK	Street R/W HILLSIDE RD.	City	Weather Dry
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Size 8	Material Polyvinyl Chloride	Sewer Use Sanitary	Purpose Routine Assessment	Length
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Comments LATERAL INFILTRATION IN MANHOLE # 333 WEIR READING 5,473 G.P.D.	Pre-Cleaning No Pre-Cleaning	TV Length 88
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Ftg.	Code	Description	Position	Severity	Comment
•0.0	SC	Service Connection	3		
•0.0	MH	Manhole	12		LATERAL INFILTRATION IN MANHOLE MH#333
•0.0	SC	Service Connection	3		



•88.0 MH Manhole 12 MH#331



DL 6/12/18

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Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 331	Downstream MH 301	Date 28-Mar-2018
Surveyor PATRICK	Street R/W HILLSIDE RD.		City	Weather Dry
Size 8	Material Polyvinyl Chloride	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments LATERAL INFILTRATION IN MANHOLE # 331 WEIR READING 9,243 G.P.D.			Pre-Cleaning No Pre-Cleaning	TV Length 137

Ft.	Code	Description	Position	Severity	Comment
0.0	SC	Service Connection	3		LATERAL INFILTRATION IN MANHOLE
0.0	SC	Service Connection	9		
0.0	MH	Manhole	12		MH#333



DL 6/12/K

Peninsular Technologies

555 Ada Drive

Ada, MI 49301

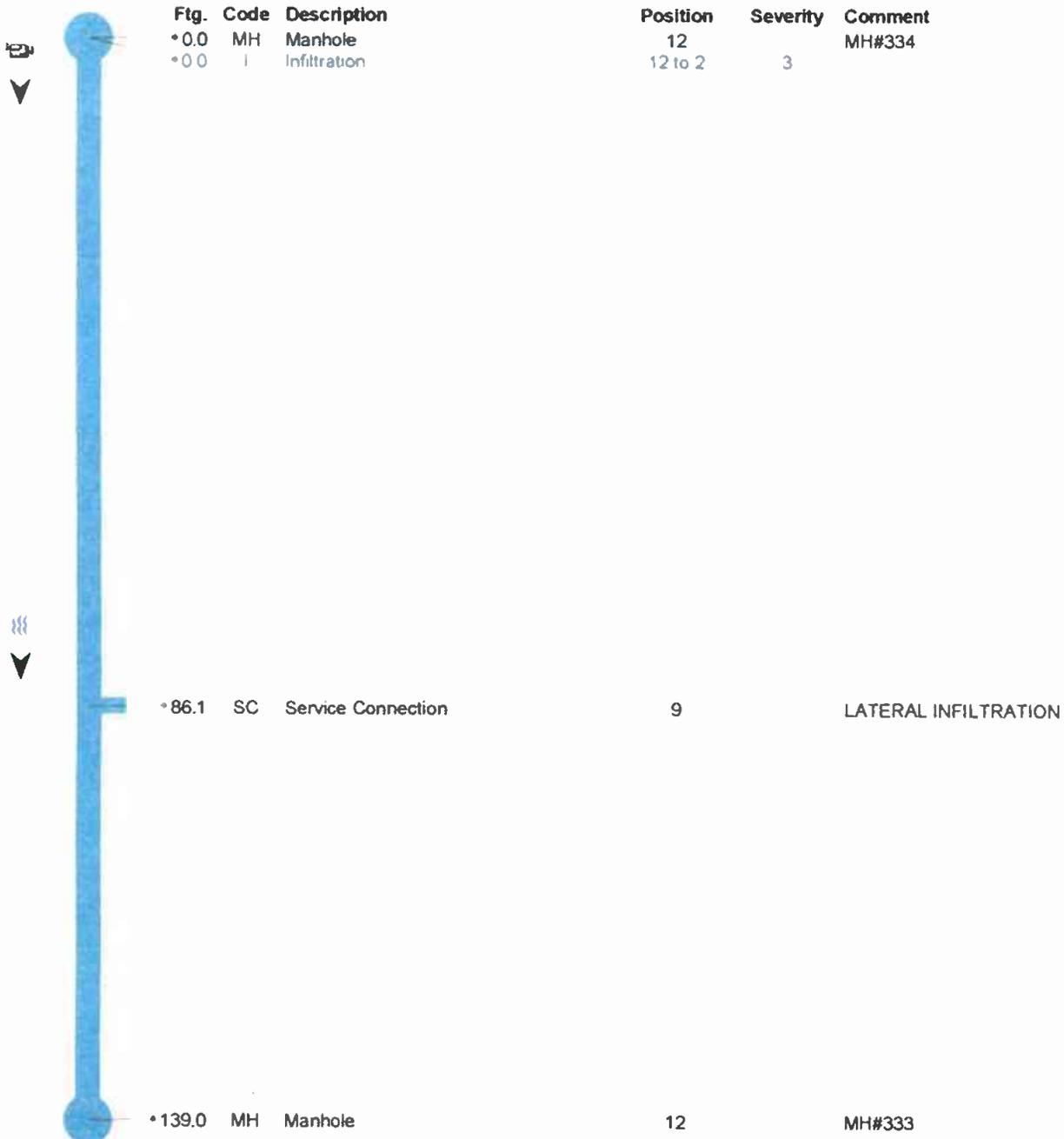
Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 334	Downstream MH 333	Date 28-Mar-2018
---------------------------------	------------------------------------	---------------------------	-----------------------------	----------------------------

Surveyor PATRICK	Street R/W HIIDSIDE RD.	City	Weather Dry
----------------------------	-----------------------------------	-------------	-----------------------

Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
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Comments REHAB:INFILTRATION IN MANHOLE, LATERAL INFILTRATION	Pre-Cleaning No Pre-Cleaning	TV Length 139
--	--	-------------------------



DL 6/12/18

Peninsular Technologies
555 Ada Drive
Ada, MI 49301
Phone: (616) 676-9811



Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 334A	Downstream MH 334	Date 28-Mar-2018
Surveyor PATRICK	Street HILLSIDE RD.		City	Weather Dry
Size 8	Material Polyvinyl Chloride	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 19.5

	Ftg.	Code	Description	Position	Severity	Comment
▼	0.0	MH	Manhole	12		MH#334A
⋮						
▼	19.5	MH	Manhole	12		MH#334

