

Memorandum

To: Catherine Woodbury, Senior Project Manager, Cambridge DPW

Fr: Garrett Bergey, CPMSM, Elizabeth Olson, Jen Zoppo (Stantec)

Re: **Illicit Discharge Detection and Elimination Investigation Progress - Permit Year 4**

Dt: September 16, 2022

This memo summarizes the progress made on the IDDE catchment investigations during the Year 4 reporting period of July 1, 2021, through June 30, 2022.

Due to the COVID-19 pandemic dye testing of residential buildings had been put on hold during 2020 and into 2021. In July of 2021 dye testing resumed to full capacity with residential buildings now being tested.

Catchment investigations continued based on the City's revised priority ranking. Two catchments were identified for investigation based on the dry weather outfall sampling: D33 Blanchard Rd and D46 Acorn Park Dr.

Below is the summary of the dry weather work and/or dye testing conducted in each catchment area currently under investigation.

DeWolfe (D21) Drainage Area

During the Year 3 investigations a correction at 1640 Cambridge St was verified with a post correction dye test and dry weather manhole inspections. During year 4 additional work was conducted downstream. The east inlet of D21DMH2025 was inspected and cleared by the follow-up dry weather work.

Dye testing was conducted at the addresses identified during the Year 3 investigation for when testing of residential buildings would be able to resume. Two partial direct illicit connections were identified during permit year 4. They were confirmed with CCTV (64 Highland Ave and 6 Marie Ave) during permit year 5 (7/13/2022). During permit year 4 we also identified one *potential* partial direct illicit was identified with CCTV outstanding (36-38 Dana St), and two partial no dye finds were identified (29 and 67 Dana St); the remaining test results were legal (See Appendix A).

- See Appendix A for all buildings that tested legal
- See Appendix B for all buildings SDE attempted but was unable to gain access for testing

Broad Canal (D07) Drainage Area

No dry weather manhole inspections were performed in this area by SDE between July 1, 2021, through June 30, 2022.

Dye testing was conducted on several addresses in this area while bypasses were set up on the storm drain that was observed as standing water during the dry weather work investigation in Year 3.

- 80, 90, 105, 115, 120, 145 and 150 Broadway all tested legal

Jackson Place (D38 - CAM401a) Drainage Area

Additional dye testing was conducted at 2 Cambridge Park Drive as part of a follow-up on the contamination found at S72CMH0095 during the Year 3 investigation. All dye tests results were legal.

After dye testing, reinspection was conducted on the unmapped inlet in S72CMH0095. Results still showed contamination was present. Next steps are to CCTV the unmapped inlet to determine the origin.

- Test kit results: Ammonia=1.0 mg/L, Surfactants=0.5 mg/L, Chlorine=1.52 mg/L
- Lab results: E. coli= 70.83 MPN/100ml, Ammonia= 0.743 mg/l, Surfactants= 0.120 mg/l

Flagg St (D19) Drainage Area

No work was performed in this area by SDE between July 1, 2021, through June 30, 2022.

SDE will attempt to reinspect the standing water pipe segments in this area during a future extended period of dry weather. If the standing water is still present, the area will have to be cleared through dye testing.

University Rd (D27) Drainage Area

No dry weather work was performed in this area by SDE between July 1, 2021, through June 30, 2022.

Two addresses, 980 Memorial Dr and 20 University Rd, adjacent to standing water found during the Year 3 investigations, were identified for dye testing. Multiple tests were complete at both buildings and all results were legal.

Matignon Rd (D44) Drainage Area

No dry weather work was performed in this area by SDE between July 1, 2021, through June 30, 2022.

One address, 64-66 Matignon Rd, adjacent to standing water found during the Year 2 investigations was dye tested and the result was legal. One address, 26-27 Alewife Brook Parkway, is the last outstanding building adjacent to the standing water in this



354 Merrimack Street, Suite 200
 Lawrence, MA 01843-1755
 p| 978.975.0500
 e| info@sde-inc.com
 sde-inc.com

area. SDE and the City will continue to attempt to gain access to this address for dye testing.

Sparks St (D31) Drainage Area

No dry weather work was performed in this area by SDE between July 1, 2021, through June 30, 2022.

