UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
BOSTON, MA 02109-3912

CERTIFIED MAIL RETURN RECEIPT REQUESTED

JUN 28 2012

Jeffrey Hirsch
Vice President of Operations
Urban Spaces LLC
10 McTernan Street
Cambridge, Massachusetts 02142

Re: Authorization to discharge under the Remediation General Permit (RGP) – MAG910000. Building Construction site located at 159 First Street, Cambridge, MA 02142, Norfolk County; Authorization # MAG910543

Dear Mr. Hirsch:

Based on the review of a Notice of Intent (NOI) submitted on behalf of Urban Spaces LLC by the firm Haley & Aldrich, for the site referenced above, the U.S. Environmental Protection Agency (EPA) hereby authorizes you, as the named Owner and Operator, to discharge in accordance with the provisions of the RGP at that site. Your authorization number is listed above.

The checklist enclosed with this RGP authorization indicates the pollutants which you are required to monitor. Also indicated on the checklist are the effluent limits, test methods and minimum levels (MLs) for each pollutant. Please note that the checklist does not represent the complete requirements of the RGP. Operators must comply with all of the applicable requirements of this permit, including influent and effluent monitoring, narrative water quality standards, record keeping, and reporting requirements, found in Parts I and II, and Appendices I – VIII of the RGP. See EPA's website for the complete RGP and other information at: http://www.epa.gov/region1/npdes/mass.html#dgp.

Please note the enclosed checklist includes parameters that exceeded Appendix III limits. Also, please note that the metals included on the checklist are dilution dependent pollutants and subject to limitations based on a dilution factor range (DFR), due to the ample dilution at the point of discharge (105.1) the DFR applicable for this pollutant is within a dilution range greater than one hundred (>100) established in the RGP. (See the RGP Appendix IV for Massachusetts facilities). Therefore, the limit for antimony of 141 ug/L, arsenic of 540 ug/L, nickel of 2,380 ug/L, zinc of 1,480 ug/L and iron of 5,000 ug/L, shall not be exceeded in the discharge.

Finally, please note the checklist of pollutants attached to this authorization is subject to a recertification if the operations at the site result in a discharge lasting longer than six months. A recertification can be submitted to EPA within six (6) to twelve (12) months of operations in accordance with the 2010 RGP regulations.

This general permit and authorization to discharge will expire on September 9, 2015. You have reported that this project will terminate on August 1, 2013. If for any reason the discharge terminates sooner you are required to submit a Notice of Termination (NOT) to the attention of the contact person indicated below within 30 days of project completion.

Thank you in advance for your cooperation in this matter. Please contact Victor Alvarez at 617-918-1572 or Alvarez.Victor@epa.gov, if you have any questions.

Sincerely,

Thelma Murphy

Thelma Murphy, Manager
Storm Water and Construction
Permits Section

Enclosure

cc: Kathleen Keohane, MassDEP
Owen O'Riordan, Cambridge DPW
Iliana Alvarado, Haley & Aldrich

2010 Remediation General Permit
Summary of Monitoring Parameters[1]

NPDES Authorization Number:	**MAG910543**
Authorization Issued:	June, 2012
Facility/Site Name:	Building Construction
Facility/Site Address:	159 First Street, Cambridge, MA 02142, Norfolk County
	Email address of owner: jhirsch@urbanspacesllc.com
Legal Name of Operator:	Urban Spaces LLC
Operator contact name, title, and Address:	Jeffrey Hirsch, Vice President of Operations, 10 McTernan Street, Cambridge, MA 02139
	Email: Same as the owner
Estimated date of Completion:	August 1, 2013
Category and Sub-Category:	Contaminated Construction Dewatering. Sub-category A. General Urban Fill Sites
RGP Termination Date:	September 10, 2015
Receiving Water:	Charles River

Monitoring & Limits are applicable if checked. All samples are to be collected as grab samples

	Parameter	**Effluent Limit/Method#/ML** (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
√	1. Total Suspended Solids (TSS)	30 milligrams/liter (mg/L) **, 50 mg/L for hydrostatic testing **, Me#60.2/ML5ug/L
	2. Total Residual Chlorine (TRC) [1]	Freshwater = 11 ug/L ** Saltwater = 7.5 ug/L **/ Me#330.5/ML 20ug/L
	3. Total Petroleum Hydrocarbons (TPH)	5.0 mg/L/ Me# 1664A/ML 5.0mg/L
√	4. Cyanide (CN) [2, 3]	Freshwater = 5.2 ug/l ** Saltwater = 1.0 ug/L **/ Me#335.4/ML 10ug/L
	5. Benzene (B)	5ug/L /50.0 ug/L for hydrostatic testing only/ Me#8260C/ML 2 ug/L
	6. Toluene (T)	(limited as ug/L total BTEX)/ Me#8260C/ ML 2ug/L
	7. Ethylbenzene (E)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L
	8. (m,p,o) Xylenes (X)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L
	9. Total Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX) [4]	100 ug/L/ Me#8260C/ ML 2ug/L
	10. Ethylene Dibromide (EDB) (1,2- Dibromoethane)	0.05 ug/l/ Me#8260C/ ML 10ug/L