DL 6/12/18



Peninsular Technologies

555 Ada Drive

Ada, MI 49301

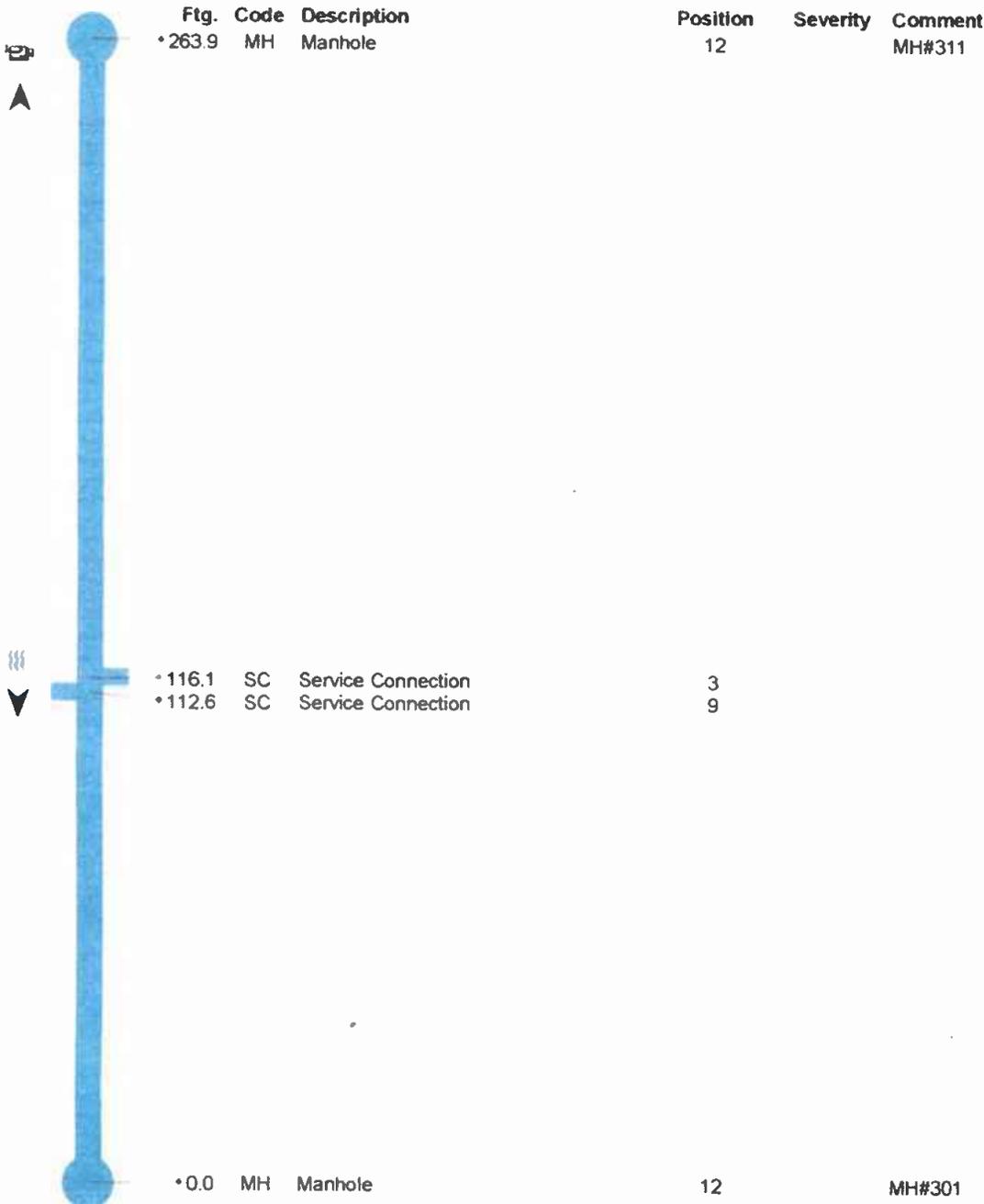
Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 311	Downstream MH 301	Date 27-Mar-2018
---------------------------------	------------------------------------	---------------------------	-----------------------------	----------------------------

Surveyor PATRICK	Street CROTON RD.	City	Weather Dry
----------------------------	-----------------------------	-------------	-----------------------

Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
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Comments SEWER MAIN IN GOOD CONDITION	Pre-Cleaning No Pre-Cleaning	TV Length 263.9
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DL 6/12/18

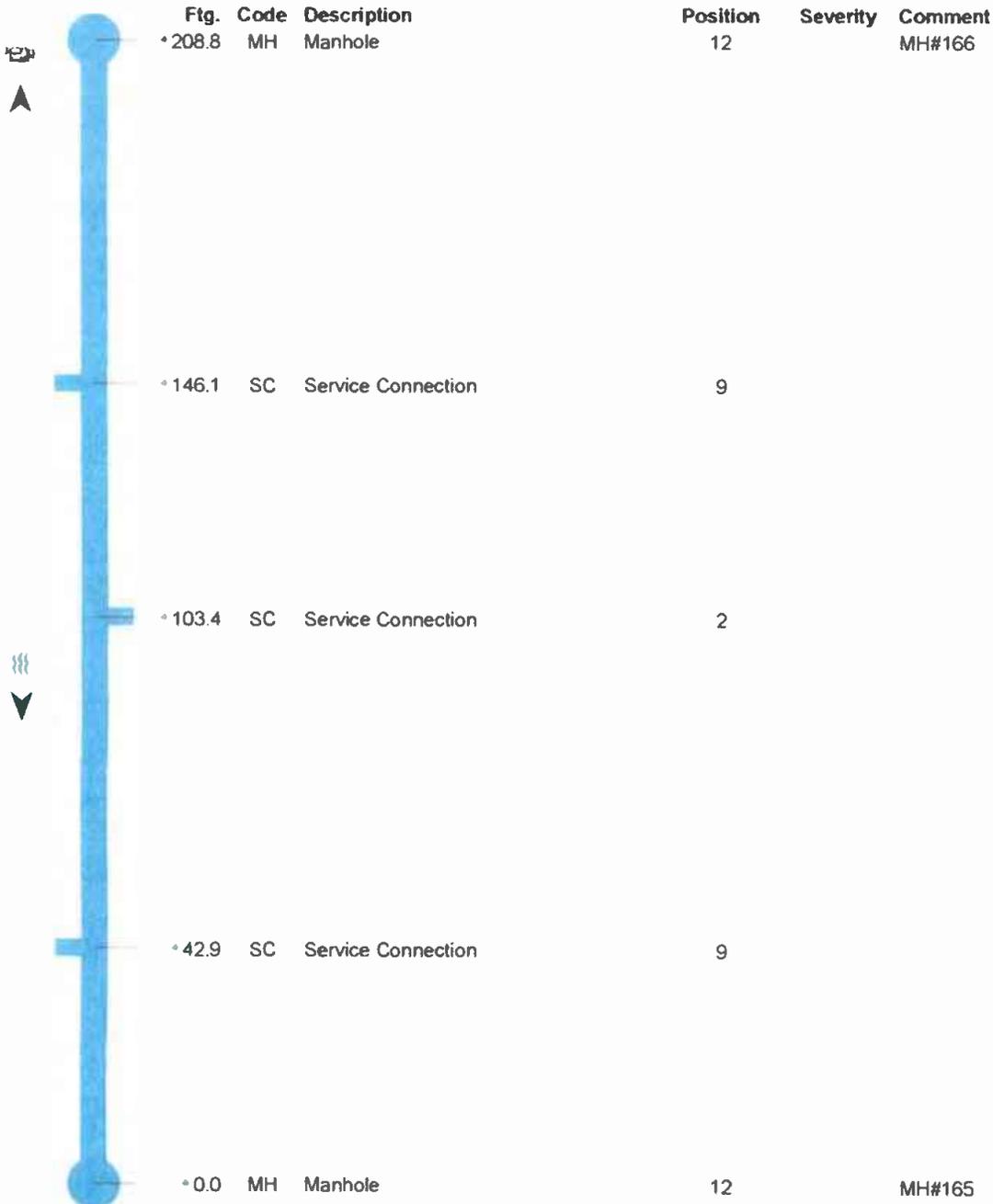
Peninsular Technologies

555 Ada Drive

Ada, MI 49301

Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 166	Downstream MH 165	Date 26-Mar-2018
Surveyor PATRICK	Street WOODLAND RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION				Pre-Cleaning No Pre-Cleaning
				TV Length 208.8