Dye testing was conducted at addresses identified during the Year 2 and Year 3 investigations for when testing on residential buildings would resume. One *potential* illicit was identified through dye testing and the remaining addresses all tested legal.

- 3 Gray Gardens West tested dye in both sewer and drain. CCTV of sewer and drain mains completed by City Contractor February 2022. CCTV of sewer and drain laterals is outstanding.
- Sewer manhole S45SMH8615 (located near 3 Gray Gardens West) dye tested legal with no dye seen in the downstream drain D31DMH4050 after 30 minutes
- SDE attempted but was unable to gain access to 76-76A Sparks St for testing
- Addresses that tested legal are listed in the table below:

Building ID	Address ID	Street No	Street No Ext	Street	Contaminated DMH
219-23	10107	74		Sparks St	D31DMH2025
219-12	10646	86		Sparks St	D31DMH2405
219-10	10714	88		Sparks St	D31DMH2405
219-1	7552	3		Clement Cir	D31DMH2405
219-17	9815	6		Clement Cir	D31DMH2405
219-4	32339	4	5	Clement Cir	D31DMH2405
219-11	11271	9		Clement Cir	D31DMH2405
171-22	10961	91*		Garden St	D31DMH4050
159-37	7294	37		Gray Gardens East	D31DMH4050

*SDE will re-dye test #91 Garden Street based on results of CCTV which indicate suspect lateral connections despite dye testing legal

During Year 2 Healey Street was flagged as *potentially* having infrastructure defects allowing sewage to leak into the storm drain based on SDE dye testing. Some CCTV was completed as a result during Year 3 by the City’s CCTV Contractor. One remaining segment of the drain was televised during Year 4 also by the City’s CCTV Contractor. Additional investigation is required to determine the origin of the leak prior to making repairs.

During Year 2 #2 Hemlock Street was identified as a *potential* illicit connection based on SDE dye testing (1st floor toilet not legal). Some CCTV of sewer and drain mains was performed during Year 3 by the City’s CCTV Contractor. CCTV of the mains was completed during Year 4 (October 2021) revealing major defects in the mains. CCTV of the sewer lateral for #2 Hemlock is outstanding.

Blanchard Rd (D33) Drainage Area

A thorough dry weather work investigation was conducted in this area, the results of which are summarized below.

- Cleared streets: Thingvalla Ave, Cushing St, Locust St, part of Holworthy St, Fountain Ter, part of Huron Ave and Blanchard Rd
- Standing water streets: St Sauveur Ct, Corcoran Ln and part of Holworthy St
- Contaminated streets: May St, Lawn St and part of Huron Ave. Details of the contaminated pipe segments are listed in the table below:

MH ID	Pipe	Location	Contamination	Comment
D33DMH3105	E	40 Lawn St	A=0.3, C=0.1, S=0.0	Found by sandbagging
D33DMH1090	S	49 Lawn St	A=0.6, C=0.03, S=1.0, E.coli = 241,957 MPN/100ml	Standing water upstream
ACCESS104	S	59 Sauveur Ct	Standing Water	Upstream of D33DMH1090
ACCESS105	E & S	57 St Sauveur Ct	Standing Water	Upstream of D33DMH1090
D33OF0120	SW	60 Lawn St	A=0.0, C=0.09, S=0.25, E.coli = 1,986.29 MPN/100ml	Interconnection with flow from Belmont. Upstream of D33DMH1090
D33DMH1090	W	49 Lawn St	A=0.8, C=0.0, S=0.0, E.coli = 131.35 MPN/100ml	Found by sandbagging
D33DMH1085	S	30 May St	A=2.0, C=0.0, S=0.5, E.coli = 111,987 MPN/100ml	Spike in test kit, lab result consistent with upstream
D33DMH1075	SE	700 Huron Ave	A=0.0, C=0.0, S=0.0, E.coli = 8,048 MPN/100ml	Clean test kit, positive lab result
D33DMH1066	W	750 Huron Ave	A=0.0, C=0.13, S=0.0, E.coli = 13,958 MPN/100ml	Clean test kit, positive lab result - interconnection with flow from Belmont

Addresses for dye testing were identified based on the contamination found at D33DMH1090 and the standing water found at the upstream manholes ACCESS104 and ACCESS105. All test results were legal.