	Parameter	Effluent Limit/Method#/ML (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
	11. Methyl-tert-Butyl Ether (MtBE)	70.0 ug/l/Me#8260C/ML 10ug/L
	12.tert-Butyl Alcohol (TBA) (TertiaryButanol)	Monitor Only(ug/L)/Me#8260C/ML 10ug/L
	13. tert-Amyl Methyl Ether (TAME)	Monitor Only(ug/L)/Me#8260C/ML 10ug/L
	14. Naphthalene [5]	20 ug/L /Me#8260C/ML 2ug/L
	15. Carbon Tetrachloride	4.4 ug/L /Me#8260C/ ML 5ug/L
	16. 1,2 Dichlorobenzene (o-DCB)	600 ug/L /Me#8260C/ ML 5ug/L
	17. 1,3 Dichlorobenzene (m-DCB)	320 ug/L /Me#8260C/ ML 5ug/L
	18. 1,4 Dichlorobenzene (p-DCB)	5.0 ug/L /Me#8260C/ ML 5ug/L
	18a. Total dichlorobenzene	763 ug/L - NH only /Me#8260C/ ML 5ug/L
	19. 1,1 Dichloroethane (DCA)	70 ug/L /Me#8260C/ ML 5ug/L
	20. 1,2 Dichloroethane (DCA)	5.0 ug/L /Me#8260C/ ML 5ug/L
	21. 1,1 Dichloroethene (DCE)	3.2 ug/L/Me#8260C/ ML 5ug/L
	22. cis-1,2 Dichloroethene (DCE)	70 ug/L/Me#8260C/ ML 5ug/L
	23. Methylene Chloride	4.6 ug/L/Me#8260C/ ML 5ug/L
	24. Tetrachloroethene (PCE)	5.0 ug/L/Me#8260C/ ML 5ug/L
	25. 1,1,1 Trichloro-ethane (TCA)	200 ug/L/Me#8260C/ ML 5ug/L
	26. 1,1,2 Trichloro-ethane (TCA)	5.0 ug/L /Me#8260C/ ML 5ug/L
	27. Trichloroethene (TCE)	5.0 ug/L /Me#8260C/ ML 5ug/L
	28. Vinyl Chloride (Chloroethene)	2.0 ug/L /Me#8260C/ ML 5ug/L
	29. Acetone	Monitor Only(ug/L)/Me#8260C/ML 50ug/L
	30. 1,4 Dioxane	Monitor Only /Me#1624C/ML 50ug/L
	31. Total Phenols	300 ug/L Me#420.1&420.2/ML 2 ug/L/ Me# 420.4 /ML 50ug/L
	32. Pentachlorophenol (PCP)	1.0 ug/L /Me#8270D/ML 5ug/L,Me#604 &625/ML 10ug/L
	33. Total Phthalates (Phthalate esters) [6]	3.0 ug/L ** /Me#8270D/ML 5ug/L, Me#606/ML 10ug/L& Me#625/ML 5ug/L
	34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]	6.0 ug/L /Me#8270D/ML 5ug/L,Me#606/ML 10ug/L & Me#625/ML 5ug/L
	35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	10.0 ug/L
	a. Benzo(a) Anthracene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
	b. Benzo(a) Pyrene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L

	Parameter	Effluent Limit/Method#/ML (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
	c. Benzo(b)Fluoranthene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
	d. Benzo(k)Fluoranthene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
	e. Chrysene [7]	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
	f. Dibenzo(a,h)anthracene [7]	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
	g. Indeno(1,2,3-cd) Pyrene [7]	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML5ug/L
	36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)	100 ug/L
√	h. Acenaphthene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	i. Acenaphthylene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	j. Anthracene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
	k. Benzo(ghi) Perylene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	l. Fluoranthene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	m. Fluorene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	n. Naphthalene [5]	20 ug/l / Me#8270/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	o. Phenanthrene	X/Me#8270D/ML 5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
√	p. Pyrene	X/Me#8270D/ML5ug/L,Me#610/ML 5ug/L & Me#625/ML 5ug/L
	37. Total Polychlorinated Biphenyls (PCBs) [8, 9]	0.000064 ug/L/Me# 608/ ML 0.5 ug/L
√	38. Chloride	Monitor only/Me# 300.0/ ML 100 ug/L