DL 6/12/88



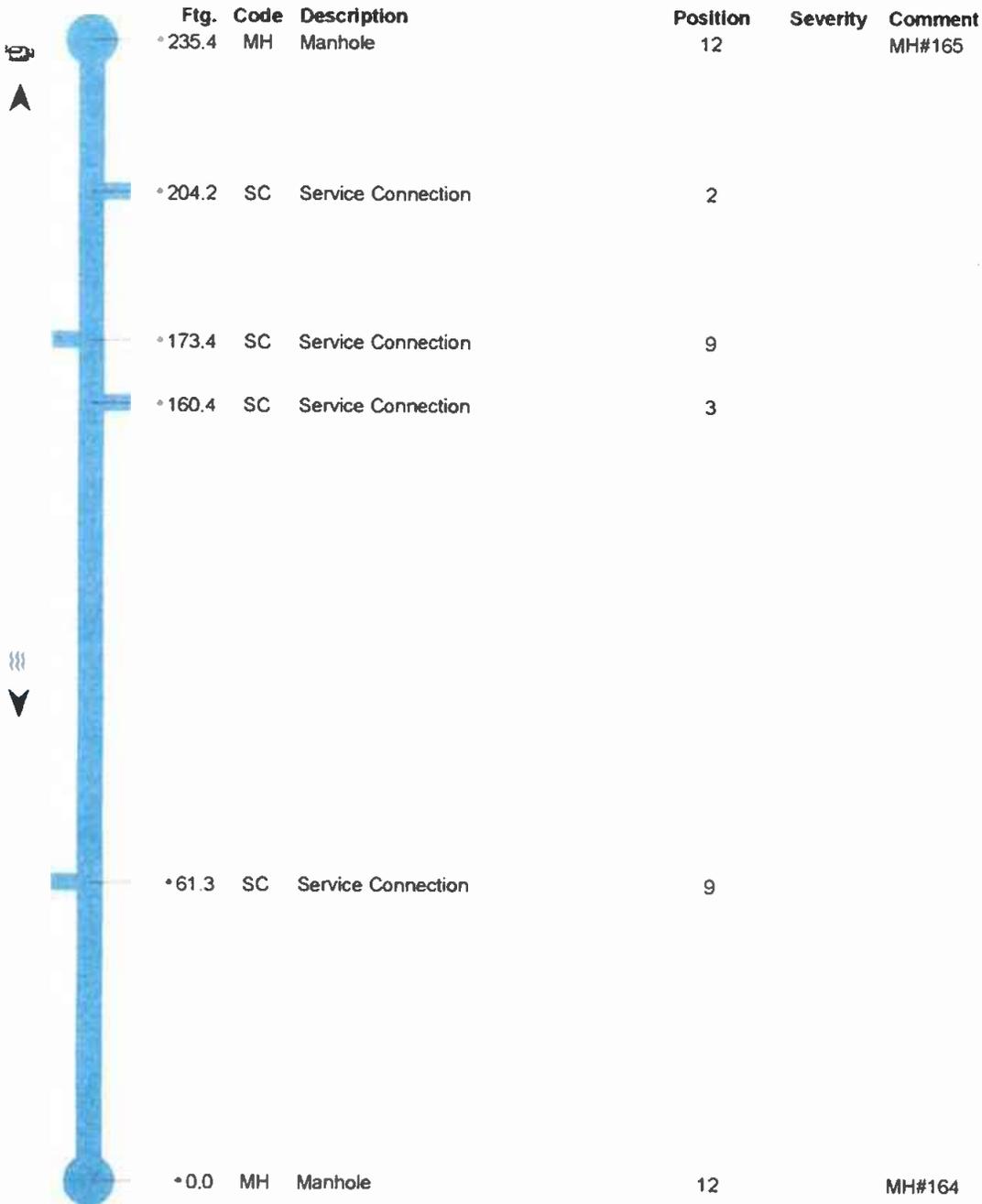
Peninsular Technologies

555 Ada Drive

Ada, MI 49301

Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 165	Downstream MH 164	Date 26-Mar-2018
Surveyor PATRICK	Street WOODLAND RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 235.4