- Sewer manhole S60SMH0240 (located near 40 St Sauveur Ct) dye tested legal with no dye seen in the downstream drain ACCESS105 after 30 minutes however, when 18 Corcoran Ln was dye tested, dye was seen in sanitary sewer manhole S60SMH02040 via the southwest inlet. Dye was first seen entering into the inlet of the manhole (this building appears to be the only building upstream of the this manhole). Dye also appeared to infiltrate through either the manhole wall or through the concrete on the top of the bench. This result may indicate that the sewer lateral could exfiltrate and contaminate the nearby drain. CCTV of this lateral is the suggested next step.

- SDE attempted but was unable to gain access to 61-63 May St for testing (SDE and the City will continue to attempt to access this building)
- See Appendix C for all buildings that tested legal

Acorn Park Dr (D46) Drainage Area

A thorough dry weather manhole inspection investigation conducted in this area found standing water throughout. Manholes D46DMH0150, D46DMH0115, D46DMH0180, DMH460102, D46DMH101 and outfall D46OF0000 were all observed as standing water. Cleaning and CCTV is planned for winter 2022/23.

No dye tests were performed in this area by SDE between July 1, 2021, through June 30, 2022.

Fainwood (D01) Drainage Area

This area is a non-MS4 drainage area as it ends up going to a combined sewer system. Investigations in this area were conducted as part of future sewer separation work. Dry weather work was conducted on two manholes in this area: D01DMH5532 and D01DMH5580

- Northwest inlet of D01DMH5580 was cleared (no contamination found)
- Southwest inlet of D01DMH5580 and Northwest inlet of D01DMH5532 had visual evidence of sewage

Addresses for dye testing were identified based on the dry weather work findings.

- 18 and 27 Fainwood Circle tested dye in both sewer and drain. CCTV of the laterals is pending
- 5, 16, 20 and 21 Fainwood Circle tested legal
- SDE attempted but was unable to gain access to 25 Fainwood Circle for testing. CCTV of the lateral is pending

Walden Square (D37) Drainage Area

This area is a non-MS4 drainage area as it ends up going to a combined sewer system. Investigations in this area were conducted as part of future sewer separation work. Dry weather work conducted in this area found that almost all pipes/manholes were clean.

- East inlet of D37DMH1600 was inaccessible for full inspection
- D37DMH1610, D37DMH1625 and D37DMH1645 were cleared

Due to the inaccessibility of the East inlet of D37DMH1600, addresses adjacent to this pipe segment were identified for dye testing.

