SANBORN HEAD
Building Trust. Engineering Success.

1 Technology Park Drive
Westford, MA 01886

U.S. Environmental Protection Agency
Office of Ecosystem Protection
EPA/OEP RGP Applications Coordinator
5 Post Office Square, Suite 100 (OEP06-01)
Boston, MA 02109-3912

July 19, 2017
File No. 4198.01

Re: Notice of Intent for Remediation General Permit
Temporary Construction Dewatering for Elevator Construction
Target Store
564 Massachusetts Avenue
Cambridge, MA

Dear Sir/Madam:

On behalf of Target Corporation (Applicant), Sanborn, Head & Associates, Inc. (Sanborn Head) is submitting this Notice of Intent (NOI) to the USEPA for coverage under the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit MAG910000 (RGP).

This NOI supersedes a previous NOI submitted June 15, 2017 for coverage under the Dewatering General Permit (DGP). We respectfully request that USEPA suspend review of the June 15 DGP NOI, and respond to this NOI for coverage under the RGP.

This NOI will cover temporary dewatering activities during construction of an elevator pit in the basement of the existing Target store. The site is located at 564 Massachusetts Avenue in the Central Square area of Cambridge, MA as shown on Figure 1.

The completed NOI Form for the RGP is included in Appendix A. Discharge of treated water is scheduled to begin as early as August 1, 2017, pending authorization from USEPA and the City of Cambridge.

The Applicant previously submitted an application for a Permit to Dewater to the City of Cambridge. This NOI and supporting documentation will be submitted to the City of Cambridge to supplement the previous application. Municipal correspondence with the City of Cambridge is included in Appendix B.

Whiting-Turner Contracting Company (Whiting-Turner) will be the Operator and the general contractor for the project and will have direct responsibility for the subcontractors performing the dewatering activities at the site. Subcontractors working for Whiting-Turner on the project will be required to meet the requirements of this NOI and the RGP.

The construction activities will require the excavation of soil to a depth of approximately 5 to 6 feet below the basement floor level in a small area approximately 10 feet by 12 feet for

installation of the elevator pit. Groundwater is anticipated to be encountered about 1.5 feet below the basement floor level. Groundwater that flows into the excavation during construction will be treated prior to discharge to the City of Cambridge storm drain system to meet the effluent limits established by the permit. Figure 2 includes a schematic of the proposed dewatering treatment system.

The treated water will be discharged to the City of Cambridge storm drain system via a manhole along Pearl Street as shown on Figure 3. The final discharge point for the treated water will be the Endicott Street storm drain outfall at the Charles River as shown on Figure 4.

There are no known releases of contamination to soil and groundwater at the site or the abutting properties. The site is not regulated under the Massachusetts Contingency Plan (MCP).

According to the Massachusetts Geographical Information System (MassGIS), the proposed excavation activities are not located within Areas of Critical Environmental Concern (ACEC) or Habitats of Rare Wetland Wildlife. A review of information provided in an Information for Planning and Conservation Trust Resource Report (IPaC Report) prepared by the U.S. Fish and Wildlife Service for the subject site did not identify the presence of endangered species at or in the vicinity of the discharge location and/or discharge outfall. A June 1, 2017 letter from the National Oceanic and Atmospheric Administration (NOAA) states that no listed species are known to occur in the Charles River in the area of discharge. Documentation regarding environmental resources is provided in Appendix C.

The subject site is located within the Cambridge Central Square historical district which is listed on the National Register of Historic Places as shown on the map of historic places in Appendix D. Target Corporation has submitted a project notification form to the the Massachusetts Historic Commission (MHC) for the installation of the elevator pit and associated dewatering activities. Copies of documents related to historical significance and a copy of the project notification form submitted to MHC are provided in Appendix D.

A groundwater sample was collected from a sawcut opening in the basement floor at the proposed location of the elevator pit on May 15, 2017, and a supplemental sample was collected on July 13, 2017. The samples were submitted for laboratory analysis for the list of parameters outlined in Section 4.2 of the RGP. The groundwater quality data are summarized in Table 1 and the laboratory analytical reports are included in Appendix E.

Surface water samples were collected on July 13 and 14, 2017 from the Charles River upstream of the Elliot Street storm drain outfall at the approximate location shown on Figure 4. The samples were submitted for laboratory analysis for pH, temperature, hardness, ammonia and total recoverable metals as outlined in Section 4.2 of the RGP. The surface water quality data are summarized in Table 2 and the laboratory analytical data reports are included in Appendix E.

The Charles River is the receiving water body for the treated discharge. Information regarding the receiving water was obtained from the Massachusetts Year 2014 Integrated

List of Waters which is included in Appendix F. Dilution factor calculations and correspondence from DEP indicating their acceptance of the dilution factor are included in Appendix F.

The proposed treatment system will consist of one 10,000-gallon capacity settling tank and bag filters in series. However, should the effluent monitoring results indicate levels of parameters in excess of the effluent limits established in the RGP, additional treatment equipment will be implemented to meet the RGP effluent limits. Figure 2 includes a schematic of the proposed dewatering treatment system.

We trust this submittal provides the information required by USEPA. If you have any questions regarding the enclosed information, please contact the undersigned at vkokosa@sanbornhead.com or (978) 392-0900.

Very truly yours,
SANBORN, HEAD & ASSOCIATES, INC.

Kent B. Walker, P.E.
Project Manager

Vernon R. Kokosa, P.E.
Principal/Sr. Vice President

DMD/KBW/VRK/MPH: dmd

Encl. Table 1 – Summary of Groundwater Analytical Data
Table 2 – Summary of Surface Water Quality
Figure 1 – Locus Plan
Figure 2 – Treatment System Schematic
Figure 3 – City of Cambridge Storm Drain Map - Discharge
Figure 4 – City of Cambridge Storm Drain Map – Outfall
Appendix A – Notice of Intent (NOI) Form
Appendix B – Municipal Correspondence
Appendix C – Environmental Resources Documentation
Appendix D – Historical Significance Documentation
Appendix E – Analytical Laboratory Reports
Appendix F – Dilution Factor Calculations and Supporting Information

cc: Genevieve McJilton ~ Target Corporation
Kevin Kopec ~ Whiting-Turner Contracting Company

P:\4100s\4198.01\Source Files\RGP NOI Application\20170719 NOI Letter Rpt.docx

TABLES

Table 1
Summary of Groundwater Quality Data
NPDES Remediation General Permit
564 Massachusetts Avenue
Cambridge, MA

Location	Analytical Method	Units	SH-101	
Sampling Date			**5/15/2017**	**7/13/2017**
Anions by Ion Chromatography				
Chloride	CL-300	mg/l	735	-
Dissolved Metals				
Antimony, Dissolved	200.8	ug/l	2.2	-
Arsenic, Dissolved	200.8	ug/l	2.9	-
Cadmium, Dissolved	200.8	ug/l	<0.2	-
Chromium, Dissolved	200.8	ug/l	<1	-
Copper, Dissolved	200.8	ug/l	1.8	-
Iron, Dissolved	200.7	ug/l	<50	-
Lead, Dissolved	200.8	ug/l	<0.5	-
Mercury, Dissolved	245.1	ug/l	<0.2	-
Nickel, Dissolved	200.8	ug/l	0.8	-
Selenium, Dissolved	200.8	ug/l	3	-
Silver, Dissolved	200.8	ug/l	<0.4	-
Zinc, Dissolved	200.8	ug/l	<10	-
Total Hardness by SM 2340B				
Hardness	200.7	mg/l	-	409
General Chemistry				
pH	4500H+	SU	-	7.2
Chromium, Trivalent	107	ug/l	<10	-
Solids, Total Suspended	TSS-2540	mg/l	9.3	-
Cyanide, Total	TCN-4500	mg/l	0.005	-
Chlorine, Total Residual	TRC-4500	ug/l	<20	-
Nitrogen, Ammonia	4500NH3	ug/l	62	-
TPH, SGT-HEM	TPH-1664	ug/l	<4,000	-
Phenolics, Total	TPHENOL-420	ug/l	<30	-
Chromium, Hexavalent2	HEXCR-3500	ug/l	<10	-
Pesticides				
1,2-Dibromoethane	504	ug/l	<0.011	-
1,2-Dibromo-3-chloropropane	8260C	ug/l	<0.011	-
Polychlorinated Biphenyls by GC				
Aroclor 1016	PCB-608	ug/l	<0.25	-
Aroclor 1221	PCB-608	ug/l	<0.25	-
Aroclor 1232	PCB-608	ug/l	<0.25	-
Aroclor 1242	PCB-608	ug/l	<0.25	-
Aroclor 1248	PCB-608	ug/l	<0.25	-
Aroclor 1254	PCB-608	ug/l	<0.25	-
Aroclor 1260	PCB-608	ug/l	<0.2	-
Total PCBs	PCB-608	ug/l	BDL	-
Semivolatile Organics by GC/MS				
Benzidine	8270D	ug/l	<20	-
1,2,4-Trichlorobenzene	8270D	ug/l	<5	-
Bis(2-chloroethyl)ether	8270D	ug/l	<2	-
1,2-Dichlorobenzene	8270D	ug/l	<2	-
1,3-Dichlorobenzene	8270D	ug/l	<2	-
1,4-Dichlorobenzene	8270D	ug/l	<2	-

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Cambridge, MA

Location	Analytical Method	Units	SH-101	
Sampling Date			5/15/2017	7/13/2017
3,3'-Dichlorobenzidine	8270D	ug/l	<5	-
2,4-Dinitrotoluene	8270D	ug/l	<5	-
2,6-Dinitrotoluene	8270D	ug/l	<5	-
Azobenzene	8270D	ug/l	<2	-
4-Chlorophenyl phenyl ether	8270D	ug/l	<2	-
4-Bromophenyl phenyl ether	8270D	ug/l	<2	-
Bis(2-chloroisopropyl)ether	8270D	ug/l	<2	-
Bis(2-chloroethoxy)methane	8270D	ug/l	<5	-
Hexachlorocyclopentadiene	8270D	ug/l	<20	-
Isophorone	8270D	ug/l	<5	-
Nitrobenzene	8270D	ug/l	<2	-
NDPA/DPA	8270D	ug/l	<2	-
n-Nitrosodi-n-propylamine	8270D	ug/l	<5	-
Bis(2-ethylhexyl)phthalate	8270D	ug/l	1.4	-
Butyl benzyl phthalate	8270D	ug/l	<5	-
Di-n-butylphthalate	8270D	ug/l	<5	-
Di-n-octylphthalate	8270D	ug/l	<5	-
Diethyl phthalate	8270D	ug/l	<5	-
Dimethyl phthalate	8270D	ug/l	<5	-
Biphenyl	8270D	ug/l	<2	-
Aniline	8270D	ug/l	<2	-
4-Chloroaniline	8270D	ug/l	<5	-
2-Nitroaniline	8270D	ug/l	<5	-
3-Nitroaniline	8270D	ug/l	<5	-
4-Nitroaniline	8270D	ug/l	<5	-
Dibenzofuran	8270D	ug/l	<2	-
n-Nitrosodimethylamine	8270D	ug/l	<2	-
2,4,6-Trichlorophenol	8270D	ug/l	<5	-
p-Chloro-m-cresol	8270D	ug/l	<2	-
2-Chlorophenol	8270D	ug/l	<2	-
2,4-Dichlorophenol	8270D	ug/l	<5	-
2,4-Dimethylphenol	8270D	ug/l	<5	-
2-Nitrophenol	8270D	ug/l	<10	-
4-Nitrophenol	8270D	ug/l	<10	-
2,4-Dinitrophenol	8270D	ug/l	<20	-
4,6-Dinitro-o-cresol	8270D	ug/l	<10	-
Phenol	8270D	ug/l	<5	-
2-Methylphenol	8270D	ug/l	<5	-
3-Methylphenol/4-Methylphenol	8270D	ug/l	<5	-
2,4,5-Trichlorophenol	8270D	ug/l	<5	-
Benzoic Acid	8270D	ug/l	<50	-
Benzyl Alcohol	8270D	ug/l	<2	-
Carbazole	8270D	ug/l	<2	-
Pyridine	8270D	ug/l	<3.5	-

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Location	Analytical Method	Units	SH-101	
Sampling Date			**5/15/2017**	**7/13/2017**
Semivolatile Organics by GC/MS-SIM				
Acenaphthene	8270TCL-SIM	ug/l	<0.1	-
2-Chloronaphthalene	8270TCL-SIM	ug/l	<0.2	-
Fluoranthene	8270TCL-SIM	ug/l	0.1	-
Hexachlorobutadiene	8270TCL-SIM	ug/l	<0.5	-
Naphthalene	8270TCL-SIM	ug/l	0.09	-
Benzo(a)anthracene	8270TCL-SIM	ug/l	0.09	-
Benzo(a)pyrene	8270TCL-SIM	ug/l	0.09	-
Benzo(b)fluoranthene	8270TCL-SIM	ug/l	0.12	-
Benzo(k)fluoranthene	8270TCL-SIM	ug/l	0.05	-
Chrysene	8270TCL-SIM	ug/l	0.08	-
Acenaphthylene	8270TCL-SIM	ug/l	<0.2	-
Anthracene	8270TCL-SIM	ug/l	0.04	-
Benzo(ghi)perylene	8270TCL-SIM	ug/l	0.08	-
Fluorene	8270TCL-SIM	ug/l	<0.2	-
Phenanthrene	8270TCL-SIM	ug/l	0.07	-
Dibenzo(a,h)anthracene	8270TCL-SIM	ug/l	<0.2	-
Indeno(1,2,3-cd)pyrene	8270TCL-SIM	ug/l	0.07	-
Pyrene	8270TCL-SIM	ug/l	0.14	-
1-Methylnaphthalene	8270TCL-SIM	ug/l	<0.2	-
2-Methylnaphthalene	8270TCL-SIM	ug/l	<0.2	-
Pentachlorophenol	8270TCL-SIM	ug/l	<0.8	-
Hexachlorobenzene	8270TCL-SIM	ug/l	<0.8	-
Hexachloroethane	8270TCL-SIM	ug/l	0.05	-
Total Metals				
Antimony, Total	SB-6020T	ug/l	0.92	-
Arsenic, Total	AS-6020T	ug/l	2.49	-
Cadmium, Total	CD-6020T	ug/l	<1	-
Chromium, Total	CR-6020T	ug/l	0.56	-
Copper, Total	CU-6020T	ug/l	2.73	-
Iron, Total	FE-UI	ug/l	281	-
Lead, Total	PB-6020T	ug/l	3.41	-
Mercury, Total	HG-U	ug/l	<0.2	-
Nickel, Total	NI-6020T	ug/l	0.86	-
Selenium, Total	SE-6020T	ug/l	3.78	-
Silver, Total	AG-6020T	ug/l	<1	-
Zinc, Total	ZN-6020T	ug/l	<10	-
Volatile Organics by GC/MS				
Methylene chloride	8260C	ug/l	<3	-
1,1-Dichloroethane	8260C	ug/l	<0.75	-
Chloroform	8260C	ug/l	<0.75	-
Carbon tetrachloride	8260C	ug/l	<0.5	-
1,2-Dichloropropane	8260C	ug/l	<1.8	-
Dibromochloromethane	8260C	ug/l	<0.5	-
1,1,2-Trichloroethane	8260C	ug/l	<0.75	-
Tetrachloroethene	8260C	ug/l	<0.5	-

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Summary of Groundwater Quality Data
NPDES Remediation General Permit
564 Massachusetts Avenue
Cambridge, MA

Location	Analytical Method	Units	SH-101	
Sampling Date			5/15/2017	7/13/2017
Chlorobenzene	8260C	ug/l	<0.5	-
Trichlorofluoromethane	8260C	ug/l	<2.5	-
1,2-Dichloroethane	8260C	ug/l	<0.5	-
1,1,1-Trichloroethane	8260C	ug/l	<0.5	-
Bromodichloromethane	8260C	ug/l	<0.5	-
trans-1,3-Dichloropropene	8260C	ug/l	<0.5	-
cis-1,3-Dichloropropene	8260C	ug/l	<0.5	-
1,3-Dichloropropene, Total	8260C	ug/l	<0.5	-
1,1-Dichloropropene	8260C	ug/l	<2.5	-
Bromoform	8260C	ug/l	<2	-
1,1,2,2-Tetrachloroethane	8260C	ug/l	<0.5	-
Benzene	8260C	ug/l	<0.5	-
Toluene	8260C	ug/l	<0.75	-
Ethylbenzene	8260C	ug/l	<0.5	-
Chloromethane	8260C	ug/l	<2.5	-
Bromomethane	8260C	ug/l	<1	-
Vinyl chloride	8260C	ug/l	<1	-
Chloroethane	8260C	ug/l	<1	-
1,1-Dichloroethene	8260C	ug/l	<0.5	-
trans-1,2-Dichloroethene	8260C	ug/l	<0.75	-
1,2-Dichloroethene, Total	8260C	ug/l	<0.5	-
Trichloroethene	8260C	ug/l	<0.5	-
1,2-Dichlorobenzene	8260C	ug/l	<2.5	-
1,3-Dichlorobenzene	8260C	ug/l	<2.5	-
1,4-Dichlorobenzene	8260C	ug/l	<2.5	-
Methyl tert butyl ether	8260C	ug/l	<1	-
p/m-Xylene	8260C	ug/l	<1	-
o-Xylene	8260C	ug/l	<1	-
Xylenes, Total	8260C	ug/l	<1	-
cis-1,2-Dichloroethene	8260C	ug/l	<0.5	-
Dibromomethane	8260C	ug/l	<5	-
1,4-Dichlorobutane	8260C	ug/l	<5	-
1,2,3-Trichloropropane	8260C	ug/l	<5	-
Styrene	8260C	ug/l	<1	-
Dichlorodifluoromethane	8260C	ug/l	<5	-
Acetone	8260C	ug/l	5.2	-
Carbon disulfide	8260C	ug/l	0.32	-
2-Butanone	8260C	ug/l	<5	-
Vinyl acetate	8260C	ug/l	<5	-
4-Methyl-2-pentanone	8260C	ug/l	<5	-
2-Hexanone	8260C	ug/l	<5	-
Ethyl methacrylate	8260C	ug/l	<5	-
Acrylonitrile	8260C	ug/l	<5	-
Bromochloromethane	8260C	ug/l	<2.5	-
Tetrahydrofuran	8260C	ug/l	<5	-
2,2-Dichloropropane	8260C	ug/l	<2.5	-

Table 1
Summary of Groundwater Quality Data
NPDES Remediation General Permit
564 Massachusetts Avenue
Cambridge, MA

Location	Analytical Method	Units	SH-101	
Sampling Date			**5/15/2017**	**7/13/2017**
1,2-Dibromoethane	8260C	ug/l	<2	-
1,3-Dichloropropane	8260C	ug/l	<2.5	-
1,1,1,2-Tetrachloroethane	8260C	ug/l	<0.5	-
Bromobenzene	8260C	ug/l	<2.5	-
n-Butylbenzene	8260C	ug/l	<0.5	-
sec-Butylbenzene	8260C	ug/l	<0.5	-
tert-Butylbenzene	8260C	ug/l	<2.5	-
o-Chlorotoluene	8260C	ug/l	<2.5	-
p-Chlorotoluene	8260C	ug/l	<2.5	-
1,2-Dibromo-3-chloropropane	8260C	ug/l	<2.5	-
Hexachlorobutadiene	8260C	ug/l	<0.5	-
Isopropylbenzene	8260C	ug/l	<0.5	-
p-Isopropyltoluene	8260C	ug/l	<0.5	-
Naphthalene	8260C	ug/l	<2.5	-
n-Propylbenzene	8260C	ug/l	<0.5	-
1,2,3-Trichlorobenzene	8260C	ug/l	<2.5	-
1,2,4-Trichlorobenzene	8260C	ug/l	<2.5	-
1,3,5-Trimethylbenzene	8260C	ug/l	<2.5	-
1,2,4-Trimethylbenzene	8260C	ug/l	<2.5	-
trans-1,4-Dichloro-2-butene	8260C	ug/l	<2.5	-
Ethyl ether	8260C	ug/l	<2.5	-
Volatile Organics by GC/MS-SIM				
1,4-Dioxane	8260-SIM	ug/l	<3	-

Notes:
1. The samples were collected by Sanborn, Head & Associates, Inc. personnel on the dates indicated and were submitted to Alpha Analytical, Inc. of Westborough, MA (Alpha) for analysis.
2. Values are compared to NPDES DGP Effluent Limits, which were taken from Part I of the DGP, and MCP Reportable Concentrations for GW-2 (RCGW-2). No exeedances of the MCP RCGW-2 criteria were indicated.
'<' = analytes not detected above laboratory reporting limits
'BDL' = indicates analyte is below detection limits
3. Abbreviations:
NPDES = National Pollution Discharge Elimination System
DGP = Dewatering General Permit
RGP = Remediation General Permit
MCP = Massachusetts Contingency Plan

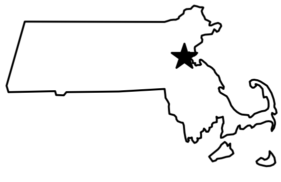
Table 2
Summary of Surface Water Quality
NPDES Remediation General Permit
564 Massachusetts Avenue
Cambridge, Massachusetts

LOCATION	Units	INSTREAM
SAMPLING DATE		7/12/2017& 7/13/17
WATER BODY		Charles River
SAMPLE TYPE		Surface Water
SAMPLE LOCATION (LAT, LONG)		42.354888, -71.098079
General Chemistry		
pH (H)	SU	7.0
Nitrogen, Ammonia	mg/l	0.178
Total Hardness by SM 2340B		
Hardness	mg/l	122
Total Metals		
Antimony, Total	ug/l	<4
Arsenic, Total	ug/l	1.04
Cadmium, Total	ug/l	<0.2
Chromium, Total	ug/l	<1
Copper, Total	ug/l	4.24
Iron, Total	ug/l	696
Lead, Total	ug/l	2.97
Mercury, Total	ug/l	<0.2
Nickel, Total	ug/l	<2
Selenium, Total	ug/l	<5
Silver, Total	ug/l	<0.4
Zinc, Total	ug/l	<10

Notes:
1. The sample was collected by Sanborn, Head & Associates, Inc. on the dates indicated and were submitted for to Alpha Analytical Laboratories, Inc. of Westborough, Massachusetts for laboratory analysis.
2. Abbreviations:
mg/l = milligrams per liter
ug/l = micrograms per liter
"<" indicates the analyte was not detected above the laboratory reporting limits shown

FIGURES

File:P:\4100s\4198.01\Graphics Files\CAD\LOCUS-JUN17\LOCUS.dwg Plot Date: 6-5-17



NOTES:
Base map was taken from the "Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Information Technology Division"
7.5 minute USGS Quadrangle Maps: Cambridge, Massachusetts, REV: 1987

Drawn By: C.Green
Designed By: K.Walker
Reviewed By: V.Kokosa
Project No: 4198.01
Date: June 2017