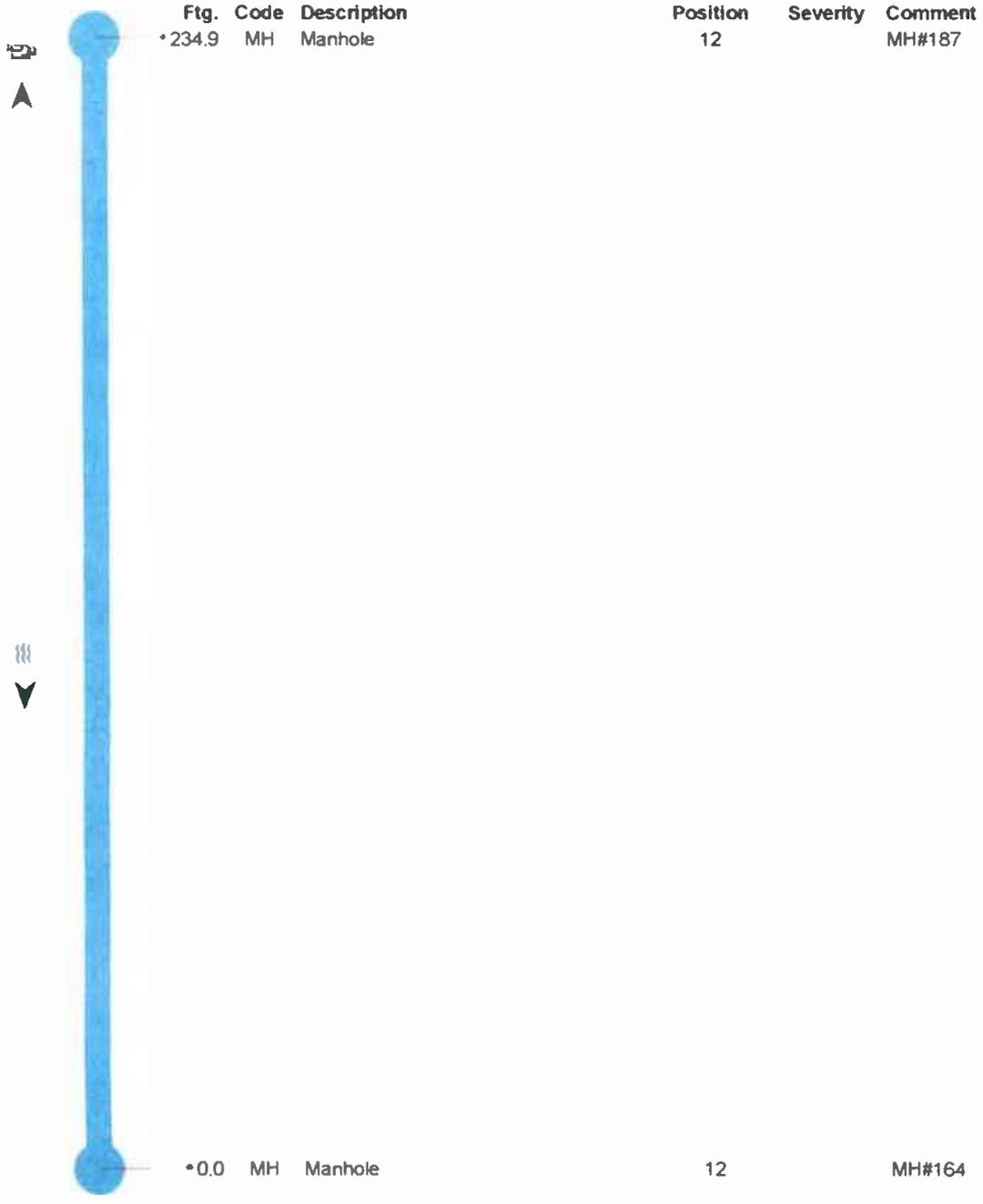




OL 6/12/18

Peninsular Technologies
555 Ada Drive
Ada, MI 49301
Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 187	Downstream MH 164	Date 26-Mar-2018
Surveyor PATRICK	Street WOODLAND RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments RAZOROOTER:MINOR ROOTS IN MAIN			Pre-Cleaning No Pre-Cleaning	TV Length 234.9





DL 6/12/18

Peninsular Technologies
555 Ada Drive
Ada, MI 49301
Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 164	Downstream MH 163	Date 26-Mar-2018
Surveyor PATRICK	Street WOODLAND RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments REHAB:INFILTRATION IN MANHOLE, JET:DEBRIS IN MAIN				Pre-Cleaning No Pre-Cleaning
				TV Length 150

	Ftg.	Code	Description	Position	Severity	Comment
 	•0.0	MH	Manhole	12		MH#164
	•0.0	1	Infiltration	9 to 4	3	
 	•24					
	•4					
	•150.0	MH	Manhole	12		MH#163



DL 7/31/18

Peninsular Technologies

555 Ada Drive

Ada, MI 49301

Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 50	Downstream MH 49	Date 06-Jul-2018
Surveyor PATRICK	Street GROVE AVE.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 282

	Ftg.	Code	Description	Position	Severity	Comment
↑	282.0	MH	Manhole	12		MH#50
	282.0	SC	Service Connection	2		
↓	249.7	SC	Service Connection	3		
	194.1	SC	Service Connection	3		
	154.6	SC	Service Connection	3		
	147.9	SC	Service Connection	9		
	133.7	SC	Service Connection	9		
	97.1	SC	Service Connection	9		
	90.0	SC	Service Connection	3		
	63.3	SC	Service Connection	3		
	62.5	JS	Joint Separated	12 to 6	3	
	42.7	SC	Service Connection	3		
	28.8	SC	Service Connection	9		
	21.6	SC	Service Connection	3		
	14.1	SC	Service Connection	9		
	0.0	MH	Manhole	12		MH#49

DL 7/31/18

Peninsular Technologies
 555 Ada Drive
 Ada, MI 49301
 Phone: (616) 676-9811

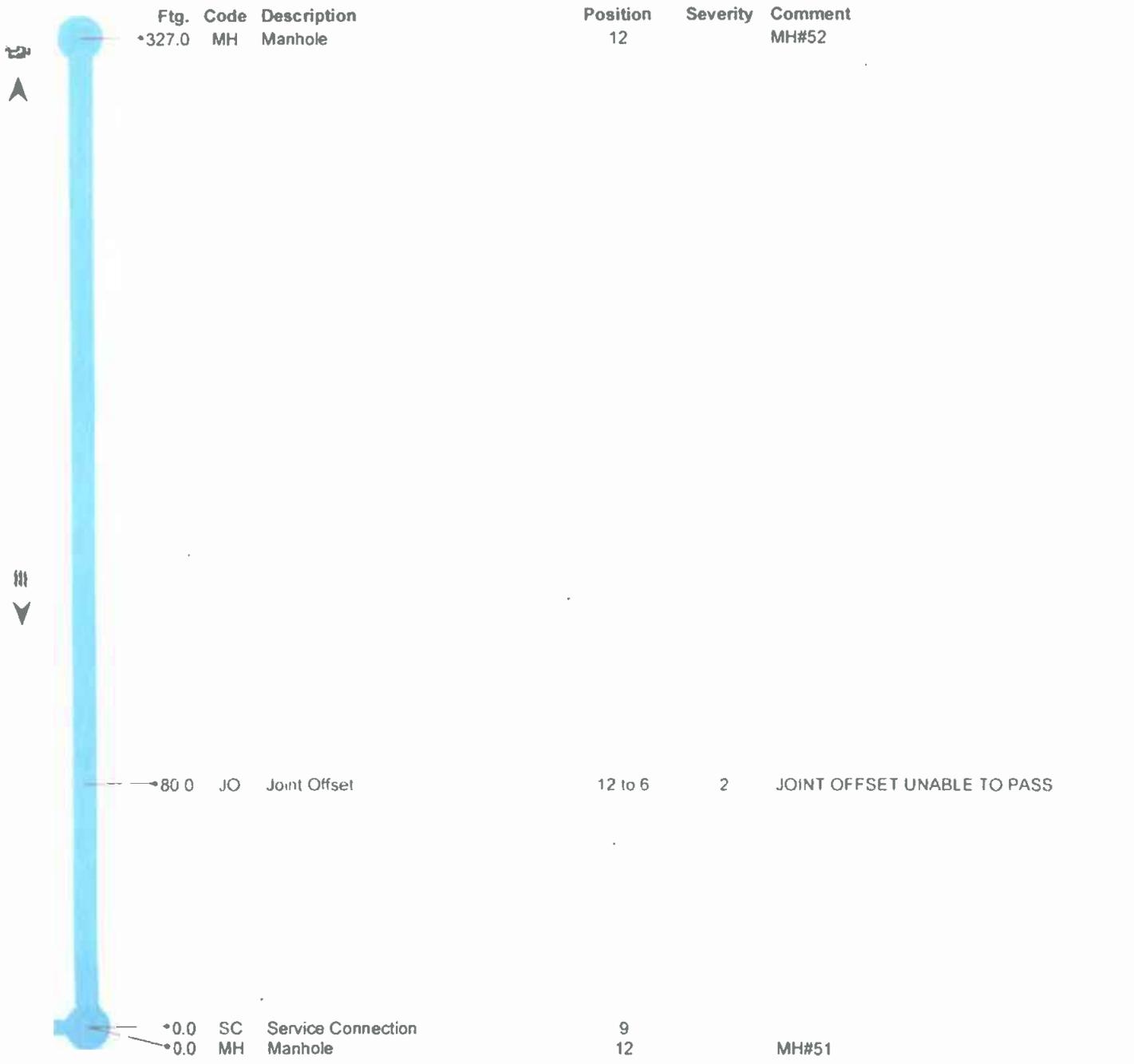


Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 51	Downstream MH 36	Date 7/6/2018
Surveyor PATRICK	Street CHESTNUT RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 293.8





Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 52	Downstream MH 51	Date 7/6/2018
Surveyor PATRICK	Street CHESTNUT RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length 327
Comments REPAIR:OFF-SET JOINT			Pre-Cleaning No Pre-Cleaning	TV Length 80





DL 7/31/18

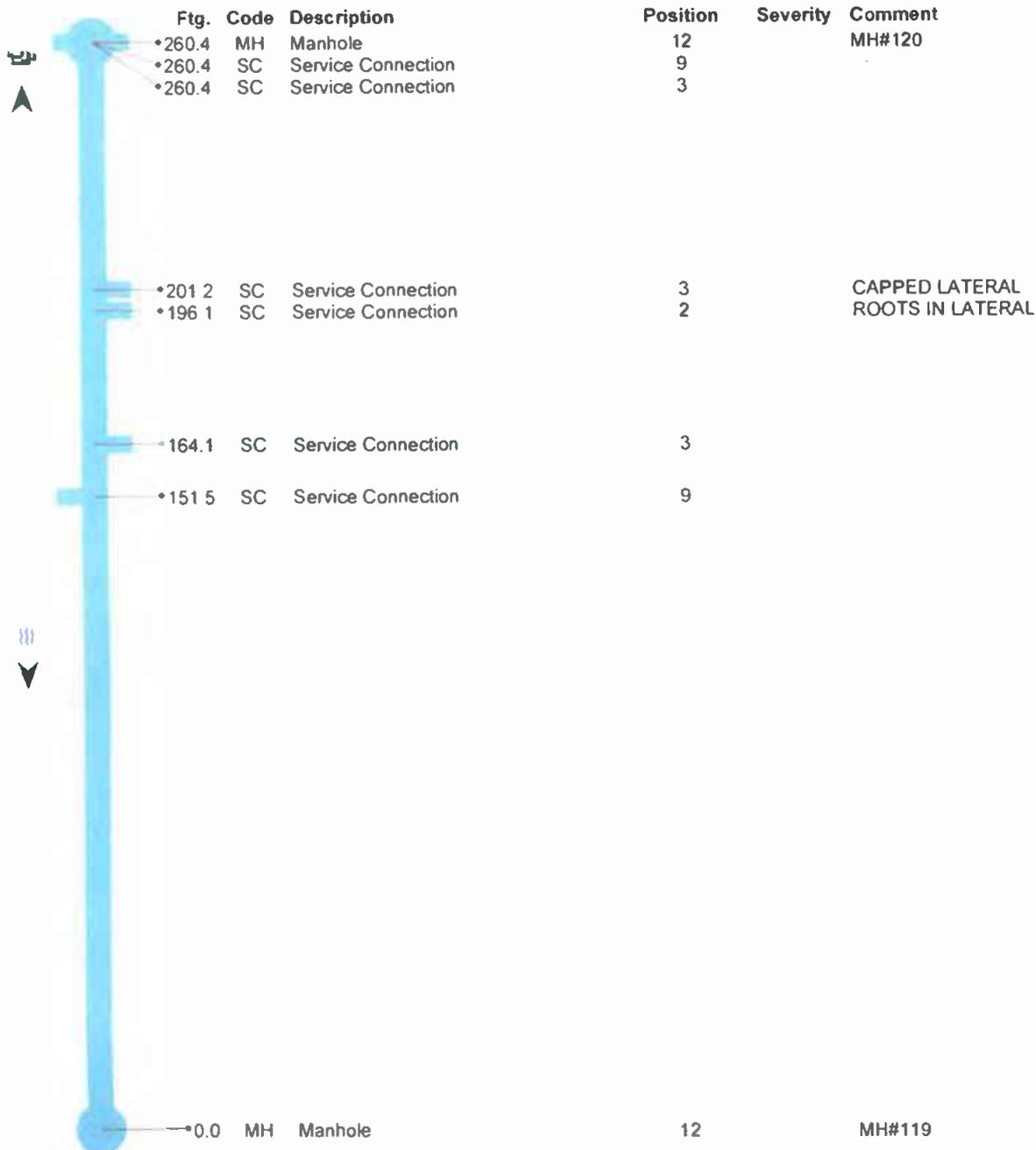
Peninsular Technologies

555 Ada Drive

Ada, MI 49301

Phone: (616) 676-9811

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 120	Downstream MH 119	Date 05-Jul-2018
Surveyor PATRICK	Street WENTWORTH RD.		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 260.4





