City of Cleveland Heights
Partial Consent Decree
2019 Annual Report

Final

March 20, 2020

WADE TRIM

2019 Annual Report

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1.0 INTRODUCTION

In 2017, the City of Cleveland Heights entered into a Partial Consent Decree (CD) with the U.S. Environmental Protection Agency (USEPA) and the U.S. Department of Justice (DOJ) to define and develop a plan to control sewer system overflows. The CD requires Cleveland Heights to submit an Annual Report to USEPA and Ohio EPA by March 31 of each year, after the effective year of the report. The report must contain all information necessary to determine Cleveland Heights' compliance with its CD requirements.

1.1 ANNUAL REPORT REQUIREMENTS

The CD requirements for the Annual Report are summarized in **Table 1** along with their reference sections.

Table 1. Cleveland Heights Annual Report Requirements

CD Section Reference	Reporting Requirement
VII.a	A description of project and activities conducted during the reporting period to comply with the requirements of this Decree, a projection of work to be performed pursuant to this consent decree during the next reporting period, and notice of any anticipated failures to meet future requirements of the Consent Decree or approved plans.
VII.b	A trends analysis of the number, volume, duration, and causes of the City's SSOs for a rolling 24-month period updated to reflect the SSOs that occurred during the reporting period, including identification of any newly identified and/or previously unknown SSOs and Cross Connections discovered during the reporting period.
VII.c	A compilation of the information about each SSO during the applicable reporting period, as required by the Monthly SSO Reports described in Paragraph 44.c. along with identification of any cause or condition that contributed to each SSO and all remedial actions taken to mitigate the effects of each SSO or prevent SSO recurrence.
VII.d	Information that Cleveland Heights obtained or received (e.g. customer complaints) regarding discharges from private laterals, including any information received specifying the location of the discharge, and a description of the circumstances of the discharge.
VII.e	Description of any non-compliance with the requirements of the Consent Decree.
Appendix B Paragraph 7	Include a summary list of all documented training activities completed by how many of each category of employee during the applicable reporting period.
Appendix B Paragraph 16	As part of the Annual Report, Cleveland Heights shall provide: a. the total miles of unique sanitary lines cleaned during the reporting period b. total miles of sanitary sewer lines cleaned during the reporting period c. an identification of whether particular sewer segments were added or removed from High Frequency Cleaning (HFC) list. d. legible map depicting the locations cleaned as part of the routine cleaning program and HFC program.

Table 1. Cleveland Heights Annual Report Requirements	
CD Section Reference	Reporting Requirement
Appendix B Paragraph 20	As part of the Annual Report, Cleveland Heights shall provide: a. the location and total miles of the portions of the sanitary sewer system inspected under the sewer system internal inspection program. b. the locations of the manholes inspected under the sewer system manhole inspection program.
Appendix B Paragraph 43, g.	Cleveland Heights shall report the number of enforcement actions initiated and concluded during the prior calendar year.

2.0 OVERVIEW OF PROJECTS AND ACTIVITIES CONDUCTED AND PLANNED

2.1 ACTIVITIES CONDUCTED IN 2019

The CD was lodged in June 2017. All required 2019 activities were completed by Cleveland Heights in a timely manner. **Table 2** outlines the specific CD requirements, the sections, and the date completed or approved by EPA.

Table 2. 2019 Consent Decree Requirements Completed by Cleveland Heights		
Requirement	CD Citation	Date Submitted
2018 Annual Report	CD Main Text Section VII Paragraph 43	March 2019
Develop System Model of Sanitary Sewer that satisfies Section E and IV of Appendix A	CD Main Text Section V. E Paragraph 27	April 1, 2019
Complete Phase 1 SSES, satisfying Section II of Appendix A	CD Main Text Section V. B Paragraph 18	November 1, 2019
Real Time Monitoring (10 SSO) Locations	Appendix A Section III Paragraph 15	September – November 2019
Clean minimum of 25 miles of sanitary sewer	Appendix B Section E Paragraph 13.c	December 31, 2019

Other activities completed by Cleveland Heights in 2019 include the following:

- Replaced 15 invert plates found to be missing at over/under common trench manholes during manhole inspections.
- Identified collapsed sanitary sewer on Janette Avenue and replaced both the sanitary and storm sewers.
- Applied for and received Member Community Infrastructure Program (MCIP) grant funding from the Northeast Ohio Regional Sewer District (District) for a basement flooding relief project on Delamere Drive.

- Maintained signage to inform the public that a rain-related sewer overflow may occur at locations where a waterway could be accessed by the public.
- Using Lucity asset management software to track and create field work orders for Sewer Department personnel.
- Developed Standard Operating Procedures for field activities that will allow for standardized and efficient practices.
- City's Building Department worked with a building owner to correct a cross connection at an apartment building located at 2455 Lee Road.

2.2 ACTIVITIES PLANNED IN 2020

Cleveland Heights will continue advancing CD activities in 2020 by completing the requirements and deliverables summarized in **Table 3**.

Table 3. 2020 Consent Decree Requirements to be Completed by Cleveland Heights

Requirement	CD Citation	Schedule
Submit Phase 1 SSES Report to EPA	CD Main Text Section V. B. Paragraph 18	February 2020 (Draft sent 1/31/2020)
2019 Annual Report	CD Main Text Section VII Paragraph 43	March 2020
Submit Capacity Assessment Report	CD Main Text Section V. E Paragraph 28	March 2020
Annual real time SSO Monitoring	Appendix A Section III Paragraph 15	End of 2020
Clean minimum of 25 miles of sanitary sewer	Appendix B Section E Paragraph 13.c	End of 2020

Other activities planned for 2020 include the following:

- Identify potential project(s) for submittal under District MCIP.
- Continue CMOM implementation.
- Continue SSES field activities in the Phase 2 area.
- Begin development of Integrated Overflow Control Master Plan.
- In 2019, 13 additional common trench manholes were found to have access pipes configured vertically from the sanitary sewer below to the storm sewer manhole above, allowing for potential interaction between the systems. Cleveland Heights capped the access pipes that were not already capped with tethered discs. The City plans to seal these access pipes with removable mechanical plugs to prevent crossflows and allow for temporary removal during maintenance activities. Information on these locations and photos of the manhole configurations are provided in **Appendix A** of this report.
- Replace any additional missing invert plates identified.

3.0 SANITARY SEWER OVERFLOWS

Figure 1 shows the known SSO structure locations in Cleveland Heights as of the end of 2019.

3.1 2019 SSO MONITORING

As required by the CD, Cleveland Heights provides monitoring of all known SSOs after precipitation events greater than 0.25 inches. Tethered wooden blocks are used to detect overflows. The City provides monthly monitoring reports of the tethered block monitoring results to USEPA. From September through November of 2019, Cleveland Heights performed required real time flow monitoring at 10 of the most active SSO locations using electronic recording flow meters. A summary of SSO activations recorded during 2019 is provided in **Appendix B** of this report. Tethered block monitoring is temporarily suspended at SSOs where electronic flow monitoring is ongoing.

3.2 SSO TRENDS ANALYSIS

Table 4 summarizes an activation trends analysis for the previous 24 months as required by the CD. Details of the information and associated 2019 rainfalls are provided in **Appendix B**. The current analysis focuses on activations. SSO volume and duration information projected using the InfoWorks ICM model is provided in the Capacity Assessment report, submitted to USEPA in March 2020. Notes for **Table 4** follow the table.

Figure 1. Known SSO Structures – 2019

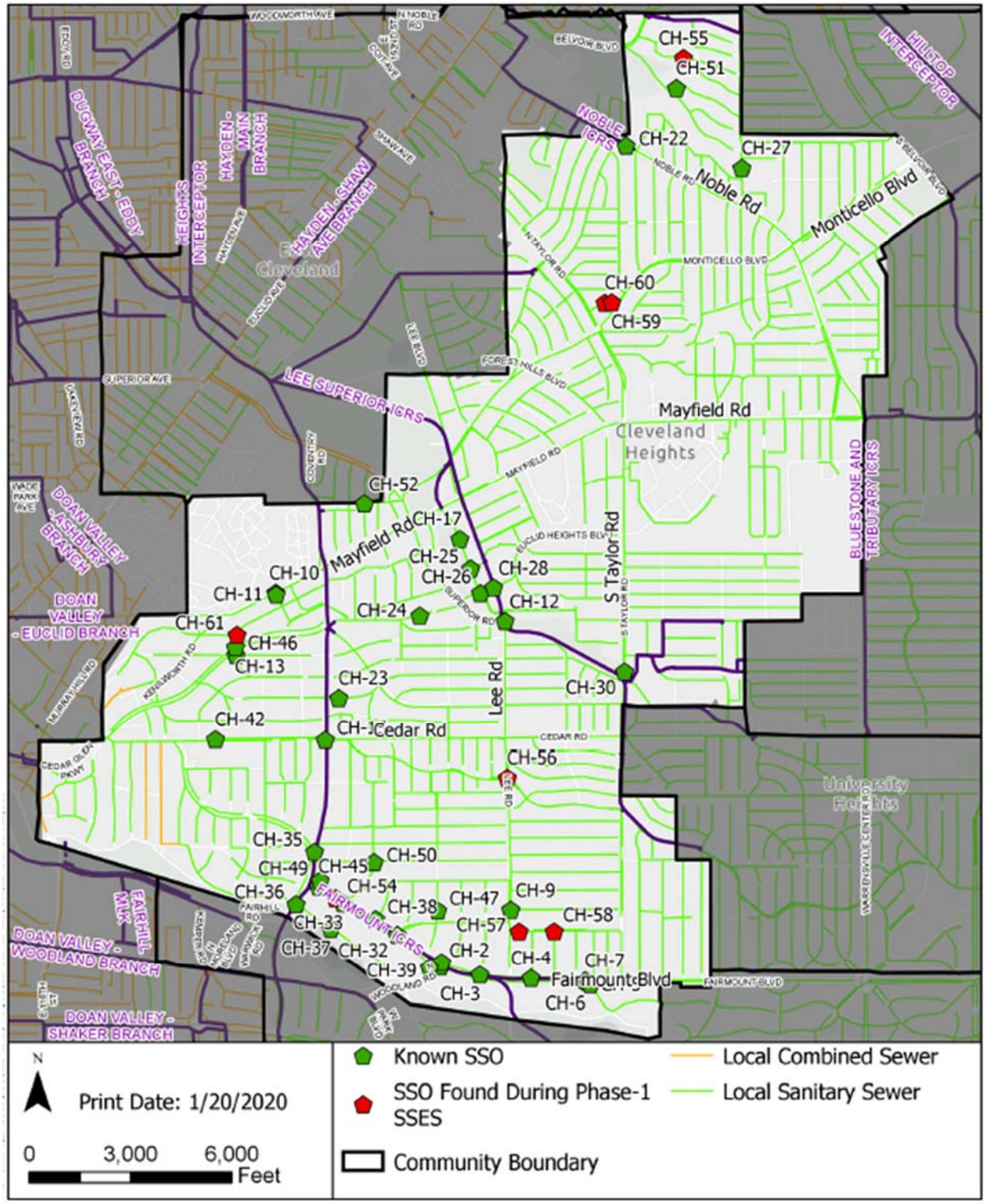


Table 4. SSO Activations for 2018 and 2019

SSO ID	Location (Real time monitoring locations*)	Receiving Stream	5-Yr, 1-Hr Model Activation (Yes/No)	2018 Observed Activations	2019 Observed Activations
CH-1	Fairmount at North Woodland (3041)	Doan Brook	No	1	1
CH-2	Fairmount at North Woodland (3026)	Doan Brook	Yes	1	1
CH-3	Fairmount at Wellington	Doan Brook	No	2	0
CH-4	Fairmount at Dartmoor	Doan Brook	No	0	1
CH-5	Fairmount at South Fairmount	Doan Brook	No	0	1
CH-6	Fairmount at South Fairmount	Doan Brook	No	0	0
CH-7	Fairmount at South Fairmount	Doan Brook	No	0	0
CH-9	Bradford and Lee	Doan Brook	Yes	14*	19*
CH-10	Hampshire Lane at Mayfield (18")	Dugway Brook	Yes	1	0
CH-11	Hampshire Lane at Mayfield (36")	Dugway Brook	No	0	3
CH-12	Lee at Superior	Dugway Brook	Yes	8*	9
CH-13	Hampshire Lane at Euclid Heights Blvd	Doan Brook	Yes	0	5
CH-15	Coventry at Cedar	Doan Brook	No	2	1
CH-17	1685 Cumberland	Dugway Brook	Yes	0	4
CH-22	2225 Noble Road	9 Mile Creek	Yes	3	1
CH-23	Fairmount at North Woodland (3026)	Dugway Brook	Yes	3	1
CH-24	3003 Euclid Heights Blvd	Dugway Brook	No	2	1
CH-25	Cumberland/Somerton	Dugway Brook	No	4	9
CH-26	Euclid Heights Blvd/Cumberland	Dugway Brook	No	6	6
CH-27	Quilliams, N. of Randolph	9 Mile Creek	Yes	5*	7
CH-28	Euclid Heights Blvd and Lee	Dugway Brook	Yes	3	13*
CH-30	Taylor N of Superior	Dugway Brook	Yes	11*	18*
CH-32	Fairmount at Arlington	Doan Brook	No	4	4
CH-33	Fairmount at Fairfax	Doan Brook	Yes	12*	10
CH-35	2393 Coventry, w. of Fairmount	Doan Brook	Yes	8*	11
CH-36	North Park and Coventry	Doan Brook	No	4	4

Table 4. SSO Activations for 2018 and 2019

SSO ID	Location (Real time monitoring locations*)	Receiving Stream	5-Yr, 1-Hr Model Activation (Yes/No)	2018 Observed Activations	2019 Observed Activations
CH-37	Fairfax at North Park	Doan Brook	Yes	6	4
CH-38	Fairmount at Marlboro	Doan Brook	No	2	2
CH-39	3012 North Woodland	Doan Brook	Yes	10*	1
CH-42	12537 Cedar Road	Doan Brook	No	1	1
CH-45	2764 Fairmount, in Island	Doan Brook	No	1	4*
CH-46	Edgehill at Euclid Heights Blvd	Doan Brook	Yes	7*	5
CH-47	2528 Stratford, N. of Monmouth	Doan Brook	No	1	2
CH-49	2765 Fairmount, Just E. of Church	Doan Brook	Yes	2	2
CH-50	Scarborough at Lamberton	Doan Brook	Yes	5*	9
CH-51	Langton at Atherstone	Nine Mile	Yes	12*	14*
CH-52	Eddington at Avondale	Dugway Brook	No	1	0
CH-54	2806 Fairmount	Doan Brook	No	-	0
CH-55	3600 Fenley Road	Nine Mile	Yes	-	1*
CH-56	Lee at Meadowbrook	Dugway Brook	Yes	-	6*
CH-57	E. Monmouth, W. of Dartmoor	Doan Brook	Yes	-	3*
CH-58	E. Monmouth at Exeter	Doan Brook	Yes	-	0
CH-59	3427 Thorne Road	Dugway Brook	No	-	1
CH-60	3415 Thorne Road	Dugway Brook	No	-	0
CH-61	2600 Hampshire Road	Doan Brook	Yes	-	2*

Notes for Table 4:

1. *Activation information is based on real time flow monitoring(*), installed July-October 2018 and September-November 2019, and tethered block checks for storms greater than 0.25 inches in total volume.*
2. *Events monitored: 28 in 2018 and 32 in 2019. Number of events monitored for each specific SSO can be found in Appendix B.*
3. *SSOs found during 2019 are in bold.*

3.3 NEWLY IDENTIFIED SSOS

Eight new SSOs (CH-54 – CH-61) were located during 2019 Phase 1 SSES activities as shown in red in **Figure 1**.

4.0 CUSTOMER COMPLAINTS

Cleveland Heights tracks phone calls from residents and follow-up house calls by logging them into its Lucity work order management system. In 2019, the Cleveland Heights Utilities Department received calls from approximately 350 addresses reporting various water-related issues on private property. Most calls were related to backups in basements and, in most cases, the backups were related to unmaintained sanitary and/or storm sewer laterals on the property as opposed to mainline sewer issues. **Appendix C** of this report shows the listing of addresses of customer calls, date(s) of Cleveland Heights response, and any notes from the responding crew. Sewer main issues found as a result of customer calls were resolved in an efficient manner. The Capacity Assessment and upcoming Integrated Overflow Control Master Plan activities will identify backups caused by system capacity deficiencies and/or excessive inflow/infiltration (I/I).

5.0 NON-COMPLIANCE

The City of Cleveland Heights has met all CD requirements for the 2019 reporting period.

6.0 TRAINING ACTIVITIES

In 2019, several training sessions were held in accordance with the CMOM program. **Table 5** summarizes training courses held, dates, and employees that were trained. Cleveland Heights is using Lucity to track training participation among Sewer Department employees.

Table 5. Cleveland Heights 2019 Training Activities

Training Topic	Date	Attendees
Pole Camera Operation	February 5	Blatnica, Claggett, Eathridge, Jackson, Owens
Manhole Inspection	March 18	Claggett, Owens, Robertson
Union Contract	May 15	Ferrone, Novario
Work Zone Traffic Control and Safety	May 16	Cardarella, Claggett, DelZoppo, Eathridge, Ferrone, Jackson, Manco, Mandato, McCoy, Owens, Palmisano, Robertson
Good Housekeeping/ Pollution Prevention Control	May 16	Cardarella, Claggett, DelZoppo, Eathridge, Ferrone, Jackson, Manco, Mandato, McCoy, Owens, Palmisano, Robertson
Ethics Training	June 24	Blatnica, Cardarella, Claggett, Corbo, Eathridge, Ferrone, Jackson, Manco, Mandato, McCoy, Owens, Palmisano, Robertson
PACP/MACP/LACP Coding	October 15	Blatnica, Ferrone, McCoy
CCTV Truck Operation	November 5	Jackson, McCoy

7.0 CLEANING AND INSPECTION STATISTICS

In 2019, the Cuyahoga County Department of Public Works (CCDPW), C&K Industrial Services, and Cleveland Heights crews performed field activities in Cleveland Heights as summarized in **Table 6**. **Figure 2** provides a map of the Phase 1 SSES inspection progress. **Figure 3** shows unique cleaning, high frequency, and other maintenance cleaning locations. **Figure 4** shows the MACP inspection locations.

Table 6. Field Work Activities and Quantities in Cleveland Heights in 2019

Activity	Quantity Completed
CCTV inspection, miles	53.3
Unique sanitary sewer cleaned, miles	53.3
High frequency cleaning or other maintenance cleaning, miles	4.3
Total sewer cleaning length, miles	**57.6**
Catch basin connectivity testing, #	2
MACP inspections, #	1,884

The High Frequency Cleaning (HFC) list was updated by Cleveland Heights during CMOM program development in 2017. One new HFC location on Pennfield Road at Noble Road was added based on 2019 field investigation. No segments were removed from the HFC list.

8.0 CMOM PROGRAM IMPLEMENTATION

The Cleveland Heights CMOM program went into effect on February 1, 2018, and includes an implementation plan with timeframes to complete important milestones. **Table 7** provides an update on the 2-year milestones and completion status. The inclusion of the Uniform Standards for Construction of Sewerage Improvements in the City's codified ordinance was confirmed. The Pump Station Inspection and Operation SOP and additional SOPs developed by Cleveland Heights in 2019 can be found in **Appendix D**.

Table 7. CMOM Implementation Plan Status Update 2019

Program Milestone	Description	Time Frame	Completed (yes/no)
Gravity Sewer Maintenance	Use Lucity software to track maintenance costs associated with sewer assets.	2 years	yes
Pump Station Operational Inspections	Develop an SOP for pump station general inspections.	1-2 years	yes
Pump Station Operational Inspections	Develop an SOP for pump station operational procedures.	1-2 years	yes
Training Activity Documentation	Formally track activity proficiencies for each staff member to assure they are adequately trained to operate the collection system.	2 years	yes

Table 7. CMOM Implementation Plan Status Update 2019

Program Milestone	Description	Time Frame	Completed (yes/no)
Adopt Uniform Standards for Construction of Sewerage Improvements	Cleveland Heights will adopt the latest version of the Uniform Standards for Construction of Sewerage Improvements into its codified ordinance to take advantage of language clarifying prohibited discharges into the sewer system.	1 year	yes

9.0 ENFORCEMENT ACTIONS

No enforcement actions were required during the 2019 reporting period.

