

REPORT

**2023 Annual Environmental Monitoring**

Thomas W. Danehy Park  
Cambridge, Massachusetts

May 2024





City of Cambridge  
Department of Public Works

*Owen O'Riordan, Commissioner*

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May 9, 2024

Mr. Mark Fairbrother  
Section Chief, Solid Waste Management  
Massachusetts Department of Environmental Protection  
Northeast Region Main Office  
150 Presidential Way  
Woburn, Massachusetts 01801

Subject: Responsible Official Certification Statement  
Danehy Park (Former New Street Landfill)  
Cambridge, Massachusetts  
2023 Annual Environmental Monitoring Report

Dear Mr. Fairbrother:

In accordance with the Massachusetts Solid Waste Management Regulations (310 CMR 19.011), the City of Cambridge, Massachusetts submits this certification for the attached submittal prepared for us by CDM Smith Inc.

I, James Wilcox, attest under the pains and penalties of perjury that: (a) I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification statement; (b) based upon my inquiry of those persons responsible for obtaining the information, the information contained in this submittal is, to the best of my knowledge, true, accurate, and complete; (c) I am fully authorized to bind the entity required to submit these documents and to make this attestation on behalf of such entity; (d) I am aware that there are significant penalties, including, but not limited to, possible administrative and civil penalties for submitting false, inaccurate, or incomplete information and possible fines and imprisonment for knowingly submitting false, inaccurate, or incomplete information.

Very truly yours,

A handwritten signature in black ink, appearing to read "James J. Wilcox".

James Wilcox  
City Engineer

Attachment – 2023 Annual Environmental Monitoring Report

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# Section 1

## 2023 Monitoring Program Overview

The 2023 Environmental Monitoring Program for Danehy Park (the site) was performed in accordance with the:

- Comprehensive Site Assessment (CDM, September 1992).
- City's Administrative Consent Order dated April 20, 1995 (ACO NE 94 9004 34).
- Massachusetts Department of Environmental Protection (MassDEP), Division of Solid Waste Management, letter dated May 14, 1996 (**Appendix A**).
- Administrative Consent Order dated January 14, 2005 (ACO NE-05- 4001SEP).
- MassDEP letter dated January 3, 2013 (**Appendix B**) approving the sampling reduction.
- 2013 Environmental monitoring plan submitted to MassDEP (CDM Smith, February 2013).

Some sampling locations have been destroyed, and other sampling locations have been added as described below.

CDM Smith, on behalf of the City of Cambridge, submitted a revised Post-Closure Environmental Monitoring and Maintenance Plan (Post-Closure Plan) to MassDEP on December 14, 2020. Submission of a revised Post-Closure Plan was required by Condition 5(c) of the MassDEP approval of the category BWP SW36, Major Post-Closure Use, permit application to construct the new Danehy Park Universal Design Playground (Authorization Number: SW36-0000025). This plan is still under review by MassDEP. The revised Post-Closure Plan proposes adding 29 landfill gas sampling locations to the 40 locations currently included in the program, including 16 locations at the newly constructed Universal Design Playground. No changes to the groundwater or surface water quality monitoring programs were proposed. Although the revised Post-Closure Plan has not yet been approved by MassDEP, where possible the proposed additional sampling locations were included during 2023 monitoring rounds.

### 1.1 Summary of Monitoring Program

Semi-annual water quality monitoring consists of the recording of water levels at seven landfill gas and groundwater wells and recording field parameters (pH, temperature, dissolved oxygen, specific conductivity) from the detention pond located in the northeast portion of the site. Water quality sampling is conducted at groundwater monitoring well GW-2 for the following parameters:

- pH, temperature, dissolved oxygen, and specific conductivity (in-situ);
- Alkalinity, total dissolved solids (TDS), nitrate-nitrogen, cyanide, sulfate, chloride, chemical oxygen demand;

- Dissolved metals - RCRA 8 metals, calcium, copper, iron, manganese, sodium, zinc; and
- Volatile organic compounds (VOCs).

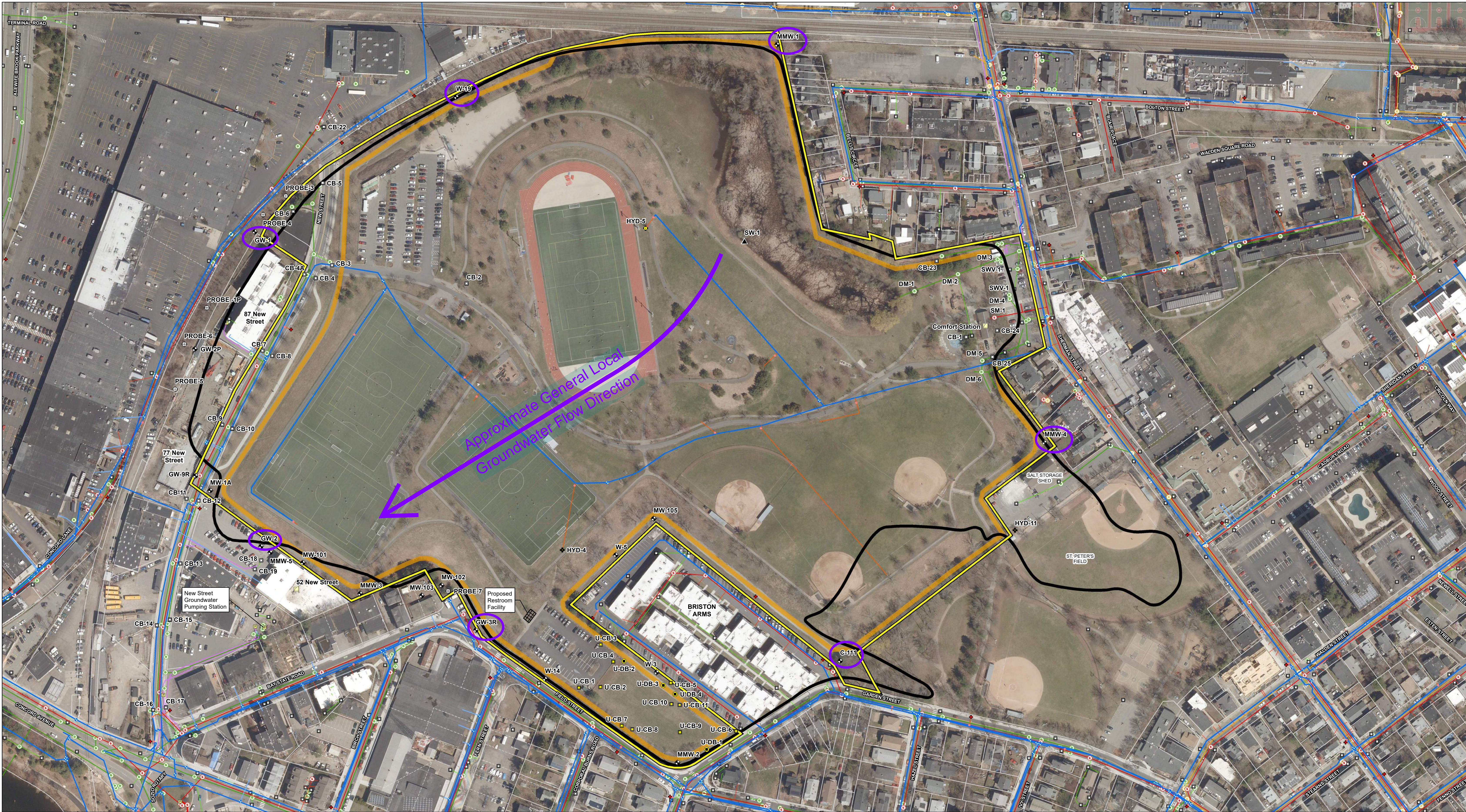
Combustible gas sampling of the casings of monitoring wells and at established interior park locations was conducted quarterly for the following parameters:

- Percent Methane (CH<sub>4</sub>);
- Percent Lower Explosive Level (LEL);
- Percent Carbon Dioxide (CO<sub>2</sub>);
- Percent Oxygen (O<sub>2</sub>);
- Parts per Million Volatile Organic Compounds (VOCs); and
- Parts per Million Hydrogen Sulfide (H<sub>2</sub>S).

Groundwater, surface water, and landfill gas monitoring well locations are shown on **Figure 1-1**.

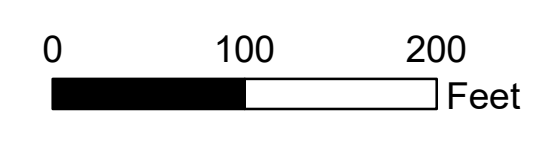
## 1.2 Summary of Findings

The results of the 2023 monitoring program are generally consistent with historic results. Water quality has remained relatively stable. Landfill gas sampling is similar to past rounds. Methane detections exceeded the regulatory limit of 25% of the LEL at the property boundary or beyond at some locations. Exceedances were detected beyond the gas vent trench in areas south of the site near the Briston Arms Apartments and to the southwest near William J. Malcolm & Sons plumbing and Evolve Fitness. Notifications of these exceedances were sent to MassDEP within the required 24-hour period (**Appendix C**).

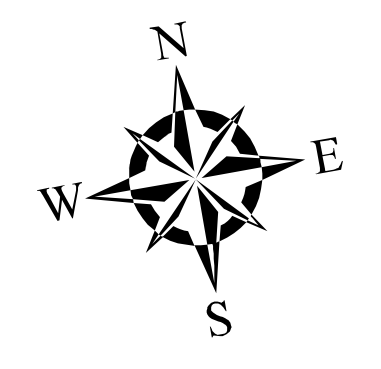
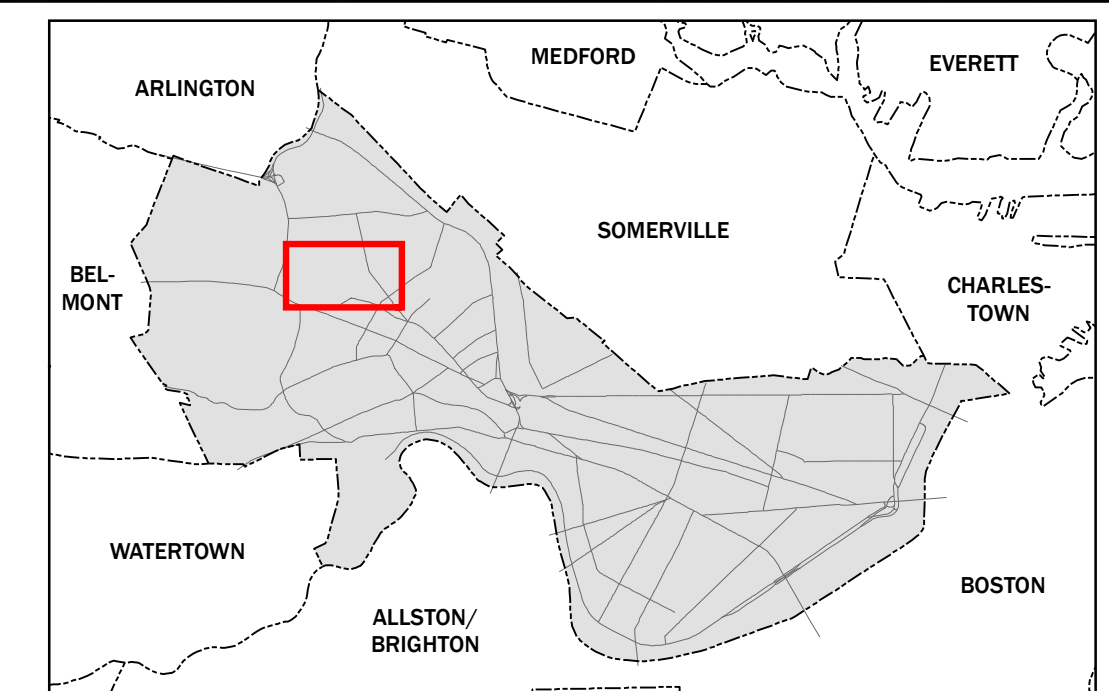


Legend	
<b>Proposed Monitoring Location</b>	<b>Monitoring Location</b>
● Detention Basin	□ Catch Basin
■ Catch Basin	⊕ Hydrant
▬ Site Boundary	▭ Indoor Gas Sampling
▬ Gas Vent Trench	⊕ Monitoring Well
▬ Limit of Former Clay	▲ Surface Water Sampling
▬ Pit Excavations	⊕ Probe
▭ Parcel Boundaries (2019)	○ Groundwater Elevation Level Monitoring Location
	<b>Water System</b>
	● Hydrant
	● Gate Valve
	● Hydrant/Valve
	▬ Service Lateral
	▬ Hydrant Lateral
	▬ Water Main
	<b>Sewer System</b>
	■ Pump Station
	○ Combined Manhole
	○ Sewage Manhole
	▬ Combined Wastewater
	▬ Sewage Main
	<b>Stormwater System</b>
	□ Catchbasin
	○ Stormwater Manhole
	▬ Storm Lateral
	▬ Storm Main

**Former New Street Landfill  
Daney Park  
City of Cambridge, MA**



111aseamap: City of Cambridge 2018 Imagery  
Source: City of Cambridge, MassGIS and ESRI ArcGIS Online  
Coordinate Sys: NAD83 Mass. State Plane Mainland (feet)



**FIGURE 1-1  
Environmental  
Monitoring Plan  
December 2023**



## Section 2

# Groundwater Monitoring

### 2.1 Groundwater Levels and Flow Patterns

CDM Smith conducted comprehensive rounds of groundwater well gauging on June 7 and December 20, 2023. Static water level measurements were collected at the following seven well locations:

- C-111, top of casing elevation 23.61;
- MMW-4, top of casing elevation 23.01;
- GW-1, top of casing elevation 23.83;
- GW-2, top of casing elevation 13.44;
- GW-3R, top of casing elevation 21.13 (assumed);
- W-19, top of casing elevation 24.51; and
- MMW-1, top of casing elevation 23.01.

Results of the well gauging are presented in **Table 2-1**. Table 2-1 also includes averages, minimums, and maximums of historical groundwater elevations, and the total number of past measurements for each well.

Groundwater elevations near Danehy Park typically show small fluctuations over time, except at groundwater monitoring wells GW-1 and GW-2, which show greater variability. Groundwater levels in June and December 2023 were consistent with historical data. GW-2 was destroyed before the December 2023 event by demolition activities at 52 New Street and was not gauged or sampled. The developer will reinstall GW-2 on City property.

Groundwater flow patterns at the site have been monitored for over 25 years. The most recent comprehensive groundwater level data indicates that flow patterns are consistent with past findings.

Regional groundwater flow is to the northwest, toward Alewife Brook. Locally, groundwater flow is influenced by a pumping station located just off New Street, about 250 feet southwest of the park. The pumping station maintains the groundwater level, near the station, below an elevation of 9 feet to prevent flooding of parking and loading docks in the surrounding low-lying area. The General local groundwater flow direction across Danehy Park is shown on Figure 1-1.

Fresh Pond is generally maintained at about an elevation of 16 feet and has a minimum operating guideline of 11 feet. This policy utilizes the groundwater drawdown associated with the New Street pumping station to limit groundwater discharge toward the pond, by maintaining a hydraulic gradient away from the pond.



**Table 2-1**

**2023 Groundwater Level Measurements  
Danehy Park, Cambridge MA**

Well Number	2023 Data <sup>(1)</sup>		Historical Data			
	6/7/2023	12/20/2023	Total # of Observ.	Average of All Data	Historical High Level <sup>(1)</sup>	Historical Low Level <sup>(1)</sup>
C-111	17.67	19.29	64	17.44	19.37	15.42
W-19	17.73	19.91	63	17.58	20.43	14.46
MMW-1	18.04	20.65	56	18.46	20.39	15.62
MMW-4	18.56	18.97	53	17.85	18.96	17.05
GW-1	Dry	15.55	51	13.27	17.80	9.01
GW-2	11.66	NM	58	10.54	13.22	2.04
GW-3	14.26	15.41	48	14.63	16.28	13.68

Notes:

1. Elevations in feet based on Cambridge City Datum.
2. NM = No Measurement.

## 2.2 Groundwater Quality

Due to the stability of groundwater quality and the relatively low concentrations of contaminants observed over a five-year sampling period, modifications to the monitoring program were recommended in 1995 and approved by MassDEP in a letter dated May 14, 1996. The recommended modification, to reduce the number of groundwater sampling locations, was implemented in 1996. Groundwater monitoring wells GW-1, GW-3, GW-7, and GW-111 were removed from the sampling program at Danehy Park.

A groundwater sample is collected from groundwater monitoring well GW-2 on a semi-annual basis. GW-2 is located immediately downgradient of the park between the park and the pumping station off New Street. A duplicate sample is collected and analyzed from well GW-2 and is identified as GW-2D.

Groundwater samples were collected from monitoring well GW-2 on June 7 but not on December 20, 2023. Groundwater samples from monitoring well GW-2 were field-analyzed for pH, temperature, specific conductivity, and dissolved oxygen. Samples were also sent to Alpha Analytical Laboratories, Inc. of Westborough, Massachusetts, under appropriate preservation and chain-of-custody protocols for analysis of the following parameters:

- total alkalinity;
- total dissolved solids (TDS);
- nitrate, nitrogen;
- total cyanide;
- sulfate;
- chloride;
- chemical oxygen demand (COD);
- dissolved metals (arsenic, barium, cadmium, calcium, chromium, copper, iron, lead, manganese, mercury, selenium, silver, sodium, and zinc); and
- volatile organic compounds (VOCs) via EPA method 8260, with 1,4-dioxane analyzed by EPA Method 8270D-SIM, to achieve the low detection limit required in Massachusetts regulations.

**Table 2-2** provides the analytical results for inorganic and field parameters, and **Table 2-3** provides the analytical results for VOC analysis for the sampling round in June 2023. The corresponding EPA Primary and Secondary Drinking Water Standards and Massachusetts Drinking Water Standard Maximum Contamination Level (MCL), Office of Research and Standards Guideline (ORSG), or Secondary Maximum Contamination Level (SMCL) are provided in the tables for reference purposes. The results of the data are presented and discussed below.

### June 2023 Results

The following MCLs, ORSG, and/or Primary Standards were exceeded in the primary and duplicate sample collected from groundwater monitoring well GW-2 in June 2023:

- Dissolved barium exceeded the MCL and Massachusetts Drinking Water Standard of 2,000 µg/l in both the primary and duplicate sample at concentrations of 2,470 µg/l and 2,530 µg/l, respectively.

TABLE 2-2

Summary of Groundwater Quality Analyses - 2023  
 Inorganic Analyses and Field Parameters  
 Danehy Park - Cambridge MA

Parameter	Units	6/7/23		12/20/23		Drinking Water Standards
		GW-2	GW-2D Duplicate	GW-2	GW-2D Duplicate	
pH	log units	5.30	NA	NS	NA	6.5-8.5 (3,5)
Temperature	Celsius	13.9	NA	NS	NA	NL
Spec. Cond.	µmhos/cm	2,441	NA	NS	NA	NL
DO	mg/L	0.61	NA	NS	NA	NL
Alkalinity	mg/L	671	678	NS	NS	NL
TDS	mg/L	1,400	1,400	NS	NS	500 (3,5)
Nitrate	mg/L	<0.100	<0.100	NS	NS	10 (2,4)
Cyanide	mg/L	<0.005	<0.005	NS	NS	0.2 (2,4)
Sulfate	mg/L	<10	<10	NS	NS	250 (3,5)
Chloride	mg/L	520	530	NS	NS	250 (3,5)
Arsenic	µg/L	<5	7.1	NS	NS	10 (2,4)
Barium	µg/L	2,470	2,530	NS	NS	2,000 (2,4)
Cadmium	µg/L	<5	<5	NS	NS	5 (2,4)
Calcium	µg/L	162000	164000	NS	NS	NL
Chromium	µg/L	<10	<10	NS	NS	100 (2,4)
Copper	µg/L	<10	<10	NS	NS	1,300 (2,4)
Iron	µg/L	38,800	39,400	NS	NS	300 (3,5)
Lead	µg/L	<10	<10	NS	NS	15 (2,4)
Manganese	µg/L	459	460	NS	NS	50 (3,5)
Mercury	µg/L	<0.2	<0.2	NS	NS	2 (2,4)
Selenium	µg/L	<10	<10	NS	NS	50 (2,4)
Silver	µg/L	<7	<7	NS	NS	100 (3,5)
Sodium	µg/L	308,000	309,000	NS	NS	20,000 (3)
Zinc	µg/L	<50	<50	NS	NS	5,000 (3,5)

Notes:

(1) Highlighted results equal or exceed drinking water standards

(2) Massachusetts Drinking Water Standard or Maximum Contaminant Level

(3) Massachusetts Drinking Water Guideline or Secondary Maximum Contaminant Level

(4) EPA Primary Maximum Contaminant Level

(5) EPA Secondary Maximum Contaminant Level

<# = Below Reporting Limit

NA = Not Analyzed

TABLE 2-3

**Summary of Groundwater Quality Analyses - 2023**  
**Volatile Organics by EPA Method 8260<sup>6</sup>**  
**Danehy Park - Cambridge, MA**  
**(All values in µg/l)**

Parameter	6/7/2023		12/20/2023		Drinking Water Standards
	GW-2	GW-2D Duplicate	GW-2	GW-2D Duplicate	
1,1,1,2-Tetrachloroethane	<0.50	<0.50	NS	NS	NL
1,1,1-Trichloroethane	<0.50	<0.50	NS	NS	200 (2,4)
1,1,2,2-Tetrachloroethane	<0.50	<0.50	NS	NS	NL
1,1,2-Trichloroethane	<0.75	<0.75	NS	NS	5 (2,4)
1,1-Dichloroethane	<0.75	<0.75	NS	NS	70 (3)
1,1-Dichloroethene	<0.50	<0.50	NS	NS	7 (2,4)
1,1-Dichloropropene	<2.5	<2.5	NS	NS	NL
1,2,3-Trichlorobenzene	<2.5	<2.5	NS	NS	NL
1,2,3-Trichloropropane	<5.0	<5.0	NS	NS	NL
1,2,4-Trichlorobenzene	<2.5	<2.5	NS	NS	70 (2,4)
1,2,4-Trimethylbenzene	<2.5	<2.5	NS	NS	NL
1,2-Dibromo-3-chloropropane	<2.5	<2.5	NS	NS	0.2 (2)
1,2-Dibromoethane	<2.0	<2.0	NS	NS	0.02 (2)
1,2-Dichlorobenzene	<2.5	<2.5	NS	NS	600 (2,4)
1,2-Dichloroethane	<0.50	<0.50	NS	NS	5 (2,4)
1,2-Dichloroethene, Total	<0.50	<0.50	NS	NS	NL
1,2-Dichloropropane	<1.8	<1.8	NS	NS	5 (2,4)
1,3,5-Trimethylbenzene	<2.5	<2.5	NS	NS	NL
1,3-Dichlorobenzene	<2.5	<2.5	NS	NS	NL
1,3-Dichloropropane	<2.5	<2.5	NS	NS	NL
1,3-Dichloropropene, Total	<0.50	<0.50	NS	NS	NL
1,4-Dichlorobenzene	<2.5	<2.5	NS	NS	5 (2)
1,4-Dichlorobutane	<5.0	<5.0	NS	NS	NL
2,2-Dichloropropane	<2.5	<2.5	NS	NS	NL
2-Butanone	<5.0	<5.0	NS	NS	4,000 (3)
2-Hexanone	<5.0	<5.0	NS	NS	NL
4-Methyl-2-pentanone	<5.0	<5.0	NS	NS	350 (3)
1,4-Dioxane	27.8	28.1	NS	NS	0.3 (3)
Acetone	<5.0	<5.0	NS	NS	6,300 (3)
Acrylonitrile	<5.0	<5.0	NS	NS	NL
Benzene	<0.50	<0.50	NS	NS	5 (2,4)
Bromobenzene	<2.5	<2.5	NS	NS	NL
Bromochloromethane	<2.5	<2.5	NS	NS	NL
Bromodichloromethane	<0.50	<0.50	NS	NS	NL
Bromoform	<2.0	<2.0	NS	NS	NL
Bromomethane	<1.0	<1.0	NS	NS	10 (3)
Carbon disulfide	<5.0	<5.0	NS	NS	NL
Carbon tetrachloride	<0.50	<0.50	NS	NS	5 (2,4)
Chlorobenzene	1.8	1.8	NS	NS	100 (2,4)
Chloroethane	<1.0	<1.0	NS	NS	NL
Chloroform	<0.75	<0.75	NS	NS	70 (3)
Chloromethane	<2.5	<2.5	NS	NS	NL
cis-1,2-Dichloroethene	<0.50	<0.50	NS	NS	70 (2,4)
cis-1,3-Dichloropropene	<0.50	<0.50	NS	NS	0.4 (3)
Dibromochloromethane	<0.50	<0.50	NS	NS	NL

TABLE 2-3

**Summary of Groundwater Quality Analyses - 2023**  
**Volatile Organics by EPA Method 8260<sup>6</sup>**  
**Danehy Park - Cambridge, MA**  
**(All values in µg/l)**

Parameter	6/7/2023		12/20/2023		Drinking Water Standards
	GW-2	GW-2D Duplicate	GW-2	GW-2D Duplicate	
Dibromomethane	<5.0	<5.0	NS	NS	NL
Dichlorodifluoromethane	<5.0	<5.0	NS	NS	1,400 (3)
Ethyl ether	<2.5	<2.5	NS	NS	NL
Ethyl methacrylate	<5.0	<5.0	NS	NS	NL
Ethylbenzene	<0.50	<0.50	NS	NS	700 (2,4)
Hexachlorobutadiene	<0.50	<0.50	NS	NS	NL
Isopropylbenzene	<0.50	<0.50	NS	NS	NL
Methyl tert butyl ether	<1.0	<1.0	NS	NS	70(3)
Methylene chloride	<3.0	<3.0	NS	NS	5 (2,4)
n-Butylbenzene	<0.50	<0.50	NS	NS	NL
n-Propylbenzene	<0.50	<0.50	NS	NS	NL
Naphthalene	<2.5	<2.5	NS	NS	140 (3)
o-Chlorotoluene	<2.5	<2.5	NS	NS	NL
o-Xylene	<1.0	<1.0	NS	NS	10,000 (total xylenes)
p-Chlorotoluene	<2.5	<2.5	NS	NS	NL
p-Isopropyltoluene	<0.50	<0.50	NS	NS	NL
p/m-Xylene	<1.0	<1.0	NS	NS	10,000 (total xylenes)
sec-Butylbenzene	<0.50	<0.50	NS	NS	NL
Styrene	<1.0	<1.0	NS	NS	100 (2,4)
tert-Butylbenzene	<2.5	<2.5	NS	NS	NL
Tetrachloroethene	<0.50	<0.50	NS	NS	5 (2,4)
Tetrahydrofuran	<5.0	<5.0	NS	NS	1,300 (3)
Toluene	<0.75	<0.75	NS	NS	1,000 (2,4)
trans-1,2-Dichloroethene	<0.75	<0.75	NS	NS	100
trans-1,3-Dichloropropene	<0.50	<0.50	NS	NS	0.4 (3)
trans-1,4-Dichloro-2-butene	<2.5	<2.5	NS	NS	NL
Trichloroethene	<0.50	<0.50	NS	NS	5 (2,4)
Trichlorofluoromethane	<2.5	<2.5	NS	NS	NL
Vinyl acetate	<5.0	<5.0	NS	NS	NL
Vinyl chloride	<1.0	<1.0	NS	NS	2 (2,4)
Xylenes, Total	<1.0	<1.0	NS	NS	10,000 (total xylenes)

Notes:

**(1) Highlighted results equal or exceed drinking water standards**

(2) Massachusetts Drinking Water Standard or Maximum Contaminant Level

(3) Massachusetts Drinking Water Guideline or Secondary Maximum Contaminant Level

(4) EPA Primary Maximum Contaminant Level

(5) EPA Secondary Maximum Contaminant Level

(6) 1,4-dioxane is analyzed by EPA Method 8270D-SIM to achieve the low detection limit required

&lt;# = Below Reporting Limit

NL - No Limit

- 1,4-Dioxane exceeded the Massachusetts ORSG for drinking water of 0.3 µg/l in the primary and duplicate sample collected from GW-2 at concentrations of 27.8 µg/l and 28.1 µg/l, respectively.