	Metal parameter	Total Recoverable Metal Limit @ H [10]= 50 mg/l CaCO3 for discharges in Massachusetts (ug/l) [11/12]		Minimum level=ML	
		Freshwater	Saltwater		
√	39. Antimony	141/ML 10			
√	40. Arsenic **	540/ML20	36/ML 20		
	41. Cadmium **	0.2/ML10	8.9/ML 10		
	42. Chromium III (trivalent)	48.8/ML15	100/ML 15		

	Metal parameter	Total Recoverable Metal Limit @ H [10]= 50 mg/l CaCO3 for discharges in Massachusetts (ug/l) [11/12]		Minimum level=ML	
		Freshwater	Saltwater		
	**				
	43. Chromium VI (hexavalent) **	11.4/ML10	50.3/ML 10		
	44. Copper **	5.2/ML15	3.7/ML 15		
	45. Lead **	1.3/ML20	8.5/ML 20		
	46. Mercury **	0.9/ML0.2	1.1/ML 0.2		
√	47. Nickel **	2,380/ML20	8.2/ML 20		
	48. Selenium **	5/ML20	71/ML 20		
	49. Silver	1.2/ML10	2.2/ML 10		
√	50. Zinc **	1,480/ML15	85.6/ML 15		
√	51. Iron	5,000/ML 20			

	Other Parameters	Limit
√	52. Instantaneous Flow	Site specific in CFS
√	53. Total Flow	Site specific in CFS
√	54. pH Range for Class A & Class B Waters in MA	6.5-8.3; 1/Month/Grab[13]
	55. pH Range for Class SA & Class SB Waters in MA	6.5-8.3; 1/Month/Grab[13]
	56. pH Range for Class B Waters in NH	6.5-8; 1/Month/Grab[13]
	57. Daily maximum temperature - Warm water fisheries	83°F; 1/Month/Grab[14]
	58. Daily maximum temperature - Cold water fisheries	68°F; 1/Month/Grab[14]
	59. Maximum Change in Temperature in MA - Any Class A water body	1.5°F; 1/Month/Grab[14]
	60. Maximum Change in Temperature in MA - Any Class B water body- Warm Water	5°F; 1/Month/Grab[14]
	61. Maximum Change in Temperature in MA – Any Class B water body - Cold water and Lakes/Ponds	3°F; 1/Month/Grab[14]
	62. Maximum Change in Temperature in MA – Any Class SA water body - Coastal	1.5°F; 1/Month/Grab[14]
	63. Maximum Change in Temperature in MA – Any Class SB water body - July to September	1.5°F; 1/Month/Grab[14]
	64. Maximum Change in Temperature in MA –Any Class SB water body - October to June	4°F; 1/Month/Grab[14]

Footnotes:

[1] Although the maximum values for TRC are 11ug/l and 7.5 ug/l for freshwater, and saltwater respectively, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., Method 330.5, 20 ug/l).

[2] Limits for cyanide are based on EPA's water quality criteria expressed as micrograms per liter. There is currently no EPA approved test method for free cyanide. Therefore, total cyanide must be reported.

[3] Although the maximum values for cyanide are 5.2 ug/l and 1.0 ug/l for freshwater and saltwater, respectively, the compliance limits are equal to the minimum level (ML) of the Method 335.4 as listed in Appendix VI (i.e., 10 ug/l).

[4] BTEX = sum of Benzene, Toluene, Ethylbenzene, and total Xylenes.

[5] Naphthalene can be reported as both a purgeable (VOC) and extractable (SVOC) organic compound. If both VOC and SVOC are analyzed, the highest value must be used unless the QC criteria for one of the analyses is not met. In such cases, the value from the analysis meeting the QC criteria must be used.

[6] The sum of individual phthalate compounds(not including the #34, Bis (2-Ethylhexyl) Phthalate . The compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.

Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measurement of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.

[7] Although the maximum value for the individual PAH compounds is 0.0038 ug/l, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.

[8] In the November 2002 WQC, EPA has revised the definition of Total PCBs for aquatic life as total PCBs is the sum of all homologue, all isomer, all congener, or all "Oroclor analyses."Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measure of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.

[9]Although the maximum value for total PCBs is 0.000064 ug/l, the compliance limit is equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., 0.5 ug/l for Method 608 or 0.00005 ug/l when Method 1668a is approved).

[10] Hardness. Cadmium, Chromium III, Copper, Lead, Nickel, Silver, and Zinc are Hardness Dependent.

[11] For a Dilution Factor (DF) from 1 to 5, metals limits are calculated using DF times the base limit for the metal. See Appendix IV. For example, iron limits are calculated using DF x 1,000ug/L (the iron base limit). Therefore DF is 1.5, the iron limit will be 1,500 ug/L; DF 2, then iron limit =1,000 x 2 =2,000 ug/L., etc. not to exceed the DF=5.