- 1-2, 3 and 4-5 Walden Square Rd all tested legal

Appendix A - DeWolfe (D21) Legal Building Dye Tests

Date	TribArea	Building ID	Address ID	StreetNo	StreetNoExt	Street	DMH1	TestResults
7/27/2021	DeWolfe	337-3	2786	1560		Cambridge St	D21DMH2205	legal
8/5/2021	DeWolfe	440-14	11470/5261	22	-24	Chatham St	D21DMH2065	legal
8/19/2021	DeWolfe	440-12	5669	26		Chatham St	D21DMH1905	legal
8/9/2021	DeWolfe	440-9	5959	28		Chatham St	D21DMH1905	legal
7/27/2021	DeWolfe	440-3	6345	30		Chatham St	D21DMH1905	legal
9/15/2021	DeWolfe	440-11	6637	32		Chatham St	D21DMH1905	legal
8/9/2021	DeWolfe	414-4	6769	33		Chatham St	D21DMH1905	legal
7/27/2021	DeWolfe	426-8	5490	25		Dana St	D21DMH1905	legal
8/12/2021	DeWolfe	426-11	5834	27		Dana St	D21DMH1905	legal
7/28/2021	DeWolfe	440-1	5965/24658	28	30	Dana St	D21DMH2205	legal
8/19/2021	DeWolfe	399-29	7285	37		Dana St	D21DMH1880	legal
8/17/2021	DeWolfe	399-32	32268+	39	41	Dana St	D21DMH2600	legal
7/27/2021	DeWolfe	414-13	7704	40		Dana St	D21DMH2600	legal
8/17/2021	DeWolfe	135-50	399-7	43	47	Dana st	D21DMH2600	legal
8/3/2021	DeWolfe	414-1	31899+	46		Dana st	D21DMH2600	legal
7/27/2021	DeWolfe	399-4	8408/8409/12168	49		Dana St	D21DMH1725	legal
8/18/2021	DeWolfe	337-17	9719	64		Dana St	D21DMH2602	legal
7/22/2021	DeWolfe	9631	337-21	66		Dana St	D21DMH2602	legal
9/1/2021	DeWolfe	337-17	336-24	68		Dana St	D21DMH2602	legal
7/27/2021	DeWolfe	335-21	9759/15414	69	69A	Dana St	D21DMH2602	legal
7/22/2021	DeWolfe	337-15	9929	70		Dana St	D21DMH2602	legal
7/26/2021	DeWolfe	335-19	9969	71		Dana st	D21DMH2602	legal
8/30/2021	DeWolfe	335-10	15417/10183	75	77	Dana St	D21DMH2205	legal
8/18/2021	DeWolfe	337-10	10223	78		Dana st	D21DMH2205	legal
7/28/2021	DeWolfe	335-9	10252	79		Dana St	D21DMH1905	legal
8/24/2021	DeWolfe	335-7	10472/15420	81		Dana St	D21DMH2205	legal
7/28/2021	DeWolfe	337-2	10501	82		Dana st	D21DMH2205	legal
8/11/2021	DeWolfe	344-20	7578	3		Greenough Ave	D21DMH2065	legal
9/21/2021	DeWolfe	440-5	31759/31761	335-3		Harvard St	D01DMH6950	legal
8/24/2021	DeWolfe	365-13	8957	56		Highland Ave	D21DMH2065	legal
7/29/2021	DeWolfe	365-11	9302	60		Highland Ave	D21DMH2065	legal
8/4/2021	DeWolfe	344-16	9470	63		Highland Ave	D21DMH2065	legal

Appendix A - DeWolfe (D21) Legal Building Dye Tests

Date	TribArea	Building ID	Address ID	StreetNo	StreetNoExt	Street	DMH1	TestResults
8/18/2021	DeWolfe	9681	335-24	67		Highland Ave	D21DMH2065	legal
7/29/2021	DeWolfe	344-11	9977	71		Highland Ave	D21DMH2065	legal
7/29/2021	DeWolfe	344-10	10048	73		Highland Ave	D21DMH2065	legal
8/5/2021	DeWolfe	365-4	10090	74		Highland Ave	D21DMH2065	legal
8/5/2021	DeWolfe	353-9	10228	78	80	Highland Ave	D21DMH2065	legal
8/17/2021	DeWolfe	399-7	12167+	47		Maple Ave	D01DMH5650	legal
8/25/2021	DeWolfe	353-17	11380/24092	9	11	Marie Ave	D21DMH2065	legal
8/2/2021	DeWolfe	365-8	1275	10		Marie Ave	D21DMH2065	legal
8/2/2021	DeWolfe	353-15	11550/2970	13	15	Marie Ave	D21DMH2065	legal
8/3/2021	DeWolfe	365-7	3276	16		Marie Ave	D21DMH2065	legal
7/29/2021	DeWolfe	353-10	4093	17		Marie Ave	D21DMH2065	legal
8/2/2021	DeWolfe	365-5	4457	20		Marie Ave	D21DMH2065	legal

Appendix B - DeWolfe (D21) Addresses Not Accessed

Building ID	Address ID	StreetNo	StreetNoExt	Street	Drainage Area	Contaminated MH
337-13	10003/11508	72	72A	Dana St	DeWolfe	D21DMH2205
335-13	10036	73		Dana St	DeWolfe	D21DMH2205
335-12	10035	73A		Dana St	DeWolfe	D21DMH2205
337-11	11509/10153	74	76	Dana St	DeWolfe	D21DMH2205
440-4	5679	26		Dana St	DeWolfe	D21DMH1905
426-9	6100	29		Dana St	DeWolfe	D21DMH1905
440-10	6909/24740	32		Dana St	DeWolfe	D21DMH1905
414-11	7888	42		Dana St	DeWolfe	D21DMH1730
414-6	8025	44		Dana St	DeWolfe	D21DMH1730
420-14	4193	1		Merrill St	DeWolfe	D21DMH1905
420-10	11494/8544	2	4	Goodman Rd	DeWolfe	D21DMH1905
414-3	11478/11479	29	31	Chatham St	DeWolfe	D21DMH1905