DL 7/31/18

Peninsular Technologies

555 Ada Drive

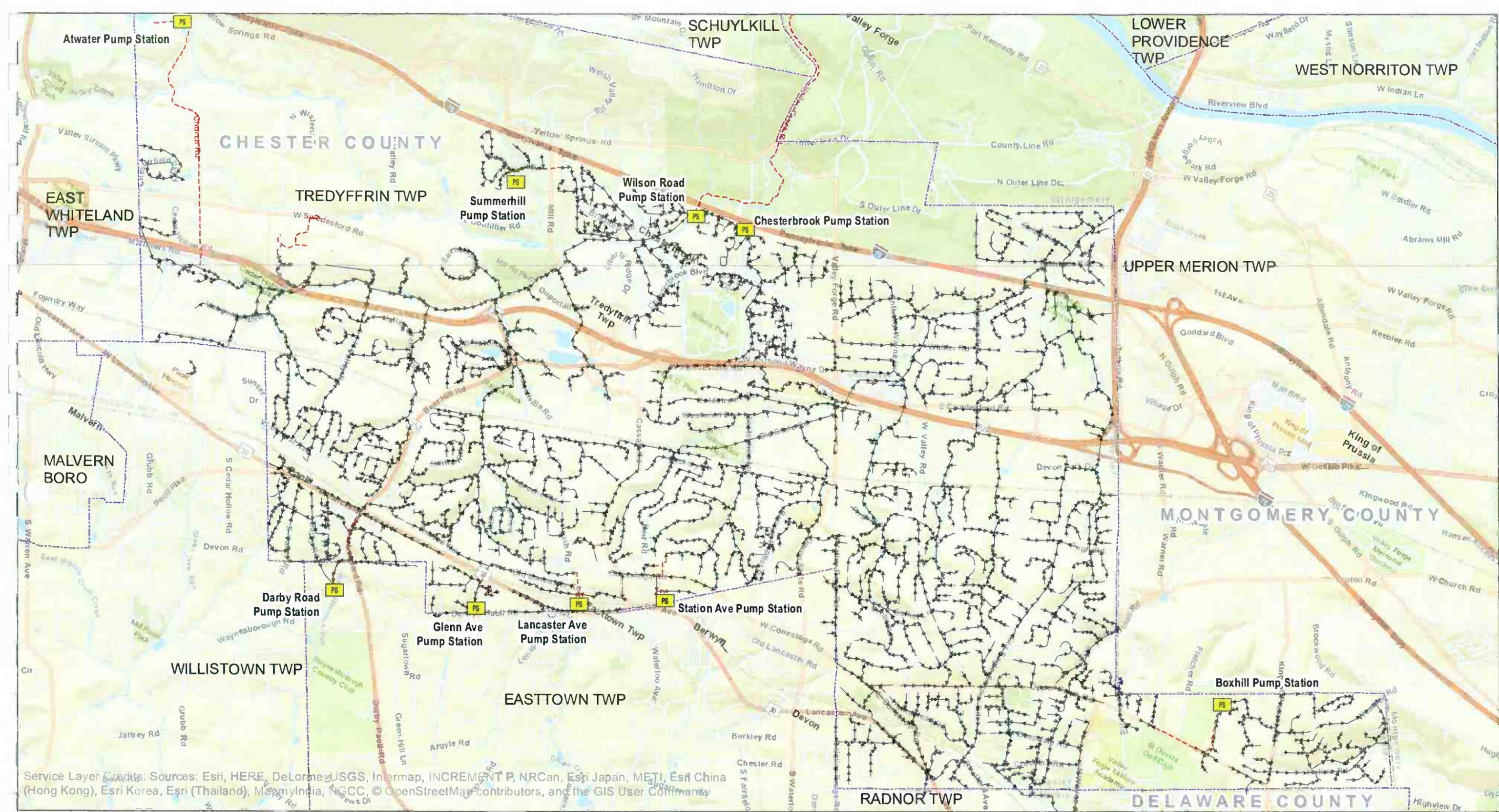
Ada, MI 49301

Phone: (616) 676-9814

Owner TREDYFFRIN TWP.	Customer TREDYFFRIN TWP.	Upstream MH 119	Downstream MH 118	Date 05-Jul-2018
Surveyor PATRICK	Street WENTWORTH RD		City	Weather Dry
Size 8	Material Transite Pipe	Sewer Use Sanitary	Purpose Routine Assessment	Length
Comments SEWER MAIN IN GOOD CONDITION			Pre-Cleaning No Pre-Cleaning	TV Length 245.1

	Ftg.	Code	Description	Position	Severity	Comment
	0.0	MH	Manhole	12		MH#119
	0.0	SC	Service Connection	3		
	0.0	SC	Service Connection	9		
	13.8	R	Roots	3	3	
	74.4	SC	Service Connection	10		
	81.5	SC	Service Connection	9		
	114.2	SC	Service Connection	3		
	228.9	GO	General Observation	10		LOOKS LIK PATCH IN PIPE
	245.1	SC	Service Connection	3		
	245.1	MH	Manhole	12		MH#118

Appendix C: Index Map

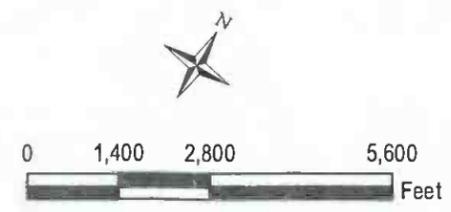


Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), Mapbox, Swatch, © OpenStreetMap contributors, and the GIS User Community

Tredyffrin Township
Chester County, Pennsylvania
WASTEWATER COLLECTION
SYSTEM MAP

Legend

- Wastewater Pumping Station
- Gravity Sewer
- Force Main
- Municipal Boundary



Newtown Township

Will be forwarded when received.

Muckinipates Authority



CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2018

- Permittee is owner and/or operator of a POTW or other sewage treatment facility
 Permittee is owner and/or operator of a collection system tributary to a POTW not owned/operated by permittee

GENERAL INFORMATION			
Permittee Name:	Muckinipates Authority	Permit No.:	PA
Mailing Address:	PO Box 1158	Effective Date:	N/A
City, State, Zip:	Sharon Hill, PA 19079	Expiration Date:	N/A
Contact Person:	David P. Damon, PE	Renewal Due Date:	N/A
Title:	Authority Engineer	Municipality:	Muckinipates Authority
Phone:	610-583-4100	County:	Delaware
Email:	dave@damonengineers.com	Consultant Name:	H. Gilory Damon Assoc, Inc

CHAPTER 94 REPORT COMPONENTS

1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))

Check the appropriate boxes:

- Line graph for flows attached (**Attachment**)
 DEP Chapter 94 Spreadsheet used (**Attachment**)
 Section 1 is not applicable (report is for a collection system).

2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))

Check the appropriate boxes:

- Line graph for organic loads attached (**Attachment**)
 DEP Chapter 94 Spreadsheet used (**Attachment**)
 Section 2 is not applicable (report is for a collection system).

3. If the DEP Chapter 94 Spreadsheet was not used to determine projections, discuss the basis for the hydraulic and organic projections. In all cases, include a description of the time needed to expand the plant to meet the load projections, if necessary, and data used to support the projections should be included in an appendix to this report. (25 Pa. Code § 94.12(a)(3))

N/A

4. Attach a map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map must be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served. (25 Pa. Code § 94.12(a)(4))

Check the appropriate boxes:

- Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment**)
- List summarizing each extension or project attached (**Attachment**)
- Schedules describing how each project will be completed over time and effects attached (**Attachment**)

Comments:

No extensions were constructed or approved in 2018. There are no extensions in preliminary planning stages proposed. A review of the Chapter 94 reports for the tributary municipalities revealed that there have been no extensions constructed, approved, or in planning.

5. Discuss the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(5))

The Authority contracts for routine maintenance, repair and rehabilitation work on the interceptor. In 2018, sections were cleaned, roots removed, and lined with CIPP. Inspections are made by the Authorities consultant and rehabilitation is scheduled by priority. DELCORA and their consultant CSL Services, Inc operate a system of flow monitors throughout the 8 tributary municipal sewer systems.

6. Discuss the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, CSOs, SSOs, excessive infiltration and other system problems. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(6))

Check the appropriate boxes:

- System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.
- System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

7. Attach a discussion on the condition of sewage pumping (pump) stations. Include a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station. (25 Pa. Code § 94.12(a)(7))

Check the appropriate boxes:

- The collection system does not contain pump stations
- The collection system does contain pump stations (Number –)
- Discussion of condition of each pump station attached (**Attachment**)

8. If the sewage collection system receives industrial wastes (i.e., non-sanitary wastes), attach a report with the information listed below. (25 Pa. Code § 94.12(a)(8))

- a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.
- b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.
- c. A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

Check the appropriate boxes:

- Industrial waste report as described in 8 a., b. and c. attached (**Attachment**)
- Industrial pretreatment report as required in an NPDES permit attached (**Attachment**)

9. Existing or Projected Overload.

Check the appropriate boxes:

- This report demonstrates an existing hydraulic overload condition.
- This report demonstrates a projected hydraulic overload condition.
- This report demonstrates an existing organic overload condition.
- This report demonstrates a projected organic overload condition.

If one or more boxes above have been checked, attach a Corrective Action Plan (CAP) to reduce or eliminate present or projected overloaded conditions under §§ 94.21 and/or 94.22 (relating to existing overload and projected overload). (25 Pa. Code § 94.12(a)(9))

- Corrective Action Plan attached (**Attachment**)

10. Where required by the NPDES permit, attach a Sewage Sludge Management inventory that demonstrates a mass balance of solids coming in and leaving the facility over the previous calendar year.