[12] Minimum Level (ML) is the lowest level at which the analytical system gives a recognizable signal and acceptable calibration point for the analyte. The ML represents the lowest concentration at which an analyte can be measured with a known level of confidence. The ML is calculated by multiplying the laboratory-determined method detection limit by 3.18 (see 40 CFR Part 136, Appendix B).

[13] pH sampling for compliance with permit limits may be performed using field methods as provided for in EPA test Method 150.1.

[14] Temperature sampling per Method 170.1

Haley & Aldrich, Inc.
465 Medford St.
Suite 2200
Boston, MA 02129

Tel: 617.886.7400
Fax: 617.886.7600
HaleyAldrich.com

HALEY & ALDRICH

21 May 2012
File No. 38450-043

US Environmental Protection Agency
Industrial NPDES Permits (CIP)
1 Congress Street, Suite 1100
Boston, Massachusetts 02114-2023

Attention: Ms. Shelly Puleo

Subject: Notice of Intent (NOI)
Temporary Construction Dewatering
159 First Street
Cambridge, Massachusetts

Dear Ms. Puleo:

On behalf of the project developer, 159 First Street Associates LP, and in accordance with the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) in Massachusetts, MAG910000, this letter submits a Notice of Intent (NOI) and the applicable documentation as required by the US Environmental Protection Agency (EPA) for temporary construction site dewatering under the RGP. Temporary dewatering is planned in support of the proposed site development which includes construction of a six-story residential building with one level of below-grade parking located at 159 First Street in Cambridge, Massachusetts as shown on Figure 1 – Project Locus. We anticipate construction dewatering will be conducted, as necessary, during foundation construction and below grade excavation.

Figure 2 - Site and Subsurface Exploration Plan shows the location of the site. Site grades range from approximately El. 19 to El. 22.[1.] The site is currently occupied by an asphalt-paved parking lot and is used for surface parking of automobiles by employees of a nearby office building.

SITE HISTORY

Haley & Aldrich, Inc. (Haley & Aldrich) assessed past usage of the site and surrounding properties through a review of Sanborn Fire Insurance Maps and aerial photographs.

Sanborn Maps dated 1888 and 1900 depict the site as vacant. According to the 1934 Sanborn Maps, the 159 First Street property was occupied by a scrap iron yard with "junk storage" areas. The scrap iron yard still occupied the subject site in 1950; however the "junk storage" areas were no longer depicted. Sanborn Maps dated 1966 and 1975 depicted the site was used for the storage of motor trucks during that time. Sanborn Maps dated 1986 through 2006 indicated that the site was used for parking, which is the current use of the subject site. Aerial photographs reflected similar data.

[1] Elevations reported herein are in feet and reference the Cambridge City Base (CCB) datum, which is 10.84 ft below the National Geodetic Vertical Datum of 1929 (NGVD).

MASSACHUSETTS MCP REGULATORY BACKGROUND

The project site is subject to an Activity and Use Limitation (AUL) under RTN 3-23447 related to residual oil and hazardous waste present in soil, which is attributable to the presence of urban fill. The AUL was implemented on four (4) separate parcels of land that comprised the entire Disposal Site limits for RTN 3-23447, including 121 and 159 First Street, 65 Bent Street, and 150 Second Street.

Testing of soil samples collected across the four parcels in 2003 indicated concentrations of extractable petroleum hydrocarbons (EPH), metals (mercury, arsenic and lead), naphthalene and 2-methylnaphthalene at concentrations that exceeded the applicable Reportable Concentrations (RCs) at that time. Other polycyclic aromatic hydrocarbons (PAHs) were detected in soil at concentrations greater than the RCs, however these compounds were attributed to the presence of coal ash or wood ash.

A Release Notification Form (RNF) was submitted to MassDEP by Bent Street Development in December 2003. CEA prepared a Class B-2 Response Action Outcome (RAO), which was submitted to the MassDEP in October 2004.

Please note soil samples collected from the project site portion of the Disposal Site in 2003 identified concentrations of EPH carbon ranges and target analytes, naphthalene, and metals. Concentrations of contaminants detected in 2003 are below current applicable regulatory standards with the exception of naphthalene, 2-methylnaphthalene, phenanthrene, and acenaphthene. Recent test boring explorations conducted by Haley & Aldrich in April 2012 have indicated the presence of PAHs, metals and TPH at concentrations that exceed the applicable RCs, however the concentrations are generally consistent with those previously identified and upon which the conclusions of the 2003 regulatory closure statement were based.