Appendix C - Blanchard (D33) Legal Building Dye Tests

Date	TribArea	Building ID	Address ID	StreetNo	StreetNoExt	Street	DMH1	TestResults
3/8/2022	Blanchard (D33)	267-24	31086	11-3		Corcoran Ln	ACCESS105	Legal
3/8/2022	Blanchard (D33)	267-24	31090	11-7		Corcoran Ln	ACCESS105	Legal
3/8/2022	Blanchard (D33)	267-35	23214	14-1		Corcoran Ln	ACCESS105	Legal
3/8/2022	Blanchard (D33)	267-17	31097	15-2		Corcoran Ln	D33DMH1107	Legal
3/8/2022	Blanchard (D33)	267-17	31101	15-6		Corcoran Ln	D33DMH1107	Legal
3/8/2022	Blanchard (D33)	267-19	31102	18-2		Corcoran Ln	D33DMH1107	Legal
3/8/2022	Blanchard (D33)	267-19	31104	18-4		Corcoran Ln	D33DMH1107	Legal
3/9/2022	Blanchard (D33)	267-15	23217	19-1		Corcoran Ln	ACCESS105	Legal
3/9/2022	Blanchard (D33)	267-15	31105	19-2		Corcoran Ln	ACCESS105	Legal
3/9/2022	Blanchard (D33)	267-14	31108	23-2		Corcoran Ln	ACCESS105	Legal
3/9/2022	Blanchard (D33)	267-14	31111	23-5		Corcoran Ln	ACCESS105	Legal
10/28/2021	Blanchard (D33)	273-4	14496/8273	45	-47	Lawn St	ACCESS104	Legal
10/28/2021	Blanchard (D33)	273-25	8422	49		Lawn St	D33DMH1090	Legal
12/2/2021	Blanchard (D33)	267-56	23458	50-1		Lawn St	ACCESS105	Legal
3/7/2022	Blanchard (D33)	267-12	30727	52-3		Lawn St	D33DMH1090	Legal
3/7/2022	Blanchard (D33)	267-12	30728	52-4		Lawn St	D33DMH1090	Legal
3/7/2022	Blanchard (D33)	267-10	30729	56-2		Lawn St	D33DMH1090	Legal
3/7/2022	Blanchard (D33)	267-10	30731	56-4		Lawn St	D33DMH1090	Legal
12/2/2021	Blanchard (D33)	267-16	23462	60-1		Lawn St	ACCESS105	Legal
10/28/2021	Blanchard (D33)	267-16	30734	60-4		Lawn St	D33DMH1090	Legal
3/9/2022	Blanchard (D33)	267-13	30738	64-3		Lawn St	D33DMH1090	Legal
3/9/2022	Blanchard (D33)	267-13	30743	64-8		Lawn St	D33DMH1090	Legal
10/28/2021	Blanchard (D33)	287-19	9609/14309	65	-67	May St	ACCESS104	Legal
11/2/2021	Blanchard (D33)	287-13	7522/14306	39	-41	St Sauveur Ct	D33DMH1090	Legal
12/2/2021	Blanchard (D33)	267-18	30713	40-3		St Sauveur Ct	ACCESS105	Legal
11/4/2021	Blanchard (D33)	267-18	30714	40-4		St Sauveur Ct	ACCESS105	Legal
11/2/2021	Blanchard (D33)	287-10	8130/14306	45	-47	St Sauveur Ct	D33DMH1090	Legal
5/11/2022	Blanchard (D33)	287-8	9045	57	59	St Sauveur Ct	D33DMH1090	Legal
3/8/2022	Blanchard (D33)	267-37	30693	63-3		Thingvalla Ave	D33DMH4910	Legal
3/8/2022	Blanchard (D33)	267-37	30690	63-6		Thingvalla Ave	D33DMH4910	Legal