SCALE: 1:25,000

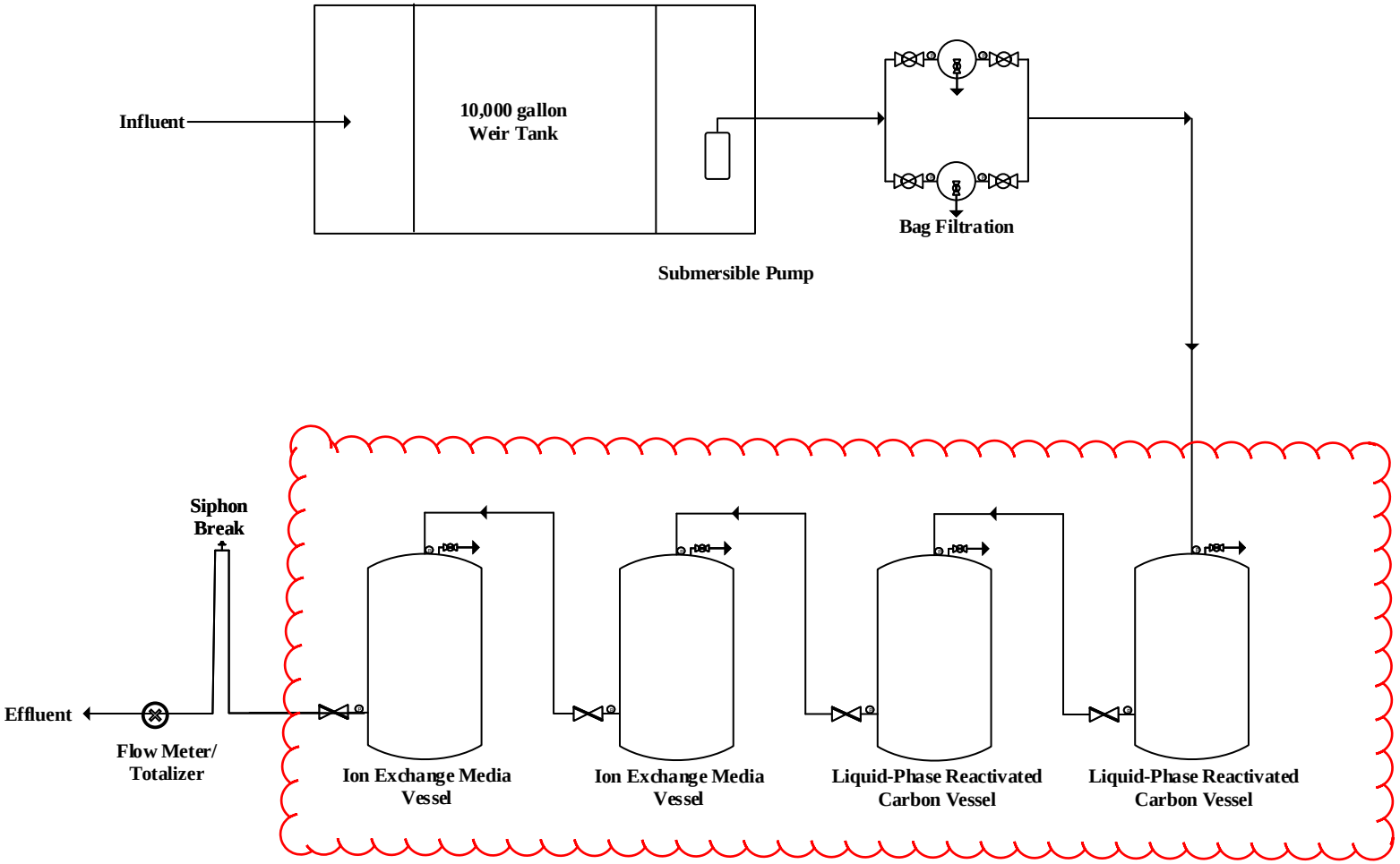
SANBORN HEAD

Figure 1

Locus Plan

Notice of Intent (NOI) Remediation General Permit

Target Store
Cambridge, Massachusetts



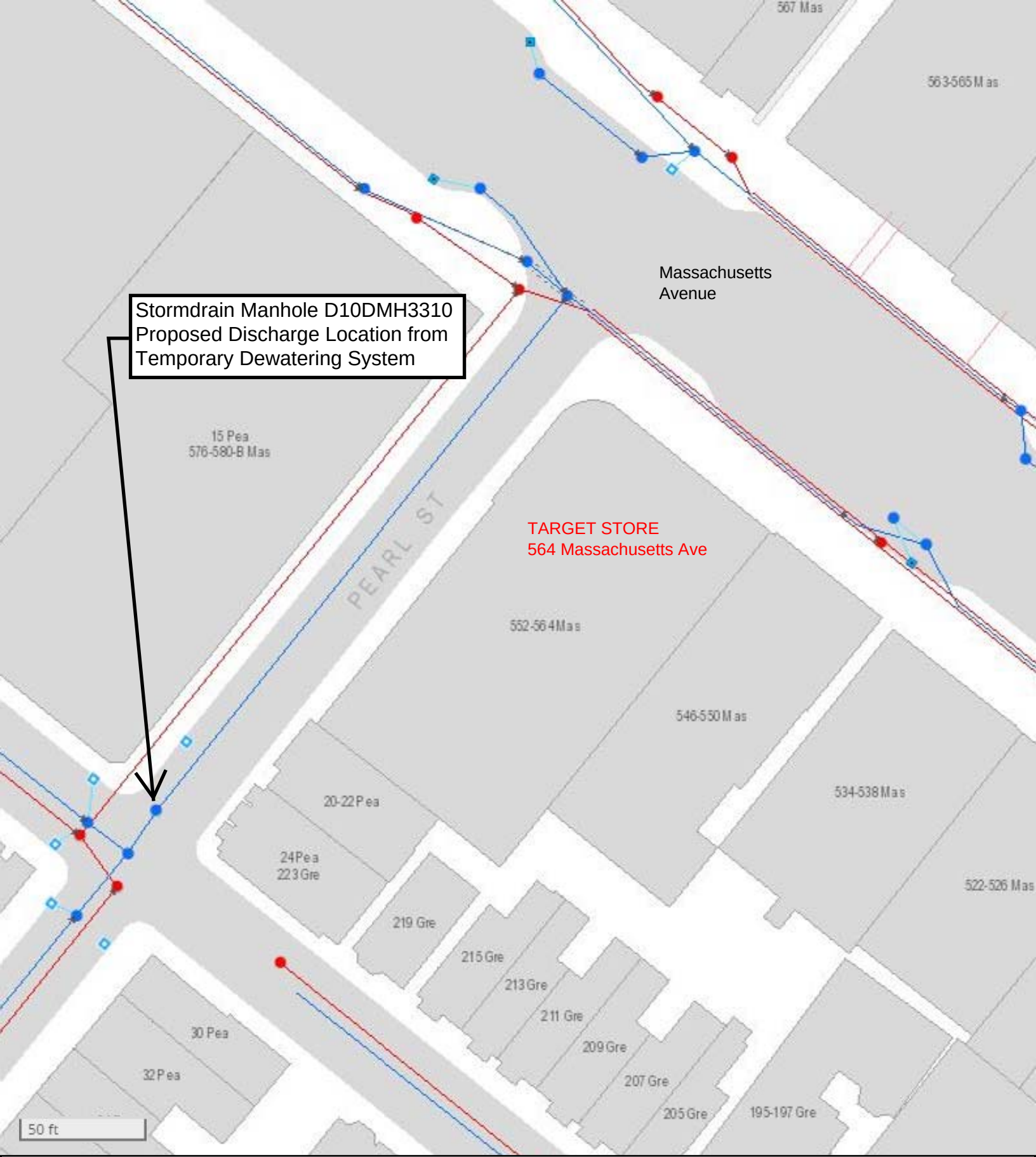
Note: Additional treatment equipment will be provided if necessary to meet RGP effluent limits.

Notes:

1.) Figure is not to scale
2.) System is rated for 50 gallons per minute

Key:
Piping/Hose →

LRT Lockwood Remediation Technologies LLC	Lockwood Remediation Technologies, LLC 89 Crawford Street Leominster, MA 01453 Office: 774-450-7177 **DESIGNED BY:** LRT **DRAWN BY:** B. Watkins **CHECKED BY:** **DATE:**	**Water Treatment System Schematic**	**Target** **564 Massachusetts Avenue** **Cambridge, Massachusetts**	**PROJECT No.**	**FIGURE No.**



Notes:
1. This plan was printed from the City of Cambridge Sewer and Stormwater Cambridge CityViewer accessed on June 1, 2017.

Figure 3. Discharge Location

N

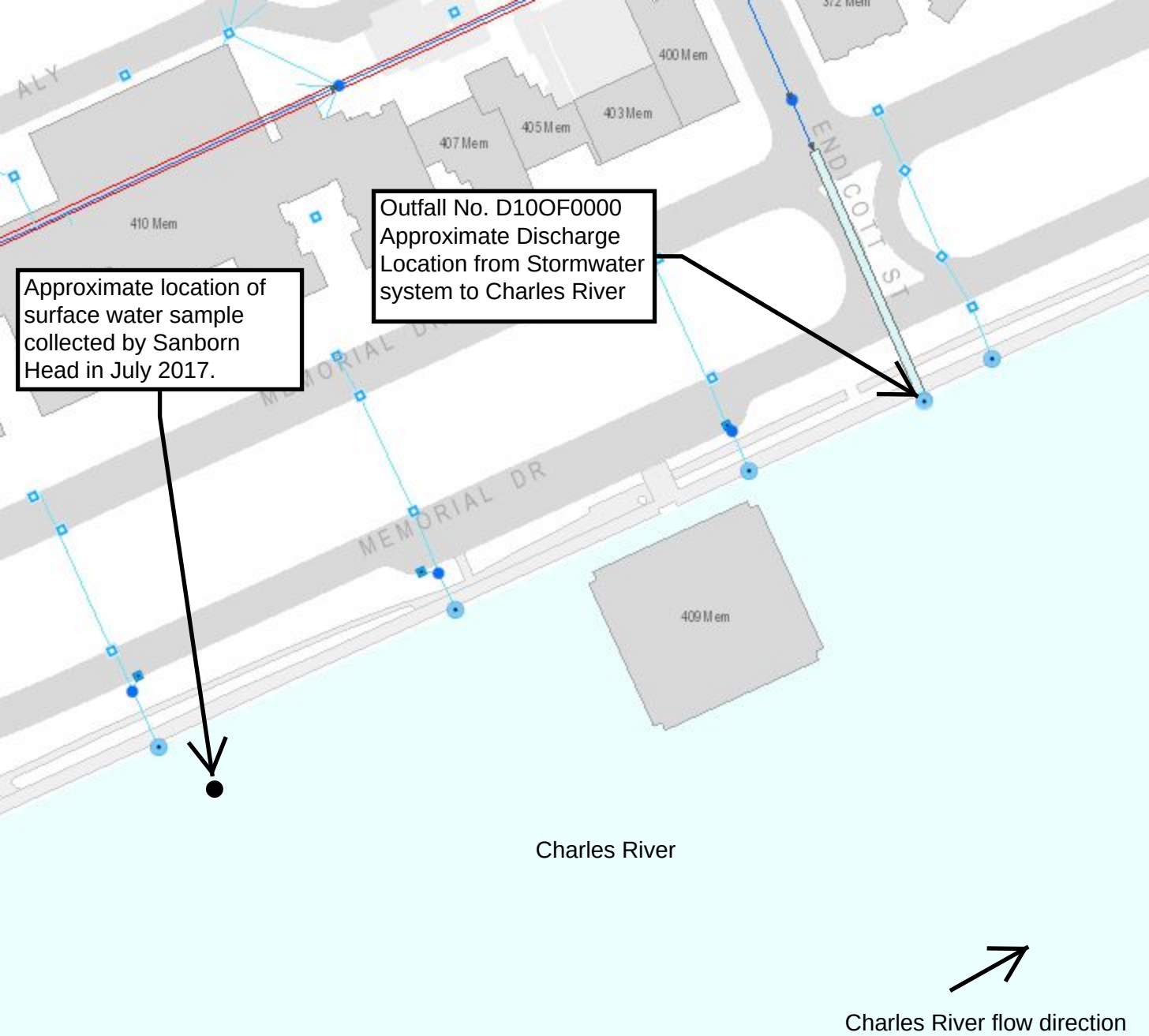


Figure 4. Outfall and Surface Water Sampling Locations

Notes:
1. This plan was printed from the City of Cambridge Sewer and Stormwater Cambridge CityViewer accessed on July 14, 2017.

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APPENDIX A

NOTICE OF INTENT (NOI) FORM

II. Suggested Format for the Remediation General Permit Notice of Intent (NOI)

A. General site information:

<table>
<tr><td rowspan="2">1. Name of site:
Target Cambridge</td><td colspan="3">Site address: 564 Massachusetts Avenue
Street:</td></tr>
<tr><td>City: Cambridge</td><td>State: MA</td><td>Zip: 02139</td></tr>
<tr><td rowspan="4">2. Site owner
Target Corporation

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Genevieve McJilton</td></tr>
<tr><td colspan="2">Telephone: (617)761-5062</td><td>Email: Genevieve.McJilton@target.com</td></tr>
<tr><td colspan="3">Mailing address: 50 South 10th Street
Street:</td></tr>
<tr><td>City: Minneapolis</td><td>State: MN</td><td>Zip: 55403</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
Whiting-Turner Contracting Corporation</td><td colspan="3">Contact Person: Kevin Kopec</td></tr>
<tr><td colspan="2">Telephone: (908)450-0388</td><td>Email: Kevin.Kopec@whiting-turner.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 1140 Route 22 East, Suite 301</td></tr>
<tr><td>City: Bridgewater</td><td>State: NJ</td><td>Zip: 08807</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:

NPDES permit is (check all that apply: ☐ RGP ☐ DGP ☐ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="3">5. Other regulatory program(s) that apply to the site (check all that apply):
☐ MA Chapter 21e; list RTN(s):
☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:
☐ CERCLA
☐ UIC Program
☐ POTW Pretreatment
☐ CWA Section 404</td></tr>
</table>

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Charles River	MA72-38	B

Receiving water is (check any that apply): ☐ Outstanding Resource Water ☐ Ocean Sanctuary ☐ territorial sea ☐ Wild and Scenic River

2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): ■ Yes ☐ No

Are sensitive receptors present near the site? (check one): ☐ Yes ■ No
If yes, specify:

3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP. See Appendix F.

4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.	15.96 MGD
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.	222.7

6. Has the operator received confirmation from the appropriate State for the 7Q10and dilution factor indicated? (check one): ■ Yes ☐ No
If yes, indicate date confirmation received: July 14, 2017, see Appendix F.

7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No

C. Source water information:

1. Source water(s) is (check any that apply):

■ Contaminated groundwater Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No	☐ Contaminated surface water Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ☐ Yes ☐ No	☐ The receiving water ☐ A surface water other than the receiving water; if so, indicate waterbody:	☐ Potable water; if so, indicate municipality or origin: ☐ Other; if so, specify:

2. Source water contaminants: Several compounds were detected above laboratory reporting limits, but below effluent limitations and applicable Massachusetts Contingency Plan (MCP) Reportable Concentrations. A summary of the analytical results for the source water is included in Section D.4 and in Table 1.	
a. For source waters that are contaminated groundwater or contaminated surface water, indicate are any contaminants present that are not included in the RGP? (check one): ☐ Yes ■ No If yes, indicate the contaminant(s) and the maximum concentration present in accordance with the instructions in Appendix VIII.	b. For a source water that is a surface water other than the receiving water, potable water or other, indicate any contaminants present at the maximum concentration in accordance with the instructions in Appendix VIII? (check one): ☐ Yes ☐ No
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): ☐ Yes ■ No	

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ☐ Existing discharge ■ New discharge ☐ New source	
Outfall(s): City of Cambridge Outfall D10OF0000	Outfall location(s): (Latitude, Longitude) 42.364166, -71.103055
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: Effluent will enter an existing storm water drainage system that discharges into the Charles River ☐ A private storm sewer system ■ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ■ Yes ☐ No Has the operator has received permission from the owner to use such system for discharges? (check one): ☐ Yes ■ No, if so, explain, with an estimated timeframe for obtaining permission: City of Cambridge permit submitted on June 19, 2017 and is currently under review. To be authorized after EPA approval of NOI. Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): ☐ Yes ■ No	
Provide the expected start and end dates of discharge(s) (month/year): Start: 8/1/2017 End: 7/31/2018 Indicate if the discharge is expected to occur over a duration of: ■ less than 12 months ☐ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

<table>
<tr><td>2. Activity Category: (check all that apply)</td><td colspan="2">3. Contamination Type Category: (check all that apply)</td></tr>
<tr><td rowspan="5">☐ I – Petroleum-Related Site Remediation
☐ II – Non-Petroleum-Related Site Remediation
■ III – Contaminated Site Dewatering
☐ IV – Dewatering of Pipelines and Tanks
☐ V – Aquifer Pump Testing
☐ VI – Well Development/Rehabilitation
☐ VII – Collection Structure Dewatering/Remediation
☐ VIII – Dredge-Related Dewatering</td><td colspan="2">a. If Activity Category I or II: (check all that apply)

☐ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
☐ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
☐ F. Fuels Parameters</td></tr>
<tr><td colspan="2">b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)</td></tr>
<tr><td>■ G. Sites with Known Contamination</td><td>☐ H. Sites with Unknown Contamination</td></tr>
<tr><td>c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply)

■ A. Inorganics
■ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
■ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
☐ F. Fuels Parameters</td><td>d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply</td></tr>
</table>

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia		✔	1	4500	0.075	0.062J		Report mg/L	---
Chloride		✔	1	300.0	25,000	735,000		Report µg/l	---
Total Residual Chlorine	✔		1	4500	0.02	<0.02		0.2 mg/L	
Total Suspended Solids		✔	1	2540	5.0	9.3		30 mg/L	---
Antimony		✔	1	200.8	4	0.92J		206 µg/L	
Arsenic		✔	1	200.8	1	2.49		104 µg/L	
Cadmium	✔		1	200.8	1	<1		10.2 µg/L	
Chromium III	✔		1	107	10	<10		323 µg/L	
Chromium VI	✔		1	7196	10	<10		323 µg/L	
Copper		✔	1	200.8	1	2.73		242 µg/L	
Iron		✔	1	200.7	50	281		5,000 µg/L	
Lead		✔	1	200.8	0.5	3.41		160 µg/L	
Mercury	✔		1	245.1	0.2	<0.2		0.739 µg/L	
Nickel		✔	1	200.8	2	0.86J		1,450 µg/L	
Selenium		✔	1	200.8	5	3.78 J		235.8 µg/L	
Silver	✔		1	200.8	1	<1		35.1 µg/L	
Zinc	✔		1	200.8	10	<10		420 µg/L	
Cyanide		✔	1	4500	5	5		178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX	✔		1	8260	3.75	<3.75		100 µg/L	---
Benzene	✔		1	8260	0.5	<0.5		5.0 µg/L	---
1,4 Dioxane	✔		1	8260SIM	3.0	<3.0		200 µg/L	---
Acetone		✔	1	8260	5.0	5.2		7.97 mg/L	---
Phenol	✔		1	8260	5.0	<5.0		1,080 µg/L	

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✔		1	8260	0.5	<0.5		4.4 µg/L	
1,2 Dichlorobenzene	✔		1	8260	2.5	<2.5		600 µg/L	---
1,3 Dichlorobenzene	✔		1	8260	2.5	<2.5		320 µg/L	---
1,4 Dichlorobenzene	✔		1	8260	2.5	<2.5		5.0 µg/L	---
Total dichlorobenzene	✔		1	8260	7.5	<7.5		763 µg/L in NH	---
1,1 Dichloroethane	✔		1	8260	0.75	<0.75		70 µg/L	---
1,2 Dichloroethane	✔		1	8260	0.5	<0.5		5.0 µg/L	---
1,1 Dichloroethylene	✔		1	8260	0.5	<0.5		3.2 µg/L	---
Ethylene Dibromide	✔		1	540.1	2.0	<2.0		0.05 µg/L	---
Methylene Chloride	✔		1	8260	3.0	<3.0		4.6 µg/L	---
1,1,1 Trichloroethane	✔		1	8260	0.5	<0.5		200 µg/L	---
1,1,2 Trichloroethane	✔		1	8260	0.75	<0.75		5.0 µg/L	---
Trichloroethylene	✔		1	8260	0.5	<0.5		5.0 µg/L	---
Tetrachloroethylene	✔		1	8260	0.5	<0.5		5.0 µg/L	
cis-1,2 Dichloroethylene	✔		1	8260	0.5	<0.5		70 µg/L	---
Vinyl Chloride	✔		1	8260	1.0	<1.0		2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates		✔	1	8270	28	1.4		190 µg/L	
Diethylhexyl phthalate		✔	1	8270	3.0	1.4		101 µg/L	
Total Group I PAHs		✔	1	8270	1.4	0.5 J		1.0 µg/L	---
Benzo(a)anthracene		✔	1	8270	0.2	0.09 J		As Total PAHs	
Benzo(a)pyrene		✔	1	8270	0.2	0.09 J			
Benzo(b)fluoranthene		✔	1	8270	0.2	0.12 J			
Benzo(k)fluoranthene		✔	1	8270	0.2	0.05 J			
Chrysene		✔	1	8270	0.2	0.08 J			
Dibenzo(a,h)anthracene	✔		1	8270	0.2	<0.2			
Indeno(1,2,3-cd)pyrene		✔	1	8270	0.2	0.07			

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs		✔	1	8270	1.7	0.52 J		100 µg/L	---
Naphthalene		✔	1	8270	0.2	0.09 J		20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		1	608	1.7	<1.7		0.000064 µg/L	---
Pentachlorophenol	✔		1	8270	0.8	<0.8		1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔		1	1664	4.0	<4.0		5.0 mg/L	---
Ethanol								Report mg/L	---
Methyl-tert-Butyl Ether	✔		1	8260	1.0	<1.0		70 µg/L	
tert-Butyl Alcohol	✔		1	8260	10	<10		120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		1	8260	2.0	<2.0		90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
Carbon Disulfide	✔		1	8260	5.0	0.32 J			
Temperature	✔		1	Field	-	20.1 deg C			
pH	✔		1	4500H+	-	7.2			
Hardness	✔		1	200.7	0.660	409 mg/L			

E. Treatment system information

1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply)

☐ Adsorption/Absorption ☐ Advanced Oxidation Processes ☐ Air Stripping ☐ Granulated Activated Carbon ("GAC")/Liquid Phase Carbon Adsorption
☐ Ion Exchange ☐ Precipitation/Coagulation/Flocculation ■ Separation/Filtration ☐ Other; if so, specify:

2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.

The first element to the treatment system will be a fractionalization tank where solids will settle out. The effluent will then be passed through a series of bag filters for sediment removal. If necessary to achieve effluent standards, additional treatment equipment will be added.

Identify each major treatment component (check any that apply):
■ Fractionation tanks☐ Equalization tank ☐ Oil/water separator ☐ Mechanical filter ☐ Media filter
☐ Chemical feed tank ☐ Air stripping unit ■ Bag filter ☐ Other; if so, specify:

Indicate if either of the following will occur (check any that apply):
☐ Chlorination ☐ De-chlorination

3. Provide the **design flow capacity** in gallons per minute (gpm) of the most limiting component. Indicate the most limiting component: Sump pump Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	50
Provide the proposed maximum effluent flow in gpm.	50
Provide the average effluent flow in gpm.	25
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	

4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one): ■ Yes ☐ No

F. Chemical and additive information

1. Indicate the type(s) of chemical or additive that will be applied to effluent prior to discharge or that may otherwise be present in the discharge(s): (check all that apply)

☐ Algaecides/biocides ☐ Antifoams ☐ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ☐ Flocculants ☐ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ☐ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ☐ Other; if so, specify:
None anticipated

2. Provide the following information for each chemical/additive, using attachments, if necessary:

a. Product name, chemical formula, and manufacturer of the chemical/additive;
b. Purpose or use of the chemical/additive or remedial agent;
c. Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
d. The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive;
e. Any material compatibility risks for storage and/or use including the control measures used to minimize such risks; and
f. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).

3. Has the operator attached an explanation which demonstrates that the addition of such chemicals/additives may be authorized under this general permit in accordance with the instructions in F, above? (check one): ☐ Yes ☐ No; if no, has the operator attached data that demonstrates each of the 126 priority pollutants in CWA Section 307(a) and 40 CFR Part 423.15(j)(1) are non-detect in discharges with the addition of the proposed chemical/additive? (check one): ☐ Yes ☐ No

G. Endangered Species Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

☐ **FWS Criterion A**: No endangered or threatened species or critical habitat are in proximity to the discharges or related activities or come in contact with the "action area".

■ **FWS Criterion B**: Formal or informal consultation with the FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by FWS on a finding that the discharges and related activities are "not likely to adversely affect" listed species or critical habitat (informal consultation). Has the operator completed consultation with FWS? (check one): ■ Yes ☐ No; if no, is consultation underway? (check one): ☐ Yes ☐ No

☐ **FWS Criterion C**: Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the operator and affirmed by EPA, that the discharges and related activities will have "no effect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the FWS. This determination was made by: (check one) ☐ the operator ☐ EPA ☐ Other; if so, specify:

☐ **NMFS Criterion**: A determination made by EPA is affirmed by the operator that the discharges and related activities will have "no effect" or are "not likely to adversely affect" any federally threatened or endangered listed species or critical habitat under the jurisdiction of NMFS and will not result in any take of listed species. Has the operator previously completed consultation with NMFS? (check one): ☐ Yes ☐ No

2. Has the operator attached supporting documentation of ESA eligibility in accordance with the instructions in Appendix I, and G, above? (check one): ■ Yes ☐ No

Does the supporting documentation include any written concurrence or finding provided by the Services? (check one): ■ Yes ☐ No; if yes, attach.

H. National Historic Preservation Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

☐ **Criterion A**: No historic properties are present. The discharges and discharge-related activities (e.g., BMPs) do not have the potential to cause effects on historic properties.

■ **Criterion B**: Historic properties are present. Discharges and discharge related activities do not have the potential to cause effects on historic properties.

☐ **Criterion C**: Historic properties are present. The discharges and discharge-related activities have the potential to have an effect or will have an adverse effect on historic properties.