Figure 2. Sanitary Sewer Televising Performed in Cleveland Heights in 2019

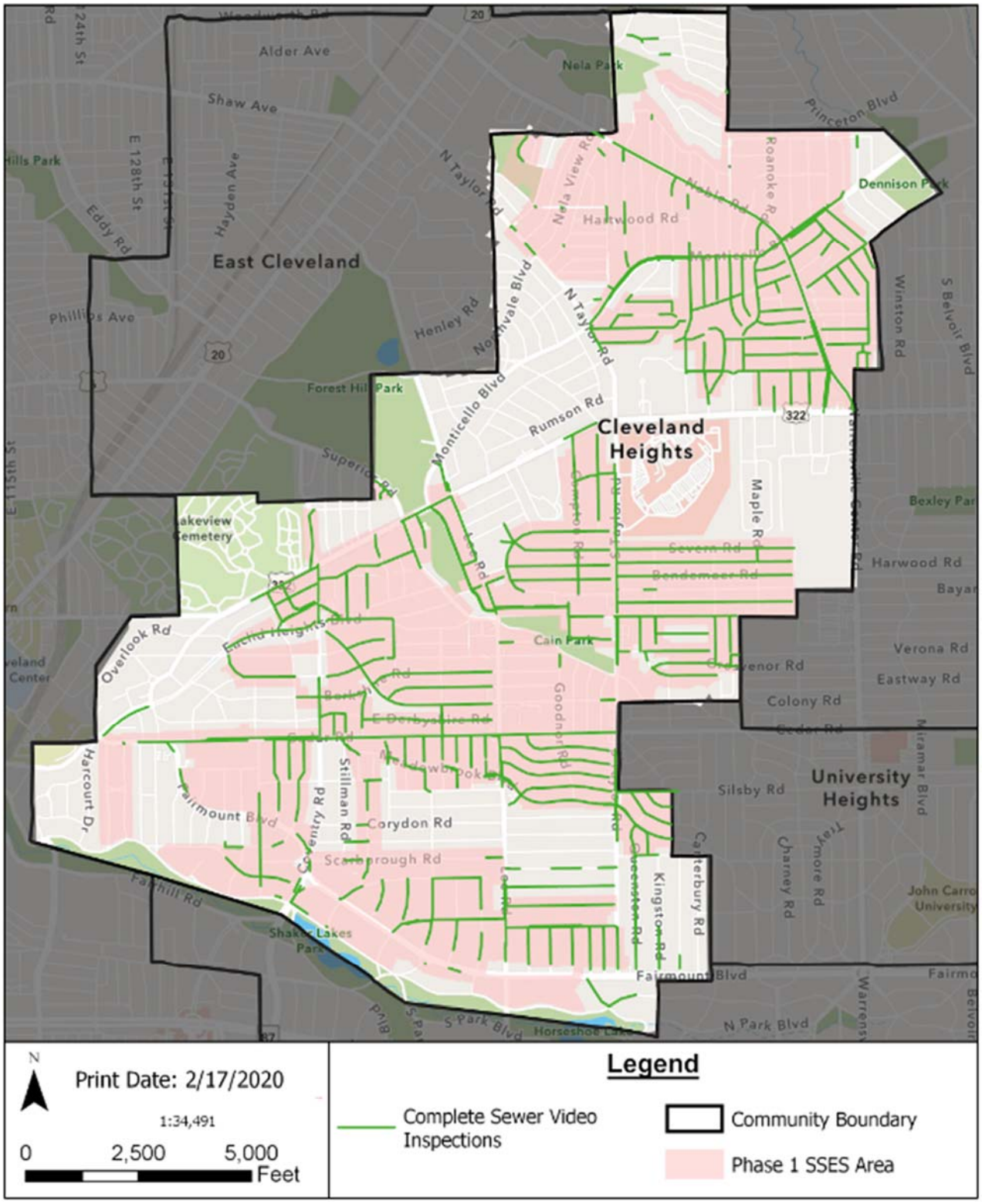


Figure 3. Sanitary Sewer Cleaning Performed in Cleveland Heights in 2019

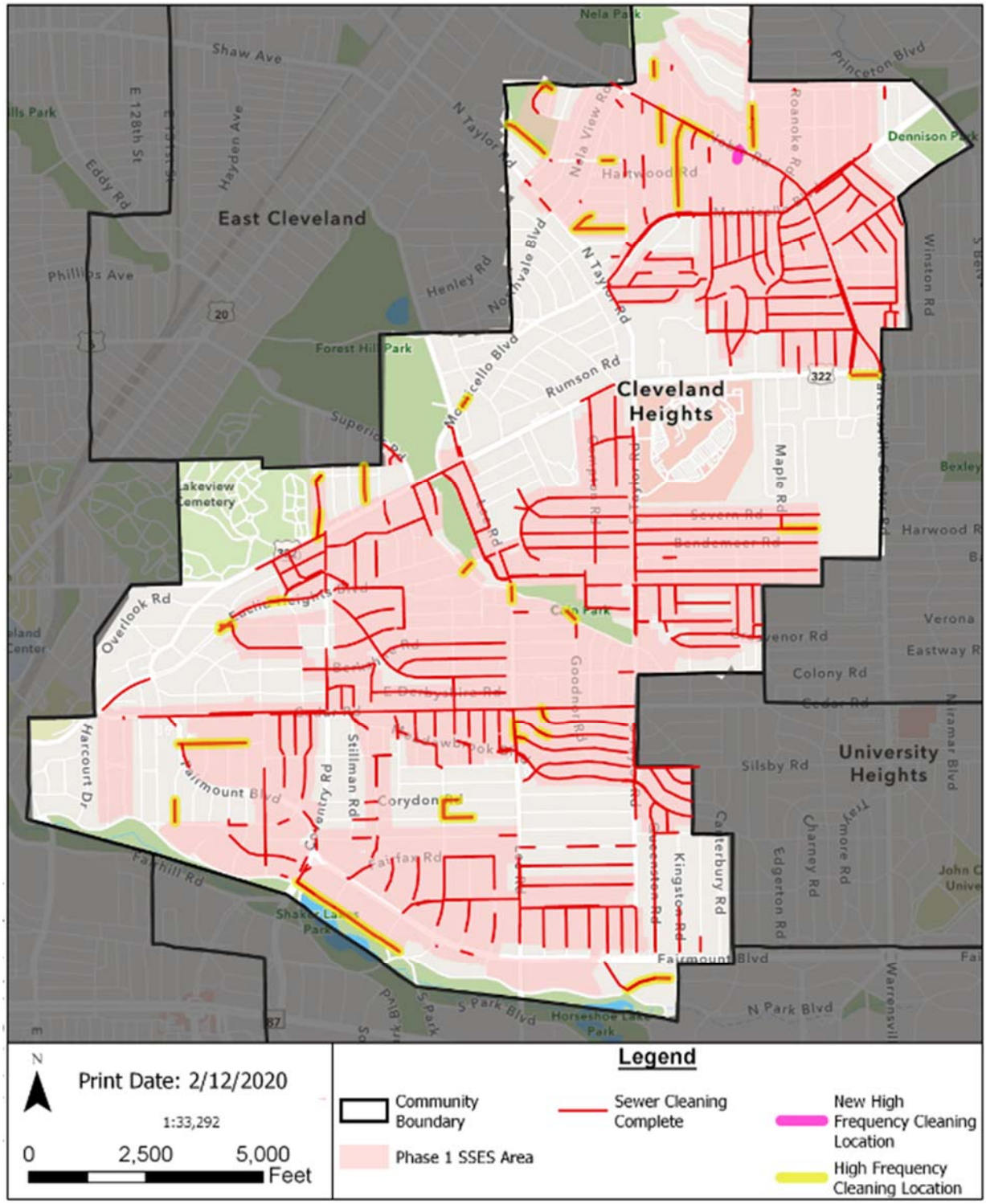
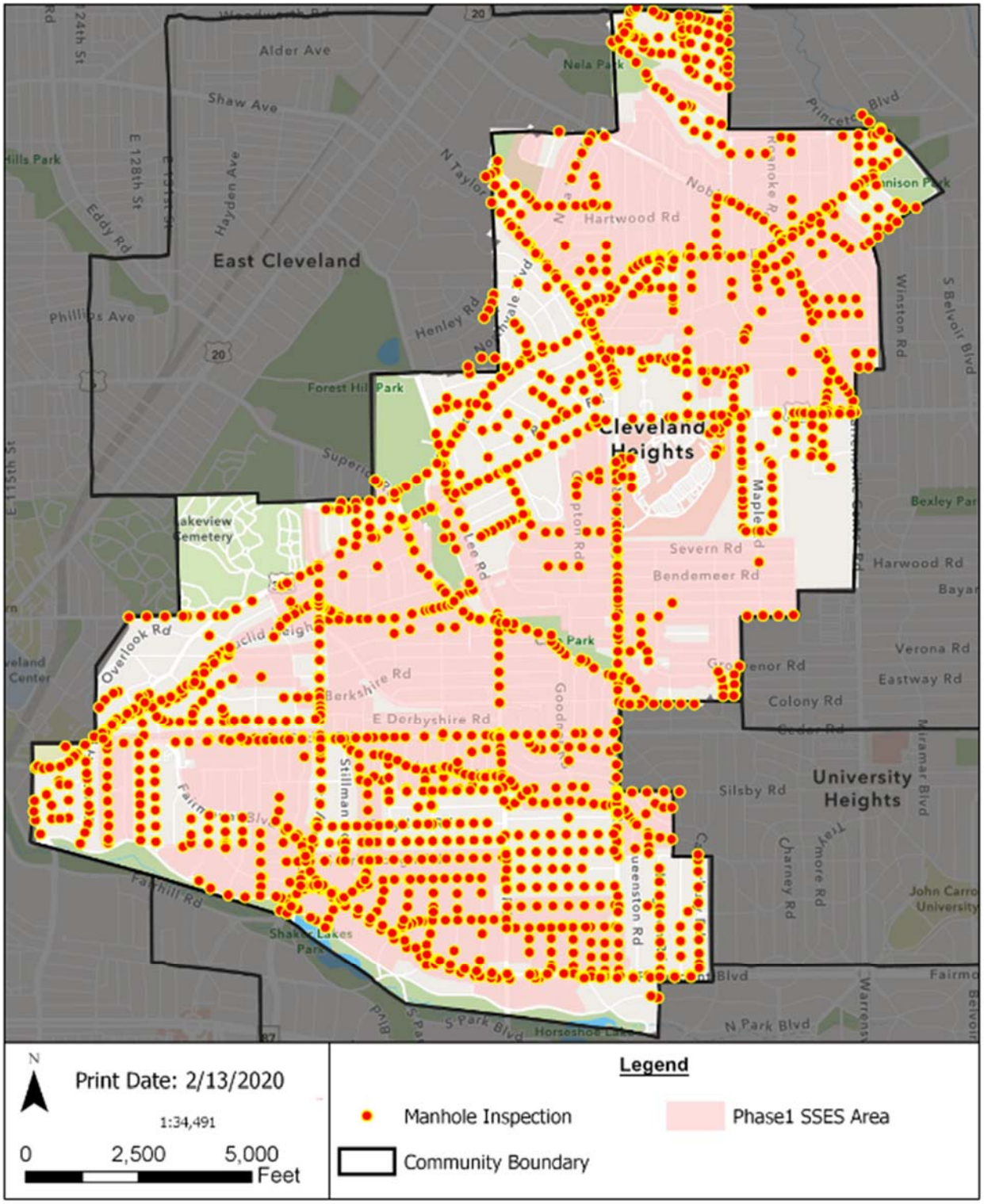
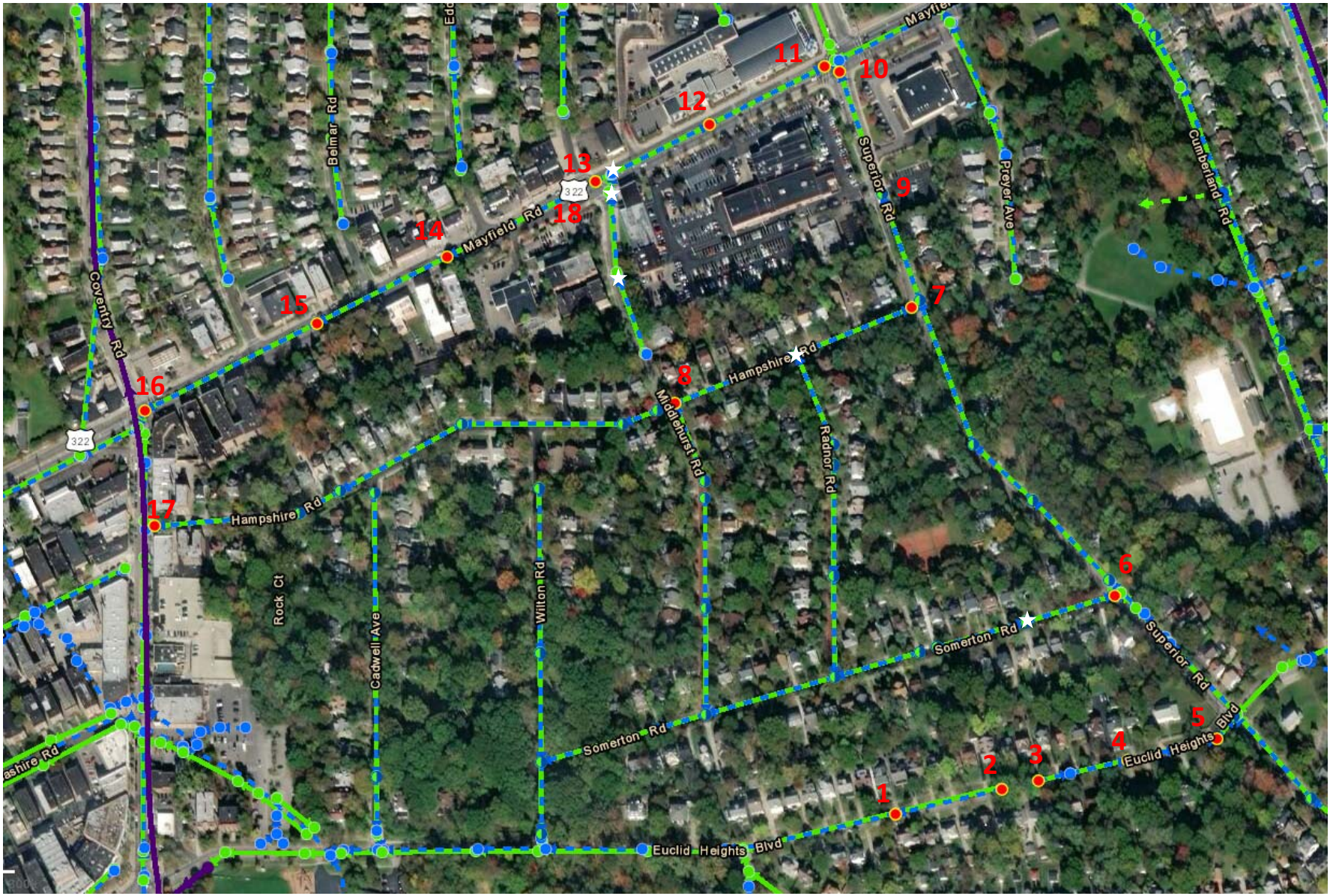


Figure 4. Sanitary MACP Inspections Performed in Cleveland Heights in 2019



APPENDIX A – SANITARY PIPED ACCESS CONNECTIONS

Cleveland Heights 2019 Annual Report Appendix A
Piped Access Locations



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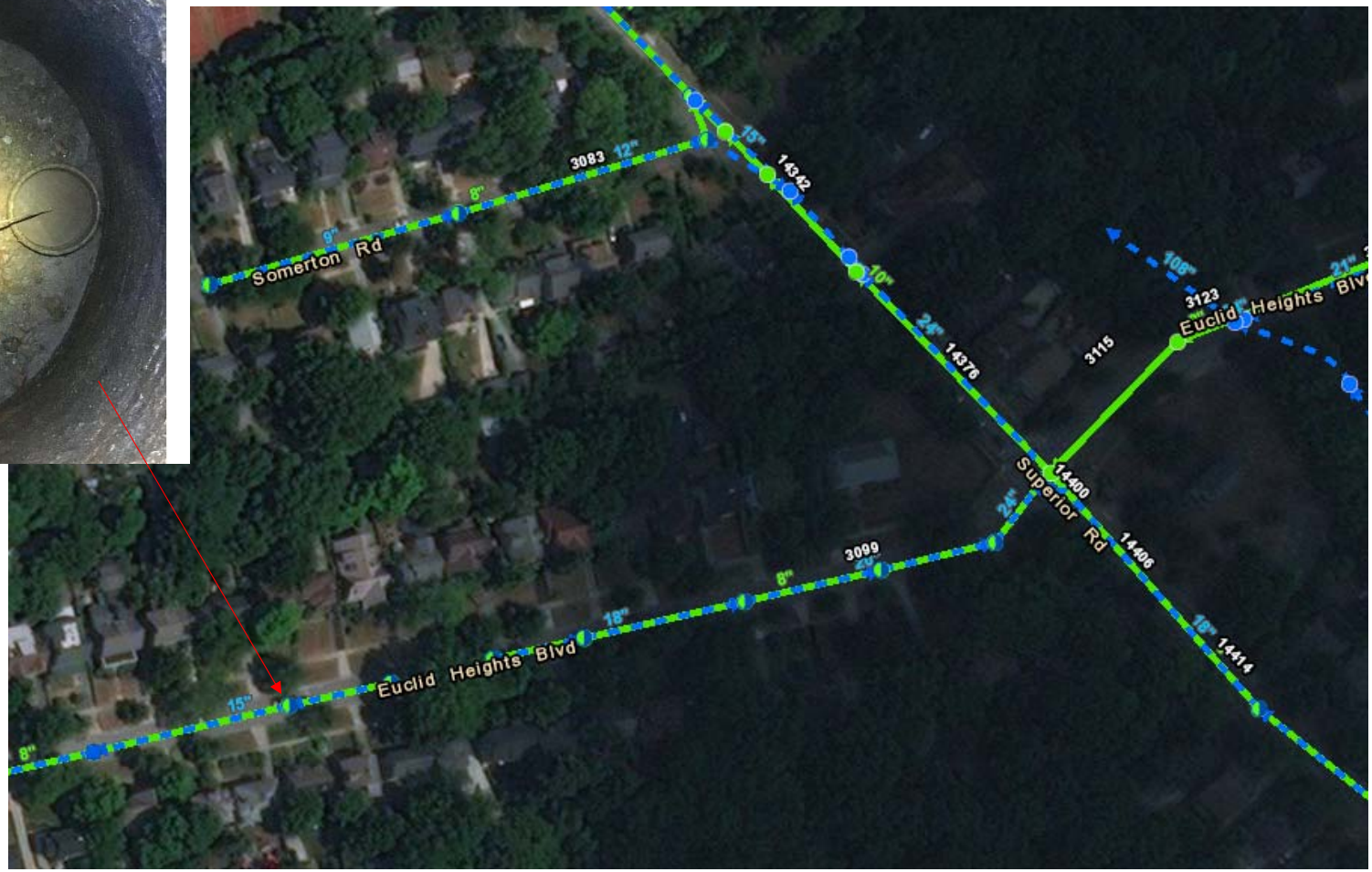
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3083
12"
8"
9"
15"
1442
10"
24"
1437
106"
3123
Euclid Heights Blvd
3115
14400
Superior Rd
24"
3099
8"
18"
Euclid Heights Blvd
15"
8"
14406
18"
14414

2

SA16AHHJ0


3083
12"
8"
Rd
15"
14342
10"
24"
14376
3115
3123
Euclid Heights Blvd
14400
Superior Rd
14406
3099
8"
18"
15"
Euclid Heights Blvd
8"
18"
14414

3

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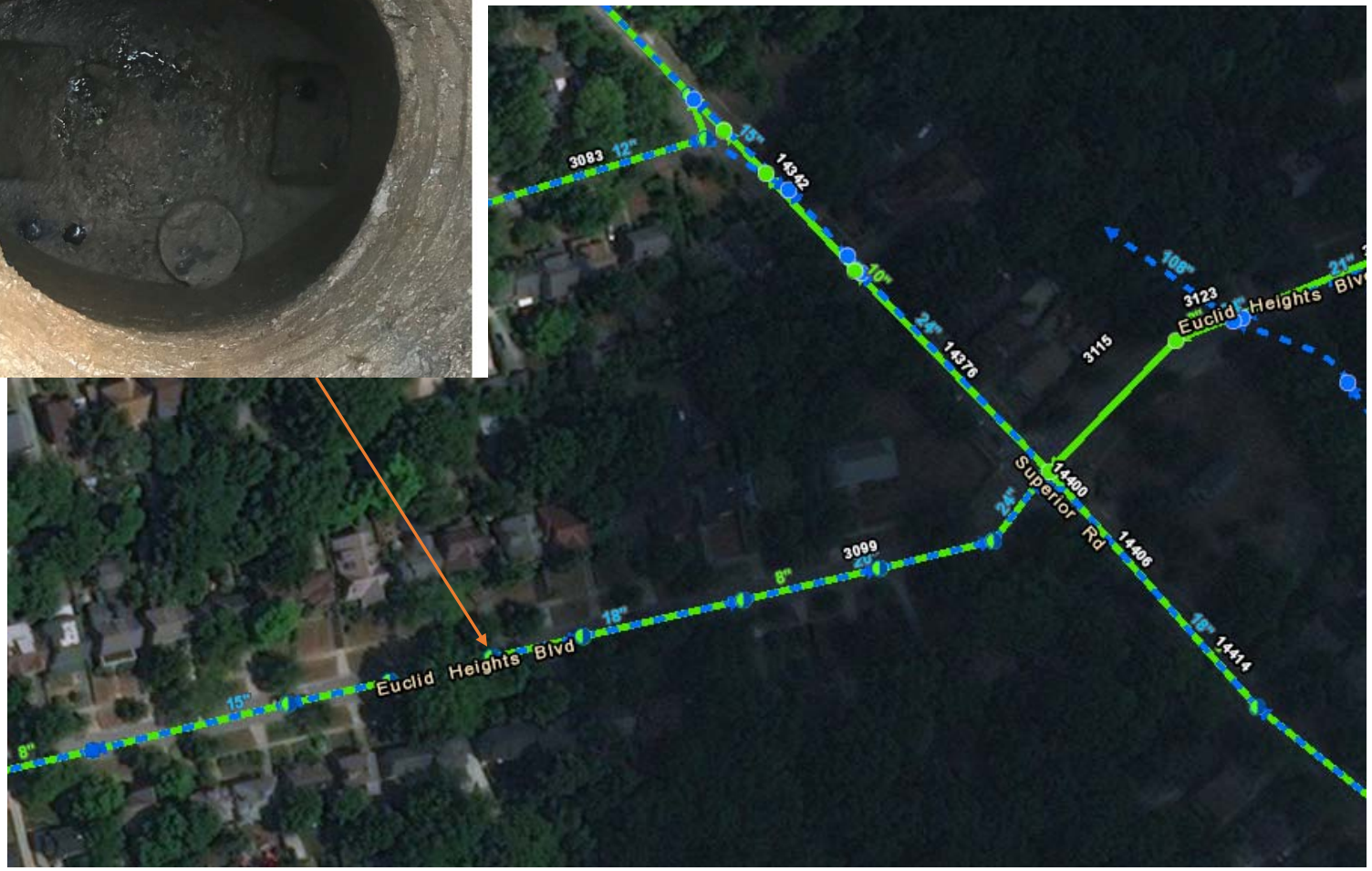
3083
12"
15"
14342
10"
24"
14376
3115
3123
Euclid Heights Blvd
24"
14400
Superior Rd
14406
3099
8"
18"
Euclid Heights Blvd
15"
8"
18"
14414

4

SA16AIFC0


Storm sewer invert
Sanitary sewer access point


3083
12"
15"
14342
8"
10"
24"
14376
3115
106"
3123
Euclid Heights Blvd
21"
14400
Superior Rd
24"
3099
8"
14406
18"
14414
Euclid Heights Blvd
8"

5

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3083
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14376
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106"
3123
Euclid Heights Blvd
21"
Superior Rd
14400
24"
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6

SA16AIEA0


Superior Rd
12"
10"
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3083 12"
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Somerton Rd
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14376
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100
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7

