W. L. FRENCH EXCAVATING CORPORATION
COMMERCIAL SITE DEVELOPMENT • CONTRACT TRUCKING • ENVIRONMENTAL MANAGEMENT

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

December 18, 2018
File No. 3175.12

Re: Notice of Intent for the Remediation General Permit
Temporary Construction Dewatering for Site Redevelopment
Assembly Row- Block 5B
301 Canal Street, Somerville, Massachusetts

Dear Sir/Madam:

On behalf of Street Retail, Inc., W.L. French Excavating Corporation (WLF) has submitted this Notice of Intent (NOI) to the U.S. Environmental Protection Agency (U.S. EPA) for coverage under the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) MAG910000 for the Assembly Row Block 5B property located at 301 Canal Street in Somerville, Massachusetts (the Site). This letter and supporting documentation were prepared in accordance with the U.S. EPA guidance for construction dewatering under the RGP program. WLF is the earthwork contractor for the project and will have direct responsibility of the subcontractors performing the dewatering activities at the Site. Subcontractors working for WLF on the project will be required to meet the requirements of this NOI and the RGP. The location of the Site and the discharge location via a storm drain outfall are shown on Figure 1 and the extent of the Site area is shown on Figure 2.

The Site is located at 301 Canal Street in the eastern portion of Somerville, Massachusetts, in the Assembly Square area south of the Mystic River as shown on Figure 1. Redevelopment activities at the Site include construction of a multi-story mixed use building, and installation of new utility systems. These activities will require temporary construction dewatering. The Site consists of portions of two former properties that were known as 74 Foley Street and 133 Middlesex Avenue. A subdivision plan was recorded on December 28, 2011 (Plan 880 of 2011), which created several parcels. Block 5B of the Assembly Row project is identified as Parcel 31 based on the subdivision plan and has been given the address of 301 Canal Street. Block 5B is a portion of Massachusetts Contingency Plan (MCP) sites associated with Release Tracking Numbers (RTNs) 3-0649 and 3-14763, as shown on Figure 2. In addition, the preliminary disposal site boundary for RTN 3-35311 which was identified during pre-characterization sampling on Block 5B in September 2018, is also shown on Figure 2. The temporary construction dewatering will discharge via a 72-inch storm drain outfall which was installed as part of the Assembly Row development. The 72-inch storm drain outfall discharges to the Mystic River below the Amelia Earhart DAM (Figure 2).

The earthwork to prepare the Site for redevelopment will require excavation of soil to approximately 5 to 20 feet below ground surface (bgs) depending on the location. Groundwater is anticipated to be encountered between 8 and 12 feet bgs. The support of excavation for proposed utility excavations will be trench boxes or slide rail systems. For deeper excavations including elevator pits and the building core, the excavations will be supported by steel sheeting. Groundwater that flows into the excavations during construction activities will be treated prior to discharge to an existing storm drain such that the discharged effluent meets the effluent limitations established by NPDES Part 2.1 and Appendix V of the RGP Application. Figure 3 includes a schematic of the proposed dewatering treatment system. The completed NOI for the Remediation General Permit form is included as Appendix A.

The receiving waterbody for the treatment system will be the Mystic River below the Amelia Earhart Dam. Information regarding the receiving water was collected from the Massachusetts Year 2014 Integrated List of Waters which is included in Appendix B. Dilution calculation information including correspondence with DEP is included in Appendix C. Analytical laboratory data for on-Site and surface water sampling is summarized in Tables 1 and 2, respectively, and analytical data reports are included in Appendix D. Prior to discharge, WLF will obtain the necessary City of Somerville permits, including but not limited to dewatering and discharge permits, if applicable. The approximate locations of drainage structures and infrastructure proposed to convey the discharge to the outfall along the Mystic River are highlighted on plans included in Appendix E.

According to the Information for Planning and Conservation (IPaC), the excavation activities will not impact Areas of Critical Environmental Concern (ACEC) or Habitats of Rare Wetland Wildlife. A review of the information on the U.S. Fish and Wildlife Service website led to the conclusion that the discharge will not impact federally-listed threatened or endangered species. A letter from that agency is included in Appendix F. An email requesting information regarding Oceanic Fisheries was sent to the National Oceanic and Atmospheric Administration (NOAA), and their response, included in Appendix F, states that no listed species are known to occur in the Mystic River in the area of discharge. Additional supplemental information required by the RGP is included in Appendix G and is referenced within the completed NOI (Appendix A).

Thank you for your consideration of this NOI/Permit. Please feel free to contact us if you wish to discuss the information contained in this application, or if any additional information is needed.

Very truly yours,

W.L. FRENCH EXCAVATING CORPORATION

J. Gary Morrissey
Senior Project Manager

Encl. Table 1 – Summary of Groundwater Quality Data
Table 2 – Summary of Surface Water Quality
Figure 1 – Locus Plan
Figure 2 – Site Plan with Target Discharge Point
Figure 3 – Proposed Groundwater Treatment Schematic
Appendix A – Notice of Intent Form
Appendix B – Massachusetts Category 5 Waters "Waters requiring a TMDL"
Appendix C – Mystic River Dilution Calculations
Appendix D – Analytical Data Reports
Appendix E – Maps of Relevant Infrastructure
Appendix F – Federal Correspondence
Appendix G – National Register of Historic Places, Somerville, Massachusetts

cc: City of Somerville Board of Health
DEP Bureau of Water Resources
Mr. Brad Dutton ~ Street Retail, Inc.

File – Job #C18-016

TABLES

Table 1
Summary of Groundwater Quality Data
Assembly Row, Block 5B
Somerville, MA

LOCATION	Units	B5B-SH-1W	B5B-SH-11W	Maximum	Average
SAMPLING DATE		9/20/2018 & 9/24/2018	9/20/2018	Detection	Detection
Anions by Ion Chromatography					
Chloride	ug/l	**383,000**	**205,000**	383,000	294,000
Sulfate	ug/l	**11,900**	**119,000**	119,000	65,450
Dissolved Metals					
Antimony, Dissolved	ug/l	<4	<4	BDL	BDL
Arsenic, Dissolved	ug/l	**1.1**	**4.2**	4.20	2.65
Cadmium, Dissolved	ug/l	<0.2	<0.2	BDL	BDL
Chromium, Dissolved	ug/l	**1.8**	<1	1.8	1.15
Copper, Dissolved	ug/l	<1	<1	BDL	BDL
Iron, Dissolved	ug/l	**12,000**	**11,100**	12,000	11,550
Lead, Dissolved	ug/l	<1	<1	BDL	BDL
Mercury, Dissolved	ug/l	<0.2	<0.2	BDL	BDL
Nickel, Dissolved	ug/l	<2	**4.20**	4.2	2.6
Selenium, Dissolved	ug/l	<5	<5	BDL	BDL
Silver, Dissolved	ug/l	<0.4	<0.4	BDL	BDL
Zinc, Dissolved	ug/l	**16.2**	<10	16.2	10.6
General Chemistry					
Chromium, Trivalent	ug/l	**26**	<10	26	15.5
Solids, Total Suspended	ug/l	**1,100,000**	**3,200,000**	3,200,000	2,150,000
Cyanide, Total	ug/l	<5	<5	BDL	BDL
Chlorine, Total Residual	ug/l	<20	<20	BDL	BDL
pH (H)	SU	**6.9**	**6.8**	6.9	6.85
Nitrogen, Ammonia	ug/l	**1,150**	**570**	1,150	860
TPH, SGT-HEM	ug/l	<4000	<4000	BDL	BDL
Phenolics, Total	ug/l	<30	<30	BDL	BDL
Chromium, Hexavalent	ug/l	<10	<10	BDL	BDL
Microextractables by GC					
1,2-Dibromoethane	ug/l	<0.011	<0.01	BDL	BDL
Polychlorinated Biphenyls by GC					
Aroclor 1016	ug/l	<0.25	<0.25	BDL	BDL
Aroclor 1221	ug/l	<0.25	<0.25	BDL	BDL
Aroclor 1232	ug/l	<0.25	<0.25	BDL	BDL
Aroclor 1242	ug/l	<0.25	<0.25	BDL	BDL
Aroclor 1248	ug/l	<0.25	<0.25	BDL	BDL
Aroclor 1254	ug/l	<0.25	<0.25	BDL	BDL
Aroclor 1260	ug/l	<0.2	<0.2	BDL	BDL
Semivolatile Organics by GC/MS					
Bis(2-ethylhexyl)phthalate	ug/l	<2.2	<2.2	BDL	BDL
Butyl benzyl phthalate	ug/l	<5	<5	BDL	BDL
Di-n-butylphthalate	ug/l	<5	<5	BDL	BDL
Di-n-octylphthalate	ug/l	<5	<5	BDL	BDL
Diethyl phthalate	ug/l	<5	<5	BDL	BDL
Dimethyl phthalate	ug/l	<5	<5	BDL	BDL
Semivolatile Organics by GC/MS-SIM					
Acenaphthene	ug/l	<0.1	<0.1	BDL	BDL
Fluoranthene	ug/l	**0.22**	<0.1	0.22	0.14
Naphthalene	ug/l	<0.1	<0.1	BDL	BDL
Benzo(a)anthracene	ug/l	**0.11**	<0.1	0.11	0.08
Benzo(a)pyrene	ug/l	**0.12**	<0.1	0.12	0.09
Benzo(b)fluoranthene	ug/l	**0.16**	<0.1	0.16	0.11
Benzo(k)fluoranthene	ug/l	<0.1	<0.1	BDL	BDL
Chrysene	ug/l	**0.11**	<0.1	0.11	0.08
Acenaphthylene	ug/l	<0.1	<0.1	BDL	BDL
Anthracene	ug/l	<0.1	<0.1	BDL	BDL
Benzo(ghi)perylene	ug/l	<0.1	<0.1	BDL	BDL
Fluorene	ug/l	<0.1	<0.1	BDL	BDL
Phenanthrene	ug/l	**0.16**	<0.1	0.16	0.11
Dibenzo(a,h)anthracene	ug/l	<0.1	<0.1	BDL	BDL
Indeno(1,2,3-cd)pyrene	ug/l	<0.1	<0.1	BDL	BDL
Pyrene	ug/l	**0.20**	<0.1	0.20	0.13
Pentachlorophenol	ug/l	<1	<0.96	BDL	BDL

Table 1
Summary of Groundwater Quality Data
Assembly Row, Block 5B
Somerville, MA

LOCATION	Units	B5B-SH-1W	B5B-SH-11W	Maximum	Average
SAMPLING DATE		9/20/2018 & 9/24/2018	9/20/2018	Detection	Detection
Total Hardness by SM 2340B					
Hardness	ug/l	**299,000**	**230,000**	299,000	264,500
Total Metals					
Antimony, Total	ug/l	<4	<4	BDL	BDL
Arsenic, Total	ug/l	**7.51**	**4.24**	7.51	5.88
Cadmium, Total	ug/l	**0.24**	<0.2	0.24	0.17
Chromium, Total	ug/l	**26.73**	<1	26.73	13.62
Copper, Total	ug/l	**80.80**	<1	80.80	40.43
Iron, Total	ug/l	**24,000**	**11,700**	24,000	17,850
Lead, Total	ug/l	**68.52**	<1	68.52	34.51
Mercury, Total	ug/l	<0.2	<0.2	BDL	BDL
Nickel, Total	ug/l	**14.53**	**3.14**	14.53	8.84
Selenium, Total	ug/l	<5	<5	BDL	BDL
Silver, Total	ug/l	<0.4	<0.4	BDL	BDL
Zinc, Total	ug/l	126.70	<10	126.70	65.85
Volatile Organics by GC/MS					
Methylene chloride	ug/l	<1	<1	BDL	BDL
1,1-Dichloroethane	ug/l	<1.5	<1.5	BDL	BDL
Carbon tetrachloride	ug/l	<1	<1	BDL	BDL
1,1,2-Trichloroethane	ug/l	<1.5	<1.5	BDL	BDL
Tetrachloroethene	ug/l	<1	<1	BDL	BDL
1,2-Dichloroethane	ug/l	<1.5	<1.5	BDL	BDL
1,1,1-Trichloroethane	ug/l	<2	<2	BDL	BDL
Benzene	ug/l	<1	<1	BDL	BDL
Toluene	ug/l	<1	<1	BDL	BDL
Ethylbenzene	ug/l	<1	<1	BDL	BDL
Vinyl chloride	ug/l	<1	<1	BDL	BDL
1,1-Dichloroethene	ug/l	<1	<1	BDL	BDL
cis-1,2-Dichloroethene	ug/l	<1	<1	BDL	BDL
Trichloroethene	ug/l	<1	<1	BDL	BDL
1,2-Dichlorobenzene	ug/l	<5	<5	BDL	BDL
1,3-Dichlorobenzene	ug/l	<5	<5	BDL	BDL
1,4-Dichlorobenzene	ug/l	<5	<5	BDL	BDL
p/m-Xylene	ug/l	<2	<2	BDL	BDL
o-xylene	ug/l	<1	<1	BDL	BDL
Xylenes, Total	ug/l	<1	<1	BDL	BDL
Acetone	ug/l	<10	<10	BDL	BDL
Methyl tert butyl ether	ug/l	<10	<10	BDL	BDL
Tert-Butyl Alcohol	ug/l	<100	<100	BDL	BDL
Tertiary-Amyl Methyl Ether	ug/l	<20	<20	BDL	BDL
Volatile Organics by GC/MS-SIM					
1,4-Dioxane	ug/l	<50	<50	BDL	BDL

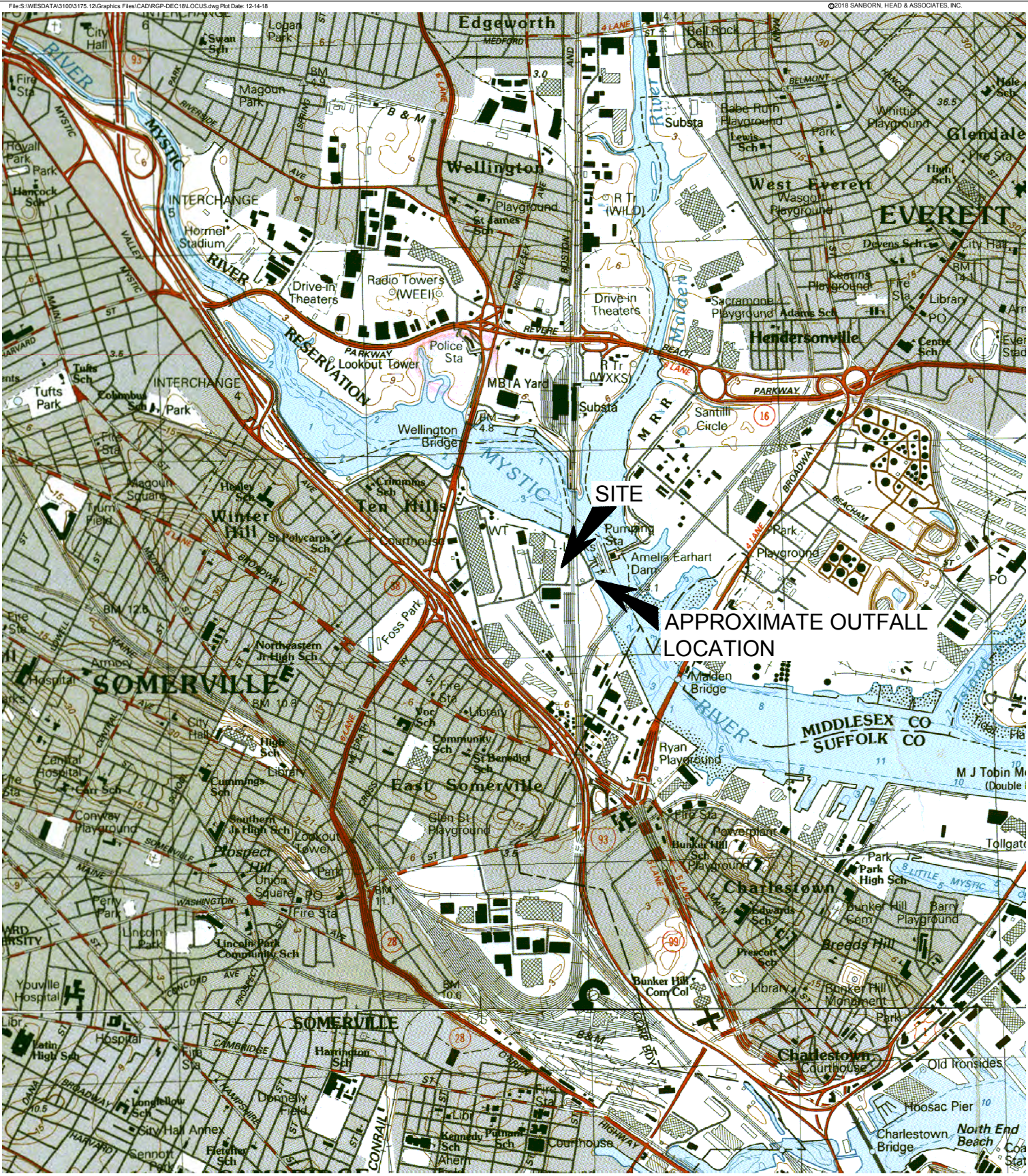
Notes.
1. The samples were collected on by Sanborn, Head & Associates, Inc. on the indicated date and analyzed by Alpha Analytical Laboratories, Inc. of Westborough, MA.
2. Sampling for volatile organic compounds at B5B-SH-1W was performed on September 24, 2018; remainder of samples collected on September 20, 2018 by Sanborn Head.
3. Average concentrations for each analyte were calculated as an average of detected concentrations where half of the detection limit was used where analytes were not detected.
4. Bolded values indicate detections of that analyte above laboratory reporting limits. Bolded and shaded values indicate a detection about RCGW-2 limits.
5. Abbreviations:
">" indicates the analyte was not dectected above the laboratory reporting limit shown
BDL = below detection limit
ug/l = micrograms per liter
mg/l = milligrams per liter

Table 2
Summary of Surface Water Quality
Assembly Row, Block 5B
Somerville, MA

LOCATION	Units	MYSTIC RIVER, SOMERVILLE, MA
SAMPLING DATE		**8/16/2018**
SAMPLE TYPE		**Surface Water**
WATER BODY		**Mystic River**
SAMPLE LOCATION (LAT, LONG)		**42.393624 N, 71.07566 W**
General Chemistry		
SALINITY	SU	25
pH (H)	SU	7.6
Nitrogen, Ammonia	mg/l	0.217
Total Metals		
Antimony, Total	mg/l	<0.004
Arsenic, Total	mg/l	0.00151
Cadmium, Total	mg/l	<0.0002
Chromium, Total	mg/l	<0.001
Copper, Total	mg/l	0.00133
Iron, Total	mg/l	0.155
Lead, Total	mg/l	<0.01
Mercury, Total	mg/l	<0.0002
Nickel, Total	mg/l	<0.002
Selenium, Total	mg/l	<0.005
Silver, Total	mg/l	<0.0004
Zinc, Total	mg/l	<0.01

Notes:
1. The sample was collected by Sanborn, Head & Associates, Inc. on the date indicated and analyzed by Alpha Analytical Laboratories, Inc. of Westborough, Massachuestts.
2. Abbreviations
mg/l = milligrams per liter
"<" indicates the analyte was not detected above the laboratory reporting limit shown

FIGURES



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NOTES:
Base map taken from "Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs"
7.5 minute USGS Quadrangle Maps: Boston North, MA,Revised 1985

Drawn By: C. Murphy
Designed By: D. DeWolfe
Reviewed By: K. Walker
Project No: 3175.12
Date: December 2018