The following SMCLs and/or EPA Secondary Standards were exceeded in the primary and duplicate sample collected from well GW-2 in June 2023:

- TDS exceeded the SMCL and EPA Secondary Standard of 500 mg/l in both the primary and duplicate sample at a concentration of 1,400 mg/l in both.
- Chloride exceeded the SMCL and EPA Secondary Standard of 250 mg/l in the primary and duplicate sample at concentrations of 520 mg/l and 530 mg/l, respectively.
- Dissolved iron exceeded the SMCL and EPA Secondary Standard of 300 µg/l in both the primary and duplicate sample at concentrations of 38,800 µg/l and 39,400 µg/l, respectively.
- Dissolved manganese exceeded the SMCL and EPA Secondary Standard of 50 µg/l in both the primary and duplicate sample at concentrations of 459 µg/l and 460 µg/l.
- Dissolved sodium exceeded the SMCL of 20,000 µg/l in both the primary and duplicate sample at concentrations of 308,000 µg/l and 309,000 µg/l, respectively.

### December 2023 Results

During the December 2023 sampling event, GW-2 was destroyed during site demolition activities in advance of the construction of a new mixed use retail/apartment building on the former Evolve Fitness property located at 52 New Street. The developer will install a replacement well for GW-2 on City property.

### Discussion

Results of sample analysis for 2023 are consistent with previous rounds. Arsenic has historically been detected at groundwater monitoring well GW-2 but was not detected above laboratory detection limits during the June 2023 sampling round.

Samples collected during the June sampling round exceeded the MCL for barium and the Massachusetts ORSG for drinking water for 1,4-dioxane. However, drinking water standards and the drinking water guideline are not applicable at this site, as there are no known drinking water wells in the area. Additionally, the City of Cambridge, through the New Street Pump Station operations, maintains a hydraulic gradient to prevent groundwater inflow to Fresh Pond. CDM Smith will continue monitoring for barium and 1,4-dioxane in future sampling events.

SMCLs and EPA Secondary Standards are not health-based standards, but are goals above which taste, odor, color, and corrosivity may discourage use as a public drinking water supply. The elevated levels of TDS, chloride, iron, manganese, and sodium do not pose a health risk.

Trace concentrations of chlorobenzene were detected in the primary and duplicate samples collected from well GW-2 during the June 2023 sampling rounds at a concentration of 1.8 µg/l in both. This concentration is orders of magnitude below the MCL and EPA Primary Standard of 100 µg/l.

The laboratory analytical report for the June 2023 round is included as **Appendix D**.

## 2.3 Groundwater Quality Trends

**Table 2-4** presents a summary of inorganic groundwater quality results since 1991 for the downgradient groundwater monitoring well GW-2. The table also lists average, minimum, and maximum values for each parameter. Review of the historical data indicates groundwater quality at the site is stable. For all parameters, there is no appreciable increase or decrease in concentrations over time. The general decrease in metals concentrations observed starting from the August 1993 sampling round is due to field filtering of samples, rather than an actual decrease in concentration. Prior to August 1993, metals results are total metals, while subsequent data are dissolved metals.

VOC results also indicate that groundwater quality at well GW-2 is stable. Chlorobenzene has historically been detected at GW-2. Between 1991 and 2000, chlorobenzene was detected at GW-2 in 13 of the 15 sampling rounds, ranging in concentration from 1.1 µg/L to 5.2 µg/L. Since 2001, chlorobenzene has been detected at GW-2 during every sampling round, except December 2018 and December 2022, at concentrations ranging from 0.5 µg/L to 3.4 µg/L. Chlorobenzene concentrations at GW-2 have consistently been well below the MCL and EPA Primary Standard of 100 µg/L.

In 2014, the laboratory analysis method for 1,4-dioxane was changed to achieve a lower detection limit to meet the Massachusetts ORSG for drinking water (0.3 µg/l). Since 2014, 1,4-dioxane has consistently been detected in samples collected from GW-2, with concentrations ranging from 6.41 µg/L to 45.6 µg/L.

## 2.4 Conclusions and Recommendations

The results of the 2023 groundwater monitoring program indicate water quality results at the site are consistent with historical findings. There is some variability in parameter concentrations over time, but nothing suggesting an overall increasing or decreasing trend.

CDM Smith recommends the groundwater monitoring program at the site be continued as per the 2023 Environmental Monitoring Plan and as follows:

- After GW-2 is reinstalled, continue to obtain groundwater samples from downgradient groundwater monitoring well GW-2 semi-annually for parameters listed in Section 2.2. No other wells are currently recommended for future sampling.
- Monitor groundwater levels at select wells semi-annually to verify site groundwater flow direction.

**Table 2-4**  
**Historical Groundwater Quality for Inorganic Parameters for GW-2**  
**Danehy Park - Cambridge, MA**

Parameter	Units	Average Detected Values (1)	Minimum Value	Maximum Value	7/16/1991 GW-2	11/8/1991 GW-2	3/19/1992 GW-2	5/14/1992 GW-2	12/17/1992 GW-2	8/25/1993 GW-2	6/22/1994 GW-2	11/11/1994 GW-2	6/9/1995 GW-2	11/16/1995 GW-2	5/29/1996 GW-2	12/13/1996 GW-2	6/6/1997 GW-2	11/5/1997 GW-2	4/16/1998 GW-2	10/15/1998 GW-2	5/27/1999 GW-2	11/2/1999 GW-2
pH	log units	6.59	5.30	8.04	7.2	6.7	7	NA	6.5	6.4	6.7	6.9	6.8	6.3	6.7	6.5	6.6	6.5	6.56	6.49	6.39	6.59
Temperature	Celsius	13.92	5.60	19.12	18	15.2	11	15	11.5	17.5	15.3	16	16.8	14.6	12.9	10.9	13	15.3	10.3	17.2	13.3	16.8
Spec. Conductivity	umho/cm	1,955	114	4,211	2,190	2,150	1,500	2,350	1,240	2,500	2,680	2,500	2,310	1,470	2,400	1,330	2,260	2,420	1,760	1,420	2,480	2,580
Dissolved Oxygen	mg/l	2.52	0.30	21.5	NA	2.5	1.5	1.8	2.6	1.2	2.6	0.8	2.4	1.1	4	6.4	2.3	0.72	2.38	6.21	0.48	2.58
Alkalinity	mg/l	710	389	1100	NA	NA	NA	NA	NA	990	860	950	910	600	770	480	830	860	700	600	880	840
TDS	mg/l	1,110	450	1,600	1,270	1,130	1,200	1,300	NA	1,400	1,400	1,400	1,300	760	1,400	670	1,200	1,100	1,000	730	1,200	1,200
Nitrate	mg/l	0.70	0.08	2.10	2.1	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.078	ND	ND
Sulfate	mg/l	36	0.99	250	ND	ND	0.99	ND	7.8	ND	NA	ND	41	14	13	12	26	15	ND	ND	ND	ND
Chloride	mg/l	266	25	640	280	270	400	350	25	370	270	320	300	120	420	140	640	220	200	100	250	230
Aluminum	mg/l	9.92	0.04	51	51	2	5	1.4	NA	ND	NA	NA	NA	NA	0.099	0.044	NA	NA	NA	NA	NA	NA
Arsenic	mg/l	0.012	0.005	0.052	0.052	ND	0.0065	ND	0.0063	ND	ND	ND	ND	ND	ND	ND	ND	0.006	ND	0.0093	ND	ND
Barium	mg/l	2.26	0.48	12	3.2	2.6	2.6	2.8	12	2.8	2.7	2.9	2.5	1.2	2.5	1.2	2.6	2	2.1	1.6	2.8	2.8
Cadmium	mg/l	0.0022	0.0015	0.0035	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0017	ND	0.0015	ND	0.002	0.0035	ND	ND
Calcium	mg/l	157	93	201	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/l	0.046	0.023	0.069	0.069	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	mg/l	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/l	33.5	8.5	110.0	110.0	36.0	44.0	46.0	NA	38.0	44.0	37.0	34.0	15.0	41.0	22.0	40.0	28.0	42.0	20.0	38.0	31.0
Lead	mg/l	0.16	0.01	0.68	0.68	0.046	0.099	0.036	0.076	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.01	ND
Manganese	mg/l	0.476	0.036	0.770	NA	0.42	0.49	0.036	NA	0.26	0.44	0.33	0.36	0.31	0.57	0.46	0.47	0.34	0.77	0.39	0.46	0.43
Mercury	mg/l	0.0007	0.0007	0.0007	0.0007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	mg/l	0.079	0.079	0.079	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.079	ND
Silver	mg/l	0.0063	0.0063	0.0063	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0063	ND	ND
Sodium	mg/l	192	58	355	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/l	0.187	0.052	0.500	0.5	0.081	0.09	0.052	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

1. Average values do not include sampling rounds where concentrations were below laboratory reporting limits.

ND = Below reporting limit

NA = Not analyzed

Metals are dissolved (except for samples prior to August 1993, which are total metals).



Table 2-4 Cont.  
 Historical Groundwater Quality for Inorganic Parameters for GW-2  
 Danehy Park - Cambridge, MA

Parameter	Units	8/15/2000 GW-2	10/24/2000 GW-2	6/19/2001 GW-2	12/3/2001 GW-2	6/11/2002 GW-2	12/12/2002 GW-2	5/22/2003 GW-2	10/21/2003 GW-2	6/7/2004 GW-2	9/30/2004 GW-2	8/23/2005 GW-2	12/22/2005 GW-2	8/10/2006 GW-2	12/19/2006 GW-2	7/12/2007 GW-2	12/20/2007 GW-2	6/24/2008 GW-2	1/6/2009 GW-2	3/25/2009 GW-2	10/6/2009 GW-2
pH	log units	7.01	6.68	6.5	6.5	6.86	6.69	8.04	6.3	6.30	6.93	6.48	6.70	6.56	6.99	6.30	NA	5.81	NA	7.27	7.41
Temperature	Celsius	17.8	17.04	15.2	14.4	16.2	12.4	11.2	17.16	17.16	18.05	18.57	10.55	18.45	11.14	19.12	NA	16.43	NA	5.6	11.11
Spec.Conductivity	umho/cm	2,230	1,850	2,271	2,260	188	1,840	1,192	3,992	3,992	1,933	2,192	1,118	1,649	1,385	1,132	NA	1,672	NA	180	114
Dissolved Oxygen	mg/l	2.04	2.8	3.04	2.99	0.3	0.85	4.15	1.58	1.58	3.49	1.24	1.74	3.71	3.74	0.74	NA	5.79	NA	21.5	13.56
Alkalinity	mg/l	830	940	650	1100	740	810	689.50	772.24	665	799	720	570	720	550	700	NA	680	NA	640	700
TDS	mg/l	1,300	1,200	1,200	1,500	990	1,100	1142	1062	1,086	1,046	1,200	830	990	710	990	NA	1,100	NA	1,300	1,200
Nitrate	mg/l	ND	ND	ND	ND	ND	ND	3.5	8.4	2.0	4.5	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND
Sulfate	mg/l	ND	ND	ND	ND	ND	ND	ND	26.37	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND
Chloride	mg/l	310	260	240	290	190	190	247.42	202.94	243.67	263.92	310	190	210	94	180	NA	240	NA	410	300
Aluminum	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.006	ND	NA	ND	NA	ND	0.007
Barium	mg/l	2.8	2.6	2.3	3.5	1.9	2	1.95	2.40	2.11	2.24	2.5	1.5	2.1	1.04	2.23	NA	1.98	NA	2.1	2.06
Cadmium	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND
Calcium	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150	120	160	NA	140	NA	170	150
Chromium	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND
Copper	mg/l	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND
Iron	mg/l	42.0	18.0	17.0	34.0	35.0	32.0	39.3	36.4	39.1	36.8	41.0	28.0	37.0	27.0	40.0	NA	32.0	NA	32.0	34.0
Lead	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND
Manganese	mg/l	0.43	0.34	0.42	0.3	0.45	0.49	0.631	0.482	0.551	0.512	0.590	0.52	0.54	0.694	0.55	NA	0.505	NA	0.505	0.535
Mercury	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND
Selenium	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	ND	NA	ND	NA	ND	ND
Silver	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	ND	NA	ND	NA	ND	ND
Sodium	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180	100	170	NA	170	NA	170	200
Zinc	mg/l	NA	NA	NA	NA	NA	NA	ND	ND	ND	0.0372	0.21	ND	ND	NS	ND	NA	ND	NA	ND	ND

Notes:

1. Average values do not include sampling rounds where concentrations were below laboratory reporting limits.

ND = Below reporting limit

NA = Not analyzed

Table 2-4 Cont.  
 Historical Groundwater Quality for Inorganic Parameters for GW-2  
 Danehy Park - Cambridge, MA

Parameter	Units	6/28/2010 GW-2	12/22/2010 GW-2	6/6/2011 GW 2	1/5/2012 GW-2	6/1/2012 GW-2	12/13/2012 GW-2	6/6/2013 GW-2	12/30/2013 GW-2	6/10/2014 GW-2	12/17/2014 GW-2	6/4/2015 GW-2	12/11/2015 GW-2	6/15/2016 GW-2	12/11/2015 GW-2	6/15/2017 GW-2	12/13/2017 GW-2	6/15/2018 GW-2	12/26/2018 GW-2	6/5/2019 GW-2	12/26/2019 GW-2
pH	log units	6.79	6.31	6.60	6.07	6.21	6.40	5.91	6.97	6.78	6.82	6.66	6.50	6.31	6.58	6.22	6.37	6.82	6.63	6.47	6.43
Temperature	Celsius	14.96	11.81	12.36	11.33	13.57	14.02	12.83	11.52	12.29	11.25	12.05	14.71	14.95	12.24	12.12	13.19	12.4	9.6	13.2	10.3
Spec. Conductivity	umho/cm	1,606	1,462	2,182	1,793	1,799	1,927	2,078	1,446	1,848	825	2,203	2,535	4,211	2,164	2,174	1,867	1,870	1,253	2,318	1,158
Dissolved Oxygen	mg/l	0.58	0.69	0.56	1.12	1.18	1.13	1.31	2.64	1.61	0.71	0.50	1.30	0.84	6.00	1.05	0.75	1.16	1.88	0.81	1.67
Alkalinity	mg/l	790	480	770	710	760	770	787	538	736	389	808	860	764	695	696	411	572	533	645	440
TDS	mg/l	1,100	870	1,200	1,000	1,000	1,100	1,100	770	1,200	450	1,400	1,300	1,300	1,100	1,200	1,200	1,000	710	1,200	630
Nitrate	mg/l	ND	0.11	0.18	ND	0.11	0.16	ND	ND	0.108	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sulfate	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	250	16	10	ND	ND
Chloride	mg/l	250	230	280	200	230	220	220	130	280	58	450	370	370	280	350	220	240	93	380	114
Aluminum	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/l	ND	ND	ND	0.005	ND	ND	0.0071	0.005	0.012	ND	ND	0.016	0.0176	0.01	ND	ND	ND	ND	ND	ND
Barium	mg/l	2.23	1.28	2.18	1.95	2.35	2.31	1.96	1.21	2.23	0.693	2.59	2.68	2.51	1.66	1.87	0.97	1.04	0.48	1.75	0.98
Cadmium	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Calcium	mg/l	160	120	170	170	160	150	170	120	190	93	190	180	190	150	154	156	147	154	180	114
Chromium	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.023	ND	ND	ND	ND	ND	ND	ND	ND
Copper	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron	mg/l	35.0	19.0	38.0	36.0	39.0	30.0	36.0	15.0	38.0	14.0	39.0	36.0	40.0	28.0	28.4	15.8	16.6	8.5	29.5	19.9
Lead	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Manganese	mg/l	0.528	0.372	0.605	0.638	0.529	0.472	0.516	0.343	0.614	0.3	0.608	0.478	0.501	0.442	0.482	0.608	0.352	0.486	0.754	0.333
Mercury	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium	mg/l	190	190	220	170	180	160	170	93	200	58	270	240	270	190	205	160	164	85	223	99
Zinc	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

1. Average values do not include sampling rounds where concentrations were below laboratory reporting limits.

ND = Below reporting limit

NA = Not analyzed

**Table 2-4 Cont.**  
**Historical Groundwater Quality for Inorganic Parameters for GW-2**  
**Danehy Park - Cambridge, MA**

Parameter	Units	6/16/2020 GW-2	12/21/2020 GW-2	6/14/2021 GW-2	12/21/2021 GW-2	6/13/2022 GW-2	12/13/2022 GW-2	6/7/2023 GW-2	12/20/2023 GW-2
pH	log units	6.33	6.63	6.58	6.48	6.90	6.63	5.30	NS
Temperature	Celsius	14.4	13	14.2	13.5	14.7	14.1	13.9	NS
Spec.Conductivity	umho/cm	1,668	1,870	2,480	2,086	2,848	2,335	2,441	NS
Dissolved Oxygen	mg/l	3.14	2.07	1.77	2.14	1.08	1.39	0.61	NS
Alkalinity	mg/l	623	722	675	568	652	673	671	NS
TDS	mg/l	930	1,000	1,300	1,100	1,600	1,300	1,400	NS
Nitrate	mg/l	ND	ND	0.166	ND	ND	ND	ND	NS
Sulfate	mg/l	ND	ND	ND	ND	ND	26	ND	NS
Chloride	mg/l	230	250	440	290	560	400	<10	NS
Aluminum	mg/l	NA	NA	NA	NA	NA	NA	NA	NS
Arsenic	mg/l	ND	ND	ND	0.007	ND	ND	ND	NS
Barium	mg/l	1.72	2.08	2.24	1.98	2.71	1.86	2470	NS
Cadmium	mg/l	ND	ND	ND	ND	ND	ND	ND	NS
Calcium	mg/l	160	201	163	149	188	148	162	NS
Chromium	mg/l	ND	ND	ND	ND	ND	ND	ND	NS
Copper	mg/l	ND	ND	ND	ND	ND	ND	ND	NS
Iron	mg/l	33.4	33.2	40.1	38.2	46.7	30.0	38.8	NS
Lead	mg/l	ND	ND	ND	ND	ND	ND	ND	NS
Manganese	mg/l	0.572	0.629	0.543	0.5	0.604	0.4	0.459	NS
Mercury	mg/l	ND	ND	ND	ND	ND	ND	ND	NS
Selenium	mg/l	ND	ND	ND	ND	ND	ND	ND	NS
Silver	mg/l	ND	ND	ND	ND	ND	ND	ND	NS
Sodium	mg/l	172	235	293	204	355	234	308	NS
Zinc	mg/l	ND	ND	ND	ND	ND	ND	ND	NS

Notes:

1. Average values do not include sampling rounds where concentrations were below laboratory reporting limits.

ND = Below reporting limit

NA = Not analyzed

## Section 3

# Surface Water Sampling

### 3.1 Water Quality of the Detention Pond

Field measurements of pH, temperature, specific conductivity, and dissolved oxygen were collected at the southeastern end of the detention pond, location SW-1, in March, June, September, and December of 2023. All field parameters for the 2023 sampling rounds were within historical ranges.

**Table 3-1** presents the 2023 field measurements.

Field parameters are compared to US EPA National Recommended Water Quality Criteria (NRWQC). The only applicable standard is for pH, with an acceptable range of 6.5 to 9.0 Standard Units (SU). Due to the dry conditions during the summer months, the Measured pH could not be measured during the June and September 2023 events. However, the Measured pH was within the NRWQC range at the March and December 2023 events. pH is listed as a non-priority pollutant by the EPA.

A copy of the 2023 Wetland Wildlife Study Area Report for Danehy Park is included in **Appendix E**.

### 3.2 Conclusions and Recommendations

The results indicate that water quality at the detention pond is of acceptable quality. In August of 2012, CDM Smith requested that this requirement be eliminated from the monitoring program. This request was denied by MassDEP.

The monitoring of the detention pond will continue on a semi-annual basis. The program will continue to consist of field testing for temperature, pH, specific conductivity, and dissolved oxygen.

**TABLE 3-1**

**2023 Water Quality Results for the Detention Pond (SW-1)  
Danehy Park - Cambridge MA**

Parameter	Units	NRWQC <sup>2,3</sup>	March	June	September	December
			2023	2023	2023	2023
pH	log units	6.5-9	6.79	5.81	6.18	7.53
Temperature	Celsius	NL	5.3	15.8	15.8	5.8
Specific Conductivity	µmhos/cm <sup>3</sup>	NL	363	168	75	50
Dissolved Oxygen	mg/L	NL	2.5	4.99	2.68	7.24

Notes:

(1) Highlighted areas: concentration equals or exceeds NRWQC

(2) NRWQC: National Recommended Water Quality Criteria for Freshwater Based Surface Water,  
<https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table>

(3) Criterion Continuous Concentration (CCC) values are compared to, if none are available, Criterion Maximum Concentration (CMC) values are used.

NS - Not Sampled. Due to Dry Conditions

## Section 4

# Gas Monitoring

### 4.1 General

Four rounds of quarterly landfill gas monitoring were conducted at Danehy Park in March, June, September, and December 2023. Measurements were collected from existing groundwater monitoring well casings, permanent landfill gas monitoring wells, catch basins, two temporary gas probes, and hydrants as identified below. Measurements were also collected at the Sherman Street Comfort Station. Background ambient gas readings were taken outside of the Sherman Street Comfort Station for each sampling round.

Combustible gas monitoring was performed in accordance with the:

- Massachusetts Department of Environmental Protection (MassDEP) letter dated May 14, 1996.
- MassDEP letter dated January 3, 2013, which approved a reduction in the number of monitoring locations, from 74 to 40 locations throughout the site and surrounding areas plus one background location.
- CDM Smith's Post-Closure Environmental Monitoring Plan (February 2013).

In accordance with the above approvals, the 40 quarterly landfill gas monitoring locations included in the February 2013 Environmental Monitoring Plan are:

- |                                       |  |
|---------------------------------------|--|
| ▪ Outside the Door of the Park Office | ▪ CB-3                                     |
| ▪ Garage Floor                        | ▪ CB-4/CB-4A                               |
| ▪ Men's Floor Drain                   | ▪ CB-5                                     |
| ▪ Women's Floor Drain                 | ▪ CB-6                                     |
| ▪ C-111                               | ▪ CB-7                                     |
| ▪ GW-1                                | ▪ CB-9                                     |
| ▪ GW-2                                | ▪ CB-11                                    |
| ▪ GW-2P                               | ▪ CB-12                                    |
| ▪ GW-3 (replaced with GW-3R)          | ▪ CB-13                                    |
| ▪ GW-9 (replaced with GW-9R)          | ▪ CB-15                                    |
| ▪ MMW-3                               | ▪ CB-17                                    |
| ▪ MMW-4                               | ▪ CB-18 (destroyed)                        |
| ▪ MMW-5                               | ▪ CB-19 (destroyed)                        |
| ▪ MW-101                              | ▪ CB-20 (destroyed)                        |
| ▪ MW-102                              | ▪ CB-21 (destroyed)                        |
| ▪ MW-103                              | ▪ PROBE-1P                                 |
| ▪ MW-105                              | ▪ PROBE-5                                  |
| ▪ MW-1A                               | ▪ PROBE-6 (when methane detected in GW-2P) |
| ▪ W-3                                 | ▪ HYD-4                                    |
| ▪ W-5                                 | ▪ HYD-5                                    |

Catch basins 18 and 19 were flooded and recently removed from former Evolve Fitness parking lot for construction of a new apartment building. Catch basins 20 and 21, included in the Environmental Monitoring Plan list, no longer exist. GW-3R was installed in March 2021 to Replace GW-3, which had been paved over. GW-9R was installed in March 2021 to replace GW-9, which had been destroyed during construction at 77 New Street. PROBE-5, which had been inaccessible during all of 2020 due to construction on New Street, has been accessible and sampled since the March 2021 round.

In addition to the above Environmental Monitoring Plan sampling locations, temporary landfill gas probes PROBE-3 and PROBE-4 remain available if methane is detected at CB-6 or GW-1, respectively. Neither PROBE-3 nor PROBE-4 were sampled during 2023. In 2019, landfill gas probe PROBE-7 was added to the monitoring program as a temporary replacement for destroyed well GW-3. PROBE-7 was sampled during all four rounds in 2023. Although not an Environmental Monitoring Plan Location, the Evolve Fitness Building is typically monitored because of periodic detections of combustible gas at monitoring location MW-101. Monitoring was also conducted at catch basins CB-23 through CB-26 located in and around the Sherman Street parking lot during the March 2021 round. Catch basins CB-23 through CB-26 have not been sampled since March 2021.

As discussed in Section 1, a revised Post-Closure Plan is currently under review by MassDEP. The revised plan proposes adding the following 29 landfill gas sampling locations to the 40 locations currently included in the program, which include 16 locations at the newly constructed Universal Design Playground:

- W-14
- MMW-2
- CB-1
- CB-2
- CB-8
- CB-10
- CB-14
- CB-16
- CB-22
- Probe-3 (if methane is detected in CB-6)
- Probe-4 (if methane is detected GW-1)
- Probe 7
- HYD-11
- U-DB-1
- U-DB-2
- U-DB-3
- U-DB-4
- U-CB-1
- U-CB-2
- U-CB-3
- U-CB-4
- U-CB-5
- U-CB-6
- U-CB-7
- U-CB-8
- U-CB-9
- U-CB-10
- U-CB-11
- Universal Design Playground Restroom

Although the revised Post-Closure Plan has not yet been approved by MassDEP, where possible the proposed additional sampling locations were included during 2023 monitoring rounds. During 2023, the Universal Design Playground catch basins and drains were monitored. Plans to construct the Universal Design Playground restroom facility are currently on hold.

Concentrations of methane (CH<sub>4</sub>) in percent by volume, carbon dioxide (CO<sub>2</sub>), Hydrogen sulfide (H<sub>2</sub>S), and oxygen (O<sub>2</sub>) were obtained using a Landtec GEM 5000 Gas Analyzer. The lower explosive limit

(LEL) for methane was calculated based on the methane concentration reading from the GEM 5000. Volatile organic compound (VOC) concentrations were obtained using a photoionization detector (PID), Lamp eV 10.6. Instruments were calibrated and checked daily before and after field usage.