2. Has the operator attached supporting documentation of NHPA eligibility in accordance with the instructions in H, above? (check one): ■ Yes ☐ No

Does the supporting documentation include any written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the operator will carry out to mitigate or prevent any adverse effects on historic properties? (check one): ☐ Yes ■ No

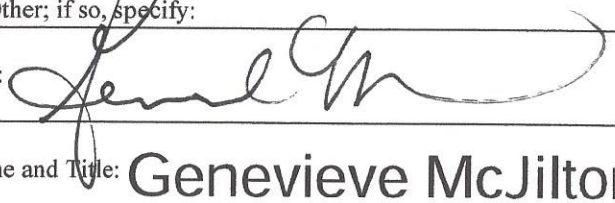
I. Supplemental information

Describe any supplemental information being provided with the NOI. Include attachments if required or otherwise necessary.

Has the operator attached data, including any laboratory case narrative and chain of custody used to support the application? (check one): ■ Yes ☐ No

Has the operator attached the certification requirement for the Best Management Practices Plan (BMPP)? (check one): ■ Yes ☐ No

J. Certification requirement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
BMPP certification statement: A BMPP meeting the requirements of this general permit will be developed and implemented upon initiation of discharge.
Notification provided to the appropriate State, including a copy of this NOI, if required. Check one: Yes ■ No ☐
Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested. Check one: Yes ■ No ☐
Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested. Check one: Yes ■ No ☐ NA ☐ Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission. See Section D.1 Check one: Yes ☐ No ■ NA ☐
Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify: Check one: Yes ☐ No ☐ NA ■
Signature:  Date: July 18, 2017
Print Name and Title: Genevieve McJilton, Sr. Project Manager

APPENDIX B

MUNICIPAL CORRESPONDENCE

PERMIT TO DEWATER

Location: 564 Massachusetts Avenue, Cambridge, MA

Owner: Target Corporation

Contractor: The Whiting-Turner Contracting Company

Temporary ☑

Permanent ☐

The property owner, Target Corporation agrees to hold harmless and indemnify the City of Cambridge for any liability on the part of the City directly or indirectly arising out of the dewatering operation.

The issuance of this permit is based in part in the submission packet of the applicant with documentation as follows:

Notice of Intent for discharge pursuant to Massachsuetts Dewatering General Permit MAG070000

In addition, the application has been reviewed by the City under third party agreement as documented in the following reports:

All activities conducted in conjunction with the issuance of this permit must be in accordance with the provisions of the aforementioned reports. Any deviations in conditions must be reported to and approved by the Commissioner of Public Works.

This permit is in addition to any other street permit issued by the Department in connection with any street excavation or obstruction; and all conditions as specified in the Discharge Permit for Dewatering.

For the entire period of time the groundwater is being discharged to a storm drain, the property owner shall provide copies of each Discharge Monitoring Report Form submitted to the EPA, pursuant to the owner's discharge permit.

If in the future the EPA requires the City of Cambridge to bring existing stormwater drainage into compliance with EPA quality standards, as a condition to the continuation of discharge of that stormwater (also including groundwater) into an EPA regulated system into which the Target Corporation (property owner) drains, the owner will agree to maintain its water discharge with such EPA water quality standards.

The property owner and contractor shall at all times meet the conditions specified in the requisite legal agreement/affidavits.

All groundwater pumped from the work shall be disposed of without damage to pavements, other surfaces or property.

Where material or debris has washed or flowed into or has been placed in existing gutters, drains, pipes or structures, such material or debris shall be entirely removed and satisfactorily disposed of by the

Contractor during the progress of work as directed by the Public Works Department.

Any flooding or damage of property and possessions caused by siltation of existing gutters, pipes or structures shall be the responsibility of the Contractor.

Provisions shall be made to insure that no material, water or solid, will freeze on any pavement or in any location which will cause inconvenience or hazard to the general public.

Upon completion of the work, existing gutters, drains, pipes and structures shall be (bucket) cleaned and material disposed of satisfactorily prior to release by the Public Works Department.

Any permit issued by the City of Cambridge shall be revoked upon transfer of any ownership interest unless and until subsequent owner(s) or parties of interest agree to the foregoing terms.

This permit shall remain in effect for one year and shall be renewable thereafter at the agreement of the parties.

The following special conditions as set forth below are part of the permit.

City Manager	Property Manager: Corporate Entity President, General Partner or Trustee Trustee with Instrument of Authority for Target Corporation
Date	Date
City Solicitor	Contractor for Whiting-Turner Contracting Company
Date	6/12/17 Date
Commissioner of Public	Not applicable Contractor
Date	Not applicable Date

CC: Engineering
Supervisor of Sewer Maintenance and Engineering
Superintendent of Streets
Commissioner of Inspectional Services

APPENDIX C

ENVIRONMENTAL RESOURCES DOCUMENTATION

MassDEP - Bureau of Waste Site Cleanup

Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

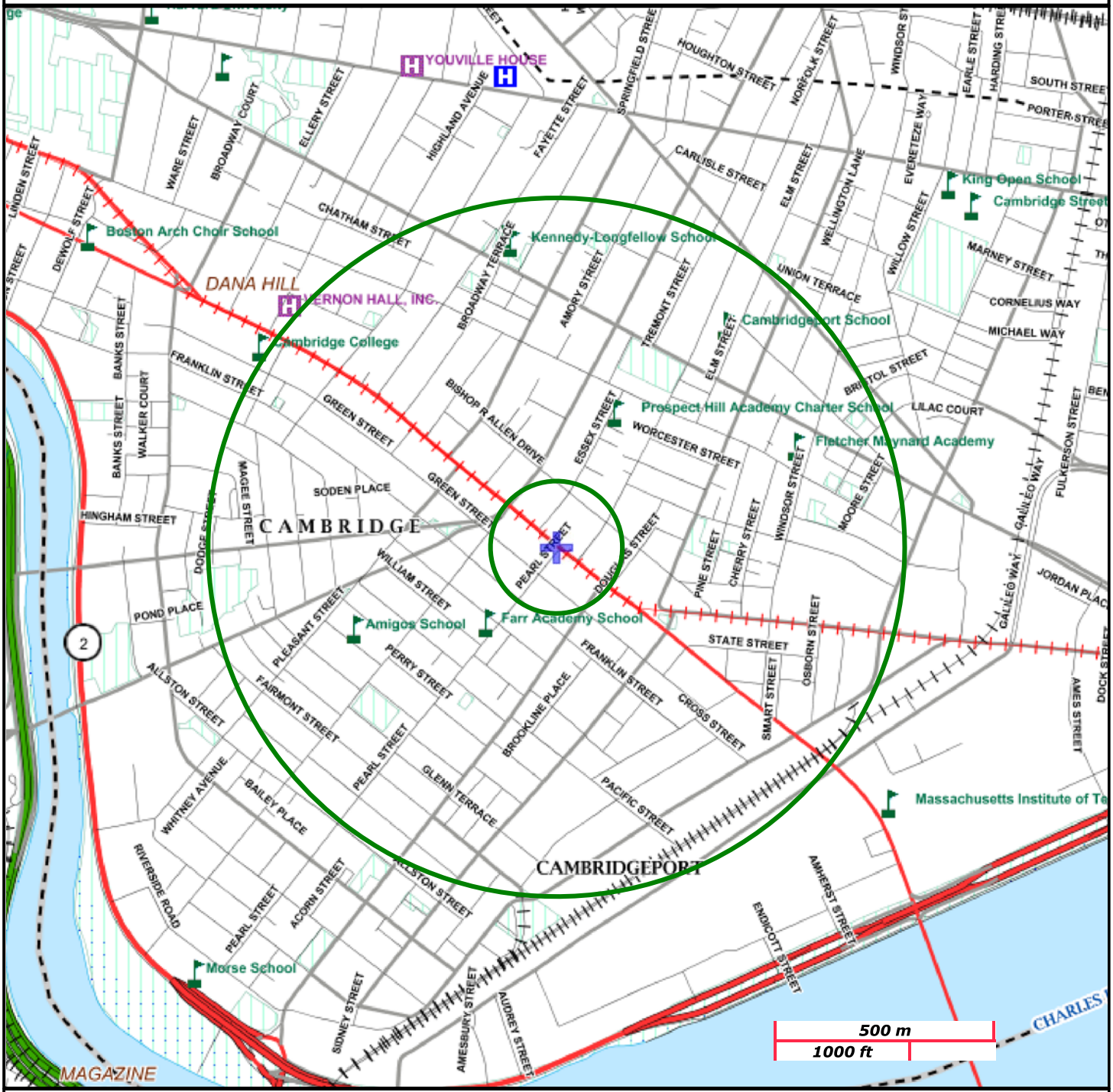
Site Information:

564 MASSACHUSETTS AVENUE CAMBRIDGE, MA

NAD83 UTM Meters:
4692413mN , 326856mE (Zone: 19)
June 1, 2017

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at: http://www.mass.gov/mgis/.

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail

Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct

Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam

Aquifers: Medium Yield, High Yield, EPA Sole Source

Non Potential Drinking Water Source Area: Medium, High (Yield)

PWS Protection Areas: Zone II, IWPA, Zone A

Hydrography: Open Water, PWS Reservoir, Tidal Flat

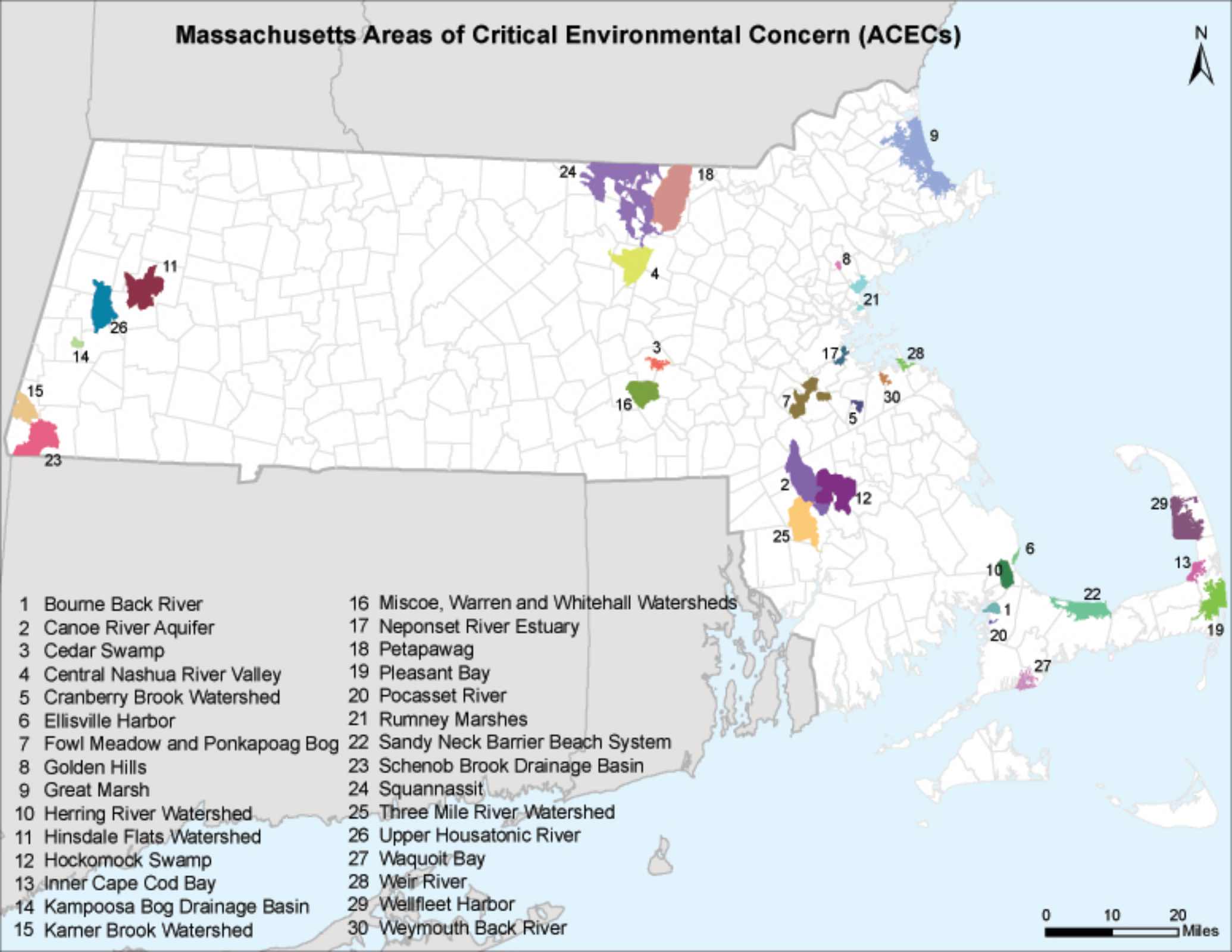
Wetlands: Freshwater, Saltwater, Cranberry Bog

FEMA 100yr Floodplain; Protected Open Space; ACEC

Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential

Solid Waste Landfill; PWS: Com.GW,SW, Emerg., Non-Com.

Massachusetts Areas of Critical Environmental Concern (ACECs)



1 Bourne Back River
2 Canoe River Aquifer
3 Cedar Swamp
4 Central Nashua River Valley
5 Cranberry Brook Watershed
6 Ellisville Harbor
7 Fowl Meadow and Ponkapoag Bog
8 Golden Hills
9 Great Marsh
10 Herring River Watershed
11 Hinsdale Flats Watershed
12 Hockomock Swamp
13 Inner Cape Cod Bay
14 Kampoosa Bog Drainage Basin
15 Karner Brook Watershed
16 Miscoe, Warren and Whitehall Watersheds
17 Neponset River Estuary
18 Petapawag
19 Pleasant Bay
20 Pocasset River
21 Rumney Marshes
22 Sandy Neck Barrier Beach System
23 Schenob Brook Drainage Basin
24 Squannassit
25 Three Mile River Watershed
26 Upper Housatonic River
27 Waquoit Bay
28 Weir River
29 Wellfleet Harbor
30 Weymouth Back River

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Middlesex County, Massachusetts

Local office

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

70 Commercial Street, Suite 300
Concord, NH 03301-5094

http://www.fws.gov/newengland

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.

5. Click REQUEST SPECIES LIST.

Listed species[1] are managed by the Endangered Species Program of the U.S. Fish and Wildlife Service.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

THERE ARE NO ENDANGERED SPECIES EXPECTED TO OCCUR AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The migratory birds species listed below are species of particular conservation concern (e.g. Birds of Conservation Concern) that may be potentially affected by activities in this location. It is not a list of every bird species you may find in this location, nor a guarantee that all of the bird species on this list will be found on or near this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the AKN Histogram Tools and Other Bird Data Resources. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

NAME	SEASON(S)
American Bittern Botaurus lentiginosus https://ecos.fws.gov/ecp/species/6582	On Land: Breeding
American Oystercatcher Haematopus palliatus https://ecos.fws.gov/ecp/species/8935	On Land: Breeding
Bald Eagle Haliaeetus leucocephalus https://ecos.fws.gov/ecp/species/1626	On Land: Year-round
Black-billed Cuckoo Coccyzus erythropthalmus https://ecos.fws.gov/ecp/species/9399	On Land: Breeding
Blue-winged Warbler Vermivora pinus	On Land: Breeding
Canada Warbler Wilsonia canadensis	On Land: Breeding
Hudsonian Godwit Limosa haemastica	At Sea: Migrating
Least Bittern Ixobrychus exilis https://ecos.fws.gov/ecp/species/6175	On Land: Breeding
Olive-sided Flycatcher Contopus cooperi https://ecos.fws.gov/ecp/species/3914	On Land: Breeding

Peregrine Falcon Falco peregrinus https://ecos.fws.gov/ecp/species/8831	On Land: Breeding
Pied-billed Grebe Podilymbus podiceps	On Land: Breeding
Prairie Warbler Dendroica discolor	On Land: Breeding
Purple Sandpiper Calidris maritima	On Land: Wintering
Saltmarsh Sparrow Ammodramus caudacutus	On Land: Breeding
Seaside Sparrow Ammodramus maritimus	On Land: Breeding
Short-eared Owl Asio flammeus https://ecos.fws.gov/ecp/species/9295	On Land: Wintering
Snowy Egret Egretta thula	On Land: Breeding
Upland Sandpiper Bartramia longicauda https://ecos.fws.gov/ecp/species/9294	On Land: Breeding
Willow Flycatcher Empidonax traillii https://ecos.fws.gov/ecp/species/3482	On Land: Breeding
Wood Thrush Hylocichla mustelina	On Land: Breeding
Worm Eating Warbler Helmitheros vermivorum	On Land: Breeding

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAANCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the Northeast Ocean Data Portal. The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAANCCOS models: the models were developed as part of the NOAANCCOS project: Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf. The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the Northeast Ocean Data Portal, which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

The Avian Knowledge Network (AKN) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest,survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the Migratory Bird Programs AKN Histogram Tools webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North, Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAANCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Facilities

Wildlife refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGES AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: June 01, 2017
Consultation Code: 05E1NE00-2017-SLI-1725
Event Code: 05E1NE00-2017-E-03779
Project Name: 564 Massachusetts Avenue

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2017-SLI-1725

Event Code: 05E1NE00-2017-E-03779

Project Name: 564 Massachusetts Avenue

Project Type: DEVELOPMENT

Project Description: Small dewatering project for focused excavation activities for building utilities.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.364381625838064N71.10266983657618W

Counties: Middlesex, MA

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Critical habitats

There are no critical habitats within your project area.

Summary of Essential Fish Habitat (EFH) Designation

10&#65533; x 10&#65533; Square Coordinates:

Boundary	North	East	South	West
Coordinate	42° 30.0&#65533; N	71° 00.0&#65533; W	42° 20.0&#65533; N	71° 10.0&#65533; W

Square Description (i.e. habitat, landmarks, coastline markers): Waters within the Atlantic Ocean within the square within Massachusetts Bay and within Boston Harbor affecting the following: South Boston, MA., Boston, MA., Chelsea River, Mystic River, Charles River, East Boston, MA., Chelsea, MA., Orient Heights, and most of Logan Airport.

Species	Eggs	Larvae	Juveniles	Adults
Atlantic cod *(Gadus morhua)*	X	X	X	X
haddock *(Melanogrammus aeglefinus)*	X	X		
pollock *(Pollachius virens)*	X	X	X	X
whiting *(Merluccius bilinearis)*	X	X	X	X
offshore hake *(Merluccius albidus)*				
red hake *(Urophycis chuss)*	X	X	X	X
white hake *(Urophycis tenuis)*	X	X	X	X
redfish *(Sebastes fasciatus)*	n/a			
witch flounder *(Glyptocephalus cynoglossus)*				
winter flounder *(Pseudopleuronectes americanus)*	X	X	X	X
yellowtail flounder *(Limanda ferruginea)*	X	X	X	X
windowpane flounder *(Scophthalmus aquosus)*	X	X	X	X
American plaice *(Hippoglossoides platessoides)*	X	X	X	X
ocean pout *(Macrozoarces americanus)*	X	X	X	X
Atlantic halibut *(Hippoglossus hippoglossus)*	X	X	X	X
Atlantic sea scallop *(Placopecten magellanicus)*	X	X	X	X
Atlantic sea herring *(Clupea harengus)*		X	X	X
monkfish *(Lophius americanus)*				
bluefish *(Pomatomus saltatrix)*				
long finned squid *(Loligo pealeii)*	n/a	n/a	X	X
short finned squid *(Illex illecebrosus)*	n/a	n/a	X	X
Atlantic butterfish *(Peprilus triacanthus)*	X	X	X	X

Atlantic butterfish *(Peprilus triacanthus)*	X	X	X	X
Atlantic mackerel *(Scomber scombrus)*	X	X	X	X
summer flounder *(Paralichthys dentatus)*				X
scup *(Stenotomus chrysops)*	n/a	n/a	X	X
black sea bass *(Centropristis striata)*	n/a		X	X
surf clam *(Spisula solidissima)*	n/a	n/a	X	X
ocean quahog *(Artica islandica)*	n/a	n/a		
spiny dogfish *(Squalus acanthias)*	n/a	n/a		
tilefish *(Lopholatilus chamaeleonticeps)*				
bluefin tuna *(Thunnus thynnus)*			X	X

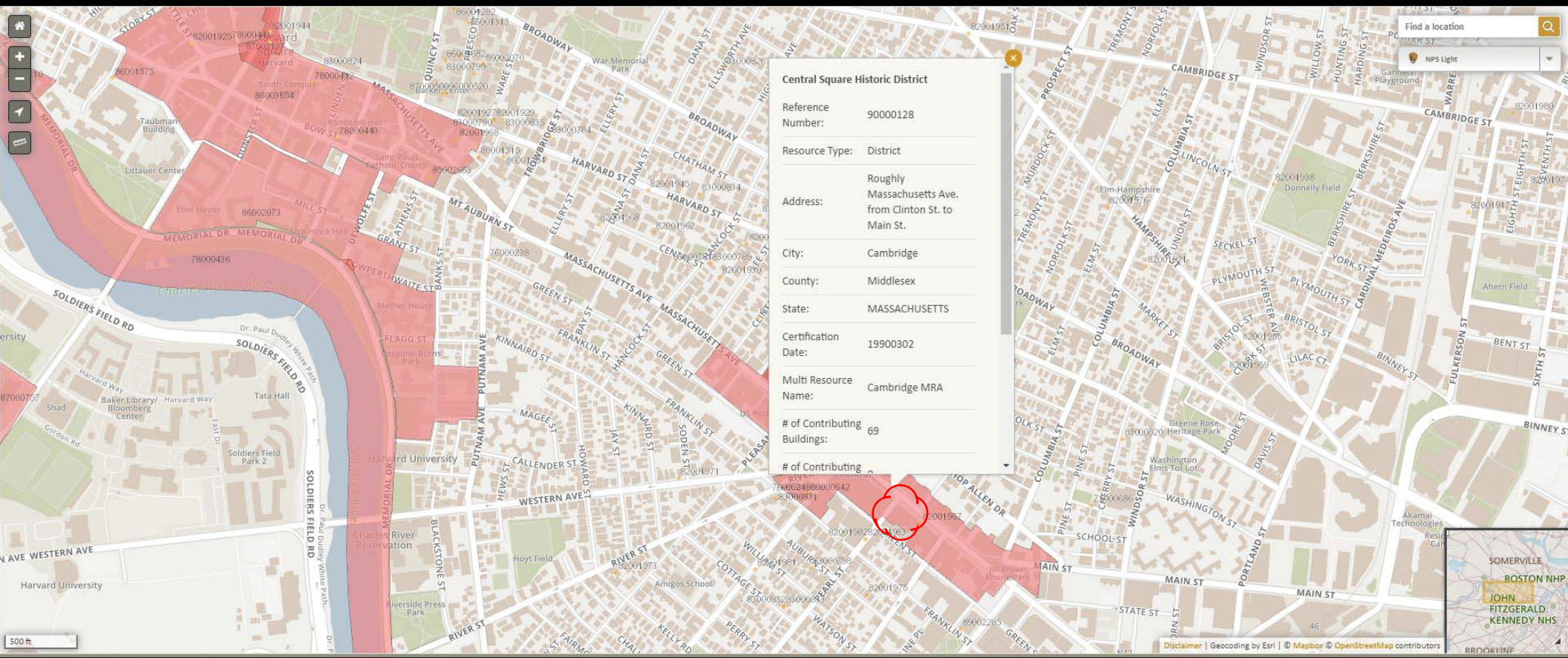
APPENDIX D

HISTORICAL SIGNIFICANCE DOCUMENTATION

National Register of Historic Places

Public, non-restricted data depicting National Register spatial data processed by the Cultural Resources GIS facility. Data last updated in April, 2014.