SCALE: 1:25,000

SANBORN HEAD

FIGURE 1

Locus Plan

Notice of Intent for Remediation General Permit

Assembly Row Block 5B
Somerville, Massachusetts

72-INCH DRAIN OUTLET

DRAW SEVEN PARK
RTN 3-3908

APPROXIMATE LOCATION OF EXISTING MUNICIPAL DRAINAGE STRUCTURES/PIPES

MYSTIC RIVER

FORMER
130 FOLEY STREET
RTN 3-29665

RTN
3-4082

RTN
3-11886

RTN 3-19164

RTN 3-19163

FORMER
100 FOLEY STREET
RTN 3-0434

RTN 3-18995

RTN 3-28311

RTN 3-28785
3-28993

RTN 3-28781

RTN 3-25033
3-3937

B5B-SH-1W

FORMER 74 FOLEY STREET
RTN 3-0649

APPROXIMATE LOCATION OF
PROPOSED TREATMENT SYSTEM
AND STORM DRAIN CATCH BASIN

APPROXIMATE LOCATION OF INITIAL
DISCHARGE IN MUNICIPAL STORM
DRAIN

ASSEMBLY SQUARE DRIVE
(RIGHT-OF-WAY - CITY OF SOMERVILLE)

RTN 3-28753

133 MIDDLESEX AVENUE
RTN 3-14763

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Figure No. 2

Site Plan with Target Discharge Point

Notice of Intent for Remediation General Permit

Assembly Row Block 5B
Somerville, Massachusetts

Drawn By: C. Murphy
Designed By: D. DeWolfe
Reviewed By: K. Walker
Project No: 3175.12
Date: December 2018

Figure Narrative

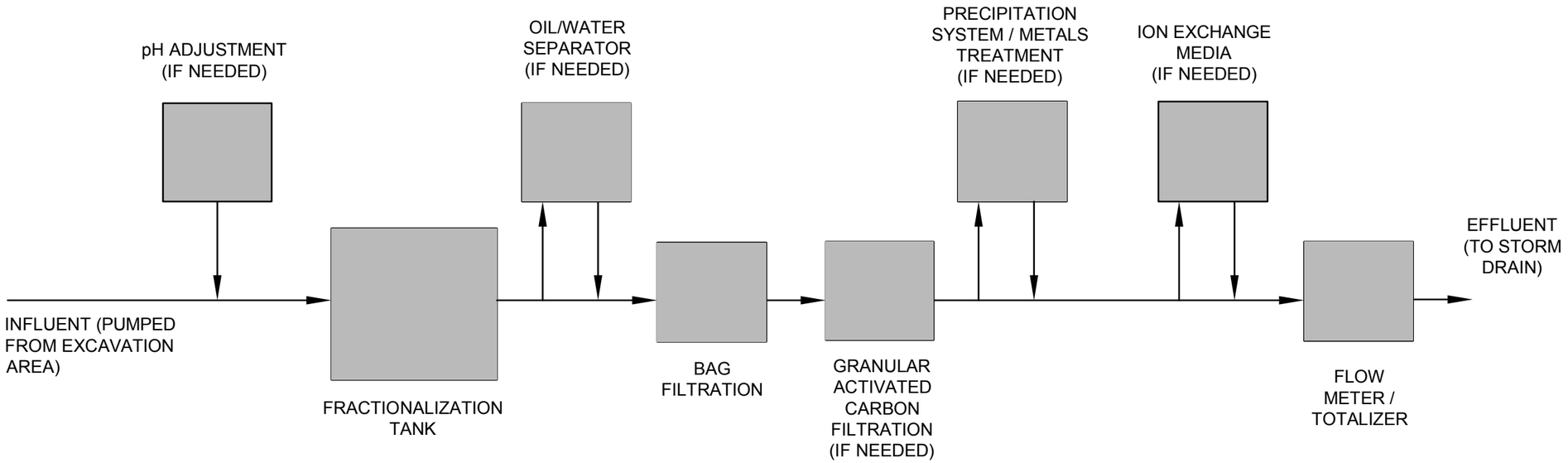
The base map was drawn from a plan entitled, "Existing Conditions Plan, Super Stop & Shop, Somerville, Massachusetts", prepared by Vanasse, Hangen & Brustlin, Inc (VHB) of Watertown, MA, dated February 3, 1995, with an original scale of 1" = 40'.

Legend

- Approximate Block 5B boundary and limits of proposed excavation and dewatering activities
- Approximate preliminary disposal site boundary for RTN 3-35311
- Current property line
- MCP RTN boundary areas
- B5B-SH-11W — Approximate location and designation of pre-characterization monitoring well observed by Sanborn Head in August 2018

80 40 0 80 160 Feet

SANBORN HEAD



NOTES:
1. SYSTEM ASSUMES A MAXIMUM FLOW OF 100 GALLONS PER MINUTE (GPM).
2. SAMPLING PORTS TO BE LOCATED ON ALL TREATMENT SYSTEM COMPONENTS.

NOT TO SCALE

Figure No. 3

Proposed Groundwater Treatment Schematic

Notice of Intent for
Remediation General Permit

Assembly Row Block 5B
Somerville, Massachusetts

Drawn By: C.Green
Designed By: D. DeWolfe
Reviewed By: K.Walker
Project No: 3175.12
Date: December 2018

Figure Narrative

Details of Treatment System may vary from the system indicated on left. Specific means and methods of treatment are to be selected by the subcontractor. Water discharged at the effluent point shall meet required effluent standards as specified in Appendix III and IV of the RGP.

SANBORN HEAD

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APPENDIX A

NOTICE OF INTENT 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:
Assembly Row - Block 5B</td><td colspan="3">Site address: 360
Street: Foley Street</td></tr>
<tr><td>City: Somerville</td><td>State: MA</td><td>Zip: 02145</td></tr>
<tr><td rowspan="4">2. Site owner
Street Retail, Inc.

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Brad Dutton</td></tr>
<tr><td colspan="2">Telephone: (617) 684-1510</td><td>Email: bdutton@federalrealty.com</td></tr>
<tr><td colspan="3">Mailing address: Federal Realty Investment Trust, 450 Artisan Way, Suite 320
Street:</td></tr>
<tr><td>City: Somerville</td><td>State: MA</td><td>Zip: 02145</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
W.L. French Excavating Corp.</td><td colspan="3">Contact Person: Gary Morrissey</td></tr>
<tr><td colspan="2">Telephone: 978-808-0674</td><td>Email: gmorrissey@wlfrench.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 3 Survey Circle</td></tr>
<tr><td>City: N. Billerica</td><td>State: MA</td><td>Zip: 01862</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:
NA

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):
3-0649, 3-14763, 3-35311
☐ 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):
Mystic River	MA71-03	SB(CSO)

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 See Figure 1

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 B

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.	1.89 MGD See Appendix C
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.	1

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: August 30, 2018

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 See Table 1 and Appendix D

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: Chloride, sulfate, arsenic, cadmium, total chromium, copper, iron, lead, nickel, zinc, trivalent chromium, TSS, nitrogen ammonia, , fluoranthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, phenanthrene, pyrene and hardness	
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 Somerville 72-inch drain outlet to Mystic River (MA71-03)	Outfall location(s): (Latitude, Longitude) 42.3935, -71.0756
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 directly into the Mystic River at the approximate Lat/Long specified. ☐ 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: Prior to discharge, the operator will obtain the necessary City of Somerville permits 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:12/2018 End:10/2019 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 See Figure 2	

<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		✔	2	4500NH3-	75	1150	0.86	Report mg/L	---
Chloride		✔	2	300.0	25000	383000	294000	Report µg/l	---
Total Residual Chlorine	✔		2	4500CL-D	20	ND	ND	0.2 mg/L	7.5
Total Suspended Solids		✔	2	2540D	25000	3200000	2150000	30 mg/L	--
Antimony	✔		2	200.8	4	ND	ND	206 µg/L	
Arsenic		✔	2	200.8	1	7.51	5.88	104 µg/L	
Cadmium		✔	2	200.8	0.2	0.24	0.17	10.2 µg/L	
Chromium III		✔	2	200.8	10	26	15.5	323 µg/L	
Chromium VI	✔		2	7196A	10	ND	ND	323 µg/L	
Copper		✔	2	200.8	1	80.80	40.43	242 µg/L	3.7
Iron		✔	2	200.7	50	24000	17850	5,000 µg/L	
Lead		✔	2	200.8	1	68.52	34.51	160 µg/L	8.5
Mercury	✔		2	245.1	0.2	ND	ND	0.739 µg/L	
Nickel		✔	2	200.8	2	14.53	8.84	1,450 µg/L	8.3
Selenium	✔		2	200.8	5	ND	ND	235.8 µg/L	
Silver	✔		2	200.8	0.4	ND	ND	35.1 µg/L	
Zinc		✔	2	200.8	10	126.70	65.85	420 µg/L	86
Cyanide	✔		2	4500CN-C	5	ND	ND	178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX	✔		2	624.1	1	ND	ND	100 µg/L	---
Benzene	✔		2	624.1	1	ND	ND	5.0 µg/L	---
1,4 Dioxane	✔		2	624.1-SIM	50	ND	ND	200 µg/L	---
Acetone	✔		2	624.1	10	ND	ND	7.97 mg/L	---
Phenol	✔		2	420.1	30	ND	ND	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	✔		2	624.1	1	ND	ND	4.4 µg/L	
1,2 Dichlorobenzene	✔		2	624.1	5	ND	ND	600 µg/L	---
1,3 Dichlorobenzene	✔		2	624.1	5	ND	ND	320 µg/L	---
1,4 Dichlorobenzene	✔		2	624.1	5	ND	ND	5.0 µg/L	---
Total dichlorobenzene	✔		2	624.1	5	ND	ND	763 µg/L in NH	---
1,1 Dichloroethane	✔		2	624.1	1.5	ND	ND	70 µg/L	---
1,2 Dichloroethane	✔		2	624.1	1.5	ND	ND	5.0 µg/L	---
1,1 Dichloroethylene	✔		2	624.1	1	ND	ND	3.2 µg/L	---
Ethylene Dibromide	✔		2	504.1	0.01	ND	ND	0.05 µg/L	---
Methylene Chloride	✔		2	624.1	1	ND	ND	4.6 µg/L	---
1,1,1 Trichloroethane	✔		2	624.1	2	ND	ND	200 µg/L	---
1,1,2 Trichloroethane	✔		2	624.1	1.5	ND	ND	5.0 µg/L	---
Trichloroethylene	✔		2	624.1	1	ND	ND	5.0 µg/L	---
Tetrachloroethylene	✔		2	624.1	1	ND	ND	5.0 µg/L	
cis-1,2 Dichloroethylene	✔		2	1624.1	1	ND	ND	70 µg/L	---
Vinyl Chloride	✔		2	624.1	1	ND	ND	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✔		2	625.1	5	ND	ND	190 µg/L	
Diethylhexyl phthalate	✔		2	625.1	2.2	ND	ND	101 µg/L	
Total Group I PAHs		✔	2	625.1	0.1	0.5	0.35	1.0 µg/L	---
Benzo(a)anthracene		✔	2	625.1	0.1	0.11	0.08	As Total PAHs	0.0038
Benzo(a)pyrene		✔	2	625.1	0.1	0.12	0.09		0.0038
Benzo(b)fluoranthene		✔	2	625.1	0.1	0.16	0.11		0.0038
Benzo(k)fluoranthene	✔		2	625.1	0.1	ND	ND		
Chrysene		✔	2	625.1	0.1	0.11	0.08		0.0038
Dibenzo(a,h)anthracene	✔		2	625.1	0.1	ND	ND		
Indeno(1,2,3-cd)pyrene	✔		2	625.1	0.1	ND	ND		

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		✔	2	625.1	0.1	0.58	0.37	100 µg/L	---
Naphthalene	✔		2	625.1	0.1	ND	ND	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		2	608.3	0.25	ND	ND	0.000064 µg/L	---
Pentachlorophenol	✔		2	625.1	1	ND	ND	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔		2	1664A	4000	ND	ND	5.0 mg/L	---
Ethanol	✔							Report mg/L	---
Methyl-tert-Butyl Ether	✔		2	624.1	10	ND	ND	70 µg/L	
tert-Butyl Alcohol	✔		2	624.1	100	ND	ND	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		2	624.1	20	ND	ND	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:									
pH		✔	2	4500H+-B	--	6.9	6.85		
Hardness		✔	2	200.7	660	299000	264500		

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 of the treatment system will be a fractionalization tank where solids will settle out. The effluent will then pass through the following as necessary: a bag filter, a granular activated carbon vessel, and a cation resin vessel. The effluent will be discharged to an existing catch basin on-site which discharges to the existing storm drain system.

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: If needed, cation resin vessel and/or carbon vessels

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: Fractionation tank Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	100
Provide the proposed maximum effluent flow in gpm.	100
Provide the average effluent flow in gpm.	50
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 See Figure 3

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. See Appendix F

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
See Appendix G

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.

Appendix B includes the Massachusetts Category 5 Waters "Waters requiring a TMDL" and lists pollutants for the Mystic River
Appendix C includes calculations for the dilution factor
Appendix D includes the analytical data collected by Sanborn, Head & Associates, Inc.
Appendix E includes maps of relevant infrastructure
Appendix F includes correspondence from the National Oceanic and Atmospheric Administration and the US Fish and Wildlife Service
Appendix G includes a list of Historic Places in Somerville, Massachusetts.
Appendix H includes supplemental influent and effluent data collected from the discharge to date

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.	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: 12/18/18
Print Name and Title: J. GARY MURRISSEY SENIOR PROJECT MANAGER	

APPENDIX B

MASSACHUSETTS CATEGORY 5 WATERS
"WATERS REQUIRING A TMDL"

APPENDIX B

Massachusetts Category 5 Waters
"Waters requiring a TMDL"

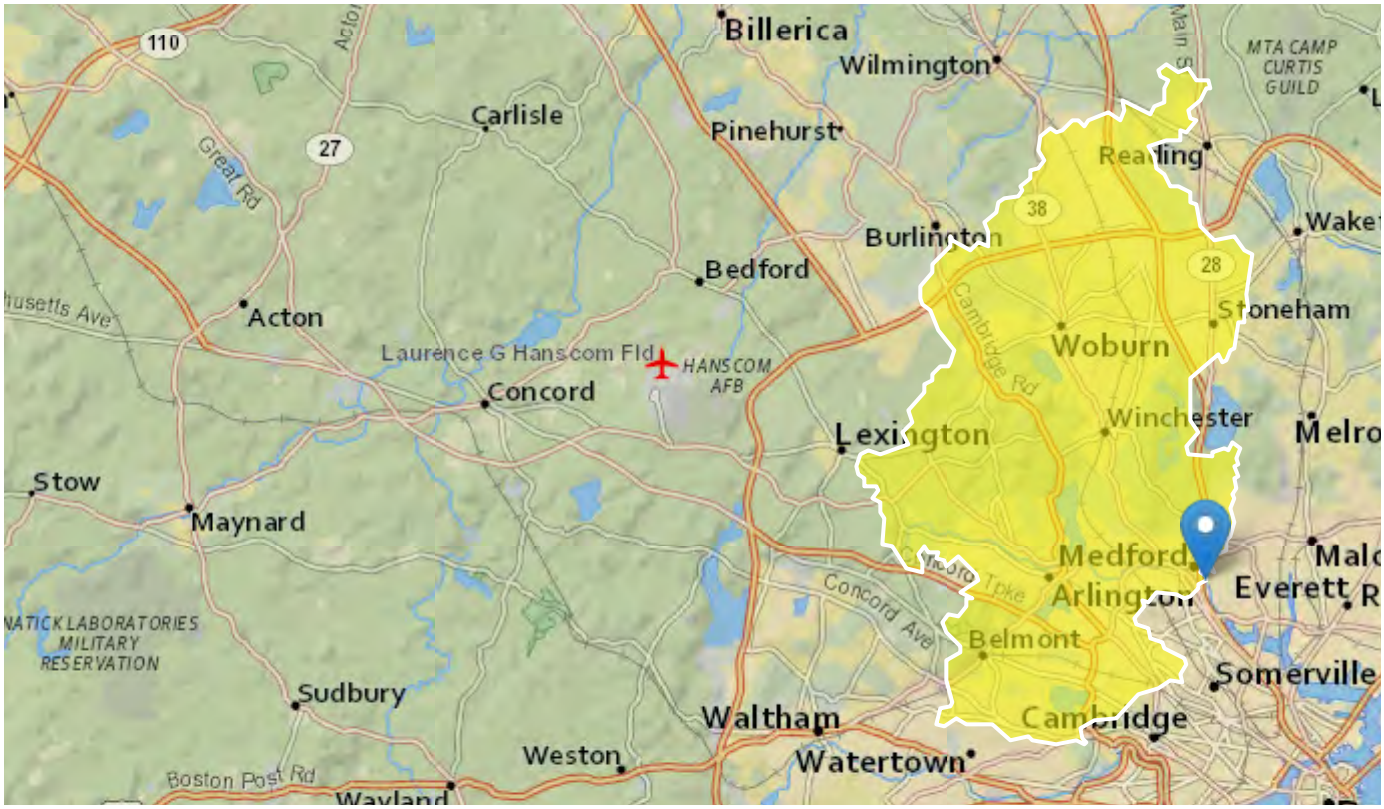
NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE	EPA TMDL NO.
Mystic River	MA71-03	Amelia Earhart Dam, Somerville/Everett to confluence with Boston Inner Harbor, Chelsea/Charlestown (Includes Island End River).	0.49	SQUARE MILES	Ammonia (Un-ionized)	
					Fecal Coliform	
					Foam/Flocs/Scum/Oil Slicks	
					Other	
					Oxygen, Dissolved	
					PCB in Fish Tissue	
					Petroleum Hydrocarbons	
					Sediment Screening Value (Exceedence)	
					Taste and Odor	
Spy Pond	MA71040	Arlington	98	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					Chlordane	
					DDT	
					Excess Algal Growth	
					Oxygen, Dissolved	
					Phosphorus (Total)	
Unnamed Tributary	MA71-13	Unnamed tributary locally known as 'Meetinghouse Brook', from emergence south of Route 16/east of Winthrop Street, Medford to confluence with the Mystic River, Medford. (brook not apparent on 1985 Boston North USGS quad - 2005 orthophotos used todelineate stream)	0.1	MILES	Escherichia coli	
Upper Mystic Lake	MA71043	Winchester/Arlington/Medford	176	ACRES	(Non-Native Aquatic Plants*)	
					Dissolved oxygen saturation	
					Oxygen, Dissolved	
Wedge Pond	MA71045	Winchester	23	ACRES	Oxygen, Dissolved	
					Phosphorus (Total)	
Winn Brook	MA71-09	Headwaters near Juniper Road and the Belmont Hill School, Belmont to confluence with Little Pond, Belmont (portions culverted underground).	1.4	MILES	(Physical substrate habitat alterations*)	
					Escherichia coli	
Winter Pond	MA71047	Winchester	18	ACRES	(Non-Native Aquatic Plants*)	
					Nutrient/Eutrophication Biological Indicators	
Boston Harbor: Neponset						
Beaver Brook	MA73-19	Headwaters near Moose Hill Street, Sharon through Sawmill Pond to confluence with Massapoag Brook, Sharon.	3.5	MILES	Aquatic Macroinvertebrate Bioassessments	
					Oxygen, Dissolved	
Beaver Meadow Brook	MA73-20	Outlet of Glenn Echo Pond, Stoughton, to the inlet of Bolivar Pond, Canton.	3.3	MILES	Oxygen, Dissolved	

APPENDIX C

MYSTIC RIVER DILUTION CALCULATIONS

StreamStats Report

Region ID: MA
Workspace ID: MA20180829184632495000
Clicked Point (Latitude, Longitude): 42.41457, -71.10287
Time: 2018-08-29 14:46:47 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	48.2	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	2.429	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.26	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters [Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	48.2	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	2.429	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.26	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Flow Report [Statewide Low Flow WRIR00 4135]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SE	SEp
7 Day 2 Year Low Flow	7.31	ft^3/s	2.2	23.4	49.5	49.5
7 Day 10 Year Low Flow	3.52	ft^3/s	0.867	13.3	70.8	70.8

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/)

Application Version: 4.2.1

Americo Santamaria

To: Vakalopoulos, Catherine (DEP)
Subject: RE: Somerville, MA RGP

From: Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@state.ma.us>
Sent: Thursday, August 30, 2018 10:54 AM
To: Americo Santamaria <asantamaria@sanbornhead.com>
Subject: RE: Somerville, MA RGP

Hi Americo,
You are correct. The discharge is just downstream of the Amelia Earhart dam on the Mystic River. We consider it marine water with no dilution (DF = 1). To help you with the NOI, this part of the Mystic has a waterbody identification (segment ID) of MA71-03, is classified as Class SB(CSO), and is not an Outstanding Resource Water. The impairments are listed here: https://www.mass.gov/files/documents/2016/08/sa/14list2_0.pdf (just do a search for MA71-03) and there are no TMDLs for this segment. There is a draft pathogen TMDL for Boston Harbor, including Mystic, which hasn't been finalized yet.