Initial gas concentrations at monitoring wells were recorded when the well sample port was first opened. A final reading was collected following a purge period of approximately 10 minutes. Final readings are reported and compared with historical trends in this report.

Gas monitoring locations are shown on Figure 1-1.

## 4.2 Monitoring Well Concentrations

The 2023 monitoring well sampling results and the results of monitoring inside the onsite comfort station and evolve fitness building are summarized in **Table 4-1** through **Table 4-4**. Combustible gas (methane) concentrations detected in well casings during the four 2023 monitoring events are consistent with past monitoring results and continue to exhibit the typical variability of historical gas readings across the former landfill.

Combustible gas concentrations were detected in final readings at the following locations during the 2023 sampling rounds:

- GW-9R (All 2023 monitoring rounds)
- MW-101 (March, June, and September 2023)
- MW-102 (September 2023)
- W-3 (March, June and September 2023)
- W-5 (All 2023 monitoring rounds)

Landfill gas has intermittently been detected in these wells historically and results do not indicate a change in combustible gas conditions in this area.

## 4.3 Indoor Monitoring

Combustible gas monitoring was conducted at the Sherman Street Comfort Station and the Evolve Fitness building. Due to methane periodically exceeding 25% LEL in well MW-101 located adjacent to the Evolve Fitness Building, indoor gas sampling has been conducted within the building. The Evolve Fitness Building was in the process of being demolished during the December 2023 monitoring round and was not monitored.

Combustible gas was not detected at the Comfort Station or the Evolve Fitness building during any of the 2023 sampling rounds (see Tables 4-1 through 4-4).



**TABLE 4-1  
MONITORING WELLS & BUILDINGS  
LANDFILL GAS MONITORING - MARCH 2023  
DANEHY PARK**

Sampling Location	Date	CH <sub>4</sub> (%)	%LEL	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	VOC (ppm)	H <sub>2</sub> S (ppm)
Background	3/10/2023	0.0	0	0.0	20.9	0.0	0.0
Outside Office Door**+	3/10/2023	0.0	0	0.0	20.9	0.0	0.0
Garage Door**+	3/10/2023	0.0	0	0.0	20.9	0.0	0.0
Men's Floor Drain**+	3/10/2023	0.0	0	0.0	20.9	0.0	0.0
Women's Floor Drain**+	3/10/2023	0.0	0	0.0	20.9	0.0	0.0
Evolve Fitness Building, 53 New St	3/10/2023	0.0	0	0.0	20.9	0.0	0.0
C-111*	3/10/2023	0.0	0	0.0	20.9	0.0	0.0
GW-1*	3/10/2023	0.0	0	0.3	20.7	0.0	0.0
GW-2*	3/10/2023	0.0	0	0.2	20.8	0.0	0.0
GW-2P*	3/10/2023	0.0	0	3.5	14.0	0.0	0.0
GW-3R**2	3/10/2023	0.0	0	0.0	20.9	0.0	0.0
GW-9R**3	3/13/2023	0.9	18%	0.5	20.5	0.0	0.0
MMW-2^	3/13/2023	0.0	0	0.2	20.8	0.0	0.0
MMW-3*	3/13/2023	0.0	0	0.2	20.8	0.0	0.0
MMW-4*	3/10/2023	0.0	0	0.0	20.9	0.0	0.0
MMW-5*	3/10/2023	0.0	0	0.0	20.9	0.0	0.0
MW-101*	3/13/2023	<b>5.9</b>	<b>118%</b>	3.5	14.0	0.6	0.0
MW-102*	3/13/2023	0.0	0	0.4	20.7	0.0	0.0
MW-103*	3/13/2023	0.0	0	0.0	20.9	0.0	0.0
MW-105*	3/10/2023	0.0	0	0.0	20.9	0.0	0.0
MW-1A*	3/13/2023	0.0	0	0.0	20.9	0.0	0.0
W-3*	3/13/2023	0.8	16%	0.7	20.2	0.0	0.0
W-5*	3/13/2023	<b>16.9</b>	<b>338%</b>	6.5	9.6	0.0	0.0
W-14^	3/13/2023	0.0	0	0.0	20.9	0.0	0.0

**NOTES:**

\* 2013 Environmental Monitoring Plan (EMP) sampling location

^ Proposed additional sampling location (2021 EMP)

+ Indicates location is at the onsite comfort station (insided locations not sampled this round due to building being closed because of COVID-19)

1. Wells were purged for approximately 10 minutes before final readings were recorded.

2. GW-3R was installed on 3/19/2021 to replace GW-3, which had been paved over, and sampled the same day.

3. GW-9R was installed on 3/19/2021 to replace GW-9, which had been destroyed by construction at 77 New Street, and sampled the same day.

4. Exceedances of 25% LEL bolded.

NS - Not Sampled

LEL - Lower Explosive Limit

**TABLE 4-2  
MONITORING WELLS & BUILDINGS  
LANDFILL GAS MONITORING - JUNE 2023  
DANEHY PARK**

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Sampling Location	Date	CH <sub>4</sub> (%)	%LEL	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	VOC (ppm)	H <sub>2</sub> S (ppm)
Background	6/7/2023	0.0	0	0.0	20.9	0.0	0.0
Outside Office Door**	6/7/2023	0.0	0	0.0	20.9	0.0	0.0
Garage Door**	6/7/2023	0.0	0	0.0	20.9	0.0	0.0
Men's Floor Drain**	6/7/2023	0.0	0	0.0	20.9	0.0	0.0
Women's Floor Drain**	6/7/2023	0.0	0	0.0	20.9	0.0	0.0
Evolve Fitness Building, 53 New St	6/7/2023	0.0	0	0.0	20.9	0.0	0.0
C-111*	6/7/2023	0.0	0	0.2	20.8	0.0	0.0
GW-1*	6/7/2023	0.0	0	0.8	20.1	0.0	0.0
GW-2*	6/7/2023	0.0	0	0.2	20.8	0.0	0.0
GW-2P*	6/7/2023	0.0	0	3.2	17.7	0.0	0.0
GW-3R**2	6/8/2023	0.0	0	0.3	20.7	0.0	0.0
GW-9R**3	6/8/2023	1.0	20	0.5	20.6	0.2	0.0
MMW-2^	6/8/2023	0.0	0	0.3	20.7	0.0	0.0
MMW-3*	6/8/2023	0.0	0	0.3	20.7	0.0	0.0
MMW-4*	6/7/2023	0.0	0	0.0	20.9	0.0	0.0
MMW-5*	6/7/2023	NS	NS	NS	NS	NS	NS
MW-101*	6/8/2023	<b>15.1</b>	<b>302%</b>	11.7	3.3	0.6	0.0
MW-102*	6/8/2023	0.0	0	1.5	19.1	0.0	0.0
MW-103*	6/8/2023	0.0	0	0.0	20.9	0.0	0.0
MW-105*	6/7/2023	0.0	0	0.2	20.8	0.0	0.0
MW-1A*	6/8/2023	0.0	0	0.2	20.8	0.0	0.0
W-3*	6/8/2023	0.4	<b>8%</b>	0.5	20.5	0.0	0.0
W-5*	6/8/2023	<b>8.6</b>	<b>172%</b>	8.8	10.5	0.8	0.0
W-14^	6/8/2023	0.0	0	0.3	20.7	0.0	0.0

**NOTES:**

\* 2013 Environmental Monitoring Plan (EMP) sampling location

^ Proposed additional sampling location (2021 EMP)

+ Indicates location is at the onsite comfort station (insided locations not sampled this round due to building being closed because of COVID-19)

1. Wells were purged for approximately 10 minutes before final readings were recorded.

2. GW-3R was installed on 3/19/2021 to replace GW-3.

3. GW-9R was installed on 3/19/2021 to replace GW-9.

4. Exceedances of 25% LEL bolded.

5. MMW-5 covered with asphalt debris, could not sample.

NS - Not Sampled

LEL - Lower Explosive Limit

**TABLE 4-3  
MONITORING WELLS & BUILDINGS  
LANDFILL GAS MONITORING - SEPTEMBER 2023  
DANEHY PARK**

Sampling Location	Date	CH <sub>4</sub> (%)	%LEL	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	VOC (ppm)	H <sub>2</sub> S (ppm)
Background	9/25/2023	0.0	0	0.0	20.9	0.0	0.0
Outside Office Door**	9/25/2023	0.0	0	0.0	20.9	0.0	0.0
Garage Door**	9/25/2023	0.0	0	0.0	20.9	0.0	0.0
Men's Floor Drain**	9/25/2023	0.0	0	0.0	20.9	0.0	0.0
Women's Floor Drain**	9/25/2023	0.0	0	0.0	20.9	0.0	0.0
Evolve Fitness Building, 53 New St	9/25/2023	0.0	0	0.0	20.9	0.0	0.0
C-111*	9/25/2023	0.0	0	0.0	20.9	0.0	0.0
GW-1*	9/25/2023	0.0	0	0.0	20.9	0.0	0.0
GW-2*	9/25/2023	0.0	0	0.0	20.9	0.0	0.0
GW-2P*	9/25/2023	0.0	0	5.1	14.8	0.0	0.0
GW-3R**2	9/25/2023	0.0	0	0.4	20.5	0.0	0.0
GW-9R**3	9/29/2023	0.8	16%	0.3	20.7	0.0	0.0
MMW-2^	9/29/2023	0.0	0	0.5	20.4	0.0	0.0
MMW-3*	9/29/2023	0.0	0	0.0	20.9	0.0	0.0
MMW-4*	9/25/2023	0.0	0	0.0	20.9	0.0	0.0
MMW-5*	9/25/2023	NS	NS	NS	NS	NS	NS
MW-101*	9/28/2023	<b>15.1</b>	<b>302%</b>	9.2	6.6	1.7	0.0
MW-102*	9/28/2023	<b>3.0</b>	<b>60%</b>	1.4	19.2	0.6	0.0
MW-103*	9/28/2023	0.0	0	0.0	20.9	0.0	0.0
MW-105*	9/25/2023	0.0	0	0.0	20.9	0.0	0.0
MW-1A*	9/29/2023	0.0	0	0.0	20.9	0.0	0.0
W-3*	9/29/2023	1.1	22%	1.0	19.6	0.6	0.0
W-5*	9/29/2023	<b>7.2</b>	<b>144%</b>	4.5	14.8	1.3	0.0
W-14^	9/29/2023	0.0	0	0.5	20.5	0.0	0.0

**NOTES:**

\* 2013 Environmental Monitoring Plan (EMP) sampling location

^ Proposed additional sampling location (2021 EMP)

+ Indicates location is at the onsite comfort station (insided locations not sampled this round due to building being closed because of COVID-19)

1. Wells were purged for approximately 10 minutes before final readings were recorded.

2. GW-3R was installed on 3/19/2021 to replace GW-3.

3. GW-9R was installed on 3/19/2021 to replace GW-9.

4. Exceedances of 25% LEL bolded.

5. MMW-5 covered in asphalt debris, could not sample.

NS - Not Sampled

LEL - Lower Explosive Limit

**TABLE 4-4**  
**MONITORING WELLS & BUILDINGS**  
**LANDFILL GAS MONITORING - DECEMBER 2023**  
**DANEHY PARK**

Sampling Location	Date	CH <sub>4</sub> (%)	%LEL	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	VOC (ppm)	H <sub>2</sub> S (ppm)
Background	12/20/2023	0.0	0	0.0	20.9	0.0	0.0
Outside Office Door**	12/20/2023	0.0	0	0.0	20.9	0.0	0.0
Garage Door**	12/20/2023	0.0	0	0.0	20.9	0.0	0.0
Men's Floor Drain**	12/20/2023	0.0	0	0.0	20.9	0.0	0.0
Women's Floor Drain**	12/20/2023	0.0	0	0.0	20.9	0.0	0.0
Evolve Fitness Building, 53 New St	12/20/2023	NS	NS	NS	NS	NS	NS
C-111*	12/20/2023	0.0	0	0.0	20.9	0.0	0.0
GW-1*	12/20/2023	0.0	0	0.4	20.6	0.0	0.0
GW-2*	12/20/2023	NS	NS	NS	NS	NS	NS
GW-2P*	12/20/2023	0.0	0	0.4	20.5	0.0	0.0
GW-3R** <sup>2</sup>	12/20/2023	0.0	0	0.2	20.8	0.0	0.0
GW-9R** <sup>3</sup>	12/21/2023	1.0	20	0.4	20.3	0.5	0.0
MMW-2^	12/21/2023	0.0	0	0.2	20.8	0.0	0.0
MMW-3*	12/20/2023	0.0	0	1.0	19.9	0.0	0.0
MMW-4*	12/20/2023	0.0	0	0.0	20.9	0.0	0.0
MMW-5*	12/21/2023	0.0	0	0.2	20.8	0.0	0.0
MW-101*	12/21/2023	0.0	0	0.0	20.9	0.0	0.0
MW-102*	12/21/2023	0.0	0	0.3	20.7	0.0	0.0
MW-103*	12/21/2023	0.0	0	0.0	20.9	0.0	0.0
MW-105*	12/20/2023	0.0	0	0.0	20.9	0.0	0.0
MW-1A*	12/21/2023	0.0	0	0.3	20.8	0.0	0.0
W-3*	12/21/2023	0.0	0	0.2	20.8	0.0	0.0
W-5*	12/21/2023	0.7	14%	0.4	20.0	0.0	0.0
W-14^	12/21/2023	0.0	0	0.3	20.7	0.0	0.0

**NOTES:**

\* 2013 Environmental Monitoring Plan (EMP) sampling location

^ Proposed additional sampling location (2021 EMP)

+ Indicates location is at the onsite comfort station (insided locations not sampled this round due to building being closed because of COVID-19)

1. Wells were purged for approximately 10 minutes before final readings were recorded.

2. GW-3R was installed on 3/19/2021 to replace GW-3.

3. GW-9R was installed on 3/19/2021 to replace GW-9.

4. Exceedances of 25% LEL bolded.

5. GW-2 was destroyed due to construction in area.

NS - Not Sampled

LEL - Lower Explosive Limit

## 4.4 Catch Basin Monitoring

Monitoring is also conducted in catch basins along New Street and in the Universal Design Playground. Methane was not detected in any catch basins during any of the sampling rounds. New Street catch basin monitoring results are summarized in **Table 4-5**. Universal Design Playground monitoring results are presented in **Table 4-6**.

## 4.5 Temporary Probe Monitoring

Six temporary landfill gas probes (PROBE-1P, and PROBE-3 through PROBE-7) are located at Danehy Park and on property west of the park across New Street (see Figure 1-1). Gas sampling is conducted at temporary probes to monitor for migration beyond other permanent sampling points (wells and catch basins). When these permanent points either have detections or are inaccessible, nearby temporary probes are sampled.

Temporary probe sampling results are summarized in **Table 4-7**. PROBE-1P, PROBE-5, and PROBE-7 were the only temporary probes monitored in 2023. Methane was not detected at PROBE-1P or PROBE-5 in 2023. Methane was detected in September 2023 at PROBE-7, with a concentration of 8% LEL. Methane was not detected in PROBE-7 during any other round in 2023.

PROBE-3 and PROBE-4 are used to monitor for migration beyond catch basin CB-6 and well GW1, respectively. As landfill gas was not detected in CB-6 or GW-1, PROBE-3 and PROBE-4 were not sampled in 2023.

Monitoring at PROBE-6 is conducted to measure migration beyond well GW-2P, where methane has historically been detected, and to determine if gas is migrating towards Fresh Pond Mall. Methane was not detected at GW-2P during the 2023 sampling rounds; therefore, PROBE-6 was not sampled.

## 4.6 Hydrant Monitoring

The monitoring plan includes sampling of the interior of two remaining hydrants at the park (HYD4 and HYD5) and at HYD-11 installed on the property in 2019 at the salt storage area as part of the winter brine facility construction. All other hydrants have been removed from service by the Cambridge Water Department with the approval of the Cambridge Fire Department. Hydrant barrel testing was conducted by removing the cap and inserting tubing connected to a handheld meter. Landfill gas was not detected in HYD4, HYD5, or HYD11 during the 2023 sampling rounds. Hydrant sampling is summarized in Table 4-7. Hydrant locations are shown on Figure 1-1.

## 4.7 Perimeter Gas Vent Trench Inspection

Per current MassDEP approvals, an inspection of the perimeter gas vent trench is performed annually and documented in the annual report. The annual inspection of the perimeter gas vent trench was performed on Wednesday December 20, 2023. The inspection was completed by Mr. Michael Dolan, a registered MassDEP third-party inspector.

Construction of a new playground between Field St and the Briston Arms Apartments was completed at the end of 2021. As part of the construction of the playground, a modified covered gas vent trench with perforated pipe and vent risers was constructed in this area.

**TABLE 4-5  
CATCH BASIN MONITORING - 2023  
DANEHY PARK**

Sampling Location	December 2023		September 2023		June 2023		March 2023	
	CH <sub>4</sub> (%)	%LEL	CH <sub>4</sub> (%)	%LEL	CH <sub>4</sub> (%)	%LEL	CH <sub>4</sub> (%)	%LEL
CB1^	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB2^	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB3*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB4*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB4A^	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB5*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB6*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB7*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB8^	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB9*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB10^	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB11*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB12*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB13*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB14^	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB15*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB16^	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB17*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB18*	NS	NS	NS	NS	NS	NS	NS	NS
CB19*	NS	NS	NS	NS	NS	NS	NS	NS
CB22^	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CB23 <sup>2</sup>	NS	NS	NS	NS	NS	NS	NS	NS
CB24 <sup>2</sup>	NS	NS	NS	NS	NS	NS	NS	NS
CB25 <sup>2</sup>	NS	NS	NS	NS	NS	NS	NS	NS
CB26 <sup>2</sup>	NS	NS	NS	NS	NS	NS	NS	NS

**NOTES:**

- \* 2013 Environmental Monitoring Plan (EMP) sampling location
  - ^ Proposed additional sampling location (2021 EMP)
  - 1. CB20 and CB21 were destroyed in late 2018 by construction
  - 2. CB23, CB24, CB25, CB26 were only sampled one time only in March 2021.
  - 3. CB18 and CB19 are flooded and not accessible for samples.
  - 4. CB18 and CB19 are destroyed in construction area during December 2023 round.
- NS - Not Sampled  
LEL - Lower Explosive Limit

**TABLE 4-6  
UNIVERSAL PLAYGROUND CATCH BASIN MONITORING - 2023  
DANEHY PARK**

Sampling Location	December 2023		September 2023		June 2023		March 2023	
	CH <sub>4</sub> (%)	%LEL	CH <sub>4</sub> (%)	%LEL	CH <sub>4</sub> (%)	%LEL	CH <sub>4</sub> (%)	%LEL
U-CB-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U-CB-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U-CB-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U-CB-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U-CB-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U-CB-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U-CB-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U-CB-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U-CB-9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U-CB-10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U-CB-11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U-DB-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U-DB-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U-DB-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U-DB-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**NOTES:**

1. Catchbasins labeled with NS were not sampled because they were still under construction.

NS - Not Sampled

LEL - Lower Explosive Limit

**TABLE 4-7  
PROBE & HYDRANT MONITORING - 2023  
DANEHY PARK**

SAMPLING LOCATION	December 2023		September 2023		June 2023		March 2023	
	CH <sub>4</sub> (%)	%LEL	CH <sub>4</sub> (%)	%LEL	CH <sub>4</sub> (%)	%LEL	CH <sub>4</sub> (%)	%LEL
PROBE-1P*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROBE-3 <sup>^2</sup>	NS	NS	NS	NS	NS	NS	NS	NS
PROBE-4 <sup>^3</sup>	NS	NS	NS	NS	NS	NS	NS	NS
PROBE-5* <sup>4</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROBE-6* <sup>5</sup>	NS	NS	NS	NS	NS	NS	NS	NS
PROBE-7 <sup>^6</sup>	0.0	0.0	0.4	8%	0.0	0.0	0.0	0.0
HYD-4*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HYD-5*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HYD-11 <sup>^</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**NOTES:**

\* 2013 Environmental Monitoring Plan (EMP) sampling location

<sup>^</sup> Proposed additional sampling location (2021 EMP)

1. Probes were purged for approximately 10 minutes before final readings were recorded.
2. Although not a 2013 EMP sampling location, PROBE-3 remains available if methane is detected at location CB-6.
3. Although not a 2013 EMP sampling location, PROBE-4 remains available if methane is detected at location GW-1.
4. PROBE-5 was added back into the program after construction of new apartment building was completed in early 2021.
5. PROBE-6 was not sampled during 2021, as methane was not detected at location GW-2P.
6. PROBE-7 was installed in 2019 at property line, adjacent to MW-102.
8. Exceedances of 25% LEL bolded.

NS - Not Sampled

LEL - Lower Explosive Limit



Overall, the vent trench was in good condition with most of the trench visible and in functional condition. There were several locations where the trench was covered by sediment that had washed into the trench; vegetation growing within the trench; or leaves and/or branches that had fallen into the trench. At one location iron staining of the trench stone was observed. Iron staining has historically been observed in this area.

**Figure 4-1** depicts observations from the vent trench inspection and locations where maintenance is required. Photos of the inspection are included as **Appendix F**.

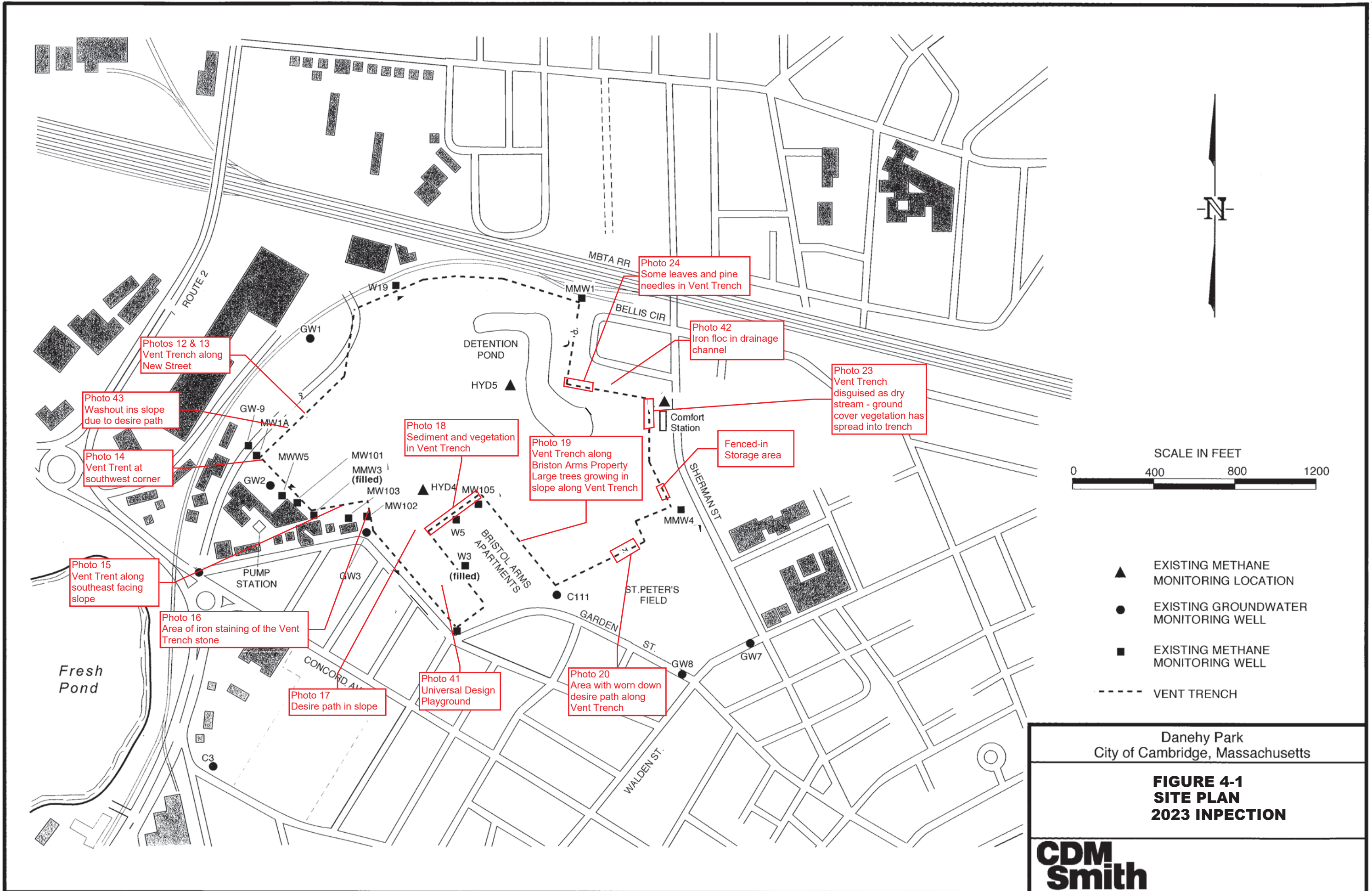
As part of the revised Post-Closure Plan currently under review by MassDEP (CDM Smith, December 2020), the City proposed an assessment of the landfill gas vent trench consisting of up to 19 test pits to visually assess for the presence of silt, sediment, or other deleterious material. MassDEP issued conditional approval of the assessment on November 24, 2021. The City implemented the test pit program during 2022. The results of the test pit program were provided to MassDEP in a vent trench test pit investigation report on May 23, 2023.

In the past, inspections have covered only the perimeter gas vent trench per MassDEP approvals. The revised Post-Closure Plan (December 2020), currently under review by MassDEP, proposes biennial third-party inspections of the entire former landfill per the current Solid Waste Management Regulations (310 CMR 19.018). Although the revised Post-Closure Plan has not yet been approved by MassDEP, CDM Smith performed the third-party inspection, the results of which are documented on the MassDEP Third Party Inspection Report Form and Corrective Action Form, which are provided in **Appendix G**. Photos from the inspection are included in Appendix F.

## 4.8 Conclusions and Recommendations

Results of the gas monitoring events are generally consistent with the variability observed during previous historical monitoring and do not indicate a change in combustible gas conditions at monitoring locations at Danehy Park. Conclusion and recommendations include the following:

- Continue to maintain the perimeter gas vent trench, similar to past efforts, including removal of leaves, branches, sediment, and vegetation from the trench after the winter season.
- Combustible gas detections greater than 25% LEL continue to be detected at well MW-101, located northeast of the Evolve Fitness Building. Methane was not detected during any of the 2023 monitoring rounds at MMW-3 (located east of the Evolve Fitness Building), wells MMW-5 or GW2 (located in the Evolve Fitness parking lot), the catch basins in the Evolve Fitness parking lot, or inside the Evolve Fitness building. Indoor monitoring should continue at Evolve Fitness.
- During the 2023 rounds, combustible gas was detected at monitoring well GW-9R, located in front of 77 New Street, during all monitoring rounds, but at final concentrations below 25% LEL. Combustible gas has consistently been detected at GW-9R since it was installed in March 2021 as a replacement for GW-9, which had been destroyed by the construction activities at 77 New Street. PROBE-5, located on the 77 New Street property, was sampled during all four monitoring events in 2023. Combustible gas was not detected during any of the rounds at PROBE-5.