SA16AICA0


2999
3017
3009
2987
Hampshire Rd
2973
14296
2943
1700
1750
Superior Rd

8

SA16AICC0


700
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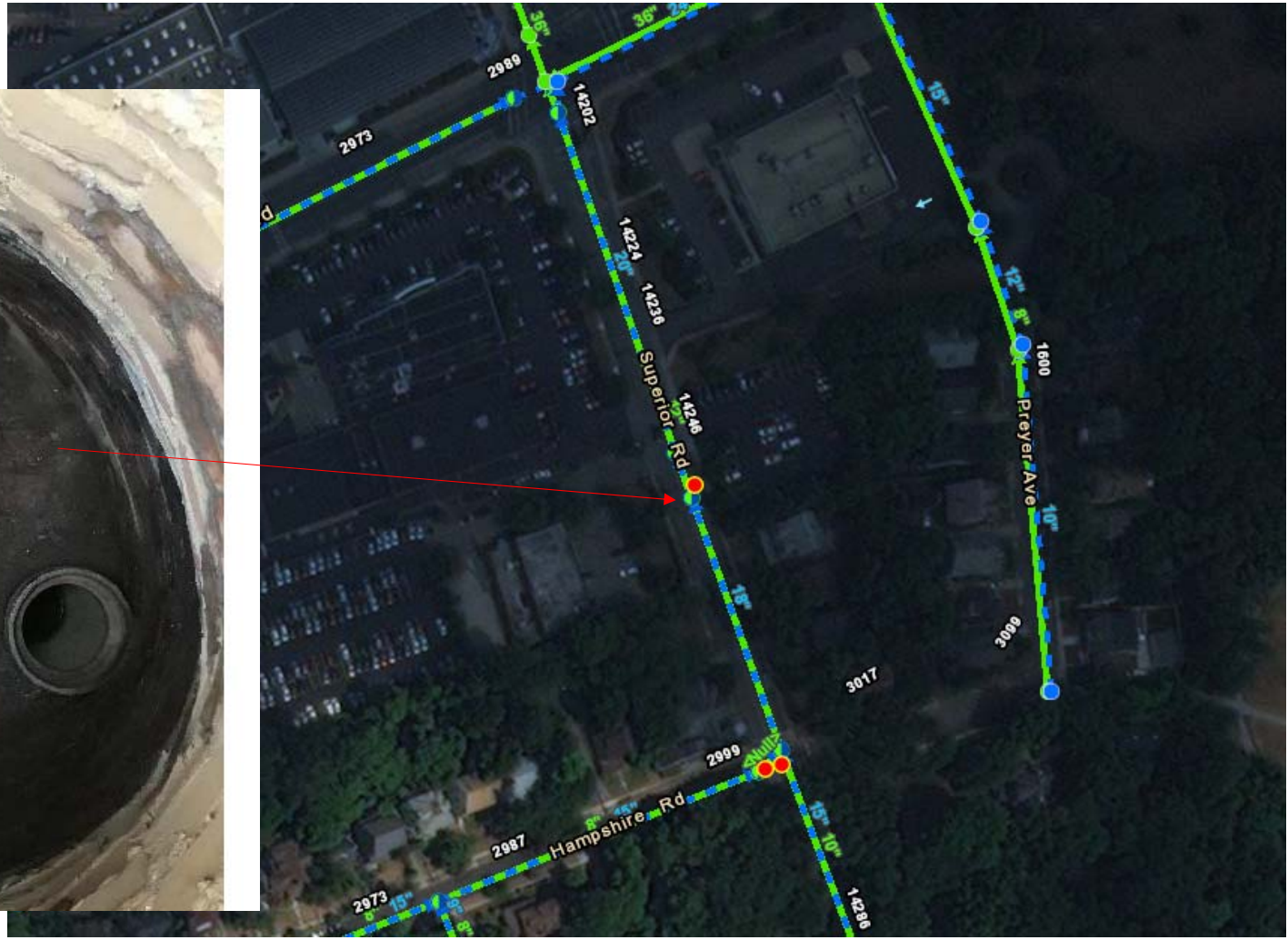
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2973
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8"
1600
Preyer Ave
10"
Superior Rd
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15"
3099
3017
2999
Hampshire Rd
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15"
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15"

10

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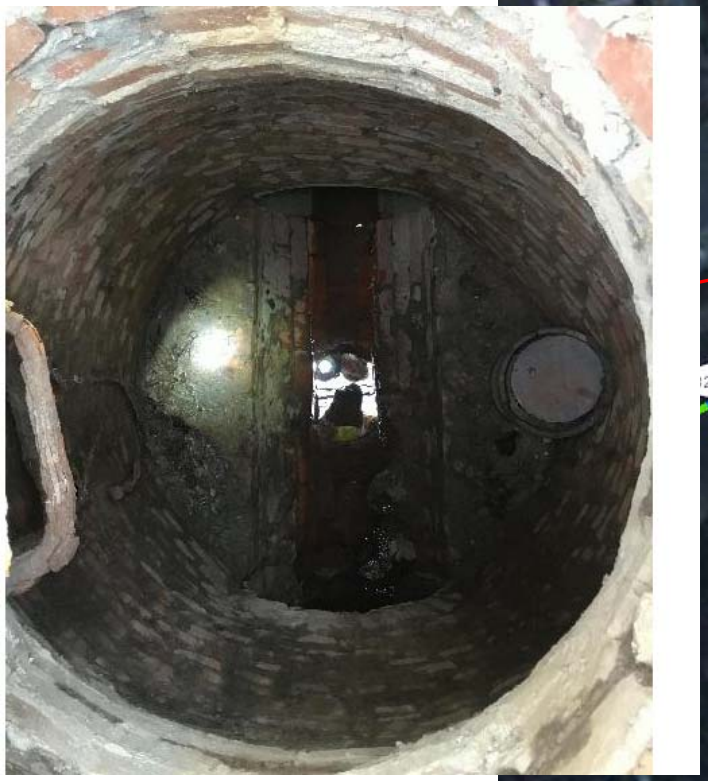

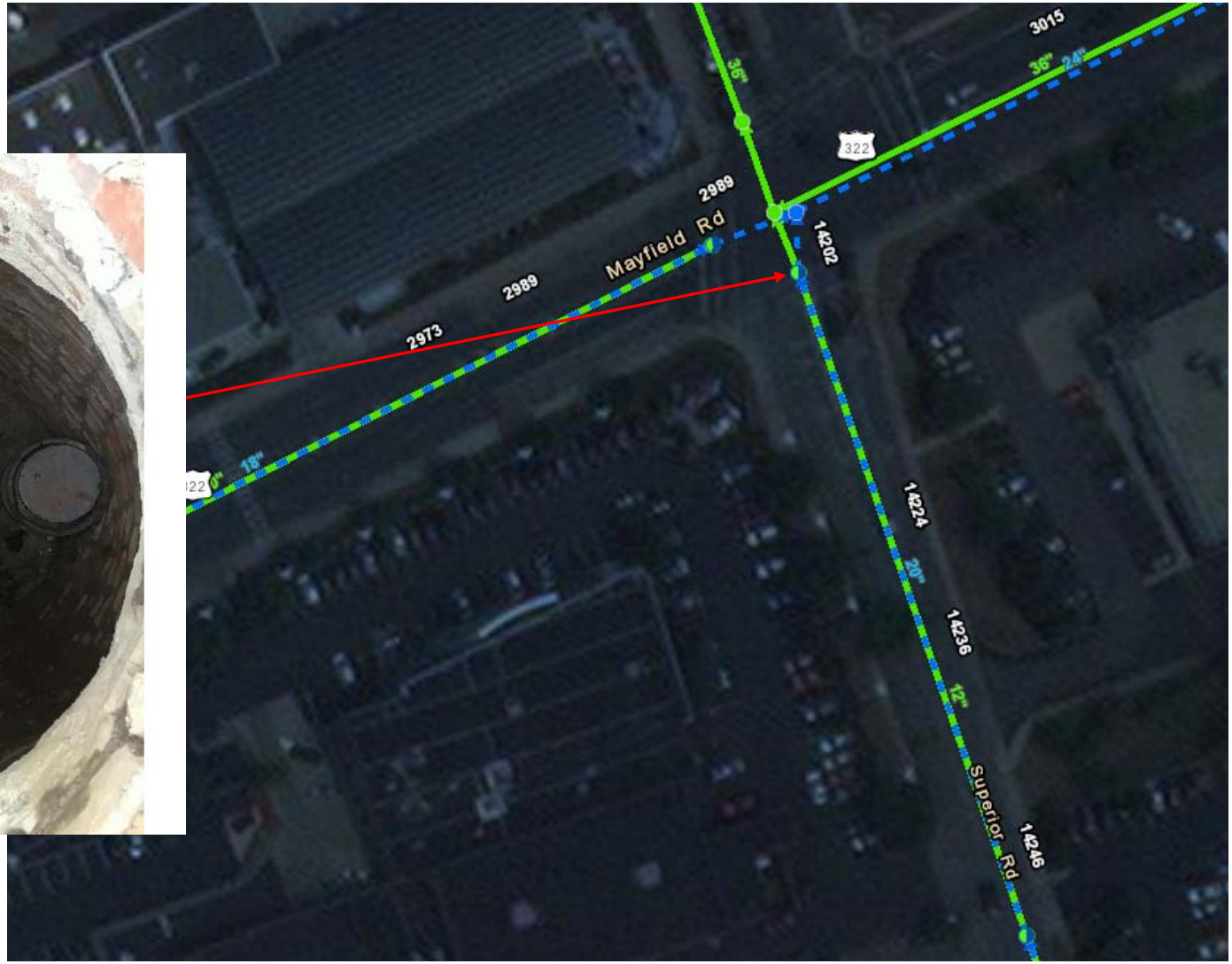

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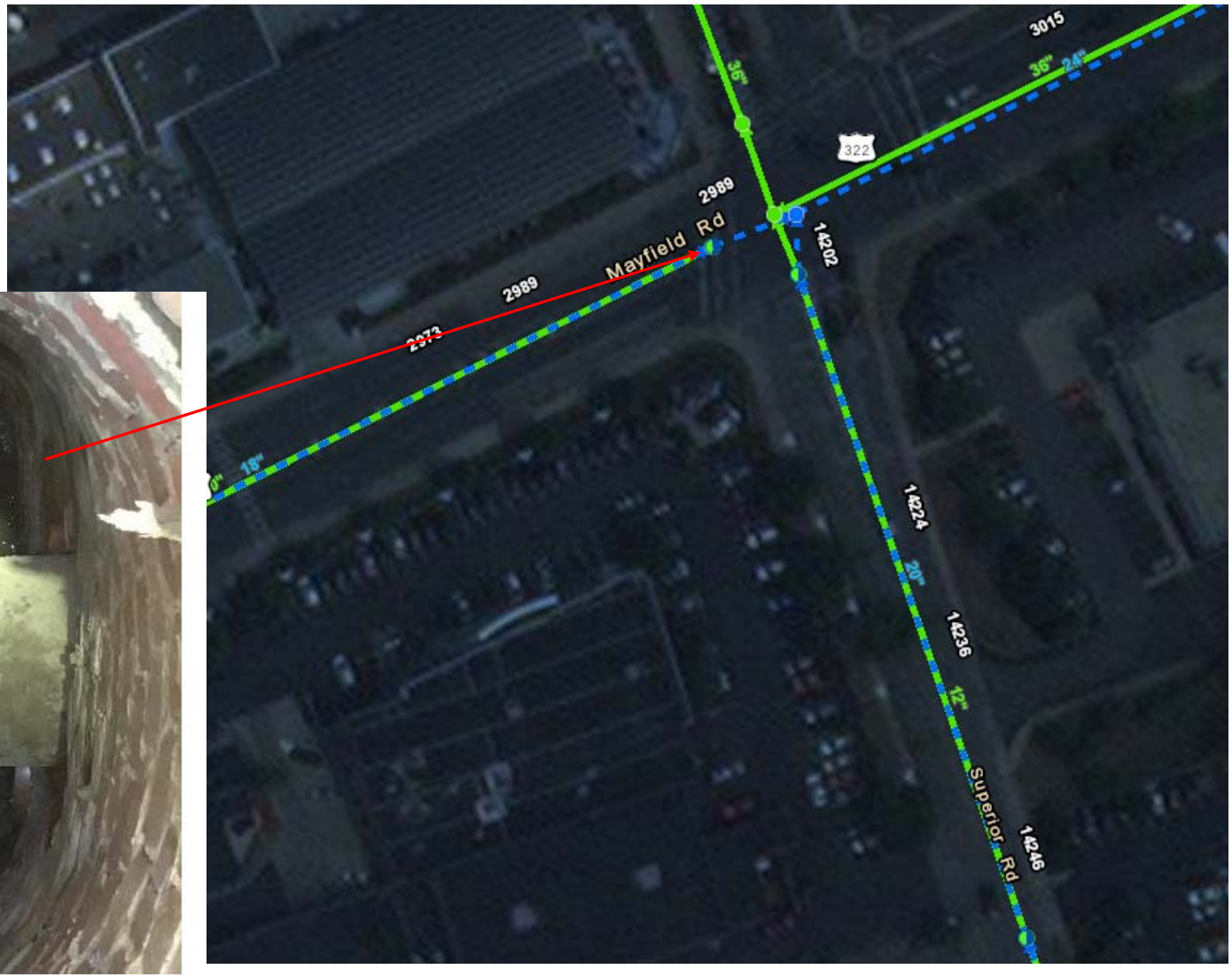

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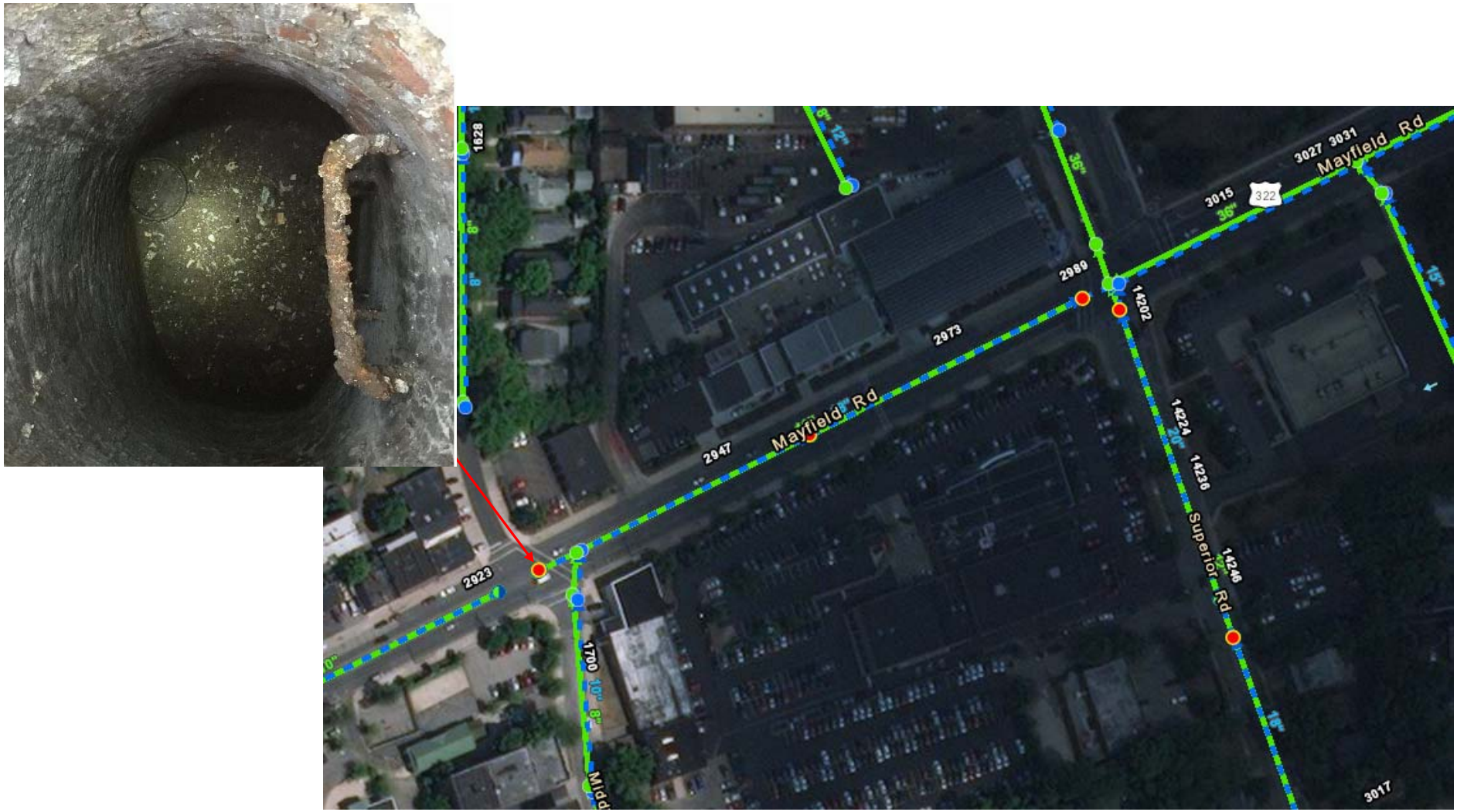

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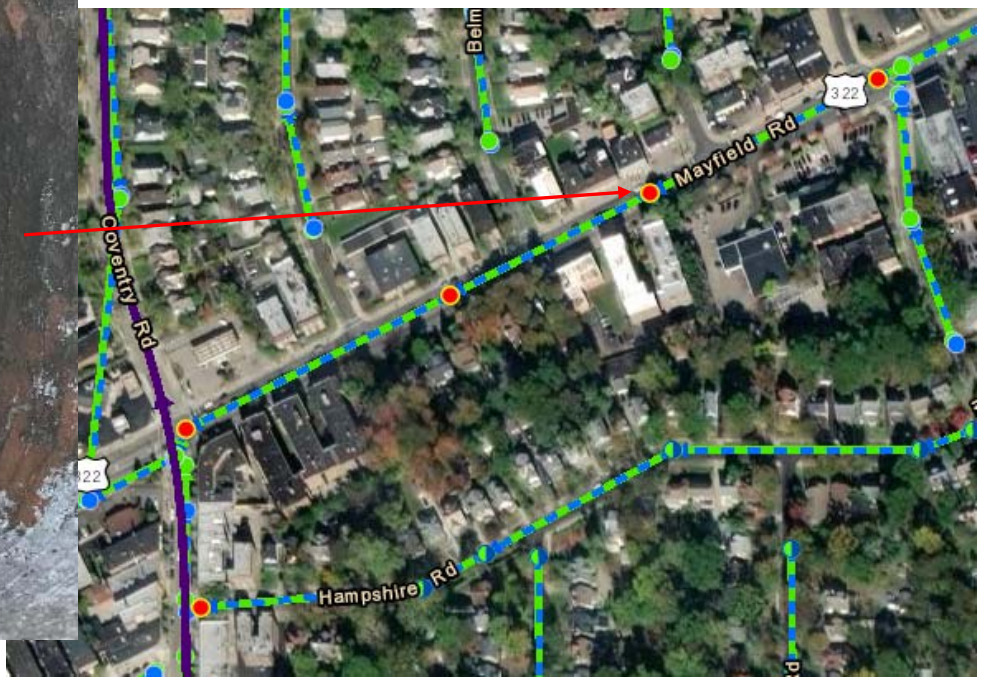

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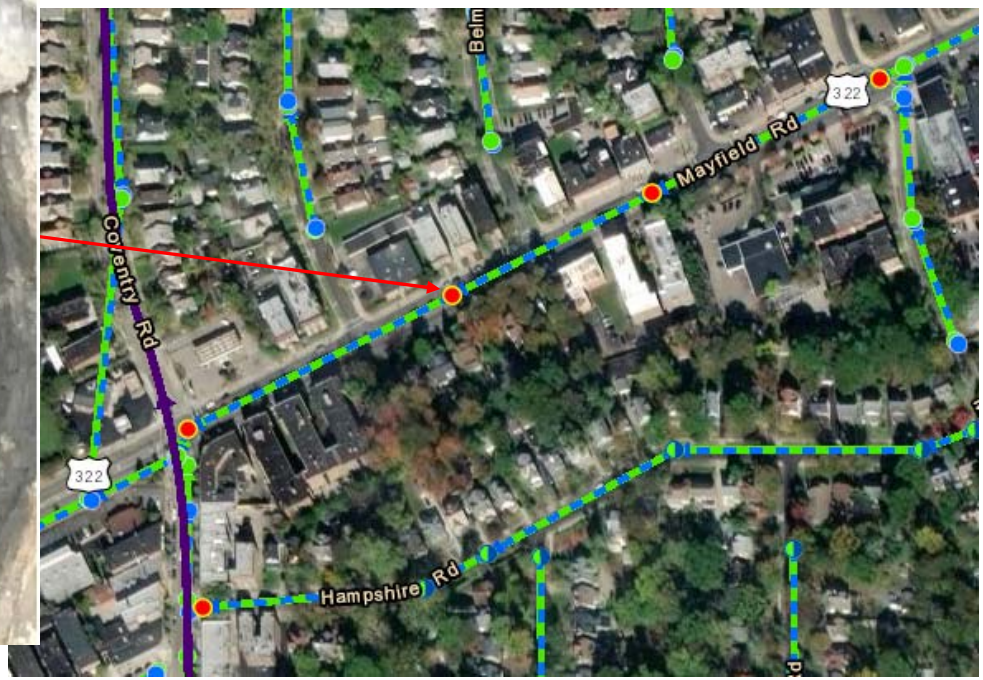

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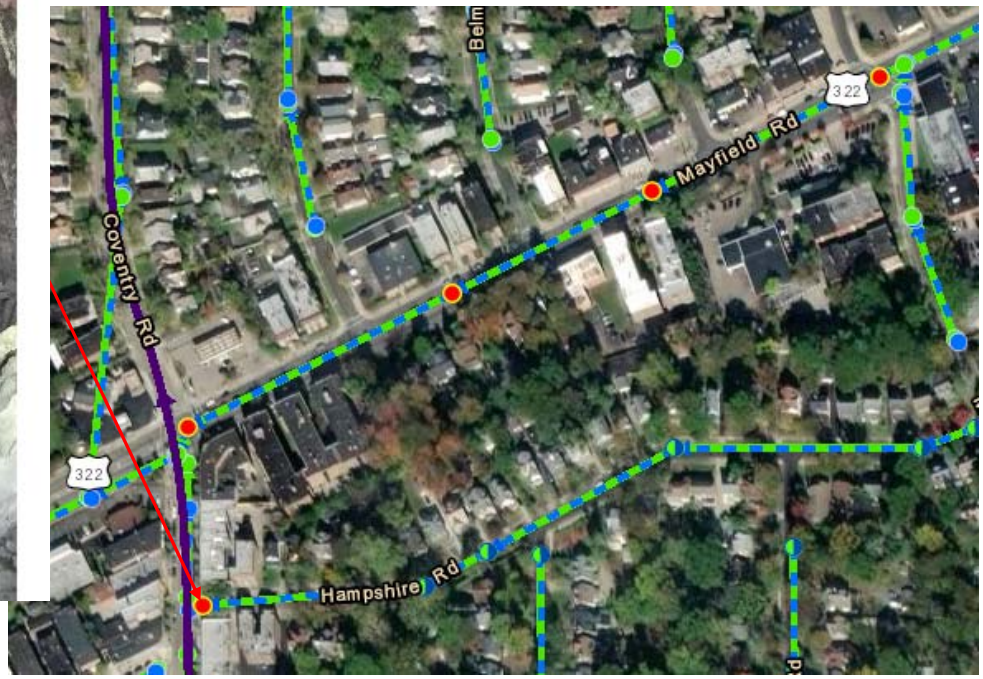