National Park Service
U.S. Department of the Interior



Massachusetts Cultural Resource Information System
MACRIS

MACRIS Search Results

Search Criteria: Town(s): Cambridge; Street Name: massachusetts Ave; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
CAM.635	Holmes Block II - Green Block	2-14 Central Sq	Cambridge	1798
CAM.102	First Parish Church, Unitarian	1-3 Church St	Cambridge	1833
CAM.910	Fitchburg Railroad Signal Bridge	Fitchburg Railroad	Cambridge	c 1930
CAM.177	Old Cambridge Baptist Church	398 Harvard St	Cambridge	1867
CAM.260	M. I. T. Alumni Swimming Pool Building	Massachusetts Ave	Cambridge	1940
CAM.261	Kresge Auditorium	Massachusetts Ave	Cambridge	1953
CAM.262	M. I. T. Chapel	Massachusetts Ave	Cambridge	1954
CAM.901	Harvard Square Subway Kiosk	Massachusetts Ave	Cambridge	1928
CAM.905	Massachusetts Avenue Bridge over Conrail	Massachusetts Ave	Cambridge	1900
CAM.916	Central Square Subway Station	Massachusetts Ave	Cambridge	1912
CAM.921	Harvard Bridge	Massachusetts Ave	Cambridge	r 1890
CAM.938	Cambridge Common	Massachusetts Ave	Cambridge	1631
CAM.939	Cambridge Common South Traffic Island	Massachusetts Ave	Cambridge	1976
CAM.945	Burying Ground Fence	Massachusetts Ave	Cambridge	1891
CAM.946	Flagstaff Park	Massachusetts Ave	Cambridge	1913
CAM.947	North Little Common	Massachusetts Ave	Cambridge	c 1858
CAM.949	Central Square Street Pattern	Massachusetts Ave	Cambridge	c 1630
CAM.334	Cambridge Armory	120 Massachusetts Ave	Cambridge	1902
CAM.332	Metropolitan Storage Warehouse	134 Massachusetts Ave	Cambridge	1895
CAM.1366	New England Confectionery Company Factory	250 Massachusetts Ave	Cambridge	1927
CAM.612	Lamson, The	351-355 Massachusetts Ave	Cambridge	1907
CAM.614	Lafayette Square Fire Station	378 Massachusetts Ave	Cambridge	1893
CAM.613	Shell Gas Station	385 Massachusetts Ave	Cambridge	1948
CAM.615	Salvation Army - Cambridge Citadel	400-402 Massachusetts Ave	Cambridge	1968
CAM.604		401-409 Massachusetts Ave	Cambridge	1966
CAM.603	Taylor, William A. House and Shop	411-413 Massachusetts Ave	Cambridge	1887
CAM.602	Barkin and Gorfinkle Building	415-429 Massachusetts Ave	Cambridge	1925

Inv. No.	Property Name	Street	Town	Year
CAM.616	Kennedy, Frank A. Store	424 Massachusetts Ave	Cambridge	1896
CAM.617	Kutz, Issac Store	428 Massachusetts Ave	Cambridge	c 1910
CAM.229	Kennedy, The	430-442 Massachusetts Ave	Cambridge	1890
CAM.601	Robbins Building	433-447 Massachusetts Ave	Cambridge	1923
CAM.619	Blanchard Building	448-450 Massachusetts Ave	Cambridge	c 1886
CAM.324	South Row	452-458 Massachusetts Ave	Cambridge	1807
CAM.1393	Dana Row - South Row	452-458 Massachusetts Ave	Cambridge	2003
CAM.599	Rogers, F. W. and G. M. Building	453-457 Massachusetts Ave	Cambridge	1885
CAM.620	Freedman Building	460-464 Massachusetts Ave	Cambridge	1933
CAM.598	McDonald's Restaurant	463-467 Massachusetts Ave	Cambridge	1974
CAM.621	Central Square Realty Trust Building	468-480 Massachusetts Ave	Cambridge	1929
CAM.597	Moller's Furniture Store	485 Massachusetts Ave	Cambridge	1926
CAM.622	Longfellow, The	492-498 Massachusetts Ave	Cambridge	1893
CAM.596	Kane's Furniture Store	493-507 Massachusetts Ave	Cambridge	1916
CAM.625	Burger King Restaraunt	506 Massachusetts Ave	Cambridge	1970
CAM.1394	Hovey, Phineas Building	512-514 Massachusetts Ave	Cambridge	1842
CAM.595	Central Trust Building	515-527 Massachusetts Ave	Cambridge	1927
CAM.627	Miller Store	520 Massachusetts Ave	Cambridge	1924
CAM.628	Rosenwald Realty Corporation Building	522-526 Massachusetts Ave	Cambridge	1928
CAM.230	Odd Fellows Hall	536 Massachusetts Ave	Cambridge	1884
CAM.629	Clark - Lamb Building	546-550 Massachusetts Ave	Cambridge	c 1873
CAM.630	Albani Building	552-566 Massachusetts Ave	Cambridge	1925
CAM.592	Bullock, Charles Building	567-569 Massachusetts Ave	Cambridge	1859
CAM.591	Central Square Theater	571-577 Massachusetts Ave	Cambridge	1917
CAM.631	Ginsberg Building - Harvard Bazar	572-590 Massachusetts Ave	Cambridge	1913
CAM.590	Morse, Asa P. Building	579-587 Massachusetts Ave	Cambridge	1893
CAM.589	Cambridgeport National Bank Building	593-597 Massachusetts Ave	Cambridge	1869
CAM.632	Manhattan Market - Purity Supreme Super Market	596-610 Massachusetts Ave	Cambridge	1899
CAM.588	Morse, Asa Second Building	599-601 Massachusetts Ave	Cambridge	1905
CAM.587	Fisk and Coleman Building	603-605 Massachusetts Ave	Cambridge	1892
CAM.633	Prospect House	614-620 Massachusetts Ave	Cambridge	1869
CAM.586	Corcoran, John H. Building	615-627 Massachusetts Ave	Cambridge	1927
CAM.634	Holmes Block I	624-638 Massachusetts Ave	Cambridge	1915
CAM.1395	New Holmes Block	624-638 Massachusetts Ave	Cambridge	1998
CAM.585	Woolworth, F. W. Building	633-641 Massachusetts Ave	Cambridge	1950
CAM.584	Watriss Building	643-649 Massachusetts Ave	Cambridge	1880
CAM.583	Dowse, Thomas House	653-655 Massachusetts Ave	Cambridge	1814

Inv. No.	Property Name	Street	Town	Year
CAM.581	New England Gas and Electric Association II Bldg	671-675 Massachusetts Ave	Cambridge	1966
CAM.642	Central Square Building	674 Massachusetts Ave	Cambridge	1926
CAM.643	Chamberlain - Hyde Building	684-688 Massachusetts Ave	Cambridge	1869
CAM.580	Cambridgeport Savings Bank	689 Massachusetts Ave	Cambridge	1904
CAM.644	Dana Building	692-698 Massachusetts Ave	Cambridge	1872
CAM.645	Southwick Building	700-706 Massachusetts Ave	Cambridge	1908
CAM.646	Norris Building	710-720 Massachusetts Ave	Cambridge	1916
CAM.579	Cambridge Electric Light Building	719 Massachusetts Ave	Cambridge	1912
CAM.647	Thayer Building I	722-724 Massachusetts Ave	Cambridge	1863
CAM.648	Thayer Building II	728-730 Massachusetts Ave	Cambridge	1868
CAM.578	Southwick Building	731-751 Massachusetts Ave	Cambridge	1896
CAM.649	Dobbins and Draper Store	736-750 Massachusetts Ave	Cambridge	1922
CAM.650	Dobbins and Draper Store	736-750 Massachusetts Ave	Cambridge	1922
CAM.231	Cambridge Mutual Fire Insurance Company Building	763 Massachusetts Ave	Cambridge	1888
CAM.232	Central Square Post Office	770 Massachusetts Ave	Cambridge	1933
CAM.233	Cambridge City Hall	795 Massachusetts Ave	Cambridge	1889
CAM.651	Cambridge Senior Center	800-806 Massachusetts Ave	Cambridge	1925
CAM.652	Young Men's Christian Association Building	820-830 Massachusetts Ave	Cambridge	1896
CAM.1396	Brusch Medical Center	825-831 Massachusetts Ave	Cambridge	1951
CAM.653	Saint Peter's Episcopal Church	834 Massachusetts Ave	Cambridge	1867
CAM.654	Modern Manor Apartments	842-864 Massachusetts Ave	Cambridge	1925
CAM.900	Houghton Beech Tree	1000 Massachusetts Ave	Cambridge	
CAM.1127	Brentford Hall	1137 Massachusetts Ave	Cambridge	1899
CAM.1128	Dunham, Israel Houses	1156-1166 Massachusetts Ave	Cambridge	1858
CAM.1129		1168 Massachusetts Ave	Cambridge	c 1892
CAM.1130		1170-1174 Massachusetts Ave	Cambridge	c 1849
CAM.1131	Longfellow Court	1200 Massachusetts Ave	Cambridge	1916
CAM.1132	Gulf Gas Station	1201 Massachusetts Ave	Cambridge	1940
CAM.1133		1206 Massachusetts Ave	Cambridge	1965
CAM.1134		1208-1210 Massachusetts Ave	Cambridge	1842
CAM.1135	Quincy Hall	1218 Massachusetts Ave	Cambridge	1891
CAM.1136		1230 Massachusetts Ave	Cambridge	1907
CAM.1137		1234-1238 Massachusetts Ave	Cambridge	c 1894
CAM.1138	Hamden Hall	1246-1260 Massachusetts Ave	Cambridge	1902
CAM.1139	A. D. Club	1268-1270 Massachusetts Ave	Cambridge	1899
CAM.1140	Niles Building	1280 Massachusetts Ave	Cambridge	1984

Inv. No.	Property Name	Street	Town	Year
CAM.234	Fairfax, The	1300-1306 Massachusetts Ave	Cambridge	1869
CAM.1141	Fairfax - Hilton Block	1310-1312 Massachusetts Ave	Cambridge	1883
CAM.1142	Fairfax - Hilton Block	1316 Massachusetts Ave	Cambridge	1885
CAM.235	Porcellian Club	1320-1324 Massachusetts Ave	Cambridge	1890
CAM.1143	Manter Hall	1325 Massachusetts Ave	Cambridge	1885
CAM.236	Wadsworth House	1341 Massachusetts Ave	Cambridge	1726
CAM.237	Holyoke Center	1350 Massachusetts Ave	Cambridge	1961
CAM.1144	Cambridge Savings Bank	1372-1376 Massachusetts Ave	Cambridge	1923
CAM.1145	Read, Joseph Stacey House	1380-1382 Massachusetts Ave	Cambridge	c 1783
CAM.1146	Bartlett, Joseph House	1384-1392 Massachusetts Ave	Cambridge	c 1800
CAM.1147	Harvard Coop Society	1400 Massachusetts Ave	Cambridge	1924
CAM.1148	Harvard Coop Society	1408-1410 Massachusetts Ave	Cambridge	1956
CAM.1149	Harvard Trust Company	1414 Massachusetts Ave	Cambridge	1923
CAM.1150	College House	1420-1442 Massachusetts Ave	Cambridge	1832
CAM.342	Gannett House	1511 Massachusetts Ave	Cambridge	1838
CAM.343	Hemenway Gymnasium	1517 Massachusetts Ave	Cambridge	1938
CAM.344	Hastings Hall	1519 Massachusetts Ave	Cambridge	1888
CAM.345	Harvard Epworth Methodist Church	1555 Massachusetts Ave	Cambridge	1891
CAM.1334	Francis - Allyn House	1564 Massachusetts Ave	Cambridge	1831
CAM.1333	Sawin - Cobb - Wilson House	1626 Massachusetts Ave	Cambridge	1868
CAM.238	Saunders, Charles Hicks House	1627 Massachusetts Ave	Cambridge	1862
CAM.239	Montrose, The	1648 Massachusetts Ave	Cambridge	1898
CAM.240	Dunvegan, The	1654 Massachusetts Ave	Cambridge	1898
CAM.241	Worcester, Frederick House	1734 Massachusetts Ave	Cambridge	1886
CAM.242	North Avenue Congregational Church	1803 Massachusetts Ave	Cambridge	1845
CAM.243	Lovell Block	1853 Massachusetts Ave	Cambridge	1882
CAM.1385	Cambridge Masonic Temple	1950 Massachusetts Ave	Cambridge	1910
CAM.244	Saint James Episcopal Church	1991 Massachusetts Ave	Cambridge	1888
CAM.245	Henderson Carriage Repository	2067-2089 Massachusetts Ave	Cambridge	1892
CAM.246	Cornerstone Baptist Church	2114 Massachusetts Ave	Cambridge	1854
CAM.247	Mead, Alpheus House	2200 Massachusetts Ave	Cambridge	1867
CAM.248	Snow, Daniel House	2210 Massachusetts Ave	Cambridge	1868
CAM.249	McLean, Isaac House	2218 Massachusetts Ave	Cambridge	1894
CAM.250	Farwell, R. H. Double House	2222-2224 Massachusetts Ave	Cambridge	1891
CAM.251	Saint John's Roman Catholic Church	2270 Massachusetts Ave	Cambridge	1904
CAM.1390		2557 Massachusetts Ave	Cambridge	
CAM.593	Powers, Hannah - Ginsberg, Harris Building	7-15 Norfolk St	Cambridge	c 1894

nationalatlas.gov™
Where We Are

MASSACHUSETTS

FEDERAL LANDS AND INDIAN RESERVATIONS

- Department of Defense (includes Army Corps of Engineers lakes)
- Fish and Wildlife Service / Wilderness
- National Park Service / Wilderness

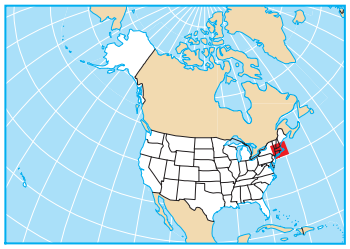
Some small sites are not shown, especially in urban areas.

MILES
0 10 20 30 40

Albers equal area projection

Abbreviations

NWR National Wildlife Refuge



ME
VERMONT
NEW HAMPSHIRE
ATLANTIC OCEAN
NEW YORK
CONNECTICUT
RHODE ISLAND
NEW YORK
North Adams
Greenfield
Pittsfield
Connecticut R.
Fitchburg
Lowell
Haverhill
Lawrence
Gloucester
Parker River NWR
Fort Devens (Closed)
Oxbow NWR
Great Meadows NWR
Hanscom Air Force Base
Minute Man National Historical Park
Assabet NWR
Natick Laboratories Military Reservation
Great Meadows NWR
Boston
Quabbin Reservoir
Holyoke
Westover Air Force Base
Worcester
Framingham
Quincy
U.S. Army Reserve Center
South Weymouth Naval Air Station (Closed)
Westfield
Springfield
Brockton
Colebrook River Lake
Provincetown
Cape Cod National Seashore
Cape Cod Bay
Taunton
Otis Air Force Base
Fall River
Hyannis
New Bedford
Mashpee NWR
Monomoy NWR
Nantucket Sound
Martha's Vineyard
Nantucket I
Nomans Land Island NWR
Long Island Sound

U.S. Department of the Interior
U.S. Geological Survey

pagefed_ma5.pdf INTERIOR-GEOLOGICAL SURVEY, RESTON, VIRGINIA-2003

APPENDIX A

MASSACHUSETTS HISTORICAL COMMISSION
220 MORRISSEY BOULEVARD
BOSTON, MASS. 02125
617-727-8470, FAX: 617-727-5128

PROJECT NOTIFICATION FORM

Project Name: Target Store - New Elevator Installation

Location / Address: 564 Massachusetts Avenue

City / Town: Cambridge, MA

Project Proponent

Name: Target Corporation

Address: 50 South 10th Street

City/Town/Zip/Telephone: Minneapolis, MN 55403 Attn: Genevieve McJilton, Tel (612) 761-5265

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

Agency Name	Type of License or funding (specify)
USEPA	National Pollution Discharge Elimination System Dewatering General Permit

Project Description (narrative):

Temporary dewatering operations for the installation of an elevator pit in the basement of the building on-site. A new elevator will be installed inside the existing building from the basement level to the second floor.

Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.

Saw cutting of floors and relocation of ductwork as necessary to install an elevator shaft from the basement level to the second floor inside the existing building.

Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.

No.

Does the project include new construction? If so, describe (attach plans and elevations if necessary).

The project includes the installation of an elevator inside the building.

APPENDIX A (continued)

To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.

According the National Register of Historic Places, the site address is listed in the Historical Central Square District of Cambridge.

What is the total acreage of the project area?

Woodland	acres	Productive Resources:	
Wetland	acres	Agriculture	acres
Floodplain	acres	Forestry	acres
Open space	acres	Mining/Extraction	acres
Developed 0.22	acres	Total Project Acreage	acres

What is the acreage of the proposed new construction? NA acres

What is the present land use of the project area?

Retail

Please attach a copy of the section of the USGS quadrangle map which clearly marks the project location.

See attached Locus Plan - Figure 1.

This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.

Signature of Person submitting this form: _____ Date: 6-14-17

Name: Target Corporation, Genevieve McDill

Address: 1000 Nicollet Mall

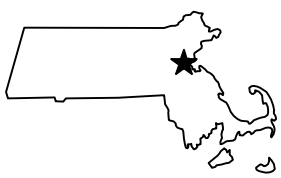
City/Town/Zip: Minneapolis, MN 55402

Telephone: 612-761-5265

REGULATORY AUTHORITY

950 CMR 71.00: M.G.L. c. 9, §§ 26-27C as amended by St. 1988, c. 254.

File:P:\4100s\4198.01\Graphics Files\CAD\LOCUS-JUN17\LOCUS.dwg Plot Date: 6-5-17



NOTES:
Base map was taken from the "Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Information Technology Division"
7.5 minute USGS Quadrangle Maps: Cambridge, Massachusetts, REV: 1987

Drawn By: C.Green
Designed By: K.Walker
Reviewed By: V.Kokosa
Project No: 4198.01
Date: June 2017

SCALE: 1:25,000

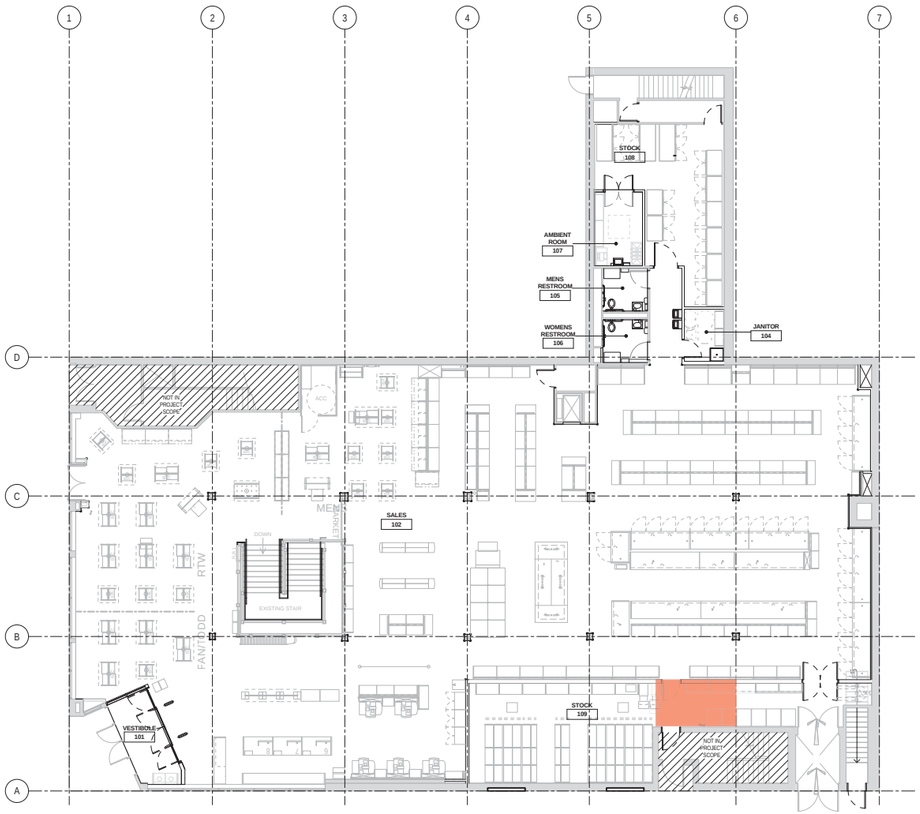
SANBORN HEAD

Figure 1

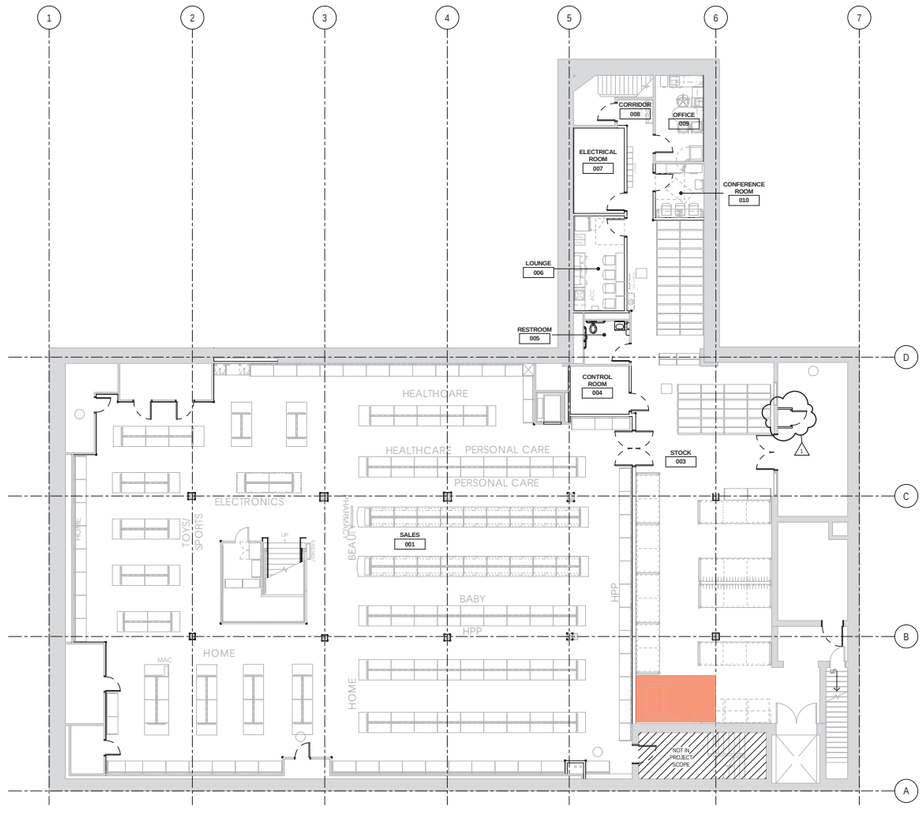
Locus Plan

Notice of Intent (NOI)
Dewatering General Permit

Target Store
Cambridge, Massachusetts



2 A112 GROUND LEVEL FIXTURE REFERENCE PLAN
SCALE 1/8" = 1'-0"



1 A112 LOWER LEVEL FIXTURE REFERENCE PLAN
SCALE 1/8" = 1'-0"

PLAN NORTH

TARGET®
1000 NICOLLET MALL
MINNEAPOLIS, MN 55403

ARROWSTREET
ARCHITECTURE & DESIGN

10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
617.623.5555
www.arrowstreet.com

KEYPLAN

Date	No.	Description
07/29/2016		PERMIT SET
09/02/2016	1	DCN 1006003

TARGET
Central Square
564 Massachusetts Ave, Cambridge, MA 02139

Project Number	T-3222
Proto:P400 / Version:V13B / Config:LL	
Drawn By	PJ/PW
Checked By	LM

FIXTURE REFERENCE PLANS

A112

9/2/2016 4:00:29 PM

APPENDIX E

ANALYTICAL LABORATORY REPORTS

ANALYTICAL REPORT

Lab Number:	L1715771
Client:	Sanborn, Head & Associates, Inc. 1 Technology Park Drive Westford, MA 01886
ATTN:	Kent Walker
Phone:	(978) 577-1003
Project Name:	TARGET RGP
Project Number:	4198.01
Report Date:	07/13/17

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1715771-01	SH-101	WATER	CAMBRIDGE, MA	05/15/17 08:10	05/15/17
L1715771-02	TRIP BLANK	WATER	CAMBRIDGE, MA	05/15/17 08:10	05/15/17

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

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. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated 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.

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 table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

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 Client Service Representative 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 Client Services at 800-624-9220 with any questions.

Project Name:	TARGET RGP	**Lab Number:**	L1715771
Project Number:	4198.01	**Report Date:**	07/13/17

Case Narrative (continued)

Report Submission

This report replaces the report issued May 19, 2017. At the client's request the Volatile Organics analyte list has been amended on L1715771-01 to include Tert-Butyl Alcohol and Tertiary-Amyl Methyl Ether.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Semivolatile Organics

The WG1003935-2/-3 LCS/LCSD recoveries, associated with L1715771-01, are below the acceptance criteria for benzidine (2%/3%); however, it has been identified as a "difficult" analyte. The results of the associated sample are reported.

Phenolics, Total

WG1003989: A Matrix Spike and Laboratory Duplicate were prepared with the sample batch, however, the native sample was not available for reporting; therefore, the matrix spike and laboratory duplicate results could not be reported.

Solids, Total Suspended

WG1004119: A laboratory duplicate could not be performed due to insufficient sample volume available for analysis.