Danehy Park  
City of Cambridge, Massachusetts

**FIGURE 4-1  
SITE PLAN  
2023 INPECTION**



- During the September 2023 monitoring round, combustible gas greater than the 25% LEL was detected at MW-102, which is located near the William J. Malcolm & Son building (75 Bay State Road, Cambridge). Combustible gas was not detected at well MW-103, located on the William J. Malcolm & Son property. GW-3R, located on City property, was installed in March 2021 as a replacement for GW-3 which had been paved over. This provides an additional gas monitoring point in this area. Combustible gas was not detected at GW-3 during 2023. In September 2019, temporary probe PROBE-7 was added to the program to further assess landfill gas in this area. The temporary probe is located on the Danehy property, within the fenced area, at the approximate mid-point of the eastern side of the Malcolm building. Combustible gas was detected at PROBE-7 during the September 2023 monitoring round, but at an initial and final concentrations below 25% LEL. It is recommended that this probe continue to be monitored on a quarterly basis. If LEL exceedances at MW-102 continue, consideration should be given to the need for indoor gas sampling within the building. The City should continue efforts to obtain a right-of-entry access agreement for landfill gas probes should they be required and potential indoor monitoring at this property.
- Combustible gas detections greater than the 25% LEL have also continued to occur in 2023 at monitoring wells W3 and W5, which are located between the gas vent trench and the Briston Arms Apartments (237 Garden Street, Cambridge). Recent investigations have detected methane on both sides of the City's property boundary with Briston Arms in excess of the 25% of the LEL. Historic investigations have indicated that buried waste materials are also present on the Briston Arms property. The current owner of 247 Garden Street, the Briston Arms Preservation Associates Limited Partnership (the BAPALP), conducts routine quarterly monitoring of soil gas probes, utilities, and buildings on the Briston Arms property and reports the results to MassDEP.

The gas vent trench east of the Briston Arms is in good condition with no observable sediment or vegetation. The gas vent trench north of the Briston Arms has vegetation growth. Maintenance and vegetation removal are recommended for the portion of the gas vent trench north of the Briston Arms property. The vent trench west of Briston Arms was replaced with a modified vent trench as part of the Universal Design Playground construction.

- The Universal Design Playground was completed late 2021. Landfill Gas monitoring locations: W-3, MMW-2, and W-14, which are around the perimeter of the playground were monitored during all four quarters in 2023. The catch basins and drains inside the playground area were monitoring as well. Monitoring location W-3 had a methane concentration greater than 25% LEL in March, June, and September 2023. The other wells, drains, and catch basins were all found to be non-detect during the sampling events in 2023.

**Appendix A**  
**May 14, 1996 MassDEP Approval Letter**



COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
METROPOLITAN BOSTON - NORTHEAST REGIONAL OFFICE

RECEIVED  
MAY 20 1996

WILLIAM F. WELD  
Governor

JOE PAUL CELLUCCI  
Governor

TRUDY COXE  
Secretary

DAVID B. STRUHS  
Commissioner

May 14, 1996

Mr. Richard Rossi  
Deputy City Manager  
City Manager's Office  
Cambridge City Hall  
795 Massachusetts Avenue  
Cambridge, MA 02142

RE: CAMBRIDGE - Solid Waste  
Danehy Park -  
Former New Street Landfill  
1. Consent Order Submittal  
ACO-NE-94-9004-34  
2. 1995 Annual Report

Dear Mr. Rossi:

The Metropolitan Boston/Northeast Regional Office of the Department of Environmental Protection, Division of Solid Waste Management (the "Department"), has reviewed the City of Cambridge's 1995 Annual Report on Environmental Monitoring at Thomas W. Danehy Park located off New Street (formerly the New Street Landfill) in Cambridge. The report is entitled:

City of Cambridge, Massachusetts  
1995 Annual Report  
Danehy Park Environmental Monitoring  
January 1996

The report presents a summary of the environmental monitoring activities conducted in 1995 at Danehy Park. The report was prepared on behalf of the City of Cambridge (the "City") by Camp Dresser & McKee, Inc. of Cambridge, MA. The report was submitted in accordance with Section IV, Paragraph 14 of the effective Administrative Consent Order (ACO-NE-94-9004-34) signed by the City and the Department.

The Department has reviewed the information presented in the report pursuant to Section IV, Paragraph 14 of the Consent Order; and pursuant to 310 CMR 19.142 (6).

1. Based on this review, the Department, acting under the authority of M.G.L. c. 111, s. 150A and 310 CMR 19.000 hereby determines the City of Cambridge has fulfilled the requirements of Section IV, Paragraph 14 of the Consent Order.
2. Sections 2.4, 3.2, and 4.5 of the report contained recommendations regarding groundwater, surface water, and combustible gas monitoring. The Department provides the following comments regarding those recommendations.

A. Groundwater Monitoring. Section 2.4 proposed modifications to the groundwater monitoring program.

- i. The Department approves that groundwater elevations shall be collected from all existing monitoring wells semi-annually, in accordance with the Consent Order.
- ii. The Department approves that groundwater samples from monitoring well GW-2 shall be collected semi-annually coincident with the collection of groundwater elevation data. Monitoring wells GW-1, GW-3, GW-7 and GW-111 may be eliminated from future groundwater monitoring rounds.
- iii. The Department approves that groundwater samples collected from GW-2 shall be analyzed for the following parameters:

alkalinity	total dissolved solids
chloride	nitrate
sulfate	arsenic
barium	cadmium
chromium	iron
lead	manganese
mercury	selenium
silver	temperature
pH	specific conductance
dissolved oxygen	

- iv. However, Volatile Organic Compounds (VOCs) shall be analyzed by EPA Method 8260, and not EPA Method 8240, as proposed.

B. Surface Water Monitoring. Section 3.2 proposed modifications to the surface water monitoring program.

The Department approves that the detention pond be sampled semi-annually coincident with groundwater monitoring. Surface water samples shall be analyzed for the following parameters:

lead	aluminum
pH	dissolved oxygen
specific conductance	

c. Combustible Gas Monitoring. Section 4.5 proposed modifications to the landfill gas monitoring program.

i. The Department approves that combustible gas concentrations shall be collected semi-annually from the following reduced set monitoring wells:

C-111	W-18	MW-102	MMW-2	GW-1
W-3	W-19	MW-105	MMW-3	GW-2
W-5	MW-1A	MW-107	MMW-5	GW-3
W-5A	MW-101	MW-109	MMW-6	

However, the Department requires that gas well GW-6 be added to the set of sampling locations.

ii. The Department approves the following reduced set of combustible gas wells along the vent trench.

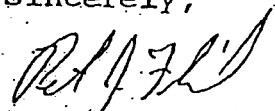
C-111	W-18	MW-102	MMW-2	GW-1
W-3	W-19	MW-105	MMW-3	GW-2
W-5	MW-1A	MW-107	MMW-5	GW-3
W-5A	MW-101	MW-109	MMW-6	

iii. The Department approves that combustible gas monitoring of the vent trench surface may be discontinued.

The Department reserves the right to require additional assessment and investigation of the landfill site area based on a review of environmental monitoring results.

If you have any questions regarding these comments, or if you need additional information, please contact Mark Dakers at (617) 292-5869, or Peter Flink at (617) 932-7663.

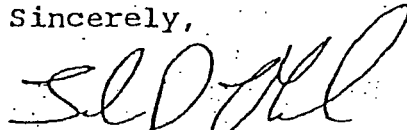
Sincerely,



Peter J. Flink  
Environmental Analyst

TDM/PJF/MD/ch

Sincerely,

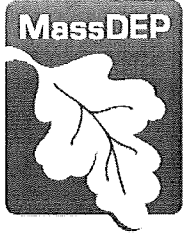


Thomas D. Mahin  
Chief, Solid Waste Management  
Bureau of Waste Prevention

cc: Camp Dresser & McKee, Inc., 10 Cambridge Center,  
Cambridge, MA 02142, attn: Richard Laramie, John Kissida  
DEP/DSWM/Boston, Attn: Philip Weinberg, Director

**Appendix B**  
**January 3, 2013 MassDEP Approval Letter**





Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

Northeast Regional Office • 205B Lowell Street, Wilmington MA 01887 • 978-694-3200

DEVAL L. PATRICK  
Governor

RICHARD K. SULLIVAN JR.  
Secretary

TIMOTHY P. MURRAY  
Lieutenant Governor

KENNETH L. KIMMELL  
Commissioner

 JAN 03 2013

Richard Rossi, Deputy City Manager  
City of Cambridge  
Cambridge City Hall  
795 Massachusetts Avenue  
Cambridge, MA

RE: Cambridge– Solid Waste/Cor  
Danehy Park, New Street  
FMF# 39138  
Minor Modification BWP SW-22  
Conditional Approval  
Transmittal Number: X252270

Dear Mr. Rossi:

On December 17, 2012, the City of Cambridge (the "City") submitted a response to the November 1, 2012, Notice of Technical ("NOTD") issued by MassDEP to the City regarding the City's proposed modifications to the post-closure environmental monitoring plan ("PC-Monitoring Plan") for the Danehy Park Landfill in Cambridge, Massachusetts. The City requested MassDEP approval of the proposed modifications in an application, category BWP SW 22 – *Minor Modification of an Existing Landfill*, Transmittal No. X252270. The application and the City's response, dated December 10, 2012 (the "NOTD Response") were prepared and submitted to MassDEP on behalf of the City by CDMSmith of Cambridge, Massachusetts.

The City, in the NOTD Response, revises the Application to reflect the following proposed modifications to the PC-Monitoring Plan:

1. Reduction in the number of landfill gas monitoring locations from the current seventy-four (74) locations to thirty-eight (38) locations (See Page 2 of the Response);
2. Reduction in the frequency of sampling groundwater monitoring well GW-2 from semi-annual to annual; and
3. Reduction in the number of monitoring wells used to collect groundwater elevation data from twenty-two (22) to five (5) monitoring wells.

## DISCUSSION

### **Reduction in Landfill Gas Sampling Locations**

The City proposes the reduction in the number of landfill gas monitoring locations from seventy-four (74) to thirty-eight (38) based on the historic sampling data showing no detection of landfill gas, above regulatory standards, at the sampling locations proposed for elimination since January 2009 or earlier. Based on this analysis, MassDEP concurs with the proposed reduction in landfill gas sampling locations.

### **Reduction in Groundwater Monitoring Program**

The City proposes in the NOTD Response to sample groundwater monitoring well GW-2 annually rather than the current semi-annual sampling. The NOTD Response cites the occurrence of iron, manganese and barium, in upgradient monitoring wells GW-7 and GW-8 as evidence that these compounds are originating from an upgradient source and not the landfill. However, the groundwater data cited from monitoring wells GW-7 and GW-8 was collected in 1992. Data is not provided on the current groundwater quality at these locations. In addition, iron, manganese, and barium are typical components of landfill leachate and have been consistently detected above Massachusetts drinking water guidelines in GW-2. Therefore, MassDEP does not concur with the proposed reduction in the sampling of GW-2 from semi-annually to annually

The NOTD Response also revises the application to propose to reduce the number of points utilized for the collection of groundwater elevation data from twenty-two (22) to five (5) monitoring wells: C-111, MMW-4, GW-1, GW-2 and GW-3. The NOTD Response states that the City has utilized twenty-two (22) monitoring wells for groundwater elevation data since 1996 and based on a review of that data the proposed wells are sufficient for monitoring the groundwater flow direction at the landfill.

MassDEP agrees that based on the historical data, reduction in the number of wells utilized for determining the groundwater flow direction at the landfill is appropriate. However, MassDEP notes that as proposed, the monitoring network does not include any monitoring wells located in the northern portion of the Landfill. Therefore, MassDEP is requiring in this decision that the City include additional monitoring wells in the northern portion of the landfill for purposes of monitoring groundwater elevations and the groundwater flow direction.

## DECISION

MassDEP has reviewed the City's application, Transmittal No. X252270, for approval of modifications to the PC-Monitoring Plan pursuant to 310 CMR 19.000, the Solid Waste Management Regulations including, but not limited to sections 310 CMR 19.037 and 310 CMR 19.132 and for consistency with the guidelines of MassDEP's Landfill Technical Guidance Manual (DEP Publication No. SWMID: 001-91-G, Rev. 5/97).

MassDEP has determined that the application as conditioned by this decision, complies with the requirements of 310 CMR 19.000. Therefore, in accordance with M.G.L. Chapter 111, § 150A and 310 CMR 19.000, MassDEP approves the proposed modifications to the PC-Monitoring Plan subject to compliance with the conditions of this decision imposed by MassDEP pursuant to 310 CMR 19.043(1).

1. The City may, as proposed, reduce the number of landfill gas sampling locations from 74 to 38 locations. Landfill gas shall continue to be sampled on a quarterly basis (4 times per year) for the proposed 38 sampling locations.
2. The City may reduce the number of groundwater monitoring wells used to collect groundwater elevation data from twenty-two (22) provided that it includes the proposed five (5) monitoring wells (C-111, MMW-4, GW-1, GW-2 and GW-3) and monitoring wells MW-109 and MMW-1 located the northern portion of the Landfill property.
3. The City shall continue to sample monitoring well GW-2 and the landfill stormwater basin on a semi-annual basis in accordance with 310 CMR 19.132.
4. This decision does not relieve the City of its responsibilities to comply with all other applicable federal, state, and local statutes and regulations.
5. The City shall comply with 310 CMR 19.000 including, but not limited to the requirements of 310 CMR 19.043(5) *Standard Conditions*, 310 CMR 19.150 *Landfill Assessment*, and 310 CMR 19.151 *Corrective Action*.
6. The City shall submit to MassDEP on or before February 15, 2013, for MassDEP's files, a final revised Post-Closure Environmental Monitoring Plan ("Final EMP") that incorporates and reflects the modifications required by this decision. The Final EMP shall be submitted to MassDEP as an application category BWP SW45 – *Alternative Review Process for Certain Modifications* pursuant to 310 CMR 4.00.
7. Pursuant to section 310 CMR 40.0114(1)(a) of the Massachusetts Contingency Plan environmental sample collection and laboratory data analysis must comply with the requirements of section 310 CMR 40.0017 Environmental Sample Collection and Analysis and 310 CMR 40.0191 Response Action Performance Standards.

The MassDEP Bureau of Waste Site Cleanup's, guidance document, the Compendium of Analytical Methods (BWSC-CAM-VII A), provides guidance on meeting the requirements of 310 CMR 40.0117 and 310 CMR 40.0191. These documents can be found on the MassDEP's website at: <http://www.mass.gov/dep/cleanup/laws/qaqcdocs.htm>.

8. The City shall not violate this decision and permit and shall, without limitation, not allow or suffer its employees, agents, contractors or consultants to violate this decision and permit and 310 CMR 19.000.

**NOTICE OF RIGHT TO APPEAL**

The City of Cambridge (the "City") is hereby notified that it may within twenty-one (21) days file a request that this decision be deemed a provisional decision under 310 CMR 19.037(4)(b), by submitting a written statement of the basis on which The City believes it is aggrieved, together with any supporting materials. Upon timely filing of such a request, the decision shall be deemed a provisional decision with an effective date twenty-one (21) days after the MassDEP receipt of the request. Such a request shall reopen the administrative record, and the MassDEP may rescind, supplement, modify, or reaffirm its decision. Failure by the City to exercise the right provided in this section shall constitute a waiver of the City's right to appeal.

**Appeal.** Any person aggrieved by the issuance of this decision, except as provided for under 310 CMR 19.037(4)(b), may file an appeal for judicial review of said decision in accordance with the provisions of M.G.L. c. 111, s. 150A, and M.G.L. c. 30A, not later than thirty (30) days following the receipt of the final decision. The standing of a person to file an appeal and the procedures for filing such appeal shall be governed by the provisions of M.G.L. c. 30A. Unless the person requesting an appeal requests and is granted a stay of the terms and conditions of the decision by a court of competent jurisdiction, the decision shall remain effective.

**Notice of Action.** Any aggrieved person intending to appeal this decision to the Superior Court shall first provide notice to the MassDEP of their intention to commence such action. Said notice of intention shall include the MassDEP file number and shall identify with particularity the issues and reasons why it is believed the decision was not proper. Such notice shall be provided to the Office of General Counsel of the MassDEP and the Regional Director for the regional office which processed the application. The appropriate addresses to which to send such notices are:

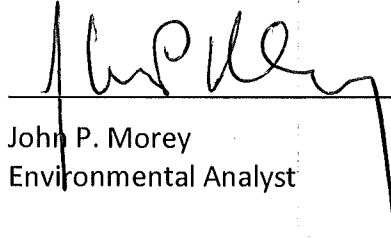
General Counsel  
Department of Environmental Protection  
One Winter Street - Third Floor  
Boston, MA 02108

Eric Worrall  
Acting Regional Director  
Department of Environmental Protection  
Northeast Regional Office  
205B Lowell Street,  
Wilmington, MA 01887

No allegation shall be made in any judicial appeal of this decision unless the matter complained of was raised at the appropriate point in the administrative review procedures established in those regulations, provided that a matter may be raised upon a showing that it is material and that it was not reasonably possible with due diligence to have been raised during such procedures or that matter sought to be raised is of critical importance to the environmental impact of the permitted activity

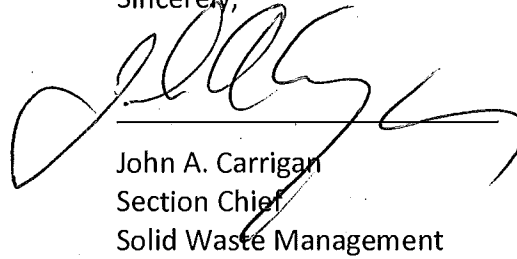
Should you have any questions regarding this letter, please contact John Morey at (978) 694-3297.

Sincerely,



John P. Morey  
Environmental Analyst

Sincerely,



John A. Carrigan  
Section Chief  
Solid Waste Management

JAC/JPM

Cc:

Dan Guglielmi  
CDM Smith  
Cambridge, MA  
Email: [GuglielmiDJ@cdmsmith.com](mailto:GuglielmiDJ@cdmsmith.com)

Cambridge BOH  
Harold Cox, Chief Public Health Officer  
Email: [hcox@challiance.org](mailto:hcox@challiance.org)

**Appendix C**  
**Landfill Gas Notifications to MassDEP**

Mark,

In accordance with 310 CMR 19.132(4)(h), CDM Smith on behalf of the City of Cambridge notifies MassDEP that during landfill gas sampling conducted today, Monday, March 13, 2023, at Danehy Park (former New Street Landfill), the concentrations of methane gas exceeded 25% of the Lower Explosive Limit (LEL) at the following landfill gas monitoring locations, shown on the attached figure:

Monitoring Well	Initial Methane (% LEL)	Final Methane (% LEL)
MW-101	268%	118%
W-5	392%	338%

These results are consistent with previous monitoring conducted at the Site.

Methane was detected above the 25% LEL regulatory limit in monitoring well MW-101, located northeast of the Evolve Fitness Building. No methane exceedances were found in nearby monitoring wells MWW-3, MWW-5, or GW-2. The area beyond well MW-101 is mostly businesses and paved private property, so no further probes could be conducted to assess gas migration. Methane was not detected inside the nearby Evolve Fitness Building. The last exceedance at MW-101 was during the December 2022 round.

Methane was detected above the 25% LEL regulatory limit in monitoring well W-5, located near Briston Arms Apartments. Methane was detected in nearby monitoring well W-3, but below the 25% LEL regulatory limit. Methane was last detected in excess of 25% LEL in well W-5 during the June 2022 round. The area beyond well W-5 is paved

private property (Briston Arms). As noted in the revised Post-Closure Monitoring and Maintenance Plan (December 2020), currently under review by MassDEP, waste and methane in excess of 25% of the LEL are known to be present in the subsurface on both the Danehy Park and Briston Arms properties. Therefore, the City requested eliminating the compliance boundary between the two properties pursuant to the reporting requirements of 310 CMR 19.132(4)(h). The City will continue to report exceedances of 25% LEL in wells located along the property boundary with Briston Arms, which includes W-3 and W-5, while this request is under review by MassDEP.

Methane was also detected at well GW-9R, located in front of the new apartment building at 77 New Street, but both the initial and final readings were below 25% LEL. GW-9R was installed in March 2021 to replace GW-9, which had been destroyed by the construction at 77 New Street. GW-9R has had similar methane concentrations close to the 25% LEL regulatory limit during the previous six quarterly rounds. No methane was detected in PROBE-5, located behind (west of) the 77 New Street building.

If you have any questions or concerns, please feel free to contact me at (617) 452-6563.

Thank you,

Nathan

**Nathan E. Jones, PE, PMP**  
Environmental Engineer | Project Manager  
CDM Smith  
75 State Street, Boston, MA 02109  
Office: 617.452.6563

Mobile: 617.460.4374  
jonesne@cdmsmith.com  
cdmsmith.com



**From:** Jones, Nathan E.  
**Sent:** Thursday, June 8, 2023 9:50 PM  
**To:** Fairbrother, Mark (DEP)  
**Cc:** Morey, John (DEP); Spieler, Richard (DEP); Wilcox, Jim; Friedman, Jerry; 'Greg Katz'; Bruce Haskell; Miller, Andrew; Dolan, Michael  
**Subject:** Danehy Park Landfill Cambridge - Notice of Landfill Gas Exceedance - 6/8/2023  
**Attachments:** Danehy Park - Site Plan.pdf

Mark,

In accordance with 310 CMR 19.132(4)(h), CDM Smith on behalf of the City of Cambridge notifies MassDEP that during landfill gas sampling conducted today, Thursday, June 8, 2023, at Danehy Park (former New Street Landfill), the concentrations of methane gas exceeded 25% of the Lower Explosive Limit (LEL) at the following landfill gas monitoring locations, shown on the attached figure:

Monitoring Well	Initial Methane (% LEL)	Final Methane (% LEL)
MW-101	324%	302%
W-5	196%	172%
GW-9R	36%	20%

These results are consistent with previous monitoring conducted at the Site.

Methane was detected above the 25% LEL regulatory limit in monitoring well MW-101, located northeast of the Evolve Fitness Building. No methane exceedances were found in nearby monitoring wells MWW-3, MWW-5, or GW-2. The area beyond well MW-101 is mostly businesses and paved private property, so no further probes could be conducted to assess gas migration. The former Evolve Fitness Building was unoccupied and could not be accessed for monitoring. The last exceedance at MW-101 was during the March 2023 round.

Methane was detected above the 25% LEL regulatory limit in monitoring well W-5, located near Briston Arms Apartments. Methane was detected in nearby monitoring well W-3, but below the 25% LEL regulatory limit. Methane was last detected in excess of 25% LEL in well W-5 during the March 2023 round. The area beyond well W-5 is paved private property (Briston Arms). As noted in the revised Post-Closure Monitoring and Maintenance Plan (December 2020), currently under review by MassDEP, waste and methane in excess of 25% of the LEL are known to be present in the subsurface on both the Danehy Park and Briston Arms properties. Therefore, the City requested eliminating the compliance boundary between the two properties pursuant to the reporting requirements of 310 CMR 19.132(4)(h). The City will continue to report exceedances of 25% LEL in wells located along the property boundary with Briston Arms, which includes W-3 and W-5, while this request is under review by MassDEP.

Methane was also detected at well GW-9R, located in front of the new apartment building at 77 New Street. The initial reading at well GW-9R exceeded 25% LEL, but the final reading was below 25% LEL. GW-9R was installed in March 2021 to replace GW-9, which had been destroyed by the construction at 77 New Street. GW-9R has had similar methane concentrations close to the 25% LEL regulatory limit since it was installed in March 2021. No methane was detected in PROBE-5, located behind (west of) the 77 New Street building.

If you have any questions or concerns, please feel free to contact me at (617) 452-6563.

Thank you,  
Nathan

Environmental Engineer | Project Manager  
CDM Smith  
75 State Street, Boston, MA 02109  
Office: 617.452.6563  
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[cdmsmith.com](http://cdmsmith.com)





Mark,

In accordance with 310 CMR 19.132(4)(h), CDM Smith on behalf of the City of Cambridge notifies MassDEP that during landfill gas sampling conducted today, Thursday, June 8, 2023, at Danehy Park (former New Street Landfill), the concentrations of methane gas exceeded 25% of the Lower Explosive Limit (LEL) at the following landfill gas monitoring locations, shown on the attached figure:

Monitoring Well	Initial Methane (% LEL)	Final Methane (% LEL)
MW-101	420%	302%
MW-102	122%	60%
W-3	50%	22%
W-5	326%	144%
GW-9R	34%	16%

These results are consistent with previous monitoring conducted at the Site.

Methane was detected above the 25% LEL regulatory limit in monitoring well MW-101, located northeast of the Evolve Fitness Building. No methane exceedances were found in nearby monitoring wells MWW-3, MWW-5, or GW-2. The area beyond well MW-101 is mostly businesses and paved private property, so no further probes could be conducted to assess gas migration. The former Evolve Fitness Building was unoccupied and could not be accessed for monitoring. The last exceedance at MW-101 was during the June 2023 round.

Methane was detected above the 25% LEL regulatory limit in well MW-102, located east of the William J. Malcolm & Son Plumbing and Heating Inc. (Malcolm & Son) property boundary. No methane exceedances were found in nearby PROBE-7 or wells MW-103 or GW-3R located beyond MW-102 on the Malcolm & Son property and the Field Street right-of-way, respectively. Methane last exceeded 25% of the LEL in March 2022.

Methane was detected above the 25% LEL regulatory limit in monitoring well W-5, located near Briston Arms Apartments. Methane was also detected in nearby monitoring well W-3. The initial reading at well MW-102 exceeded 25% of the LEL, but the final reading was below 25% LEL. Methane was last detected in excess of 25% LEL in well W-5 during the June 2023 round. The area beyond well W-5 is paved private property (Briston Arms). As noted in the revised Post-Closure Monitoring and Maintenance Plan (December 2020), currently under review by MassDEP, waste and methane in excess of 25% of the LEL are known to be present in the subsurface on both the Danehy Park and Briston Arms properties. Therefore, the City requested eliminating the compliance boundary between the two properties pursuant to the reporting requirements of 310 CMR 19.132(4)(h). The City will continue to report exceedances of 25% LEL in wells located along the property boundary with Briston Arms, which includes W-3 and W-5, while this request is under review by MassDEP.

Methane was also detected at well GW-9R, located in front of the new apartment building at 77 New Street. The initial reading at well GW-9R exceeded 25% LEL, but the final reading was below 25% LEL. GW-9R was installed in March 2021

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to replace GW-9, which had been destroyed by the construction at 77 New Street. GW-9R has had similar methane concentrations close to the 25% LEL regulatory limit since it was installed in March 2021. No methane was detected in PROBE-5, located behind (west of) the 77 New Street building.

If you have any questions or concerns, please feel free to contact me at (617) 452-6563.