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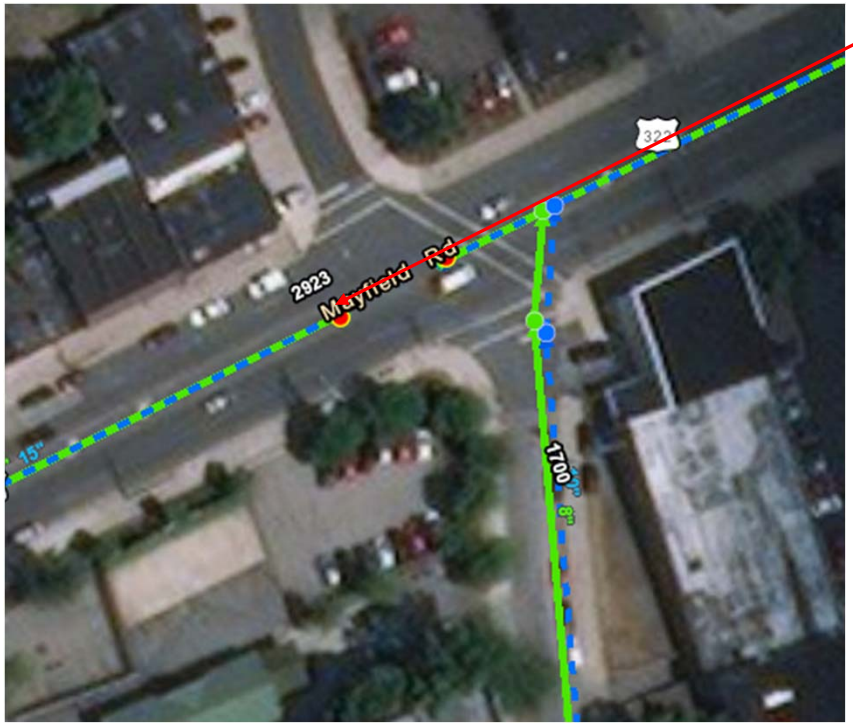

APPENDIX B – 2019 SSO ACTIVATION SUMMARY

Cleveland Heights Overflow Control Consent Decree
2019 Annual Report
Appendix B - SSO Activation Summary

					Event 1		Event 2		Event 3		Event 4	
					1/2/2019		1/8/2019		1/23/2019		2/6/2019	
					0.88 in (UH)	0.4 in/hr (UH)	0.82 in (UH)	0.26 in/hr (UH)	0.98 in (UH)	0.18 in/hr (UH)	0.27 in (UH)	0.08 in/hr (UH)
					1.01 in (SH)	0.49 in/hr (SH)	0.70 in (SH)	0.25 in/hr (SH)	1.13 in (SH)	0.2 in/hr (SH)	0.29 in (SH)	0.08 in/hr (SH)
SSO	Receiving Stream	# of Monitored Events	# of Recorded Activations	% of Events with Activation	0.98 in (SE) Tethered Block or Flow Meter	0.4 in/hr (SE) Activation Y/N?	0.73 in (SE) Tethered Block or Flow Meter	0.31 in/hr (SE) Activation Y/N?	1.24 in (SE) Tethered Block or Flow Meter	0.26 in/hr (SE) Activation Y/N?	0.36 in (SE) Tethered Block or Flow Meter	0.11 in/hr (SE) Activation Y/N?
CH-1	Doan Brook	32	1	3%	Block	No	Block	No	Block	Yes	Block	No
CH-2	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-3	Doan Brook	32	0	0%	Block	No	Block	No	Block	No	Block	No
CH-4	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-5	Doan Brook	24	1	4%	Not Checked	-	Not Checked	-	Not Checked	-	Not Checked	-
CH-6	Doan Brook	24	0	0%	Not Checked	-	Not Checked	-	Not Checked	-	Not Checked	-
CH-7	Doan Brook	24	0	0%	Not Checked	-	Not Checked	-	Not Checked	-	Not Checked	-
CH-9	**Doan Brook**	32	19	59%	Block	No	Block	Yes	Block	Yes	Block	Yes
CH-10	Dugway Brook	32	0	0%	Block	No	Block	No	Block	No	Block	No
CH-11	Dugway Brook	32	3	9%	Block	No	Block	No	Block	No	Block	No
CH-12	Dugway Brook	32	9	28%	Block	No	Block	No	Block	No	Block	No
CH-13	Doan Brook	32	5	16%	Block	No	Block	No	Block	No	Block	No
CH-15	Doan Brook	31	1	3%	Block	No	Block	No	Block	No	Block	No
CH-17	Dugway Brook	32	4	13%	Block	Yes	Block	No	Block	Yes	Block	No
CH-22	9 Mile Creek	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-23	Dugway Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-24	Dugway Brook	32	1	3%	Block	No	Block	Yes	Block	No	Block	No
CH-25	Dugway Brook	31	9	29%	Block	No	Block	No	Block	No	Block	No
CH-26	Dugway Brook	32	6	19%	Block	Yes	Block	No	Block	No	Block	No
CH-27	9 Mile Creek	32	7	22%	Block	Yes	Block	No	Block	Yes	Block	No
CH-28	**Dugway Brook**	32	13	41%	Block	Yes	Block	Yes	Block	No	Block	No
CH-30	**Dugway Brook**	31	18	58%	Block	No	Block	No	Block	No	Block	Yes
CH-32	Doan Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-33	Doan Brook	32	10	31%	Block	No	Block	No	Block	Yes	Block	No
CH-35	Doan Brook	32	11	34%	Block	No	Block	No	Block	Yes	Block	No
CH-36	Doan Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-37	Doan Brook	32	4	13%	Block	No	Block	No	Block	Yes	Block	No
CH-38	Doan Brook	32	2	6%	Block	No	Block	No	Block	No	Block	No
CH-39	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-42	Doan Brook	32	1	3%	Block	Yes	Block	No	Block	No	Block	No
CH-45	**Doan Brook**	32	4	13%	Block	No	Block	No	Block	Yes	Block	No
CH-46	Doan Brook	32	5	16%	Block	No	Block	No	Block	No	Block	No
CH-47	Doan Brook	32	2	6%	Block	No	Block	No	Block	No	Block	No
CH-49	**Doan Brook**	32	2	6%	Block	No	Block	No	Block	No	Block	No
CH-50	Doan Brook	32	9	28%	Block	Yes	Block	No	Block	No	Block	No
CH-51	**Nine Mile**	32	14	44%	Block	No	Block	No	Block	No	Block	Yes
CH-52	Dugway Brook	30	0	0%	Block	No	Block	No	Block	No	Block	No
CH-54	Doan Brook	25	0	0%	-	-	-	-	-	-	-	-
CH-55	**Nine Mile**	20	1	5%	-	-	-	-	-	-	-	-
CH-56	**Dugway Brook**	8	6	75%	-	-	-	-	-	-	-	-
CH-57	**Doan Brook**	11	3	27%	-	-	-	-	-	-	-	-
CH-58	Doan Brook	11	0	0%	-	-	-	-	-	-	-	-
CH-59	Dugway Brook	11	1	9%	-	-	-	-	-	-	-	-
CH-60	Dugway Brook	11	0	0%	-	-	-	-	-	-	-	-
CH-61	**Doan Brook**	11	2	18%	-	-	-	-	-	-	-	-

District's Shaker Heights (SH), South Euclid (SE) and University Heights (UH) rain gauges were used as denoted.

2019 Real time monitoring of SSOs conducted from September 4, 2019 to December 2, 2019 at locations in bold font

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					Event 5		Event 6		Event 7		Event 8	
					2/12/2019		2/20/2019		3/14/2019		3/30/2019	
					0.94 in (UH)	0.22 in/hr (UH)	0.29 in (UH)	0.14 in/hr (UH)	0.35 in (UH)	0.26 in/hr (UH)	1.09 in (UH)	0.23 in/hr (UH)
					0.92 in (SH)	0.22 in/hr (SH)	0.31 in (SH)	0.17 in/hr (SH)	0.37 in (SH)	0.27 in/hr (SH)	1.16 in (SH)	0.23 in/hr (SH)
					1.11 in (SE)	0.3 in/hr (SE)	0.32 in (SE)	0.14 in/hr (SE)	0.48 in (SE)	0.36 in/hr (SE)	1.17 in (SE)	0.25 in/hr (SE)
SSO	Receiving Stream	# of Monitored Events	# of Recorded Activations	% of Events with Activation	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?
CH-1	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-2	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-3	Doan Brook	32	0	0%	Block	No	Block	No	Block	No	Block	No
CH-4	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-5	Doan Brook	24	1	4%	Not Checked	-	Not Checked	-	Not Checked	-	Not Checked	-
CH-6	Doan Brook	24	0	0%	Not Checked	-	Not Checked	-	Not Checked	-	Not Checked	-
CH-7	Doan Brook	24	0	0%	Not Checked	-	Not Checked	-	Not Checked	-	Not Checked	-
CH-9	**Doan Brook**	32	19	59%	Block	No	Block	No	Block	No	Block	Yes
CH-10	Dugway Brook	32	0	0%	Block	No	Block	No	Block	No	Block	No
CH-11	Dugway Brook	32	3	9%	Block	No	Block	No	Block	No	Block	Yes
CH-12	Dugway Brook	32	9	28%	Block	Yes	Block	No	Block	No	Block	Yes
CH-13	Doan Brook	32	5	16%	Block	No	Block	No	Block	No	Block	No
CH-15	Doan Brook	31	1	3%	Block	No	Block	No	Block	No	Block	No
CH-17	Dugway Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-22	9 Mile Creek	32	1	3%	Block	No	Block	No	Block	No	Block	Yes
CH-23	Dugway Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-24	Dugway Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-25	Dugway Brook	31	9	29%	Block	No	Block	No	Block	No	Block	No
CH-26	Dugway Brook	32	6	19%	Block	No	Block	No	Block	No	Block	Yes
CH-27	9 Mile Creek	32	7	22%	Block	No	Block	No	Block	Yes	Block	No
CH-28	**Dugway Brook**	32	13	41%	Block	No	Block	No	Block	Yes	Block	Yes
CH-30	**Dugway Brook**	31	18	58%	Block	Yes	Block	No	Block	No	Block	No
CH-32	Doan Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-33	Doan Brook	32	10	31%	Block	No	Block	No	Block	No	Block	Yes
CH-35	Doan Brook	32	11	34%	Block	No	Block	No	Block	No	Block	Yes
CH-36	Doan Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-37	Doan Brook	32	4	13%	Block	No	Block	No	Block	No	Block	Yes
CH-38	Doan Brook	32	2	6%	Block	No	Block	No	Block	No	Block	No
CH-39	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-42	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-45	**Doan Brook**	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-46	Doan Brook	32	5	16%	Block	No	Block	No	Block	No	Block	No
CH-47	Doan Brook	32	2	6%	Block	No	Block	No	Block	No	Block	No
CH-49	**Doan Brook**	32	2	6%	Block	No	Block	No	Block	No	Block	No
CH-50	Doan Brook	32	9	28%	Block	No	Block	No	Block	No	Block	Yes
CH-51	**Nine Mile**	32	14	44%	Block	Yes	Block	No	Block	No	Block	No
CH-52	Dugway Brook	30	0	0%	Block	No	Block	No	Block	No	Block	No
CH-54	Doan Brook	25	0	0%	-	-	-	-	-	-	Block	No
CH-55	**Nine Mile**	20	1	5%	-	-	-	-	-	-	-	-
CH-56	**Dugway Brook**	8	6	75%	-	-	-	-	-	-	-	-
CH-57	**Doan Brook**	11	3	27%	-	-	-	-	-	-	-	-
CH-58	Doan Brook	11	0	0%	-	-	-	-	-	-	-	-
CH-59	Dugway Brook	11	1	9%	-	-	-	-	-	-	-	-
CH-60	Dugway Brook	11	0	0%	-	-	-	-	-	-	-	-
CH-61	**Doan Brook**	11	2	18%	-	-	-	-	-	-	-	-

District's Shaker Heights (SH), South Euclid (SE) and University Heights (UH) rain gauges were used as denoted.

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					Event 9		Event 10		Event 11		Event 12	
					4/14/2019		4/19/2019		4/29/2019		5/12/2019	
					0.41 in (UH)	0.13 in/hr (UH)	0.93 in (UH)	0.2 in/hr (UH)	0.42 in (UH)	0.19 in/hr (UH)	0.57 in (UH)	0.12 in/hr (UH)
					0.45 in (SH)	0.14 in/hr (SH)	1.14 in (SH)	0.28 in/hr (SH)	0.48 in (SH)	0.23 in/hr (SH)	0.61 in (SH)	0.14 in/hr (SH)
					0.84 in (SE)	0.51 in/hr (SE)	1.07 in (SE)	0.24 in/hr (SE)	0.52 in (SE)	0.25 in/hr (SE)	0.64 in (SE)	0.12 in/hr (SE)
SSO	Receiving Stream	# of Monitored Events	# of Recorded Activations	% of Events with Activation	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?
CH-1	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-2	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-3	Doan Brook	32	0	0%	Block	No	Block	No	Block	No	Block	No
CH-4	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-5	Doan Brook	24	1	4%	Block	No	Block	No	Block	No	Block	No
CH-6	Doan Brook	24	0	0%	Block	No	Block	No	Block	No	Block	No
CH-7	Doan Brook	24	0	0%	Block	No	Block	No	Block	No	Block	No
CH-9	**Doan Brook**	32	19	59%	Block	Yes	Block	No	Block	Yes	Block	Yes
CH-10	Dugway Brook	32	0	0%	Block	No	Block	No	Block	No	Block	No
CH-11	Dugway Brook	32	3	9%	Block	Yes	Block	Yes	Block	No	Block	No
CH-12	Dugway Brook	32	9	28%	Block	No	Block	No	Block	No	Block	No
CH-13	Doan Brook	32	5	16%	Block	No	Block	Yes	Block	No	Block	No
CH-15	Doan Brook	31	1	3%	Block	No	Block	No	Block	No	Block	No
CH-17	Dugway Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-22	9 Mile Creek	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-23	Dugway Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-24	Dugway Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-25	Dugway Brook	31	9	29%	Block	No	Block	No	Block	Yes	Block	No
CH-26	Dugway Brook	32	6	19%	Block	No	Block	No	Block	No	Block	No
CH-27	9 Mile Creek	32	7	22%	Block	No	Block	No	Block	No	Block	Yes
CH-28	**Dugway Brook**	32	13	41%	Block	Yes	Block	No	Block	No	Block	No
CH-30	**Dugway Brook**	31	18	58%	Block	Yes	Block	Yes	Block	Yes	Block	Yes
CH-32	Doan Brook	32	4	13%	Block	Yes	Block	No	Block	No	Block	No
CH-33	Doan Brook	32	10	31%	Block	No	Block	Yes	Block	No	Block	Yes
CH-35	Doan Brook	32	11	34%	Block	No	Block	Yes	Block	Yes	Block	Yes
CH-36	Doan Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-37	Doan Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-38	Doan Brook	32	2	6%	Block	Yes	Block	No	Block	No	Block	No
CH-39	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-42	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-45	**Doan Brook**	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-46	Doan Brook	32	5	16%	Block	No	Block	No	Block	No	Block	No
CH-47	Doan Brook	32	2	6%	Block	No	Block	No	Block	No	Block	No
CH-49	**Doan Brook**	32	2	6%	Block	No	Block	No	Block	No	Block	No
CH-50	Doan Brook	32	9	28%	Block	No	Block	No	Block	Yes	Block	No
CH-51	**Nine Mile**	32	14	44%	Block	No	Block	Yes	Block	No	Block	No
CH-52	Dugway Brook	30	0	0%	Block	No	Block	No	Block	No	Block	No
CH-54	Doan Brook	25	0	0%	Block	No	Block	No	Block	No	Block	No
CH-55	**Nine Mile**	20	1	5%	-	-	-	-	-	-	-	-
CH-56	**Dugway Brook**	8	6	75%	-	-	-	-	-	-	-	-
CH-57	**Doan Brook**	11	3	27%	-	-	-	-	-	-	-	-
CH-58	Doan Brook	11	0	0%	-	-	-	-	-	-	-	-
CH-59	Dugway Brook	11	1	9%	-	-	-	-	-	-	-	-
CH-60	Dugway Brook	11	0	0%	-	-	-	-	-	-	-	-
CH-61	**Doan Brook**	11	2	18%	-	-	-	-	-	-	-	-

District's Shaker Heights (SH), South Euclid (SE) and University Heights (UH) rain gauges were used as denoted.

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					Event 13		Event 14		Event 15		Event 16	
					5/26/2019		6/5/2019		6/10/2019		6/16/2019	
					0.38 in (UH)	0.22 in/hr (UH)	1.62 in (UH)	0.56 in/hr (UH)	1.05 in (UH)	0.39 in/hr (UH)	1.16 in (UH)	0.39 in/hr (UH)
					0.55 in (SH)	0.2 in/hr (SH)	1.20 in (SH)	0.36 in/hr (SH)	1.07 in (SH)	0.48 in/hr (SH)	1.31 in (SH)	0.61 in/hr (SH)
					0.22 in (SE)	0.12 in/hr (SE)	1.53 in (SE)	0.62 in/hr (SE)	1.13 in (SE)	0.42 in/hr (SE)	1.33 in (SE)	0.46 in/hr (SE)
SSO	Receiving Stream	# of Monitored Events	# of Recorded Activations	% of Events with Activation	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?
CH-1	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-2	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-3	Doan Brook	32	0	0%	Block	No	Block	No	Block	No	Block	No
CH-4	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-5	Doan Brook	24	1	4%	Block	No	Block	No	Block	No	Block	Yes
CH-6	Doan Brook	24	0	0%	Block	No	Block	No	Block	No	Block	No
CH-7	Doan Brook	24	0	0%	Block	No	Block	No	Block	No	Block	No
CH-9	**Doan Brook**	32	19	59%	Block	No	Block	Yes	Block	No	Block	Yes
CH-10	Dugway Brook	32	0	0%	Block	No	Block	No	Block	No	Block	No
CH-11	Dugway Brook	32	3	9%	Block	No	Block	No	Block	No	Block	No
CH-12	Dugway Brook	32	9	28%	Block	Yes	Block	Yes	Block	No	Block	No
CH-13	Doan Brook	32	5	16%	Block	No	Block	Yes	Block	No	Block	No
CH-15	Doan Brook	31	1	3%	Block	No	Block	Yes	Block	No	Block	No
CH-17	Dugway Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-22	9 Mile Creek	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-23	Dugway Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-24	Dugway Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-25	Dugway Brook	31	9	29%	Block	No	Block	Yes	Block	No	Block	No
CH-26	Dugway Brook	32	6	19%	Block	No	Block	Yes	Block	No	Block	Yes
CH-27	9 Mile Creek	32	7	22%	Block	No	Block	Yes	Block	No	Block	No
CH-28	**Dugway Brook**	32	13	41%	Block	Yes	Block	Yes	Block	No	Block	No
CH-30	**Dugway Brook**	31	18	58%	Block	Yes	Block	Yes	Block	No	Block	Yes
CH-32	Doan Brook	32	4	13%	Block	No	Block	No	Block	No	Block	Yes
CH-33	Doan Brook	32	10	31%	Block	No	Block	Yes	Block	No	Block	Yes
CH-35	Doan Brook	32	11	34%	Block	No	Block	Yes	Block	No	Block	Yes
CH-36	Doan Brook	32	4	13%	Block	No	Block	Yes	Block	No	Block	No
CH-37	Doan Brook	32	4	13%	Block	No	Block	Yes	Block	No	Block	No
CH-38	Doan Brook	32	2	6%	Block	No	Block	No	Block	No	Block	No
CH-39	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-42	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-45	**Doan Brook**	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-46	Doan Brook	32	5	16%	Block	No	Block	Yes	Block	No	Block	Yes
CH-47	Doan Brook	32	2	6%	Block	No	Block	No	Block	No	Block	No
CH-49	**Doan Brook**	32	2	6%	Block	No	Block	No	Block	No	Block	No
CH-50	Doan Brook	32	9	28%	Block	No	Block	Yes	Block	No	Block	Yes
CH-51	**Nine Mile**	32	14	44%	Block	Yes	Block	Yes	Block	No	Block	No
CH-52	Dugway Brook	30	0	0%	Block	No	Block	No	Block	No	Block	No
CH-54	Doan Brook	25	0	0%	Block	No	Block	No	Block	No	Block	No
CH-55	**Nine Mile**	20	1	5%	Block	No	Block	Yes	Block	No	Block	No
CH-56	**Dugway Brook**	8	6	75%	-	-	-	-	-	-	-	-
CH-57	**Doan Brook**	11	3	27%	-	-	-	-	-	-	-	-
CH-58	Doan Brook	11	0	0%	-	-	-	-	-	-	-	-
CH-59	Dugway Brook	11	1	9%	-	-	-	-	-	-	-	-
CH-60	Dugway Brook	11	0	0%	-	-	-	-	-	-	-	-
CH-61	**Doan Brook**	11	2	18%	-	-	-	-	-	-	-	-

District's Shaker Heights (SH), South Euclid (SE) and University Heights (UH) rain gauges were used as denoted.

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					Event 17		Event 18		Event 19		Event 20	
					6/24/2019		7/20/2019		7/30/2019		8/6/2019	
					1.36 in (UH)	0.82 in/hr (UH)	0.44 in (UH)	0.29 in/hr (UH)	0.85 in (UH)	0.73 in/hr (UH)	1.15 in (UH)	0.56 in/hr (UH)
					1.64 in (SH)	1.07 in/hr (SH)	0.03 in (SH)	0.02 in/hr (SH)	0.19 in (SH)	0.15 in/hr (SH)	1.48 in (SH)	0.81 in/hr (SH)
					0.86 in (SE)	0.41 in/hr (SE)	0.70 in (SE)	0.36 in/hr (SE)	0.64 in (SE)	0.46 in/hr (SE)	1.15 in (SE)	0.62 in/hr (SE)
SSO	Receiving Stream	# of Monitored Events	# of Recorded Activations	% of Events with Activation	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?
CH-1	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-2	Doan Brook	32	1	3%	Block	No	Block	Yes	Block	No	Block	No
CH-3	Doan Brook	32	0	0%	Block	No	Block	No	Block	No	Block	No
CH-4	Doan Brook	32	1	3%	Block	No	Block	Yes	Block	No	Block	No
CH-5	Doan Brook	24	1	4%	Block	No	Block	No	Block	No	Block	No
CH-6	Doan Brook	24	0	0%	Block	No	Block	No	Block	No	Block	No
CH-7	Doan Brook	24	0	0%	Block	No	Block	No	Block	No	Block	No
CH-9	**Doan Brook**	32	19	59%	Block	Yes	Block	Yes	Block	No	Block	Yes
CH-10	Dugway Brook	32	0	0%	Block	No	Block	No	Block	No	Block	No
CH-11	Dugway Brook	32	3	9%	Block	No	Block	No	Block	No	Block	No
CH-12	Dugway Brook	32	9	28%	Block	No	Block	No	Block	Yes	Block	Yes
CH-13	Doan Brook	32	5	16%	Block	No	Block	Yes	Block	Yes	Block	No
CH-15	Doan Brook	31	1	3%	Block	No	Block	No	Block	No	Block	No
CH-17	Dugway Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-22	9 Mile Creek	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-23	Dugway Brook	32	1	3%	Block	No	Block	Yes	Block	No	Block	No
CH-24	Dugway Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-25	Dugway Brook	31	9	29%	Block	Yes	Block	Yes	Block	No	Block	No
CH-26	Dugway Brook	32	6	19%	Block	No	Block	Yes	Block	No	Block	No
CH-27	9 Mile Creek	32	7	22%	Block	Yes	Block	Yes	Block	No	Block	No
CH-28	**Dugway Brook**	32	13	41%	Block	No	Block	No	Block	Yes	Block	Yes
CH-30	**Dugway Brook**	31	18	58%	Block	Yes	Block	Yes	Block	No	Block	No
CH-32	Doan Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-33	Doan Brook	32	10	31%	Block	Yes	Block	No	Block	No	Block	Yes
CH-35	Doan Brook	32	11	34%	Block	Yes	Block	No	Block	No	Block	No
CH-36	Doan Brook	32	4	13%	Block	No	Block	Yes	Block	No	Block	No
CH-37	Doan Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-38	Doan Brook	32	2	6%	Block	No	Block	No	Block	No	Block	No
CH-39	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-42	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No
CH-45	**Doan Brook**	32	4	13%	Block	No	Block	No	Block	No	Block	No
CH-46	Doan Brook	32	5	16%	Block	No	Block	Yes	Block	No	Block	No
CH-47	Doan Brook	32	2	6%	Block	Yes	Block	No	Block	No	Block	No
CH-49	**Doan Brook**	32	2	6%	Block	No	Block	No	Block	No	Block	No
CH-50	Doan Brook	32	9	28%	Block	Yes	Block	No	Block	No	Block	No
CH-51	**Nine Mile**	32	14	44%	Block	No	Block	Yes	Block	No	Block	No
CH-52	Dugway Brook	30	0	0%	Block	No	Block	No	Block	No	Block	No
CH-54	Doan Brook	25	0	0%	Block	No	Block	No	Block	No	Block	No
CH-55	**Nine Mile**	20	1	5%	Block	No	Block	No	Block	No	Block	No
CH-56	**Dugway Brook**	8	6	75%	-	-	-	-	-	-	-	-
CH-57	**Doan Brook**	11	3	27%	-	-	-	-	-	-	-	-
CH-58	Doan Brook	11	0	0%	-	-	-	-	-	-	-	-
CH-59	Dugway Brook	11	1	9%	-	-	-	-	-	-	-	-
CH-60	Dugway Brook	11	0	0%	-	-	-	-	-	-	-	-
CH-61	**Doan Brook**	11	2	18%	-	-	-	-	-	-	-	-

District's Shaker Heights (SH), South Euclid (SE) and University Heights (UH) rain gauges were used as denoted.