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: Amita Naik

Title: Technical Director/Representative Date: 07/13/17

ORGANICS

VOLATILES

Project Name: TARGET RGP
Project Number: 4198.01
Lab Number: L1715771
Report Date: 07/13/17

SAMPLE RESULTS

Lab ID: L1715771-01
Client ID: SH-101
Sample Location: CAMBRIDGE, MA

Date Collected: 05/15/17 08:10
Date Received: 05/15/17
Field Prep: Field Filtered (Dissolved Metals)

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 05/18/17 12:15
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	3.0	0.68	1
1,1-Dichloroethane	ND		ug/l	0.75	0.21	1
Chloroform	ND		ug/l	0.75	0.16	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.8	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	0.75	0.14	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	0.50	0.18	1
Trichlorofluoromethane	ND		ug/l	2.5	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.17	1
Bromoform	ND		ug/l	2.0	0.25	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.16	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Chloromethane	ND		ug/l	2.5	0.18	1
Bromomethane	ND		ug/l	1.0	0.26	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	1.0	0.13	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
1,2-Dichloroethene, Total	ND		ug/l	0.50	0.16	1
Trichloroethene	ND		ug/l	0.50	0.18	1

Project Name: TARGET RGP **Lab Number:** L1715771

Project Number: 4198.01 **Report Date:** 07/13/17

SAMPLE RESULTS

Lab ID: L1715771-01 Date Collected: 05/15/17 08:10

Client ID: SH-101 Date Received: 05/15/17

Sample Location: CAMBRIDGE, MA Field Prep: Field Filtered (Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2-Dichlorobenzene	ND		ug/l	2.5	0.18	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.19	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.19	1
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.33	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.19	1
Dibromomethane	ND		ug/l	5.0	0.36	1
1,4-Dichlorobutane	ND		ug/l	5.0	0.46	1
1,2,3-Trichloropropane	ND		ug/l	5.0	0.18	1
Styrene	ND		ug/l	1.0	0.36	1
Dichlorodifluoromethane	ND		ug/l	5.0	0.24	1
Acetone	5.2		ug/l	5.0	1.5	1
Carbon disulfide	0.32	J	ug/l	5.0	0.30	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	0.31	1
4-Methyl-2-pentanone	ND		ug/l	5.0	0.42	1
2-Hexanone	ND		ug/l	5.0	0.52	1
Ethyl methacrylate	ND		ug/l	5.0	0.61	1
Acrylonitrile	ND		ug/l	5.0	0.43	1
Bromochloromethane	ND		ug/l	2.5	0.15	1
Tetrahydrofuran	ND		ug/l	5.0	0.83	1
2,2-Dichloropropane	ND		ug/l	2.5	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
1,3-Dichloropropane	ND		ug/l	2.5	0.21	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.16	1
Bromobenzene	ND		ug/l	2.5	0.15	1
n-Butylbenzene	ND		ug/l	0.50	0.19	1
sec-Butylbenzene	ND		ug/l	0.50	0.18	1
tert-Butylbenzene	ND		ug/l	2.5	0.18	1
o-Chlorotoluene	ND		ug/l	2.5	0.17	1
p-Chlorotoluene	ND		ug/l	2.5	0.18	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.35	1
Hexachlorobutadiene	ND		ug/l	0.50	0.22	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
p-Isopropyltoluene	ND		ug/l	0.50	0.19	1
Naphthalene	ND		ug/l	2.5	0.22	1

Project Name: TARGET RGP
Lab Number: L1715771
Project Number: 4198.01
Report Date: 07/13/17

SAMPLE RESULTS

Lab ID: L1715771-01
Client ID: SH-101
Sample Location: CAMBRIDGE, MA
Date Collected: 05/15/17 08:10
Date Received: 05/15/17
Field Prep: Field Filtered (Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	0.50	0.17	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.23	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.22	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.17	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.18	1
Ethyl ether	ND		ug/l	2.5	0.16	1
Tert-Butyl Alcohol	ND		ug/l	10	1.4	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	0.28	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	91		70-130

Project Name: TARGET RGP
Lab Number: L1715771
Project Number: 4198.01
Report Date: 07/13/17

SAMPLE RESULTS

Lab ID: L1715771-01
Client ID: SH-101
Sample Location: CAMBRIDGE, MA

Date Collected: 05/15/17 08:10
Date Received: 05/15/17
Field Prep: Field Filtered (Dissolved Metals)

Matrix: Water
Analytical Method: 1,8260C-SIM(M)
Analytical Date: 05/18/17 12:15
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	3.0	0.76	1

Project Name: TARGET RGP
Project Number: 4198.01
Lab Number: L1715771
Report Date: 07/13/17

SAMPLE RESULTS

Lab ID: L1715771-01
Client ID: SH-101
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 05/17/17 16:27
Analyst: NS

Date Collected: 05/15/17 08:10
Date Received: 05/15/17
Field Prep: Field Filtered (Dissolved Metals)
Extraction Method: EPA 504.1
Extraction Date: 05/17/17 13:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.011	0.004	1	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.011	0.005	1	A

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 05/17/17 15:09
Analyst: NS

Extraction Method: EPA 504.1
Extraction Date: 05/17/17 13:25

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1004336-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.004	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	0.005	A

Project Name: TARGET RGP
Project Number: 4198.01
Lab Number: L1715771
Report Date: 07/13/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C-SIM(M)
Analytical Date: 05/18/17 10:01
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1004780-5					
1,4-Dioxane	ND		ug/l	3.0	0.76

Project Name: TARGET RGP
Project Number: 4198.01
Lab Number: L1715771
Report Date: 07/13/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/18/17 10:01
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1004782-5					
Methylene chloride	ND		ug/l	3.0	0.68
1,1-Dichloroethane	ND		ug/l	0.75	0.21
Chloroform	ND		ug/l	0.75	0.16
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.8	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	0.75	0.14
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	0.50	0.18
Trichlorofluoromethane	ND		ug/l	2.5	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.17
Bromoform	ND		ug/l	2.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.16
Ethylbenzene	ND		ug/l	0.50	0.17
Chloromethane	ND		ug/l	2.5	0.18
Bromomethane	ND		ug/l	1.0	0.26
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	1.0	0.13
1,1-Dichloroethene	ND		ug/l	0.50	0.17
1,2-Dichloroethene, Total	ND		ug/l	0.50	0.16
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: TARGET RGP
Project Number: 4198.01
Lab Number: L1715771
Report Date: 07/13/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/18/17 10:01
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1004782-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.18
1,3-Dichlorobenzene	ND		ug/l	2.5	0.19
1,4-Dichlorobenzene	ND		ug/l	2.5	0.19
Methyl tert butyl ether	ND		ug/l	1.0	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.33
Xylenes, Total	ND		ug/l	1.0	0.33
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.19
Dibromomethane	ND		ug/l	5.0	0.36
1,4-Dichlorobutane	ND		ug/l	5.0	0.46
1,2,3-Trichloropropane	ND		ug/l	5.0	0.18
Styrene	ND		ug/l	1.0	0.36
Dichlorodifluoromethane	ND		ug/l	5.0	0.24
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	0.30
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	0.31
4-Methyl-2-pentanone	ND		ug/l	5.0	0.42
2-Hexanone	ND		ug/l	5.0	0.52
Ethyl methacrylate	ND		ug/l	5.0	0.61
Acrylonitrile	ND		ug/l	5.0	0.43
Bromochloromethane	ND		ug/l	2.5	0.15
Tetrahydrofuran	ND		ug/l	5.0	0.83
2,2-Dichloropropane	ND		ug/l	2.5	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
1,3-Dichloropropane	ND		ug/l	2.5	0.21
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.16
Bromobenzene	ND		ug/l	2.5	0.15
n-Butylbenzene	ND		ug/l	0.50	0.19

Project Name: TARGET RGP
Project Number: 4198.01
Lab Number: L1715771
Report Date: 07/13/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/18/17 10:01
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1004782-5					
sec-Butylbenzene	ND		ug/l	0.50	0.18
tert-Butylbenzene	ND		ug/l	2.5	0.18
o-Chlorotoluene	ND		ug/l	2.5	0.17
p-Chlorotoluene	ND		ug/l	2.5	0.18
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.35
Hexachlorobutadiene	ND		ug/l	0.50	0.22
Isopropylbenzene	ND		ug/l	0.50	0.19
p-Isopropyltoluene	ND		ug/l	0.50	0.19
Naphthalene	ND		ug/l	2.5	0.22
n-Propylbenzene	ND		ug/l	0.50	0.17
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.23
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.22
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.17
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.18
Ethyl ether	ND		ug/l	2.5	0.16
Tert-Butyl Alcohol	ND		ug/l	10	1.4
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	0.28

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	87		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET RGP

Project Number: 4198.01

Lab Number: L1715771

Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01 Batch: WG1004336-2									
1,2-Dibromoethane	87		-		70-130	-			A
1,2-Dibromo-3-chloropropane	92		-		70-130	-			A

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET RGP

Project Number: 4198.01

Lab Number: L1715771

Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1004780-3 WG1004780-4								
1,4-Dioxane	100		110		70-130	10		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET RGP

Project Number: 4198.01

Lab Number: L1715771

Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1004782-3 WG1004782-4								
Methylene chloride	130		120		70-130	8		20
1,1-Dichloroethane	110		110		70-130	0		20
Chloroform	99		95		70-130	4		20
Carbon tetrachloride	74		76		63-132	3		20
1,2-Dichloropropane	110		110		70-130	0		20
Dibromochloromethane	93		89		63-130	4		20
1,1,2-Trichloroethane	120		120		70-130	0		20
Tetrachloroethene	100		98		70-130	2		20
Chlorobenzene	100		98		75-130	2		25
Trichlorofluoromethane	89		90		62-150	1		20
1,2-Dichloroethane	90		89		70-130	1		20
1,1,1-Trichloroethane	85		82		67-130	4		20
Bromodichloromethane	92		92		67-130	0		20
trans-1,3-Dichloropropene	110		110		70-130	0		20
cis-1,3-Dichloropropene	100		100		70-130	0		20
1,1-Dichloropropene	110		100		70-130	10		20
Bromoform	83		98		54-136	17		20
1,1,2,2-Tetrachloroethane	120		120		67-130	0		20
Benzene	120		110		70-130	9		25
Toluene	110		110		70-130	0		25
Ethylbenzene	110		110		70-130	0		20
Chloromethane	99		91		64-130	8		20
Bromomethane	130		120		39-139	8		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET RGP

Project Number: 4198.01

Lab Number: L1715771

Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1004782-3 WG1004782-4								
Vinyl chloride	120		120		55-140	0		20
Chloroethane	130		130		55-138	0		20
1,1-Dichloroethene	110		110		61-145	0		25
Trichloroethene	96		98		70-130	2		25
1,2-Dichlorobenzene	96		100		70-130	4		20
1,3-Dichlorobenzene	92		94		70-130	2		20
1,4-Dichlorobenzene	92		98		70-130	6		20
Methyl tert butyl ether	110		110		63-130	0		20
p/m-Xylene	110		100		70-130	10		20
o-Xylene	110		100		70-130	10		20
cis-1,2-Dichloroethene	100		110		70-130	10		20
Dibromomethane	98		93		70-130	5		20
1,4-Dichlorobutane	110		120		70-130	9		20
1,2,3-Trichloropropane	110		120		64-130	9		20
Styrene	110		105		70-130	5		20
Dichlorodifluoromethane	100		100		36-147	0		20
Acetone	92		96		58-148	4		20
Carbon disulfide	110		110		51-130	0		20
2-Butanone	90		96		63-138	6		20
Vinyl acetate	95		92		70-130	3		20
4-Methyl-2-pentanone	130		120		59-130	8		20
2-Hexanone	93		91		57-130	2		20
Ethyl methacrylate	**140**	Q	**140**	Q	70-130	0		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1004782-3 WG1004782-4								
Acrylonitrile	100		100		70-130	0		20
Bromochloromethane	94		91		70-130	3		20
Tetrahydrofuran	88		96		58-130	9		20
2,2-Dichloropropane	94		94		63-133	0		20
1,2-Dibromoethane	110		100		70-130	10		20
1,3-Dichloropropane	130		120		70-130	8		20
1,1,1,2-Tetrachloroethane	93		90		64-130	3		20
Bromobenzene	90		95		70-130	5		20
n-Butylbenzene	110		94		53-136	16		20
sec-Butylbenzene	94		94		70-130	0		20
tert-Butylbenzene	87		92		70-130	6		20
o-Chlorotoluene	97		100		70-130	3		20
p-Chlorotoluene	100		100		70-130	0		20
1,2-Dibromo-3-chloropropane	92		100		41-144	8		20
Hexachlorobutadiene	97		99		63-130	2		20
Isopropylbenzene	92		94		70-130	2		20
p-Isopropyltoluene	91		91		70-130	0		20
Naphthalene	89		90		70-130	1		20
n-Propylbenzene	100		100		69-130	0		20
1,2,3-Trichlorobenzene	93		95		70-130	2		20
1,2,4-Trichlorobenzene	88		91		70-130	3		20
1,3,5-Trimethylbenzene	93		98		64-130	5		20
1,2,4-Trimethylbenzene	97		100		70-130	3		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET RGP

Project Number: 4198.01

Lab Number: L1715771

Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1004782-3 WG1004782-4								
trans-1,4-Dichloro-2-butene	100		110		70-130	10		20
Ethyl ether	130		130		59-134	0		20
Tert-Butyl Alcohol	102		116		70-130	13		20
Tertiary-Amyl Methyl Ether	110		110		66-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		81		70-130
Toluene-d8	112		106		70-130
4-Bromofluorobenzene	106		106		70-130
Dibromofluoromethane	87		84		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: TARGET RGP

Project Number: 4198.01

Lab Number: L1715771

Report Date: 07/13/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1004336-3 QC Sample: L1715328-01 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.256	0.220	86		-	-		65-135	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.256	0.228	89		-	-		65-135	-		20	A

SEMIVOLATILES

Project Name: TARGET RGP
Project Number: 4198.01
Lab Number: L1715771
Report Date: 07/13/17

SAMPLE RESULTS

Lab ID: L1715771-01
Client ID: SH-101
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 05/18/17 09:18
Analyst: SZ

Date Collected: 05/15/17 08:10
Date Received: 05/15/17
Field Prep: Field Filtered (Dissolved Metals)
Extraction Method: EPA 3510C
Extraction Date: 05/16/17 13:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzidine	ND		ug/l	20	8.1	1
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.66	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.67	1
1,2-Dichlorobenzene	ND		ug/l	2.0	0.73	1
1,3-Dichlorobenzene	ND		ug/l	2.0	0.69	1
1,4-Dichlorobenzene	ND		ug/l	2.0	0.71	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.4	1
2,4-Dinitrotoluene	ND		ug/l	5.0	0.84	1
2,6-Dinitrotoluene	ND		ug/l	5.0	1.1	1
Azobenzene	ND		ug/l	2.0	0.75	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.62	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.73	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.70	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.63	1
Hexachlorocyclopentadiene	ND		ug/l	20	7.8	1
Isophorone	ND		ug/l	5.0	0.60	1
Nitrobenzene	ND		ug/l	2.0	0.75	1
NDPA/DPA	ND		ug/l	2.0	0.64	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.70	1
Bis(2-ethylhexyl)phthalate	1.4	J	ug/l	3.0	0.91	1
Butyl benzyl phthalate	ND		ug/l	5.0	1.3	1
Di-n-butylphthalate	ND		ug/l	5.0	0.69	1
Di-n-octylphthalate	ND		ug/l	5.0	1.1	1
Diethyl phthalate	ND		ug/l	5.0	0.63	1
Dimethyl phthalate	ND		ug/l	5.0	0.65	1
Biphenyl	ND		ug/l	2.0	0.76	1
Aniline	ND		ug/l	2.0	0.65	1
4-Chloroaniline	ND		ug/l	5.0	0.63	1
2-Nitroaniline	ND		ug/l	5.0	1.1	1

Project Name: TARGET RGP **Lab Number:** L1715771

Project Number: 4198.01 **Report Date:** 07/13/17

SAMPLE RESULTS

Lab ID: L1715771-01 Date Collected: 05/15/17 08:10

Client ID: SH-101 Date Received: 05/15/17

Sample Location: CAMBRIDGE, MA Field Prep: Field Filtered (Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
3-Nitroaniline	ND		ug/l	5.0	1.2	1
4-Nitroaniline	ND		ug/l	5.0	1.3	1
Dibenzofuran	ND		ug/l	2.0	0.66	1
n-Nitrosodimethylamine	ND		ug/l	2.0	0.67	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.68	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.62	1
2-Chlorophenol	ND		ug/l	2.0	0.63	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.77	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.6	1
2-Nitrophenol	ND		ug/l	10	1.5	1
4-Nitrophenol	ND		ug/l	10	1.8	1
2,4-Dinitrophenol	ND		ug/l	20	5.5	1
4,6-Dinitro-o-cresol	ND		ug/l	10	2.1	1
Phenol	ND		ug/l	5.0	1.9	1
2-Methylphenol	ND		ug/l	5.0	1.0	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	1.1	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.72	1
Benzoic Acid	ND		ug/l	50	13.	1
Benzyl Alcohol	ND		ug/l	2.0	0.72	1
Carbazole	ND		ug/l	2.0	0.63	1
Pyridine	ND		ug/l	3.5	1.9	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	41		21-120
Phenol-d6	27		10-120
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	67		15-120
2,4,6-Tribromophenol	65		10-120
4-Terphenyl-d14	68		41-149

Project Name: TARGET RGP
Project Number: 4198.01
Lab Number: L1715771
Report Date: 07/13/17

SAMPLE RESULTS

Lab ID: L1715771-01
Client ID: SH-101
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 05/17/17 15:10
Analyst: KL

Date Collected: 05/15/17 08:10
Date Received: 05/15/17
Field Prep: Field Filtered (Dissolved Metals)
Extraction Method: EPA 3510C
Extraction Date: 05/16/17 13:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	0.04	1
2-Chloronaphthalene	ND		ug/l	0.20	0.04	1
Fluoranthene	0.10	J	ug/l	0.20	0.04	1
Hexachlorobutadiene	ND		ug/l	0.50	0.04	1
Naphthalene	0.09	J	ug/l	0.20	0.04	1
Benzo(a)anthracene	0.09	J	ug/l	0.20	0.02	1
Benzo(a)pyrene	0.09	J	ug/l	0.20	0.04	1
Benzo(b)fluoranthene	0.12	J	ug/l	0.20	0.02	1
Benzo(k)fluoranthene	0.05	J	ug/l	0.20	0.04	1
Chrysene	0.08	J	ug/l	0.20	0.04	1
Acenaphthylene	ND		ug/l	0.20	0.04	1
Anthracene	0.04	J	ug/l	0.20	0.04	1
Benzo(ghi)perylene	0.08	J	ug/l	0.20	0.04	1
Fluorene	ND		ug/l	0.20	0.04	1
Phenanthrene	0.07	J	ug/l	0.20	0.02	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	0.04	1
Indeno(1,2,3-cd)pyrene	0.07	J	ug/l	0.20	0.04	1
Pyrene	0.14	J	ug/l	0.20	0.04	1
1-Methylnaphthalene	ND		ug/l	0.20	0.04	1
2-Methylnaphthalene	ND		ug/l	0.20	0.05	1
Pentachlorophenol	ND		ug/l	0.80	0.22	1
Hexachlorobenzene	ND		ug/l	0.80	0.03	1
Hexachloroethane	0.05	J	ug/l	0.80	0.03	1

Project Name: TARGET RGP
Lab Number: L1715771
Project Number: 4198.01
Report Date: 07/13/17

SAMPLE RESULTS

Lab ID: L1715771-01
Client ID: SH-101
Sample Location: CAMBRIDGE, MA
Date Collected: 05/15/17 08:10
Date Received: 05/15/17
Field Prep: Field Filtered (Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS-SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	36		21-120
Phenol-d6	25		10-120
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	67		15-120
2,4,6-Tribromophenol	75		10-120
4-Terphenyl-d14	74		41-149

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 05/17/17 21:22
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 05/16/17 13:26

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1003935-1					
Acenaphthene	ND		ug/l	2.0	0.59
Benzidine	ND		ug/l	20	8.1
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.66
Hexachlorobenzene	ND		ug/l	2.0	0.58
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.67
2-Chloronaphthalene	ND		ug/l	2.0	0.64
1,2-Dichlorobenzene	ND		ug/l	2.0	0.73
1,3-Dichlorobenzene	ND		ug/l	2.0	0.69
1,4-Dichlorobenzene	ND		ug/l	2.0	0.71
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.4
2,4-Dinitrotoluene	ND		ug/l	5.0	0.84
2,6-Dinitrotoluene	ND		ug/l	5.0	1.1
Azobenzene	ND		ug/l	2.0	0.75
Fluoranthene	ND		ug/l	2.0	0.57
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.62
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.73
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.70
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.63
Hexachlorobutadiene	ND		ug/l	2.0	0.72
Hexachlorocyclopentadiene	ND		ug/l	20	7.8
Hexachloroethane	ND		ug/l	2.0	0.68
Isophorone	ND		ug/l	5.0	0.60
Naphthalene	ND		ug/l	2.0	0.68
Nitrobenzene	ND		ug/l	2.0	0.75
NDPA/DPA	ND		ug/l	2.0	0.64
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.70
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	0.91
Butyl benzyl phthalate	ND		ug/l	5.0	1.3
Di-n-butylphthalate	ND		ug/l	5.0	0.69

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 05/17/17 21:22
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 05/16/17 13:26

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1003935-1					
Di-n-octylphthalate	ND		ug/l	5.0	1.1
Diethyl phthalate	ND		ug/l	5.0	0.63
Dimethyl phthalate	ND		ug/l	5.0	0.65
Benzo(a)anthracene	ND		ug/l	2.0	0.61
Benzo(a)pyrene	ND		ug/l	2.0	0.54
Benzo(b)fluoranthene	ND		ug/l	2.0	0.64
Benzo(k)fluoranthene	ND		ug/l	2.0	0.60
Chrysene	ND		ug/l	2.0	0.54
Acenaphthylene	ND		ug/l	2.0	0.66
Anthracene	ND		ug/l	2.0	0.64
Benzo(ghi)perylene	ND		ug/l	2.0	0.61
Fluorene	ND		ug/l	2.0	0.62
Phenanthrene	ND		ug/l	2.0	0.61
Dibenzo(a,h)anthracene	ND		ug/l	2.0	0.55
Indeno(1,2,3-cd)pyrene	ND		ug/l	2.0	0.71
Pyrene	ND		ug/l	2.0	0.57
Biphenyl	ND		ug/l	2.0	0.76
Aniline	ND		ug/l	2.0	0.65
4-Chloroaniline	ND		ug/l	5.0	0.63
1-Methylnaphthalene	ND		ug/l	2.0	0.67
2-Nitroaniline	ND		ug/l	5.0	1.1
3-Nitroaniline	ND		ug/l	5.0	1.2
4-Nitroaniline	ND		ug/l	5.0	1.3
Dibenzofuran	ND		ug/l	2.0	0.66
2-Methylnaphthalene	ND		ug/l	2.0	0.72
n-Nitrosodimethylamine	ND		ug/l	2.0	0.67
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.68
p-Chloro-m-cresol	ND		ug/l	2.0	0.62
2-Chlorophenol	ND		ug/l	2.0	0.63

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 05/17/17 21:22
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 05/16/17 13:26

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1003935-1					
2,4-Dichlorophenol	ND		ug/l	5.0	0.77
2,4-Dimethylphenol	ND		ug/l	5.0	1.6
2-Nitrophenol	ND		ug/l	10	1.5
4-Nitrophenol	ND		ug/l	10	1.8
2,4-Dinitrophenol	ND		ug/l	20	5.5
4,6-Dinitro-o-cresol	ND		ug/l	10	2.1
Pentachlorophenol	ND		ug/l	10	3.4
Phenol	ND		ug/l	5.0	1.9
2-Methylphenol	ND		ug/l	5.0	1.0
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	1.1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.72
Benzoic Acid	ND		ug/l	50	13.
Benzyl Alcohol	ND		ug/l	2.0	0.72
Carbazole	ND		ug/l	2.0	0.63
Pyridine	ND		ug/l	3.5	1.9
Tentatively Identified Compounds					
No Tentatively Identified Compounds	ND		ug/l		

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 05/17/17 21:22
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 05/16/17 13:26

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1003935-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	37		21-120
Phenol-d6	26		10-120
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	62		15-120
2,4,6-Tribromophenol	61		10-120
4-Terphenyl-d14	71		41-149