Thank you,  
Nathan

**Nathan E. Jones, PE, PMP**  
Environmental Engineer | Project Manager  
CDM Smith  
75 State Street, Boston, MA 02109  
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Mobile: 617.460.4374  
[jonesne@cdmsmith.com](mailto:jonesne@cdmsmith.com)  
[cdmsmith.com](http://cdmsmith.com)



## Dolan, Michael

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**From:** Jones, Nathan E.  
**Sent:** Thursday, December 21, 2023 5:48 PM  
**To:** Fairbrother, Mark (DEP)  
**Cc:** Morey, John (DEP); Spieler, Richard (DEP); Wilcox, Jim; Letourneau, Jennifer; 'Greg Katz'; Bruce Haskell; Miller, Andrew; Dolan, Michael; Gallan, Rachel O.  
**Subject:** Danehy Park Landfill Cambridge - Notice of Landfill Gas Exceedance - 12/21/2023  
**Attachments:** Danehy Park - Monitoring Locations.pdf

Mark,

In accordance with 310 CMR 19.132(4)(h), CDM Smith on behalf of the City of Cambridge notifies MassDEP that during landfill gas sampling conducted today, Thursday, December 21, 2023, at Danehy Park (former New Street Landfill), the concentrations of methane gas exceeded 25% of the Lower Explosive Limit (LEL) at the following landfill gas monitoring locations, shown on the attached figure:

Monitoring Well	Initial Methane (% LEL)	Final Methane (% LEL)
GW-9R	68%	20%

These results are consistent with previous monitoring conducted at the Site.

Methane was detected at well GW-9R, located in front of the new apartment building at 77 New Street. The initial reading at well GW-9R exceeded 25% LEL, but the final reading was below 25% LEL. GW-9R was installed in March 2021 to replace GW-9, which had been destroyed by the construction at 77 New Street. GW-9R has had similar methane concentrations close to the 25% LEL regulatory limit since it was installed in March 2021. No methane was detected in PROBE-5, located behind (west of) the 77 New Street building.

As communicated in a separate email, methane also exceeded 10% of the LEL at three utility locations shown on the attached figure:

Utility Location	Methane (% LEL)
DM-8	10%
HYD-12	112%
EB-2	124%

These results were reported to the MassDEP Emergency Response number.

If you have any questions or concerns, please feel free to contact me at (617) 452-6563.

Thank you,  
Nathan

**Nathan E. Jones, PE, PMP**  
Environmental Engineer | Project Manager  
CDM Smith  
75 State Street, Boston, MA 02109  
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Mobile: 617.460.4374  
[jonesne@cdmsmith.com](mailto:jonesne@cdmsmith.com)  
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**Appendix D**  
**Laboratory Analytical Data Sheets**



## ANALYTICAL REPORT

Lab Number:	L2331881
Client:	CDM Smith, Inc. 75 State Street Suite 701 Boston, MA 02109
ATTN:	Nathan Jones
Phone:	(617) 452-6563
Project Name:	DANEHY PARK
Project Number:	0139-239391-PM.RT.FY
Report Date:	07/11/23

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OH (CL108), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L2331881-01	GW-2	WATER	CAMBRIDGE, MA	06/07/23 12:00	06/07/23
L2331881-02	GW-2D	WATER	CAMBRIDGE, MA	06/07/23 12:30	06/07/23
L2331881-03	TRIP BLANK	WATER	CAMBRIDGE, MA	06/01/23 00:00	06/07/23

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

**HOLD POLICY** - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

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**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

### Case Narrative (continued)

#### Dissolved Metals

The WG1795477-3 MS recoveries, performed on L2331881-01, are outside the acceptance criteria for barium (73%) and selenium (127%). A post digestion spike was performed and was within acceptance criteria.

The WG1795477-3 MS recoveries for calcium (10%) and iron (0%), performed on L2331881-01, do not apply because the sample concentrations are greater than four times the spike amounts added.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 07/11/23

# ORGANICS



# VOLATILES

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

Lab ID: L2331881-01  
 Client ID: GW-2  
 Sample Location: CAMBRIDGE, MA

Date Collected: 06/07/23 12:00  
 Date Received: 06/07/23  
 Field Prep: Refer to COC

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8260D  
 Analytical Date: 06/17/23 07:52  
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by GC/MS - Westborough Lab</b>						
Methylene chloride	ND		ug/l	3.0	--	1
1,1-Dichloroethane	ND		ug/l	0.75	--	1
Chloroform	ND		ug/l	0.75	--	1
Carbon tetrachloride	ND		ug/l	0.50	--	1
1,2-Dichloropropane	ND		ug/l	1.8	--	1
Dibromochloromethane	ND		ug/l	0.50	--	1
1,1,2-Trichloroethane	ND		ug/l	0.75	--	1
Tetrachloroethene	ND		ug/l	0.50	--	1
Chlorobenzene	2.6		ug/l	0.50	--	1
Trichlorofluoromethane	ND		ug/l	2.5	--	1
1,2-Dichloroethane	ND		ug/l	0.50	--	1
1,1,1-Trichloroethane	ND		ug/l	0.50	--	1
Bromodichloromethane	ND		ug/l	0.50	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.5	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	0.75	--	1
Ethylbenzene	ND		ug/l	0.50	--	1
Chloromethane	ND		ug/l	2.5	--	1
Bromomethane	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	0.50	--	1
trans-1,2-Dichloroethene	ND		ug/l	0.75	--	1

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

Lab ID: L2331881-01  
 Client ID: GW-2  
 Sample Location: CAMBRIDGE, MA

Date Collected: 06/07/23 12:00  
 Date Received: 06/07/23  
 Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by GC/MS - Westborough Lab</b>						
1,2-Dichloroethene, Total	ND		ug/l	0.50	--	1
Trichloroethene	ND		ug/l	0.50	--	1
1,2-Dichlorobenzene	ND		ug/l	2.5	--	1
1,3-Dichlorobenzene	ND		ug/l	2.5	--	1
1,4-Dichlorobenzene	ND		ug/l	2.5	--	1
Methyl tert butyl ether	ND		ug/l	1.0	--	1
p/m-Xylene	ND		ug/l	1.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	--	1
Dibromomethane	ND		ug/l	5.0	--	1
1,4-Dichlorobutane	ND		ug/l	5.0	--	1
1,2,3-Trichloropropane	ND		ug/l	5.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	5.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	5.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
Vinyl acetate	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Ethyl methacrylate	ND		ug/l	5.0	--	1
Acrylonitrile	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.5	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.5	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.5	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Bromobenzene	ND		ug/l	2.5	--	1
n-Butylbenzene	ND		ug/l	0.50	--	1
sec-Butylbenzene	ND		ug/l	0.50	--	1
tert-Butylbenzene	ND		ug/l	2.5	--	1
o-Chlorotoluene	ND		ug/l	2.5	--	1
p-Chlorotoluene	ND		ug/l	2.5	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

Lab ID: L2331881-01  
 Client ID: GW-2  
 Sample Location: CAMBRIDGE, MA

Date Collected: 06/07/23 12:00  
 Date Received: 06/07/23  
 Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by GC/MS - Westborough Lab</b>						
Isopropylbenzene	ND		ug/l	0.50	--	1
p-Isopropyltoluene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	2.5	--	1
n-Propylbenzene	ND		ug/l	0.50	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	--	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	--	1
Ethyl ether	ND		ug/l	2.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	113		70-130

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

Lab ID: L2331881-02  
 Client ID: GW-2D  
 Sample Location: CAMBRIDGE, MA

Date Collected: 06/07/23 12:30  
 Date Received: 06/07/23  
 Field Prep: Refer to COC

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8260D  
 Analytical Date: 06/17/23 08:15  
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by GC/MS - Westborough Lab</b>						
Methylene chloride	ND		ug/l	3.0	--	1
1,1-Dichloroethane	ND		ug/l	0.75	--	1
Chloroform	ND		ug/l	0.75	--	1
Carbon tetrachloride	ND		ug/l	0.50	--	1
1,2-Dichloropropane	ND		ug/l	1.8	--	1
Dibromochloromethane	ND		ug/l	0.50	--	1
1,1,2-Trichloroethane	ND		ug/l	0.75	--	1
Tetrachloroethene	ND		ug/l	0.50	--	1
Chlorobenzene	2.6		ug/l	0.50	--	1
Trichlorofluoromethane	ND		ug/l	2.5	--	1
1,2-Dichloroethane	ND		ug/l	0.50	--	1
1,1,1-Trichloroethane	ND		ug/l	0.50	--	1
Bromodichloromethane	ND		ug/l	0.50	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.5	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	0.75	--	1
Ethylbenzene	ND		ug/l	0.50	--	1
Chloromethane	ND		ug/l	2.5	--	1
Bromomethane	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	0.50	--	1
trans-1,2-Dichloroethene	ND		ug/l	0.75	--	1

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

**Lab ID:** L2331881-02  
**Client ID:** GW-2D  
**Sample Location:** CAMBRIDGE, MA

**Date Collected:** 06/07/23 12:30  
**Date Received:** 06/07/23  
**Field Prep:** Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by GC/MS - Westborough Lab</b>						
1,2-Dichloroethene, Total	ND		ug/l	0.50	--	1
Trichloroethene	ND		ug/l	0.50	--	1
1,2-Dichlorobenzene	ND		ug/l	2.5	--	1
1,3-Dichlorobenzene	ND		ug/l	2.5	--	1
1,4-Dichlorobenzene	ND		ug/l	2.5	--	1
Methyl tert butyl ether	ND		ug/l	1.0	--	1
p/m-Xylene	ND		ug/l	1.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	--	1
Dibromomethane	ND		ug/l	5.0	--	1
1,4-Dichlorobutane	ND		ug/l	5.0	--	1
1,2,3-Trichloropropane	ND		ug/l	5.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	5.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	5.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
Vinyl acetate	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Ethyl methacrylate	ND		ug/l	5.0	--	1
Acrylonitrile	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.5	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.5	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.5	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Bromobenzene	ND		ug/l	2.5	--	1
n-Butylbenzene	ND		ug/l	0.50	--	1
sec-Butylbenzene	ND		ug/l	0.50	--	1
tert-Butylbenzene	ND		ug/l	2.5	--	1
o-Chlorotoluene	ND		ug/l	2.5	--	1
p-Chlorotoluene	ND		ug/l	2.5	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

Lab ID: L2331881-02  
 Client ID: GW-2D  
 Sample Location: CAMBRIDGE, MA

Date Collected: 06/07/23 12:30  
 Date Received: 06/07/23  
 Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by GC/MS - Westborough Lab</b>						
Isopropylbenzene	ND		ug/l	0.50	--	1
p-Isopropyltoluene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	2.5	--	1
n-Propylbenzene	ND		ug/l	0.50	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	--	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	--	1
Ethyl ether	ND		ug/l	2.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	111		70-130

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

Lab ID: L2331881-03  
 Client ID: TRIP BLANK  
 Sample Location: CAMBRIDGE, MA

Date Collected: 06/01/23 00:00  
 Date Received: 06/07/23  
 Field Prep: None

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8260D  
 Analytical Date: 06/17/23 08:38  
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by GC/MS - Westborough Lab</b>						
Methylene chloride	ND		ug/l	3.0	--	1
1,1-Dichloroethane	ND		ug/l	0.75	--	1
Chloroform	ND		ug/l	0.75	--	1
Carbon tetrachloride	ND		ug/l	0.50	--	1
1,2-Dichloropropane	ND		ug/l	1.8	--	1
Dibromochloromethane	ND		ug/l	0.50	--	1
1,1,2-Trichloroethane	ND		ug/l	0.75	--	1
Tetrachloroethene	ND		ug/l	0.50	--	1
Chlorobenzene	ND		ug/l	0.50	--	1
Trichlorofluoromethane	ND		ug/l	2.5	--	1
1,2-Dichloroethane	ND		ug/l	0.50	--	1
1,1,1-Trichloroethane	ND		ug/l	0.50	--	1
Bromodichloromethane	ND		ug/l	0.50	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.5	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	0.75	--	1
Ethylbenzene	ND		ug/l	0.50	--	1
Chloromethane	ND		ug/l	2.5	--	1
Bromomethane	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	0.50	--	1
trans-1,2-Dichloroethene	ND		ug/l	0.75	--	1



**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

**Lab ID:** L2331881-03  
**Client ID:** TRIP BLANK  
**Sample Location:** CAMBRIDGE, MA

**Date Collected:** 06/01/23 00:00  
**Date Received:** 06/07/23  
**Field Prep:** None

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by GC/MS - Westborough Lab</b>						
1,2-Dichloroethene, Total	ND		ug/l	0.50	--	1
Trichloroethene	ND		ug/l	0.50	--	1
1,2-Dichlorobenzene	ND		ug/l	2.5	--	1
1,3-Dichlorobenzene	ND		ug/l	2.5	--	1
1,4-Dichlorobenzene	ND		ug/l	2.5	--	1
Methyl tert butyl ether	ND		ug/l	1.0	--	1
p/m-Xylene	ND		ug/l	1.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	--	1
Dibromomethane	ND		ug/l	5.0	--	1
1,4-Dichlorobutane	ND		ug/l	5.0	--	1
1,2,3-Trichloropropane	ND		ug/l	5.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	5.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	5.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
Vinyl acetate	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Ethyl methacrylate	ND		ug/l	5.0	--	1
Acrylonitrile	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.5	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.5	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.5	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Bromobenzene	ND		ug/l	2.5	--	1
n-Butylbenzene	ND		ug/l	0.50	--	1
sec-Butylbenzene	ND		ug/l	0.50	--	1
tert-Butylbenzene	ND		ug/l	2.5	--	1
o-Chlorotoluene	ND		ug/l	2.5	--	1
p-Chlorotoluene	ND		ug/l	2.5	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

**Lab ID:** L2331881-03  
**Client ID:** TRIP BLANK  
**Sample Location:** CAMBRIDGE, MA

**Date Collected:** 06/01/23 00:00  
**Date Received:** 06/07/23  
**Field Prep:** None

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by GC/MS - Westborough Lab</b>						
Isopropylbenzene	ND		ug/l	0.50	--	1
p-Isopropyltoluene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	2.5	--	1
n-Propylbenzene	ND		ug/l	0.50	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	--	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	--	1
Ethyl ether	ND		ug/l	2.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	111		70-130

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 06/17/23 07:28  
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1793046-5					
Methylene chloride	ND		ug/l	3.0	--
1,1-Dichloroethane	ND		ug/l	0.75	--
Chloroform	ND		ug/l	0.75	--
Carbon tetrachloride	ND		ug/l	0.50	--
1,2-Dichloropropane	ND		ug/l	1.8	--
Dibromochloromethane	ND		ug/l	0.50	--
1,1,2-Trichloroethane	ND		ug/l	0.75	--
Tetrachloroethene	ND		ug/l	0.50	--
Chlorobenzene	ND		ug/l	0.50	--
Trichlorofluoromethane	ND		ug/l	2.5	--
1,2-Dichloroethane	ND		ug/l	0.50	--
1,1,1-Trichloroethane	ND		ug/l	0.50	--
Bromodichloromethane	ND		ug/l	0.50	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,3-Dichloropropene, Total	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.5	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	0.75	--
Ethylbenzene	ND		ug/l	0.50	--
Chloromethane	ND		ug/l	2.5	--
Bromomethane	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	0.50	--
trans-1,2-Dichloroethene	ND		ug/l	0.75	--
1,2-Dichloroethene, Total	ND		ug/l	0.50	--

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 06/17/23 07:28  
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1793046-5					
Trichloroethene	ND		ug/l	0.50	--
1,2-Dichlorobenzene	ND		ug/l	2.5	--
1,3-Dichlorobenzene	ND		ug/l	2.5	--
1,4-Dichlorobenzene	ND		ug/l	2.5	--
Methyl tert butyl ether	ND		ug/l	1.0	--
p/m-Xylene	ND		ug/l	1.0	--
o-Xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	0.50	--
Dibromomethane	ND		ug/l	5.0	--
1,4-Dichlorobutane	ND		ug/l	5.0	--
Iodomethane	ND		ug/l	5.0	--
1,2,3-Trichloropropane	ND		ug/l	5.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	5.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	5.0	--
2-Butanone	ND		ug/l	5.0	--
Vinyl acetate	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Ethyl methacrylate	ND		ug/l	5.0	--
Acrolein	ND		ug/l	5.0	--
Acrylonitrile	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.5	--
Tetrahydrofuran	ND		ug/l	5.0	--
2,2-Dichloropropane	ND		ug/l	2.5	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.5	--

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 06/17/23 07:28  
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1793046-5					
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	--
Bromobenzene	ND		ug/l	2.5	--
n-Butylbenzene	ND		ug/l	0.50	--
sec-Butylbenzene	ND		ug/l	0.50	--
tert-Butylbenzene	ND		ug/l	2.5	--
o-Chlorotoluene	ND		ug/l	2.5	--
p-Chlorotoluene	ND		ug/l	2.5	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	--
Hexachlorobutadiene	ND		ug/l	0.50	--
Isopropylbenzene	ND		ug/l	0.50	--
p-Isopropyltoluene	ND		ug/l	0.50	--
Naphthalene	ND		ug/l	2.5	--
n-Propylbenzene	ND		ug/l	0.50	--
1,2,3-Trichlorobenzene	ND		ug/l	2.5	--
1,2,4-Trichlorobenzene	ND		ug/l	2.5	--
1,3,5-Trimethylbenzene	ND		ug/l	2.5	--
1,3,5-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.5	--
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	--
Halothane	ND		ug/l	2.5	--
Ethyl ether	ND		ug/l	2.5	--
Methyl Acetate	ND		ug/l	10	--
Ethyl Acetate	ND		ug/l	10	--
Isopropyl Ether	ND		ug/l	2.0	--
Cyclohexane	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	10	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 06/17/23 07:28  
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1793046-5					
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		ug/l	10	--
Methyl cyclohexane	ND		ug/l	10	--
p-Diethylbenzene	ND		ug/l	2.0	--
4-Ethyltoluene	ND		ug/l	2.0	--
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	113		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1793046-3 WG1793046-4								
Methylene chloride	100		100		70-130	0		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	100		110		70-130	10		20
Carbon tetrachloride	110		110		63-132	0		20
1,2-Dichloropropane	96		96		70-130	0		20
Dibromochloromethane	98		100		63-130	2		20
1,1,2-Trichloroethane	95		96		70-130	1		20
Tetrachloroethene	120		120		70-130	0		20
Chlorobenzene	110		110		75-130	0		25
Trichlorofluoromethane	120		120		62-150	0		20
1,2-Dichloroethane	95		96		70-130	1		20
1,1,1-Trichloroethane	110		110		67-130	0		20
Bromodichloromethane	94		96		67-130	2		20
trans-1,3-Dichloropropene	91		92		70-130	1		20
cis-1,3-Dichloropropene	95		96		70-130	1		20
1,1-Dichloropropene	100		100		70-130	0		20
Bromoform	89		93		54-136	4		20
1,1,2,2-Tetrachloroethane	86		88		67-130	2		20
Benzene	99		100		70-130	1		25
Toluene	100		110		70-130	10		25
Ethylbenzene	100		110		70-130	10		20
Chloromethane	81		79		64-130	3		20
Bromomethane	71		72		39-139	1		20

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1793046-3 WG1793046-4								
Vinyl chloride	96		96		55-140	0		20
Chloroethane	100		110		55-138	10		20
1,1-Dichloroethene	110		110		61-145	0		25
trans-1,2-Dichloroethene	110		110		70-130	0		20
Trichloroethene	110		100		70-130	10		25
1,2-Dichlorobenzene	100		110		70-130	10		20
1,3-Dichlorobenzene	110		110		70-130	0		20
1,4-Dichlorobenzene	110		110		70-130	0		20
Methyl tert butyl ether	88		91		63-130	3		20
p/m-Xylene	110		115		70-130	4		20
o-Xylene	110		110		70-130	0		20
cis-1,2-Dichloroethene	100		110		70-130	10		20
Dibromomethane	97		98		70-130	1		20
1,4-Dichlorobutane	81		84		70-130	4		20
Iodomethane	67	Q	68	Q	70-130	1		20
1,2,3-Trichloropropane	84		87		64-130	4		20
Styrene	110		110		70-130	0		20
Dichlorodifluoromethane	90		91		36-147	1		20
Acetone	65		64		58-148	2		20
Carbon disulfide	100		100		51-130	0		20
2-Butanone	73		76		63-138	4		20
Vinyl acetate	98		96		70-130	2		20
4-Methyl-2-pentanone	73		75		59-130	3		20



## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1793046-3 WG1793046-4								
2-Hexanone	72		73		57-130	1		20
Ethyl methacrylate	84		86		70-130	2		20
Acrolein	92		88		70-130	4		20
Acrylonitrile	79		79		70-130	0		20
Bromochloromethane	110		110		70-130	0		20
Tetrahydrofuran	72		75		58-130	4		20
2,2-Dichloropropane	110		110		63-133	0		20
1,2-Dibromoethane	95		99		70-130	4		20
1,3-Dichloropropane	94		96		70-130	2		20
1,1,1,2-Tetrachloroethane	100		110		64-130	10		20
Bromobenzene	100		110		70-130	10		20
n-Butylbenzene	100		100		53-136	0		20
sec-Butylbenzene	100		110		70-130	10		20
tert-Butylbenzene	100		110		70-130	10		20
o-Chlorotoluene	100		100		70-130	0		20
p-Chlorotoluene	100		100		70-130	0		20
1,2-Dibromo-3-chloropropane	83		83		41-144	0		20
Hexachlorobutadiene	110		120		63-130	9		20
Isopropylbenzene	100		100		70-130	0		20
p-Isopropyltoluene	110		110		70-130	0		20
Naphthalene	84		88		70-130	5		20
n-Propylbenzene	100		100		69-130	0		20
1,2,3-Trichlorobenzene	95		98		70-130	3		20

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1793046-3 WG1793046-4								
1,2,4-Trichlorobenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,3,5-Trichlorobenzene	110		110		70-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
trans-1,4-Dichloro-2-butene	71		74		70-130	4		20
Halothane	110		120		70-130	9		20
Ethyl ether	92		90		59-134	2		20
Methyl Acetate	69	Q	73		70-130	6		20
Ethyl Acetate	71		73		70-130	3		20
Isopropyl Ether	86		86		70-130	0		20
Cyclohexane	100		100		70-130	0		20
Tert-Butyl Alcohol	72		72		70-130	0		20
Ethyl-Tert-Butyl-Ether	86		88		70-130	2		20
Tertiary-Amyl Methyl Ether	86		88		66-130	2		20
1,4-Dioxane	84		80		56-162	5		20
1,1,2-Trichloro-1,2,2-Trifluoroethane	120		120		70-130	0		20
Methyl cyclohexane	100		110		70-130	10		20
p-Diethylbenzene	100		100		70-130	0		20
4-Ethyltoluene	100		110		70-130	10		20
1,2,4,5-Tetramethylbenzene	100		100		70-130	0		20

## Lab Control Sample Analysis

Batch Quality Control

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1793046-3 WG1793046-4

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> <i>Criteria</i>
1,2-Dichloroethane-d4	105		105		70-130
Toluene-d8	106		105		70-130
4-Bromofluorobenzene	101		101		70-130
Dibromofluoromethane	111		109		70-130

# SEMIVOLATILES

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

Lab ID: L2331881-01  
 Client ID: GW-2  
 Sample Location: CAMBRIDGE, MA

Date Collected: 06/07/23 12:00  
 Date Received: 06/07/23  
 Field Prep: Refer to COC

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8270E-SIM  
 Analytical Date: 06/14/23 16:13  
 Analyst: TPR

Extraction Method: EPA 3510C  
 Extraction Date: 06/13/23 19:47

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270E-SIM - Mansfield Lab						
1,4-Dioxane	27800		ng/l	139	--	1
Surrogate			% Recovery	Qualifier	Acceptance Criteria	
1,4-Dioxane-d8			48		15-110	

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

Lab ID: L2331881-02  
 Client ID: GW-2D  
 Sample Location: CAMBRIDGE, MA

Date Collected: 06/07/23 12:30  
 Date Received: 06/07/23  
 Field Prep: Refer to COC

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8270E-SIM  
 Analytical Date: 06/14/23 16:37  
 Analyst: TPR

Extraction Method: EPA 3510C  
 Extraction Date: 06/13/23 19:47

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270E-SIM - Mansfield Lab						
1,4-Dioxane	28100		ng/l	139	--	1
Surrogate			% Recovery	Qualifier	Acceptance Criteria	
1,4-Dioxane-d8			46		15-110	

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8270E-SIM  
Analytical Date: 06/14/23 07:30  
Analyst: TPR

Extraction Method: EPA 3510C  
Extraction Date: 06/13/23 19:47

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270E-SIM - Mansfield Lab for sample(s): 01-02 Batch: WG1790789-1					
1,4-Dioxane	ND		ng/l	150	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	50		15-110

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270E-SIM - Mansfield Lab Associated sample(s): 01-02 Batch: WG1790789-2 WG1790789-3								
1,4-Dioxane	119		120		40-140	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	52		52		15-110



## METALS

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

Lab ID: L2331881-01  
 Client ID: GW-2  
 Sample Location: CAMBRIDGE, MA

Date Collected: 06/07/23 12:00  
 Date Received: 06/07/23  
 Field Prep: Refer to COC

Sample Depth:  
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Dissolved Metals - Mansfield Lab</b>											
Arsenic, Dissolved	ND		mg/l	0.0050	--	1	06/26/23 14:28	07/10/23 21:04	EPA 3005A	1,6010D	AMW
Barium, Dissolved	2.47		mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:47	EPA 3005A	1,6010D	AMW
Cadmium, Dissolved	ND		mg/l	0.0050	--	1	06/26/23 14:28	07/10/23 15:47	EPA 3005A	1,6010D	AMW
Calcium, Dissolved	162.		mg/l	0.100	--	1	06/26/23 14:28	07/10/23 15:47	EPA 3005A	1,6010D	AMW
Chromium, Dissolved	ND		mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:47	EPA 3005A	1,6010D	AMW
Copper, Dissolved	ND		mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:47	EPA 3005A	1,6010D	AMW
Iron, Dissolved	38.8		mg/l	0.0500	--	1	06/26/23 14:28	07/10/23 15:47	EPA 3005A	1,6010D	AMW
Lead, Dissolved	ND		mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:47	EPA 3005A	1,6010D	AMW
Manganese, Dissolved	0.459		mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:47	EPA 3005A	1,6010D	AMW
Mercury, Dissolved	ND		mg/l	0.00020	--	1	07/05/23 10:01	07/05/23 13:44	EPA 7470A	1,7470A	GMG
Selenium, Dissolved	ND		mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:47	EPA 3005A	1,6010D	AMW
Silver, Dissolved	ND		mg/l	0.0070	--	1	06/26/23 14:28	07/10/23 15:47	EPA 3005A	1,6010D	AMW
Sodium, Dissolved	308.		mg/l	2.00	--	1	06/26/23 14:28	07/10/23 15:47	EPA 3005A	1,6010D	AMW
Zinc, Dissolved	ND		mg/l	0.0500	--	1	06/26/23 14:28	07/10/23 15:47	EPA 3005A	1,6010D	AMW



**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

Lab ID: L2331881-02  
 Client ID: GW-2D  
 Sample Location: CAMBRIDGE, MA

Date Collected: 06/07/23 12:30  
 Date Received: 06/07/23  
 Field Prep: Refer to COC