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					Event 21		Event 22		Event 23		Event 24		Event 25	
					8/18/2019		9/11/2019		9/13/2019		10/12/2019		10/16/2019	
					0.59 in (UH)	0.54 in/hr (UH)	1.13 in (UH)	0.73 in/hr (UH)	1.67 in (UH)	1.28 in/hr (UH)	0.41 in (UH)	0.14 in/hr (UH)	0.90 in (UH)	0.26 in/hr (UH)
					0.43 in (SH)	0.39 in/hr (SH)	0.30 in (SH)	0.17 in/hr (SH)	2.13 in (SH)	1.85 in/hr (SH)	0.28 in (SH)	0.12 in/hr (SH)	0.88 in (SH)	0.24 in/hr (SH)
					0.64 in (SE)	0.37 in/hr (SE)	0.97 in (SE)	0.81 in/hr (SE)	0.91 in (SE)	0.67 in/hr (SE)	0.55 in (SE)	0.16 in/hr (SE)	0.92 in (SE)	0.25 in/hr (SE)
SSO	Receiving Stream	# of Monitored Events	# of Recorded Activations	% of Events with Activation	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?
CH-1	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-2	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-3	Doan Brook	32	0	0%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-4	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-5	Doan Brook	24	1	4%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-6	Doan Brook	24	0	0%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-7	Doan Brook	24	0	0%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-9	**Doan Brook**	32	19	59%	Block	No	Flow Meter	Yes	Flow Meter	Yes	Flow Meter	No	Flow Meter	Yes
CH-10	Dugway Brook	32	0	0%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-11	Dugway Brook	32	3	9%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-12	Dugway Brook	32	9	28%	Block	Yes	Block	Yes	Block	Yes	Block	No	Block	No
CH-13	Doan Brook	32	5	16%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-15	Doan Brook	31	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-17	Dugway Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-22	9 Mile Creek	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-23	Dugway Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-24	Dugway Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-25	Dugway Brook	31	9	29%	Block	No	Block	Yes	Block	Yes	Not Checked	-	Block	No
CH-26	Dugway Brook	32	6	19%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-27	9 Mile Creek	32	7	22%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-28	**Dugway Brook**	32	13	41%	Block	Yes	Flow Meter	No	Flow Meter	No	Flow Meter	No	Flow Meter	No
CH-30	**Dugway Brook**	31	18	58%	Not Checked	-	Flow Meter	Yes	Flow Meter	Yes	Flow Meter	No	Flow Meter	Yes
CH-32	Doan Brook	32	4	13%	Block	No	Block	No	Block	No	Block	Yes	Block	No
CH-33	Doan Brook	32	10	31%	Block	No	Block	Yes	Block	Yes	Block	No	Block	No
CH-35	Doan Brook	32	11	34%	Block	No	Block	Yes	Block	Yes	Block	No	Block	No
CH-36	Doan Brook	32	4	13%	Block	No	Block	Yes	Block	Yes	Block	No	Block	No
CH-37	Doan Brook	32	4	13%	Block	No	Block	No	Block	Yes	Block	No	Block	No
CH-38	Doan Brook	32	2	6%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-39	Doan Brook	32	1	3%	Block	No	Block	No	Block	Yes	Block	No	Block	No
CH-42	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-45	**Doan Brook**	32	4	13%	Block	No	Flow Meter	Yes	Flow Meter	Yes	Flow Meter	No	Flow Meter	No
CH-46	Doan Brook	32	5	16%	Block	No	Block	No	Block	Yes	Block	No	Block	No
CH-47	Doan Brook	32	2	6%	Block	No	Block	No	Block	Yes	Block	No	Block	No
CH-49	**Doan Brook**	32	2	6%	Block	No	Flow Meter	No	Flow Meter	Yes	Flow Meter	No	Flow Meter	No
CH-50	Doan Brook	32	9	28%	Block	No	Block	Yes	Block	Yes	Block	No	Block	No
CH-51	**Nine Mile**	32	14	44%	Block	No	Flow Meter	Yes	Flow Meter	Yes	Flow Meter	No	Flow Meter	Yes
CH-52	Dugway Brook	30	0	0%	Block	No	Block	No	Not Checked	-	Block	No	Block	No
CH-54	Doan Brook	25	0	0%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-55	**Nine Mile**	20	1	5%	Block	No	Block	No	Block	No	Block	No	Block	No
CH-56	**Dugway Brook**	8	6	75%	-	-	Flow Meter	No	Flow Meter	No	Flow Meter	Yes	Flow Meter	Yes
CH-57	**Doan Brook**	11	3	27%	-	-	Flow Meter	Yes	Flow Meter	Yes	Flow Meter	No	Flow Meter	No
CH-58	Doan Brook	11	0	0%	-	-	Block	No	Block	No	Block	No	Block	No
CH-59	Dugway Brook	11	1	9%	-	-	Block	No	Block	No	Block	No	Block	No
CH-60	Dugway Brook	11	0	0%	-	-	Block	No	Block	No	Block	No	Block	No
CH-61	**Doan Brook**	11	2	18%	-	-	Flow Meter	Yes	Flow Meter	Yes	Flow Meter	No	Flow Meter	No

District's Shaker Heights (SH), South Euclid (SE) and University Heights (UH) rain gauges were used as denoted.

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					Event 26		Event 27		Event 28		Event 29		Event 30		Event 31	
					10/26/2019		10/31/2019		11/11/2019		12/1/2019		12/9/2019		12/14/2019	
					0.52 in (UH)	0.13 in/hr (UH)	0.92 in (UH)	0.19 in/hr (UH)	0.56 in (UH)	0.15 in/hr (UH)	0.62 in (UH)	0.3 in/hr (UH)	0.45 in (UH)	0.09 in/hr (UH)	0.51 in (UH)	0.1
					0.53 in (SH)	0.13 in/hr (SH)	0.95 in (SH)	0.2 in/hr (SH)	0.59 in (SH)	0.15 in/hr (SH)	0.59 in (SH)	0.2 in/hr (SH)	0.52 in (SH)	0.1 in/hr (SH)	0.52 in (SH)	0.1
SSO	Receiving Stream	# of Monitored Events	# of Recorded Activations	% of Events with Activation	0.67 in (SE)	0.19 in/hr (SE)	1.12 in (SE)	0.25 in/hr (SE)	0.68 in (SE)	0.18 in/hr (SE)	0.56 in (SE)	0.27 in/hr (SE)	0.47 in (SE)	0.11 in/hr (SE)	0.54 in (SE)	0.11
					Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activation Y/N?	Tethered Block or Flow Meter	Activ
CH-1	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-2	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-3	Doan Brook	32	0	0%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-4	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-5	Doan Brook	24	1	4%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-6	Doan Brook	24	0	0%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-7	Doan Brook	24	0	0%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-9	**Doan Brook**	32	19	59%	Flow Meter	No	Flow Meter	Yes	Flow Meter	No	Flow Meter	Yes	Block	Yes	Block	
CH-10	Dugway Brook	32	0	0%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-11	Dugway Brook	32	3	9%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-12	Dugway Brook	32	9	28%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-13	Doan Brook	32	5	16%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-15	Doan Brook	31	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-17	Dugway Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No	Block	Yes	Block	
CH-22	9 Mile Creek	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-23	Dugway Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-24	Dugway Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-25	Dugway Brook	31	9	29%	Block	No	Block	No	Block	No	Block	Yes	Block	Yes	Block	
CH-26	Dugway Brook	32	6	19%	Block	No	Block	No	Block	No	Block	Yes	Block	No	Block	
CH-27	9 Mile Creek	32	7	22%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-28	**Dugway Brook**	32	13	41%	Flow Meter	No	Flow Meter	Yes	Flow Meter	No	Flow Meter	Yes	Block	No	Block	
CH-30	**Dugway Brook**	31	18	58%	Flow Meter	No	Flow Meter	Yes	Flow Meter	No	Flow Meter	Yes	Block	Yes	Block	
CH-32	Doan Brook	32	4	13%	Block	No	Block	No	Block	No	Block	Yes	Block	No	Block	
CH-33	Doan Brook	32	10	31%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-35	Doan Brook	32	11	34%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-36	Doan Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-37	Doan Brook	32	4	13%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-38	Doan Brook	32	2	6%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-39	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-42	Doan Brook	32	1	3%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-45	**Doan Brook**	32	4	13%	Flow Meter	No	Flow Meter	No	Flow Meter	No	Flow Meter	No	Block	No	Block	
CH-46	Doan Brook	32	5	16%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-47	Doan Brook	32	2	6%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-49	**Doan Brook**	32	2	6%	Flow Meter	No	Flow Meter	No	Flow Meter	No	Flow Meter	No	Block	Yes	Block	
CH-50	Doan Brook	32	9	28%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-51	**Nine Mile**	32	14	44%	Flow Meter	Yes	Flow Meter	Yes	Flow Meter	Yes	Flow Meter	Yes	Block	No	Block	
CH-52	Dugway Brook	30	0	0%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-54	Doan Brook	25	0	0%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-55	**Nine Mile**	20	1	5%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-56	**Dugway Brook**	8	6	75%	Flow Meter	Yes	Flow Meter	Yes	Flow Meter	Yes	Flow Meter	Yes	Not Checked	-	Not Checked	
CH-57	**Doan Brook**	11	3	27%	Flow Meter	No	Flow Meter	Yes	Flow Meter	No	Flow Meter	No	Block	No	Block	
CH-58	Doan Brook	11	0	0%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-59	Dugway Brook	11	1	9%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-60	Dugway Brook	11	0	0%	Block	No	Block	No	Block	No	Block	No	Block	No	Block	
CH-61	**Doan Brook**	11	2	18%	Flow Meter	No	Flow Meter	No	Flow Meter	No	Flow Meter	No	Block	No	Block	

District's Shaker Heights (SH), South Euclid (SE) and University Heights (UH) rain gauges were used as denoted.

2019 Real time monitoring of SSOs conducted from September 4, 2019 to

						Event 32			
						12/30/2019			
					in/hr (UH)	0.42	in (UH)	0.12	in/hr (UH)
					in/hr (SH)	0.49	in (SH)	0.13	in/hr (SH)
SSO	Receiving Stream	# of Monitored Events	# of Recorded Activations	% of Events with Activation	in/hr (SE) ation Y/N?	0.47 Tethered Block or Flow Meter	in (SE)	0.12 Activation Y/N?	in/hr (SE)
CH-1	Doan Brook	32	1	3%	No	Block		No	
CH-2	Doan Brook	32	1	3%	No	Block		No	
CH-3	Doan Brook	32	0	0%	No	Block		No	
CH-4	Doan Brook	32	1	3%	No	Block		No	
CH-5	Doan Brook	24	1	4%	No	Block		No	
CH-6	Doan Brook	24	0	0%	No	Block		No	
CH-7	Doan Brook	24	0	0%	No	Block		No	
CH-9	**Doan Brook**	32	19	59%	No	Block		Yes	
CH-10	Dugway Brook	32	0	0%	No	Block		No	
CH-11	Dugway Brook	32	3	9%	No	Block		No	
CH-12	Dugway Brook	32	9	28%	No	Block		No	
CH-13	Doan Brook	32	5	16%	No	Block		Yes	
CH-15	Doan Brook	31	1	3%	No	Not Checked		-	
CH-17	Dugway Brook	32	4	13%	No	Block		Yes	
CH-22	9 Mile Creek	32	1	3%	No	Block		No	
CH-23	Dugway Brook	32	1	3%	No	Block		No	
CH-24	Dugway Brook	32	1	3%	No	Block		No	
CH-25	Dugway Brook	31	9	29%	No	Block		Yes	
CH-26	Dugway Brook	32	6	19%	No	Block		No	
CH-27	9 Mile Creek	32	7	22%	No	Block		No	
CH-28	**Dugway Brook**	32	13	41%	Yes	Block		No	
CH-30	**Dugway Brook**	31	18	58%	No	Block		Yes	
CH-32	Doan Brook	32	4	13%	No	Block		No	
CH-33	Doan Brook	32	10	31%	No	Block		No	
CH-35	Doan Brook	32	11	34%	No	Block		Yes	
CH-36	Doan Brook	32	4	13%	No	Block		No	
CH-37	Doan Brook	32	4	13%	No	Block		No	
CH-38	Doan Brook	32	2	6%	No	Block		Yes	
CH-39	Doan Brook	32	1	3%	No	Block		No	
CH-42	Doan Brook	32	1	3%	Yes	Block		No	
CH-45	**Doan Brook**	32	4	13%	No	Block		Yes	
CH-46	Doan Brook	32	5	16%	No	Block		Yes	
CH-47	Doan Brook	32	2	6%	No	Block		No	
CH-49	**Doan Brook**	32	2	6%	No	Block		No	
CH-50	Doan Brook	32	9	28%	No	Block		Yes	
CH-51	**Nine Mile**	32	14	44%	Yes	Block		No	
CH-52	Dugway Brook	30	0	0%	No	Not Checked		-	
CH-54	Doan Brook	25	0	0%	No	Block		No	
CH-55	**Nine Mile**	20	1	5%	No	Block		No	
CH-56	**Dugway Brook**	8	6	75%	-	Not Checked		-	
CH-57	**Doan Brook**	11	3	27%	No	Block		No	
CH-58	Doan Brook	11	0	0%	No	Block		No	
CH-59	Dugway Brook	11	1	9%	Yes	Block		No	
CH-60	Dugway Brook	11	0	0%	No	Block		No	
CH-61	**Doan Brook**	11	2	18%	No	Block		No	

District's Shaker Heights (SH), South Euclid (SE) and University Heights (UH) rain gauges were used as denoted.

2019 Real time monitoring of SSOs conducted from September 4, 2019 to

APPENDIX C – 2019 CLEVELAND HEIGHTS CUSTOMER CALLS

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Address	Street Name	Date 1	Comments	Date 2
3349	ALTAMONT AVE	1/17/2019		
3244	ANDREWS RD	1/7/2019		
3539	ANTISDALE AVE	5/31/2019		
3654	ANTISDALE AVE	10/31/2019		
2481	ARLINGTON RD	5/24/2019	Gravity Mains	
2589	ARLINGTON RD	4/30/2019		
2611	ASHTON RD	5/3/2019		
3667	ATHERSTONE RD	1/9/2019		12/19/2019
2863	AVONDALE AVE	5/2/2019		
3495	BAINBRIDGE RD	8/30/2019		
3513	BAINBRIDGE RD	7/12/2019		
3603	BAINBRIDGE RD	10/10/2019		
3639	BAINBRIDGE RD	3/19/2019		5/1/2019
3654	BAINBRIDGE RD	12/6/2019		
3692	BAINBRIDGE RD	9/5/2019		12/27/2019
3754	BAINBRIDGE RD	12/20/2019		
3755	BAINBRIDGE RD	2/13/2019		12/9/2019
3364	BEECHWOOD AVE	10/7/2019		
2175	BELLFIELD AVE	9/18/2019		
2217	BELLFIELD AVE	3/20/2019		
3485	BENDEMEER RD	4/17/2019		
3488	BENDEMEER RD	10/24/2019		
3492	BENDEMEER RD	5/9/2019		
3500	BENDEMEER RD	1/25/2019		
3545	BENDEMEER RD	5/13/2019		
3555	BENDEMEER RD	4/12/2019	Gravity Mains	
3563	BENDEMEER RD	1/11/2019		
3569	BENDEMEER RD	5/3/2019		
3592	BENDEMEER RD	2/4/2019	Jet Lateral	
3594	BENDEMEER RD	2/2/2019		
3614	BENDEMEER RD	3/31/2019		
3644	BENDEMEER RD	6/14/2019		
3684	BENDEMEER RD	1/25/2019		
3689	BENDEMEER RD	4/29/2019	Jet Lateral	
3508	BERKELEY RD	1/7/2019	Gravity Mains	
3562	BERKELEY RD	6/3/2019		7/29/2019
3657	BERKELEY RD	12/18/2019		
3709	BERKELEY RD	5/2/2019		
3729	BERKELEY RD	1/17/2019		7/9/2019
3804	BERKELEY RD	7/26/2019		
2847	BERKSHIRE RD	9/17/2019		
2861	BERKSHIRE RD	3/25/2019		4/9/2019
2980	BERKSHIRE RD	12/19/2019		
3059	BERKSHIRE RD	7/10/2019		7/12/2019

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Address	Street Name	Date 1	Comments	Date 2
958	BEVERLY RD	3/28/2019		8/13/2019
3360	BLANCHE AVE	4/24/2019		
3364	BLANCHE AVE	2/19/2019		
3372	BLANCHE AVE	3/12/2019		
3373	BLANCHE AVE	9/18/2019		9/26/2019
3377	BLANCHE AVE	9/18/2019		
3383	BLANCHE AVE	9/20/2019		
3424	BLANCHE AVE	5/3/2019		
3437	BLANCHE AVE	7/30/2019		8/12/2019
3492	BLANCHE AVE	8/26/2019		
3528	BLANCHE AVE	12/19/2019		
3571	BLANCHE AVE	5/31/2019		
3576	BLANCHE AVE	6/5/2019		
3971	BLUESTONE RD	1/8/2019		5/9/2019
4045	BLUESTONE RD	6/17/2019		
2522	BOLTON RD	9/17/2019		
3550	BOYNTON RD	9/9/2019		
3426	BRADFORD RD	8/19/2019		
1123	BRANDON RD	2/5/2019		4/26/2019
1164	BRANDON RD	7/1/2019		
1170	BRANDON RD	4/2/2019		
3584	BRINKMORE RD	4/9/2019		
3665	BRINKMORE RD	7/12/2019		
3672	BRINKMORE RD	5/9/2019		
3657	BURBRIDGE RD	1/22/2019		
1317	BURLINGTON RD	6/7/2019		
1482	BURLINGTON RD	4/17/2019	Gravity Mains	
1514	BURLINGTON RD	5/6/2019		
867	CALEDONIA AVE	2/15/2019		12/2/2019
843	CAMBRIDGE RD	11/1/2019		
968	CAMBRIDGE RD	6/7/2019		
2618	CANTERBURY RD	10/10/2019		
2632	CANTERBURY RD	8/14/2019		
1126	CASTLETON RD	4/8/2019		5/2/2019
1178	CASTLETON RD	12/5/2019		
1218	CASTLETON RD	6/17/2019		11/20/2019
12660	CEDAR RD	12/20/2019		
12717	CEDAR RD	4/26/2019		
12783	CEDAR RD	1/25/2019	Gravity Mains	
13032	CEDAR RD	5/21/2019		
13394	CEDAR RD	9/19/2019		
2228	CHATFIELD DR	7/30/2019		
1134	CLEVELAND HEIGHTS BLVD	10/3/2019		
1319	CLEVELAND HEIGHTS BLVD	4/7/2019		

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1325	CLEVELAND HEIGHTS BLVD	3/18/2019		
1335	CLEVELAND HEIGHTS BLVD	11/18/2019		
1384	CLEVELAND HEIGHTS BLVD	9/24/2019		
2971	COLCHESTER RD	2/11/2019		
2971	COLERIDGE RD	2/11/2019	Preventative Maintenance	4/9/2019
3054	COLERIDGE RD	10/31/2019		
3101	COLERIDGE RD	10/28/2019		
1525	COMPTON RD	5/13/2019		
1541	COMPTON RD	10/17/2019	Odor Complaint	
1554	COMPTON RD	8/16/2019		
1634	COMPTON RD	1/17/2019		
1640	COMPTON RD	7/5/2019		
3134	CORYDON RD	5/10/2019		
2184	COTTAGE GROVE DR	10/7/2019		
1651	COVENTRY RD	9/19/2019		
1710	COVENTRY RD	11/22/2019		
1846	COVENTRY RD	3/11/2019		
2248	COVENTRY RD	5/31/2019		6/26/2019
2288	COVENTRY RD	4/21/2019		
1495	CREST RD	1/2/2019		
1516	CREST RD	6/7/2019		
1533	CREST RD	5/6/2019		
1597	CREST RD	2/13/2019		
3518	CUMMINGS RD	1/8/2019		3/18/2019
3519	CUMMINGS RD	9/27/2019	Jet Lateral	
3522	CUMMINGS RD	2/12/2019		7/8/2019
3542	CUMMINGS RD	2/26/2019		4/8/2019
3582	CUMMINGS RD	4/15/2019		
2290	DELAWARE DR	1/7/2019		
3259	DELLWOOD RD	2/20/2019		
3277	DELLWOOD RD	12/20/2019		
3949	DELMORE RD	1/2/2019		
3987	DELMORE RD	11/27/2019		
2145	DEMINGTON DR	5/21/2019		
2214	DEMINGTON DR	10/10/2019		
2445	DERBYSHIRE RD	1/23/2019		9/12/2019
2457	DERBYSHIRE RD	10/21/2019		
3236	DESOTA AVE	4/12/2019		
3390	DESOTA AVE	3/11/2019		
3392	DESOTA AVE	10/21/2019		
3424	DESOTA AVE	10/21/2019		
2957	E DERBYSHIRE RD	4/19/2019		10/7/2019
3023	E DERBYSHIRE RD	10/31/2019		
3030	E DERBYSHIRE RD	7/22/2019		