In accordance with the MCP, soil management will be conducted under a Release Abatement Measure (RAM) Plan. The RAM Plan will be filed with the MassDEP prior to commencement of soil management activities in accordance with the 310 CMR 40.442 (3) and 310 CMR 40.0444.

TEMPORARY CONSTRUCTION DEWATERING NOTICE OF INTENT

In support of the NOI, one groundwater sample was obtained from observation well HA-8(OW) on 12 April 2012. The groundwater sample was submitted to Alpha Analytical, Inc. of Westborough, Massachusetts (Alpha Analytical) for analysis for NPDES permit parameters including VOCs, SVOCs, PAHs, total metals, dissolved metals, TPH, pesticides, PCBs, Total Suspended Solids (TSS), chloride, total cyanide, total phenolics and total residual chlorine. The analytical results for the groundwater sample identified concentrations of total and dissolved iron and total cyanide above applicable NPDES RGP Effluent Limits but below applicable MCP RCGW-2 Reportable Concentrations. The results of water quality testing conducted for this NOI are summarized in Table I. The location of the observation well is shown on Figure 2.

Dewatering will be conducted from sumps or wells located inside the excavation support system. Dewatering is necessary to control groundwater, seepage, precipitation, and surface water runoff and construction-generated water to enable below-grade construction activities in-the-dry. Construction activities are scheduled to begin on August 1, 2012.

Prior to discharge, collected water will be routed through a sedimentation tank with an oil/water separator component and/or bag filters, at a minimum, to remove suspended solids and undissolved chemical constituents. Supplemental pretreatment may be required to meet discharge criteria as shown in the Proposed Treatment System Schematic included in Figure 3. Supplemental pretreatment may include Ion Exchange and/or granular activated carbon as required to remove iron and cyanide from the water. Construction dewatering under this RGP NOI will include piping and discharge to storm drains located near the site. Depending on the discharge point used for dewatering, drains travel either north to the Lechmere Canal and then to the Charles River, or to the southeast directly to the Charles River. The proposed discharge routes are shown on Figures 4 and 5.

APPENDICES

The completed "Suggested Notice of Intent" NOI form as provided in the RGP is enclosed in Appendix A. The site developer is 159 First Street Associates LP. 159 First Street Associates LP will hire a subcontractor to conduct the Site work, including dewatering activities. The excavation subcontractor will operate the dewatering system. Haley & Aldrich, Inc. will monitor the Contractor's dewatering activities on behalf of 159 First Street Associates LP in accordance with the requirements for this NOI submission.

A Best Management Practices Plan (BMPP), which outlines the proposed discharge operations covered under the RGP, is included in Appendix B. Appendices C and D include the National Register of Historic Places and Endangered Species Act Documentation, respectively. Appendix E provides the City of Cambridge Dewatering Permit Application to be submitted separately to the City of Cambridge. A copy of the groundwater testing laboratory results are provided in Appendix F. Appendix G provides Material Safety Data Sheets (MSDSs) and fact sheets for possible chemical additives or treatments to be used in the treatment system.

DILUTION FACTOR APPLICATION FOR METALS

A Dilution Factor (DF) was calculated for the detected levels of total metals greater than the applicable effluent limits. The DF is applicable to iron, and the calculated DF was used to find the appropriate Dilution Range concentrations for these metals. The DF was calculated using the following equation:

$$DF = (Q_d + Q_s)/Q_d$$

Where Q_d is the maximum discharge flow rate, assumed to be 75 gallons per minute (GPM) or approximately 0.17 cubic feet per second (cfs), and Q_s is the receiving water flow rate, minimum for 7 consecutive days with a recurrence interval of 10 years, assumed to be 17.7 cfs[2]. Using these assumed values, the DF is equal to 105.1. According to Appendix IV of the Remediation General Permit, the ceiling limitation for the calculated dilution factor of 105.1 for iron is 5000 ug/L. If testing of the dewatering effluent indicates that the iron concentrations are greater than 5000 ug/L, pretreatment of the dewatering effluent will include an ion exchange unit as shown on Figure 3.

[2] 17.7 cfs based on data collected by the United States Geological Survey (USGS) and published in the "Clean Charles 2005 Water Quality Report, 2003 Core Monitoring Report" prepared by the US EPA Office of Environmental Measurement and Evaluation dated November 2004.

CLOSING

Thank you very much for your consideration of this NOI. Please feel free to contact us should you wish to discuss the information contained herein or if you need additional information.

Sincerely yours,
HALEY & ALDRICH, INC.