Also, if this site is not *currently* covered under the Massachusetts Contingency Plan, in addition to submitting the NOI to EPA, you will have to submit it me at MassDEP, along with a transmittal form and $500 fee (unless fee exempt, e.g. municipalities). The instructions are located here: https://www.mass.gov/how-to/wm-15-npdes-general-permit-notice-of-intent.

Please let me know if you have any additional questions.

Cathy

Cathy Vakalopoulos, Massachusetts Department of Environmental Protection
1 Winter St., Boston, MA 02108, 617-348-4026

From: Americo Santamaria [mailto:asantamaria@sanbornhead.com]
Sent: Wednesday, August 29, 2018 4:17 PM
To: Vakalopoulos, Catherine (DEP)
Subject: Somerville, MA RGP

Good afternoon, Catherine.

I would like to confirm the following 7Q10 value for a RGP project located in Somerville, MA. Using StremStats, I was forced to select a delineation point outside of the "ExlcudePolys" area indicated by a black grid hatch. I chose the nearest point upstream within the Mystic River. I believe the hatch indicates an area of transition between the Mystic River and Boston Harbor, likely influenced by tidal effects. We are treating this area as a saltwater receiving water.

Site Address: 185 Foley Street, Somerville, MA
Type of Discharge: Via drain to outlet in the Mystic River with approximate discharge lat/long indicated below.

Approximate Discharge Lat/Long
Lat: 42.393485 Long: -71.075629
Approximate Basin Delineation Point Selected:
Lat: 42.41457 Long: -71.10287
Design Discharge Flow: 50 gpm = 0.072 MGD < 1MGD
Upstream Streamstats generated 7Q10: 3.52 cfs = 1.89 MGD
Dilution Factor: DF=0 (We are not requesting a dilution factor)

Please let me know if you require any further information, and either confirm these assumptions or provide guidance to a different approach.

Thank you.

-Americo

--
Americo J. Santamaria
Senior Project Engineer

SANBORN | HEAD & ASSOCIATES, INC.

1 Technology Park Drive, Westford, MA 01886
T 978.392.0900 D 978.577. 1040
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Enter number values in green boxes below

Enter values in the units specified

↓

0	Q_R = Enter upstream flow in **MGD**	Freshwater: critical low flow equal to the 7Q10; enter alternate low flow if approved by the State
0.072	Q_P = Enter discharge flow in **MGD**	Saltwater (estuarine and marine): enter critical low flow if approved by the State; enter 0 if no entry
0	Downstream 7Q10	Discharge flow is equal to the design flow or 1 MGD, whichever is less
		Optional entry for Q_r; leave 0 if no entry

Enter a dilution factor, if other than zero

↓

0		Saltwater (estuarine and marine): only if approved by the State
		Leave 0 if no entry

Enter values in the units specified

↓

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

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

↓

7.6	pH in **Standard Units**	pH, temperature, and ammonia required for all discharges
16.5	Temperature in **°C**	Hardness required for freshwater
0.217	Ammonia in **mg/L**	Salinity required for saltwater (estuarine and marine)
0	Hardness in **mg/L** $CaCO_3$	Metals required for all discharges if present and if dilution factor is > 1
25	Salinity in **ppt**	Enter 0 if non-detect or testing not required
0	Antimony in **µg/L**	
1.51	Arsenic in **µg/L**	
0	Cadmium in **µg/L**	
0	Chromium III in **µg/L**	
0	Chromium VI in **µg/L**	
1.33	Copper in **µg/L**	
155	Iron in **µg/L**	
0	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**	if >1 sample, enter maximum
1.15	Ammonia in **mg/L**	if >10 samples, may enter 95th percentile
0	Antimony in **µg/L**	Enter 0 if non-detect or testing not required
7.51	Arsenic in **µg/L**	
0.24	Cadmium in **µg/L**	
26	Chromium III in **µg/L**	
0	Chromium VI in **µg/L**	
80.8	Copper in **µg/L**	
24000	Iron in **µg/L**	
68.52	Lead in **µg/L**	
0	Mercury in **µg/L**	
14.53	Nickel in **µg/L**	
0	Selenium in **µg/L**	
0	Silver in **µg/L**	
126.7	Zinc in **µg/L**	
0	Cyanide in **µg/L**	
0	Phenol in **µg/L**	
0	Carbon Tetrachloride in **µg/L**	
0	Tetrachloroethylene in **µg/L**	
0	Total Phthalates in **µg/L**	
0	Diethylhexylphthalate in **µg/L**	
0.11	Benzo(a)anthracene in **µg/L**	
0.12	Benzo(a)pyrene in **µg/L**	
0.16	Benzo(b)fluoranthene in **µg/L**	
0	Benzo(k)fluoranthene in **µg/L**	
0.11	Chrysene in **µg/L**	
0	Dibenzo(a,h)anthracene in **µg/L**	
0	Indeno(1,2,3-cd)pyrene in **µg/L**	
0	Methyl-tert butyl ether in **µg/L**	

I. Dilution Factor Calculation Method

A. 7Q10

No flow assumed at critical low flow for saltwater unless otherwise approved by the State

B. Dilution Factor

No dilution assumed for saltwater, unless otherwise approved by the State

II. Effluent Limitation Calculation Method

A. Calculate Water Quality Criterion:

Step 1. Not applicable to saltwater

Step 2. Not applicable to saltwater

Step 3. Total recoverable water quality criteria for dissolved metals, calculated as follows:

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

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 follows:

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

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 Step 1, above, and the discharge concentration of a parameter is greater than the WQC calculated for that parameter in accordance with II.A, above

AND

2) the WQBEL determined for that parameter in accordance with II.B, above, is less than the TBEL in Part 2.1.1 of the RGP for that parameter. Otherwise, the TBEL in Part 2.1.1 of the RGP for that parameter applies.

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

1) the discharge concentration of a parameter is greater than the WQBEL determined for 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.B, above is less than the TBEL in Part 2.1.1 of the RGP for that parameter. Otherwise, the TBEL in Part 2.1.1 of the RGP for that parameter applies.

Dilution Factor	1.0					
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	**7.5**	µg/L	50	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	640	µg/L		
Arsenic	**104**	µg/L	36	µg/L		
Cadmium	**10.2**	µg/L	8.9	µg/L		
Chromium III	**323**	µg/L	100.0	µg/L		
Chromium VI	**323**	µg/L	50	µg/L		
Copper	242	µg/L	**3.7**	µg/L		
Iron	**5000**	µg/L	---	µg/L		
Lead	160	µg/L	**8.5**	µg/L		
Mercury	**0.739**	µg/L	1.11	µg/L		
Nickel	1450	µg/L	**8.3**	µg/L		
Selenium	**235.8**	µg/L	71	µg/L		
Silver	**35.1**	µg/L	2.2	µg/L		
Zinc	420	µg/L	**86**	µg/L		
Cyanide	**178**	mg/L	1.0	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	**7.97**	mg/L	---			
Phenol	**1,080**	µg/L	300	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**		1.6	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	3.3	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	2.2	µg/L		
Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Benzo(a)pyrene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Benzo(b)fluoranthene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Benzo(k)fluoranthene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Chrysene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Dibenzo(a,h)anthracene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	**1.0**	µg/L	0.0038	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	20	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

APPENDIX D

ANALYTICAL DATA REPORTS

ANALYTICAL REPORT

Lab Number:	L1832288
Client:	Sanborn, Head & Associates, Inc. 1 Technology Park Drive Westford, MA 01886
ATTN:	Kent Walker
Phone:	(978) 577-1003
Project Name:	FOLEY BLOCK 8
Project Number:	3175.10
Report Date:	08/27/18

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: FOLEY BLOCK 8
Project Number: 3175.10

Analytical laboratory report amended to remove those samples not relevant to the Assembly Row Block 5B NPDES Remediation General Permit.

Lab Number: L1832288
Report Date: 08/27/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
~~L1832288-01~~	~~NPDES RGP-1~~	~~WATER~~	~~SOMERVILLE, MA~~	~~08/16/18 12:40~~	~~08/16/18~~
~~L1832288-02~~	~~NPDES RGP-2~~	~~WATER~~	~~SOMERVILLE, MA~~	~~08/16/18 15:00~~	~~08/16/18~~
L1832288-03	MYSTIC RIVER, SOMERVILLE, MA	WATER	SOMERVILLE, MA	08/16/18 06:05	08/16/18
L1832288-04	TRIP BLANK	WATER	SOMERVILLE, MA	08/16/18 00:00	08/16/18

Project Name: FOLEY BLOCK 8 **Lab Number:** L1832288
Project Number: 3175.10 **Report Date:** 08/27/18

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: FOLEY BLOCK 8 **Lab Number:** L1832288
Project Number: 3175.10 **Report Date:** 08/27/18

Case Narrative (continued)

Report Submission
August 27, 2018: This final report includes the results of all requested analyses.
August 27, 2018: This is a preliminary report.

The analysis of Ethanol was subcontracted. A copy of the laboratory report is included as an addendum.
Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt
L1832288-04: A sample identified as "TRIP BLANK" was received but not listed on the Chain of Custody. This sample was not analyzed.

Volatile Organics
The WG1148915-3 LCS recovery, associated with L1832288-01 and -02, is above the acceptance criteria for vinyl acetate (142%); however, the associated samples are non-detect to the RL for this target analyte. The results of the original analysis are reported.

Semivolatile Organics by SIM
The WG1148142-1 Method Blank, associated with L1832288-01, has a concentration above the reporting limit for Naphthalene, Acenaphthylene, Acenapthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo[a]anthracene, Chrysene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Indeno[1,2,3-cd]pyrene, Dibenzo[a,h]anthracene, Benzo[g,h,i]perylene. Since the sample was non-detect for these target analytes, no further actions were taken. The results of the original analysis are reported.
The WG1148142-1 Method Blank, associated with L1832288-02, has concentrations above the reporting limits for Naphthalene, Acenaphthylene, Acenapthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo[a]anthracene, Chrysene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Indeno[1,2,3-cd]pyrene, Dibenzo[a,h]anthracene, Benzo[g,h,i]perylene. The sample was re-extracted with the method required holding time exceeded the method blank was non-detect for these target compounds. The results of both extractions are reported, along with the re-extract QC. The original sample result is reported

Project Name:	FOLEY BLOCK 8	**Lab Number:**	L1832288
Project Number:	3175.10	**Report Date:**	08/27/18

Case Narrative (continued)

with B qualifier.

Total Metals

L1832288-03: The sample has an elevated detection limit for lead due to the dilution required by the high concentrations of target and non-target elements.

The WG1148521-3 MS recovery for iron (0%), performed on L1832288-01, does not apply because the sample concentration is greater than four times the spike amount added.

Dissolved Metals

The WG1148338-2 LCS recovery, associated with L1832288-01 and -02, is above the acceptance criteria for silver (116%); however, the associated samples are non-detect to the RL for this target analyte. The results of the original analysis are reported.

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: 08/27/18

METALS

Project Name: FOLEY BLOCK 8 **Lab Number:** L1832288

Project Number: 3175.10 **Report Date:** 08/27/18

SAMPLE RESULTS

Lab ID: L1832288-03 Date Collected: 08/16/18 06:05

Client ID: MYSTIC RIVER, SOMERVILLE, MA Date Received: 08/16/18

Sample Location: SOMERVILLE, MA Field Prep: Not Specified

Sample Depth:

Matrix: Water

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	08/20/18 15:50	08/21/18 14:55	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00151		mg/l	0.00100	--	1	08/20/18 15:50	08/21/18 14:55	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	08/20/18 15:50	08/21/18 14:55	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	08/20/18 15:50	08/21/18 14:55	EPA 3005A	3,200.8	AM
Copper, Total	0.00133		mg/l	0.00100	--	1	08/20/18 15:50	08/21/18 14:55	EPA 3005A	3,200.8	AM
Iron, Total	0.155		mg/l	0.050	--	1	08/20/18 15:50	08/21/18 18:43	EPA 3005A	19,200.7	LC
Lead, Total	ND		mg/l	0.01000	--	10	08/20/18 15:50	08/21/18 19:37	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	08/21/18 12:22	08/21/18 17:16	EPA 245.1	3,245.1	MG
Nickel, Total	ND		mg/l	0.00200	--	1	08/20/18 15:50	08/21/18 14:55	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	08/20/18 15:50	08/21/18 14:55	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	08/20/18 15:50	08/21/18 14:55	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	08/20/18 15:50	08/21/18 14:55	EPA 3005A	3,200.8	AM

Project Name: FOLEY BLOCK 8 **Lab Number:** L1832288

Project Number: 3175.10 **Report Date:** 08/27/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1147884-1										
Mercury, Dissolved	ND		mg/l	0.0002	--	1	08/17/18 16:15	08/20/18 14:47	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): 01-02 Batch: WG1148338-1										
Antimony, Dissolved	ND		mg/l	0.0040	--	1	08/20/18 09:00	08/20/18 15:15	3,200.8	AM
Arsenic, Dissolved	ND		mg/l	0.0010	--	1	08/20/18 09:00	08/20/18 15:15	3,200.8	AM
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	08/20/18 09:00	08/20/18 15:15	3,200.8	AM
Chromium, Dissolved	ND		mg/l	0.0010	--	1	08/20/18 09:00	08/20/18 15:15	3,200.8	AM
Copper, Dissolved	ND		mg/l	0.0010	--	1	08/20/18 09:00	08/20/18 15:15	3,200.8	AM
Lead, Dissolved	ND		mg/l	0.0010	--	1	08/20/18 09:00	08/20/18 15:15	3,200.8	AM
Nickel, Dissolved	ND		mg/l	0.0020	--	1	08/20/18 09:00	08/20/18 15:15	3,200.8	AM
Selenium, Dissolved	ND		mg/l	0.0050	--	1	08/20/18 09:00	08/20/18 15:15	3,200.8	AM
Silver, Dissolved	ND		mg/l	0.0004	--	1	08/20/18 09:00	08/20/18 15:15	3,200.8	AM
Zinc, Dissolved	ND		mg/l	0.0100	--	1	08/20/18 09:00	08/20/18 15:15	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
Dissolved Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1148339-1										
Iron, Dissolved	ND		mg/l	0.050	--	1	08/20/18 09:00	08/20/18 21:01	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A

Project Name: FOLEY BLOCK 8 **Lab Number:** L1832288

Project Number: 3175.10 **Report Date:** 08/27/18

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): 01-03 Batch: WG1148521-1										
Iron, Total	ND		mg/l	0.050	--	1	08/20/18 15:50	08/21/18 21:39	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): 01-03 Batch: WG1148521-1										
Hardness	ND		mg/l	0.660	NA	1	08/20/18 15:50	08/21/18 21:39	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): 01-03 Batch: WG1148522-1										
Antimony, Total	ND		mg/l	0.00400	--	1	08/20/18 15:50	08/21/18 11:59	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	08/20/18 15:50	08/21/18 11:59	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	08/20/18 15:50	08/21/18 11:59	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	08/20/18 15:50	08/21/18 11:59	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	08/20/18 15:50	08/21/18 11:59	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	08/20/18 15:50	08/21/18 11:59	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	08/20/18 15:50	08/21/18 11:59	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	08/20/18 15:50	08/21/18 11:59	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	08/20/18 15:50	08/21/18 11:59	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	08/20/18 15:50	08/21/18 11:59	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Project Name: FOLEY BLOCK 8 **Lab Number:** L1832288

Project Number: 3175.10 **Report Date:** 08/27/18

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): 01-03 Batch: WG1148858-1										
Mercury, Total	ND		mg/l	0.0002	--	1	08/21/18 12:22	08/21/18 16:19	3,245.1	MG

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: FOLEY BLOCK 8

Project Number: 3175.10

Lab Number: L1832288

Report Date: 08/27/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1147884-2								
Mercury, Dissolved	92		-		85-115	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1148338-2								
Antimony, Dissolved	99		-		85-115	-		
Arsenic, Dissolved	114		-		85-115	-		
Cadmium, Dissolved	111		-		85-115	-		
Chromium, Dissolved	107		-		85-115	-		
Copper, Dissolved	109		-		85-115	-		
Lead, Dissolved	111		-		85-115	-		
Nickel, Dissolved	107		-		85-115	-		
Selenium, Dissolved	111		-		85-115	-		
Silver, Dissolved	**116**	Q	-		85-115	-		
Zinc, Dissolved	113		-		85-115	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1148339-2								
Iron, Dissolved	106		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1148521-2								
Iron, Total	106		-		85-115	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: FOLEY BLOCK 8

Project Number: 3175.10

Lab Number: L1832288

Report Date: 08/27/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-03 Batch: WG1148521-2					
Hardness	103	-	85-115	-	
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1148522-2					
Antimony, Total	106	-	85-115	-	
Arsenic, Total	107	-	85-115	-	
Cadmium, Total	109	-	85-115	-	
Chromium, Total	108	-	85-115	-	
Copper, Total	108	-	85-115	-	
Lead, Total	111	-	85-115	-	
Nickel, Total	112	-	85-115	-	
Selenium, Total	110	-	85-115	-	
Silver, Total	112	-	85-115	-	
Zinc, Total	115	-	85-115	-	
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1148858-2					
Mercury, Total	104	-	85-115	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: FOLEY BLOCK 8
Project Number: 3175.10

Lab Number: L1832288
Report Date: 08/27/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1147884-3 QC Sample: L1831972-01 Client ID: MS Sample												
Mercury, Dissolved	ND	0.005	0.0049	99		-	-		75-125	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1148338-3 QC Sample: L1832288-01 Client ID: NPDES RGP-1												
Antimony, Dissolved	ND	0.5	0.5785	116		-	-		70-130	-		20
Arsenic, Dissolved	0.0026	0.12	0.1344	110		-	-		70-130	-		20
Cadmium, Dissolved	ND	0.051	0.0550	108		-	-		70-130	-		20
Chromium, Dissolved	ND	0.2	0.2015	101		-	-		70-130	-		20
Copper, Dissolved	ND	0.25	0.2769	111		-	-		70-130	-		20
Lead, Dissolved	ND	0.51	0.5537	108		-	-		70-130	-		20
Nickel, Dissolved	ND	0.5	0.5264	105		-	-		70-130	-		20
Selenium, Dissolved	ND	0.12	0.1319	110		-	-		70-130	-		20
Silver, Dissolved	ND	0.05	0.0575	115		-	-		70-130	-		20
Zinc, Dissolved	ND	0.5	0.5468	109		-	-		70-130	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1148339-3 QC Sample: L1832288-01 Client ID: NPDES RGP-1												
Iron, Dissolved	18.8	1	20.0	120		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1148521-3 QC Sample: L1832288-01 Client ID: NPDES RGP-1												
Iron, Total	39.3	1	38.3	**0**	Q	-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1148521-3 QC Sample: L1832288-01 Client ID: NPDES RGP-1												
Hardness	410	66.2	464	82		-	-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: FOLEY BLOCK 8
Project Number: 3175.10