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3061	E DERBYSHIRE RD	11/22/2019		
3317	E MONMOUTH RD	4/10/2019		
2908	E OVERLOOK RD	3/6/2019		
1677	EDDINGTON RD	8/9/2019		
2545	EDGEHILL RD	1/11/2019		1/18/2019
2822	EDGEHILL RD	4/1/2019		
2973	EDGEHILL RD	1/25/2019		
634	EDGERLY RD	12/19/2019		
3487	EDISON RD	5/24/2019		
4019	ELMWOOD RD	1/9/2019		
872	ELOISE DR	1/10/2019		
1163	ERIEVIEW RD	7/25/2019		
2915	EUCLID HEIGHTS BLVD	2/7/2019		3/25/2019
3027	EUCLID HEIGHTS BLVD	4/24/2019		
3125	EUCLID HEIGHTS BLVD	3/19/2019		
3335	EUCLID HEIGHTS BLVD	9/19/2019		10/31/2019
3356	EUCLID HEIGHTS BLVD	5/3/2019		5/20/2019
3357	EUCLID HEIGHTS BLVD	1/9/2019	Gravity Main Break	
3443	EUCLID HEIGHTS BLVD	8/8/2019		
2865	FAIRFAX RD	10/31/2019		
3065	FAIRFAX RD	5/10/2019		
3085	FAIRMOUNT BLVD	4/1/2019		
3380	FAIRMOUNT BLVD	4/16/2019		
3470	FAIRMOUNT BLVD	1/7/2019		
3561	FENLEY RD	2/25/2019		
3709	FENLEY RD	4/16/2019		
1699	GLENMONT	6/26/2019		
3777	GLENWOOD RD	8/23/2019		
3808	GLENWOOD RD	9/6/2019		
2240	GRANDVIEW AVE	5/31/2019		11/25/2019
2256	GRANDVIEW AVE	3/7/2019		
2295	GRANDVIEW AVE	9/17/2019		
860	GREYTON RD	2/25/2019		11/27/2019
1028	GREYTON RD	3/27/2019		
1036	GREYTON RD	7/15/2019		
3636	GROSVENOR RD	5/10/2019		5/22/2019
2642	HAMPSHIRE RD	6/14/2019		
2997	HAMPSHIRE RD	1/16/2019		
833	HELMSDALE RD	4/2/2019		4/11/2019
921	HELMSDALE RD	1/18/2019		
1030	HEREFORD RD	6/17/2019		8/23/2019
1107	HILLSTONE RD	4/4/2019		
3405	HOLLISTER RD	8/13/2019		
3320	HYDE PARK AVE	7/29/2019		

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3328	HYDE PARK AVE	10/24/2019		
1400	INGLEWOOD DR	8/21/2019		
1324	INGLEWOOD RD	10/24/2019		
1667	IVYDALE RD	1/2/2019		
2514	KENILWORTH RD	6/4/2019		
978	KEYSTONE DR	4/25/2019		
3373	KILDARE RD	9/23/2019		
2533	KINGSTON RD	4/12/2019		
2592	KINGSTON RD	2/4/2019		
2649	KINGSTON RD	6/18/2019		
3609	LANGTON RD	9/24/2019		
3656	LANGTON RD	6/24/2019		9/13/2019
3712	LANGTON RD	3/13/2019		
2271	LEE BLVD	11/17/2019		
1664	LEE RD	2/2/2019		
1722	LEE RD	3/13/2019		10/7/2019
2383	LEE RD	1/24/2019		
3015	LINCOLN BLVD	5/22/2019		
3050	LINCOLN BLVD	11/15/2019		
1151	MAPLE RD	11/26/2019		
1591	MAPLE RD	7/3/2019		
2176	MAPLEWOOD RD	6/10/2019		
2197	MAPLEWOOD RD	12/27/2019		
3378	MAYFIELD RD	4/12/2019		
3278	MEADOWBROOK BLVD	2/20/2019		
3366	MEADOWBROOK BLVD	9/20/2019	Jet Lateral	
3388	MEADOWBROOK BLVD	6/10/2019		9/23/2019
3438	MEADOWBROOK BLVD	7/29/2019		8/7/2019
3477	MEADOWBROOK BLVD	8/26/2019		
860	MEDFORD RD	9/20/2019		9/26/2019
3070	MONMOUTH RD	8/14/2019		
868	MONTFORD RD	8/1/2019		
3123	MONTICELLO BLVD	5/28/2019		
3124	MONTICELLO BLVD	2/14/2019		
3426	MONTICELLO BLVD	3/7/2019		
3455	MONTICELLO BLVD	2/25/2019		9/19/2019
3656	MONTICELLO BLVD	4/26/2019	Jet Lateral	
3797	MONTICELLO BLVD	8/5/2019		
3929	MONTICELLO BLVD	2/19/2019		
3958	MONTICELLO BLVD	5/17/2019		
4037	MONTICELLO BLVD	7/18/2019		7/22/2019
1100	MT VERNON BLVD	6/26/2019		
1130	MT VERNON BLVD	2/27/2019		4/10/2019
3355	N PARK BLVD	8/7/2019		

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Address	Street Name	Date 1	Comments	Date 2
2307	N ST JAMES PKWY	8/21/2019		
908	NELA VIEW RD	2/26/2019		
1529	NOBLE RD	8/27/2019		
2323	NOBLE RD	10/25/2019		
2452	NOBLE RD	11/22/2019		
2809	NOBLE RD	5/7/2019		5/24/2019
931	NOBLESHIRE RD	9/26/2019		
2581	NORFOLK RD	8/13/2019		
3752	NORTHAMPTON RD	2/26/2019		
3779	NORTHAMPTON RD	8/8/2019		10/17/2019
3791	NORTHAMPTON RD	2/8/2019		
3971	NORTHAMPTON RD	2/9/2019	Jet Lateral	
3567	NORTHVALE BLVD	5/6/2019		5/9/2019
3668	NORTHVALE BLVD	10/28/2019		
3156	OAK RD	5/1/2019	Gravity Mains	
3198	OAK RD	12/29/2019		
3201	OAK RD	11/29/2019		
1286	OAKRIDGE DR	11/4/2019		
	Oakwood Country Club	1/8/2019	Jet Lateral	
3995	ORCHARD RD	8/22/2019		
3283	ORMOND RD	2/8/2019		4/22/2019
3287	ORMOND RD	1/25/2019		
3317	ORMOND RD	1/3/2019		11/25/2019
2404	OVERLOOK RD	4/4/2019	Gravity Mains	
3800	PARKDALE RD	11/4/2019		
1008	PEMBROOK RD	4/1/2019		
1048	PEMBROOK RD	1/11/2019		
1720	PREYER AVE	6/14/2019		
2559	PRINCETON RD	8/8/2019		
2562	PRINCETON RD	9/13/2019		
2588	PRINCETON RD	4/29/2019		
2632	PRINCETON RD	5/1/2019		
2437	QUEENSTON RD	6/17/2019		
2444	QUEENSTON RD	4/22/2019		
2459	QUEENSTON RD	7/26/2019		
2489	QUEENSTON RD	11/1/2019		
2591	QUEENSTON RD	6/14/2019		
2592	QUEENSTON RD	7/24/2019		
2629	QUEENSTON RD	3/26/2019		
788	QUILLIAMS RD	8/14/2019		
870	QUILLIAMS RD	12/5/2019		
940	QUILLIAMS RD	6/5/2019		
1020	QUILLIAMS RD	5/17/2019		
1763	RADNOR RD	10/21/2019		

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3541	RANDOLPH RD	4/23/2019		
3240	REDWOOD RD	3/18/2019		7/29/2019
1976	REVERE RD	8/26/2019		
995	ROANOKE RD	4/23/2019		
3941	ROSEMOND RD	9/17/2019		
3990	ROSSMOOR RD	1/24/2019		
2330	ROXBORO RD	10/24/2019		
2362	ROXBORO RD	10/24/2019		
3193	RUMSON RD	3/25/2019		
3312	RUMSON RD	7/9/2019		
3380	RUMSON RD	2/5/2019		6/18/2019
3405	RUMSON RD	6/14/2019		
3562	RUNNYMEDE BLVD	5/24/2019		
3578	RUNNYMEDE BLVD	4/5/2019		
3642	RUNNYMEDE BLVD	3/12/2019		
1097	RUSHLEIGH RD	3/28/2019		
1564	RYDALMOUNT RD	6/19/2019		
1568	RYDALMOUNT RD	4/25/2019		
1602	RYDALMOUNT RD	7/15/2019		
1497	S NOBLE RD	2/11/2019		
2991	S OVERLOOK RD	10/25/2019		
1564	S TAYLOR RD	3/8/2019		11/15/2019
2645	S TAYLOR RD	5/21/2019		
3006	SCARBOROUGH RD	9/27/2019		
892	SELWYN RD	7/15/2019	Jet Lateral	9/13/2019
40	SEVERANCE CIR	1/16/2019		9/24/2019
3471	SEVERN RD	9/27/2019		
3535	SEVERN RD	12/30/2019		
3747	SEVERN RD	4/25/2019		
2576	SHAKER RD	1/24/2019		
3475	SHANNON RD	7/31/2019		8/5/2019
3484	SHANNON RD	5/10/2019		
3564	SHANNON RD	5/30/2019		
3613	SHANNON RD	11/4/2019		
3637	SHANNON RD	2/12/2019		
3643	SHANNON RD	11/18/2019		
3649	SHANNON RD	9/13/2019		9/24/2019
3653	SHANNON RD	1/9/2019		
3661	SHANNON RD	7/24/2019		8/27/2019
3719	SHANNON RD	6/14/2019	Odor Complaint	
3769	SHANNON RD	7/24/2019		
3794	SHANNON RD	10/17/2019		
17430	SHELBURNE RD	4/4/2019		11/14/2019
2959	SOMERTON RD	5/10/2019		

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2982	SOMERTON RD	1/18/2019		
2190	SOUTH OVERLOOK	1/24/2019		
3462	ST ALBANS RD	11/25/2019		
3514	ST ALBANS RD	1/3/2019		
1962	STAUNTON RD	3/20/2019		
2199	STILLMAN	7/17/2019		
2205	STILLMAN RD	11/22/2019		
3626	STONELEIGH RD	8/15/2019		
3705	STONELEIGH RD	3/29/2019		
2467	STRATFORD RD	10/3/2019		
3367	SUPERIOR PARK DR	2/4/2019		
14200	SUPERIOR RD	1/9/2019	Jet Lateral	2/28/2019
14422	SUPERIOR RD	2/13/2019		
14433	SUPERIOR RD	3/6/2019		
14437	SUPERIOR RD	7/1/2019		
3325	SYLVANHURST RD	10/25/2019		
3395	SYLVANHURST RD	7/22/2019		
1199	SYLVANIA RD	5/13/2019		
3807	TREMONT RD	5/22/2019		
2375	TUDOR DR	6/7/2019		
3280	TULLAMORE RD	7/30/2019		
2688	W ST JAMES PKWY	8/8/2019		
2849	WASHINGTON BLVD	2/12/2019		
3018	WASHINGTON BLVD	1/16/2019		
3044	WASHINGTON BLVD	6/5/2019		
3057	WASHINGTON BLVD	6/5/2019		
3271	WASHINGTON BLVD	9/6/2019		
3338	WASHINGTON BLVD	9/18/2019		
3573	WASHINGTON BLVD	6/18/2019		
2584	WELLINGTON RD	12/9/2019		
1420	WESTOVER RD	5/2/2019		
1519	WOOD RD	8/6/2019		
2268	WOODMERE DR	4/8/2019		
3424	WOODRIDGE RD	1/8/2019		
816	WOODVIEW RD	12/5/2019		
1040	WOODVIEW RD	5/17/2019		
971	YELLOWSTONE RD	9/23/2019		
1141	YELLOWSTONE RD	8/20/2019		
1364	YELLOWSTONE RD	6/10/2019		
3299	YORKSHIRE RD	3/18/2019		

APPENDIX D – SEWER DEPARTMENT SOPS

CLEVELAND HEIGHTS SEWER DEPARTMENT

STANDARD OPERATING PROCEDURES

In 2017, the City of Cleveland Heights entered into a Partial Consent Decree (CD) with the U.S. Enviromental Protection Agency (USEPA) and the Department of Justice (DOJ). The Consent Decree requires Cleveland Heights to complete a Sewer System Evaluation Survey.

This meant higher expectations were needed to operate and maintain our sewers. We purchased new equipment, added staff, inspected all sanitary manholes through our MACP assessment and televised all of the sanitary mains. We have developed a Sanitary Sewer

Overflow System (SSO) inspection form that we must use to monitor the known overflow locations when it rains more than a quarter of an inch (1/4). We have developed a MS4 inspection form for eight of our stormwater facilities.

To be more proficient in operating and maintaining our sewer system, the City has developed these Standard Operating Procedures (SOPs) for operations. The Sewer Department will continue to operate, maintain, repair and replace our sewers for the residents of this City and for the well being of the enviroment.

This will be an on going document that will keep expanding as the Sewer Department continues to grow with more responsibilites and equipment.

SEWER DEPARTMENT EQUIPMENT

1. GAP VAC MACHINE
2. MAINLINE CAMERA TRUCK (CCTV)
3. POLE CAMERA
4. LATERAL PUSH CAMERA
5. RIDGE LINE LOCATOR
6. DUMP TRUCK
7. PICKUP TRUCK
8. SEWER LATERAL SNAKE MACHINES (2)
9. SEWER LATERAL VAN

THE PROCEDURES

- SEWER LATERAL CLEANING
- SEWER MAIN LINE CLEANING
- SEWER MAIN LINE ROOT CUTTING
- SANITARY SEWER OVERFLOW INSPECTION (SSO)
- SEWER DYE TEST
- CATCH BASIN CLEANING
- CONFINED SPACE ENTRY
- SEWER CONSTRUCTION
- SEWER MAIN LINE TELEVISING (CCTV)
- PUMP STATION INSPECTION

SEWER LATERAL CLEANING

Administrative Support ☐ Field Operations ☒

CLEVELAND HEIGHTS

Area: Sewer Maintenance **SOP No.:** SM-02

Title: Sewer Lateral Cleaning

Status: Draft ☐ Final ☒ **Original Date:** 01/15/20 **Revision Date:**

Reviewers: Anthony Ferrone – Utilities Commissioner

Author: Utilities Department **Revision Number:** 0

INTRODUCTION / PURPOSE:

The purpose of this procedure is to provide instructions on how the sewer lateral clearing should be performed.

GENERAL FREQUENCY:

Laterals are cleaned as requested by residents.

RESOURCES:

Crew

1 – Equipment Operator

1 – Utility Person

MATERIALS:

Source of electricity

EQUIPMENT:

1 – Spartan Sewer Machine w/ 100' of cable

1 – Various size cutters

1 – Utility Locator

1 – Line Locator

1 – Cues Lateral Camera

PPE (gloves, hardhat, safety glasses, rain gear, rubber boots, hearing protection, steel toed boots)

Tablet, charger and sewer cleaning paperwork, extension cord, manhole hook, shovels, tools

GENERAL WORK METHOD:

The Utilities Department schedules the calls daily 7:30am to 2:00pm. We allot 90 minutes to advise, locate, and clean the line before the next scheduled call. Each of those minutes will be used to assist the resident. Calls should be done in order scheduled and at the assigned times. If a resident wants his line located, cleaned and videoed it will be done during that time frame, if possible and charged accordingly. No rescheduling should take place if the work can be done in the allotted time slot.

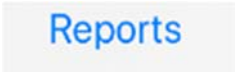
1. The Sewer Supervisor will distribute the assignments for the day.

2. An operator and a utility person will arrive at the call address at the scheduled time, in uniform and with all necessary equipment.
3. A small traffic zone will be set up at the rear of the vehicle by the utility person.
4. The laborer shall open the upstream manhole (from the customer address) to determine if the mainline sewer is blocked. If the main is blocked, they would call the jet/vac to clear the main.
5. The operator will communicate with the customer about the issues they are having and see if they have a clean out in the basement. If there is no floor clean out, the crew will attempt to find the test tee outside the house.
6. The utility worker will start probing the grass, to locate and open the test tee. If the test tee cannot be located, advise options to the resident.
    a. Once the access point (test tee or inside cleanout) is located, document location on work order for future use.
7. If visual inspection or the lateral camera has determined that the lateral sewer line needs cleaning, the utility person will bring the tools and sewer snake to the access location. He will open the clean out, plug in the machine to ready for the operator. The utility person will also hold the light for the operator during the process.
8. The operator is responsible for clearing the line with sewer snake using multiple sized cutters (starting with a small one and going to a large one) for the best cleaning. The snake is operated by using a foot pedal that rotates the drum. The handle is for making the cable go forward or in reverse. The drum can also go in reverse by pressing the switch on the base of the machine. (-see manufacture's manual for details on operation)
9. Once the line is cleared and cleaned, the utility person will stow the tools, drain and load the sewer machine and clean up the work area (e.g. remove any debris from the sewer and any liquid sprayed by cleaning with a bleach solution). If working out of the test tee, re-install cap and restore landscaping.
10. If the line is not cleared, the operator will locate and mark the sewer (using the Ridge Line Locator-see manufacturer's manual for details on operation) of where the cable stopped to determine if the line is obstructed in the street (curb to main) or on the house side (curb to stack).
11. If it is determined that the sewer is full of grease and you are working out of a test tee then the jetter shall be called in. It is the utility person's, on the jetter, responsibility to put the jet into the tee and work the hose. The operator must remain by the machine for safety. Once the job is completed, all cleanup and restoration will go on as previously stated.
12. The operator will complete all paperwork and enter the information into Lucity immediately after the call. (See attached entering a Signature and email receipt in Lucity instructions)
13. The utility person will load up all equipment, take down the traffic zone and close all doors.

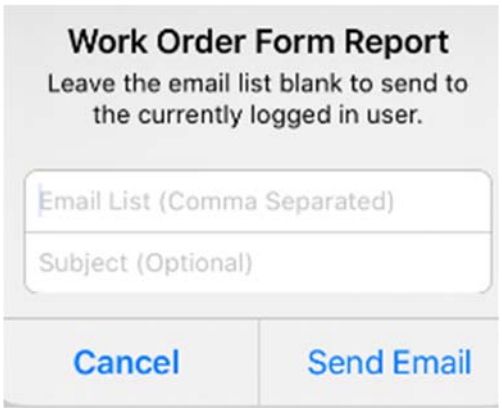
14. Maintenance on the sewer machines shall be done by both the operator and the utility worker. It is the responsibility of the utility person to make sure that all tools are cleaned, garbage thrown away and the back of the van is washed out at the end of every shift.
15. Pre/Post trips checklists will be done by the operator and turned in daily.
16. Attached are photos of the equipment that shall be used during a sewer call.

ENTERING A SIGNATURE AND EMAIL A RECEIPT IN LUCITY

1. At the end of the call, add the information, save then press STATUS.
2. Select the appropriate code. Use closed in field code (ex 801 Closed in Field paid).
3. The press this icon 
4. Select Signature. 

5. Select Tap to sign.
6. The resident signs their name, then press Close. Save.
7. Press this icon. 
8. Press Reports. 

9. Next to the Work Order Form Report, press Send Email.
10. Enter the customers email and the address for the subject. Send email.



SPARTAN SEWER SNAKE 1065

SPARTAN SEWER SNAKE 300

2" U-BLADE (1065-300-200)

2-1/2 INCH U BLADE

3 1/2" P-TRAP BLADE

3" KNIFE EDGED BLADE

3" P-TRAP BLADE

3"-4"-6"-8" BLADE HOLDER

2" & 2 1/2" BLADE HOLDER

2" BLADE 1/2" CABLE

.55" X 50' MAGNUM
SPARTAN CABLE

.66" X 25' MAGNUM
SPARTAN CABLE

.66" X 2' MAGNUM LEADER

Ridgid Utility Locators

MPLUS+ & MPLUS+ XL
Portable Lateral & Mini-Mainline Push System

"The Standard of the Industry"

CUES

The CUES MPlus+ offers the most flexible and feature packed lateral and mini-mainline push system on the market. The MPlus+ modular design combines easy operation with its refined all-in-one set up with the flexibility of facilitating quick removal of the control unit to be used separately for off road or remote jobsites or to accommodate compact storage. The MPlus+ is the most versatile push system available in the market today.

- The advanced MPlus+ system stands out by integrating all of the most sought after features into an easy to use and intuitive package.
- This lightweight system is manufactured for rugged reliability and designed to handle rigorous field use.
- Push cables incorporate exclusive HDPE jackets and advanced fiberglass rods designed for longer pushes and extended life.
- Contact your CUES Regional Sales Respresentative for a complete list of optional equipment!

MPLUS+ COILER & CAMERA

- Two coiler configurations for lateral & mini-mainline push applications:
  - Industry leading push cables with exclusive HDPE jackets
  - Configurable for any installed push rod length
  - On-screen customizable distance counter
- Standard configuration lateral coiler – 100, 200, 300 and 350ft push cable lengths available:
  - .444" optimized push cable (.197" fiberglass rod) for longer pushes
- XL coiler configuration for mini-mainline applications – 300, 350, 400 and 500ft push cable lengths available:
  - .517" rigid push cable (.236" fiberglass rod) for larger pipeline applications.
  - Configurations include standard SR3 self-leveling camera for 2" - 12" pipelines and an optional advanced pan & tilt camera head for 4" - 12" pipelines.

LATERAL SEWER CAMERA

Work Order Detail Report

1/22/2020
12:31 PM

WO Number: 190613-0001

Status: Complete Paid
Status Date: 6/17/2019 12:53 pm

Category: Service Lateral Gravity
Problem: Sewage Backup
Main Task: Root Treatment

Asset: LAT2210630
Location: 3644 BENDEMEER RD

Cause:
Assigned Crew:
Supervisor: Ferrone, Anthony
Lead Worker: Claggett, Dwane
Priority: Medium
Account #:
Proj No - Acct:
Project:
Reason:
Received By:
Inspected By:

Assigned By:
Assigned Date: 6/14/2019
Start Date: 6/14/2019 2:00 PM
End Date: 6/14/2019 3:21 PM

Project ID:
Project Name:

Override Notifications
Problem ☐
Overdue ☐
Lead Worker ☐
Task ☐
Supervisor ☐
Hard Lock WO ☐

Request Comments for Work Order

Please clean sanitary lateral

Location
Department: Sewer Collection
Division: SW-SEWER MAINTENANCE
Sub-Division:
Area:
Sub-Area:
Owner:
Location:
Classification:

Maintenance Zone:
Alternate Zone:

Work Order Locations

Address	Address 2	X Coord	Y Coord	General Location
3644 BENDEMEER RD		2,228,948.16992123	673,262.40909589	3644 BENDEMEER RD

Work Order Assets

Object Type	System ID 1	System ID 2	Description 1 Odometer	Hourmeter	Othermeter	Description 2 PM Description	Asset ID	Completed
Sewer Service	LAT2210630						344	

* A 'Hidden' field indicates permission to view the secured field is turned off.