- Sewage Sludge Management Inventory attached (**Attachment**)

11. For facilities with CSOs and where required by the NPDES permit, attach an Annual CSO Report (including satellite combined sewer systems).

Annual CSO Report attached (**Attachment**)

12. For POTWs, attach a calibration report documenting that flow measuring, indicating and recording equipment has been calibrated annually. (25 Pa. Code § 94.13(b))

Flow calibration report attached (**Attachment**)

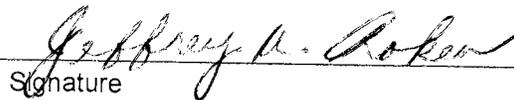
RESPONSIBLE OFFICIAL CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Jeffrey A. Roken

Name of Responsible Official

Signature



610-622-5239

Telephone No.

Date

2-26-19

PREPARER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

David P. Damon, PE

Name of Preparer

Signature



610-583-4100

Telephone No.

Date

2-26-2019

***2018 Chapter 94 Annual Report
Muckinipates Authority
Delaware County, PA***

*Prepared by
H. Gilroy Damon Associates, Inc.
PO Box 1158
Sharon Hill, PA 19079*

*Prepared for the
Muckinipates Authority
c/o Dennis M. O'Mahony, Secretary
962 Grant Avenue
Folcroft, PA 19032*

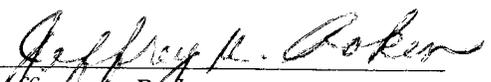
February, 2019

Preparer



*David P. Damon, PE, PLS
H. Gilroy Damon Associates, Inc.
Authority Engineer*

Permittee



*Jeffrey A. Roken
Vice-Chairman
Muckinipates Authority*

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2018 Chapter 94 Report

MUCKINIPATES AUTHORITY, DELAWARE COUNTY, PA

INTRODUCTION

The Muckinipates Authority operates and maintains 5.04 miles of interceptor sewer which extends along the Muckinipates Creek from DELCORA's pumping station in Norwood Borough to Springfield Road in Springfield Township. The Muckinipates interceptor provides conveyance from portions of Norwood Borough, Glenolden Borough, Folcroft Borough, Darby Township, Ridley Township, Upper Darby Township, Clifton Heights Borough, and Springfield Township. The service area covers about 4.2 square miles in the above eight municipalities. It is estimated that the service population is approximately 52,000.

The Authority owns and operates the Interceptor sewer along the Muckinipates Creek only with the eight municipality's sewer systems connecting at various locations. It was constructed in 1949 and consists of reinforced concrete pipe with brick masonry manholes. Portions of the sewer adjacent to and/or crossing the creek are encased in concrete.

There are 120 manholes along the interceptor. The reinforced concrete pipe varies 12-inch diameter at the upstream terminus in Springfield to 48-inch diameter at the downstream terminus at DELCORA's manhole in Norwood. The following tabulates the lengths of the Interceptor:

Description of System

Sewer Diameter (inches)	Length of Sewer (miles)	Construction Material	Age (years)	Capacity (MGD)
12	0.42	RCP	63	2.88
15	0.75	RCP	63	4.22
18	0.78	RCP	63	5.55
20	0.08	RCP	63	7.41
24	0.51	RCP	63	10.68
30	0.35	RCP	63	15.58
33	0.17	RCP	63	15.10
36	0.72	RCP	63	25.10
42	0.28	RCP	63	25.83
48	0.92	RCP	63	29.30
Total Length	5.04 miles	There are no pump stations operated by the authority.		Mannings Equation

5-YEAR HYDRAULIC LOADING PROJECTION

Based on the reports submitted by the municipalities, it is expected that 95 new EDU's may be added to the total by 2022. The hydraulic loading is expected to stay relatively unchanged with growth being offset by system improvements and overall population loss. The projected monthly average and maximum flows are as follows:

Year	Average Monthly Flows (mgd)	Maximum Monthly Flows* (mgd)
2018	4.60	6.24
2019	4.61	6.25
2020	4.62	6.27
2021	4.62	6.27
2022	4.62	6.27

* Based on 5 year average of flows at the Muckinipates Pump Station

In addition to the flow data from the Muckinipates Pump Station, flow data from the 22 flow meters located within tributary areas of the Authority were examined. These meters were installed by DELCORA and serve to provide a basis for billing the eight tributary municipalities. Appendix I presents a graph of each metered flow by municipality with monthly GPD/EDU values. Clifton Heights Borough flows are not metered and they have only an estimated 81 EDU's tributary to the Authority.

HISTORIC 5-YEAR HYDRAULIC LOADING

Year	Average Annual Flow (mgd)	3 Month Max. Ave Flow (mgd)	Ratio
2014	4.68	6.13	1.31
2015	4.32	5.32	1.23
2016	3.80	4.74	1.25
2017	3.72	4.37	1.17
2018	4.78	6.06	1.27
5-year average	4.26	5.32	1.25

SEWER EXTENSIONS

No new sanitary sewer extensions have been built in 2018. A project is proposed in Norwood Borough, for 80 dwellings which would require a sewer extension. This development is currently being litigated but may go forward in the next 5 years. This project is proposed to utilize a low pressure sewer extension with individual grinder pumps for each unit.

PROGRAM FOR SANITARY SEWER MONITORING, MAINTENANCE AND REPAIR

a. Monitoring

The Authority engineering consultant, H. Gilroy Damon Associates, Inc., reviews on a monthly basis flow meter data from the Muckinipates pumping station and DELCORA's consultant reviews from the 22 meters from tributary municipalities. The engineering consultant performed an inspection of the Interceptor alignment and manholes in January 2018. Manholes were opened and inspected. The route alignment was checked for encroachments and evidence of SSO's.

The above monitoring is continuing in 2019.

b. Maintenance

The Authority contracted with IPR Northeast, LLC for cleaning, televising and root removal on sections of the Interceptor. Work was performed from MH Nos. 76 to 80.

c. Repair

Repairs were made to the interceptor pipe joints between MH Nos. 76 to 80 in 2018.

d. Rehabilitation

The Authority contracted with IPR Northeast, LLC in 2018 to line sections of the Interceptor with CIPP. 1107 LF of 15" pipe and was lined. 20 Manholes were rehabilitated in 2017 by Mobile Dredging, Inc. and an additional 1181 LF of 15" pipe were lined.

These sections were identified by review of historic maintenance/repair records and other factors as priority areas for rehabilitation.

e. Routine and special activities

As stated above, flow meter data is reviewed routinely on a monthly basis and after large storms.

f. Personnel and equipment use

The Authority does not employ personnel and does not own equipment. All work related to the Interceptor is performed by consultants and contractors.

g. Sampling frequency

DELCORA is responsible for quality assurance on the flow meters.

- i. The Authority's consultant H. Gilroy Damon Associates, Inc. analyzes flow meter data.
- j. Infiltration/inflow monitoring

The 22 flow meters within the sewer systems tributary to the Interceptor provide data on I/I. The Interceptor has had improvements to remove possible sources of inflow including raising manholes, and installing manhole inserts in 2011. A program to rehabilitate the Interceptor by lining segment was initiated in 2015.