Lab Number: L1832288
Report Date: 08/27/18

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): 01-03 QC Batch ID: WG1148522-3 QC Sample: L1832288-01 Client ID: NPDES RGP-1									
Antimony, Total	ND	0.5	0.5083	102	-	-	70-130	-	20
Arsenic, Total	0.00916	0.12	0.1391	108	-	-	70-130	-	20
Cadmium, Total	ND	0.051	0.05909	116	-	-	70-130	-	20
Chromium, Total	0.03255	0.2	0.2398	104	-	-	70-130	-	20
Copper, Total	0.03084	0.25	0.2941	105	-	-	70-130	-	20
Lead, Total	0.02242	0.51	0.5733	108	-	-	70-130	-	20
Nickel, Total	0.02074	0.5	0.5358	103	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1322	110	-	-	70-130	-	20
Silver, Total	ND	0.05	0.05713	114	-	-	70-130	-	20
Zinc, Total	0.05428	0.5	0.6063	110	-	-	70-130	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1148522-5 QC Sample: L1832288-02 Client ID: NPDES RGP-2									
Antimony, Total	0.00629	0.5	0.5625	111	-	-	70-130	-	20
Arsenic, Total	0.00244	0.12	0.1389	114	-	-	70-130	-	20
Cadmium, Total	ND	0.051	0.05726	112	-	-	70-130	-	20
Chromium, Total	0.00337	0.2	0.2207	109	-	-	70-130	-	20
Copper, Total	0.01599	0.25	0.2967	112	-	-	70-130	-	20
Lead, Total	0.00174	0.51	0.5941	116	-	-	70-130	-	20
Nickel, Total	0.00269	0.5	0.5640	112	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1402	117	-	-	70-130	-	20
Silver, Total	ND	0.05	0.05896	118	-	-	70-130	-	20
Zinc, Total	0.01414	0.5	0.5800	113	-	-	70-130	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: FOLEY BLOCK 8
Project Number: 3175.10

Lab Number: L1832288
Report Date: 08/27/18

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): 01-03 QC Batch ID: WG1148858-3 QC Sample: L1832464-01 Client ID: MS Sample									
Mercury, Total	ND	0.005	0.0037	74	-	-	70-130	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1148858-5 QC Sample: L1832464-02 Client ID: MS Sample									
Mercury, Total	ND	0.005	0.0043	87	-	-	70-130	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: FOLEY BLOCK 8
Project Number: 3175.10

Lab Number: L1832288
Report Date: 08/27/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1147884-4 QC Sample: L1831972-01 Client ID: DUP Sample						
Mercury, Dissolved	ND	ND	mg/l	NC		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1148338-4 QC Sample: L1832288-01 Client ID: NPDES RGP-1						
Antimony, Dissolved	ND	ND	mg/l	NC		20
Arsenic, Dissolved	0.0026	0.0024	mg/l	7		20
Cadmium, Dissolved	ND	ND	mg/l	NC		20
Chromium, Dissolved	ND	ND	mg/l	NC		20
Copper, Dissolved	ND	ND	mg/l	NC		20
Lead, Dissolved	ND	ND	mg/l	NC		20
Nickel, Dissolved	ND	ND	mg/l	NC		20
Selenium, Dissolved	ND	ND	mg/l	NC		20
Silver, Dissolved	ND	ND	mg/l	NC		20
Zinc, Dissolved	ND	ND	mg/l	NC		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1148339-4 QC Sample: L1832288-01 Client ID: NPDES RGP-1						
Iron, Dissolved	18.8	18.5	mg/l	2		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1148521-4 QC Sample: L1832288-01 Client ID: NPDES RGP-1						
Iron, Total	39.3	38.8	mg/l	1		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1148521-4 QC Sample: L1832288-01 Client ID: NPDES RGP-1						
Hardness	410	421	mg/l	3		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: FOLEY BLOCK 8

Project Number: 3175.10

Lab Number: L1832288

Report Date: 08/27/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1148522-4 QC Sample: L1832288-01 Client ID: NPDES RGP-1					
Antimony, Total	ND	ND	mg/l	NC	20
Arsenic, Total	0.00916	0.00946	mg/l	3	20
Cadmium, Total	ND	ND	mg/l	NC	20
Chromium, Total	0.03255	0.03107	mg/l	5	20
Copper, Total	0.03084	0.03008	mg/l	2	20
Lead, Total	0.02242	0.02243	mg/l	0	20
Nickel, Total	0.02074	0.02194	mg/l	6	20
Selenium, Total	ND	ND	mg/l	NC	20
Silver, Total	ND	ND	mg/l	NC	20
Zinc, Total	0.05428	0.05259	mg/l	3	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: FOLEY BLOCK 8

Project Number: 3175.10

Lab Number: L1832288

Report Date: 08/27/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1148522-6 QC Sample: L1832288-02 Client ID: NPDES RGP-2					
Antimony, Total	0.00629	0.00668	mg/l	6	20
Arsenic, Total	0.00244	0.00237	mg/l	3	20
Cadmium, Total	ND	ND	mg/l	NC	20
Chromium, Total	0.00337	0.00340	mg/l	1	20
Copper, Total	0.01599	0.01659	mg/l	4	20
Lead, Total	0.00174	0.00184	mg/l	6	20
Nickel, Total	0.00269	0.00302	mg/l	12	20
Selenium, Total	ND	ND	mg/l	NC	20
Silver, Total	ND	ND	mg/l	NC	20
Zinc, Total	0.01414	0.01460	mg/l	3	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1148858-4 QC Sample: L1832464-01 Client ID: DUP Sample					
Mercury, Total	ND	ND	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1148858-6 QC Sample: L1832464-02 Client ID: DUP Sample					
Mercury, Total	ND	ND	mg/l	NC	20

INORGANICS
&
MISCELLANEOUS

Project Name: FOLEY BLOCK 8
Project Number: 3175.10

Lab Number: L1832288
Report Date: 08/27/18

SAMPLE RESULTS

Lab ID: L1832288-03
Client ID: MYSTIC RIVER, SOMERVILLE, MA
Sample Location: SOMERVILLE, MA

Date Collected: 08/16/18 06:05
Date Received: 08/16/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
SALINITY	25		SU	2.0	--	1	-	08/17/18 03:47	121,2520B	MA
pH (H)	7.6		SU	-	NA	1	-	08/17/18 03:45	121,4500H+-B	UN
Nitrogen, Ammonia	0.217		mg/l	0.075	--	1	08/17/18 02:00	08/17/18 21:59	121,4500NH3-BH	AT

Project Name: FOLEY BLOCK 8 **Lab Number:** L1832288

Project Number: 3175.10 **Report Date:** 08/27/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1147529-4										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	08/17/18 00:28	121,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1147541-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	08/17/18 01:00	08/17/18 02:42	1,7196A	MA
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1147553-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	08/17/18 02:00	08/17/18 21:42	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1147618-1										
Phenolics, Total	ND		mg/l	0.030	--	1	08/17/18 05:40	08/20/18 05:24	4,420.1	GD
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1147677-1										
Cyanide, Total	ND		mg/l	0.005	--	1	08/17/18 10:50	08/17/18 13:27	121,4500CN-CE	LH
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1147809-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	08/17/18 16:05	121,2540D	DR
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1147929-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	08/17/18 17:45	08/17/18 21:40	74,1664A	ML
Anions by Ion Chromatography - Westborough Lab for sample(s): 01-02 Batch: WG1147987-1										
Chloride	ND		mg/l	0.500	--	1	-	08/17/18 17:36	44,300.0	AU
Sulfate	ND		mg/l	1.00	--	1	-	08/17/18 17:36	44,300.0	AU

Lab Control Sample Analysis

Batch Quality Control

Project Name: FOLEY BLOCK 8

Project Number: 3175.10

Lab Number: L1832288

Report Date: 08/27/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1147529-1								
Chlorine, Total Residual	93		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1147541-2								
Chromium, Hexavalent	98		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1147553-2								
Nitrogen, Ammonia	92		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1147618-2								
Phenolics, Total	86		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 03 Batch: WG1147625-1								
SALINITY	99		-			-		
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1147626-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1147677-2								
Cyanide, Total	91		-		90-110	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: FOLEY BLOCK 8

Project Number: 3175.10

Lab Number: L1832288

Report Date: 08/27/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1147929-2					
TPH	97	-	64-132	-	34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 Batch: WG1147987-2					
Chloride	100	-	90-110	-	
Sulfate	103	-	90-110	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: FOLEY BLOCK 8
Project Number: 3175.10

Lab Number: L1832288
Report Date: 08/27/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1147529-3 QC Sample: L1832209-02 Client ID: MS Sample												
Chlorine, Total Residual	ND	0.248	0.22	89		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1147541-4 QC Sample: L1832288-02 Client ID: NPDES RGP-2												
Chromium, Hexavalent	ND	0.1	0.095	95		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1147553-4 QC Sample: L1831885-01 Client ID: MS Sample												
Nitrogen, Ammonia	0.338	4	4.06	93		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1147618-4 QC Sample: L1831618-07 Client ID: MS Sample												
Phenolics, Total	ND	0.4	0.37	93		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1147677-4 WG1147677-5 QC Sample: L1832059-04 Client ID: MS Sample												
Cyanide, Total	0.018	0.2	0.223	102		0.232	107		90-110	4		30
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1147929-4 QC Sample: L1831981-04 Client ID: MS Sample												
TPH	ND	20	16.6	83		-	-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1147987-3 WG1147987-4 QC Sample: L1831825-01 Client ID: MS Sample												
Chloride	581	200	786	102		780	99		90-110	1		18
Sulfate	45.2	400	476	108		470	106		90-110	1		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: FOLEY BLOCK 8
Project Number: 3175.10

Lab Number: L1832288
Report Date: 08/27/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1147529-2 QC Sample: L1832209-01 Client ID: DUP Sample						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1147541-3 QC Sample: L1832288-01 Client ID: NPDES RGP-1						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1147553-3 QC Sample: L1831885-01 Client ID: DUP Sample						
Nitrogen, Ammonia	0.338	0.322	mg/l	5		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1147618-3 QC Sample: L1831618-07 Client ID: DUP Sample						
Phenolics, Total	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1147625-2 QC Sample: L1832131-01 Client ID: DUP Sample						
SALINITY	ND	ND	SU	NC		
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1147626-2 QC Sample: L1831926-01 Client ID: DUP Sample						
pH	7.4	7.4	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1147677-3 QC Sample: L1832059-04 Client ID: DUP Sample						
Cyanide, Total	0.018	0.020	mg/l	9		30
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1147809-2 QC Sample: L1832168-02 Client ID: DUP Sample						
Solids, Total Suspended	2600	6500	mg/l	**86**	Q	29
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1147929-3 QC Sample: L1831981-03 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34

Project Name: FOLEY BLOCK 8
Project Number: 3175.10

Lab Number: L1832288
Report Date: 08/27/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)

*Values in parentheses indicate holding time in days

Project Name: FOLEY BLOCK 8
Project Number: 3175.10

Lab Number: L1832288
Report Date: 08/27/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)

*Values in parentheses indicate holding time in days

Project Name: FOLEY BLOCK 8
Project Number: 3175.10

Lab Number: L1832288
Report Date: 08/27/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1832288-03A	Plastic 120ml unpreserved	A	7	7	4.0	Y	Absent		PH-4500(.01)
L1832288-03B	Amber 250ml unpreserved	A	7	7	4.0	Y	Absent		SALINITY(28)
L1832288-03C	Plastic 250ml HNO3 preserved	A	<2	<2	4.0	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)
L1832288-03D	Plastic 500ml H2SO4 preserved	A	<2	<2	4.0	Y	Absent		NH3-4500(28)
L1832288-04A	Vial Na2S2O3 preserved	A	NA		4.0	Y	Absent		ARCHIVE()
L1832288-04B	Vial Na2S2O3 preserved	A	NA		4.0	Y	Absent		ARCHIVE()

*Values in parentheses indicate holding time in days

Project Name:	FOLEY BLOCK 8	**Lab Number:**	L1832288
Project Number:	3175.10	**Report Date:**	08/27/18

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).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
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.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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.

Report Format: Data Usability Report

Project Name:	FOLEY BLOCK 8	**Lab Number:**	L1832288
Project Number:	3175.10	**Report Date:**	08/27/18

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 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:	FOLEY BLOCK 8	**Lab Number:**	L1832288
Project Number:	3175.10	**Report Date:**	08/27/18

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.

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.

127 Method 608.3: Organochlorine Pesticides and PCBs by GC/HSD, EPA 821-R-16-009, December 2016.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

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: SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
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: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-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: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, 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, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Be, Cd, Cr, Cu, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

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.

ALPHA

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 08-16-2018

ALPHA Job #: L1832288

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

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

Project Information

Project Name: Foley Block 8

Project Location: Somerville, MA

Project #: 3175.10

Project Manager: K. 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 Dr
Westford, MA

Phone: 978-392-0400

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:

Additional Project Information:

* RGP metals include Ag, As, Cd, Cr, Cu, Ni, Pb, Sb, Se, Zn, Fe, Hg, HexCr, TriCr
*NPDES RGP minimum levels must be Met.

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; NPDES RGP PKG; Ethanol; pH, Sulfate, Hardness; ~~[illegible]~~ Ammonia, pH, Salinity; Total metals*; Total + Dissolved metals*

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 (MCP)	METALS (RCRA)	EPH	VPH	PCB/PEST	TPH	NPDES RGP PKG	Ethanol	pH, Sulfate, Hardness	Ammonia, pH, Salinity	Total metals*	Total + Dissolved metals*	Sample Comments	Total # Bottles
32288-01																					
-02																					
-03	Mystic River, Somerville, MA	↓	6:05	SW	↓												X	X			4

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] 8/16/18	16:35	[signature] AAL	8/16 1635
[signature] AAL	8/16 1810	[signature]	8/16/18 1810

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

ANALYTICAL REPORT

Lab Number:	L1837692
Client:	Sanborn, Head & Associates, Inc. 1 Technology Park Drive Westford, MA 01886
ATTN:	Kent Walker
Phone:	(978) 577-1003
Project Name:	BLOCK 5B
Project Number:	3175.12
Report Date:	10/01/18

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1837692-01	B5B-SH-11W	WATER	SOMERVILLE, MA	09/20/18 14:30	09/20/18
L1837692-02	B5B-SH-11W	WATER	SOMERVILLE, MA	09/24/18 13:30	09/25/18

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

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: BLOCK 5B **Lab Number:** L1837692
Project Number: 3175.12 **Report Date:** 10/01/18

Case Narrative (continued)

Report Submission

October 01, 2018: This final report includes the results of all requested analyses.

September 27, 2018: This is a preliminary report.

Sample Receipt

L1837692-01: Headspace was noted in the sample containers submitted for Volatile Organics. The analysis was cancelled at the client's request.

Semivolatile Organics by SIM

The surrogate recoveries for the WG1159804-1 Method Blank, associated with L1837692-01, are below the acceptance criteria for 2-fluorophenol (2%), phenol-d6 (2%), nitrobenzene-d5 (2%), 2-fluorobiphenyl (2%), 2,4,6-tribromophenol (2%) and 4-terphenyl-d14 (4%). The associated sample is non-detect and has acceptable surrogate recoveries; therefore, no further actions were taken.

The surrogate recoveries for the WG1159804-2 LCS, associated with L1837692-01, are outside the acceptance criteria for 2-fluorophenol (4%), phenol-d6 (4%), nitrobenzene-d5 (5%), 2-fluorobiphenyl (5%), 2,4,6-tribromophenol (6%) and 4-terphenyl-d14 (7%). The LCS spike compounds are within overall method allowances; therefore, no further action was taken.

Dissolved Metals

The WG1159424-3 MS recovery, performed on L1837692-01, is outside the acceptance criteria for mercury (73%). A post digestion spike was performed and was within acceptance criteria.

The WG1160942-3 MS recovery for iron (130%), performed on L1837692-01, does not apply because the sample concentration is greater than four times the spike amount added.

Anions by Ion Chromatography

The WG1159779-3 MS recovery, performed on L1837692-01, is outside the acceptance criteria for sulfate (111%); however, the associated LCS recovery is within criteria. No further action was taken.

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: Michelle M. Morris

Title: Technical Director/Representative Date: 10/01/18

ORGANICS

VOLATILES

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

SAMPLE RESULTS

Lab ID: L1837692-01
Client ID: B5B-SH-11W
Sample Location: SOMERVILLE, MA

Date Collected: 09/20/18 14:30
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 09/26/18 11:04
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 09/26/18 08:09

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	--	1	B

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837692
Report Date: 10/01/18

SAMPLE RESULTS

Lab ID: L1837692-02
Client ID: B5B-SH-11W
Sample Location: SOMERVILLE, MA
Date Collected: 09/24/18 13:30
Date Received: 09/25/18
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 09/27/18 14:28
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethane	ND		ug/l	1.5	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.5	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethane	ND		ug/l	1.5	--	1
1,1,1-Trichloroethane	ND		ug/l	2.0	--	1
Benzene	ND		ug/l	1.0	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	5.0	--	1
1,3-Dichlorobenzene	ND		ug/l	5.0	--	1
1,4-Dichlorobenzene	ND		ug/l	5.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
Acetone	ND		ug/l	10	--	1
Methyl tert butyl ether	ND		ug/l	10	--	1
Tert-Butyl Alcohol	ND		ug/l	100	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--	1

Project Name: BLOCK 5B **Lab Number:** L1837692

Project Number: 3175.12 **Report Date:** 10/01/18

SAMPLE RESULTS

Lab ID: L1837692-02 Date Collected: 09/24/18 13:30

Client ID: B5B-SH-11W Date Received: 09/25/18

Sample Location: SOMERVILLE, MA Field Prep: None

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	95		60-140
Fluorobenzene	94		60-140
4-Bromofluorobenzene	96		60-140

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837692
Report Date: 10/01/18

SAMPLE RESULTS

Lab ID: L1837692-02
Client ID: B5B-SH-11W
Sample Location: SOMERVILLE, MA
Date Collected: 09/24/18 13:30
Date Received: 09/25/18
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 09/27/18 14:28
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	50	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	100		60-140
4-Bromofluorobenzene	99		60-140

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 09/26/18 08:58
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 09/26/18 08:09

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1160530-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	B

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 09/27/18 12:38
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02 Batch: WG1161198-16					
Methylene chloride	ND		ug/l	1.0	--
1,1-Dichloroethane	ND		ug/l	1.5	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.5	--
Tetrachloroethene	ND		ug/l	1.0	--
1,2-Dichloroethane	ND		ug/l	1.5	--
1,1,1-Trichloroethane	ND		ug/l	2.0	--
Benzene	ND		ug/l	1.0	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	5.0	--
1,3-Dichlorobenzene	ND		ug/l	5.0	--
1,4-Dichlorobenzene	ND		ug/l	5.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
Acetone	ND		ug/l	10	--
Methyl tert butyl ether	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	100	--
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837692
Report Date: 10/01/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 09/27/18 12:38
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02 Batch: WG1161198-16					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	105		60-140
Fluorobenzene	96		60-140
4-Bromofluorobenzene	96		60-140

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837692
Report Date: 10/01/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 09/27/18 12:38
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 02 Batch: WG1162080-4					
1,4-Dioxane	ND		ug/l	50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	103		60-140
4-Bromofluorobenzene	93		60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837692

Report Date: 10/01/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 01		Batch: WG1160530-2						
1,2-Dibromoethane	117		-		80-120	-			B

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837692

Report Date: 10/01/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1161198-15								
Methylene chloride	80		-		60-140	-		28
1,1-Dichloroethane	80		-		50-150	-		49
Carbon tetrachloride	110		-		70-130	-		41
1,1,2-Trichloroethane	90		-		70-130	-		45
Tetrachloroethene	105		-		70-130	-		39
1,2-Dichloroethane	100		-		70-130	-		49
1,1,1-Trichloroethane	105		-		70-130	-		36
Benzene	100		-		65-135	-		61
Toluene	110		-		70-130	-		41
Ethylbenzene	110		-		60-140	-		63
Vinyl chloride	85		-		5-195	-		66
1,1-Dichloroethene	85		-		50-150	-		32
cis-1,2-Dichloroethene	90		-		60-140	-		30
Trichloroethene	90		-		65-135	-		48
1,2-Dichlorobenzene	95		-		65-135	-		57
1,3-Dichlorobenzene	90		-		70-130	-		43
1,4-Dichlorobenzene	95		-		65-135	-		57
p/m-Xylene	115		-		60-140	-		30
o-xylene	105		-		60-140	-		30
Acetone	88		-		40-160	-		30
Methyl tert butyl ether	85		-		60-140	-		30
Tert-Butyl Alcohol	70		-		60-140	-		30
Tertiary-Amyl Methyl Ether	90		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1161198-15								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	104				60-140
Fluorobenzene	101				60-140
4-Bromofluorobenzene	98				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 02 Batch: WG1162080-3								
1,4-Dioxane	98		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	107				60-140
4-Bromofluorobenzene	89				60-140