Iliana Alvarado, P.E.
Senior Project Manager

Keith E. Johnson, P.E., L.S.P.
Vice President

Attachments:

Table I – Summary of Groundwater Quality Data
Figure 1 – Project Locus
Figure 2 – Site and Subsurface Exploration Location Plan
Figure 3 – Proposed Treatment System Schematic
Figure 4 – Proposed Dewatering Discharge Route: Discharge Point 1
Figure 5 – Proposed Dewatering Discharge Routes: Discharge Points 2 & 3
Appendix A – Notice of Intent (NOI) for Remediation General Permit (RGP)
Appendix B – Best Management Practices Plan (BMPP)
Appendix C – National Register of Historic Places and Massachusetts Historical Commission Documentation
Appendix D – Endangered Species Act Documentation
Appendix E – City of Cambridge Dewatering Permit Application
Appendix F – Laboratory Data Reports
Appendix G – Material Safety Data Sheets (MSDSs) and Fact Sheets

c: The Michaels Organization; Attn: Nicholas Zaferes
Urban Spaces LLC; Attn: Jeff Hirsch
City of Cambridge Department of Public Works; Attn: Owen O'Riordan
Massachusetts Department of Environmental Protection; Attn: Division of Watershed Management

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TABLE I - SUMMARY OF GROUNDWATER QUALITY DATA
159 FIRST STREET
CAMBRIDGE, MASSACHUSETTS
FILE NO. 38450-043

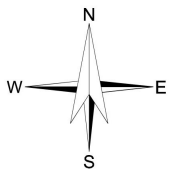
SAMPLE DESIGNATION **SAMPLING DATE** **LAB SAMPLE ID** **SAMPLE TYPE**	**CAS** **Number**	**2008 MCP** **RCGW-2** **Reportable Concentrations (ug/l)**	**NPDES** **RGP** **Effluent Limits (ug/l)**	**HA-8 (OW)** **4/12/2012** **L1206384-01** **L1206384-01 R1** **L1206921-01** **Grab**
VOCs by GC/MS (ug/l)				
Total VOCs	NA	NA	NA	ND
VOCs by GC/MS-SIM (ug/l)				
1,4-Dioxane	123-91-1	6000	NA	ND(1.5)
SVOCs by GC/MS (ug/l)				
Carbazole	86-74-8	NA	NA	14
Dibenzofuran	132-64-9	10000	NA	3
Total SVOCs	NA	NA	NA	17
SVOCs by GC/MS-SIM (ug/l)				
1-Methylnaphthalene	90-12-0	NA	NA	0.2
Acenaphthene	83-32-9	6000	NA	10
Acenaphthylene	208-96-8	40	NA	0.31
Anthracene	120-12-7	30	NA	0.65
Fluoranthene	206-44-0	200	NA	1.8
Fluorene	86-73-7	40	NA	0.7
Naphthalene	91-20-3	1000	20	0.3
Pyrene	129-00-0	20	NA	1
Total SVOCs	NA	NA	NA	14.96
Total Metals (ug/l)				
Antimony	7440-36-0	8000	5.6	1.9
Arsenic	7440-38-2	900	10	2.8
Cadmium	7440-43-9	4	0.2	ND(0.1)
Chromium	7440-47-3	300	48.8	ND(0.5)
Hexavalent Chromium	18540-29-9	300	11.4	ND(5)
Copper	7440-50-8	100000	5.2	ND(0.5)
Iron	7439-89-6	NA	1000	***6600***
Lead	7439-92-1	10	1.3	ND(0.5)
Mercury	7439-97-6	20	0.9	ND(0.1)
Nickel	7440-02-0	200	29	2.1
Selenium	7782-49-2	100	5	ND(2.5)
Silver	7440-22-4	7	1.2	ND(0.2)
Zinc	7440-66-6	900	66.6	19.6

TABLE I - SUMMARY OF GROUNDWATER QUALITY DATA
159 FIRST STREET
CAMBRIDGE, MASSACHUSETTS
FILE NO. 38450-043

SAMPLE DESIGNATION SAMPLING DATE LAB SAMPLE ID SAMPLE TYPE	CAS Number	2008 MCP RCGW-2 Reportable Concentrations (ug/l)	NPDES RGP Effluent Limits (ug/l)	HA-8 (OW) 4/12/2012 L1206384-01 L1206384-01 R1 L1206921-01 Grab
Dissolved Metals (ug/l)				
Antimony	7440-36-0	8000	5.6	1.9
Arsenic	7440-38-2	900	10	2.8
Cadmium	7440-43-9	4	0.2	ND(0.1)
Chromium	7440-47-3	300	48.8	ND(0.5)
Copper	7440-50-8	100000	5.2	ND(0.5)
Iron	7439-89-6	NA	1000	***7200***
Lead	7439-92-1	10	1.3	ND(0.5)
Mercury	7439-97-6	20	0.9	ND(0.1)
Nickel	7440-02-0	200	29	2.4
Selenium	7782-49-2	100	5	ND(2.5)
Silver	7440-22-4	7	1.2	ND(0.2)
Zinc	7440-66-6	900	66.6	12.1
TPH (ug/l)	NA	5000	5000	ND(2200)
Pesticides by GC (ug/l)				
1,2-Dibromoethane	106-93-4	2	0.05	ND(0.005)
PCBs by GC (ug/l)				
Total PCBs	NA	5	0.000064	ND
Miscellaneous				
Chlorine, Total Residual (ug/l)	NA	NA	11	ND(10)
Cyanide, Total (ug/l)	57-12-5	30	5.2	***15***
Phenolics, Total (ug/l)	NA	NA	NA	ND(15)
Solids, Total Suspended (ug/l)	NA	NA	30000	18000
Chloride	16887-00-6	NA	NA	720000
pH (SU)	NA	NA	6.5 to 8.3	7.4