The Muckinipates Authority is part of the Eastern Delaware County Act 537 and lateral inspections are a part of the update. This is expected to aid long term I/I removal. The switch to meter based billing has also provided at motivation to the tributary municipalities to perform more I/I removal work.

- k. Maintenance and control of combined sewer regulators.

This is not applicable.

CONDITION OF THE SEWER SYSTEM

The interceptor was constructed in 1949 and consists of reinforced concrete pipe and brick masonry manholes. The line originally had 103 manholes when finished. Manholes were added for connections by developments and date from 1950 to 2007. Currently there are 120 manholes.

The concrete pipe has been observed to be in good condition. There have been no failures to date of the pipe. Repairs have been made to re-mortar joints for the larger diameter sections of the Interceptor.

The condition of the manholes has been observed to be good. Repairs have been made to covers and frames. There have been no failures of the manholes.

Existing capacity of the system is adequate based on monitoring and inspections of the Interceptor. A majority of the Interceptor is routed through residential areas. SSO's would impact backyards and be reported.

Data from the 22 existing flow meters is presented in Appendix I. GPD/EDU for each tributary municipality is plotted for each month. This flow data is being analyzed to determine whether the meter placement is adequate to evaluate the wet weather capacity compared to the hydraulic carrying capacity of the Interceptor. Since almost all of the meters are located off of the Interceptor, additional meters, located on the Interceptor, are being considered to document the flows.

PUMP STATIONS

All flows conveyed by the Authority are by gravity. There are no pump stations except for DELCORA's Muckinipates pumping station at the terminus of the system.

INDUSTRIAL WASTE DISCHARGE

The Authority has not identified any industrial waste direct discharges to their system. The tributary municipalities have identified one industrial discharger, Exxon in Glenolden Borough. Industrial waste discharge to the Muckinipates Authority is regulated by DELCORA.

CORRECTIVE ACTION PLAN

There is not a corrective action plan for the Muckinipates Authority conveyance system. There have been no reported SSO events and there are no sections of the Interceptor with capacity problems.

CALIBRATION REPORTS

The meters on the Interceptor and tributary municipality lines are maintained by DELCORA and their consultants.

TRIBUTARY MUNICIPALITY REPORTS

Attached are 2018 Chapter 94 Reports for the eight tributary municipalities to the Muckinipates Authority including correspondence regarding the acquisition of this information.

Respectfully submitted,

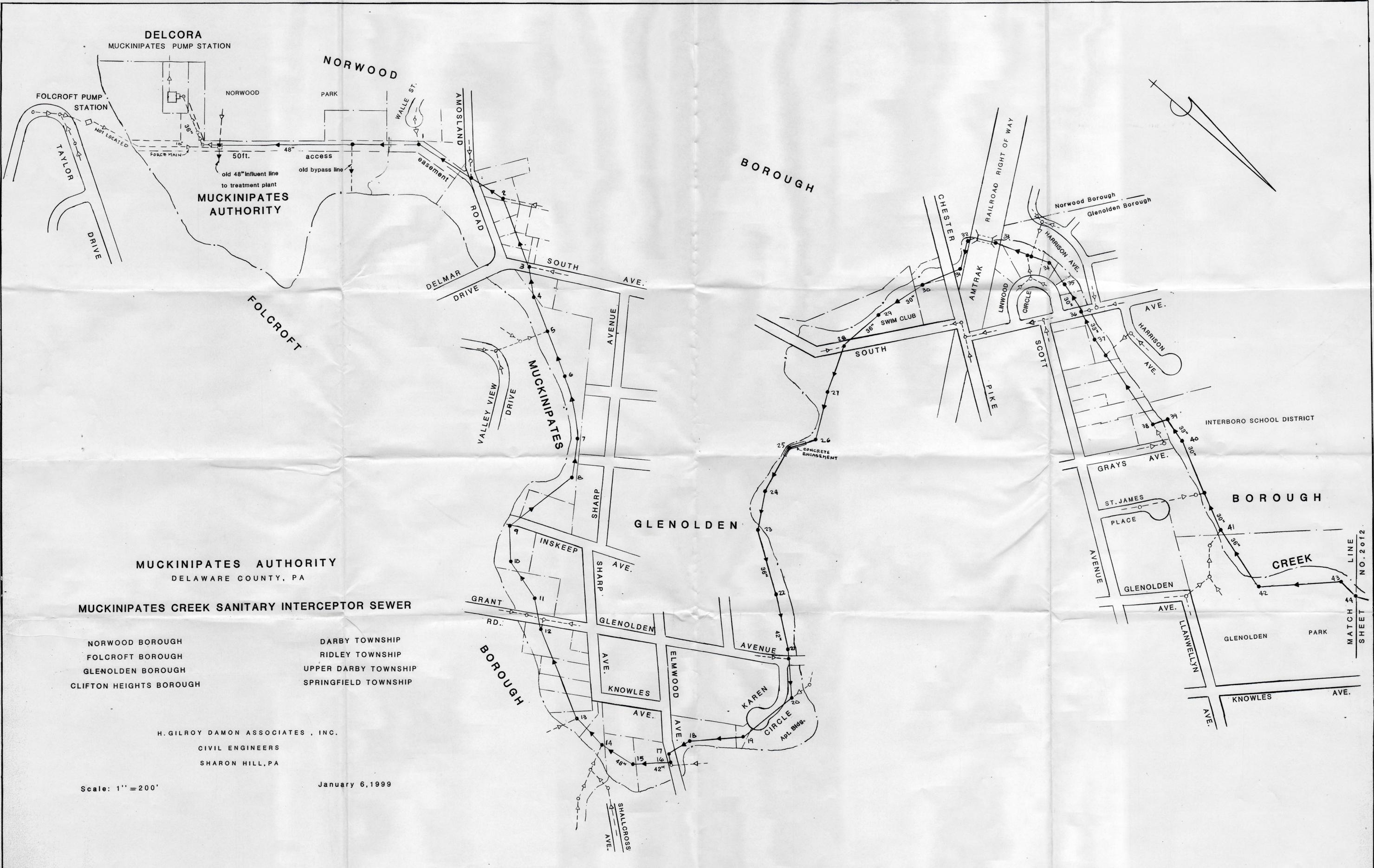
H. GILROY DAMON ASSOCIATES, INC.



David P. Damon, P.E., P.L.S.
DPD/bd

Enclosures

C: Muckinipates Authority



DELCTORA
MUCKINIPATES PUMP STATION

FOLCROFT PUMP STATION

MUCKINIPATES AUTHORITY

MUCKINIPATES AUTHORITY
DELAWARE COUNTY, PA

MUCKINIPATES CREEK SANITARY INTERCEPTOR SEWER

NORWOOD BOROUGH
FOLCROFT BOROUGH
GLENOLDEN BOROUGH
CLIFTON HEIGHTS BOROUGH

DARBY TOWNSHIP
RIDLEY TOWNSHIP
UPPER DARBY TOWNSHIP
SPRINGFIELD TOWNSHIP

H. GILROY DAMON ASSOCIATES, INC.
CIVIL ENGINEERS
SHARON HILL, PA

Scale: 1" = 200'

January 6, 1999