Matrix Spike Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837692

Report Date: 10/01/18

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: WG1160530-3 QC Sample: L1837081-04 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.248	0.294	118		-	-		80-120	-		20	B
1,2-Dibromo-3-chloropropane	ND	0.248	0.307	**124**	Q	-	-		80-120	-		20	B

SEMIVOLATILES

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837692
Report Date: 10/01/18

SAMPLE RESULTS

Lab ID: L1837692-01
Client ID: B5B-SH-11W
Sample Location: SOMERVILLE, MA

Date Collected: 09/20/18 14:30
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 09/27/18 15:35
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 09/25/18 23:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		42-122
2-Fluorobiphenyl	79		46-121
4-Terphenyl-d14	83		47-138

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837692
Report Date: 10/01/18

SAMPLE RESULTS

Lab ID: L1837692-01
Client ID: B5B-SH-11W
Sample Location: SOMERVILLE, MA

Date Collected: 09/20/18 14:30
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 09/24/18 18:49
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 09/22/18 09:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	--	1
Fluoranthene	ND		ug/l	0.10	--	1
Naphthalene	ND		ug/l	0.10	--	1
Benzo(a)anthracene	ND		ug/l	0.10	--	1
Benzo(a)pyrene	ND		ug/l	0.10	--	1
Benzo(b)fluoranthene	ND		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	ND		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	ND		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	ND		ug/l	0.10	--	1
Phenanthrene	ND		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--	1
Pyrene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.96	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	35		25-87
Phenol-d6	24		16-65
Nitrobenzene-d5	59		42-122
2-Fluorobiphenyl	56		46-121
2,4,6-Tribromophenol	72		45-128
4-Terphenyl-d14	56		47-138

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 09/24/18 16:11
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 09/22/18 09:11

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1159804-1					
Acenaphthene	ND		ug/l	0.10	--
Fluoranthene	ND		ug/l	0.10	--
Naphthalene	ND		ug/l	0.10	--
Benzo(a)anthracene	ND		ug/l	0.10	--
Benzo(a)pyrene	ND		ug/l	0.10	--
Benzo(b)fluoranthene	ND		ug/l	0.10	--
Benzo(k)fluoranthene	ND		ug/l	0.10	--
Chrysene	ND		ug/l	0.10	--
Acenaphthylene	ND		ug/l	0.10	--
Anthracene	ND		ug/l	0.10	--
Benzo(ghi)perylene	ND		ug/l	0.10	--
Fluorene	ND		ug/l	0.10	--
Phenanthrene	ND		ug/l	0.10	--
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--
Pyrene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	1.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	**2**	Q	25-87
Phenol-d6	**2**	Q	16-65
Nitrobenzene-d5	**2**	Q	42-122
2-Fluorobiphenyl	**2**	Q	46-121
2,4,6-Tribromophenol	**2**	Q	45-128
4-Terphenyl-d14	**4**	Q	47-138

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 09/26/18 15:23
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 09/25/18 15:33

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1160704-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		42-122
2-Fluorobiphenyl	79		46-121
4-Terphenyl-d14	84		47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

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: WG1159804-2								
Acenaphthene	97		-		60-132	-		30
Fluoranthene	96		-		43-121	-		30
Naphthalene	80		-		36-120	-		30
Benzo(a)anthracene	84		-		42-133	-		30
Benzo(a)pyrene	93		-		32-148	-		30
Benzo(b)fluoranthene	87		-		42-140	-		30
Benzo(k)fluoranthene	102		-		25-146	-		30
Chrysene	96		-		44-140	-		30
Acenaphthylene	91		-		54-126	-		30
Anthracene	97		-		43-120	-		30
Benzo(ghi)perylene	90		-		1-195	-		30
Fluorene	100		-		70-120	-		30
Phenanthrene	91		-		65-120	-		30
Dibenzo(a,h)anthracene	94		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	87		-		1-151	-		30
Pyrene	94		-		70-120	-		30
Pentachlorophenol	96		-		38-152	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

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: WG1159804-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	**4**	Q			25-87
Phenol-d6	**4**	Q			16-65
Nitrobenzene-d5	**5**	Q			42-122
2-Fluorobiphenyl	**5**	Q			46-121
2,4,6-Tribromophenol	**6**	Q			45-128
4-Terphenyl-d14	**7**	Q			47-138

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837692

Report Date: 10/01/18

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: WG1160704-2								
Bis(2-ethylhexyl)phthalate	106		-		29-137	-		30
Butyl benzyl phthalate	101		-		1-140	-		30
Di-n-butylphthalate	101		-		8-120	-		30
Di-n-octylphthalate	117		-		19-132	-		30
Diethyl phthalate	97		-		1-120	-		30
Dimethyl phthalate	93		-		1-120	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	94				42-122
2-Fluorobiphenyl	85				46-121
4-Terphenyl-d14	80				47-138

PCBS

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837692
Report Date: 10/01/18

SAMPLE RESULTS

Lab ID: L1837692-01
Client ID: B5B-SH-11W
Sample Location: SOMERVILLE, MA

Date Collected: 09/20/18 14:30
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 09/25/18 06:42
Analyst: AWS

Extraction Method: EPA 608.3
Extraction Date: 09/22/18 11:33
Cleanup Method: EPA 3665A
Cleanup Date: 09/23/18
Cleanup Method: EPA 3660B
Cleanup Date: 09/23/18

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	88		37-123	B
Decachlorobiphenyl	82		38-114	B
2,4,5,6-Tetrachloro-m-xylene	88		37-123	A
Decachlorobiphenyl	78		38-114	A

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 09/25/18 06:05
Analyst: AWS

Extraction Method: EPA 608.3
Extraction Date: 09/22/18 11:33
Cleanup Method: EPA 3665A
Cleanup Date: 09/23/18
Cleanup Method: EPA 3660B
Cleanup Date: 09/23/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1159721-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	83		37-123	B
Decachlorobiphenyl	85		38-114	B
2,4,5,6-Tetrachloro-m-xylene	80		37-123	A
Decachlorobiphenyl	80		38-114	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

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: WG1159721-2									
Aroclor 1016	85		-		50-140	-		36	A
Aroclor 1260	85		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	95				37-123	B
Decachlorobiphenyl	93				38-114	B
2,4,5,6-Tetrachloro-m-xylene	93				37-123	A
Decachlorobiphenyl	82				38-114	A

METALS

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837692
Report Date: 10/01/18

SAMPLE RESULTS

Lab ID: L1837692-01
Client ID: B5B-SH-11W
Sample Location: SOMERVILLE, MA
Date Collected: 09/20/18 14:30
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	09/24/18 13:05	09/25/18 15:25	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00424		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 15:25	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	09/24/18 13:05	09/25/18 15:25	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 15:25	EPA 3005A	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 15:25	EPA 3005A	3,200.8	AM
Iron, Total	11.7		mg/l	0.050	--	1	09/24/18 13:05	09/25/18 20:36	EPA 3005A	19,200.7	AB
Lead, Total	ND		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 15:25	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	09/24/18 16:17	09/25/18 18:36	EPA 245.1	3,245.1	MG
Nickel, Total	0.00314		mg/l	0.00200	--	1	09/24/18 13:05	09/25/18 15:25	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	09/24/18 13:05	09/25/18 15:25	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	09/24/18 13:05	09/25/18 15:25	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	09/24/18 13:05	09/25/18 15:25	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	230		mg/l	0.660	NA	1	09/24/18 13:05	09/25/18 20:36	EPA 3005A	19,200.7	AB
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		09/25/18 15:25	NA	107,-	
Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	09/26/18 08:00	09/26/18 12:02	EPA 3005A	3,200.8	AM
Arsenic, Dissolved	0.0042		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 12:02	EPA 3005A	3,200.8	AM
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	09/26/18 08:00	09/26/18 12:02	EPA 3005A	3,200.8	AM
Chromium, Dissolved	ND		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 12:02	EPA 3005A	3,200.8	AM
Copper, Dissolved	ND		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 12:02	EPA 3005A	3,200.8	AM
Iron, Dissolved	11.1		mg/l	0.050	--	1	09/26/18 08:00	09/26/18 14:50	EPA 3005A	19,200.7	LC
Lead, Dissolved	ND		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 12:02	EPA 3005A	3,200.8	AM
Mercury, Dissolved	ND		mg/l	0.00020	--	1	09/21/18 12:34	09/21/18 17:50	EPA 245.1	3,245.1	MG

Project Name: BLOCK 5B
Lab Number: L1837692
Project Number: 3175.12
Report Date: 10/01/18

SAMPLE RESULTS

Lab ID: L1837692-01
Client ID: B5B-SH-11W
Sample Location: SOMERVILLE, MA
Date Collected: 09/20/18 14:30
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Nickel, Dissolved	0.0042		mg/l	0.0020	--	1	09/26/18 08:00	09/26/18 12:02	EPA 3005A	3,200.8	AM
Selenium, Dissolved	ND		mg/l	0.0050	--	1	09/26/18 08:00	09/26/18 12:02	EPA 3005A	3,200.8	AM
Silver, Dissolved	ND		mg/l	0.0004	--	1	09/26/18 08:00	09/26/18 12:02	EPA 3005A	3,200.8	AM
Zinc, Dissolved	ND		mg/l	0.0100	--	1	09/26/18 08:00	09/26/18 12:02	EPA 3005A	3,200.8	AM

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837692
Report Date: 10/01/18

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: WG1159398-1										
Mercury, Total	ND		mg/l	0.00020	--	1	09/24/18 16:17	09/25/18 17:53	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: WG1159424-1										
Mercury, Dissolved	ND		mg/l	0.00020	--	1	09/21/18 12:34	09/21/18 17:47	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
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1160190-1										
Iron, Total	ND		mg/l	0.050	--	1	09/24/18 13:05	09/25/18 19:27	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: WG1160190-1										
Hardness	ND		mg/l	0.660	NA	1	09/24/18 13:05	09/25/18 19:27	19,200.7	AB

Prep Information

Digestion Method: EPA 3005A

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837692
Report Date: 10/01/18

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: WG1160191-1										
Antimony, Total	ND		mg/l	0.00400	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	09/24/18 13:05	09/25/18 13:30	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
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1160941-1										
Antimony, Dissolved	ND		mg/l	0.0040	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Arsenic, Dissolved	ND		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Chromium, Dissolved	ND		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Copper, Dissolved	ND		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Lead, Dissolved	ND		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Nickel, Dissolved	ND		mg/l	0.0020	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Selenium, Dissolved	ND		mg/l	0.0050	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Silver, Dissolved	ND		mg/l	0.0004	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Zinc, Dissolved	ND		mg/l	0.0100	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837692
Report Date: 10/01/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1160942-1										
Iron, Dissolved	ND		mg/l	0.050	--	1	09/26/18 08:00	09/26/18 14:41	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837692

Report Date: 10/01/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1159398-2								
Mercury, Total	96		-		85-115	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1159424-2								
Mercury, Dissolved	100		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1160190-2								
Iron, Total	104		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1160190-2								
Hardness	107		-		85-115	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837692

Report Date: 10/01/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1160191-2					
Antimony, Total	100	-	85-115	-	
Arsenic, Total	97	-	85-115	-	
Cadmium, Total	109	-	85-115	-	
Chromium, Total	99	-	85-115	-	
Copper, Total	98	-	85-115	-	
Lead, Total	98	-	85-115	-	
Nickel, Total	101	-	85-115	-	
Selenium, Total	111	-	85-115	-	
Silver, Total	106	-	85-115	-	
Zinc, Total	110	-	85-115	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837692

Report Date: 10/01/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1160941-2					
Antimony, Dissolved	93	-	85-115	-	
Arsenic, Dissolved	97	-	85-115	-	
Cadmium, Dissolved	102	-	85-115	-	
Chromium, Dissolved	89	-	85-115	-	
Copper, Dissolved	88	-	85-115	-	
Lead, Dissolved	107	-	85-115	-	
Nickel, Dissolved	92	-	85-115	-	
Selenium, Dissolved	103	-	85-115	-	
Silver, Dissolved	109	-	85-115	-	
Zinc, Dissolved	94	-	85-115	-	
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1160942-2					
Iron, Dissolved	105	-	85-115	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

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: WG1159398-3 QC Sample: L1837617-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00381	76		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1159398-5 QC Sample: L1837617-02 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00408	82		-	-		70-130	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1159424-3 QC Sample: L1837692-01 Client ID: B5B-SH-11W												
Mercury, Dissolved	ND	0.005	0.00365	**73**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160190-3 QC Sample: L1837514-01 Client ID: MS Sample												
Iron, Total	1.05	1	2.04	99		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160190-3 QC Sample: L1837514-01 Client ID: MS Sample												
Hardness	273	66.2	334	92		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160191-3 QC Sample: L1837514-01 Client ID: MS Sample												
Antimony, Total	ND	0.5	0.5534	111		-	-		70-130	-		20
Arsenic, Total	0.00416	0.12	0.1299	105		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05269	103		-	-		70-130	-		20
Chromium, Total	0.02860	0.2	0.2260	99		-	-		70-130	-		20
Copper, Total	0.02492	0.25	0.2651	96		-	-		70-130	-		20
Lead, Total	0.00311	0.51	0.5271	103		-	-		70-130	-		20
Nickel, Total	0.00760	0.5	0.5108	101		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1336	111		-	-		70-130	-		20
Silver, Total	ND	0.05	0.05588	112		-	-		70-130	-		20
Zinc, Total	0.01569	0.5	0.5487	107		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

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: WG1160191-5 QC Sample: L1837514-02 Client ID: MS Sample									
Antimony, Total	ND	0.5	0.5008	100	-	-	70-130	-	20
Arsenic, Total	0.00124	0.12	0.1293	107	-	-	70-130	-	20
Cadmium, Total	ND	0.051	0.05382	106	-	-	70-130	-	20
Chromium, Total	0.00159	0.2	0.2006	100	-	-	70-130	-	20
Copper, Total	0.00704	0.25	0.2538	99	-	-	70-130	-	20
Lead, Total	ND	0.51	0.5341	105	-	-	70-130	-	20
Nickel, Total	ND	0.5	0.5178	104	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1330	111	-	-	70-130	-	20
Silver, Total	ND	0.05	0.05519	110	-	-	70-130	-	20
Zinc, Total	ND	0.5	0.5343	107	-	-	70-130	-	20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160941-3 QC Sample: L1837692-01 Client ID: B5B-SH-11W									
Antimony, Dissolved	ND	0.5	0.5021	100	-	-	70-130	-	20
Arsenic, Dissolved	0.0042	0.12	0.1222	98	-	-	70-130	-	20
Cadmium, Dissolved	ND	0.051	0.0525	103	-	-	70-130	-	20
Chromium, Dissolved	ND	0.2	0.1802	90	-	-	70-130	-	20
Copper, Dissolved	ND	0.25	0.2232	89	-	-	70-130	-	20
Lead, Dissolved	ND	0.51	0.5383	106	-	-	70-130	-	20
Nickel, Dissolved	0.0042	0.5	0.4657	92	-	-	70-130	-	20
Selenium, Dissolved	ND	0.12	0.1301	108	-	-	70-130	-	20
Silver, Dissolved	ND	0.05	0.0533	107	-	-	70-130	-	20
Zinc, Dissolved	ND	0.5	0.4941	99	-	-	70-130	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160942-3 QC Sample: L1837692-01 Client ID: B5B-SH-11W										
Iron, Dissolved	11.1	1	12.4	**130**	Q	-	-	75-125	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1159398-4 QC Sample: L1837617-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1159398-6 QC Sample: L1837617-02 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1159424-4 QC Sample: L1837692-01 Client ID: B5B-SH-11W						
Mercury, Dissolved	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160190-4 QC Sample: L1837514-01 Client ID: DUP Sample						
Iron, Total	1.05	1.06	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160191-4 QC Sample: L1837514-01 Client ID: DUP Sample						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	0.00416	0.00421	mg/l	1		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.02860	0.02943	mg/l	3		20
Copper, Total	0.02492	0.02522	mg/l	1		20
Lead, Total	0.00311	0.00316	mg/l	2		20
Nickel, Total	0.00760	0.00776	mg/l	2		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.01569	0.01673	mg/l	6		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837692

Report Date: 10/01/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160191-6 QC Sample: L1837514-02 Client ID: DUP Sample					
Antimony, Total	ND	ND	mg/l	NC	20
Arsenic, Total	0.00124	0.00135	mg/l	8	20
Cadmium, Total	ND	ND	mg/l	NC	20
Chromium, Total	0.00159	0.00155	mg/l	2	20
Copper, Total	0.00704	0.00699	mg/l	1	20
Lead, Total	ND	ND	mg/l	NC	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

Lab Duplicate Analysis

Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160941-4 QC Sample: L1837692-01 Client ID: B5B-SH-11W					
Antimony, Dissolved	ND	ND	mg/l	NC	20
Arsenic, Dissolved	0.0042	0.0043	mg/l	3	20
Cadmium, Dissolved	ND	ND	mg/l	NC	20
Chromium, Dissolved	ND	ND	mg/l	NC	20
Copper, Dissolved	ND	ND	mg/l	NC	20
Lead, Dissolved	ND	ND	mg/l	NC	20
Nickel, Dissolved	0.0042	0.0039	mg/l	7	20
Selenium, Dissolved	ND	ND	mg/l	NC	20
Silver, Dissolved	ND	ND	mg/l	NC	20
Zinc, Dissolved	ND	ND	mg/l	NC	20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160942-4 QC Sample: L1837692-01 Client ID: B5B-SH-11W					
Iron, Dissolved	11.1	11.3	mg/l	2	20

INORGANICS
&
MISCELLANEOUS

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

SAMPLE RESULTS

Lab ID: L1837692-01
Client ID: B5B-SH-11W
Sample Location: SOMERVILLE, MA

Date Collected: 09/20/18 14:30
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	3200		mg/l	25	NA	5	-	09/21/18 16:00	121,2540D	RM
Cyanide, Total	ND		mg/l	0.005	--	1	09/21/18 10:20	09/21/18 13:27	121,4500CN-CE	LH
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	09/21/18 07:05	121,4500CL-D	MA
pH (H)	6.8		SU	-	NA	1	-	09/21/18 05:30	121,4500H+-B	MA
Nitrogen, Ammonia	0.570		mg/l	0.075	--	1	09/21/18 14:00	09/21/18 21:58	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	09/22/18 07:00	09/22/18 09:00	74,1664A	KZ
Phenolics, Total	ND		mg/l	0.030	--	1	09/21/18 06:42	09/21/18 12:28	4,420.1	BR
Chromium, Hexavalent	ND		mg/l	0.010	--	1	09/21/18 01:30	09/21/18 03:13	1,7196A	MA
Anions by Ion Chromatography - Westborough Lab										
Chloride	205.		mg/l	25.0	--	50	-	09/21/18 18:22	44,300.0	JR
Sulfate	119.		mg/l	50.0	--	50	-	09/21/18 18:22	44,300.0	JR

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837692
Report Date: 10/01/18

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: WG1159199-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	09/21/18 01:30	09/21/18 03:02	1,7196A	MA
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1159227-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	09/21/18 16:00	121,2540D	RM
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1159257-1										
Phenolics, Total	ND		mg/l	0.030	--	1	09/21/18 06:42	09/21/18 12:18	4,420.1	BR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1159304-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	09/21/18 14:00	09/21/18 21:30	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1159327-1										
Cyanide, Total	ND		mg/l	0.005	--	1	09/21/18 10:20	09/21/18 13:11	121,4500CN-CE	LH
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1159340-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	09/21/18 07:05	121,4500CL-D	MA
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1159652-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	09/22/18 07:00	09/22/18 09:00	74,1664A	KZ
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1159779-1										
Chloride	ND		mg/l	0.500	--	1	-	09/21/18 17:58	44,300.0	JR
Sulfate	ND		mg/l	1.00	--	1	-	09/21/18 17:58	44,300.0	JR