NOTES & ABBREVIATIONS:
NA: Not Applicable
-: Not Analyzed
ND: Not Detected. Number in parentheses is one-half the laboratory reporting limit.
VOCs: Volatile Organic Compounds
SVOCs: Semivolatile Organic Compounds
TPH: Total Petroleum Hydrocarbons
PCBs: Polychlorinated Biphenyls
1. Only compounds detected at least once are shown.
2. Bold italicized values indicate an exceedance of applicable NPDES RGP Effluent Limits.

SITE COORDINATES:42°21'58"N 71°4'43"W



U.S.G.S. QUADRANGLE: BOSTON SOUTH, MA

HALEY & ALDRICH

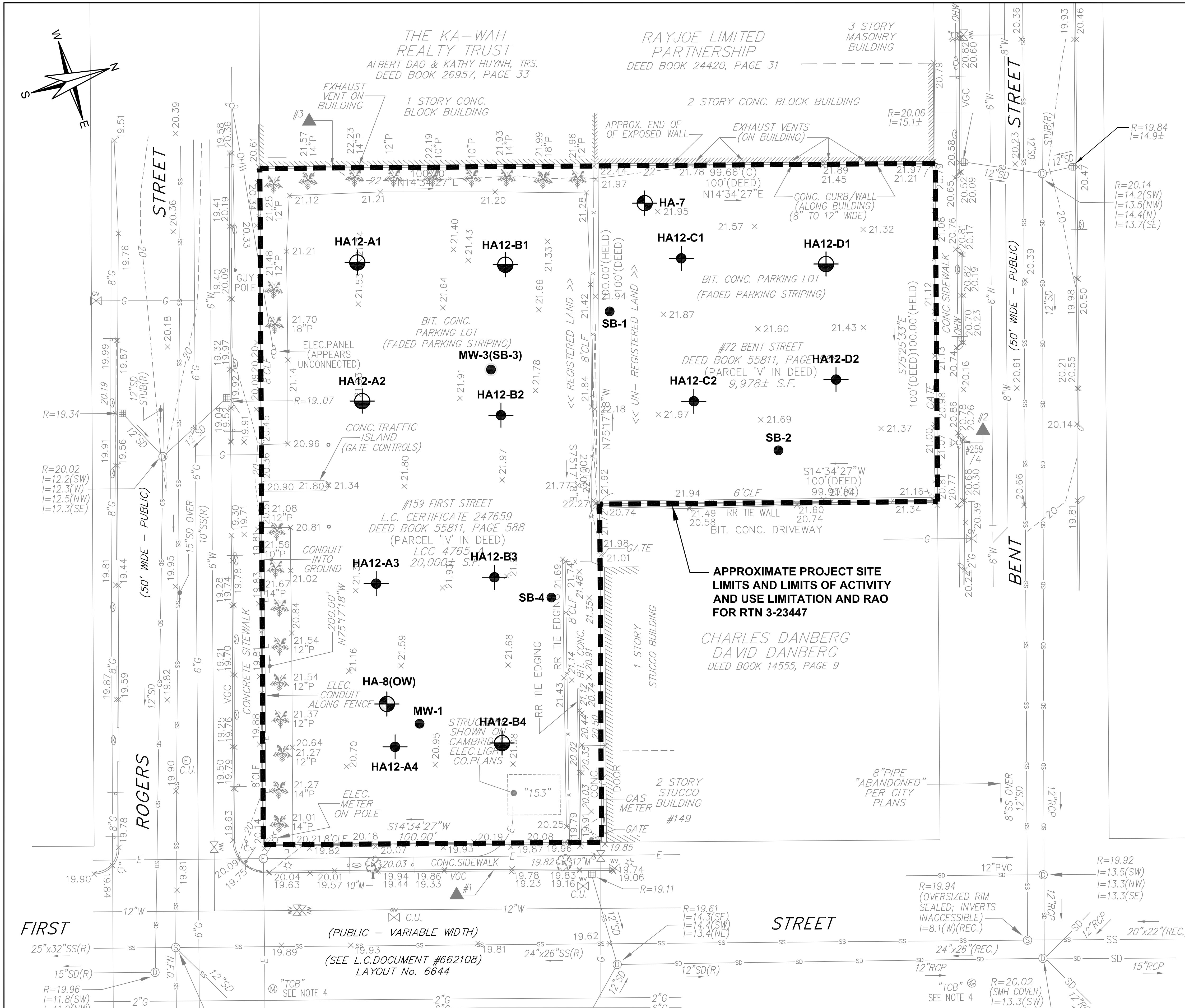
159 FIRST STREET
CAMBRIDGE, MASSACHUSETTS