WO#: 190613-0001

Page: 1

Work Order Detail Report

1/22/2020
12:31 PM

Tasks/Resources

SWCT82 Root Treatment

Crew:
Supervisor: Ferrone, Anthony
Status:
UOM: Feet
*Cal'o UC: $0.86
# of Units: 100.00
*Task Cost: $86.40
*Unit Cost: $0.00
Start Dt: 6/14/2019
End Dt: 6/14/2019

Employee

Resource	UOM	Units	*Total Cost	Alt Description	Start Dt	End Dt
29967 Claggett, Dwane	Hours	2.00	$45.28		6/14/2019	6/14/2019
40151 Mc Coy, Sam	Hours	0.00	$0.00		6/14/2019	6/14/2019
28056 Palmisano, Anthony	Hours	2.00	$40.12		6/14/2019	6/14/2019

Equipment

Resource	UOM	Units	*Total Cost	Alt Description	Start Dt	End Dt
CHFLT55 GMC SAVANA SEWER 7 VAN	Each	2.00	$1.00		6/14/2019	6/14/2019
ECH009 Spartan Sewer Snake	Each	2.00	$0.00		6/14/2019	6/14/2019
ECH018 Cues Lateral Camera	Each	0.00	$0.00		6/14/2019	6/14/2019
ECH019 Ridgid Locator	Each	0.00	$0.00		6/14/2019	6/14/2019
ECH35 RIDGE LINE TRANSMITTER	Each	0.00	$0.00		6/14/2019	6/14/2019

Material

Resource	UOM	Units	*Total Cost	Alt Description	Start Dt	End Dt
MTRL-01 6" STOPPER CLAY 7	Each	0.00	$0.00		6/14/2019	6/14/2019

Task Comment: Ran 3 " Cutter from clean out in basement 100feet out main . Some roots line is open, advised yearly service

Projected Complete:
Look: ☐
Repair Type:
Subcontractor:
Profit Center:

Quantity: 0.00
Look: ☐
Unit of Measure: Feet
*Unit Cost: $0.00
WO Hours: 0.00

	*Actual	*Estimated	*Difference
WO Duration	1.35	0.00	0.00
Labor Hours	4.00	0.00	0.00
Labor Costs	$85.40	$0.00	$0.00
Material Costs	0.00	0.00	0.00
Fluids Costs	0.00	0.00	0.00
Equipment Costs	1.00	0.00	0.00
Contractor Costs	0.00	0.00	0.00
Misc. Costs	0.00	0.00	0.00
Total Costs	$86.40	$0.00	$0.00
Use Task Info:	True	True	

Billing

Billed Party

Customer ID:
Customer Name:
Address:
City:
State:
Zip:
Customer Number:
Last Name:
Phone:
Cell #:
Fax #:
E-mail:

Billing Data

Contact Name:
Invoice Number:
Incoming Account #:
*Billing Amount: $100.00
Date Bill Sent:
Payment Received:
Payment Method: Billed
Billing Required: ☑
Billing Processed: ☐
Imported to Financials: ☐

Requests

Request #	Problem	Location Address	# Req	Recorded Dt	Last Req Dt
190613-0001	Sewage Backup		1	6/13/2019	6/13/2019

* A 'Hidden' field indicates permission to view the secured field is turned off.

SEWER MAIN LINE CLEANING

Administrative Support ☐ Field Operations ☒

Area: Sewer Maintenance **SOP No.:** SM-04

Title: Sewer Cleaning of Main Lines (Sanitary and Storm)

Status: Draft ☐ Final ☒ **Original Date:** 01/15/20 **Revision Date:** _____

Reviewers: Anthony Ferrone – Utilities Commissioner

Author: Utilities Department **Revision Number:** 0

INTRODUCTION / PURPOSE:

The purpose of this procedure is to provide instructions on how to clean sewer mains. This will minimize any potential mains from blocking. Mainline sewer cleaning is typically performed from the downstream manhole, traveling in an upstream direct, toward the blockage. If a reverse setup is required (cleaning from the upstream manhole), extra care should be taken and lower nozzle pressure should be used to minimize blow backs into the residences.

For more specific information on the operation and maintenance of the Jet/Vac, refer to the manufacturer's manual.

GENERAL FREQUENCY:

Mainlines will be cleaned on a 5-year cycle. High frequency cleaning locations are checked twice a year and cleaned as needed.

RESOURCES:

Crew

1 – Equipment Operator

1 – Utility Person

1—Traffic control (as needed)

MATERIALS:

Source of water

EQUIPMENT:

Vac Truck

Mongoose Jet Truck

Debris basket

PPE (gloves, hardhat, safety glasses, rain gear, rubber boots, steel toed boots, hearing protection and safety vest)

Tablet and charger, manhole hook, sledgehammer, long hooks, traffic cones, gas detector, nozzles, tiger tail, etc.

GENERAL WORK METHOD:

1. The Sewer Maintenance Supervisor identifies areas that need to be cleaned then prepares the work schedule and dispatches staff.
2. Use proper PPE
3. The utility person shall set up the traffic zone then guide the operator to setup over the manhole. If working away from the road a top manhole roller must be used to prevent damage to the hose. It is the utility person's responsibility to open the manhole, slide the tiger tail on hose, attach the nozzle and lower the debris basket into the mainline trough (backside/downstream/outgoing pipe). **DO NOT SEND SIGNIFICANT DEBRIS DOWNSTREAM CAUSING A POTENTIAL BLOCKAGE.**
4. The operator will select the appropriate nozzle for the size of the pipe.
5. Hydro jet the sewer line as needed to clean out grease, rocks, roots, debris, etc.
6. The operator will lower nozzle into manhole and position it in the mouth of the pipe (upstream) slowly increase pressure to propel nozzle into pipe, then once nozzle is in pipe, ramp up pressure to full operating/cleaning pressure between 1500-1800 psi and clean in steps (**run out 50 feet, then pulled back, run out 100 feet then pull back, etc**.). Always check the hose for tears and rips while the hose is going out.
7. Observe the conditions in the working manhole to identify if water is backing up into the manhole, to note the color of the flow during pull back and attempt to identify the type and amount of material being flushed back to the manhole.
8. Continue the step method of cleaning until the upstream manhole is reached. Pull back, then run the entire line one more time.
9. If during cleaning operations, the tank fills with liquid from vacuuming, decant liquid into the setup manhole, being careful not to spill liquid onto the surface.
10. If during cleaning operations, additional water is needed, a nearby hydrant may be needed to re-fill water tanks.
11. Once the main is clean, remove the equipment form the manhole.
12. Spray out structure.
13. If additional cleaning of the structure is needed use a gas detector to measure the air and fill out the form in Lucity.
14. If safe, the utility person cleans all areas within the structure so that the base of the manhole is exposed. Remove debris from the sanitary manhole with the vac tubes. Clean all surfaces, walls, bricks, concrete inlet and outlet and record any structural issues.
15. The utility person will replace the manhole cover, put all tools away and disassemble the traffic zone.
16. The utility person shall fill up the water tanks at the nearest fire hydrant at the end of every job.
17. The operator will enter the information into Lucity immediately after cleaning the line, noting any further work that is needed.
18. Decant debris in an appropriate location at the yard.
19. At the end of the shift, it is the utility person's responsibility to throw away all debris, clean the nozzles, hoses and the rear of the vehicle.


GapVax
WET ONLY
MC SERIES
Combination JetVac

MANHOLE HOOK

TIGER TAIL

Upper Manhole Roller

HYDRANT WRENCH

CLEANING NOZZLES

Work Order Detail Report

1/22/2020
1:27 PM

WO Number: 190620-0008
Status: Complete
Status Date: 10/7/2019 4:45 pm
Asset:
Location: 4090 S BELVOIR BLVD

Category: Gravity Mains
Problem: Preventative Maintenance
Main Task: Flush / Clean

Cause:
Assigned Crew:
Supervisor: Ferrone, Anthony
Lead Worker: Blatnica, Robert
Priority: High
Account #:
Proj No - Acct:
Project:
Reason:
Received By:
Inspected By:

Assigned By:
Assigned Date: 6/21/2019 7:25 AM
Start Date: 6/21/2019 2:30 PM
End Date: 6/24/2019 9:00 AM
Project ID:
Project Name:

Override Notifications
Problem ☐
Overdue ☐
Lead Worker ☐
Task ☐
Supervisor ☐
Hard Lock WO ☐

Request Comments for Work Order

CLEAN MAIN jetted from both m/hs(montecello@belvior by drive brought back heavy debris need to locate next m/h down stream

Location
Department: Sewer Collection
Division:
Sub-Division:
Area:
Sub-Area:
Owner:
Location:
Classification:

Maintenance Zone:
Alternate Zone:

Work Order Locations

Address	Address 2	X Coord	Y Coord	General Location
4090 S BELVOIR BLVD				

* A 'Hidden' field indicates permission to view the secured field is turned off.

Work Order Detail Report

1/22/2020
1:27 PM

Tasks/Resources

SWCT18 Flush / Clean

Crew:
Supervisor:
Status: Complete
UOM: Feet
*Cal'o UC: $0.64
# of Units: 600.00
*Task Cost: $386.38
*Unit Cost: $0.00
Start Dt: 6/21/2019
End Dt: 6/24/2019

Employee

Resource	UOM	Units	*Total Cost	Alt Description	Start Dt	End Dt
18215 Blatnica, Robert	Hours	6.00	$135.84		6/21/2019	6/24/2019
40151 Mc Coy, Sam	Hours	6.00	$101.64		6/21/2019	6/24/2019

Equipment

Resource	UOM	Units	*Total Cost	Alt Description	Start Dt	End Dt
CHFLT55 INTERNATIONAL GAP VAC 2	Hours	6.00	$126.90		6/21/2019	6/24/2019

Fluid

Resource	UOM	Units	*Total Cost	Alt Description	Start Dt	End Dt
FLUID-00 WATER - GAP VAC 1	Gallons	2,000.00	$22.00		6/21/2019	6/24/2019

Task Comment: Ran jet aprox 600' from m/h @ Montioello & belvor west towards end of apr complex brought back heavy grease then from m/h near last drive n of belvor to m/h @ belvor& monticello brought back heavy grease and stone

Projected Complete:
Repair Type:
Subcontractor:
Profit Center:
Look: ☐

Quantity: 600.00
Unit of Measure: Feet
*Unit Cost: $0.64
WO Hours: 0.00
Look: ☐

	*Actual	*Estimated	*Difference
WO Duration	34.45	0.00	0.00
Labor Hours	12.00	0.00	0.00
Labor Costs	$237.45	$0.00	$0.00
Material Costs	0.00	0.00	0.00
Fluids Costs	22.00	0.00	0.00
Equipment Costs	126.90	0.00	0.00
Contractor Costs	0.00	0.00	0.00
Misc. Costs	0.00	0.00	0.00
Total Costs	$386.38	$0.00	$0.00
Use Task Info:	True	True	

Billing

Billed Party

Customer ID:
Customer Name:
Address:
City:
State:
Zip:
Customer Number:
Last Name:
Phone:
Cell #:
Fax #:
E-mail:

Billing Data

Contact Name:
Invoice Number:
Incoming Account #:
*Billing Amount:
Date Bill Sent:
Payment Received:
Payment Method:
Billing Required: ☐
Billing Processed: ☐
Imported to Financials: ☐

Tracking

Item	Description	By	Date	Time
Work Order Creation	This work order was created with the Lucity framework.	aferrone	6/20/2019	1:26 PM
Supervisor Notification	Email Queued Successfully!	aferrone	6/20/2019	1:26 PM
Leadworker Notification	Email Queued Successfully!	aferrone	6/20/2019	1:26 PM
Email Successfully Sent	aferrone@clvhts.com Lucity Work Order Update - Supervisor	BackgroundTaskUser	6/20/2019	1:26 PM
Email Successfully Sent	bblatnica@clvhts.com Lucity Work Order Status Update - Leadworker	BackgroundTaskUser	6/20/2019	1:26 PM
Status Change	From New Work Order to On-Going	bblatnica	6/27/2019	7:44 AM
Status Change	From On-Going to Complete	aferrone	10/7/2019	4:45 PM

* A 'Hidden' field indicates permission to view the secured field is turned off.

WO#: 190620-0008

SEWER MAIN LINE ROOT CUTTING

Administrative Support ☐ Field Operations ☒

Area: Sewer Maintenance **SOP No.:** SM-05

Title: Hydro Root Cutting

Status: Draft ☐ Final ☒ **Original Date:** 01/15/20 **Revision Date:**

Reviewers: Anthony Ferrone – Utilities Commissioner

Author: Utilities Department **Revision Number:** 0

INTRODUCTION / PURPOSE:

The purpose of this procedure is to provide instructions on how to remove blockages in the sewer due to root intrusion using a jet root saw. This will minimize potential for root blockages in the sewer system. Mainline sewer cleaning is typically performed from the downstream manhole, traveling in an upstream direct, toward the blockage. If a reverse setup is required (cleaning from the upstream manhole), extra care should be taken and lower nozzle pressure should be used to minimize blow backs into the residences.

For more specific information on the operation and maintenance of the Jet/Vac, refer to the manufacturer's manual.

GENERAL FREQUENCY:

All known root hotspots will be inspected at least twice a year and root cut as necessary.

RESOURCES:

Crew

1 – Equipment Operator

1 – Utility Person

1—Traffic control (as needed)

MATERIALS:

Water

EQUIPMENT:

Gap Vax Truck

Mongoose Jet Truck

Debris basket

PPE (gloves, hardhat, safety glasses, rain gear, rubber boots, steel toed boots, hearing protection and safety vest)

Tablet and charger, manhole hook, sledgehammer, long hooks, traffic cones, gas detector, nozzles, saw blades, tiger tail, etc.

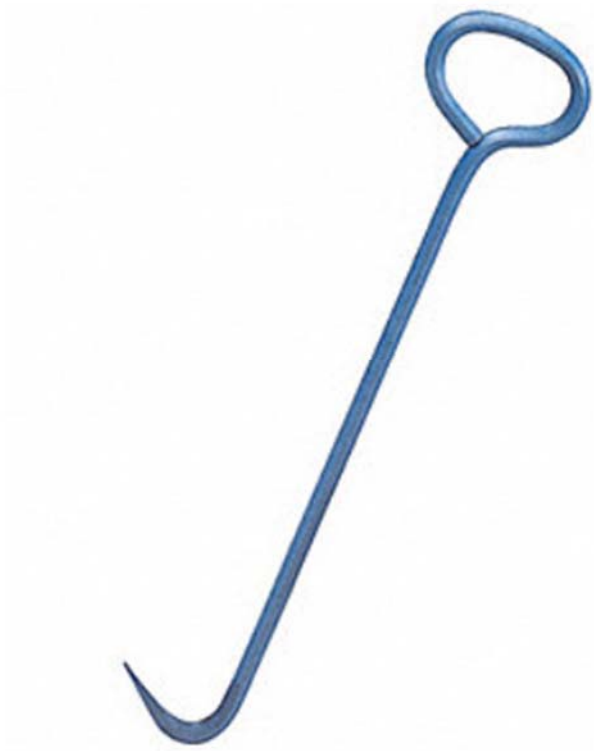
GENERAL WORK METHOD:

1. The Sewer Maintenance Supervisor identifies areas that need to be cleaned then prepares the work schedule and dispatches staff.

2. The utility person shall set up the traffic zone then guide the operator to setup over the manhole. If working away from the road a top manhole roller must be used to prevent damage to the hose. It is the utility person's responsibility to open the manhole, slide the tiger tail on hose, attach appropriate saw blade and lower the debris basket into the main trough (backside/downstream/outgoing pipe). **DO NOT SEND SIGNIFICANT DEBRIS DOWNSTREAM CAUSING A POTENTIAL BLOCKAGE.**

3. The operator will select the appropriate saw blade depending on the size of the pipe.
4. The operator will hydro jet with the root cutter as needed to clean the line.
5. The operator will lower nozzle into manhole and position it in the mouth of the pipe (upstream) slowly increase pressure to propel nozzle into pipe, then once nozzle is in pipe, ramp up pressure to full operating/cleaning pressure between 1500-1800 psi depending on the density of the roots that are being cut. Monitoring of cutting progression is through the vibration of the hose. When the hose is vibrating, it is cutting, when it is static it is not. Always check the hose for tears and rips while the hose is going out.
6. Observe the conditions in the working manhole to identify if water is backing up into the manhole, to note the color of the flow during pull back and attempt to identify the type and amount of material being flushed back to the manhole.
7. Continue cleaning until the upstream manhole is reached. Pull back, then run the entire line one more time.
8. If during cleaning operations, the tank fills with liquid from vacuuming, decant liquid into the setup manhole, being careful not to spill liquid onto the surface.
9. If during cleaning operations, additional water is needed, a nearby hydrant may be needed to re-fill water tanks.
10. Once the main is clean, remove the equipment form the manhole.
11. The utility person will spray out structure.
12. If additional cleaning of the structure is needed use a gas detector to measure the air and fill out paperwork accordingly. It is in Lucity.
13. If safe, the utility worker cleans all areas within the structure so that the base of the manhole is exposed. Remove debris from the sanitary manhole with the vac tubes. Clean all surfaces, walls, bricks, concrete inlet and outlet and record any structural issues.
14. The utility person will replace the manhole cover, put all tools away and disassemble the traffic zone.
15. The utility person shall fill up the water at the nearest fire hydrant at the end of every job.
16. The operator will enter the information into Lucity immediately after cleaning the line, noting any further work that is needed.
17. Decant debris in an appropriate location at the yard.
18. At the end of the shift, it is the utility person's responsibility to throw away all debris, clean the nozzles, hoses and the rear of the vehicle.

ROOT CUTTER



MANHOLE HOOK

TIGER TAIL

SANITARY SEWER OVERFLOW INSPECTIONS

CLEVELAND HEIGHTS

Administrative Support ☐ Field Operations ☒

Area: Sewer Maintenance **SOP No.:** SM-03

Title: Sanitary Sewer Overflow Inspection (SSO)

Status: Draft ☐ Final ☒ **Original Date:** 01/15/20 **Revision Date:** _____

Reviewers: Anthony Ferrone – Utilities Commissioner

Author: Utilities Department **Revision Number:** 0

INTRODUCTION / PURPOSE:

The purpose of this procedure is to provide instruction on how to inspect and maintain the sanitary sewer overflows (SSO)s. Known SSO locations are constructed discharge points identified throughout the sanitary sewer system. These locations are monitored for activation by a block of wood attached to a rope. (Refer to Section 1.3 of the SORP for more detailed information and reporting requirements.)

GENERAL FREQUENCY:

USEPA mandates inspection when more than a quarter of an inch (.25) of rain has fallen within seventy- two (72) hours of the event.

RESOURCES:

Crew

1-Operator/Foreman

1-Utility Person

MATERIALS:

Wooden discs
Spool of rope
Utility Knife

EQUIPMENT:

Truck with strobe lights

PPE (gloves, hardhat, safety glasses, rain gear, rubber boots, steel toed boots hearing protection and safety vest)

tablet and charger, manhole hook, traffic cones, flashlight, sledgehammer, etc.

GENERAL WORK METHOD:

1. The Sewer Supervisor will distribute the assignment for the day.
2. The operator will be given three routes to be inspected (A, B and C). The crew must have on a safety vests that are approved by OSHA standards.
3. Upon arrival, with the strobe lights on, at the SSO, the utility worker will set up a traffic cone at the rear of the vehicle and three cones around the manhole.

4. Use proper personal protection equipment.
5. The utility person will open the manhole lid. Sometimes these overflows will be monitored electronically so care needs to be taken not to damage any electronic equipment.
6. The operator will do a visual assessment of the sewer to determine if an overflow occurred represented by the block being displaced. Also check the rope to make sure that it is secure.
7. If there was an overflow, the block must be reset, and documented on the inspection form.
8. If there was no overflow, then the utility person will close the manhole cover. Restore any landscaping if needed.
9. If the rope/block is missing, then the operator is to set a new block and secure the rope.
10. The operator is responsible for the information being added to Lucity. The checklist option in the work order is where the data shall be entered. Date, time, sound/unsound, and the location of the block shall be filled out. Press closed in field after the last inspection for the day. An example of the form is attached.
11. The utility person will stow the equipment and breakdown the traffic zone.
12. The SSO manhole covers shall be painted orange twice (2) a year for location efficiency.

ROPE

UTILITY KNIFE

OVERFLOW BLOCK

SEWER DYE TEST

CLEVELAND HEIGHTS

Administrative Support ☐ Field Operations ☒

Area: Sewer Maintenance **SOP No.:** SM-08

Title: Sewer Dye Test

Status: Draft ☐ Final ☒ **Original Date:** 01/15/20 **Revision Date:** _____

Reviewers: Anthony Ferrone – Utilities Commissioner

Author: Utilities Department **Revision Number:** 0

INTRODUCTION / PURPOSE:

The purpose of this procedure is to provide instructions on how to perform a dye test

GENERAL FREQUENCY:

To identify cross connections or sources of infiltration/inflow into the sanitary sewer system.

RESOURCES:

Crew

1 – Equipment Operator

1 – Utility Person

MATERIALS:

Dye
Source of water

EQUIPMENT:

Gap Vax Truck

Mongoose jet Truck

Garden hose

PPE (gloves, hardhat, safety glasses, rain gear, rubber boots, steel toed boots, hearing protection and safety vest) tablet, charger and Paperwork, extension cord, manhole hook, shovels

GENERAL WORK METHOD:

1. The dye test is a useful tool to detect leaks, cross connections and water travel. It can be used indoors or outdoors in any fixture or drain.
2. The Sewer Maintenance Supervisor will distribute the assignments for the day.
3. The utility person shall set up a traffic zone around the truck and the downstream manholes. the utility person will then open both the storm and sanitary manholes.

4. The operator will pour dye into a sewer access and run water continuously through it until the dye is visible in one/both sewers.
5. Once it is determined which sewer the dye is in, then it shall be documented by the operator.
6. If multiple accesses are being tested, the water will have to continue running until the sewers are clear of signs of dye.
7. After all tests, the utility person will close the manholes and breakdown the traffic zone
8. All documentation will be done in Lucity by the operator.


Dye test

CATCH BASIN CLEANING

Administrative Support ☐ Field Operations ☒

Area: Sewer Maintenance **SOP No.:** SM-06

Title: Cleaning a Catch Basin

Status: Draft ☐ Final ☒ **Original Date:** 01/15/20 **Revision Date:**

Reviewers: Anthony Ferrone – Utilities Commissioner

Author: Utilities Department **Revision Number:** 0

INTRODUCTION / PURPOSE:

The purpose of this procedure is to provide instructions on how to remove blockages from a catch basin.

For more specific information on the operation and maintenance of the Jet/Vac, refer to the manufacturer's manual.

GENERAL FREQUENCY:

The City should clean every catch basin in three (3) years

RESOURCES:

Crew

1 – Equipment Operator

1 – Utility Person

1—Traffic control (as needed)

MATERIALS:

Source of water

EQUIPMENT:

Gap Vax Truck

PPE (gloves, hardhat, safety glasses, rain gear, rubber boots, steel toed boots, hearing protection and safety vest)

tablet and charger, manhole hook, sledgehammer, long hooks, traffic cones, gas detector, nozzles, tiger tail, etc.