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 05/17/17 11:48
Analyst: KL

Extraction Method: EPA 3510C
Extraction Date: 05/16/17 13:45

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1003938-1					
Acenaphthene	ND		ug/l	0.10	0.04
2-Chloronaphthalene	ND		ug/l	0.20	0.04
Fluoranthene	ND		ug/l	0.20	0.04
Hexachlorobutadiene	ND		ug/l	0.50	0.04
Naphthalene	ND		ug/l	0.20	0.04
Benzo(a)anthracene	ND		ug/l	0.20	0.02
Benzo(a)pyrene	ND		ug/l	0.20	0.04
Benzo(b)fluoranthene	ND		ug/l	0.20	0.02
Benzo(k)fluoranthene	ND		ug/l	0.20	0.04
Chrysene	ND		ug/l	0.20	0.04
Acenaphthylene	ND		ug/l	0.20	0.04
Anthracene	ND		ug/l	0.20	0.04
Benzo(ghi)perylene	ND		ug/l	0.20	0.04
Fluorene	ND		ug/l	0.20	0.04
Phenanthrene	ND		ug/l	0.20	0.02
Dibenzo(a,h)anthracene	ND		ug/l	0.20	0.04
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.20	0.04
Pyrene	ND		ug/l	0.20	0.04
1-Methylnaphthalene	ND		ug/l	0.20	0.04
2-Methylnaphthalene	ND		ug/l	0.20	0.05
Pentachlorophenol	ND		ug/l	0.80	0.22
Hexachlorobenzene	ND		ug/l	0.80	0.03
Hexachloroethane	ND		ug/l	0.80	0.03

Project Name: TARGET RGP
Project Number: 4198.01
Lab Number: L1715771
Report Date: 07/13/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 05/17/17 11:48
Analyst: KL

Extraction Method: EPA 3510C
Extraction Date: 05/16/17 13:45

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1003938-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	37		21-120
Phenol-d6	27		10-120
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	71		15-120
2,4,6-Tribromophenol	93		10-120
4-Terphenyl-d14	101		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1003935-2 WG1003935-3								
Acenaphthene	72		68		37-111	6		30
Benzidine	**2**	Q	**3**	Q	10-75	**58**	Q	30
1,2,4-Trichlorobenzene	71		64		39-98	10		30
Hexachlorobenzene	72		68		40-140	6		30
Bis(2-chloroethyl)ether	75		65		40-140	14		30
2-Chloronaphthalene	66		64		40-140	3		30
1,2-Dichlorobenzene	68		62		40-140	9		30
1,3-Dichlorobenzene	68		59		40-140	14		30
1,4-Dichlorobenzene	68		60		36-97	13		30
3,3'-Dichlorobenzidine	65		70		40-140	7		30
2,4-Dinitrotoluene	80		75		48-143	6		30
2,6-Dinitrotoluene	73		70		40-140	4		30
Azobenzene	75		71		40-140	5		30
Fluoranthene	77		74		40-140	4		30
4-Chlorophenyl phenyl ether	70		67		40-140	4		30
4-Bromophenyl phenyl ether	74		70		40-140	6		30
Bis(2-chloroisopropyl)ether	75		67		40-140	11		30
Bis(2-chloroethoxy)methane	79		71		40-140	11		30
Hexachlorobutadiene	57		55		40-140	4		30
Hexachlorocyclopentadiene	53		50		40-140	6		30
Hexachloroethane	66		59		40-140	11		30
Isophorone	84		75		40-140	11		30
Naphthalene	64		61		40-140	5		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1003935-2 WG1003935-3								
Nitrobenzene	76		68		40-140	11		30
NDPA/DPA	76		71		40-140	7		30
n-Nitrosodi-n-propylamine	80		71		29-132	12		30
Bis(2-ethylhexyl)phthalate	74		72		40-140	3		30
Butyl benzyl phthalate	84		78		40-140	7		30
Di-n-butylphthalate	78		74		40-140	5		30
Di-n-octylphthalate	67		64		40-140	5		30
Diethyl phthalate	75		71		40-140	5		30
Dimethyl phthalate	71		68		40-140	4		30
Benzo(a)anthracene	73		69		40-140	6		30
Benzo(a)pyrene	80		75		40-140	6		30
Benzo(b)fluoranthene	77		74		40-140	4		30
Benzo(k)fluoranthene	78		74		40-140	5		30
Chrysene	72		67		40-140	7		30
Acenaphthylene	71		67		45-123	6		30
Anthracene	72		68		40-140	6		30
Benzo(ghi)perylene	75		71		40-140	5		30
Fluorene	72		69		40-140	4		30
Phenanthrene	69		66		40-140	4		30
Dibenzo(a,h)anthracene	78		74		40-140	5		30
Indeno(1,2,3-cd)pyrene	76		71		40-140	7		30
Pyrene	78		73		26-127	7		30
Biphenyl	74		70		40-140	6		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1003935-2 WG1003935-3								
Aniline	40		40		40-140	0		30
4-Chloroaniline	47		54		40-140	14		30
1-Methylnaphthalene	66		62		41-103	6		30
2-Nitroaniline	75		71		52-143	5		30
3-Nitroaniline	66		69		25-145	4		30
4-Nitroaniline	75		73		51-143	3		30
Dibenzofuran	71		68		40-140	4		30
2-Methylnaphthalene	66		62		40-140	6		30
n-Nitrosodimethylamine	47		42		22-74	11		30
2,4,6-Trichlorophenol	73		70		30-130	4		30
p-Chloro-m-cresol	71		67		23-97	6		30
2-Chlorophenol	76		68		27-123	11		30
2,4-Dichlorophenol	82		72		30-130	13		30
2,4-Dimethylphenol	77		64		30-130	18		30
2-Nitrophenol	81		70		30-130	15		30
4-Nitrophenol	48		46		10-80	4		30
2,4-Dinitrophenol	68		61		20-130	11		30
4,6-Dinitro-o-cresol	69		64		20-164	8		30
Pentachlorophenol	72		68		9-103	6		30
Phenol	38		36		12-110	5		30
2-Methylphenol	68		62		30-130	9		30
3-Methylphenol/4-Methylphenol	65		60		30-130	8		30
2,4,5-Trichlorophenol	70		65		30-130	7		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET RGP

Project Number: 4198.01

Lab Number: L1715771

Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1003935-2 WG1003935-3								
Benzoic Acid	34		34		10-164	0		30
Benzyl Alcohol	71		63		26-116	12		30
Carbazole	76		71		55-144	7		30
Pyridine	20		12		10-66	**50**	Q	30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	53		48		21-120
Phenol-d6	36		34		10-120
Nitrobenzene-d5	77		69		23-120
2-Fluorobiphenyl	67		64		15-120
2,4,6-Tribromophenol	79		75		10-120
4-Terphenyl-d14	76		70		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET RGP

Project Number: 4198.01

Lab Number: L1715771

Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1003938-2 WG1003938-3								
Acenaphthene	71		66		37-111	7		40
2-Chloronaphthalene	72		68		40-140	6		40
Fluoranthene	87		79		40-140	10		40
Hexachlorobutadiene	60		58		40-140	3		40
Naphthalene	61		59		40-140	3		40
Benzo(a)anthracene	86		78		40-140	10		40
Benzo(a)pyrene	90		80		40-140	12		40
Benzo(b)fluoranthene	90		79		40-140	13		40
Benzo(k)fluoranthene	86		77		40-140	11		40
Chrysene	82		74		40-140	10		40
Acenaphthylene	80		75		40-140	6		40
Anthracene	84		76		40-140	10		40
Benzo(ghi)perylene	89		80		40-140	11		40
Fluorene	82		75		40-140	9		40
Phenanthrene	78		70		40-140	11		40
Dibenzo(a,h)anthracene	93		83		40-140	11		40
Indeno(1,2,3-cd)pyrene	92		82		40-140	11		40
Pyrene	87		79		26-127	10		40
1-Methylnaphthalene	69		66		40-140	4		40
2-Methylnaphthalene	68		65		40-140	5		40
Pentachlorophenol	91		80		9-103	13		40
Hexachlorobenzene	84		75		40-140	11		40
Hexachloroethane	47		46		40-140	2		40

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET RGP

Project Number: 4198.01

Lab Number: L1715771

Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1003938-2 WG1003938-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	39		38		21-120
Phenol-d6	30		29		10-120
Nitrobenzene-d5	61		59		23-120
2-Fluorobiphenyl	73		69		15-120
2,4,6-Tribromophenol	97		79		10-120
4-Terphenyl-d14	95		87		41-149

PCBS

Project Name: TARGET RGP
Project Number: 4198.01
Lab Number: L1715771
Report Date: 07/13/17

SAMPLE RESULTS

Lab ID: L1715771-01
Client ID: SH-101
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 5,608
Analytical Date: 05/18/17 07:29
Analyst: JW

Date Collected: 05/15/17 08:10
Date Received: 05/15/17
Field Prep: Field Filtered (Dissolved Metals)
Extraction Method: EPA 608
Extraction Date: 05/17/17 20:47
Cleanup Method: EPA 3665A
Cleanup Date: 05/18/17
Cleanup Method: EPA 3660B
Cleanup Date: 05/18/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	0.042	1	A
Aroclor 1221	ND		ug/l	0.250	0.056	1	A
Aroclor 1232	ND		ug/l	0.250	0.024	1	A
Aroclor 1242	ND		ug/l	0.250	0.028	1	A
Aroclor 1248	ND		ug/l	0.250	0.028	1	A
Aroclor 1254	ND		ug/l	0.250	0.043	1	A
Aroclor 1260	ND		ug/l	0.200	0.045	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	78		30-150	A
Decachlorobiphenyl	51		30-150	A

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,608
Analytical Date: 05/18/17 07:54
Analyst: JW

Extraction Method: EPA 608
Extraction Date: 05/17/17 20:47
Cleanup Method: EPA 3665A
Cleanup Date: 05/18/17
Cleanup Method: EPA 3660B
Cleanup Date: 05/18/17

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1004528-1						
Aroclor 1016	ND		ug/l	0.250	0.042	A
Aroclor 1221	ND		ug/l	0.250	0.056	A
Aroclor 1232	ND		ug/l	0.250	0.024	A
Aroclor 1242	ND		ug/l	0.250	0.028	A
Aroclor 1248	ND		ug/l	0.250	0.028	A
Aroclor 1254	ND		ug/l	0.250	0.043	A
Aroclor 1260	ND		ug/l	0.200	0.045	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76		30-150	A
Decachlorobiphenyl	72		30-150	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET RGP

Project Number: 4198.01

Lab Number: L1715771

Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG1004528-2									
Aroclor 1016	83		-		30-150	-		30	A
Aroclor 1260	83		-		30-150	-		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	78				30-150	A
Decachlorobiphenyl	74				30-150	A

Matrix Spike Analysis

Batch Quality Control

Project Name: TARGET RGP

Project Number: 4198.01

Lab Number: L1715771

Report Date: 07/13/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1004528-3 QC Sample: L1706390-72 Client ID: MS Sample													
Aroclor 1016	ND	3.12	2.52	81		-	-		40-126	-		30	A
Aroclor 1260	ND	3.12	2.52	81		-	-		40-127	-		30	A

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	75				30-150	A
Decachlorobiphenyl	67				30-150	A

Lab Duplicate Analysis
Batch Quality Control

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits	
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1004528-4 QC Sample: L1706390-72 Client ID: DUP Sample							
Aroclor 1016	ND	ND	ug/l	NC		30	A
Aroclor 1221	ND	ND	ug/l	NC		30	A
Aroclor 1232	ND	ND	ug/l	NC		30	A
Aroclor 1242	ND	ND	ug/l	NC		30	A
Aroclor 1248	ND	ND	ug/l	NC		30	A
Aroclor 1254	ND	ND	ug/l	NC		30	A
Aroclor 1260	ND	ND	ug/l	NC		30	A

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	84		75		30-150	A
Decachlorobiphenyl	77		71		30-150	A

METALS

Project Name: TARGET RGP
Project Number: 4198.01
Lab Number: L1715771
Report Date: 07/13/17

SAMPLE RESULTS

Lab ID: L1715771-01
Client ID: SH-101
Sample Location: CAMBRIDGE, MA
Matrix: Water
Date Collected: 05/15/17 08:10
Date Received: 05/15/17
Field Prep: Field Filtered (Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.00092	J	mg/l	0.00400	0.00042	1	05/16/17 15:25	05/17/17 11:52	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00249		mg/l	0.00100	0.00016	1	05/16/17 15:25	05/17/17 11:52	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00100	0.00005	1	05/16/17 15:25	05/17/17 11:52	EPA 3005A	3,200.8	AM
Chromium, Total	0.00056	J	mg/l	0.00100	0.00017	1	05/16/17 15:25	05/17/17 11:52	EPA 3005A	3,200.8	AM
Copper, Total	0.00273		mg/l	0.00100	0.00038	1	05/16/17 15:25	05/17/17 11:52	EPA 3005A	3,200.8	AM
Iron, Total	0.281		mg/l	0.050	0.009	1	05/16/17 15:25	05/18/17 23:45	EPA 3005A	19,200.7	AB
Lead, Total	0.00341		mg/l	0.00050	0.00034	1	05/16/17 15:25	05/17/17 11:52	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	05/16/17 14:21	05/18/17 14:24	EPA 245.1	3,245.1	MG
Nickel, Total	0.00086	J	mg/l	0.00200	0.00055	1	05/16/17 15:25	05/17/17 11:52	EPA 3005A	3,200.8	AM
Selenium, Total	0.00378	J	mg/l	0.00500	0.00173	1	05/16/17 15:25	05/17/17 11:52	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00100	0.00026	1	05/16/17 15:25	05/17/17 11:52	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/16/17 15:25	05/17/17 11:52	EPA 3005A	3,200.8	AM
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	0.010	1		05/17/17 11:52	NA	107,-	
Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	0.0022	J	mg/l	0.0040	0.0004	1	05/16/17 14:00	05/17/17 15:29	EPA 3005A	3,200.8	BV
Arsenic, Dissolved	0.0029		mg/l	0.0010	0.0002	1	05/16/17 14:00	05/17/17 15:29	EPA 3005A	3,200.8	BV
Cadmium, Dissolved	ND		mg/l	0.0002	0.0001	1	05/16/17 14:00	05/17/17 15:29	EPA 3005A	3,200.8	BV
Chromium, Dissolved	ND		mg/l	0.0010	0.0002	1	05/16/17 14:00	05/17/17 15:29	EPA 3005A	3,200.8	BV
Copper, Dissolved	0.0018		mg/l	0.0010	0.0004	1	05/16/17 14:00	05/17/17 15:29	EPA 3005A	3,200.8	BV
Iron, Dissolved	ND		mg/l	0.050	0.009	1	05/16/17 14:00	05/16/17 22:27	EPA 3005A	19,200.7	AB
Lead, Dissolved	ND		mg/l	0.0005	0.0003	1	05/16/17 14:00	05/17/17 15:29	EPA 3005A	3,200.8	BV
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	05/17/17 09:56	05/18/17 17:29	EPA 245.1	3,245.1	EA
Nickel, Dissolved	0.0008	J	mg/l	0.0020	0.0006	1	05/16/17 14:00	05/17/17 15:29	EPA 3005A	3,200.8	BV
Selenium, Dissolved	0.0030	J	mg/l	0.0050	0.0017	1	05/16/17 14:00	05/17/17 15:29	EPA 3005A	3,200.8	BV
Silver, Dissolved	ND		mg/l	0.0004	0.0003	1	05/16/17 14:00	05/17/17 15:29	EPA 3005A	3,200.8	BV
Zinc, Dissolved	ND		mg/l	0.0100	0.0034	1	05/16/17 14:00	05/17/17 15:29	EPA 3005A	3,200.8	BV

Project Name: TARGET RGP
Project Number: 4198.01
Lab Number: L1715771
Report Date: 07/13/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1003910-1										
Mercury, Total	ND		mg/l	0.0002	0.0001	1	05/16/17 14:21	05/18/17 14:21	3,245.1	MG

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1003941-1										
Iron, Dissolved	ND		mg/l	0.050	0.009	1	05/16/17 14:00	05/16/17 22:18	19,200.7	AB

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 Batch: WG1003942-1										
Antimony, Dissolved	ND		mg/l	0.0040	0.0004	1	05/16/17 14:00	05/17/17 13:00	3,200.8	BV
Arsenic, Dissolved	0.0003	J	mg/l	0.0010	0.0002	1	05/16/17 14:00	05/17/17 13:00	3,200.8	BV
Cadmium, Dissolved	ND		mg/l	0.0002	0.0001	1	05/16/17 14:00	05/17/17 13:00	3,200.8	BV
Chromium, Dissolved	ND		mg/l	0.0010	0.0002	1	05/16/17 14:00	05/17/17 13:00	3,200.8	BV
Copper, Dissolved	ND		mg/l	0.0010	0.0004	1	05/16/17 14:00	05/17/17 13:00	3,200.8	BV
Lead, Dissolved	ND		mg/l	0.0005	0.0003	1	05/16/17 14:00	05/17/17 13:00	3,200.8	BV
Nickel, Dissolved	ND		mg/l	0.0020	0.0006	1	05/16/17 14:00	05/17/17 13:00	3,200.8	BV
Selenium, Dissolved	ND		mg/l	0.0050	0.0017	1	05/16/17 14:00	05/17/17 13:00	3,200.8	BV
Silver, Dissolved	ND		mg/l	0.0004	0.0003	1	05/16/17 14:00	05/17/17 13:00	3,200.8	BV
Zinc, Dissolved	ND		mg/l	0.0100	0.0034	1	05/16/17 14:00	05/17/17 13:00	3,200.8	BV

Prep Information

Digestion Method: EPA 3005A

Project Name: TARGET RGP
Project Number: 4198.01
Lab Number: L1715771
Report Date: 07/13/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1003960-1										
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	0.00016	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00100	0.00005	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	0.00017	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	0.00038	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Lead, Total	ND		mg/l	0.00050	0.00034	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	0.00055	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Silver, Total	ND		mg/l	0.00100	0.00026	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1003962-1										
Iron, Total	ND		mg/l	0.050	0.009	1	05/16/17 15:25	05/18/17 23:18	19,200.7	AB

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 Batch: WG1004274-1										
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	05/17/17 09:56	05/18/17 17:25	3,245.1	EA

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET RGP

Project Number: 4198.01

Lab Number: L1715771

Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1003910-2								
Mercury, Total	100		-		85-115	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1003941-2								
Iron, Dissolved	100		-		85-115	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1003942-2								
Antimony, Dissolved	94		-		85-115	-		
Arsenic, Dissolved	99		-		85-115	-		
Cadmium, Dissolved	101		-		85-115	-		
Chromium, Dissolved	98		-		85-115	-		
Copper, Dissolved	104		-		85-115	-		
Lead, Dissolved	105		-		85-115	-		
Nickel, Dissolved	105		-		85-115	-		
Selenium, Dissolved	101		-		85-115	-		
Silver, Dissolved	101		-		85-115	-		
Zinc, Dissolved	105		-		85-115	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET RGP

Project Number: 4198.01

Lab Number: L1715771

Report Date: 07/13/17

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1003960-2					
Antimony, Total	97	-	85-115	-	
Arsenic, Total	104	-	85-115	-	
Cadmium, Total	108	-	85-115	-	
Chromium, Total	98	-	85-115	-	
Copper, Total	99	-	85-115	-	
Lead, Total	105	-	85-115	-	
Nickel, Total	97	-	85-115	-	
Selenium, Total	114	-	85-115	-	
Silver, Total	94	-	85-115	-	
Zinc, Total	100	-	85-115	-	
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1003962-2					
Iron, Total	108	-	85-115	-	
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1004274-2					
Mercury, Dissolved	104	-	85-115	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1003910-3 QC Sample: L1715771-01 Client ID: SH-101												
Mercury, Total	ND	0.005	0.0049	98		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1003910-5 QC Sample: L1715810-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.0049	98		-	-		70-130	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1003941-3 QC Sample: L1715771-01 Client ID: SH-101												
Iron, Dissolved	ND	1	1.02	102		-	-		75-125	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1003942-3 QC Sample: L1715771-01 Client ID: SH-101												
Antimony, Dissolved	0.0022J	0.5	0.4782	96		-	-		70-130	-		20
Arsenic, Dissolved	0.0029	0.12	0.1308	106		-	-		70-130	-		20
Cadmium, Dissolved	ND	0.051	0.0545	107		-	-		70-130	-		20
Chromium, Dissolved	ND	0.2	0.2133	107		-	-		70-130	-		20
Copper, Dissolved	0.0018	0.25	0.2583	102		-	-		70-130	-		20
Lead, Dissolved	ND	0.51	0.5735	112		-	-		70-130	-		20
Nickel, Dissolved	0.0008J	0.5	0.5017	100		-	-		70-130	-		20
Selenium, Dissolved	0.0030J	0.12	0.1308	109		-	-		70-130	-		20
Silver, Dissolved	ND	0.05	0.0521	104		-	-		70-130	-		20
Zinc, Dissolved	ND	0.5	0.5251	105		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1003960-3 QC Sample: L1715771-01 Client ID: SH-101									
Antimony, Total	0.00092J	0.5	0.5135	103	-	-	70-130	-	20
Arsenic, Total	0.00249	0.12	0.1277	104	-	-	70-130	-	20
Cadmium, Total	ND	0.051	0.05496	108	-	-	70-130	-	20
Chromium, Total	0.00056J	0.2	0.1995	100	-	-	70-130	-	20
Copper, Total	0.00273	0.25	0.2635	104	-	-	70-130	-	20
Lead, Total	0.00341	0.51	0.5377	105	-	-	70-130	-	20
Nickel, Total	0.00086J	0.5	0.5070	101	-	-	70-130	-	20
Selenium, Total	0.00378J	0.12	0.1307	109	-	-	70-130	-	20
Silver, Total	ND	0.05	0.04903	98	-	-	70-130	-	20
Zinc, Total	ND	0.5	0.5213	104	-	-	70-130	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1003962-3 QC Sample: L1715771-01 Client ID: SH-101									
Iron, Total	0.281	1	1.29	101	-	-	75-125	-	20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1004274-3 QC Sample: L1715771-01 Client ID: SH-101									
Mercury, Dissolved	ND	0.005	0.00491	98	-	-	75-125	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1003910-4 QC Sample: L1715771-01 Client ID: SH-101						
Mercury, Total	ND	ND	mg/l	NC		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1003941-4 QC Sample: L1715771-01 Client ID: SH-101						
Iron, Dissolved	ND	0.010J	mg/l	NC		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1003942-4 QC Sample: L1715771-01 Client ID: SH-101						
Antimony, Dissolved	0.0022J	0.0018J	mg/l	NC		20
Arsenic, Dissolved	0.0029	0.0028	mg/l	3		20
Cadmium, Dissolved	ND	ND	mg/l	NC		20
Chromium, Dissolved	ND	ND	mg/l	NC		20
Copper, Dissolved	0.0018	0.0019	mg/l	3		20
Lead, Dissolved	ND	ND	mg/l	NC		20
Nickel, Dissolved	0.0008J	0.0009J	mg/l	NC		20
Selenium, Dissolved	0.0030J	0.0028J	mg/l	NC		20
Silver, Dissolved	ND	ND	mg/l	NC		20
Zinc, Dissolved	ND	ND	mg/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1003960-4 QC Sample: L1715771-01 Client ID: SH-101					
Antimony, Total	0.00092J	0.00124J	mg/l	NC	20
Arsenic, Total	0.00249	0.00258	mg/l	4	20
Cadmium, Total	ND	ND	mg/l	NC	20
Chromium, Total	0.00056J	0.00052J	mg/l	NC	20
Copper, Total	0.00273	0.00283	mg/l	4	20
Lead, Total	0.00341	0.00356	mg/l	5	20
Nickel, Total	0.00086J	0.00075J	mg/l	NC	20
Selenium, Total	0.00378J	0.00295J	mg/l	NC	20
Silver, Total	ND	ND	mg/l	NC	20
Zinc, Total	ND	ND	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1003962-4 QC Sample: L1715771-01 Client ID: SH-101					
Iron, Total	0.281	0.279	mg/l	1	20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1004274-4 QC Sample: L1715771-01 Client ID: SH-101					
Mercury, Dissolved	ND	ND	mg/l	NC	20

INORGANICS
&
MISCELLANEOUS

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

SAMPLE RESULTS

Lab ID: L1715771-01
Client ID: SH-101
Sample Location: CAMBRIDGE, MA
Matrix: Water