Sample Depth:  
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Dissolved Metals - Mansfield Lab</b>											
Arsenic, Dissolved	0.0071		mg/l	0.0050	--	1	06/26/23 14:28	07/10/23 15:33	EPA 3005A	1,6010D	AMW
Barium, Dissolved	2.53		mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:33	EPA 3005A	1,6010D	AMW
Cadmium, Dissolved	ND		mg/l	0.0050	--	1	06/26/23 14:28	07/10/23 15:33	EPA 3005A	1,6010D	AMW
Calcium, Dissolved	164.		mg/l	0.100	--	1	06/26/23 14:28	07/10/23 15:33	EPA 3005A	1,6010D	AMW
Chromium, Dissolved	ND		mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:33	EPA 3005A	1,6010D	AMW
Copper, Dissolved	ND		mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:33	EPA 3005A	1,6010D	AMW
Iron, Dissolved	39.4		mg/l	0.0500	--	1	06/26/23 14:28	07/10/23 15:33	EPA 3005A	1,6010D	AMW
Lead, Dissolved	ND		mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:33	EPA 3005A	1,6010D	AMW
Manganese, Dissolved	0.460		mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:33	EPA 3005A	1,6010D	AMW
Mercury, Dissolved	ND		mg/l	0.00020	--	1	07/05/23 10:01	07/05/23 13:48	EPA 7470A	1,7470A	GMG
Selenium, Dissolved	ND		mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:33	EPA 3005A	1,6010D	AMW
Silver, Dissolved	ND		mg/l	0.0070	--	1	06/26/23 14:28	07/10/23 15:33	EPA 3005A	1,6010D	AMW
Sodium, Dissolved	309.		mg/l	2.00	--	1	06/26/23 14:28	07/10/23 15:33	EPA 3005A	1,6010D	AMW
Zinc, Dissolved	ND		mg/l	0.0500	--	1	06/26/23 14:28	07/10/23 15:33	EPA 3005A	1,6010D	AMW



**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

## Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1795477-1									
Arsenic, Dissolved	ND	mg/l	0.0050	--	1	06/26/23 14:28	07/10/23 15:24	1,6010D	AMW
Barium, Dissolved	ND	mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:24	1,6010D	AMW
Cadmium, Dissolved	ND	mg/l	0.0050	--	1	06/26/23 14:28	07/10/23 15:24	1,6010D	AMW
Calcium, Dissolved	ND	mg/l	0.100	--	1	06/26/23 14:28	07/10/23 15:24	1,6010D	AMW
Chromium, Dissolved	ND	mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:24	1,6010D	AMW
Copper, Dissolved	ND	mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:24	1,6010D	AMW
Iron, Dissolved	ND	mg/l	0.0500	--	1	06/26/23 14:28	07/10/23 15:24	1,6010D	AMW
Lead, Dissolved	ND	mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:24	1,6010D	AMW
Manganese, Dissolved	ND	mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:24	1,6010D	AMW
Selenium, Dissolved	ND	mg/l	0.0100	--	1	06/26/23 14:28	07/10/23 15:24	1,6010D	AMW
Silver, Dissolved	ND	mg/l	0.0070	--	1	06/26/23 14:28	07/10/23 15:24	1,6010D	AMW
Sodium, Dissolved	ND	mg/l	2.00	--	1	06/26/23 14:28	07/10/23 15:24	1,6010D	AMW
Zinc, Dissolved	ND	mg/l	0.0500	--	1	06/26/23 14:28	07/10/23 15:24	1,6010D	AMW

### Prep Information

Digestion Method: EPA 3005A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1799442-1									
Mercury, Dissolved	ND	mg/l	0.00020	--	1	07/05/23 10:01	07/05/23 12:56	1,7470A	GMG

### Prep Information

Digestion Method: EPA 7470A

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1795477-2								
Arsenic, Dissolved	103		-		80-120	-		
Barium, Dissolved	94		-		80-120	-		
Cadmium, Dissolved	96		-		80-120	-		
Calcium, Dissolved	100		-		80-120	-		
Chromium, Dissolved	98		-		80-120	-		
Copper, Dissolved	92		-		80-120	-		
Iron, Dissolved	96		-		80-120	-		
Lead, Dissolved	100		-		80-120	-		
Manganese, Dissolved	96		-		80-120	-		
Selenium, Dissolved	114		-		80-120	-		
Silver, Dissolved	97		-		80-120	-		
Sodium, Dissolved	100		-		80-120	-		
Zinc, Dissolved	92		-		80-120	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1799442-2								
Mercury, Dissolved	101		-		80-120	-		

### Matrix Spike Analysis Batch Quality Control

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1795477-3 QC Sample: L2331881-01 Client ID: GW-2												
Arsenic, Dissolved	ND	0.12	0.119	99		-	-		75-125	-		20
Barium, Dissolved	2.47	2	3.93	73	Q	-	-		75-125	-		20
Cadmium, Dissolved	ND	0.053	0.0457	86		-	-		75-125	-		20
Calcium, Dissolved	162	10	163	10	Q	-	-		75-125	-		20
Chromium, Dissolved	ND	0.2	0.174	87		-	-		75-125	-		20
Copper, Dissolved	ND	0.25	0.233	93		-	-		75-125	-		20
Iron, Dissolved	38.8	1	38.6	0	Q	-	-		75-125	-		20
Lead, Dissolved	ND	0.53	0.550	104		-	-		75-125	-		20
Manganese, Dissolved	0.459	0.5	0.833	75		-	-		75-125	-		20
Selenium, Dissolved	ND	0.12	0.152	127	Q	-	-		75-125	-		20
Silver, Dissolved	ND	0.05	0.0483	97		-	-		75-125	-		20
Sodium, Dissolved	308	10	316	80		-	-		75-125	-		20
Zinc, Dissolved	ND	0.5	0.418	84		-	-		75-125	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1799442-3 QC Sample: L2333507-05 Client ID: MS Sample												
Mercury, Dissolved	ND	0.005	0.00481	96		-	-		75-125	-		20

## Lab Duplicate Analysis

*Batch Quality Control*

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
<b>Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1795477-4 QC Sample: L2331881-01 Client ID: GW-2</b>						
Barium, Dissolved	2.47	2.47	mg/l	0		20
Cadmium, Dissolved	ND	ND	mg/l	NC		20
Calcium, Dissolved	162	159	mg/l	2		20
Chromium, Dissolved	ND	ND	mg/l	NC		20
Copper, Dissolved	ND	ND	mg/l	NC		20
Iron, Dissolved	38.8	39.0	mg/l	1		20
Lead, Dissolved	ND	ND	mg/l	NC		20
Manganese, Dissolved	0.459	0.463	mg/l	1		20
Selenium, Dissolved	ND	ND	mg/l	NC		20
Silver, Dissolved	ND	ND	mg/l	NC		20
Sodium, Dissolved	308	312	mg/l	1		20
Zinc, Dissolved	ND	ND	mg/l	NC		20
<b>Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1795477-4 QC Sample: L2331881-01 Client ID: GW-2</b>						
Arsenic, Dissolved	ND	ND	mg/l	NC		20
<b>Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1799442-4 QC Sample: L2333507-05 Client ID: DUP Sample</b>						
Mercury, Dissolved	ND	ND	mg/l	NC		20

# **INORGANICS & MISCELLANEOUS**



**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

**Lab ID:** L2331881-01  
**Client ID:** GW-2  
**Sample Location:** CAMBRIDGE, MA

**Date Collected:** 06/07/23 12:00  
**Date Received:** 06/07/23  
**Field Prep:** Refer to COC

**Sample Depth:**  
**Matrix:** Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Alkalinity, Total	671.		mg CaCO3/L	2.00	NA	1	-	06/21/23 08:27	121,2320B	MKT
Solids, Total Dissolved	1400		mg/l	20	--	2	-	06/14/23 06:09	121,2540C	DEW
Cyanide, Total	ND		mg/l	0.005	--	1	06/21/23 13:00	06/21/23 15:51	1,9010C/9012B	JER
Chloride	520		mg/l	10	--	10	-	06/23/23 16:01	1,9251	JER
Nitrogen, Nitrate	ND		mg/l	0.100	--	1	-	06/08/23 09:09	121,4500NO3-F	KAF
Sulfate	ND		mg/l	10	--	1	06/23/23 14:30	06/23/23 14:30	1,9038	MRW
Chemical Oxygen Demand	71.		mg/l	20	--	1	06/24/23 13:05	06/24/23 18:03	121,5220D	CVN



**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**SAMPLE RESULTS**

**Lab ID:** L2331881-02  
**Client ID:** GW-2D  
**Sample Location:** CAMBRIDGE, MA

**Date Collected:** 06/07/23 12:30  
**Date Received:** 06/07/23  
**Field Prep:** Refer to COC

**Sample Depth:**  
**Matrix:** Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Alkalinity, Total	678.		mg CaCO3/L	10.0	NA	5	-	06/21/23 17:40	121,2320B	MKT
Solids, Total Dissolved	1400		mg/l	20	--	2	-	06/14/23 06:09	121,2540C	DEW
Cyanide, Total	ND		mg/l	0.005	--	1	06/21/23 13:00	06/21/23 15:52	1,9010C/9012B	JER
Chloride	530		mg/l	10	--	10	-	06/23/23 16:07	1,9251	JER
Nitrogen, Nitrate	ND		mg/l	0.100	--	1	-	06/08/23 09:11	121,4500NO3-F	KAF
Sulfate	ND		mg/l	10	--	1	06/23/23 14:30	06/23/23 14:30	1,9038	MRW
Chemical Oxygen Demand	73.		mg/l	20	--	1	06/24/23 13:05	06/24/23 18:04	121,5220D	CVN



**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

**Method Blank Analysis**  
**Batch Quality Control**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1788550-1										
Nitrogen, Nitrate	ND		mg/l	0.100	--	1	-	06/08/23 04:37	121,4500NO3-F	KAF
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1790978-1										
Solids, Total Dissolved	ND		mg/l	10	--	1	-	06/14/23 06:09	121,2540C	DEW
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1794104-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	06/21/23 08:05	121,2320B	MKT
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1794114-1										
Cyanide, Total	ND		mg/l	0.005	--	1	06/21/23 13:00	06/21/23 15:24	1,9010C/9012B	JER
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1795213-1										
Sulfate	ND		mg/l	10	--	1	06/23/23 14:30	06/23/23 14:30	1,9038	MRW
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1795374-1										
Chloride	ND		mg/l	1.0	--	1	-	06/23/23 15:12	1,9251	JER
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1795678-1										
Chemical Oxygen Demand	ND		mg/l	20	--	1	06/24/23 13:05	06/24/23 17:58	121,5220D	CVN

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1788550-2								
Nitrogen, Nitrate	99		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1790978-2								
Solids, Total Dissolved	97		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1794104-2								
Alkalinity, Total	107		-		90-110	-		10
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1794114-2 WG1794114-3								
Cyanide, Total	94		93		85-115	1		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1795213-2								
Sulfate	95		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1795374-2								
Chloride	103		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1795678-2								
Chemical Oxygen Demand	96		-		90-110	-		

### Matrix Spike Analysis Batch Quality Control

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1788550-4 QC Sample: L2331656-01 Client ID: MS Sample												
Nitrogen, Nitrate	0.134	4	3.22	77	Q	-	-		83-113	-		17
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1794104-4 QC Sample: L2331931-05 Client ID: MS Sample												
Alkalinity, Total	135	100	239	104		-	-		86-116	-		10
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1794114-4 WG1794114-5 QC Sample: L2331649-11 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.207	104		0.195	98		80-120	6		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1795213-4 QC Sample: L2331624-10 Client ID: MS Sample												
Sulfate	ND	20	20	100		-	-		55-147	-		14
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1795374-4 QC Sample: L2331881-01 Client ID: GW-2												
Chloride	520	20	540	100		-	-		58-140	-		7
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1795678-4 QC Sample: L2331624-01 Client ID: MS Sample												
Chemical Oxygen Demand	71	238	300	96		-	-		84-120	-		12

## Lab Duplicate Analysis

*Batch Quality Control*

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab	Associated sample(s): 01-02	QC Batch ID: WG1788550-3	QC Sample: L2331656-01	Client ID: DUP Sample		
Nitrogen, Nitrate	0.134	0.102	mg/l	27	Q	17
General Chemistry - Westborough Lab	Associated sample(s): 01-02	QC Batch ID: WG1790978-3	QC Sample: L2331760-02	Client ID: DUP Sample		
Solids, Total Dissolved	2900	3200	mg/l	10		10
General Chemistry - Westborough Lab	Associated sample(s): 01-02	QC Batch ID: WG1794104-3	QC Sample: L2331931-05	Client ID: DUP Sample		
Alkalinity, Total	135	136	mg CaCO3/L	0		10
General Chemistry - Westborough Lab	Associated sample(s): 01-02	QC Batch ID: WG1795213-3	QC Sample: L2331624-10	Client ID: DUP Sample		
Sulfate	ND	ND	mg/l	NC		14
General Chemistry - Westborough Lab	Associated sample(s): 01-02	QC Batch ID: WG1795374-3	QC Sample: L2331881-01	Client ID: GW-2		
Chloride	520	530	mg/l	2		7
General Chemistry - Westborough Lab	Associated sample(s): 01-02	QC Batch ID: WG1795678-3	QC Sample: L2331624-01	Client ID: DUP Sample		
Chemical Oxygen Demand	71	67	mg/l	6		12

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881**Report Date:** 07/11/23**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information**

**Cooler**                      **Custody Seal**  
A                                      Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2331881-01A	Vial HCl preserved	A	NA		2.4	Y	Absent		8260(14)
L2331881-01B	Vial HCl preserved	A	NA		2.4	Y	Absent		8260(14)
L2331881-01C	Vial HCl preserved	A	NA		2.4	Y	Absent		8260(14)
L2331881-01D	Plastic 120ml H2SO4 preserved	A	<2	<2	2.4	Y	Absent		COD-5220(28)
L2331881-01E	Plastic 250ml unpreserved/No Headspace	A	NA		2.4	Y	Absent		ALK-T-2320(14)
L2331881-01F	Plastic 250ml HNO3 preserved	A	<2	<2	2.4	Y	Absent		PB-SI(180),FE-SI(180),BA-SI(180),NA-SI(180),AG-SI(180),AS-SI(180),MN-SI(180),CU-SI(180),CD-SI(180),CR-SI(180),HG-S(28),ZN-SI(180),SE-SI(180),CA-SI(180)
L2331881-01G	Plastic 250ml NaOH preserved	A	>12	>12	2.4	Y	Absent		TCN-9010(14)
L2331881-01H	Amber 250ml unpreserved	A	7	7	2.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2331881-01I	Amber 250ml unpreserved	A	7	7	2.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2331881-01J	Plastic 500ml unpreserved	A	7	7	2.4	Y	Absent		CL-9251(28),SO4-9038(28),NO3-4500(2),TDS-2540(7)
L2331881-02A	Vial HCl preserved	A	NA		2.4	Y	Absent		8260(14)
L2331881-02B	Vial HCl preserved	A	NA		2.4	Y	Absent		8260(14)
L2331881-02C	Vial HCl preserved	A	NA		2.4	Y	Absent		8260(14)
L2331881-02D	Plastic 120ml H2SO4 preserved	A	<2	<2	2.4	Y	Absent		COD-5220(28)
L2331881-02E	Plastic 250ml unpreserved/No Headspace	A	NA		2.4	Y	Absent		ALK-T-2320(14)
L2331881-02F	Plastic 250ml HNO3 preserved	A	<2	<2	2.4	Y	Absent		PB-SI(180),FE-SI(180),BA-SI(180),AS-SI(180),CU-SI(180),AG-SI(180),NA-SI(180),MN-SI(180),CD-SI(180),CR-SI(180),CA-SI(180),SE-SI(180),ZN-SI(180),HG-S(28)
L2331881-02G	Plastic 250ml NaOH preserved	A	>12	>12	2.4	Y	Absent		TCN-9010(14)
L2331881-02H	Amber 250ml unpreserved	A	7	7	2.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2331881-02I	Amber 250ml unpreserved	A	7	7	2.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

Serial\_No:07112311:13  
**Lab Number:** L2331881  
**Report Date:** 07/11/23

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2331881-02J	Plastic 500ml unpreserved	A	7	7	2.4	Y	Absent		CL-9251(28),SO4-9038(28),NO3-4500(2),TDS-2540(7)
L2331881-03A	Vial HCl preserved	A	NA		2.4	Y	Absent		8260(14)
L2331881-03B	Vial HCl preserved	A	NA		2.4	Y	Absent		8260(14)



**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

## GLOSSARY

### Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)  Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report



**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

**Chlordane:** The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

**Difference:** With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

**Final pH:** As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

**Frozen Date/Time:** With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

**Gasoline Range Organics (GRO):** Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

**Initial pH:** As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

**PAH Total:** With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

**PFAS Total:** With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

### Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report



**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

#### **Data Qualifiers**

- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

**Project Name:** DANEHY PARK  
**Project Number:** 0139-239391-PM.RT.FY

**Lab Number:** L2331881  
**Report Date:** 07/11/23

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

### Westborough Facility

**EPA 624.1:** m/p-xylene, o-xylene, Naphthalene

**EPA 625.1:** alpha-Terpineol

**EPA 8260D:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270E:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**SM 2540D:** TSS.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

### Westborough Facility:

#### Drinking Water

**EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

**EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**

**EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

**Microbiology: SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

#### Non-Potable Water

**SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

**SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

**EPA 624.1:** Volatile Halocarbons & Aromatics,

**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables).

**Microbiology: SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

### Mansfield Facility:

#### Drinking Water

**EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.

**EPA 522, EPA 537.1.**

#### Non-Potable Water

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

**EPA 245.1** Hg.

**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



# CHAIN OF CUSTODY

PAGE 1 OF 1

8 Walkup Drive  
Westboro, MA 01581  
Tel: 508-898-9220

320 Forbes Blvd  
Mansfield, MA 02048  
Tel: 508-822-9300

Date Rec'd in Lab: 6/16/23

ALPHA Job #: 62331881

### Project Information

Project Name: DANENY PARK

Project Location: CAMBRIDGE, MA.

Project #: 0139-239391-PM.RT.FY2023

Project Manager: NATHAN JONES

ALPHA Quote #:

### Report Information - Data Deliverables

ADEx  EMAIL

### Billing Information

Same as Client info PO #:

### Client Information

Client: CDM-SMITH

Address: 75 STATE STREET, SUITE 701  
BOSTON, MA. 02109

Phone: 617-452-6563

Email: jonesnec@cdmsmith.com

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved)

Date Due:

Additional Project Information:

### Regulatory Requirements & Project Information Requirements

Yes  No MA MCP Analytical Methods  Yes  No CT RCP Analytical Methods  
 Yes  No Matrix Spike Required on this SDG? (Required for MCP Inorganics)  
 Yes  No GW1 Standards (Info Required for Metals & EPH with Targets)  
 Yes  No NPDES RGP  
 Other State /Fed Program Criteria

ANALYSIS	ALPHALITY	WET CHEM.	TDS ND <sub>3</sub> SO <sub>4</sub> Cl	1,4 DIOXANE	8270	SAMPLE INFO	
VOC: <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> 824 <input type="checkbox"/> 524.2	SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH	METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> RCP 15	EPH: <input type="checkbox"/> RCRAS <input type="checkbox"/> RCRAS-H <input type="checkbox"/> PP13	VPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	<input type="checkbox"/> PCB <input type="checkbox"/> PEST	TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Fingerprint	<input type="checkbox"/> Filtration <input checked="" type="checkbox"/> Field <input type="checkbox"/> Lab to do  <input type="checkbox"/> Preservation <input type="checkbox"/> Lab to do
TcN	CoD	ALKALINITY					

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials	ANALYSIS										Sample Comments	TOTAL # BOTTLES					
		Date	Time			VOC	SVOC	METALS	METALS	EPH	VPH	PCB	TPH	TcN	CoD			ALKALINITY	WET CHEM.	TDS ND <sub>3</sub> SO <sub>4</sub> Cl	1,4 DIOXANE	8270
31881 01	GW-2	6-7-23	1200	MW	MD	X			X						X	X	X	X	X			10
02	GW-2D	6-7-23	1230	MW	MD	X			X						X	X	X	X	X			10
03	TRIP BLANK	6-1-23	-	-	S	X																2

**Container Type**  
P= Plastic  
A= Amber glass  
V= Vial  
G= Glass  
B= Bacteria cup  
C= Cube  
O= Other  
E= Encore  
D= BOD Bottle

**Preservative**  
A= None  
B= HCl  
C= HNO<sub>3</sub>  
D= H<sub>2</sub>SO<sub>4</sub>  
E= NaOH  
F= MeOH  
G= NaHSO<sub>4</sub>  
H= Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>  
I= Ascorbic Acid  
J= NH<sub>4</sub>Cl  
K= Zn Acetate  
O= Other

Container Type	V	P				P	P	P	P	A
Preservative	0	C				E	D	A	A	A

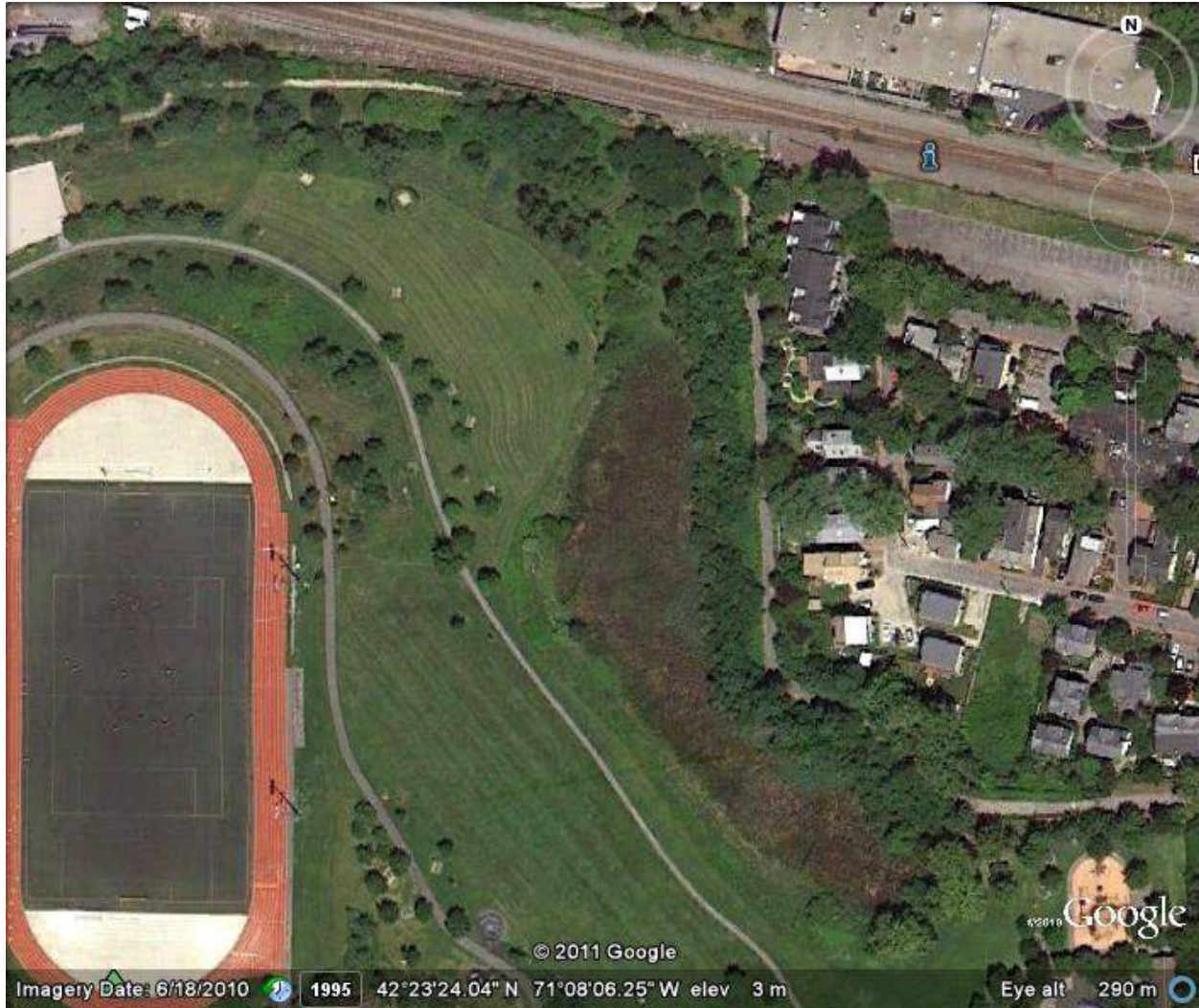
Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	6-7-23 1415	<i>[Signature]</i>	6/17/23 1415
<i>[Signature]</i>	6/17/23	<i>[Signature]</i>	6-7-23 1600
H. Livi AAL	6-7-23 17:59	<i>[Signature]</i>	6/19/23 17:59

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.  
FORM NO: 01-01 (rev. 12-Mar-2012)

**Appendix E**  
**2023 Wetland Wildlife Study Area Report**

# Danehy Park Report

## Anthropocene edition



*Mid-summer view of wetland 2010*

The schedule delays had interrupted thirty years of monitoring and educational programs at the Wetland Wildlife Study Area at Danehy Park this year. This gives us an opportunity to break from form, and not just satisfy the contract but to explore the adaptation of the wetland to the challenges of the changing climate, today at the beginning of the Anthropocene age.

This report will be broken into three sections: (1) Today's conditions, a discussion of the wildlife and plants in the wetland contrasting with previous years. (2) Adapting to climate change, we explore the next thirty years of wetland management and propose an adaptive management plan. (3) A brief history of a small wetland, as a template for future educational materials.



## #1 Today's Conditions

This year 2023 was a wet year for sure. The wetland held water for most of the year, only the November month had the water fully receded. At this writing the water level is in the core wetland that has a clay liner, the retention area. For most of the year the western side of the wetland was underwater flooding the turf areas. It's important to note that the emergent wetland has expanded ten, sometimes twenty feet into what was formerly turf over the last decade. This area is underlain with sand and absorbs the water into the cap of the former dump. At the east end the outlet pipe was cleared, more details about this are in the third section of this report.

The deer had returned this year. They have been spotted at least every other year for a couple of decades, establishing the wetland as a safe area to bed down and forage. The Red winged blackbird has long established a rookery at the wetland with the males arriving early establishing their territories amongst the reeds and cattails, hidden and unassailable by predators like hawks



and cats.

The wetland attracts predators, both coyote and fox were spotted doubtlessly attracted by the rabbit population as well as the immigration of black squirrels into the park. The fisher cat has not been seen this year. Typically, the rhythm of this species in the wetland is that they arrive at a rabbit population maximum then decimates them moving on to new hunting grounds. The rabbits are quite prolific so we may see this creature soon. Ducks continue to use the wetland however the great blue heron, egret and night heron are now rare visitors. In the educational section we go into more detail about this.



The emergent wetland continues to grow as sediments (carbon) build up and rainstorms get more intense. This year the purple loosestrife seemed to be expanding, we will need to check the *Galerucella* beetle population next year as this is the biocontrol for this invasive.



The *Phragmites* is stable this year, mostly due to wetter than normal conditions that favor the cattails and other emergent species. No evidence of the waterlilies for several years now. I wonder if they could survive if reintroduced. The arrowroot, iris and pickerel weed continue to thrive.

*Purple loosestrife biological control.*

The bordering buffer vegetation both on the park side and the berm continue to grow and evolve. The milkweed rebounded after last year's drought, and we look for a rebound in the monarch population in the next few years. The meadow area (park side of the wetland) continues to increase in diversity with the grasses, mugwort, milkweed and thistle, transitioning to sedges, iris and tri cornered rush. The berm side is a small urban forest with the planted species of pine mixed with the dying Russian olive and the introduced button bush making the transition to the rushes and emergent vegetation.