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1159199-2								
Chromium, Hexavalent	94		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1159257-2								
Phenolics, Total	88		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1159304-2								
Nitrogen, Ammonia	102		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1159309-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1159327-2								
Cyanide, Total	103		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1159340-2								
Chlorine, Total Residual	93		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1159652-2								
TPH	90		-		64-132	-		34

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837692

Report Date: 10/01/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1159779-2					
Chloride	105	-	90-110	-	
Sulfate	99	-	90-110	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

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: WG1159199-4 QC Sample: L1837692-01 Client ID: B5B-SH-11W												
Chromium, Hexavalent	ND	0.1	0.093	93		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159257-4 QC Sample: L1837377-01 Client ID: MS Sample												
Phenolics, Total	ND	0.4	0.39	97		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159304-4 QC Sample: L1837514-02 Client ID: MS Sample												
Nitrogen, Ammonia	0.322	4	4.07	94		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159327-4 QC Sample: L1837514-02 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.201	100		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159340-4 QC Sample: L1837491-02 Client ID: MS Sample												
Chlorine, Total Residual	2.7	2.48	4.3	**65**	Q	-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159652-4 QC Sample: L1837377-01 Client ID: MS Sample												
TPH	ND	20	16.8	84		-	-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159779-3 QC Sample: L1837692-01 Client ID: B5B-SH-11W												
Chloride	205	200	417	106		-	-		90-110	-		18
Sulfate	119	400	564	**111**	Q	-	-		90-110	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159199-3 QC Sample: L1837692-01 Client ID: B5B-SH-11W						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159227-2 QC Sample: L1837331-02 Client ID: DUP Sample						
Solids, Total Suspended	7200	7300	mg/l	1		29
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159257-3 QC Sample: L1837377-01 Client ID: DUP Sample						
Phenolics, Total	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159304-3 QC Sample: L1837514-02 Client ID: DUP Sample						
Nitrogen, Ammonia	0.322	0.350	mg/l	8		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159309-2 QC Sample: L1837692-01 Client ID: B5B-SH-11W						
pH (H)	6.8	6.7	SU	1		5
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159327-3 QC Sample: L1837514-01 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159340-3 QC Sample: L1837491-01 Client ID: DUP Sample						
Chlorine, Total Residual	2.5	2.7	mg/l	8		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159652-3 QC Sample: L1837698-02 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34

Lab Duplicate Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837692

Report Date: 10/01/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159779-4 QC Sample: L1837692-01 Client ID: B5B-SH-11W					
Chloride	205	217	mg/l	6	18
Sulfate	119	124	mg/l	4	20

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
C	Absent
X	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1837692-01A	Vial Na2S2O3 preserved	C	NA		4.4	Y	Absent		-
L1837692-01A1	Vial Na2S2O3 preserved	C	NA		4.4	Y	Absent		-
L1837692-01A2	Vial Na2S2O3 preserved	C	NA		4.4	Y	Absent		-
L1837692-01A3	Vial Na2S2O3 preserved	C	NA		4.4	Y	Absent		-
L1837692-01B	Vial Na2S2O3 preserved	C	NA		4.4	Y	Absent		504(14)
L1837692-01B1	Vial Na2S2O3 preserved	C	NA		4.4	Y	Absent		504(14)
L1837692-01B2	Vial Na2S2O3 preserved	C	NA		4.4	Y	Absent		504(14)
L1837692-01B3	Vial Na2S2O3 preserved	C	NA		4.4	Y	Absent		504(14)
L1837692-01C	Plastic 250ml HNO3 preserved	C	<2	<2	4.4	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)
L1837692-01D	Plastic 250ml HNO3 preserved	C	<2	<2	4.4	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)
L1837692-01E	Plastic 250ml NaOH preserved	C	>12	>12	4.4	Y	Absent		TCN-4500(14)
L1837692-01F	Plastic 500ml H2SO4 preserved	C	<2	<2	4.4	Y	Absent		NH3-4500(28)
L1837692-01G	Plastic 950ml unpreserved	C	7	7	4.4	Y	Absent		SO4-300(28),CL-300(28),HEXCR-7196(1),TRC-4500(1),PH-4500(.01)
L1837692-01H	Plastic 950ml unpreserved	C	7	7	4.4	Y	Absent		TSS-2540(7)
L1837692-01I	Amber 1000ml Na2S2O3	C	7	7	4.4	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1837692-01J	Amber 1000ml Na2S2O3	C	7	7	4.4	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1837692-01K	Amber 1000ml Na2S2O3	C	7	7	4.4	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1837692-01L	Amber 1000ml Na2S2O3	C	7	7	4.4	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)

*Values in parentheses indicate holding time in days

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837692
Report Date: 10/01/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1837692-01M	Amber 950ml H2SO4 preserved	C	<2	<2	4.4	Y	Absent		TPHENOL-420(28)
L1837692-01N	Amber 1000ml Na2S2O3	C	7	7	4.4	Y	Absent		PCB-608.3(7)
L1837692-01O	Amber 1000ml Na2S2O3	C	7	7	4.4	Y	Absent		PCB-608.3(7)
L1837692-01P	Amber 1000ml HCl preserved	C	NA		4.4	Y	Absent		TPH-1664(28)
L1837692-01Q	Amber 1000ml HCl preserved	C	NA		4.4	Y	Absent		TPH-1664(28)
L1837692-01X	Vial HCl preserved	C	NA		4.4	Y	Absent		ARCHIVE()
L1837692-01X1	Vial HCl preserved	C	NA		4.4	Y	Absent		ARCHIVE()
L1837692-01X2	Vial HCl preserved	C	NA		4.4	Y	Absent		ARCHIVE()
L1837692-02A	Vial Na2S2O3 preserved	X	NA		2.9	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1837692-02B	Vial Na2S2O3 preserved	X	NA		2.9	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1837692-02C	Vial Na2S2O3 preserved	X	NA		2.9	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1837692-02D	Vial Na2S2O3 preserved	X	NA		2.9	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1837692-02E	Vial Na2S2O3 preserved	X	NA		2.9	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1837692-02F	Vial Na2S2O3 preserved	X	NA		2.9	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)

*Values in parentheses indicate holding time in days

Project Name:	BLOCK 5B	**Lab Number:**	L1837692
Project Number:	3175.12	**Report Date:**	10/01/18

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).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
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.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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.

Report Format: Data Usability Report

Project Name:	BLOCK 5B	**Lab Number:**	L1837692
Project Number:	3175.12	**Report Date:**	10/01/18

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 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:	BLOCK 5B	**Lab Number:**	L1837692
Project Number:	3175.12	**Report Date:**	10/01/18

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.

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.

127 Method 608.3: Organochlorine Pesticides and PCBs by GC/HSD, EPA 821-R-16-009, December 2016.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

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: SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
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: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-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: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, 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, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Be, Cd, Cr, Cu, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

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.

ALPHA ANALYTICAL
World Class Chemistry

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 9-20-18

ALPHA Job #: L1837692

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: Block 5B

Project Location: Somerville, MA

Project #: 3175.12

Project Manager: Kent Walker

ALPHA Quote #:

Client Information

Client: Sanborn, Head & Associates, Inc.

Address: 1 Technology Park Drive

Westford, MA 01886

Phone: 978-932-0900

Fax:

Email: kwalker@sanbornhead.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client Info

PO #:

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
NPDES RGP	NPDES Reporting Limits

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☒ No Are MCP Analytical Methods Required?

☐ Yes ☒ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

Do NOT run ethanol
Total and Dissolved Metals of Ag, As, Cd, Cr, Cu, Ni, Pb, Sb, Se, Zn, Fe, Hg
HexCr, TriCr (lab calc)
NPDES RGP minimum Levels (detection limits) must be met

SAMPLE HANDLING
Filtration
☒ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	NPDES RGP Package	Total and Dissolved Metals	Ethanol	pH, Sulfate, Hardness									Sample Specific Comments	TOTAL # BOTTLES
	~~B5B-SH-1W~~			~~GW~~	~~SCG~~	☒	☒	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	See Notes	
37692-01	B5B-SH-11W	9/20/18	14:30	GW	SCG	☒	☒	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	See Notes	
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

FORM NO: 01-01(I)
(rev. 5-JAN-12)

Relinquished By:	Date/Time	Received By:	Date/Time
	9/20/18 15:25	Tim G[illegible] AAL	9/20/18 1535
Tye G[illegible] 9/20/18	18 15		9/20/18 1815

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 9/25/18

ALPHA Job #: L1837692

ALPHA Analytical
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Project Information

Project Name: Block 53
Project Location: Somerville MA
Project #: 8175.12
Project Manager: Kent Walker
ALPHA Quote #:

Report Information - Data Deliverables

X ADEx X EMAIL

Billing Information

X Same as Client info PO #:

Client Information

Client: Sanborn Head & Associates
Address: 1 Technology Park Westford MA
Phone: 978.932.0908
Email: kwalker@sanbornhead.com

Regulatory Requirements & Project Information Requirements

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

Turn-Around Time

X Standard ☐ RUSH (only confirmed if pre-approved)

Date Due:

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
- 624.1 - RGP

SAMPLE INFO

Filtration
☐ Field
☐ Lab to do

Preservation
☐ Lab to do

Sample Comments

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	624.1 - RGP	TOTAL # BOTTLES
	BSB-SH1W	9/24/18	1245	GW	SCG	X	
37692-02	BSB-SH11W	9/24/18	1330	GW	SCG	X	

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

Container Type																	
Preservative																	

Relinquished By:	Date/Time	Received By:	Date/Time
Sara Fragiani	9/24/18 16:30	Ashley James	9/24/18 1630
Ashley James	9/25/18 1013		9/25/18 1013
	9/25/18 1730		9/25/18 1730

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:	L1837696
Client:	Sanborn, Head & Associates, Inc. 1 Technology Park Drive Westford, MA 01886
ATTN:	Kent Walker
Phone:	(978) 577-1003
Project Name:	BLOCK 5B
Project Number:	3175.12
Report Date:	09/27/18

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1837696-01	B5B-SH-1W	WATER	SOMERVILLE, MA	09/20/18 16:10	09/20/18
L1837696-02	B5B-SH-1W	WATER	SOMERVILLE, MA	09/24/18 12:45	09/25/18

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

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: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837696
Report Date: 09/27/18

Case Narrative (continued)

Sample Receipt

L1837696-01: Headspace was noted in three sample containers submitted for Volatile Organics; however, there was adequate sample remaining to perform the requested analysis.

L1837696-02: Additional sample was collected on 9/24/18 for Volatile Organics and submitted to the laboratory 9/25/18; however, this sample was not was analyzed.

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: Michelle M. Morris

Title: Technical Director/Representative Date: 09/27/18

ORGANICS

VOLATILES

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837696
Report Date: 09/27/18

SAMPLE RESULTS

Lab ID: L1837696-01
Client ID: B5B-SH-1W
Sample Location: SOMERVILLE, MA
Date Collected: 09/20/18 16:10
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 09/24/18 17:38
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethane	ND		ug/l	1.5	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.5	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethane	ND		ug/l	1.5	--	1
1,1,1-Trichloroethane	ND		ug/l	2.0	--	1
Benzene	ND		ug/l	1.0	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	5.0	--	1
1,3-Dichlorobenzene	ND		ug/l	5.0	--	1
1,4-Dichlorobenzene	ND		ug/l	5.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
Acetone	ND		ug/l	10	--	1
Methyl tert butyl ether	ND		ug/l	10	--	1
Tert-Butyl Alcohol	ND		ug/l	100	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--	1

Project Name: BLOCK 5B
Lab Number: L1837696
Project Number: 3175.12
Report Date: 09/27/18

SAMPLE RESULTS

Lab ID: L1837696-01
Client ID: B5B-SH-1W
Sample Location: SOMERVILLE, MA
Date Collected: 09/20/18 16:10
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	122		60-140
Fluorobenzene	103		60-140
4-Bromofluorobenzene	109		60-140

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837696
Report Date: 09/27/18

SAMPLE RESULTS

Lab ID: L1837696-01
Client ID: B5B-SH-1W
Sample Location: SOMERVILLE, MA
Date Collected: 09/20/18 16:10
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 09/24/18 17:38
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	50	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	111		60-140
4-Bromofluorobenzene	114		60-140

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837696
Report Date: 09/27/18

SAMPLE RESULTS

Lab ID: L1837696-01
Client ID: B5B-SH-1W
Sample Location: SOMERVILLE, MA

Date Collected: 09/20/18 16:10
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 09/26/18 11:18
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 09/26/18 08:09

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.011	--	1	B

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 09/26/18 08:58
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 09/26/18 08:09

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1160530-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	B

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 09/24/18 12:36
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1160665-4					
Methylene chloride	ND		ug/l	1.0	--
1,1-Dichloroethane	ND		ug/l	1.5	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.5	--
Tetrachloroethene	ND		ug/l	1.0	--
1,2-Dichloroethane	ND		ug/l	1.5	--
1,1,1-Trichloroethane	ND		ug/l	2.0	--
Benzene	ND		ug/l	1.0	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	5.0	--
1,3-Dichlorobenzene	ND		ug/l	5.0	--
1,4-Dichlorobenzene	ND		ug/l	5.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
Acetone	ND		ug/l	10	--
Methyl tert butyl ether	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	100	--
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837696
Report Date: 09/27/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 09/24/18 12:36
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1160665-4					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	103		60-140
Fluorobenzene	101		60-140
4-Bromofluorobenzene	104		60-140

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 09/24/18 12:36
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1160712-4					
1,4-Dioxane	ND		ug/l	50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	108		60-140
4-Bromofluorobenzene	101		60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837696

Report Date: 09/27/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 01		Batch: WG1160530-2						
1,2-Dibromoethane	117		-		80-120	-			B

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

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: WG1160665-3								
Methylene chloride	105		-		60-140	-		28
1,1-Dichloroethane	75		-		50-150	-		49
Carbon tetrachloride	110		-		70-130	-		41
1,1,2-Trichloroethane	90		-		70-130	-		45
Tetrachloroethene	110		-		70-130	-		39
1,2-Dichloroethane	100		-		70-130	-		49
1,1,1-Trichloroethane	105		-		70-130	-		36
Benzene	100		-		65-135	-		61
Toluene	110		-		70-130	-		41
Ethylbenzene	110		-		60-140	-		63
Vinyl chloride	75		-		5-195	-		66
1,1-Dichloroethene	100		-		50-150	-		32
cis-1,2-Dichloroethene	100		-		60-140	-		30
Trichloroethene	90		-		65-135	-		48
1,2-Dichlorobenzene	100		-		65-135	-		57
1,3-Dichlorobenzene	95		-		70-130	-		43
1,4-Dichlorobenzene	100		-		65-135	-		57
p/m-Xylene	115		-		60-140	-		30
o-xylene	105		-		60-140	-		30
Acetone	122		-		40-160	-		30
Methyl tert butyl ether	95		-		60-140	-		30
Tert-Butyl Alcohol	84		-		60-140	-		30
Tertiary-Amyl Methyl Ether	90		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

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: WG1160665-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	103				60-140
Fluorobenzene	99				60-140
4-Bromofluorobenzene	100				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

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: WG1160712-3								
1,4-Dioxane	85		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	107				60-140
4-Bromofluorobenzene	98				60-140

Matrix Spike Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837696

Report Date: 09/27/18

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: WG1160530-3 QC Sample: L1837081-04 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.248	0.294	118		-	-		80-120	-		20	B
1,2-Dibromo-3-chloropropane	ND	0.248	0.307	**124**	Q	-	-		80-120	-		20	B

SEMIVOLATILES

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837696
Report Date: 09/27/18

SAMPLE RESULTS

Lab ID: L1837696-01
Client ID: B5B-SH-1W
Sample Location: SOMERVILLE, MA

Date Collected: 09/20/18 16:10
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 09/26/18 20:01
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 09/25/18 15:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		42-122
2-Fluorobiphenyl	84		46-121
4-Terphenyl-d14	77		47-138

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837696
Report Date: 09/27/18

SAMPLE RESULTS

Lab ID: L1837696-01
Client ID: B5B-SH-1W
Sample Location: SOMERVILLE, MA

Date Collected: 09/20/18 16:10
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 09/26/18 13:21
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 09/25/18 15:34

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	--	1
Fluoranthene	0.22		ug/l	0.10	--	1
Naphthalene	ND		ug/l	0.10	--	1
Benzo(a)anthracene	0.11		ug/l	0.10	--	1
Benzo(a)pyrene	0.12		ug/l	0.10	--	1
Benzo(b)fluoranthene	0.16		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	0.11		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	ND		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	ND		ug/l	0.10	--	1
Phenanthrene	0.16		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--	1
Pyrene	0.20		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	1.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	42		25-87
Phenol-d6	32		16-65
Nitrobenzene-d5	70		42-122
2-Fluorobiphenyl	83		46-121
2,4,6-Tribromophenol	92		45-128
4-Terphenyl-d14	66		47-138

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 09/26/18 15:23
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 09/25/18 15:33

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1160704-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		42-122
2-Fluorobiphenyl	79		46-121
4-Terphenyl-d14	84		47-138

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 09/26/18 12:00
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 09/25/18 15:34

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1160706-1					
Acenaphthene	ND		ug/l	0.10	--
Fluoranthene	ND		ug/l	0.10	--
Naphthalene	ND		ug/l	0.10	--
Benzo(a)anthracene	ND		ug/l	0.10	--
Benzo(a)pyrene	ND		ug/l	0.10	--
Benzo(b)fluoranthene	ND		ug/l	0.10	--
Benzo(k)fluoranthene	ND		ug/l	0.10	--
Chrysene	ND		ug/l	0.10	--
Acenaphthylene	ND		ug/l	0.10	--
Anthracene	ND		ug/l	0.10	--
Benzo(ghi)perylene	ND		ug/l	0.10	--
Fluorene	ND		ug/l	0.10	--
Phenanthrene	ND		ug/l	0.10	--
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--
Pyrene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	1.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	37		25-87
Phenol-d6	30		16-65
Nitrobenzene-d5	63		42-122
2-Fluorobiphenyl	81		46-121
2,4,6-Tribromophenol	96		45-128
4-Terphenyl-d14	78		47-138

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

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: WG1160704-2								
Bis(2-ethylhexyl)phthalate	106		-		29-137	-		30
Butyl benzyl phthalate	101		-		1-140	-		30
Di-n-butylphthalate	101		-		8-120	-		30
Di-n-octylphthalate	117		-		19-132	-		30
Diethyl phthalate	97		-		1-120	-		30
Dimethyl phthalate	93		-		1-120	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	94				42-122
2-Fluorobiphenyl	85				46-121
4-Terphenyl-d14	80				47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

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: WG1160706-2								
Acenaphthene	78		-		60-132	-		30
Fluoranthene	77		-		43-121	-		30
Naphthalene	64		-		36-120	-		30
Benzo(a)anthracene	82		-		42-133	-		30
Benzo(a)pyrene	86		-		32-148	-		30
Benzo(b)fluoranthene	85		-		42-140	-		30
Benzo(k)fluoranthene	84		-		25-146	-		30
Chrysene	80		-		44-140	-		30
Acenaphthylene	79		-		54-126	-		30
Anthracene	91		-		43-120	-		30
Benzo(ghi)perylene	67		-		1-195	-		30
Fluorene	82		-		70-120	-		30
Phenanthrene	80		-		65-120	-		30
Dibenzo(a,h)anthracene	73		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	75		-		1-151	-		30
Pyrene	83		-		70-120	-		30
Pentachlorophenol	79		-		38-152	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

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: WG1160706-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	42				25-87
Phenol-d6	32				16-65
Nitrobenzene-d5	68				42-122
2-Fluorobiphenyl	59				46-121
2,4,6-Tribromophenol	87				45-128
4-Terphenyl-d14	68				47-138