Date Collected: 05/15/17 08:10
Date Received: 05/15/17
Field Prep: Field Filtered (Dissolved Metals)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	9.3		mg/l	5.0	NA	1	-	05/16/17 23:55	121,2540D	JT
Cyanide, Total	0.005		mg/l	0.005	0.001	1	05/16/17 11:00	05/16/17 14:40	121,4500CN-CE	LK
Chlorine, Total Residual	ND		mg/l	0.02	0.01	1	-	05/15/17 18:15	121,4500CL-D	AS
Nitrogen, Ammonia	0.062	J	mg/l	0.075	0.022	1	05/16/17 14:20	05/16/17 21:01	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	1.24	1	05/16/17 17:30	05/16/17 23:00	74,1664A	ML
Phenolics, Total	ND		mg/l	0.030	0.010	1	05/16/17 13:45	05/16/17 16:37	4,420.1	AW
Chromium, Hexavalent	ND		mg/l	0.010	0.003	1	05/15/17 19:05	05/15/17 19:38	1,7196A	AS
Anions by Ion Chromatography - Westborough Lab										
Chloride	735.		mg/l	25.0	4.20	50	-	05/15/17 23:50	44,300.0	JC

Project Name: TARGET RGP
Project Number: 4198.01
Lab Number: L1715771
Report Date: 07/13/17

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 Batch: WG1003642-1										
Chlorine, Total Residual	ND		mg/l	0.02	0.01	1	-	05/15/17 18:15	121,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1003647-1										
Chromium, Hexavalent	ND		mg/l	0.010	0.003	1	05/15/17 19:05	05/15/17 19:38	1,7196A	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1003790-1										
Nitrogen, Ammonia	ND		mg/l	0.075	0.022	1	05/16/17 14:20	05/16/17 20:50	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1003848-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	05/16/17 11:00	05/16/17 14:27	121,4500CN-CE	LK
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1003989-1										
Phenolics, Total	ND		mg/l	0.030	0.010	1	05/16/17 13:45	05/16/17 16:31	4,420.1	AW
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1004043-1										
TPH, SGT-HEM	ND		mg/l	4.00	1.24	1	05/16/17 17:30	05/16/17 23:00	74,1664A	ML
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1004104-1										
Chloride	ND		mg/l	0.500	0.083	1	-	05/15/17 23:02	44,300.0	JC
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1004119-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	05/16/17 23:55	121,2540D	JT

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET RGP

Project Number: 4198.01

Lab Number: L1715771

Report Date: 07/13/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1003642-2								
Chlorine, Total Residual	101		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1003647-2								
Chromium, Hexavalent	103		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1003790-2								
Nitrogen, Ammonia	96		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1003848-2								
Cyanide, Total	94		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1003989-2								
Phenolics, Total	98		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1004043-2								
TPH	86		-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1004104-2								
Chloride	103		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

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 QC Batch ID: WG1003642-4 QC Sample: L1715771-01 Client ID: SH-101												
Chlorine, Total Residual	ND	0.248	0.26	105		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1003647-4 QC Sample: L1715771-01 Client ID: SH-101												
Chromium, Hexavalent	ND	0.1	0.101	101		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1003790-4 QC Sample: L1715733-04 Client ID: MS Sample												
Nitrogen, Ammonia	0.063J	4	3.86	96		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1003848-4 QC Sample: L1715808-02 Client ID: MS Sample												
Cyanide, Total	0.004J	0.2	0.198	99		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1004043-4 QC Sample: L1715771-01 Client ID: SH-101												
TPH	ND	20	17.7	88		-	-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1004104-3 QC Sample: L1715734-02 Client ID: MS Sample												
Chloride	129.	100	238	109		-	-		90-110	-		18

Lab Duplicate Analysis
Batch Quality Control

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1003642-3 QC Sample: L1715734-01 Client ID: DUP Sample						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1003647-3 QC Sample: L1715771-01 Client ID: SH-101						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1003790-3 QC Sample: L1715733-04 Client ID: DUP Sample						
Nitrogen, Ammonia	0.063J	0.062J	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1003848-3 QC Sample: L1715808-01 Client ID: DUP Sample						
Cyanide, Total	0.004J	0.004J	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1004043-3 QC Sample: L1715328-01 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1004104-4 QC Sample: L1715734-02 Client ID: DUP Sample						
Chloride	129.	129	mg/l	0		18

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1715771-01A	Vial HCl preserved	A	N/A	N/A	4.8	Y	Absent		8260-SIM(14),8260(14)
L1715771-01B	Vial HCl preserved	A	N/A	N/A	4.8	Y	Absent		8260-SIM(14),8260(14)
L1715771-01C	Vial HCl preserved	A	N/A	N/A	4.8	Y	Absent		8260-SIM(14),8260(14)
L1715771-01D	Vial Na2S2O3 preserved	A	N/A	N/A	4.8	Y	Absent		504(14)
L1715771-01E	Vial Na2S2O3 preserved	A	N/A	N/A	4.8	Y	Absent		504(14)
L1715771-01F	Plastic 950ml unpreserved	A	7	7	4.8	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1)
L1715771-01G	Plastic 500ml H2SO4 preserved	A	<2	<2	4.8	Y	Absent		NH3-4500(28)
L1715771-01H	Plastic 250ml NaOH preserved	A	>12	>12	4.8	Y	Absent		TCN-4500(14)
L1715771-01J	Amber 1000ml HCl preserved	A	N/A	N/A	4.8	Y	Absent		TPH-1664(28)
L1715771-01K	Amber 1000ml HCl preserved	A	N/A	N/A	4.8	Y	Absent		TPH-1664(28)
L1715771-01L	Amber 950ml H2SO4 preserved	A	<2	<2	4.8	Y	Absent		TPHENOL-420(28)
L1715771-01M	Plastic 950ml unpreserved	A	7	7	4.8	Y	Absent		TSS-2540(7)
L1715771-01N	Plastic 250ml HNO3 preserved	A	<2	<2	4.8	Y	Absent		AG-2008S(180),CR-2008S(180),FE-RI(180),AS-2008S(180),PB-2008S(180),ZN-2008S(180),NI-2008S(180),SE-2008S(180),CD-2008S(180),CU-2008S(180),SB-2008S(180),HG-R(28)
L1715771-01P	Plastic 250ml HNO3 preserved	A	<2	<2	4.8	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1715771-01Q	Amber 1000ml Na2S2O3	A	7	7	4.8	Y	Absent		PCB-608(7)
L1715771-01R	Amber 1000ml Na2S2O3	A	7	7	4.8	Y	Absent		PCB-608(7)
L1715771-01S	Amber 1000ml unpreserved	A	7	7	4.8	Y	Absent		8270TCL(7),8270TCL-SIM(7)
L1715771-01T	Amber 1000ml unpreserved	A	7	7	4.8	Y	Absent		8270TCL(7),8270TCL-SIM(7)
L1715771-01X	Vial HCl preserved	A	N/A	N/A	4.8	Y	Absent		ARCHIVE(0)

*Values in parentheses indicate holding time in days

Project Name: TARGET RGP
Project Number: 4198.01

Lab Number: L1715771
Report Date: 07/13/17

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L1715771-01Y	Vial HCl preserved	A	N/A	N/A	4.8	Y	Absent		ARCHIVE(0)
L1715771-01Z	Vial HCl preserved	A	N/A	N/A	4.8	Y	Absent		ARCHIVE(0)
L1715771-02A	Vial HCl preserved	A	N/A	N/A	4.8	Y	Absent		HOLD-8260(14)
L1715771-02B	Vial HCl preserved	A	N/A	N/A	4.8	Y	Absent		HOLD-8260(14)
L1715771-02C	Vial Na2S2O3 preserved	A	N/A	N/A	4.8	Y	Absent		HOLD-504/8011(14)
L1715771-02D	Vial Na2S2O3 preserved	A	N/A	N/A	4.8	Y	Absent		HOLD-504/8011(14)

*Values in parentheses indicate holding time in days

Project Name:	TARGET RGP	**Lab Number:**	L1715771
Project Number:	4198.01	**Report Date:**	07/13/17

GLOSSARY

Acronyms

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).
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.
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.
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.
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.
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.

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.

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'.

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.

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 Condensation Product".
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

Report Format: DU Report with 'J' Qualifiers

Project Name:	TARGET RGP	**Lab Number:**	L1715771
Project Number:	4198.01	**Report Date:**	07/13/17

Data Qualifiers

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.

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.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

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.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	TARGET RGP	**Lab Number:**	L1715771
Project Number:	4198.01	**Report Date:**	07/13/17

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

5 Methods for the Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A, Part 136, 40 CFR (Code of Federal Regulations).

14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

74 Method 1664,Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.

107 Alpha Analytical - In-house calculation method.

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: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
SM 2540D: TSS
EPA 3005A NPW
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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: 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**
EPA 332: Perchlorate; **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, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, 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 624: Volatile Halocarbons & Aromatics,
EPA 608: 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: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.**

Mansfield Facility:

Drinking Water
EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1** Hg.

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, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

Serial_No:07131716:39

CHAIN OF CUSTODY

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ALPHA ANALYTICAL — World Class Chemistry

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: 5/15/17

ALPHA Job #: L1715771

Client Information

Client: Sanborn Head
Address: 1 Technology Park Dr, Westford, MA 01886
Phone: 978-392-0900
Email: Kwalker@sanbornhead.com

Project Information

Project Name: Target RGP
Project Location: Cambridge, MA
Project #: 4198.01
Project Manager: Kent Walker
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due:

Report Information - Data Deliverables

☒ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #:

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 NPDES Criteria RGP

Additional Project Information:

* Do not analyze Ethanol

Analysis

Columns: VOC: ☒ 8260 ☐ 624 ☐ 524.2; SVOC: ☐ ABN ☐ PAH (8270); METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCRA8 ☐ PP13 — RGP Metals (Total); METALS: ☐ RCRA5 ☐ RCRA8 ☐ RCP 15 — RGP Metals (Dissolved); EPH: ☐ Ranges & Targets ☐ Ranges Only; VPH: ☐ Ranges & Targets ☐ Ranges Only; ☐ PEST ☒ PCB; TPH: ☐ Quant Only ☐ Fingerprint (1664); Total Phenol; TSS; Hex Cr, TRC, Cl; NH_3; TCN; SO_4

SAMPLE INFO — Filtration: ☒ Field ☐ Lab to do; Preservation: ☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	VOC	SVOC	METALS (Total)	METALS (Dissolved)	EPH	VPH	PEST/PCB	TPH 1664	Total Phenol	TSS	Hex Cr, TRC, Cl	NH_3	TCN	SO_4	Sample Comments	Total # Bottles
15771-01	SH-101	5/15/17	0810	GW	JWC	X	X	X	X			X	X	X	X	X	X	X	X	No Ethanol	18
Container Type						V	A	P	P			A	A	A	P	P	P	P	V		
Preservative						B	A	C	C			H	B	D	A	A	D	E	H		

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_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5/15/17 1545	[signature] AAC	5-15-17 15:45
[signature] AAC	5-15-17 1655	[signature]	5/15/17 1655

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

ANALYTICAL REPORT

Lab Number:	L1723630
Client:	Sanborn, Head & Associates, Inc. 1 Technology Park Drive Westford, MA 01886
ATTN:	Kent Walker
Phone:	(978) 577-1003
Project Name:	TARGET CAMBRIDGE
Project Number:	4198.01
Report Date:	07/14/17

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01

Lab Number: L1723630
Report Date: 07/14/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1723630-01	INSTREAM	WATER	CAMBRIDGE, MA	07/12/17 07:00	07/12/17

Project Name: TARGET CAMBRIDGE **Lab Number:** L1723630
Project Number: 4198.01 **Report Date:** 07/14/17

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. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated 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.

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 table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

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 Client Service Representative 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 Client Services at 800-624-9220 with any questions.

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01
Lab Number: L1723630
Report Date: 07/14/17

Case Narrative (continued)

Sample Receipt

The analyses performed were specified by the client.

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: Amita Naik

Title: Technical Director/Representative Date: 07/14/17

METALS

Project Name: TARGET CAMBRIDGE
Lab Number: L1723630
Project Number: 4198.01
Report Date: 07/14/17

SAMPLE RESULTS

Lab ID: L1723630-01
Client ID: INSTREAM
Sample Location: CAMBRIDGE, MA
Matrix: Water
Date Collected: 07/12/17 07:00
Date Received: 07/12/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	07/13/17 12:58	07/14/17 09:14	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00104		mg/l	0.00100	--	1	07/13/17 12:58	07/14/17 09:14	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	07/13/17 12:58	07/14/17 09:14	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	07/13/17 12:58	07/14/17 09:14	EPA 3005A	3,200.8	AM
Copper, Total	0.00424		mg/l	0.00100	--	1	07/13/17 12:58	07/14/17 09:14	EPA 3005A	3,200.8	AM
Iron, Total	0.696		mg/l	0.050	--	1	07/13/17 12:58	07/13/17 20:19	EPA 3005A	19,200.7	AB
Lead, Total	0.00297		mg/l	0.00050	--	1	07/13/17 12:58	07/14/17 09:14	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	07/13/17 11:39	07/13/17 16:30	EPA 245.1	3,245.1	EA
Nickel, Total	ND		mg/l	0.00200	--	1	07/13/17 12:58	07/14/17 09:14	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	07/13/17 12:58	07/14/17 09:14	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	07/13/17 12:58	07/14/17 09:14	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	07/13/17 12:58	07/14/17 09:14	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	122		mg/l	0.660	NA	1	07/12/17 13:10	07/12/17 22:41	EPA 3005A	19,200.7	AB

Project Name: TARGET CAMBRIDGE **Lab Number:** L1723630

Project Number: 4198.01 **Report Date:** 07/14/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1021817-1										
Iron, Total	ND		mg/l	0.050	--	1	07/12/17 13:10	07/12/17 21:41	19,200.7	AB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1021817-1										
Hardness	ND		mg/l	0.660	NA	1	07/12/17 13:10	07/12/17 21:41	19,200.7	AB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1022227-1										
Mercury, Total	ND		mg/l	0.0002	--	1	07/13/17 11:39	07/13/17 16:27	3,245.1	EA

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1022252-1										
Antimony, Total	ND		mg/l	0.00400	--	1	07/13/17 12:58	07/14/17 09:00	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	07/13/17 12:58	07/14/17 09:00	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	07/13/17 12:58	07/14/17 09:00	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	07/13/17 12:58	07/14/17 09:00	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	07/13/17 12:58	07/14/17 09:00	3,200.8	AM
Lead, Total	ND		mg/l	0.00050	--	1	07/13/17 12:58	07/14/17 09:00	3,200.8	AM

Project Name: TARGET CAMBRIDGE **Lab Number:** L1723630

Project Number: 4198.01 **Report Date:** 07/14/17

Method Blank Analysis
Batch Quality Control

Nickel, Total	ND	mg/l	0.00200	--	1	07/13/17 12:58	07/14/17 09:00	3,200.8	AM
Selenium, Total	ND	mg/l	0.00500	--	1	07/13/17 12:58	07/14/17 09:00	3,200.8	AM
Silver, Total	ND	mg/l	0.00040	--	1	07/13/17 12:58	07/14/17 09:00	3,200.8	AM
Zinc, Total	ND	mg/l	0.01000	--	1	07/13/17 12:58	07/14/17 09:00	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET CAMBRIDGE

Project Number: 4198.01

Lab Number: L1723630

Report Date: 07/14/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1021817-2								
Iron, Total	97		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1021817-2								
Hardness	105		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1022227-2								
Mercury, Total	98		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1022252-2								
Antimony, Total	99		-		85-115	-		
Arsenic, Total	96		-		85-115	-		
Cadmium, Total	107		-		85-115	-		
Chromium, Total	108		-		85-115	-		
Copper, Total	107		-		85-115	-		
Lead, Total	107		-		85-115	-		
Nickel, Total	107		-		85-115	-		
Selenium, Total	95		-		85-115	-		
Silver, Total	101		-		85-115	-		
Zinc, Total	101		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01

Lab Number: L1723630
Report Date: 07/14/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1021817-3 QC Sample: L1722878-01 Client ID: MS Sample												
Iron, Total	1.51	1	2.50	99		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1021817-3 QC Sample: L1722878-01 Client ID: MS Sample												
Hardness	381	66.2	434	80		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1021817-7 QC Sample: L1723304-01 Client ID: MS Sample												
Iron, Total	0.067	1	1.08	101		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1021817-7 QC Sample: L1723304-01 Client ID: MS Sample												
Hardness	1.69	66.2	70.1	103		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1022227-3 QC Sample: L1723630-01 Client ID: INSTREAM												
Mercury, Total	ND	0.005	0.0046	92		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1022252-3 QC Sample: L1723630-01 Client ID: INSTREAM												
Antimony, Total	ND	0.5	0.5897	118		-	-		70-130	-		20
Arsenic, Total	0.00104	0.12	0.1284	106		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05554	109		-	-		70-130	-		20
Chromium, Total	ND	0.2	0.2108	105		-	-		70-130	-		20
Copper, Total	0.00424	0.25	0.2762	109		-	-		70-130	-		20
Lead, Total	0.00297	0.51	0.5932	116		-	-		70-130	-		20
Nickel, Total	ND	0.5	0.5379	108		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1272	106		-	-		70-130	-		20
Silver, Total	ND	0.05	0.05069	101		-	-		70-130	-		20
Zinc, Total	ND	0.5	0.5208	104		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01

Lab Number: L1723630
Report Date: 07/14/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1022252-5 QC Sample: L1723800-01 Client ID: MS Sample									
Antimony, Total	ND	0.5	0.5592	112	-	-	70-130	-	20
Arsenic, Total	ND	0.12	0.1248	104	-	-	70-130	-	20
Cadmium, Total	ND	0.051	0.05429	106	-	-	70-130	-	20
Chromium, Total	ND	0.2	0.2101	105	-	-	70-130	-	20
Copper, Total	0.0043	0.25	0.2681	106	-	-	70-130	-	20
Lead, Total	ND	0.51	0.5866	115	-	-	70-130	-	20
Nickel, Total	ND	0.5	0.5248	105	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1224	102	-	-	70-130	-	20
Silver, Total	ND	0.05	0.05095	102	-	-	70-130	-	20
Zinc, Total	ND	0.5	0.5082	102	-	-	70-130	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01

Lab Number: L1723630
Report Date: 07/14/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1021817-8 QC Sample: L1723304-01 Client ID: DUP Sample						
Iron, Total	0.067	0.073	mg/l	8		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1022227-4 QC Sample: L1723630-01 Client ID: INSTREAM						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1022252-4 QC Sample: L1723630-01 Client ID: INSTREAM						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	0.00104	0.00113	mg/l	8		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	ND	ND	mg/l	NC		20
Copper, Total	0.00424	0.00452	mg/l	6		20
Lead, Total	0.00297	0.00297	mg/l	0		20
Nickel, Total	ND	ND	mg/l	NC		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1022252-6 QC Sample: L1723800-01 Client ID: DUP Sample						
Copper, Total	0.0043	0.00419	mg/l	3		20
Lead, Total	ND	ND	mg/l	NC		20

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01

Lab Number: L1723630
Report Date: 07/14/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1723630-01A	Plastic 250ml HNO3 preserved	A	<2	<2	5.1	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)

*Values in parentheses indicate holding time in days

Project Name:	TARGET CAMBRIDGE	**Lab Number:**	L1723630
Project Number:	4198.01	**Report Date:**	07/14/17

GLOSSARY

Acronyms

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).
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.
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.
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.
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.
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.

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.

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'.

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.

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 Condensation Product".
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

Report Format: Data Usability Report

Project Name:	TARGET CAMBRIDGE	**Lab Number:**	L1723630
Project Number:	4198.01	**Report Date:**	07/14/17

Data Qualifiers

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.

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.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

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.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name:	TARGET CAMBRIDGE	**Lab Number:**	L1723630
Project Number:	4198.01	**Report Date:**	07/14/17

REFERENCES

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

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: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
SM 2540D: TSS
EPA 3005A NPW
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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: 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**
EPA 332: Perchlorate; **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, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, 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 624: Volatile Halocarbons & Aromatics,
EPA 608: 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: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.**

Mansfield Facility:

Drinking Water
EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1** Hg.

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, Pb, Mn, Ni, Se, Ag, 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

ALPHA ANALYTICAL — World Class Chemistry
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: 7/12/17

ALPHA Job #: L1723630

Project Information

Project Name: Target Cambridge
Project Location: Cambridge, MA
Project #: 4198.01
Project Manager: Kent Walker
ALPHA Quote #:

Report Information - Data Deliverables

☒ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #:

Client Information

Client: Sanborn Head
Address: 1 Technology Park Dr, Westford, MA 01886
Phone: 978-577-1003
Email: kwalker@sanbornhead.com

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 ____

Turn-Around Time

☐ Standard ☒ RUSH (only confirmed if pre-approved!)

Date Due: 24-hr

Additional Project Information:

24-hr rush TAT → Ashaley Kane

ANALYSIS: VOC: ☐ 8260 ☐ 624 ☐ 524.2; SVOC: ☐ ABN ☐ PAH; METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15; METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13; EPH: ☐ Ranges & Targets ☐ Ranges Only; VPH: ☐ Ranges & Targets ☐ Ranges Only; ☐ PCB ☐ PEST; TPH: ☐ Quant Only ☐ Fingerprint; Hardness

SAMPLE INFO — Filtration: ☐ Field ☐ Lab to do; Preservation: ☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Hardness	Sample Comments	TOTAL # BOTTLES
23630.01	Instream	7/12/17	0700	SW	JWC	X		1
	Container Type					P		
	Preservative					C		

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_3, D= H_2SO_4, E= NaOH, F= MeOH, G= $NaHSO_4$, H = $Na_2S_2O_3$, I= Ascorbic Acid, J = NH_4Cl, K= Zn Acetate, O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/12/17 1000	[signature] AAL	7/12/17 10:00
[signature] AAL	7/12/17 11:40	[signature]	7/12/17 11:40

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

ANALYTICAL REPORT

Lab Number:	L1723871
Client:	Sanborn, Head & Associates, Inc. 1 Technology Park Drive Westford, MA 01886
ATTN:	Kent Walker
Phone:	(978) 577-1003
Project Name:	TARGET CAMBRIDGE
Project Number:	4198.01
Report Date:	07/14/17

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01

Lab Number: L1723871
Report Date: 07/14/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1723871-01	SH-101	WATER	CAMBRIDGE, MA	07/13/17 07:00	07/13/17
L1723871-02	INSTREAM-1	WATER	CAMBRIDGE, MA	07/13/17 07:40	07/13/17

Project Name: TARGET CAMBRIDGE **Lab Number:** L1723871
Project Number: 4198.01 **Report Date:** 07/14/17

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. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated 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.

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 table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

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 Client Service Representative 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 Client Services at 800-624-9220 with any questions.

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: 07/14/17

METALS

Project Name: TARGET CAMBRIDGE
Lab Number: L1723871
Project Number: 4198.01
Report Date: 07/14/17

SAMPLE RESULTS

Lab ID: L1723871-01
Client ID: SH-101
Sample Location: CAMBRIDGE, MA
Matrix: Water
Date Collected: 07/13/17 07:00
Date Received: 07/13/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	409		mg/l	0.660	NA	1	07/14/17 06:05	07/14/17 10:41	EPA 3005A	19,200.7	PS

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01
Lab Number: L1723871
Report Date: 07/14/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1022482-1										
Hardness	ND		mg/l	0.660	NA	1	07/14/17 06:05	07/14/17 10:07	19,200.7	PS

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET CAMBRIDGE

Project Number: 4198.01

Lab Number: L1723871

Report Date: 07/14/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1022482-2								
Hardness	104		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01

Lab Number: L1723871
Report Date: 07/14/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1022482-3 QC Sample: L1724041-01 Client ID: MS Sample												
Hardness	86.1	66.2	155	104		-	-		75-125	-		20

INORGANICS
&
MISCELLANEOUS

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01
Lab Number: L1723871
Report Date: 07/14/17

SAMPLE RESULTS

Lab ID: L1723871-01
Client ID: SH-101
Sample Location: CAMBRIDGE, MA
Matrix: Water
Date Collected: 07/13/17 07:00
Date Received: 07/13/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	7.2		SU	-	NA	1	-	07/13/17 17:08	121,4500H+-B	AS

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01
Lab Number: L1723871
Report Date: 07/14/17

SAMPLE RESULTS

Lab ID: L1723871-02
Client ID: INSTREAM-1
Sample Location: CAMBRIDGE, MA
Matrix: Water

Date Collected: 07/13/17 07:40
Date Received: 07/13/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	7.0		SU	-	NA	1	-	07/13/17 17:08	121,4500H+-B	AS
Nitrogen, Ammonia	0.178		mg/l	0.075	--	1	07/13/17 14:00	07/13/17 22:22	121,4500NH3-BH	AT

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01
Lab Number: L1723871
Report Date: 07/14/17

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): 02 Batch: WG1022222-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	07/13/17 14:00	07/13/17 22:15	121,4500NH3-BH	AT

Lab Control Sample Analysis

Batch Quality Control

Project Name: TARGET CAMBRIDGE

Project Number: 4198.01

Lab Number: L1723871

Report Date: 07/14/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02 Batch: WG1022222-2								
Nitrogen, Ammonia	101		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1022348-1								
pH	100		-		99-101	-		5

Matrix Spike Analysis
Batch Quality Control

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01

Lab Number: L1723871
Report Date: 07/14/17

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): 02 QC Batch ID: WG1022222-4 QC Sample: L1722920-06 Client ID: MS Sample												
Nitrogen, Ammonia	2.44	4	6.41	99		-	-		80-120	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01

Lab Number: L1723871
Report Date: 07/14/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02 QC Batch ID: WG1022222-3 QC Sample: L1722920-06 Client ID: DUP Sample						
Nitrogen, Ammonia	2.44	2.49	mg/l	2		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1022348-2 QC Sample: L1723871-01 Client ID: SH-101						
pH (H)	7.2	7.1	SU	1		5

Project Name: TARGET CAMBRIDGE
Project Number: 4198.01

Lab Number: L1723871
Report Date: 07/14/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1723871-01A	Plastic 250ml HNO3 preserved	A	<2	<2	4.7	Y	Absent		HARDU(180)
L1723871-01B	Plastic 250ml unpreserved	A	7	7	4.7	Y	Absent		PH-4500(.01)
L1723871-02A	Plastic 250ml unpreserved	A	7	7	4.7	Y	Absent		PH-4500(.01)
L1723871-02B	Plastic 500ml H2SO4 preserved	A	<2	<2	4.7	Y	Absent		NH3-4500(28)

*Values in parentheses indicate holding time in days

Project Name:	TARGET CAMBRIDGE	**Lab Number:**	L1723871
Project Number:	4198.01	**Report Date:**	07/14/17

GLOSSARY

Acronyms

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).
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.
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.
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.
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.
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.