The berm area is of special importance to wildlife being sequestered from the dogs and people in the park. This is almost impassable, creating a safe refuge and home for the rabbit population that is now integral to the park's ecosystem. Care, however, needs to be exercised to be sure they do not tunnel into the berm potentially weakening it. Brush piles have been a good alternative giving them shelter. More on the berm area in the next section.



Of special note is the eastern end of the wetland with the two willow trees. These trees provide habitat for many species of birds and now squirrels, it creates a bower effect for a unique view into the wetland. Here we had also planted a rash of iris inviting visitors to be enveloped in



nature. Looking at the wetland to the left grape vines tangle into the alders, a favorite place for rabbits to the delight of the children in the playground. To the right a fence separates the park from the berm area the wilderness of the urban forest. Here is the focus of the educational programs with several ecological edges for the students to explore. More about this area in the next section.

*Students learning about the wetland with art!*

## #2 Adaptive management plan recommendations

In this section we explore, (1) the potential impacts to the wetland from proposed and ongoing projects in the wetland. (2) The berm and outlet modifications necessary to adapt. (3) The ongoing educational potential of the wetland.

Today's technology and awareness of the effects of climate change requires some updates in the wetland and the management of the park. The term for that is an "Adaptive Management Plan". This is beyond the scope of our responsibilities, yet everything in the park affects the watershed of the wetland. I would be willing to be a resource to crafting this plan as I was there at the creation of the park and have been a part of it for the last 34 years. The following are highlights of what we think should transpire. An example of details would be; flexible pavement of the paths near trees so the roots don't crack it and the water cannot be used to wet the wetland during high fire hazard times to reduce the risk of wildfire as well as others.

The watershed of the wetland includes several sports fields and grassed slopes. The eastern fields drain into a swale that is directed into a pipe that empties into the eastern edge of the wetland. The grassy slope of the hill and playground area sheet flows directly



into the wetland. The western fields drain into a swale by the parking lot then the water travels under the dog park (without picking up nutrients) and empties into the far western edge of the wetland representing the major flows. Here beside the western parking lot a building is proposed. It is imperative that it doesn't interfere with the hydrology of the wetland. Care should be taken to handle the impervious surfaces of the building to

contribute rather than reduce the hydrology of the wetland.

The ongoing management of the grassed and artificial areas should reflect the state of the art of IPM, and every effort should be made to reduce toxins in the wetland. The use of the water cannon directly or through the drainpipes during summer droughts to supplement natural rainfall should continue as well as just wetting the wetland. This is important not just for the health of the emergent vegetation, trees and wildlife but to reduce the potential fire hazard, one of the four horsemen of climate change.



*The remains of the sandbags installed in 2010*

The berm and outlet were designed for a 50-year storm event...we have had several. In the era of its design the need for emergency outfall was not considered. The berm almost failed a few times and except for the heroic efforts of the park crew emergency sand bagging it in a storm, it would have failed, flooding the neighborhood.

An emergency spill way needs to be created at the lowest elevation of the berm. This is possibly where the remains of the sandbags can be seen today. This armoring will prevent the erosion of the berm during a major storm event and should communicate to the methane trench area where water can settle finding its way to the drainage ditch on the far side of the gravel methane trench. The size and materials should be specified by an engineering firm using today's weather data. The yearly inspection of the berm for animal burrows that may compromise it should continue.

The eastern outlet is undersized by today's standards and as the wetland fills in, it is easily plugged up every year. The solution is to create a weir that is similar to the Olmstead design of the Belview pond in Medford that handles overflow from the Winchester reservoir. (This pond was the model for the ecological restoration of the wetland) The accretion of organic material in the sediment creates a carbon sink, in fact cattail marsh is the second greatest terrestrial carbon trap only exceeded by salt

marshes. The accretion rate is in excess of 1.5 cubic meters a year and now after more than thirty years it's time to do something about it. The weir rather than stone and concrete that can be damaged by ice we propose a "soft weir" of materials from the wetland. Looking like a beaver dam, this semicircular weir will allow water to infiltrate through it, parking the sediments behind it. Over the next thirty years the wetland will expand slightly creating a natural barrier of organic materials. Eventually a second or third weir can be created if needed. This will keep the outlet free of materials and give another nuance of wetland education for the school groups. We had designed a similar weir at Fresh Pond based on a 1000-year-old indigenous American site. This was made of mason's sand and compost to filter dog waste that was entering the reservoir. This was dubbed as the "Earth Serpent" by the park visitors. I propose calling Danehy Park's weir the "Marsh Serpent" and using it for educational purposes as well, because beaver dams have changed the north American landscape over the millennia and that is part of the story of the wetland.



*Fresh pond "Earth Serpent".*

Every year we would incorporate an educational component to the wetland. This would be in the form of a guided tour of the wetland dubbed the "Swamp Stomp" for school kids and neighbors where we discuss the history of the site and the plants and animals in the wetland.

The next section of this report is an example of the timeline and can be incorporated in a modern version utilizing new signage with a QR code linking to video about the wetland. This was one of the suggestions from our zoom educational meetings during the covid lockdown. This is modeled after the Peabody Essex Museum's new signage for their sites around Salem.



The other venue has been the public art installations involving kids, typically we create giant nests that even the smallest children can enjoy. A classic was “Nest of Ideas” where children wrote their ideas for adapting to the environment on cash register tape, weaving it into the reeds of the nest.

This engendered a positive vision of the future vs the drowning of polar bears and ecological disaster. It is important to note

that for many children in the area the park represents their only connection to the natural world in person.

### #3 A Brief History of a Small Wetland *A template for educational signage*

The following is the script for an educational program about the wetland’s history as part of a “Swamp Stomp” where we go also into detail about the plants and animals in the Wetland Wildlife Study Area.



Eleven thousand years ago, as the glaciers melted, depositing a deep layer of clay, sand and stones across the area. Some of the large chunks of ice melted slowly leaving kettle hole ponds like the nearby Fresh Pond and Spy Pond. The area we call Cambridge today is underlain with a rich deposit of clay that is important to its history. Bear, Elk,

Muskox, Moose, Deer and Mastodons walked on this land that at that time it was a large vibrant wetland. The Museum of Science holds a mastodon tusk fished out of nearby Spy Pond. The first nation’s people arrived in the area at the foot of those melting glaciers

hunting and fishing in the rich ecosystem. The area that is now Boston harbor was dry land that slowly filled in with the rising seas as the earth warmed in the Holocene period.

The Europeans who migrated to the “New World” named this area, “The Great Swamp” and as part of what is known as the Holocene extinction, cut down the cedar, larch, red and silver maple trees for housing and heat. They hunted out the deer and trapped the beaver as well for the fur trade. The “Great Swamp” was quickly drained for its rich humus for farmland. As a saving grace, one farmer sent the root stock of a beautiful pink waterlily he discovered in his newly ploughed field to the famous French Horticulturalist Claude Monet. His paintings of these waterlilies can be seen today in the Boston Museum of Fine Art.



The population grew exponentially and the demand for more durable building materials was met by the generous clay layer left by the glaciers. Bricks were burned in this area, first with wood then the fossilized carbon of the earlier ages on the earth, coal. What is now called Daneyh Park was a giant water filled clay pit, known as “Jerry’s Pit”. Children, slaves and immigrants all packed the wooden molds for the bricks. You can still see their fingerprints in the sidewalks of Cambridge and Boston as well as surrounding colonial cities. There are some nice ones on Derby Street in Salem near Custom House. The brick yard buildings still exist as the Montessori School across the street from the playground.

By the mid-1800s housing was crammed up near the fiery brick kilns belching smoke and carbon dioxide into the atmosphere creating huge piles of toxic ash. Nearby, the city of Cambridge, recognizing the need for clean water and recreation in nature for its urban population, contracted the visionary landscape architect Fredrick Law Olmstead to transform the landscape into a park. Olmstead’s design reflected the transcendentalist view of nature championed by Henry David Thoreau, most famous for his writing at Walden Pond, another kettle hole pond left by the melting glaciers. The brickworks however continued, and when that business failed the “Jerry’s Pit” was renamed “The Fresh Pond Dump”. The city filled the pit with both household and industrial garbage. This included materials from the new chemical industry including W.R. Grace whose factories were adjacent.



Eventually the site was a weed infested dumpsite... smoldering in the neighborhood. On



Earth Day, April 22, 1970, the city looked at this smelly eyesore and resolved to cap it and transform it into a public park! Design and planning commenced immediately but evolved over time, being one of the first dumpsites turned into a public park. Fortunately, the clay left from the glaciers made a perfect liner keeping the toxins from the public water supply! The cap sealing the dumpsite had to be designed by

CDM engineering. The extension of the subway west to the new Alewife station provided up to forty feet of fill for the fifty plus acre park. This was the staging area for the subway work, both machinery and fill compacting the dump. Eventually the grading and planting begun, and the area opened to the public in 1990 ...now named Danehy Park.

The watershed of most of the park drained into a 1.7-acre mud puddle. Knee deep with a clay liner and an engineered soil layer. It had a wetland seed mixture sprayed across it and in the middle a green glob of algae fifty feet across, that looked like something from a 70s horror movie..." The Glob That Ate Cambridge!". Waterflowers Design was contracted to combat the slime and develop the ecological restoration for the area. The first task was an infusion of zoo plankton and invertebrates to literally eat the hair algae. This was done with a transfusion of healthy pond water. We then planted an emergent wetland with native species arranged for both ecological and aesthetic value. The Midwest cattail seedbank was augmented with local seed with some variability from the short Newburyport species to the larger Charles River variety. With an eye to not just creating a healthy wetland but also a resource for students and the public to learn about wetlands and the history of the area. We included many details like reintroducing the native pink waterlily that once was there. Over the next thirty years the wetland evolved to the changing climate, nature's own version of adaptive management.

During that first decade the wetland had a pond like atmosphere with open water filled with the pink waterlily (*Nymphaea Rosea*) and the "Brandy bottle lily" (*Nuphar Lutea*). This is a yellow flower whose seed pod rises above the water looking like a colonial brandy bottle with an alcohol scent. We had kept these pools of water open by pulling the cattails and creating artificial muskrat mounds. These mounds gave the ducks and geese great nesting sites, protected from predation. The major invasive threat was the water chestnut (*Trappa Natums*) whose spikey seedpod could pierce a car tire. This was removed by hand over a three-year period and has not been seen since. We had

introduced local minnows as well as frogs and turtles to increase the diversity. A large snapping turtle had crawled across route two from the Fresh Pond to lay her eggs in the new “pond”. The fish, frogs and garden toad tadpoles attracted the attention of the great blue heron, egret and night heron who had nested in the willow trees. These trees had started as twenty-foot poles and over the years matured into majestic trees. The weather had changed due to climate change and by the year 2000 we had experienced a series of alternating droughts and floods.

The second decade of the wetland wildlife area saw severe droughts and the mud was cracked and dried some summers. This crashed the populations of fish, turtles and frogs resulting in the herons and egrets visiting less often. The artificial muskrat mounds attracted real muskrats, but this posed a problem for fears of them digging into the clay liner or damaging the berm, both of which could be a catastrophe. They were evicted by damaging their houses until they left. The succeeding droughts convinced them not to return. The alternating droughts and floods were getting severe. Cracked mud and skeletal remains of plant and animal life embedded in it ready for fossilization were contrasted by epic storms challenging the capacity of the berm. Fire hazard became a worry as several natural wetlands were burning for weeks at a time and smoke alerts were part of the daily traffic reports. We augmented the lack of rainfall with water cannons, keeping the wetland flooded.



The cattails had moved into the open space and the waterlilies were seen less often until they were in the wetland no more. Phragmites grew expansively in this decade and the city had tried to control it one year with roundup. This didn't work as it returned in force the next year as well as causing a strange mutation in the cattails having

double spikes. Experiments were conducted in cutting this plant during flowering to exhaust its roots. This seemed to have an effect and was continued. The cuttings were recycled into a series of public art installations with the Montessori school's summer camp. We created reed nests with the kids and were able to share ideas about adapting to climate change and other environmental threats in a positive manner. By now winters are warmer. The wetland once was solidly frozen, so the kids sledding down the hill hit



the ice and flew across to go thump into the berm. Now they hit the reed wall and get wet more often than not, never making it to the berm.

The third decade marked the end of the Holocene era and the beginning of the Anthropocene era. The steady predictable weather had given way to severe droughts and epic

rainstorms, warm or freezing winters. The berm had overflowed despite being raised a few inches and the heroic efforts of the park staff, sand bagging it during a storm prevented it breaching and flooding the neighborhood. Snow fall had increased and some years we saw “Mount Snow” a huge pile from the street removal that sat in the park not melting until the end of May leaving a pile of street trash and contaminates. The inflow of water had outgrown the design of the infrastructure. The berm was raised slightly, and a control device and underground storage was added to help handle this overflow to protect the neighborhood from downstream flooding. Storm drains and ditches were cleared to help maintain this flow. Within the wetland the emergent marsh continued to capture carbon dioxide, building up the sediment layer of fibrous materials like a giant green sponge, slowly releasing water after a storm event.

The blackbirds continued to nest, and the herons were rare visitors. Today the wetland is not as diverse as it was yet continuing to attract wildlife. As we enter the fourth decade of wetland management, we look forward to seeing the changes in the landscape and its management.

I look forward to discussing the recommendations in this report and working with the city on this. Terry Bastian

**Appendix F**  
**2023 Perimeter Gas Vent Trench**  
**Inspection Photographs**

Danehy Park, Cambridge, Massachusetts  
December 20, 2023



**Photograph #1**  
New Street Entrance to Danehy Park  
– looking east.



**Photograph #2**  
Sherman Street Entrance to Danehy Park –  
Looking west.



**Photograph #3**  
Foot pathway Entrance to Danehy  
Park next to Comfort Station – looking  
west.



**Photograph #4**  
Southeast Entrance to Danehy Park -  
looking north.

Danehy Park, Cambridge, Massachusetts  
December 20, 2023



**Photograph #5**  
Field Street Entrance to Danehy Park  
and Parking Lot for New Universal  
Playground – looking northeast.



**Photograph #6**  
Garden Street Entrance to Universal  
Playground at Danehy Park – looking  
northwest.



**Photograph #7**  
Sherman Street Entrance to Danehy  
Park with Parking lot and Comfort  
Station looking west.



**Photograph #8**  
Danehy Park Comfort Station front  
entrance.

Danehy Park, Cambridge, Massachusetts  
December 20, 2023



**Photograph #9**  
Sherman Street Parking lot at Danehy  
Park



**Photograph #10**  
New Street Parking lot looking south  
towards soccer fields.



**Photograph #11**  
Field Street Parking lot looking at  
Universal Design Playground.



**Photograph #12**  
Vent Trench and west slope looking  
southwest along New Street.

Danehy Park, Cambridge, Massachusetts  
December 20, 2023



**Photograph #13**  
Western facing slope looking southwest with vent trench along New Street.



**Photograph #14**  
Southwest corner of landfill looking southeast at southwestern facing slope along vent trench.



**Photograph #15**  
Southeastern facing slope along vent trench showing woody growth on slope.



**Photograph #16**  
Low spot in vent trench with iron staining near gas monitoring well MW102.



Danehy Park, Cambridge, Massachusetts  
December 20, 2023



**Photograph #17**  
Desire path on Southeastern facing slope near Field Street Parking lot.



**Photograph #18**  
Southeastern facing slope with overgrown vegetation. Vent trench with sediment and vegetation is shown with Briston Arms Apartments on the right.



**Photograph #19**  
Southwestern slope facing Briston Arms Apartments. Larger trees growing from slope along vent trench.



**Photograph #20**  
Vent trench with Southeastern slope. Slope is overgrown with trees and woody growth. A desire path is shown along the base of the slope.

Danehy Park, Cambridge, Massachusetts  
December 20, 2023



**Photograph #21**  
Southeastern facing slope with pathway to soccer fields. Vent trench continues along perimeter of Landfill.



**Photograph #22**  
Eastern facing slope – looking southwest with vent trench.



**Photograph #23**  
Vent trench disguised as a dry stream bed on eastern side along Sherman Street Parking lot. Ground cover vegetation has spread into vent trench.



**Photograph #24**  
Northeast corner of site with vent trench. Some leaves and pine needles on trench.

Danehy Park, Cambridge, Massachusetts  
December 20, 2023



**Photograph #25**  
Northeast side of site with vent trench  
-looking north.



**Photograph #26**  
Northern edge of site with vent trench and  
dog park – looking east.



**Photograph #27**  
Northern slope looking east with  
dog park.



**Photograph #28**  
Northeast slope with pond looking  
north.

Danehy Park, Cambridge, Massachusetts  
December 20, 2023



**Photograph #29**  
Northeast slope with pond looking north.



**Photograph #30**  
Plateau area at eastern side of site.



**Photograph #31**  
Southern side of site with pathway at  
edge of soccer field.



**Photograph #32**  
Northeast corner of site looking southwest.

Danehy Park, Cambridge, Massachusetts  
December 20, 2023



**Photograph #33**  
Top of landfill looking north.



**Photograph #34**  
Pathway to field on top of the landfill.



**Photograph #35**  
East slope looking southeast from top  
of the landfill



**Photograph #36**  
Top of landfill looking southwest  
overlooking soccer field.

Danehy Park, Cambridge, Massachusetts  
December 20, 2023



**Photograph #37**  
Soccer field on top of landfill looking north.



**Photograph #38**  
Top of slope looking south.



**Photograph #39**  
Rip rap swale with drain next to dog park.



**Photograph #40**  
MMW-4 landfill gas monitoring well is in very good condition.

Danehy Park, Cambridge, Massachusetts  
December 20, 2023



**Photograph #41**  
Universal Design Playground at southern  
corner of site at the corner of  
Field Street and Garden Street.



**Photograph #42**  
Iron Flock in drainage channel between vent  
trench and Bellis Circle.



**Photograph #43**  
Desire path turned into erosion washout on  
Northeast slope between soccer fields 1 and 2.

# Appendix G

## 2023 Landfill Inspection Forms

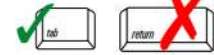




# Massachusetts Department of Environmental Protection Bureau of Waste Prevention / Solid Waste Management

Third-Party Inspection Report – 310 CMR 19.018(8)  
Operation & Maintenance

**Important:** When completing this form on a computer, use only the Tab key to move your cursor – not the Return key.



## Instructions

Use this form to record and report the results of a Third-Party Operation and Maintenance Inspection conducted pursuant to 310 CMR 19.018. Be sure to obtain the most recent version of this form. All applicable sections of the submitted form must be completed to be accepted by MassDEP.

Pursuant to 310 CMR 19.018(8)(a), the third-party inspector and facility owner/operator must sign this Third-Party Inspection Report form and submit the completed report to the appropriate MassDEP regional office and one copy of each completed report to the board of health of the municipality in which the facility is located.

In the event that this inspection report contains a recommendation for corrective action(s), the owner/operator shall also submit the information required by 310 CMR 19.018(8)(c)2.

Forms and instructions are available online:

<http://www.mass.gov/eea/agencies/massdep/recycle/approvals/solid-waste-applications-and-forms.html#8>

*Note: This form does not identify all of the requirements applicable to each solid waste management facility; other requirements and/or policies may apply to the operation, maintenance and monitoring for each facility.*

### MassDEP Use Only

Rec'd Date:

FMF #:

RO #:

Reviewer:

Comments:

## I. Facility Information

### Facility Type (check one):

- Transfer Station/Handling Facility     C&D Waste Processor or C&D Waste Transfer Station     Municipal Waste Combustor
- Active Landfill     Closed Landfill     Other: \_\_\_\_\_  
Specify

### Facility:

Danehy Park (former New Street Landfill)

Facility Name

Cambridge

City/Town

N/A

Telephone Number

MA

State

SL0049.003

Regulated Object Account Number

02138

ZIP Code

39138

FMF Number

### Operator:

City of Cambridge Department of Public Works

Operator Name (Doing Business As/Company Name)

617-349-4751

Telephone Number

147 Hampshire Street

Mailing Address

Cambridge

City/Town

kwatkins@cambridgema.gov

Email Address

MA

State

02139

ZIP Code

### Permittee:

City of Cambridge

Permittee Name (Entity Identified on Facility Permit)

51 Inman Street

Mailing Address

Cambridge

City/Town

MA

State

02139

ZIP Code

### Responsible Official for the Facility:

James Wilcox, City Engineer

Responsible Official Name (Individual)

City of Cambridge Department of Public Works

Responsible Official Company Name

jwilcox@cambridgema.gov

Responsible Official Email Address

617-349-6426

Responsible Official Telephone Number



**Massachusetts Department of Environmental Protection  
Bureau of Waste Prevention / Solid Waste Management**

Third-Party Inspection Report – 310 CMR 19.018(8)  
**Operation & Maintenance**

**II. Third-Party Inspector**

Michael T Dolan Third-Party Inspector Name	CDM Smith, Inc. Company Name	
SW48-0000098 MassDEP Third-Party Inspector Identification Number	8/25/2024 MassDEP Third-Party Inspector Expiration Date (MM/DD/YYYY)	
(617)-593-8538 Telephone Number	dolanmt@cdmsmith.com Email Address	
75 State Street, Suite 701 Mailing Address	MA State	02109 ZIP Code
Boston City/Town		

**Construction and Demolition Waste (C&D Waste) Processing Facility or C&D Waste Transfer Station Only:**  
Identify the qualified individual that conducted the observation of incoming waste loads and collection of samples of suspect asbestos-containing materials during the inspection [pursuant to 310 CMR 19.018(6)(f)]. If the entire inspection was conducted by the third-party inspector listed above, then check the box and enter only the Asbestos Inspector Certification Number.

Same as above. **Provide Asbestos Certification Number** ►

_____	MA Dept. of Labor Standards Asbestos Inspector Certification Number	
Asbestos Inspector Name	Company Name	
_____	_____	
Telephone Number	Email Address	
_____	_____	
Mailing Address		
_____	State	ZIP Code
City/Town		

**III. Inspection Details**

**A. FREQUENCY**

Indicate the scheduled inspection frequency for this facility as required by 310 CMR 19.018(6)(b), or a more frequent schedule set forth in the Facility Permit/Other Approval:

Bi-Monthly   
 Quarterly   
 Semi-Annual   
 Annual   
 Biennial  
 Other (include permit/approval type and date of issuance):

**B. DATE, TIME & PERSONNEL**

Inspection Date (MM/DD/YYYY):	12/20/2023
Inspection Start Time:	13:00 <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM
Facility Representatives in Attendance During Inspection: None	

**C. CONDITIONS**

Air Temperature: <i>Approximately 38 degrees F.</i>	Wind Direction (direction from which the wind is blowing):									
Weather: <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Partly Cloudy <input type="checkbox"/> Cloudy <input type="checkbox"/> Dry <input type="checkbox"/> Rain <input type="checkbox"/> Snow	<table border="1"> <tr> <td><input checked="" type="checkbox"/> NW</td> <td><input type="checkbox"/> N</td> <td><input type="checkbox"/> NE</td> </tr> <tr> <td><input type="checkbox"/> W</td> <td style="background-color: #cccccc;">Wind</td> <td><input type="checkbox"/> E</td> </tr> <tr> <td><input type="checkbox"/> SW</td> <td><input type="checkbox"/> S</td> <td><input type="checkbox"/> SE</td> </tr> </table>	<input checked="" type="checkbox"/> NW	<input type="checkbox"/> N	<input type="checkbox"/> NE	<input type="checkbox"/> W	Wind	<input type="checkbox"/> E	<input type="checkbox"/> SW	<input type="checkbox"/> S	<input type="checkbox"/> SE
<input checked="" type="checkbox"/> NW	<input type="checkbox"/> N	<input type="checkbox"/> NE								
<input type="checkbox"/> W	Wind	<input type="checkbox"/> E								
<input type="checkbox"/> SW	<input type="checkbox"/> S	<input type="checkbox"/> SE								
Wind Speed: <input checked="" type="checkbox"/> Calm <input type="checkbox"/> Breeze <input type="checkbox"/> Moderate <input type="checkbox"/> Strong										



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**IV. Pre-Inspection Preparation**

**A. FACILITY-SPECIFIC O&M REQUIREMENTS**

During each third-party inspection, the third-party inspector shall examine and evaluate the facility’s solid waste activities, equipment, operations, practices, procedures, and records relevant to the type of third-party inspection being conducted in order to determine the facility’s compliance with all applicable requirements as set forth in 310 CMR 19.018(6)(a)1.

**Therefore, pursuant to 310 CMR 19.018(6)(a)1, prior to conducting a third-party facility operation and maintenance inspection, the third-party inspector shall, without limitation, complete all of the following:**

- Review and become familiar with the regulations set forth at 310 CMR 19.000 – *Massachusetts Solid Waste Regulations*.
- Identify, review and become familiar with all solid waste permits, plans, approvals, and orders (or other enforcement documents issued to the facility by the Department), and the solid waste requirements applicable to the operation and maintenance of the facility.  
  
Relevant requirements may include, without limitation, specific practices and procedures for the operation, maintenance and monitoring of the facility, waste acceptance/storage limits, and other requirements related to the facility’s solid waste activities. Without limitation, these facility-specific requirements may be contained in the Facility Permit, Authorization to Construct, Authorization to Operate, Operation and Maintenance Plan, Closure/Post-Closure Plans and Approvals, Facility Modification Approvals, Beneficial Use Determinations, Administrative Consent Orders, and other determinations, authorizations or enforcement actions issued by the Department.

**I, Michael T Dolan, have identified, reviewed and understand all of the aforementioned requirements that are applicable to this facility and the following are my observations and recommendations related to the facility-specific requirements.** ▶ MTD  
Inspector Initials

**B. SOLID WASTE PERMITS, PLANS, APPROVALS & ORDERS**

List all relevant solid waste permits, plans, approvals, orders or other enforcement actions issued to the facility by the Department that contain specific practices, procedures and other requirements still in effect for the operation, maintenance and monitoring or closure/post-closure of the facility. Where applicable, provide the plan or issue date for each item. For enforcement actions, include the document number, effective date, and status of implementation by the facility.

Discussion:

Environmental Monitoring Plan, (May 14, 1996), Minor Modification BWP SW22 Conditional Approval (January 13, 2013, Transmittal #X252270);

Sherman Street I&I Mitigation Project Conditional Approval (December 20, 2022, Authorization #SW36-0000047).

Soil Boring Investigation Salt Shed Conditional Approval (March 27, 2023, Authorization #SW45-0000206).

Soil Boring Investigation Gateway Pavilion Conditional Approval (March 27, 2023, Authorization #SW45-0000207).

Environmental Assessment Scope of Work Conditional Approval (November 29, 2023, Authorization #SW45-0000235).



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**V. Performance Standards**

Examine and evaluate the facility's solid waste activities, equipment, operations, practices, procedures and records relevant to the type of solid waste facility.

Using the tables below, identify all areas evaluated by the inspector during the inspection by checking the box in the first column. Describe all deviations noted during the inspection in the third column. Provide recommendations for corrective action to return to compliance with the applicable performance standard in the fourth column.

Facility Type	Performance Standards
Transfer Station/Handling Facility (Including C&D Facility)	Complete Section A. If C&D Handling/ Processing Facility, then also complete Section B.
Municipal Waste Combustor	Complete Section A.
Active Landfill	Complete Sections C. and F. If active ash landfill, then also complete Section D.
Closed Landfill	Complete Sections E. and F.