PCBS

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837696
Report Date: 09/27/18

SAMPLE RESULTS

Lab ID: L1837696-01
Client ID: B5B-SH-1W
Sample Location: SOMERVILLE, MA

Date Collected: 09/20/18 16:10
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 09/25/18 07:07
Analyst: AWS

Extraction Method: EPA 608.3
Extraction Date: 09/22/18 11:33
Cleanup Method: EPA 3665A
Cleanup Date: 09/23/18
Cleanup Method: EPA 3660B
Cleanup Date: 09/23/18

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	84		37-123	B
Decachlorobiphenyl	71		38-114	B
2,4,5,6-Tetrachloro-m-xylene	79		37-123	A
Decachlorobiphenyl	65		38-114	A

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 09/25/18 06:05
Analyst: AWS

Extraction Method: EPA 608.3
Extraction Date: 09/22/18 11:33
Cleanup Method: EPA 3665A
Cleanup Date: 09/23/18
Cleanup Method: EPA 3660B
Cleanup Date: 09/23/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1159721-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	83		37-123	B
Decachlorobiphenyl	85		38-114	B
2,4,5,6-Tetrachloro-m-xylene	80		37-123	A
Decachlorobiphenyl	80		38-114	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

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: WG1159721-2									
Aroclor 1016	85		-		50-140	-		36	A
Aroclor 1260	85		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	95				37-123	B
Decachlorobiphenyl	93				38-114	B
2,4,5,6-Tetrachloro-m-xylene	93				37-123	A
Decachlorobiphenyl	82				38-114	A

METALS

Project Name: BLOCK 5B
Lab Number: L1837696
Project Number: 3175.12
Report Date: 09/27/18

SAMPLE RESULTS

Lab ID: L1837696-01
Client ID: B5B-SH-1W
Sample Location: SOMERVILLE, MA
Date Collected: 09/20/18 16:10
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	09/24/18 13:05	09/25/18 15:29	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00751		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 15:29	EPA 3005A	3,200.8	AM
Cadmium, Total	0.00024		mg/l	0.00020	--	1	09/24/18 13:05	09/25/18 15:29	EPA 3005A	3,200.8	AM
Chromium, Total	0.02673		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 15:29	EPA 3005A	3,200.8	AM
Copper, Total	0.08080		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 15:29	EPA 3005A	3,200.8	AM
Iron, Total	24.0		mg/l	0.050	--	1	09/24/18 13:05	09/25/18 20:41	EPA 3005A	19,200.7	AB
Lead, Total	0.06852		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 15:29	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	09/24/18 15:10	09/25/18 17:08	EPA 245.1	3,245.1	MG
Nickel, Total	0.01453		mg/l	0.00200	--	1	09/24/18 13:05	09/25/18 15:29	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	09/24/18 13:05	09/25/18 15:29	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	09/24/18 13:05	09/25/18 15:29	EPA 3005A	3,200.8	AM
Zinc, Total	0.1267		mg/l	0.01000	--	1	09/24/18 13:05	09/25/18 15:29	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	299		mg/l	0.660	NA	1	09/24/18 13:05	09/25/18 20:41	EPA 3005A	19,200.7	AB
General Chemistry - Mansfield Lab											
Chromium, Trivalent	0.026		mg/l	0.010	--	1		09/25/18 15:29	NA	107,-	
Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	09/26/18 08:00	09/26/18 12:07	EPA 3005A	3,200.8	AM
Arsenic, Dissolved	0.0011		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 12:07	EPA 3005A	3,200.8	AM
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	09/26/18 08:00	09/26/18 12:07	EPA 3005A	3,200.8	AM
Chromium, Dissolved	0.0018		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 12:07	EPA 3005A	3,200.8	AM
Copper, Dissolved	ND		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 12:07	EPA 3005A	3,200.8	AM
Iron, Dissolved	12.0		mg/l	0.050	--	1	09/26/18 08:00	09/26/18 16:07	EPA 3005A	19,200.7	LC
Lead, Dissolved	ND		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 12:07	EPA 3005A	3,200.8	AM
Mercury, Dissolved	ND		mg/l	0.00020	--	1	09/21/18 12:34	09/21/18 17:56	EPA 245.1	3,245.1	MG

Project Name: BLOCK 5B
Lab Number: L1837696
Project Number: 3175.12
Report Date: 09/27/18

SAMPLE RESULTS

Lab ID: L1837696-01
Client ID: B5B-SH-1W
Sample Location: SOMERVILLE, MA
Date Collected: 09/20/18 16:10
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Nickel, Dissolved	ND		mg/l	0.0020	--	1	09/26/18 08:00	09/26/18 12:07	EPA 3005A	3,200.8	AM
Selenium, Dissolved	ND		mg/l	0.0050	--	1	09/26/18 08:00	09/26/18 12:07	EPA 3005A	3,200.8	AM
Silver, Dissolved	ND		mg/l	0.0004	--	1	09/26/18 08:00	09/26/18 12:07	EPA 3005A	3,200.8	AM
Zinc, Dissolved	0.0162		mg/l	0.0100	--	1	09/26/18 08:00	09/26/18 12:07	EPA 3005A	3,200.8	AM

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837696
Report Date: 09/27/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1159424-1										
Mercury, Dissolved	ND		mg/l	0.00020	--	1	09/21/18 12:34	09/21/18 17:47	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
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1160190-1										
Iron, Total	ND		mg/l	0.050	--	1	09/24/18 13:05	09/25/18 19:27	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: WG1160190-1										
Hardness	ND		mg/l	0.660	NA	1	09/24/18 13:05	09/25/18 19:27	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: WG1160191-1										
Antimony, Total	ND		mg/l	0.00400	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM

Project Name: BLOCK 5B **Lab Number:** L1837696

Project Number: 3175.12 **Report Date:** 09/27/18

Method Blank Analysis
Batch Quality Control

Nickel, Total	ND	mg/l	0.00200	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Selenium, Total	ND	mg/l	0.00500	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Silver, Total	ND	mg/l	0.00040	--	1	09/24/18 13:05	09/25/18 13:30	3,200.8	AM
Zinc, Total	ND	mg/l	0.01000	--	1	09/24/18 13:05	09/25/18 13:30	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: WG1160244-1										
Mercury, Total	ND		mg/l	0.00020	--	1	09/24/18 15:10	09/25/18 15:21	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: WG1160941-1										
Antimony, Dissolved	ND		mg/l	0.0040	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Arsenic, Dissolved	ND		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Chromium, Dissolved	ND		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Copper, Dissolved	ND		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Lead, Dissolved	ND		mg/l	0.0010	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Nickel, Dissolved	ND		mg/l	0.0020	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Selenium, Dissolved	ND		mg/l	0.0050	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Silver, Dissolved	ND		mg/l	0.0004	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM
Zinc, Dissolved	ND		mg/l	0.0100	--	1	09/26/18 08:00	09/26/18 11:31	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837696
Report Date: 09/27/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1160942-1										
Iron, Dissolved	ND		mg/l	0.050	--	1	09/26/18 08:00	09/26/18 14:41	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837696

Report Date: 09/27/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1159424-2								
Mercury, Dissolved	100		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1160190-2								
Iron, Total	104		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1160190-2								
Hardness	107		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1160191-2								
Antimony, Total	100		-		85-115	-		
Arsenic, Total	97		-		85-115	-		
Cadmium, Total	109		-		85-115	-		
Chromium, Total	99		-		85-115	-		
Copper, Total	98		-		85-115	-		
Lead, Total	98		-		85-115	-		
Nickel, Total	101		-		85-115	-		
Selenium, Total	111		-		85-115	-		
Silver, Total	106		-		85-115	-		
Zinc, Total	110		-		85-115	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837696

Report Date: 09/27/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1160244-2					
Mercury, Total	93	-	85-115	-	
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1160941-2					
Antimony, Dissolved	93	-	85-115	-	
Arsenic, Dissolved	97	-	85-115	-	
Cadmium, Dissolved	102	-	85-115	-	
Chromium, Dissolved	89	-	85-115	-	
Copper, Dissolved	88	-	85-115	-	
Lead, Dissolved	107	-	85-115	-	
Nickel, Dissolved	92	-	85-115	-	
Selenium, Dissolved	103	-	85-115	-	
Silver, Dissolved	109	-	85-115	-	
Zinc, Dissolved	94	-	85-115	-	
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1160942-2					
Iron, Dissolved	105	-	85-115	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1159424-3 QC Sample: L1837692-01 Client ID: MS Sample												
Mercury, Dissolved	ND	0.005	0.00365	**73**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160190-3 QC Sample: L1837514-01 Client ID: MS Sample												
Iron, Total	1.05	1	2.04	99		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160190-3 QC Sample: L1837514-01 Client ID: MS Sample												
Hardness	273	66.2	334	92		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160191-3 QC Sample: L1837514-01 Client ID: MS Sample												
Antimony, Total	ND	0.5	0.5534	111		-	-		70-130	-		20
Arsenic, Total	0.00416	0.12	0.1299	105		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05269	103		-	-		70-130	-		20
Chromium, Total	0.02860	0.2	0.2260	99		-	-		70-130	-		20
Copper, Total	0.02492	0.25	0.2651	96		-	-		70-130	-		20
Lead, Total	0.00311	0.51	0.5271	103		-	-		70-130	-		20
Nickel, Total	0.00760	0.5	0.5108	101		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1336	111		-	-		70-130	-		20
Silver, Total	ND	0.05	0.05588	112		-	-		70-130	-		20
Zinc, Total	0.01569	0.5	0.5487	107		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

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: WG1160191-5 QC Sample: L1837514-02 Client ID: MS Sample									
Antimony, Total	ND	0.5	0.5008	100	-	-	70-130	-	20
Arsenic, Total	0.00124	0.12	0.1293	107	-	-	70-130	-	20
Cadmium, Total	ND	0.051	0.05382	106	-	-	70-130	-	20
Chromium, Total	0.00159	0.2	0.2006	100	-	-	70-130	-	20
Copper, Total	0.00704	0.25	0.2538	99	-	-	70-130	-	20
Lead, Total	ND	0.51	0.5341	105	-	-	70-130	-	20
Nickel, Total	ND	0.5	0.5178	104	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1330	111	-	-	70-130	-	20
Silver, Total	ND	0.05	0.05519	110	-	-	70-130	-	20
Zinc, Total	ND	0.5	0.5343	107	-	-	70-130	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160244-3 QC Sample: L1837973-01 Client ID: MS Sample									
Mercury, Total	ND	0.005	0.00398	80	-	-	70-130	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160244-5 QC Sample: L1837973-02 Client ID: MS Sample									
Mercury, Total	ND	0.005	0.00383	77	-	-	70-130	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160941-3 QC Sample: L1837692-01 Client ID: MS Sample										
Antimony, Dissolved	ND	0.5	0.5021	100		-	-	70-130	-	20
Arsenic, Dissolved	0.0042	0.12	0.1222	98		-	-	70-130	-	20
Cadmium, Dissolved	ND	0.051	0.0525	103		-	-	70-130	-	20
Chromium, Dissolved	ND	0.2	0.1802	90		-	-	70-130	-	20
Copper, Dissolved	ND	0.25	0.2232	89		-	-	70-130	-	20
Lead, Dissolved	ND	0.51	0.5383	106		-	-	70-130	-	20
Nickel, Dissolved	0.0042	0.5	0.4657	92		-	-	70-130	-	20
Selenium, Dissolved	ND	0.12	0.1301	108		-	-	70-130	-	20
Silver, Dissolved	ND	0.05	0.0533	107		-	-	70-130	-	20
Zinc, Dissolved	ND	0.5	0.4941	99		-	-	70-130	-	20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160942-3 QC Sample: L1837692-01 Client ID: MS Sample										
Iron, Dissolved	11.1	1	12.4	**130**	Q	-	-	75-125	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1159424-4 QC Sample: L1837692-01 Client ID: DUP Sample						
Mercury, Dissolved	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160190-4 QC Sample: L1837514-01 Client ID: DUP Sample						
Iron, Total	1.05	1.06	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160191-4 QC Sample: L1837514-01 Client ID: DUP Sample						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	0.00416	0.00421	mg/l	1		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.02860	0.02943	mg/l	3		20
Copper, Total	0.02492	0.02522	mg/l	1		20
Lead, Total	0.00311	0.00316	mg/l	2		20
Nickel, Total	0.00760	0.00776	mg/l	2		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.01569	0.01673	mg/l	6		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160191-6 QC Sample: L1837514-02 Client ID: DUP Sample					
Antimony, Total	ND	ND	mg/l	NC	20
Arsenic, Total	0.00124	0.00135	mg/l	8	20
Cadmium, Total	ND	ND	mg/l	NC	20
Chromium, Total	0.00159	0.00155	mg/l	2	20
Copper, Total	0.00704	0.00699	mg/l	1	20
Lead, Total	ND	ND	mg/l	NC	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: WG1160244-4 QC Sample: L1837973-01 Client ID: DUP Sample					
Mercury, Total	ND	ND	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160244-6 QC Sample: L1837973-02 Client ID: DUP Sample					
Mercury, Total	ND	ND	mg/l	NC	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160941-4 QC Sample: L1837692-01 Client ID: DUP Sample					
Antimony, Dissolved	ND	ND	mg/l	NC	20
Arsenic, Dissolved	0.0042	0.0043	mg/l	3	20
Cadmium, Dissolved	ND	ND	mg/l	NC	20
Chromium, Dissolved	ND	ND	mg/l	NC	20
Copper, Dissolved	ND	ND	mg/l	NC	20
Lead, Dissolved	ND	ND	mg/l	NC	20
Nickel, Dissolved	0.0042	0.0039	mg/l	7	20
Selenium, Dissolved	ND	ND	mg/l	NC	20
Silver, Dissolved	ND	ND	mg/l	NC	20
Zinc, Dissolved	ND	ND	mg/l	NC	20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1160942-4 QC Sample: L1837692-01 Client ID: DUP Sample					
Iron, Dissolved	11.1	11.3	mg/l	2	20

INORGANICS
&
MISCELLANEOUS

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

SAMPLE RESULTS

Lab ID: L1837696-01
Client ID: B5B-SH-1W
Sample Location: SOMERVILLE, MA

Date Collected: 09/20/18 16:10
Date Received: 09/20/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	1100		mg/l	50	NA	10	-	09/21/18 08:25	121,2540D	DR
Cyanide, Total	ND		mg/l	0.005	--	1	09/21/18 10:20	09/21/18 13:28	121,4500CN-CE	LH
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	09/21/18 07:05	121,4500CL-D	MA
pH (H)	6.9		SU	-	NA	1	-	09/21/18 08:40	121,4500H+-B	GD
Nitrogen, Ammonia	1.15		mg/l	0.075	--	1	09/21/18 14:00	09/21/18 21:57	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	09/22/18 07:00	09/22/18 09:00	74,1664A	KZ
Phenolics, Total	ND		mg/l	0.030	--	1	09/21/18 06:42	09/21/18 12:29	4,420.1	BR
Chromium, Hexavalent	ND		mg/l	0.010	--	1	09/21/18 01:30	09/21/18 03:15	1,7196A	MA
Anions by Ion Chromatography - Westborough Lab										
Chloride	383.		mg/l	25.0	--	50	-	09/21/18 18:58	44,300.0	JR
Sulfate	11.9		mg/l	1.00	--	1	-	09/21/18 21:23	44,300.0	JR

Project Name: BLOCK 5B
Project Number: 3175.12
Lab Number: L1837696
Report Date: 09/27/18

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: WG1159200-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	09/21/18 01:30	09/21/18 03:02	1,7196A	MA
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1159246-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	09/21/18 08:25	121,2540D	DR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1159257-1										
Phenolics, Total	ND		mg/l	0.030	--	1	09/21/18 06:42	09/21/18 12:18	4,420.1	BR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1159304-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	09/21/18 14:00	09/21/18 21:30	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1159327-1										
Cyanide, Total	ND		mg/l	0.005	--	1	09/21/18 10:20	09/21/18 13:11	121,4500CN-CE	LH
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1159340-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	09/21/18 07:05	121,4500CL-D	MA
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1159652-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	09/22/18 07:00	09/22/18 09:00	74,1664A	KZ
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1159779-1										
Chloride	ND		mg/l	0.500	--	1	-	09/21/18 17:58	44,300.0	JR
Sulfate	ND		mg/l	1.00	--	1	-	09/21/18 17:58	44,300.0	JR

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1159155-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1159200-2								
Chromium, Hexavalent	94		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1159257-2								
Phenolics, Total	88		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1159304-2								
Nitrogen, Ammonia	102		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1159327-2								
Cyanide, Total	103		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1159340-2								
Chlorine, Total Residual	93		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1159652-2								
TPH	90		-		64-132	-		34

Lab Control Sample Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837696

Report Date: 09/27/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1159779-2					
Chloride	105	-	90-110	-	
Sulfate	99	-	90-110	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

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: WG1159200-4 QC Sample: L1837696-01 Client ID: B5B-SH-1W												
Chromium, Hexavalent	ND	0.1	0.094	94		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159257-4 QC Sample: L1837377-01 Client ID: MS Sample												
Phenolics, Total	ND	0.4	0.39	97		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159304-4 QC Sample: L1837514-02 Client ID: MS Sample												
Nitrogen, Ammonia	0.322	4	4.07	94		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159327-4 QC Sample: L1837514-02 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.201	100		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159340-4 QC Sample: L1837491-02 Client ID: MS Sample												
Chlorine, Total Residual	2.7	2.48	4.3	**65**	Q	-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159652-4 QC Sample: L1837377-01 Client ID: MS Sample												
TPH	ND	20	16.8	84		-	-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159779-3 QC Sample: L1837692-01 Client ID: MS Sample												
Chloride	205	200	417	106		-	-		90-110	-		18
Sulfate	119	400	564	**111**	Q	-	-		90-110	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159155-2 QC Sample: L1837515-01 Client ID: DUP Sample						
pH	6.9	6.9	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159200-3 QC Sample: L1837696-01 Client ID: B5B-SH-1W						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159246-2 QC Sample: L1837699-01 Client ID: DUP Sample						
Solids, Total Suspended	43000	39000	mg/l	10		29
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159257-3 QC Sample: L1837377-01 Client ID: DUP Sample						
Phenolics, Total	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159304-3 QC Sample: L1837514-02 Client ID: DUP Sample						
Nitrogen, Ammonia	0.322	0.350	mg/l	8		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159327-3 QC Sample: L1837514-01 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159340-3 QC Sample: L1837491-01 Client ID: DUP Sample						
Chlorine, Total Residual	2.5	2.7	mg/l	8		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159652-3 QC Sample: L1837698-02 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34

Lab Duplicate Analysis

Batch Quality Control

Project Name: BLOCK 5B

Project Number: 3175.12

Lab Number: L1837696

Report Date: 09/27/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1159779-4 QC Sample: L1837692-01 Client ID: DUP Sample					
Chloride	205	217	mg/l	6	18
Sulfate	119	124	mg/l	4	20

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
X	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1837696-01A	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1837696-01B	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1837696-01C	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1837696-01D	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1837696-01E	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		504(14)
L1837696-01F	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		504(14)
L1837696-01G	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		504(14)
L1837696-01H	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		504(14)
L1837696-01I	Plastic 250ml NaOH preserved	A	>12	>12	4.2	Y	Absent		TCN-4500(14)
L1837696-01J	Plastic 250ml HNO3 preserved	A	<2	<2	4.2	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)
L1837696-01K	Plastic 250ml HNO3 preserved	A	<2	<2	4.2	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)
L1837696-01L	Plastic 500ml H2SO4 preserved	A	<2	<2	4.2	Y	Absent		NH3-4500(28)
L1837696-01M	Plastic 950ml unpreserved	A	7	7	4.2	Y	Absent		SO4-300(28),CL-300(28),HEXCR-7196(1),TRC-4500(1),PH-4500(.01)
L1837696-01N	Plastic 950ml unpreserved	A	7	7	4.2	Y	Absent		TSS-2540(7)
L1837696-01O	Amber 1000ml Na2S2O3	A	7	7	4.2	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1837696-01P	Amber 1000ml Na2S2O3	A	7	7	4.2	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1837696-01Q	Amber 1000ml Na2S2O3	A	7	7	4.2	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1837696-01R	Amber 1000ml Na2S2O3	A	7	7	4.2	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)

*Values in parentheses indicate holding time in days

Project Name: BLOCK 5B
Project Number: 3175.12

Lab Number: L1837696
Report Date: 09/27/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1837696-01S	Amber 950ml H2SO4 preserved	A	<2	<2	4.2	Y	Absent		TPHENOL-420(28)
L1837696-01T	Amber 1000ml Na2S2O3	A	7	7	4.2	Y	Absent		PCB-608.3(7)
L1837696-01U	Amber 1000ml Na2S2O3	A	7	7	4.2	Y	Absent		PCB-608.3(7)
L1837696-01V	Amber 1000ml HCl preserved	A	NA		4.2	Y	Absent		TPH-1664(28)
L1837696-01W	Amber 1000ml HCl preserved	A	NA		4.2	Y	Absent		TPH-1664(28)
L1837696-01X	Vial HCl preserved	A	NA		4.2	Y	Absent		ARCHIVE()
L1837696-01X1	Vial HCl preserved	A	NA		4.2	Y	Absent		ARCHIVE()
L1837696-01X2	Vial HCl preserved	A	NA		4.2	Y	Absent		ARCHIVE()
L1837696-02A	Vial Na2S2O3 preserved	X	NA		2.9	Y	Absent		ARCHIVE()
L1837696-02B	Vial Na2S2O3 preserved	X	NA		2.9	Y	Absent		ARCHIVE()
L1837696-02C	Vial Na2S2O3 preserved	X	NA		2.9	Y	Absent		ARCHIVE()
L1837696-02D	Vial Na2S2O3 preserved	X	NA		2.9	Y	Absent		ARCHIVE()
L1837696-02E	Vial Na2S2O3 preserved	X	NA		2.9	Y	Absent		ARCHIVE()
L1837696-02F	Vial Na2S2O3 preserved	X	NA		2.9	Y	Absent		ARCHIVE()

*Values in parentheses indicate holding time in days

Project Name:	BLOCK 5B	**Lab Number:**	L1837696
Project Number:	3175.12	**Report Date:**	09/27/18

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).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
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.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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.