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.

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'.

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.

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 Condensation Product".
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

Report Format: Data Usability Report

Project Name:	TARGET CAMBRIDGE	**Lab Number:**	L1723871
Project Number:	4198.01	**Report Date:**	07/14/17

Data Qualifiers

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.

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.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

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.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name:	TARGET CAMBRIDGE	**Lab Number:**	L1723871
Project Number:	4198.01	**Report Date:**	07/14/17

REFERENCES

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

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: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
SM 2540D: TSS
EPA 3005A NPW
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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: 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**
EPA 332: Perchlorate; **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, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, 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 624: Volatile Halocarbons & Aromatics,
EPA 608: 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: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.**

Mansfield Facility:

Drinking Water
EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1** Hg.

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, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

Serial_No:07141714:09

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL — World Class Chemistry

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: 7/13/17

ALPHA Job #: L1723871

Project Information

Project Name: Target Cambridge
Project Location: Cambridge MA
Project #: 4198.01
Project Manager: Kent Walker
ALPHA Quote #:

Report Information - Data Deliverables

☒ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #:

Client Information

Client: Sanborn Head & Associates
Address: 1 Technology Park Drive, Westford MA 01886
Phone: (978) 392-0900
Email: kwalker@sanbornhead.com

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 ____

Turn-Around Time

☐ Standard ☒ RUSH (only confirmed if pre-approved!)

Date Due: 24 hr TAT (confirmed w/ A. Kane)

Additional Project Information:

ANALYSIS

VOC: ☐ 8260 ☐ 624 ☐ 524.2; SVOC: ☐ ABN ☐ PAH; METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15; METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13; EPH: ☐ Ranges & Targets ☐ Ranges Only; VPH: ☐ Ranges & Targets ☐ Ranges Only; ☐ PCB ☐ PEST; TPH: ☐ Quant Only ☐ Fingerprint; NH3; Hardness; pH

SAMPLE INFO — Filtration: ☐ Field ☐ Lab to do; Preservation: ☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	NH3	Hardness	pH	Sample Comments	TOTAL # BOTTLES
23871-01	SH-101	7/13/17	0700	GW	CES		X	X		2
02	Instream-1	↓	0740	SW	↓	X		X		2
Container Type						P	P	P		
Preservative						D	C	A		

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_3, D= H_2SO_4, E= NaOH, F= MeOH, G= $NaHSO_4$, H = $Na_2S_2O_3$, I= Ascorbic Acid, J = NH_4Cl, K= Zn Acetate, O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/13/17 10:10	[signature]	7/13/17 1010
[signature]	7/13/17 1040	[signature]	7/13/17 10:40

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

APPENDIX F

DILUTION FACTOR CALCULATIONS AND SUPPORTING INFORMATION

Massachusetts Category 5 Waters
"Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE	EPA TMDL NO.
Charles River	MA72-38	Boston University Bridge, Boston/Cambridge to the New Charles River Dam, Boston (formerly part of segment MA72-08).	3.092	MILES	(Other flow regime alterations*)	
					Chlorophyll-a	33826
					Combined Biota/Habitat Bioassessments	
					DDT	
					Dissolved oxygen saturation	
					Escherichia coli	
					Excess Algal Growth	33826
					Nutrient/Eutrophication Biological Indicators	33826
					Oil and Grease	
					Oxygen, Dissolved	
					PCB in Fish Tissue	
					Phosphorus (Total)	33826
					Salinity	
					Secchi disk transparency	33826
					Sediment Screening Value (Exceedence)	
					Taste and Odor	33826
					Temperature, water	
Fuller Brook	MA72-18	Headwater south of Route 135, Needham to confluence with Waban Brook, Wellesley.	4.282	MILES	(Physical substrate habitat alterations*)	
					Escherichia coli	32374
					Nutrient/Eutrophication Biological Indicators	40317
					Sedimentation/Siltation	
Jamaica Pond	MA72052	Boston	66.734	ACRES	Oxygen, Dissolved	
					Phosphorus (Total)	
Kendrick Street Pond	MA72055	Needham	39.264	ACRES	Turbidity	
Lake Winthrop	MA72140	Holliston	131.341	ACRES	(Non-Native Aquatic Plants*)	
					2,3,7,8-Tetrachlorodibenzo-p-dioxin (only)	
					Aquatic Plants (Macrophytes)	40319
Mill River	MA72-15	Headwaters, outlet Bush Pond, Norfolk to confluence with the Charles River, Norfolk.	3.47	MILES	Temperature, water	
Mine Brook	MA72-14	Headwaters in Franklin State Forest, Franklin to the confluence with the Charles River, Franklin (through Mine Brook Pond, formerly segment MA72077).	8.942	MILES	(Habitat Assessment (Streams)*)	
					Temperature, water	

Project Target Cambridge
Location Cambridge, Massachusetts
Subject Dilution Factor Calculations
Calculated By D. DeWolfe Date 07/12/2017
Checked By C. Sobchuck Date 07/12/2017

P:\4100s\4198.01\Source Files\RGP NOI Application\App C - Stream Calcs\01 - 20170712 Dilution Factor.docx

PURPOSE:
To calculate the dilution factor (DF) for metal concentrations in a potential discharge from on-site construction dewatering activities.

METHOD:

$$DF = (Qd + Qs)/Qd$$

Where: DF = Dilution Factor
Qd = Design flow rate of the discharge in million gallons per day (MGD)
Qs = Receiving water 7Q10 flow (MGD) where 7Q10 is the minimum flow for 7 consecutive days with a recurrence interval of 10 years

GIVEN:
1.0 gpd = 0.000001 MGD
1.0 cfs = 0.64632 MGD
Qd = 72,000 gpd = 0.072 MGD
Qs = 24.7 cfs = 15.96 MGD of flow into the Charles River [Reference 1]

CALCULATION:

$$DF = (0.072 \text{ MGD} + 15.96 \text{ MGD}) / 0.072 \text{ MGD}$$

DF = 222.7

RESULTS:

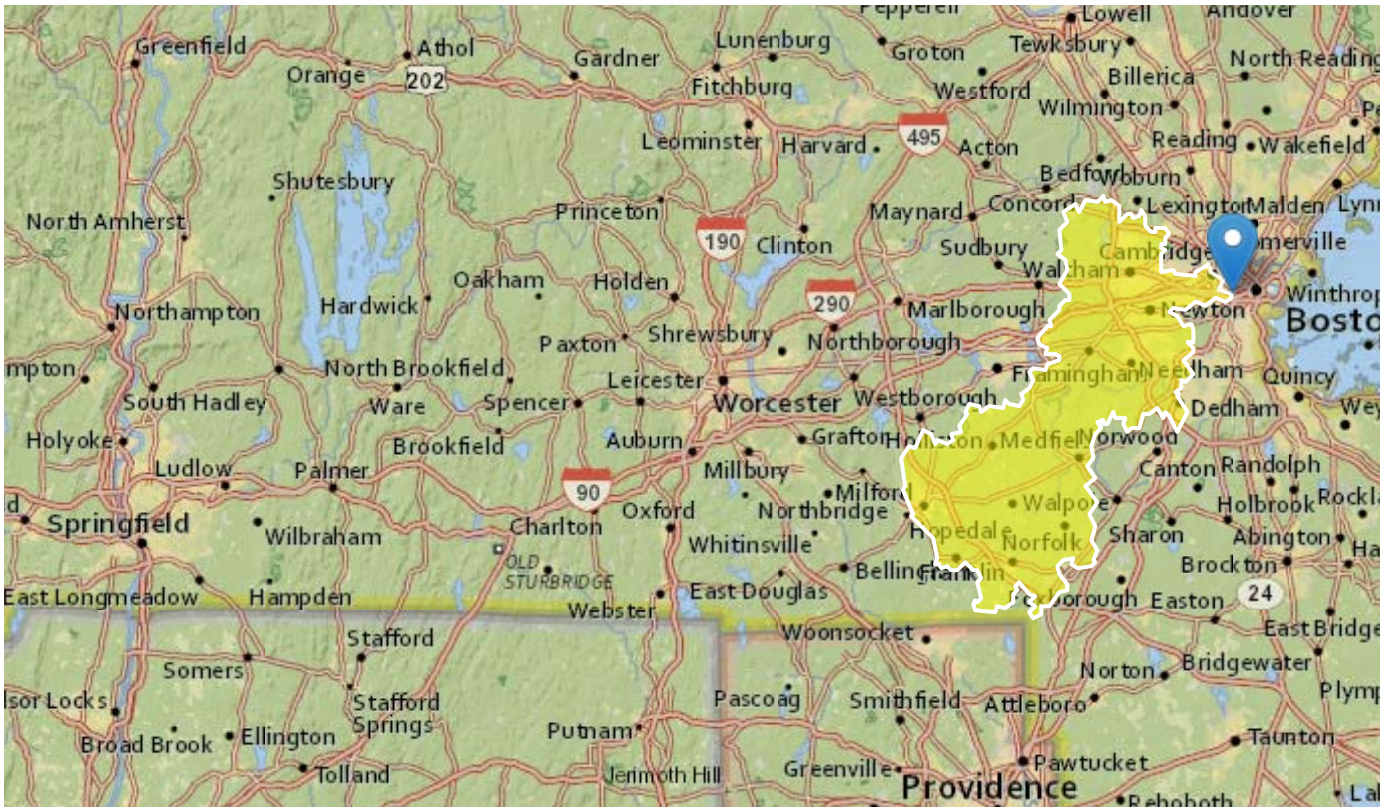
The resulting dilution factor to be used when discharging to the Charles River is 222.7.

REFERENCES:

[1] StreamStats Report. Accessed online: http://streamstatsags.cr.usgs.gov/streamstats/ (Refer to Attachment A)

StreamStats Report

Region ID:
MA
Workspace ID:
MA20170712162616928000
Clicked Point (Latitude, Longitude):
42.35372, -71.09515
Time:
2017-07-12 16:27:04 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	283	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	2.326	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.23	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless
PCTSNDGRV	Percentage of land surface underlain by sand and gravel deposits	47.9	percent

Parameter Code	Parameter Description	Value	Unit
FOREST	Percentage of area covered by forest	42.01	percent

Low-Flow Statistics Parameters [100 Percent (283 square miles) Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	283	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	2.326	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.23	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Disclaimers [100 Percent (283 square miles) Statewide Low Flow WRIR00 4135]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [100 Percent (283 square miles) Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit
7 Day 2 Year Low Flow	49.6	ft^3/s
7 Day 10 Year Low Flow	24.7	ft^3/s

Low-Flow Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

Probability Statistics Parameters [100 Percent (283 square miles) Perennial Flow Probability]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	283	square miles	0.01	1.99
PCTSNDGRV	Percent Underlain By Sand And Gravel	47.9	percent	0	100

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
FOREST	Percent Forest	42.01	percent	0	100
MAREGION	Massachusetts Region	0	dimensionless	0	1

Probability Statistics Disclaimers [100 Percent (283 square miles) Perennial Flow Probability]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Probability Statistics Flow Report [100 Percent (283 square miles) Perennial Flow Probability]

Statistic	Value	Unit
Probability Stream Flowing Perennially	1	dim

Probability Statistics Citations

Bent, G.C., and Steeves, P.A.,2006, A revised logistic regression equation and an automated procedure for mapping the probability of a stream flowing perennially in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2006–5031, 107 p. (http://pubs.usgs.gov/sir/2006/5031/pdfs/SIR_2006-5031rev.pdf)

From: Vakalopoulos, Catherine (DEP)
To: Danielle M. DeWolfe
Cc: Ruan, Xiaodan (DEP)
Subject: Re: Cambridge, MA RGP
Date: Friday, July 14, 2017 10:34:01 AM

Hi Danielle,
Ok, I can confirm that the 7Q10 of 15.96 MGD (Charles River near Mass Ave Bridge) and using a design flow of 0.072 MGD, the dilution factor is 222.7 for this project located at 564 Mass Ave. in Cambridge are correct. You can attach this email to the NOI or write in today's date on the NOI where you have to check off that you have consulted with MassDEP. This will make it easier for Shauna Little when she is reviewing the NOI. Since the Charles River is not listed as an Outstanding Resource Water, you are all set from MassDEP.
Cathy

From: Danielle M. DeWolfe <DDewolfe@sanbornhead.com>
Sent: Friday, July 14, 2017 9:40 AM
To: Vakalopoulos, Catherine (DEP)
Subject: RE: Cambridge, MA RGP

Hi Cathy,
Thanks. You are correct, the design flow is supposed to be 720,000 gpd.
Thanks again,
Danielle

--

Danielle DeWolfe
Project Engineer

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1 Technology Park Drive, Westford, MA 01886
T 978.392.0900 D 978.577.1016 C 508.333.8695
www.sanbornhead.com

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From: Vakalopoulos, Catherine (DEP) [mailto:Catherine.Vakalopoulos@MassMail.State.MA.US]
Sent: Thursday, July 13, 2017 6:05 PM
To: Danielle M. DeWolfe <DDewolfe@sanbornhead.com>
Subject: FW: Cambridge, MA RGP

Hi Danielle,
I can confirm that your 7Q10 of 15.96 MGD at this location on the Charles River near the Mass Ave. bridge is correct. However, I noticed a units issue in your design flow: 72,000 gpm is very high, are you sure it's not supposed to be gpd? The conversion you listed from gpd to MGD also makes me think perhaps the 72,000 gpm design flow is supposed to be gpd.
Please let me know which units to use and I will check your dilution factor calculation.
Thanks,
Cathy

Cathy Vakalopoulos, Massachusetts Department of Environmental Protection
1 Winter St., Boston, MA 02108, 617-348-4026
Please consider the environment before printing this e-mail

From: Danielle M. DeWolfe [mailto:DDewolfe@sanbornhead.com]
Sent: Wednesday, July 12, 2017 5:21 PM
To: Vakalopoulos, Catherine (DEP)
Subject: Cambridge, MA RGP

Good evening Cathy,

I am requesting information to be included as part of a Notice of Intent (NOI) for a Remediation General Report (RGP). The NOI is for construction dewatering during minor excavation activities at 564 Massachusetts Avenue in Cambridge, Massachusetts. Effluent will be discharged to the Charles River in Cambridge, Massachusetts, via a drain and outfall. The approximate lat/long of the outfall is 42.35372, -71.09515.

As part of the application to the USEPA for the RGP, Appendix V instructs that "the State must be contacted to confirm the critical low flow (7Q10) of the receiving water, dilution factor (DF), other appropriate hydrologic conditions, or to confirm site-specific limiting factors, including additional water quality-based effluent limitations (WQBELs)."

I have run the StreamStats application for this outfall location and I have attached the report. I have also attached calculations for the dilution factor, and came up with a DF of 222.7, using an anticipated discharge of 72,000 gpd (or 0.072 MGD).

Thank you in advance for your assistance, and please let me know if you require further information.

-Danielle

--

Danielle DeWolfe
Project Engineer

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Enter number values in green boxes below

Enter values in the units specified

↓

15.96	Q_R = Enter upstream flow in **MGD**
0.072	Q_P = Enter discharge flow in **MGD**
15.96	Downstream 7Q10

Enter a dilution factor, if other than zero

↓

222.7

Enter values in the units specified

↓

409	C_d = Enter influent hardness in **mg/L** $CaCO_3$
122	C_s = Enter receiving water hardness in **mg/L** $CaCO_3$

Enter **receiving water** concentrations in the units specified

↓

7	pH in **Standard Units**
23.4	Temperature in **°C**
0.178	Ammonia in **mg/L**
122	Hardness in **mg/L** $CaCO_3$
0	Salinity in **ppt**
0	Antimony in **µg/L**
1.04	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
4.24	Copper in **µg/L**
696	Iron in **µg/L**
2.97	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
0	Zinc in **µg/L**

Enter **influent** concentrations in the units specified

↓

0	TRC in **µg/L**
0.062	Ammonia in **mg/L**
0.92	Antimony in **µg/L**
2.49	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
2.73	Copper in **µg/L**
281	Iron in **µg/L**
3.41	Lead in **µg/L**
0	Mercury in **µg/L**
0.86	Nickel in **µg/L**
3.78	Selenium in **µg/L**
0	Silver in **µg/L**
0	Zinc in **µg/L**
5	Cyanide in **µg/L**
0	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
0	Tetrachloroethylene in **µg/L**
1.4	Total Phthalates in **µg/L**
1.4	Diethylhexylphthalate in **µg/L**
0.09	Benzo(a)anthracene in **µg/L**
0.09	Benzo(a)pyrene in **µg/L**
0.12	Benzo(b)fluoranthene in **µg/L**
0.05	Benzo(k)fluoranthene in **µg/L**
0.08	Chrysene in **µg/L**
0	Dibenzo(a,h)anthracene in **µg/L**
0.07	Indeno(1,2,3-cd)pyrene in **µg/L**
0	Methyl-tert butyl ether in **µg/L**

I. Dilution Factor Calculation Method

A. 7Q10

Refer to Appendix V for determining critical low flow; must be approved by State before use in calculations.

B. Dilution Factor

Calculated as follows:

$$Df = \frac{Q_R + Q_P}{Q_P}$$

Q_R = 7Q10 in MGD

Q_P = Discharge flow, in MGD

II. Effluent Limitation Calculation Method

A. Calculate Water Quality Criterion:

Step 1. Downstream hardness, calculated as follows:

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_r}$$

C_r = Downstream hardness in mg/L

Q_d = Discharge flow in MGD

C_d = Discharge hardness in mg/L

Q_s = Upstream flow (7Q10) in MGD

C_s = Upstream (receiving water) hardness in mg/L

Q_r = Downstream receiving water flow in MGD

Step 2. Total recoverable water quality criteria for hardness-dependent metals, calculated as follows:

Total Recoverable Criteria = $\exp\{m_c [\ln(h)] + b_c\}$

m_c = Pollutant-specific coefficient (m_a for silver)

b_c = Pollutant-specific coefficient (b_a for silver)

ln = Natural logarithm

h = Hardness calculated in Step 1

Step 3. Total recoverable water quality criteria for non-hardness-dependent metals, calculated as follows:

$$\text{WQC in µg/L} = \frac{\text{dissolved WQC in µg/L}}{\text{dissolved to total recoverable factor}}$$

B. Calculate WQBEL:

Step 1. WQBEL calculated as follows for parameter sampled in and detected in the receiving water:

$$C_d = \frac{Q_r C_r - Q_s C_s}{Q_d}$$

C_r = Water quality criterion in µg/L

Q_d = Discharge flow in MGD

C_d = WQBEL in µg/L

Q_s = Upstream flow (7Q10) in MGD

C_s = Ustream (receiving water) concentration in µg/L

Q_r = Downstream receiving water flow in MGD

Step 2. WQBEL calculated as follows for parameter not sampled in or not detected in receiving water:

$$C_d = (Q_r/Q_d) \times C_r$$

C_r = Water quality criterion in µg/L

Q_d = Discharge flow in MGD

Q_r = Downstream receiving water flow in MGD

C. Determine if a WQBEL applies:

Step 1. For parameter sampled in and detected in receiving water, downstream concentrations calculated as fo

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_r}$$

C_r = Downstream concentration in µg/L

Q_d = Discharge flow in MGD

C_d = Influent concentration in µg/L

Q_s = Upstream flow (7Q10) in MGD

C_s = Upstream (receiving water) concentration in µg/L

Q_r = Downstream receiving water flow in MGD

The WQBEL applies if:

1) the projected downstream concentration calculated in accordance with St
and the discharge concentration of a parameter are greater than the WQC ca
that parameter in accordance with II.A, above

AND

2) the WQBEL determined for that parameter in accordance with II.B, abov
the TBEL in Part 2.1.1 of the RGP for that parameter. Otherwise, the TBEL

of the RGP for that parameter applies.

Step 2. For a parameter not sampled in or not detected in receiving water, the WQBEL applies if:

1) the discharge concentration of a parameter is greater than the WQBEL de
that parameter in accordance with II.A or II.B, above;

AND

2) the WQBEL determined for that parameter in accordance with II.A or II.
less than the TBEL in Part 2.1.1 of the RGP for that parameter. Otherwise, t

Part 2.1.1 of the RGP for that parameter applies.

Dilution Factor	222.7					
A. Inorganics	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	**0.2**	mg/L	2438	µg/L	---	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	141867	µg/L		
Arsenic	**104**	µg/L	1986	µg/L		
Cadmium	**10.2**	µg/L	0.3171	µg/L		
Chromium III	**323**	µg/L	22760.0	µg/L		
Chromium VI	**323**	µg/L	2534.7	µg/L		
Copper	**242**	µg/L	1542.7	µg/L		
Iron	**5000**	µg/L	67387	µg/L		
Lead	**160**	µg/L	267.58	µg/L		
Mercury	**0.739**	µg/L	200.80	µg/L		
Nickel	**1450**	µg/L	13856.0	µg/L		
Selenium	**235.8**	µg/L	1108.3	µg/L		
Silver	**35.1**	µg/L	1211.9	µg/L		
Zinc	**420**	µg/L	31835.6	µg/L		
Cyanide	**178**	mg/L	1152.7	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7970**	µg/L	---			
Phenol	**1,080**	µg/L	66500	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**	µg/L	354.7	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
Methylene Chloride	**4.6**	µg/L	---			
1,1,1 Trichloroethane	**200**	µg/L	---			
1,1,2 Trichloroethane	**5.0**	µg/L	---			
Trichloroethylene	**5.0**	µg/L	---			
Tetrachloroethylene	**5.0**	µg/L	731.5	µg/L		
cis-1,2 Dichloroethylene	**70**	µg/L	---			
Vinyl Chloride	**2.0**	µg/L	---			
D. Non-Halogenated SVOCs						
Total Phthalates	**190**	µg/L	---	µg/L		
Diethylhexyl phthalate	**101**	µg/L	487.7	µg/L		

Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	**1.0**	µg/L	0.8423	µg/L	---	µg/L
Benzo(a)pyrene	**1.0**	µg/L	0.8423	µg/L	---	µg/L
Benzo(b)fluoranthene	**1.0**	µg/L	0.8423	µg/L	---	µg/L
Benzo(k)fluoranthene	**1.0**	µg/L	0.8423	µg/L	---	µg/L
Chrysene	**1.0**	µg/L	0.8423	µg/L	---	µg/L
Dibenzo(a,h)anthracene	**1.0**	µg/L	0.8423	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	**1.0**	µg/L	0.8423	µg/L	---	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---			
Naphthalene	**20**	µg/L	---			
E. Halogenated SVOCs						
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---		0.5	µg/L
Pentachlorophenol	**1.0**	µg/L	---			
F. Fuels Parameters						
Total Petroleum Hydrocarbons	**5.0**	mg/L	---			
Ethanol	**Report**	mg/L	---			
Methyl-tert-Butyl Ether	**70**	µg/L	4433	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			