**A. TRANSFER STATION, HANDLING FACILITY, OR MUNICIPAL WASTE COMBUSTOR (INCLUDING C&D FACILITY)**

Evaluated	Performance Standard	Deviation(s)	Comments/Observations and Recommended Corrective Action(s)
<input type="checkbox"/>	19.205(1) Storm Water Controls.		
<input type="checkbox"/>	19.205(2) Equipment.		
<input type="checkbox"/>	19.205(3) Weighing Facilities.		
<input type="checkbox"/>	19.207(1) General.	Discuss in Section VI.	Discuss in Section VI.
<input type="checkbox"/>	19.207(2) Supervision of Operation.		
<input type="checkbox"/>	19.207(3) Access to Facilities.		
<input type="checkbox"/>	19.207(4) Security.		
<input type="checkbox"/>	19.207(5) Posting of Handling Facility.		
<input type="checkbox"/>	19.207(6) Unloading of Refuse.		
<input type="checkbox"/>	19.207(7) Special Wastes.		
<input type="checkbox"/>	19.207(8) Banned/Restricted Wastes.		
<input type="checkbox"/>	19.207(9) Hazardous Waste.		
<input type="checkbox"/>	19.207(10) Household Hazardous Waste and Waste Oil Collections.		
<input type="checkbox"/>	19.207(11) Bulky Waste.		
<input type="checkbox"/>	19.207(12) Liquid Wastes.		



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Evaluated	Performance Standard	Deviation(s)	Comments/Observations and Recommended Corrective Action(s)
<input type="checkbox"/>	19.207(13) Bird Hazards.		
<input type="checkbox"/>	19.207(14) Dust Control.		
<input type="checkbox"/>	19.207(15) Vector Control.		
<input type="checkbox"/>	19.207(16) Control of Wind-blown Litter.		
<input type="checkbox"/>	19.207(17) Staffing.		
<input type="checkbox"/>	19.207(18) Employee Facilities.		
<input type="checkbox"/>	19.207(19) Accident Prevention/Safety.		
<input type="checkbox"/>	19.207(20) Fire Protection.		
<input type="checkbox"/>	19.207(21) Recycling Operations.		
<input type="checkbox"/>	19.207(22) Records for Operational and Plan Execution.		
<input type="checkbox"/>	19.207(23) Screening and/or Fencing.		
<input type="checkbox"/>	19.207(24) Open Burning.		
<input type="checkbox"/>	19.207(25) Inspections.		
<input type="checkbox"/>	19.207(26) End-of-Life Mercury-added Products.		

**B. CONSTRUCTION AND DEMOLITION (C&D) WASTE PROCESSING FACILITY OR C&D WASTE TRANSFER STATION**

Evaluated	Performance Standard	Deviation(s)	Comments/Observations and Recommended Corrective Action(s)
<input type="checkbox"/>	19.206(1) Enclosed Operations.		
<input type="checkbox"/>	19.206(2) Storage.		
<input type="checkbox"/>	19.206(3) Contact Water.		
<input type="checkbox"/>	Suspect Asbestos-Containing Material (ACM) Inspection and Management Protocol.		
<input type="checkbox"/>	Sample collection of suspect ACM from incoming loads.	Discuss sample results: ▶ <input type="checkbox"/> Attach analytical reports.	



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**C. ACTIVE LANDFILL**

Evaluated	Performance Standard	Deviation(s)	Comments/Observations and Recommended Corrective Action(s)
<input type="checkbox"/>	19.130(1) General.	Discuss in Section VI.	Discuss in Section VI.
<input type="checkbox"/>	19.130(2) Operator Supervision.		
<input type="checkbox"/>	19.130(3) Special Wastes.		
<input type="checkbox"/>	19.130(4) Banned/Restricted Wastes.		
<input type="checkbox"/>	19.130(5) Hazardous Waste.		
<input type="checkbox"/>	19.130(6) Bulky Wastes.		
<input type="checkbox"/>	19.130(7) Liquid Wastes.		
<input type="checkbox"/>	19.130(8) Solid Waste Handling.		
<input type="checkbox"/>	19.130(9) Bird Hazards.		
<input type="checkbox"/>	19.130(10) Equipment and Shelter.		
<input type="checkbox"/>	19.130(11) Staffing.		
<input type="checkbox"/>	19.130(12) Employee Facilities.		
<input type="checkbox"/>	19.130(13) Accident Prevention/Safety.		
<input type="checkbox"/>	19.130(14) Spreading and Compacting of Solid Waste.		
<input type="checkbox"/>	19.130(15) Cover Material.		
<input type="checkbox"/>	19.130(16) Vector, Dust and Odor Control.		
<input type="checkbox"/>	19.130(17) Litter Control.		
<input type="checkbox"/>	19.130(18) Top Slope and Side Slopes.		
<input type="checkbox"/>	19.130(19) Storm Water Drainage.		
<input type="checkbox"/>	19.130(20) Erosion Control.		
<input type="checkbox"/>	19.130(21) Boundary/Elevation Markers.		
<input type="checkbox"/>	19.130(22) Access Roads.		
<input type="checkbox"/>	19.130(23) Security.		
<input type="checkbox"/>	19.130(24) Posting of the Landfill.		



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Evaluated	Performance Standard	Deviation(s)	Comments/Observations and Recommended Corrective Action(s)
<input type="checkbox"/>	19.130(25) Open Burning.		
<input type="checkbox"/>	19.130(26) Fire Protection and Control.		
<input type="checkbox"/>	19.130(27) Convenience and Recycling Drop-off Areas at Landfills.		
<input type="checkbox"/>	19.130(28) Waste Oil Collections at Landfills.		
<input type="checkbox"/>	19.130(29) Household Hazardous Waste Collections at Landfills.		
<input type="checkbox"/>	19.130(30) Leachate Collection, Treatment and Disposal.		
<input type="checkbox"/>	19.130(31) Phase Completion of the Landfill.		
<input type="checkbox"/>	19.130(32) Disruption of Landfilled Areas.		
<input type="checkbox"/>	19.130(33) Construction of Buildings.		
<input type="checkbox"/>	19.130(34) Records for Operational and Plan Execution.		
<input type="checkbox"/>	19.130(35) Inspections.		
<input type="checkbox"/>	19.130(36) Re-circulation of Leachate.		
<input type="checkbox"/>	19.130(37) End-of-Life Mercury-added Products.		

**D. ASH LANDFILL**

Evaluated	Performance Standard	Deviation(s)	Comments/Observations and Recommended Corrective Action(s)
<input type="checkbox"/>	19.131(1) General.	Discuss in Section VI.	Discuss in Section VI.
<input type="checkbox"/>	19.131(2) Fugitive Emissions.		
<input type="checkbox"/>	19.131(3) Ash Moisture Content.		
<input type="checkbox"/>	19.131(4) Spreading/Compacting of Ash.		
<input type="checkbox"/>	19.131(5) Vehicle Washdown / Wheelwash / Other Measures.		



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**E. CLOSED LANDFILL**

Evaluated	Performance Standard	Deviation(s)	Comments/Observations and Recommended Corrective Action(s)
☒	19.016 Post-closure Use.	None	<p>Danehy Park is an active and passive recreation park with soccer fields, baseball and softball fields, walking paths, track, playgrounds, parking lots, and support facilities (comfort station, office, park maintenance equipment storage).</p> <p>Electric Vehicle charging stations are present in three of the parking lots.</p> <p>One of the parking lots located off New Street is used for snow storage.</p> <p>The City of Cambridge also operates a salt storage shed and winter brine facility on the property outside the identified limits of the landfill.</p> <p>No other post closure uses were observed at the time of the inspection.</p>
☒	19.142(1) General.	Discuss in Section VI.	Discuss in Section VI.
☒	19.142(2) Post-closure Period.	None	The post-closure period will extend a minimum 30 years beyond the closure date of the landfill.
☒	19.142(3) Post-closure Period Waiver.	None	N/A -No waiver has been proposed.
☒	19.142(4) Post-closure Period Extension.	None	N/A - No extension of the post closure-period has been requested.
☒	19.142(5) Post-closure Requirements.	None	The capping system, access roads, landfill gas vents, and environmental monitoring systems are maintained.
☒	19.142(6) Inspection Requirements.	None	Third-party inspections are to be performed on a biennial basis pending approval of revised post-closure environmental monitoring and maintenance plan.
☒	19.142(7) Additional Measures.	None	N/A -No other additional measures have been assigned.
☒	19.142(8) Termination of the Post-Closure Period.	None	N/A -Written determination for ending post-closure care has not





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Evaluated	Performance Standard	Deviation(s)	Comments/Observations and Recommended Corrective Action(s)
			been provided.
<input checked="" type="checkbox"/>	19.143(1) Applicability.	None	The facility is being used in accordance with the approved post-closure use.
<input checked="" type="checkbox"/>	19.143(2) Submission of Post-closure Use Plans.	None	The facility is being used in accordance with the Revised Final Closure Plan Approval and Permit dated February 5, 1990 (NE-SW-87-003) "to implement the final closure of the New Street Landfill and to change the use of the site for the creation and operation of a park with recreational facilities established on the closed landfill." Several post-closure modifications for field improvements, parking lot improvements, electrical vehicle charging stations, winter brine facility, and construction of the Universal Design Playground have been approved since the initial post-closure use approval.
<input checked="" type="checkbox"/>	19.143(3) Criteria for Approval of Post-closure Use.	None	All criteria for the approved post closure use of the facility are being performed.
<input checked="" type="checkbox"/>	19.143(4) Post-closure Construction.	None	No active post-closure construction at the time of inspection.



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**F. ADDITIONAL LANDFILL REQUIREMENTS**

Evaluated	Performance Standard	Comments/Observations and Recommended Corrective Action(s)
<input checked="" type="checkbox"/>	19.132 Environmental Monitoring Requirements.	Landfill gas is monitored quarterly in landfill gas monitoring wells and probes, catch basins, and hydrants. Groundwater and surface water are monitored semi-annually. Environmental monitoring is performed in accordance with the approved Environmental Monitoring Plan. The results of the monitoring are reported to the MassDEP. An annual monitoring report summarizing the results of the post-closure monitoring for the year and annual vent trench inspection is submitted in accordance with the approved Environmental Monitoring Plan.
	Is the monitoring of surface water, ground water, landfill gas and any other media as determined by the Department, including without limitation, soil and sediment, being conducted on the schedule established in the permit or as otherwise required by the Department? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
<input checked="" type="checkbox"/>	Are the analytical results of the environmental monitoring submitted to the Department within 60 days after the date of sample collection or as otherwise specified by the Department? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
	<input checked="" type="checkbox"/>	19.133 Maintenance of Environmental Control and Monitoring Systems.
Are the facility operations conducted in a manner which protects all environmental control systems as approved in the Operation and Maintenance plan and monitoring systems as approved in the Operation and Maintenance plan or permit? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
Is regular maintenance of all landfill environmental control systems performed as approved in the Operation and Maintenance plan or permit? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
Has the Department been notified of the existence and extent of damaged or destroyed environmental control systems, monitoring devices, or surface water sampling location markers in accordance with 310 CMR 19.133(1)(c) and/or 19.133(1)(e)? <input type="checkbox"/> N/A (if no damage to report) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		

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**F. ADDITIONAL LANDFILL REQUIREMENTS – Continued**

Evaluated	Performance Standard	Comments/Observations and Recommended Corrective Action(s)
<input type="checkbox"/>	<p>19.121(4) Landfill Gas Recovery Operation and Maintenance Requirements.</p> <p>Is condensate generation kept to a minimum and condensate recirculation, if proposed, performed in accordance with the permit? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>Are the sampling and analysis of condensate conducted on the schedule established in the permit or as otherwise required by the Department? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>Are the analytical results of condensate monitoring reported to the Department as established in the permit or as otherwise required by the Department? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>Is an annual report on the operation of the landfill gas recovery facility submitted to the Department as specified in the permit? <input type="checkbox"/> YES <input type="checkbox"/> NO</p>	<p>N/A- No landfill gas recovery system exists at this facility.</p>



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## VI. Inspection Observations

### A. FACILITY CONDITION AND OPERATIONS

Examine and evaluate the facility condition and operations as observed during the inspection, including the following:

- Describe any evidence of the following conditions observed at the time of the inspection:
    - Unpermitted discharges to air, water, land or other natural resources of the Commonwealth; and
    - Dust, odors, litter, and/or other nuisance conditions.
  - Document and discuss all deviations from any specific requirements for the facility that are not addressed in the previous section (*Section V. – Performance Standards*), including without limitation, the requirements set forth in the facility's operation and maintenance plan, orders or other enforcement documents, and other solid waste permits, approvals, and authorizations issued to the facility by MassDEP.
  - List the types and estimated quantities of all waste and materials stored at the facility at the time of the inspection.
  - Provide a narrative that describes the overall status of the general condition, operation and performance of the facility as observed at the time of the inspection.
- ⇒ Attach photographs taken during the inspection that depict the general condition and operation of the facility. At a minimum, include photographs, as applicable, of the waste unloading (tipping) area, waste storage areas, recyclable material storage and, for transfer stations, the waste reloading activity.

Discussion:

No unpermitted discharges to air, water, land, or other natural resources were observed during the inspection. Additionally, no dust, significant litter, or other nuisance conditions were observed.

No deviations from specific requirements for the facility are noted.

The park has several trash receptacles located throughout the park. No other waste or materials were stored at the facility at the time of inspection.

Overall, the site is well maintained and in good condition. Drains and swales appeared to be clear of debris and free flowing during the time of the inspection.

See photos for conditions at the time of inspection.

### B. RECORD REVIEW

Examine and evaluate the facility's record-keeping. Without limitation, document the status of the facility's compliance with, and any deviations from, the record-keeping required by 310 MCR 19.000; the facility's operation and maintenance plan; orders or other enforcement documents issued to the facility; and other solid waste permits, approvals, determinations and authorizations issued to the facility by the Department, including the following:

- Discuss the evaluation of the Facility's "daily log" such as, daily tonnage records.
- List and discuss any special incidents that have occurred since the previous inspection such as exceedances of the facility's permitted waste acceptance limits, nature and outcome of complaints reported to the facility operator (including the identity of the complainant, if known), fires, emergencies, or other disruptions to the routine operation of the facility.

Discussion: N/A



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## VII. Summary and Recommendations

Pursuant to 310 CMR 19.018(6)(a)4., where a third-party inspector observes that the operation or maintenance of the facility deviates from the aforementioned applicable requirements, he or she shall document all such deviations and recommend corrective actions for the facility to take to return to compliance.

### A. INSPECTION RESULTS

Based on the examinations and evaluations conducted in Sections V. and VI., please summarize the inspection results by checking one of the following determinations:

**No deviations from the applicable performance standards or additional requirements listed at 310 CMR 19.018(6) were identified during this inspection.**

If no deviations were identified during the inspection, check this box and proceed to Section VII.B.

**Deviations from the applicable performance standards or additional requirements listed at 310 CMR 19.018(6) were identified during this inspection and are discussed further in this report.**

If deviations were identified during the inspection, check this box and ensure that each deviation and the recommended corrective actions are discussed in the applicable section(s) below.

### B. STATUS OF PREVIOUS RECOMMENDATIONS FOR CORRECTIVE ACTION

If a previous inspection report identified deviations with recommendations for corrective action, please describe the action(s) taken since the last inspection to return the facility to compliance with the applicable requirements.

Discussion:

The previous inspection of the perimeter gas vent trench identified several locations where the trench was covered by sediment that had washed into the trench; vegetation growing within the trench; or leaves and/or branches that had fallen into the trench. Subsequently the City removed the vegetation and the leaves and branches, but the vegetation had grown back in some areas and leaves were again present along portions of the vent trench at the time of the inspection.

As part of the revised Post-Closure Plan currently under review by MassDEP (CDM Smith, December 2020), the City proposed an assessment of the landfill gas vent trench consisting of up to 19 test pits to visually assess for the presence of silt, sediment, or other deleterious material. MassDEP issued conditional approval of the assessment on November 24, 2021, and the City implemented the test pit program during 2022. The results of the test pit program were provided to MassDEP in a vent trench test pit investigation report on May 23, 2023.

The previous inspection report identified iron floc in a portion of the drainage channel between the landfill gas vent trench and Bellis Circle at the northeast boundary of the site. CDM Smith recommended assessing the source of the iron floc and identifying an appropriate corrective action to address this condition. A scope of work to assess the possible groundwater migration from the landfill to the drainage channel was submitted to MassDEP as an SW45 application on October 3, 2023. MassDEP provided conditional approval on November 23, 2023 (Authorization #SW45-0000235).

### C. RECOMMENDATIONS FOR CORRECTIVE ACTION

Based on the results of this inspection, please list all deviations noted during the inspection and provide recommendations for corrective action to return to compliance with the applicable requirement.

Recommendations:

1. As noted above, vegetation has grown back in portions of the landfill gas vent trench and leaves were



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observed to be again present in some areas. CDM Smith recommends continuing to keep the vent trench clear of debris (leaves, tree limbs, fallen trees, trash) and vegetation.

2. Sediment is present at the surface of the landfill gas vent trench at several locations. Recommendations to address sediment will be included in the vent trench test pit investigation report.

3. Iron floc continues to be observed in a portion of the drainage channel between the landfill gas vent trench and Bellis Circle at the northeast boundary of the site. CDM Smith recommends implementing the approved scope of work to assess the source of the iron floc and identify an appropriate corrective action to address this condition.

4. A washout was observed on the northeast facing slope between soccer fields 1 and 2 (Photo #43). CDM Smith recommend repairing this washout.

#### D. ADDITIONAL COMMENTS

Comments:

In addition to the above corrective actions, ongoing recommended maintenance items identified in the 2021 inspection include:

1. Continue to mow and maintain site slopes, fields, vent trench.

2. Continue mowing of the landfill cap including the removal of excess vegetation on slopes, and around stormwater pipe outlets.

#### VIII. Additional Information Checklist

Attach the following additional information, as applicable, to complete the inspection report.\*

Attach photographs taken during the inspection that depict the general condition and operation of the facility, as required in Section VI.A.

For C&D Waste facilities only, attach the analytical results, as required in Section V.B.

\*Note: Pursuant to 310 CMR 19.018(8), MassDEP may request additional information.

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**IX. Certification – THIRD-PARTY INSPECTOR**

"I attest under the pains and penalty of perjury that:

- I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification statement;
- Based on my inquiry of those persons responsible for obtaining the information, the information contained in this submittal is, to the best of my knowledge, true, accurate and complete;
- I have been able to conduct the third-party inspection and prepare the third-party inspection report without being influenced by the facility owner or operator and, (if I am a municipal employee) without being influenced by my municipal employer, by any coworker or by any elected or appointed official of the municipality; and
- I am aware that there are significant penalties, including, but not limited to, possible administrative and civil penalties for submitting false, inaccurate, or incomplete information and possible fines and imprisonment for knowingly submitting false, inaccurate, or incomplete information."

Michael T. Dolan  
Signature of Third-Party Inspector

Michael T Dolan  
Print Full Name

CDM Smith Inc.  
Company Name

2/26/2024  
Date (MM/DD/YYYY)

**X. Certification – FACILITY OWNER/OPERATOR**

Does the facility maintain a Financial Assurance Mechanism (FAM) pursuant to 310 CMR 19.051?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If yes: • Enter the amount of the current FAM: <span style="float: right;">\$</span>	
• Enter the date of the last revision of the FAM amount, pursuant to 310 CMR 19.051(6):	
<i>As a reminder, pursuant to 310 CMR 19.051(6), the estimate of the cost of closure and post-closure maintenance must be revised every year, and every second year shall be submitted to the Department.</i>	

"I certify under the penalty of law:

- That I have personally examined and am familiar with the information submitted in this third-party inspection report, including but not limited to the statements above concerning the financial assurance mechanism in place in accordance with any facility permit and 310 CMR 19.051, and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties both civil and criminal for submitting false information including possible fines and imprisonment.
- That, in the event that this inspection report contains a recommendation for corrective action(s), I have completed and attached to this report a Corrective Action Plan and Schedule\*, pursuant to 310 CMR 19.018(8)(c)2."

*\*Note: The owner or operator may elect to correct deviations identified in the Third-Party Inspection Report in a manner that is different than that recommended by the Third-Party Inspector, so long as the facility is brought back into compliance with applicable requirements.*

James Wilcox  
Signature of Responsible Official

James Wilcox  
Print Full Name

City Engineer  
Title

05/09/2024  
Date (MM/DD/YYYY)

► Pursuant to 310 CMR 19.018(8)(c), a copy of each third-party inspection report shall be maintained at the facility in accordance with the requirements of 310 CMR 19.000. The owner and operator shall make third-party inspection reports available to personnel or authorized representatives of the Department for review at the facility upon request.

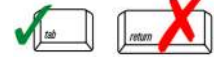
<b>Within 30 days of the inspection date:</b>	<ul style="list-style-type: none"> <li>Mail this completed form to the MassDEP Regional Office that serves the municipality in which the facility is located. (Attention: Solid Waste Management)</li> <li>Send one copy to the local board of health for the municipality in which the facility is located.</li> </ul>	<p>A list of municipalities and MassDEP Regional Offices is available online at: <a href="http://www.mass.gov/eea/agencies/massdep/about/contacts/find-the-massdep-regional-office-for-your-city-or-town.html">http://www.mass.gov/eea/agencies/massdep/about/contacts/find-the-massdep-regional-office-for-your-city-or-town.html</a></p>
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**Massachusetts Department of Environmental Protection  
Bureau of Waste Prevention / Solid Waste Management**

**Third-Party Inspections – 310 CMR 19.018(8)  
Corrective Action Plan & Schedule**

**Important:** When completing this form on a computer, use only the Tab key to move your cursor – not the Return key.



**Instructions**

In the event that a third-party inspection report prepared in accordance with 310 CMR 19.018(8) contains a recommendation for corrective action(s) at a Solid Waste Management Facility, the owner or operator shall complete and sign **Section IV. Certification** of this form. Pursuant to 310 CMR 19.018(8)(c), the owner or operator shall submit the completed Corrective Action Plan and Schedule form, along with the third-party inspection report with attachments to the appropriate MassDEP Regional Office, and a copy of this form and each completed inspection report with attachments to the board of health of the municipality in which the facility is located. Be sure to obtain the most recent version of this form. All applicable sections of the submitted form must be completed to be accepted by MassDEP. Blank forms and additional instructions on using this form are available online:

<http://www.mass.gov/eea/agencies/massdep/recycle/approvals/solid-waste-applications-and-forms.html#8>

**I. Facility Information**

Identify the facility and responsible official.

**A. Facility**

Danehy Park  
Facility Name

Cambridge  
City/Town

MA  
State

39138  
FMF Number

**B. Responsible Official**

James Wilcox, City Engineer  
Responsible Official Name (Individual)

City of Cambridge Department of Public Works  
Responsible Official Company Name

jwilcox@cambridgema.gov  
Responsible Official Email Address

617-349-6426  
Responsible Official Telephone Number

**II. Third-Party Inspection**

Enter the date of the third-party inspection and identify the inspector that conducted the inspection related to this corrective action plan.

12/20/2023  
Inspection Date (MM/DD/YYYY)

Michael T Dolan  
Third-Party Inspector Name

**Continue to Next Page ►**

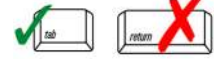




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Corrective Action Plan & Schedule**

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### III. Plan & Schedule for Corrective Action

Pursuant to 310 CMR 19.018(8)(c)2., the owner or operator shall provide the following:

- a. A written report documenting the completion of the corrective action(s) [recommended in the report];
- b. Documentation or explanation why corrective action is not needed; or
- c. A plan and schedule for completing the corrective action(s).

Note: The owner or operator may elect to correct deviations identified in the inspection report in a manner that is different than that recommended by the third-party inspector, so long as the facility is brought back into compliance with applicable requirements.

Discuss the status of the corrective actions recommended in the third-party inspection report. For each deviation documented in the inspection report, describe the corrective action(s) that have been taken, or that will be taken, by the owner or operator to return the facility to compliance with the applicable requirements. Provide the schedule for completing each corrective action, or, as applicable, provide the date the corrective action was completed. If the facility owner/operator intends to submit a permit application in order to complete the corrective action(s), please identify the permit type and anticipated submittal schedule. Contact MassDEP (Regional Office) if you are not sure the corrective action(s) will require a filing to MassDEP prior to implementation.

The following corrective action items are recommended to be completed by the end of calendar year 2024:

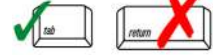
1. Vegetation has grown back in portions of the landfill gas vent trench and leaves were observed to be again present in some areas. CDM Smith recommends continuing to keep the vent trench clear of debris (leaves, tree limbs, fallen trees, trash) and vegetation.
2. Sediment is present at the surface of the landfill gas vent trench at several locations. Recommendations to address sediment will be included in the vent trench test pit investigation report.
3. Iron floc continues to be observed in a portion of the drainage channel between the landfill gas vent trench and Bellis Circle at the northeast boundary of the site. CDM Smith recommends implementing the approved scope of work to assess the source of the iron floc and identify an appropriate corrective action to address this condition.
4. A washout was observed on the northeast facing slope between soccer fields 1 and 2 (Photo #43). CDM Smith recommend repairing this washout.



**Massachusetts Department of Environmental Protection  
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**Third-Party Inspections – 310 CMR 19.018(8)  
Corrective Action Plan & Schedule**

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[Empty rectangular area for the Corrective Action Plan & Schedule]



**Massachusetts Department of Environmental Protection**  
**Bureau of Waste Prevention / Solid Waste Management**  
 Third-Party Inspections – 310 CMR 19.018(8)  
**Corrective Action Plan & Schedule**


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**IV. Certification**

**FACILITY OWNER/OPERATOR**

"I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties both civil and criminal for submitting false information including possible fines and imprisonment."

  
 \_\_\_\_\_  
 Signature of Responsible Official

**James Wilcox**  
 \_\_\_\_\_  
 Print Full Name

**City Engineer**  
 \_\_\_\_\_  
 Title

**05/09/2024**  
 \_\_\_\_\_  
 Date (MM/DD/YYYY)

The owner/operator of the facility shall submit this form along with the third-party inspection report to the Department with a copy to the board of health of the municipality in which the facility is located no later than 30 days following the date of the inspection. Pursuant to 310 CMR 19.018(8)(c), a copy of each third-party inspection report shall be maintained at the facility in accordance with the requirements of 310 CMR 19.000. The owner and operator shall make third-party inspection reports available to personnel or authorized representatives of the Department for review at the facility upon request.

<p><b>Within 30 days of the inspection date:</b></p>	<ul style="list-style-type: none"> <li>• Mail this completed form to the MassDEP Regional Office that serves the municipality in which the facility is located. (Attention: Solid Waste Management)</li> <li>• Send one copy to the local board of health for the municipality in which the facility is located.</li> </ul>	<p>A list of municipalities and MassDEP Regional Offices is available online at: <a href="http://www.mass.gov/eea/agencies/massdep/about/contacts/find-the-massdep-regional-office-for-your-city-or-town.html">http://www.mass.gov/eea/agencies/massdep/about/contacts/find-the-massdep-regional-office-for-your-city-or-town.html</a></p>
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