Report Format: Data Usability Report

Project Name:	BLOCK 5B	**Lab Number:**	L1837696
Project Number:	3175.12	**Report Date:**	09/27/18

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 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:	BLOCK 5B	**Lab Number:**	L1837696
Project Number:	3175.12	**Report Date:**	09/27/18

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.

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.

127 Method 608.3: Organochlorine Pesticides and PCBs by GC/HSD, EPA 821-R-16-009, December 2016.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

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: SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
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: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-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: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, 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, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Be, Cd, Cr, Cu, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

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

ALPHA ANALYTICAL
Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 9-20-18
ALPHA Job #: L1837696

Project Information
Project Name: Block 5B
Project Location: Somerville, MA
Project #: 3175.12
Project Manager: Kent Walker
ALPHA Quote #:

Client Information
Client: Sanborn, Head & Associates, Inc.
Address: 1 Technology Park Drive
Westford, MA 01886
Phone: 978-932-0900
Fax:
Email: kwalker@sanbornhead.com
☐ These samples have been Previously analyzed by Alpha

Turn-Around Time
☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)
Due Date: Time:

Report Information Data Deliverables
☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information
☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
NPDES RGP	NPDES Reporting Limits

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS
☐ Yes ☒ No Are MCP Analytical Methods Required?
☐ Yes ☒ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Do NOT run ethanol
Total and Dissolved Metals of Ag, As, Cd, Cr, Cu, Ni, Pb, Sb, Se, Zn, Fe, Hg
HexCr, TriCr (lab calc)
NPDES RGP minimum Levels (detection limits) must be met

SAMPLE HANDLING
Filtration
☒ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	NPDES RGP Package	Total and Dissolved Metals	Ethanol	pH, Sulfate, Hardness	Sample Specific Comments	TOTAL # BOTTLES
37696-01	B5B-SH-1W	9/20/18	16:10	GW	SCG	☒	☒	☒	☒	See Notes	
	~~B5B-SH-1W~~			~~GW~~	~~SCG~~	☒	☒	☒	☒	See Notes	

PLEASE ANSWER QUESTIONS ABOVE!

Container Type: - - - - - - - - - - - -
Preservative: - - - - - - - - - - - -

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	9/20/18 1640	[signature] AAL	9/20/18 1640
[signature] 9/20/18	1815	[signature]	9/20/18 1715

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE ____ OF ____

ALPHA ANALYTICAL
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: 9/25/18

ALPHA Job #: L1837696

Client Information

Client: Sanborn Head & Associates
Address: 1 Technology Park
Westford MA
Phone: 978-932-0900
Email: kwalker@sanbornhead.com

Project Information

Project Name: Block 5B
Project Location: Somerville MA
Project #: 8175.12
Project Manager: Kent Walker
ALPHA Quote #:

Turn-Around Time

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

Additional Project Information:

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 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 ____

☐ Yes ☒ No CT RCP Analytical Methods

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
624.1 - RGP

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	Sample Comments	TOTAL # BOTTLES
37696-02	B5B-SH1W	9/24/18	1245	GW	SCG		
	B5B-SH11W	9/24/18	1330	GW	SCG		

Container Type
Preservative

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

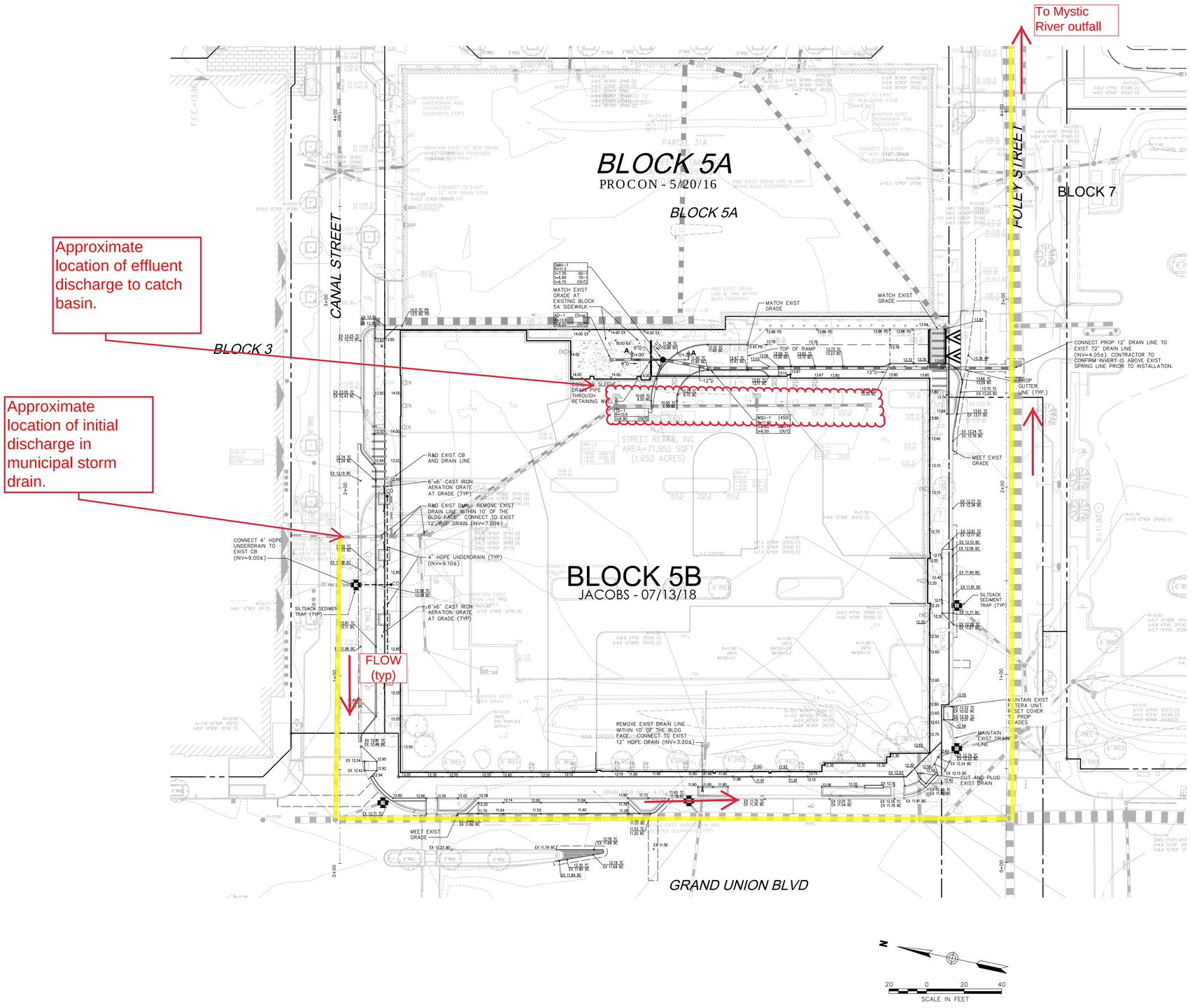
Relinquished By:	Date/Time	Received By:	Date/Time
Sara Fragiani	9/24/18 16:30	Ashley James	9/24/18 1630
Ashley James	9/25/18 1012		9/25/18 1012
	9/25/18 1730		9/25/18 1730

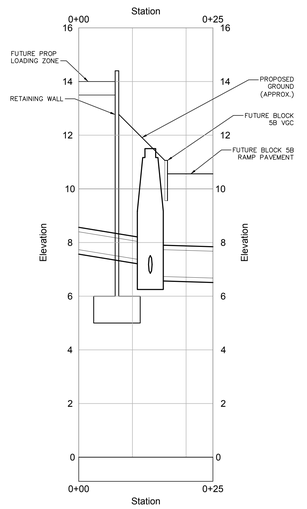
All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

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

APPENDIX E

MAPS OF RELEVANT INFRASTRUCTURE





JACOBS
JACOBS CONSULTANTS, INC.
120 St. James Ave, 5th Floor
Boston, MA 02116
P 617.491.6450
F 617.491.7104
W www.jacobs.com

Consultants:
vhb
vhb.com
101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

Seals:

General Notes:

Project Title:
BLOCK 5B
Assembly Row
Somerville, MA

Project Client:
FEDERAL REALTY INVESTMENT TRUST
450 Artisan Way, Suite 320
Somerville, MA 02145
P 617.684.1500
F

75% GMP SET
NOT FOR CONSTRUCTION
AUGUST 17, 2018

Number	Description	Date

Key Plan:

Project No.: L1011000
Copyright: 2018 Jacobs Engineering Group

Drawing Sheet Title:
Grading, Drainage and Erosion Control Plan

Drawing Sheet Number:
C-3

PLOT STAMP: 8/20/2018 10:27:11 AM

APPENDIX F

FEDERAL CORRESPONDENCE

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: August 31, 2018
Consultation Code: 05E1NE00-2018-SLI-2940
Event Code: 05E1NE00-2018-E-06931
Project Name: Foley Block 8

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: 05E1NE00-2018-SLI-2940

Event Code: 05E1NE00-2018-E-06931

Project Name: Foley Block 8

Project Type: DEVELOPMENT

Project Description: The Site is bounded by Foley Street, Assembly Row, Great River Road, and Revolution Drive

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.39288863261784N71.07686575568437W

Counties: Middlesex, MA

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this 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.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

From: Christine Vaccaro - NOAA Federal
To: Americo Santamaria
Cc: zachary.jylkka@noaa.gov
Subject: Re: Somerville, MA RGP
Date: Thursday, September 6, 2018 12:41:56 PM

Sorry Americo--I haven't had a chance to respond yet.

No listed species will be exposed to any effects of this authorization under the RGP.

-Chris

Chris Vaccaro
Fisheries Biologist
Protected Resources Division
NOAA Fisheries, Greater Atlantic Region
Gloucester, MA
Phone: 978-281-9167
Email: christine.vaccaro@noaa.gov

For additional ESA Section 7 information and Critical Habitat guidance, please see:
www.greateratlantic.fisheries.noaa.gov/protected/section7

On Thu, Sep 6, 2018 at 12:38 PM, Americo Santamaria <asantamaria@sanbornhead.com> wrote:

> Zach,
>
> The previous contact I used for this request was Chris, who I have not heard from. Could you assist with looking into this? See below.
>
> Thankyou
>
> -Rico
>
> Get Outlook for Android
>
> From: Americo Santamaria
> Sent: Friday, August 31, 13:32
> Subject: Somerville, MA RGP
> To: Christine Vaccaro - NOAA Federal
>
> Good afternoon,
>
> I am requesting information to be included as part of a Notice of Intent (NOI) for a Remediation General Permit (RGP). The NOI is for construction dewatering during

excavation activities at 185 Foley Street in Somerville, Massachusetts. Effluent will be discharged to the Mystic River (segment MA71-03) via a storm drain outfall.

As part of the application to the USEPA for the RGP, we need to investigate whether this proposed temporary discharge has the potential to adversely affect any federally listed species in the reach of the Mystic River located downstream of the discharge point.

Approximate Discharge Lat/Long

Lat: 42.393485 Long: -71.075629

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

-Americo Santamaria

--
Americo J. Santamaria
Senior Project Engineer
_____
SANBORN | HEAD & ASSOCIATES, INC.

1 Technology Park Drive, Westford, MA 01886
T 978.392.0900 D 978.577. 1040
www.sanbornhead.com

Click here to follow us on LinkedIn /Twitter / Facebook

APPENDIX G

NATIONAL REGISTER OF HISTORICAL PLACES, SOMERVILLE, MASSACHUSETTS

Appendix G
National Register of Historic Places
Research Documentation
Somerville, Massachusetts

Ref#	Historic Name	Multiple Name	Listing Date	City	County	State	Address
75000287	Powder House Park		4/21/1975	Somerville	Middlesex	MA	Powder House Circle
76000274	Bow Street Historic District		3/26/1976	Somerville	Middlesex	MA	Bow St.
84002530	Carr, Martin W., School		7/5/1984	Somerville	Middlesex	MA	25 Atherton St.
86001247	US Post Office--Somerville Main		5/30/1986	Somerville	Middlesex	MA	237 Washington St.
89001221	Westwood Road Historic District	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	Roughly bounded by Summer St., Benton Rd., Westwood Rd., and Central St.
89001222	Spring Hill Historic District	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	Roughly bounded by Summer, Central, Atherton, and Spring
89001223	Mt. Vernon Street Historic District	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	8--24 Mt. Vernon St.
89001224	Keyes, Amos, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	12 Adams St.
89001225	Downer Rowhouses (Adams Street)	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	55 Adams St.
89001226	Williams, F. G., House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	37 Albion St.
89001227	Mystic Water Works	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	Alewife Brook Pkwy. and Capen St.
89001228	Williams, Charles, Jr., House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	1 Arlington St.
89001230	House at 10 Arlington Street	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	10 Arlington St.
89001232	Houses at 28--36 Beacon Street	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	28--36 Beacon St.
89001233	Wyatt, George, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	33 Beacon St.
89001234	Snow, Lemuel, Jr., House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	81 Benton Rd.
89001236	Crowell, C. C., House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	85 Benton Rd.
89001237	Langmaid Terrace	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	359--365 Broadway
89001238	Broadway Winter Hill Congregational Church	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	404 Broadway
89001239	Adams--Magoun House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	438 Broadway
89001240	Adams, Charles--Woodbury Locke House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	178 Central St.
89001241	Downer Rowhouses (Central Street)	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	192--200 Central St.
89001244	Bacon, Clifton, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	27 Chester St.
89001245	House at 14 Chestnut Street	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	14 Chestnut St.
89001247	House at 25 Clyde Street	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	25 Clyde St.
89001248	West Somerville Branch Library	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	40 College Ave.
89001249	Lockhardt, Charles H., House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	88 College Ave.
89001250	Cook, Thomas, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	21 College Hill Rd.
89001251	Brooks, James H., House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	61 Columbus Ave.
89001252	Brackett, S. E., House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	63 Columbus Ave.
89001253	Williams, Charles, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	108 Cross St.
89001254	House at 72R Dane Street	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	72R Dane St.
89001255	House at 21 Dartmouth Street	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	21 Dartmouth St.
89001256	Knight, R. A.--Eugene Lacount House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	34 Day St.
89001257	Cooper--Davenport Tavern Wing	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	81 Eustis St.
89001259	Langmaid Building	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	48--52 Highland Ave.
89001260	Highland, The	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	66 Highland St.
89001261	Somerville High School	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	93 Highland St.
89001262	First Universalist Church	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	125 Highland St.
89001263	Loring, George, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	76 Highland Ave.
89001264	First Unitarian Church	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	130 Highland Ave.
89001265	Gaut, Samuel, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	137 Highland Ave.
89001266	Barnes, Walter S. and Melissa E., House	Somerville MPS	3/8/1990	Somerville	Middlesex	MA	140 Highland Ave.
89001267	House at 343 Highland Avenue	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	343 Highland Ave.
89001269	House at 6 Kent Court	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	6 Kent Ct.
89001270	Foster, Alexander, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	45 Laurel St.
89001272	Worthen, Daniel, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	8 Mt. Pleasant St.
89001273	House at 197 Morrison Avenue	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	197 Morrison Ave.

89001274	Central Library	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	79 Highland Ave.
89001275	Grandview, The	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	82 Munroe St.
89001276	Niles, Louville V., House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	97 Munroe St.
89001277	House at 81 Pearl Street	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	81 Pearl St.
89001278	Prescott, Gustavus G., House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	65--67 Perkins St.
89001279	House at 16--18 Preston Road	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	16--18 Preston Rd.
89001280	Cliff, Z. E., House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	29 Powderhouse Terr.
89001281	House at 5 Prospect Hill	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	5 Prospect Hill
89001282	Russell, Philemon, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	25 Russell St.
89001283	Warren, H., House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	205 School St.
89001284	Hopkins, Elisha, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	237 School St.
89001285	Nichols, John F., House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	17 Summit St.
89001286	Russell, Susan, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	58 Sycamore St.
89001287	Tufts, Peter and Oliver, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	78 Sycamore St.
89001288	House at 35 Temple Street	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	35 Temple St.
89001289	Otis--Wyman House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	67 Thurston St.
89001290	House at 42 Vinal Avenue	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	42 Vinal Ave.
89001291	Parker--Burnett House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	48 Vinal Ave.
89001292	House at 49 Vinal Avenue	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	49 Vinal Ave.
89001293	Wright House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	54 Vinal Ave.
89001294	Munroe, Robert, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	37 Walnut St.
89001295	Niles, Louville, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	45 Walnut St.
89001296	Hollander Blocks	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	Walnut St. and Pleasant Ave.
89001297	Lovejoy, A. L., House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	30 Warren Ave.
89001298	Schuebeler, Charles, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	384 Washington St.
89001299	Ireland, Samuel, House	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	117 Washington
89001300	Somerville Journal Building	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	8--10 Walnut St.
89001301	Old Cemetery	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	Somerville Ave. and School St.
89001302	House at 29 Mt. Vernon Street	Somerville MPS	9/18/1989	Somerville	Middlesex	MA	29 Mt. Vernon St.
89002255	Mystic Pumping Station	Water Supply System of Metropolitan Boston MPS	1/18/1990	Somerville	Middlesex	MA	Alewife Brook Pkwy.
89002330	Somerville Theatre	Somerville MPS	1/26/1990	Somerville	Middlesex	MA	55 Davis Sq.
98000095	James, Joseph K., House	Somerville MPS	2/11/1998	Somerville	Middlesex	MA	83 Belmont St.
99001125	Rosebud, The	Diners of Massachusetts MPS	9/22/1999	Somerville	Middlesex	MA	381 Summer St.

Notes:
Sanborn, Head & Associates, Inc. (Sanborn Head) conducted a review of the National Register of Historic Places within Somerville, Massachusetts. The search returned 81 results within Somerville. The Site is not listed on the National Register of Historical Places.