GENERAL WORK METHOD:

1. The Sewer Maintenance Supervisor identifies areas that need to be cleaned then prepares the work schedule and dispatches staff.

2. Use proper PPE
3. The utility person shall set up the traffic zone then guide the operator to setup over the catch basin.
4. It is the utility person's responsibility to open the catch basin, attach the vacuum tubes with clamps and operate the spray gun. The operator will clean the catch basin with the vacuum tubes while the utility person is spraying the debris
5. If there are any rocks, bricks, etc. that cannot be vacuumed, it is the utility person's responsibility to remove the items from the catch basin.
6. When clean, spray out structure and clean the frame and grate.
7. The utility person will replace the catch basin grate, put all tubes and tools away and disassemble the traffic zone.
8. The utility person shall fill up the water tanks at the nearest fire hydrant at the end of shift.
9. The operator will enter the information into Lucity immediately after cleaning the catch basin, noting any further work that is needed.
10. Decanting debris must be done at the end of the shift in an appropriate location at the yard.
11. At the end of the shift, it is the utility person's responsibility to throw away all debris, clean the tubes, hoses and the rear of the vehicle.


GapVax
WET ONLY
MC SERIES
Combination JetVac
25
Years of Excellence

MANHOLE HOOK

ENTERING A MANHOLE
(CONFINED SPACE ENTRY)

Administrative Support ☐ Field Operations ☒

Area: Sewer Maintenance **SOP No.:** SM-07

Title: Entering a Confined Space

Status: Draft ☐ Final ☒ **Original Date:** 01/15/20 **Revision Date:**

Reviewers: Anthony Ferrone – Utilities Commissioner

Author: Utilities Department **Revision Number:** 0

INTRODUCTION / PURPOSE:

The purpose of this procedure is to provide instructions on entry into a confined space which is defined as being made up of 3 main conditions: 1) being large enough for an employee to enter and perform work; 2) has limited or restricted means for entry or exit; and 3) is not designed for continuous occupancy. We designate manholes as confined spaces. All employees who may be involved in a confined space entry must attend the annual Confined Space Entry Training course.

Permitted vs Non-Permitted Confined Spaces

OSHA has copious files relating to the differences between **permit required** and non-permit required spaces. For a better understanding we can start with the fact that non-permit required spaces do not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm. These are places that may be tough to get into, but aren't going to hold dangers to your breathing, or the sort of engulfment hazards you might find in a grain elevator or similar facilities.

Permit-required confined spaces, however, are more complex, and it may take some training to spot the difference. A PRCS meets the simple definition of a confined space plus one or more of these additional criteria:

1. Space contains or has the potential to contain a hazardous atmosphere.
2. Contains a material (water, grain, petroleum products) that has the potential to engulf an entrant.
3. Has a design that may either trap an entrant or hold a toxic atmosphere that may asphyxiate that worker.
4. Contains any other hazard to health or recognizable serious safety issue.

GENERAL FREQUENCY:

When needed

RESOURCES:

Crew

1 – Equipment Operator

1 – Utility Person

MATERIALS:

N/A

EQUIPMENT:

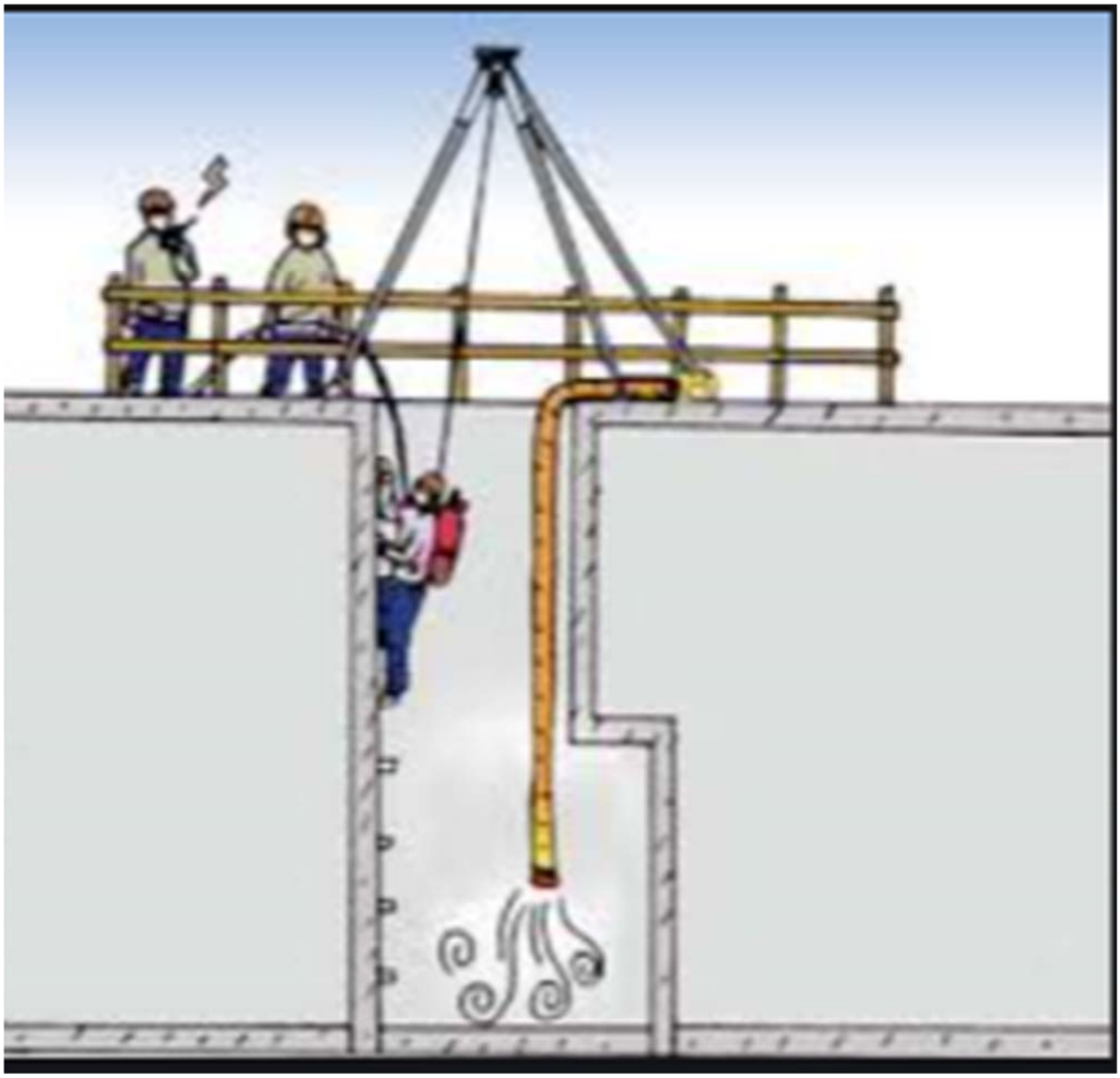
1 – Gas monitor
1- Tripod
1- Fall protection device (winch)
1 - Harness
1 – Ladder
1 - Respirator
Communication Device

PPE (gloves, hardhat, safety glasses, rain gear, rubber boots, steel toed boots, hearing protection and safety vest) tablet, charger and Sewer Cleaning Paperwork, Extension cord, Manhole hook, Shovels

GENERAL WORK METHOD:

1. Work being performed shall follow all proper procedures when entering a confined space. It is our duty to make sure that no one is harmed.
2. The Sewer Supervisor will distribute the assignments for the day.
3. A traffic zone will be set up around the entry of the sewer by the utility person.
4. The utility person will open the manhole, set up the tripod and put on a harness.
5. Use proper PPE.
6. It is the operator's responsibility to follow the Confined Space Permit Form in Lucity and review the work plan with the entrant (utility person) The gas monitor shall be turned on and operated as taught to you in the Confined Space Entry Training course, as to start at the top of the manhole and monitor the atmosphere every descending foot until it reaches the bottom.
7. Once the monitoring is deemed safe (leaving the monitor in the manhole in the area of the work zone), the utility person shall enter the confined space attached to the tripod and slowly lowered down to the bottom or a ladder can be used while still attached to fall protection device.
8. When the work is done, the entrant should immediately exit the confined space.
9. The operator will finish filling out the Confine Space Permit Form in Lucity.
10. The utility person will return all equipment and break down the traffic control.

GAS MONITOR

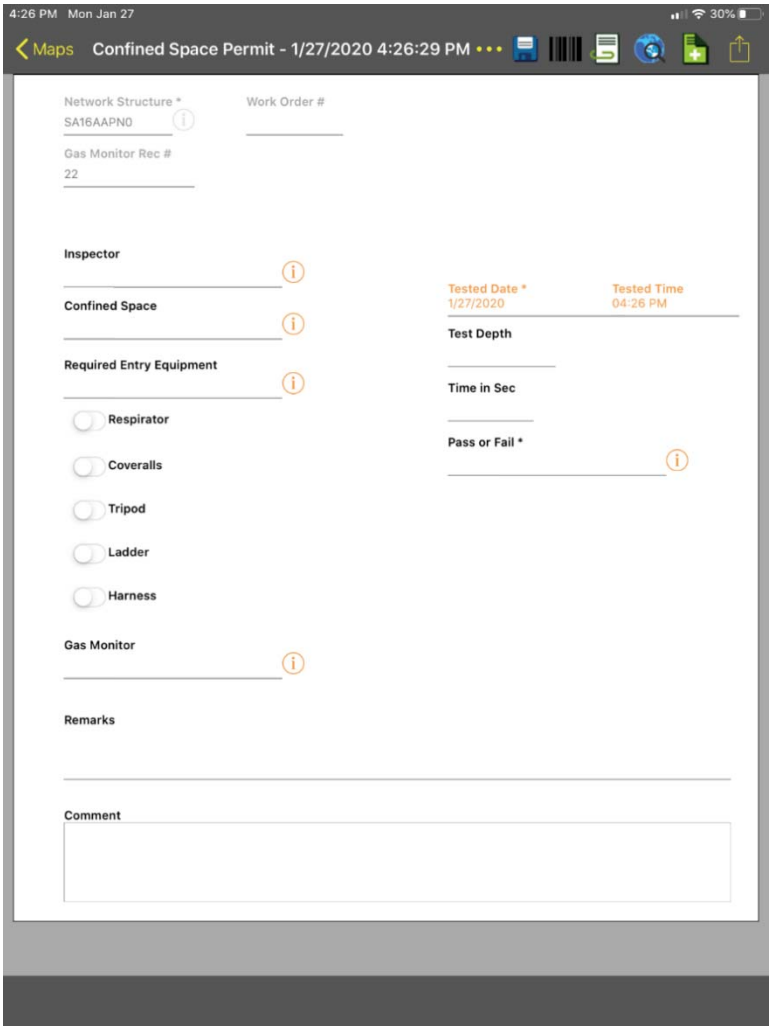


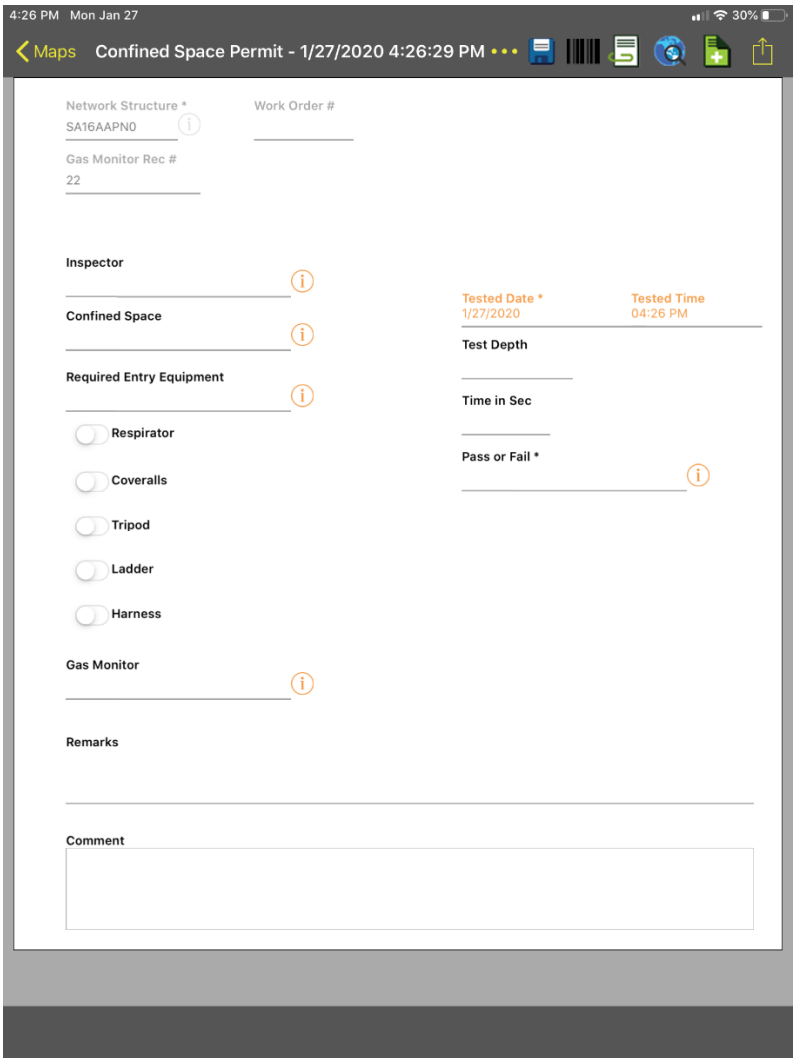
TRIPOD and HARNESS

Entering Confined Space in Lucity

1. Go to maps and press the icon button symbol. 
2. Press the manhole that will be entered. Then press this symbol. 
3. Press this button. 

4. Fill out the correct data and save. All fields in orange are required.




4:26 PM Mon Jan 27
30%
Maps
Confined Space Permit - 1/27/2020 4:26:29 PM
Network Structure *
SA16AAPN0
Work Order #
Gas Monitor Rec #
22
Inspector
Confined Space
Required Entry Equipment
Respirator
Coveralls
Tripod
Ladder
Harness
Gas Monitor
Remarks
Comment
Tested Date *
1/27/2020
Tested Time
04:26 PM
Test Depth
Time in Sec
Pass or Fail *

SEWER CONSTRUCTION

Administrative Support ☐ Field Operations ☒

CLEVELAND HEIGHTS

Area: Sewer Maintenance **SOP No.:** SM-08

Title: Sewer Construction

Status: Draft ☐ Final ☒ **Original Date:** 01/15/20 **Revision Date:**

Reviewers: Anthony Ferrone – Utilities Commissioner

Author: Utilities Department **Revision Number:** 0

INTRODUCTION / PURPOSE:

The purpose of this procedure is to provide instructions on properly performing construction activities.

GENERAL FREQUENCY:

As identified, for operation and maintenance

RESOURCES:

Crew

1 – Foreman

1 – Equipment Operator

1 -- Driver

1 – Utility Person

MATERIALS:

Bricks
Pipe
Mortar
Cement
Shims
Ferncos
Castings/grates/backings/covers etc.

EQUIPMENT:

Backhoe

Dump truck

Pump and hose

Ladder

Cement saw

Pickup truck with tow hitch

PPE (gloves, hardhat, safety glasses, rain gear, rubber boots, steel toed boots, hearing protection and safety vest, respirator)

tablet, charger, extension cord, manhole hook, shovels, hand tools

GENERAL WORK METHOD:

1. The Sewer Supervisor identifies areas that need to be serviced, calls O.U.P.S, then prepares the work schedule and dispatches the staff.

2. Use proper PPE. (Hard hats, safety vests, hearing protection etc.)

3. The foreman shall have the driver and utility person notify any residents in the area of construction. Advise them to move their cars if needed.

4. The utility person will set up the traffic zone with cones, signs and arrow board if needed. This must be in accordance with OSHA and ODOT regulations.

5. The utility person will saw cut the street on orders of the foreman.

6. The operator will jackhammer the street on the orders of the foreman with the backhoe, then, with the help of the utility person, change from a jackhammer bit to an excavating bucket. The operator is to remain in the backhoe at all times unless the machine is away from the excavation.

7. The OSHA standard **for trenching and excavation requires protective systems for trenches that are 5 feet or deeper, unless the excavation occurs in stable rock or is appropriately sloped back**. Types of protective systems include sloping, shoring and shielding. No one will enter or work in an excavation until protective systems are in place.

8. Once the job is excavated, a protective system will be installed and using a ladder, the utility person will enter the protective system to clean/hand dig/remove any other debris left by the backhoe. All hand excavation is to be done by the utility person unless otherwise told. No one shall be unsupervised in an excavation.

9. The foreman will dispatch a crew member(s) for materials.

10. If cement/mortar needs to be made, it will be done by the driver and utility person.

11. The foreman will make (or assign) the repairs to be made.

12. Once the job is completed, the operator, driver and utility person will remove any tools or materials left in the excavation and restore the road/landscape. All excavations shall be coned/barreled off, caution taped and road plated, if applicable.

13. All tools are to be picked up and traffic zone will be taken down by the utility person.

14. The foreman will submit his paperwork into Lucity and create a Road Repair Form.

15. All equipment/vehicles are to be cleaned by the crew after every shift.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SEWER MAIN LINE TELEVISING (CCTV)

Administrative Support ☐ Field Operations ☒

CLEVELAND HEIGHTS

Area: Sewer Maintenance **SOP No.:** SM-09

Title: Sewer Main Line Televising

Status: Draft ☐ Final ☒ **Original Date:** 01/15/20 **Revision Date:** _____

Reviewers: Anthony Ferrone – Utilities Commissioner

Author: Utilities Department **Revision Number:** 0

INTRODUCTION / PURPOSE:

The purpose of this procedure is to provide instructions on properly performing main line televising.

CCTV inspection can be performed in either direction from an access manhole (downstream or upstream), however it is typical and preferable to inspect with the flow (moving downstream). If the inspection is performed against the flow (moving upstream) it must be noted on the inspection report header.

The Operator performing the inspection should be NASSCO PACP certified. Detailed instructions for documentation of the CCTV inspection is provided through the certification training.

For more specific information on the operation and maintenance of the CCTV equipment and vehicle, refer to the manufacturer's manual.

GENERAL FREQUENCY:

To assess the condition of the collection system.

RESOURCES:

Crew

1 – Equipment Operator

1 – Utility person

MATERIALS:

N/A

EQUIPMENT:

CCTV Televising truck

Pickup truck for traffic control (if needed)

PPE (gloves, hardhat, safety glasses, rain gear, rubber boots, steel toed boots, hearing protection and safety vests)

Tablet, charger and sewer cleaning paperwork, extension cord, manhole hook, shovels, hand tools

GENERAL WORK METHOD:

1. The Sewer Supervisor identifies areas that need to be televised then prepares the work schedule and dispatches the staff.

2. Use proper PPE.
3. The utility person will guide the operator to setup at the access manhole, set up a traffic zone then open the manhole.
4. The operator will lower the camera into the mainline with the electric hoist, being careful not to ram the manhole walls or steps with the camera.
5. The operator will follow all procedures to video the sewer line using NASSCO PACP guidance.
6. If the line needs cleaning, he will contact the operator on the Gap Vax to remove all debris so the inspection can continue. (See Sewer Main Line Cleaning SOP)
    a. While the line is being cleaned, remove the camera from the mainline.
    b. In rare cases, it may be necessary to have the camera in the mainline to guide the cleaning process. In this case, communication is essential to ensure the cleaning nozzle does not come in contact with the camera.
7. All documentation shall be completed after each main line segment in Lucity**.**
8. When all televising is done, the operator will retract the camera to the access manhole and remove the camera with the electric hoist, being careful not to ram the manhole walls or steps.
9. The utility person shall wash the camera, close the manhole and take down the traffic zone.
10. The utility person is to store all equipment for travel and secure drawers and doors.
11. The water tank on the vehicle is to be filled up at the end of the shift by the utility person and all trash is thrown away.

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From MH: 430102 To MH: 430103

PUMP STATION INSPECTIONS

Administrative Support ☐ Field Operations ☒

Area: Sewer Maintenance **SOP No.:** SM-10

Title: Pump Station General Inspection and Operational Procedures

Status: Draft ☒ Final ☐ **Original Date:** 12/31/19 **Revision Date:** _____

Reviewers: Anthony Ferrone – Utilities Commissioner

Author: Wade Trim / Brown and Caldwell **Revision Number:** 0

INTRODUCTION / PURPOSE:

The purpose of this procedure is to provide instructions on how to inspect and clean/maintain the 2 sanitary pump stations in the City at Woodview Road and Forest Hills Park.

Special safety precautions should be taken when operating around the open wet well or valve chamber.

Station alarms that may occur between inspections are communicated to the Supervisor through text message.

All mechanical, electrical and physical maintenance for the pumps stations is performed by an outside contractor.

GENERAL FREQUENCY:

Visual Inspection – Monthly

Cleaning and Maintenance – Bi-Annually.

RESOURCES:

Crew

2 – Utility Person

EQUIPMENT:

PPE (gloves, hardhat, safety glasses, rain gear, rubber boots, steel toed boots, hearing protection and safety vests)
Laptop, charger and Sewer Cleaning Log

Vacuum Truck and attachments (for Bi-annual Cleaning)

GENERAL WORK METHOD:

Monthly Visual Inspection

1. Open wet well and valve chamber covers. Secure the doors in the open position.
2. Inspect all floats, drain lines, chains, and outlets ensuring no grease or rags are affecting operations.
3. Evaluate the physical condition of the pump station, identifying any rusting panels, exposed aggregate in the concrete, or access issues to the site like foliage.
4. Lock all lids and boxes

5. Complete paperwork in Lucity, noting any additional work that is needed

Bi-Annual Cleaning and Maintenance

1. Open wet well cover and secure the doors in the open position.
2. Turn off pumps at the control panel.
3. Set up vacuum truck near the wet well and attach the vacuum tubes (approximately 35' deep).
4. Vacuum pit, clean the debris from the bottom of the pit, wash down the sides of the pit, the pumps and the floats with a high-pressure sewer jet.
5. Inspect all floats, drain lines, chains, and outlets.
6. Remove vacuum tubes from the wet well.
7. Restore the pumps to normal operation.
8. Lock all lids and boxes.
9. Check alarms.
10. Evaluate the physical condition of the pump station, identifying any rusting panels, exposed aggregate, access issues to the site like foliage.
11. Observe the wet well cycle to evaluate the condition of the pumps, are they operating properly?
12. Check if valves are operating and if they leak or otherwise are not in good condition.
13. Close and secure the pump station hatch and control panel.
14. Complete Pump Station Inspection Form.
15. Log Visit and Inspection Information into Lucity.

For Emergency Service, contact:

Cuyahoga County Sewer Maintenance
6100 W Canal Rd.
Cleveland, Ohio 44125
(216) 443-8201 (Emergency line)
PWDispatch@cuyahogacounty.us

AAA Advanced Plumbing & Drain
7277 Bessemer Avenue
Cleveland Ohio 44127
(440) 331-5555