PROJECT LOCUS

SCALE: 1:24,000
MAY 2012

FIGURE 1

38450-043 1.PDF


THE KA-WAH REALTY TRUST
ALBERT DAO & KATHY HUYNH, TRS.
DEED BOOK 26957, PAGE 33
RAYJOE LIMITED PARTNERSHIP
DEED BOOK 24420, PAGE 31
3 STORY MASONRY BUILDING
1 STORY CONC. BLOCK BUILDING
2 STORY CONC. BLOCK BUILDING
EXHAUST VENT ON BUILDING
APPROX. END OF OF EXPOSED WALL
EXHAUST VENTS (ON BUILDING)
CONC. CURB/WALL (ALONG BUILDING) (8" TO 12" WIDE)
HA-7
HA12-A1
HA12-B1
HA12-C1
HA12-D1
BIT. CONC. PARKING LOT (FADED PARKING STRIPING)
SB-1
MW-3(SB-3)
HA12-A2
HA12-B2
HA12-C2
HA12-D2
SB-2
#72 BENT STREET
DEED BOOK 55811, PAGE
(PARCEL 'V' IN DEED)
9,978± S.F.
<< REGISTERED LAND >>
<< UN- REGISTERED LAND >>
ELEC.PANEL (APPEARS UNCONNECTED)
CONC.TRAFFIC ISLAND (GATE CONTROLS)
#159 FIRST STREET
L.C. CERTIFICATE 247659
DEED BOOK 55811, PAGE 588
(PARCEL 'IV' IN DEED)
LCC 4765
20,000± S.F.
HA12-A3
HA12-B3
SB-4
HA-8(OW)
MW-1
HA12-A4
HA12-B4
CONDUIT INTO GROUND
ELEC. CONDUIT ALONG FENCE
ELEC. METER ON POLE
"153"
RR TIE WALL
BIT. CONC. DRIVEWAY
APPROXIMATE PROJECT SITE LIMITS AND LIMITS OF ACTIVITY AND USE LIMITATION AND RAO FOR RTN 3-23447
CHARLES DANBERG
DAVID DANBERG
DEED BOOK 14555, PAGE 9
1 STORY STUCCO BUILDING
2 STORY STUCCO BUILDING
#149
GAS METER
GATE
8"PIPE "ABANDONED" PER CITY PLANS
ROGERS STREET
(50' WIDE - PUBLIC)
BENT STREET
(50' WIDE - PUBLIC)
FIRST STREET
(PUBLIC - VARIABLE WIDTH)
(SEE L.C.DOCUMENT #662108)
LAYOUT No. 6644
CONC.SIDEWALK
CONCRETE SIDEWALK
"TCB" SEE NOTE 4

LEGEND:

HA12-A1	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING CONDUCTED BY NORTHERN DRILL SERVICE, INC. AND MONITORED BY HALEY & ALDRICH, INC. BETWEEN 4 AND 9 APRIL 2012
HA12-A3	DESIGNATION AND APPROXIMATE LOCATION OF GEOPROBE BOREHOLE CONDUCTED BY NORTHERN DRILL SERVICE, INC. AND MONITORED BY HALEY & ALDRICH, INC. BETWEEN 10 AND 11 APRIL 2012
SB-1	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING MONITORED BY CEA, INC. IN 2003
HA-7	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING MONITORED BY HALEY & ALDRICH, INC. IN 2003
(OW)	INDICATES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE
	LIMITS OF ACTIVITY USE AND LIMITATION AND RAO FOR RTN 3-23447

NOTE:

1. BASE PLAN TAKEN FROM PLAN TITLED "EXISTING CONDITIONS PLAN OF LAND IN CAMBRIDGE, MA" DATED 23 APRIL 2012 AND PREPARED BY HANCOCK ASSOCIATES.

0 30 60
SCALE IN FEET

HALEY& ALDRICH

159 FIRST STREET
CAMBRIDGE, MASSACHUSETTS

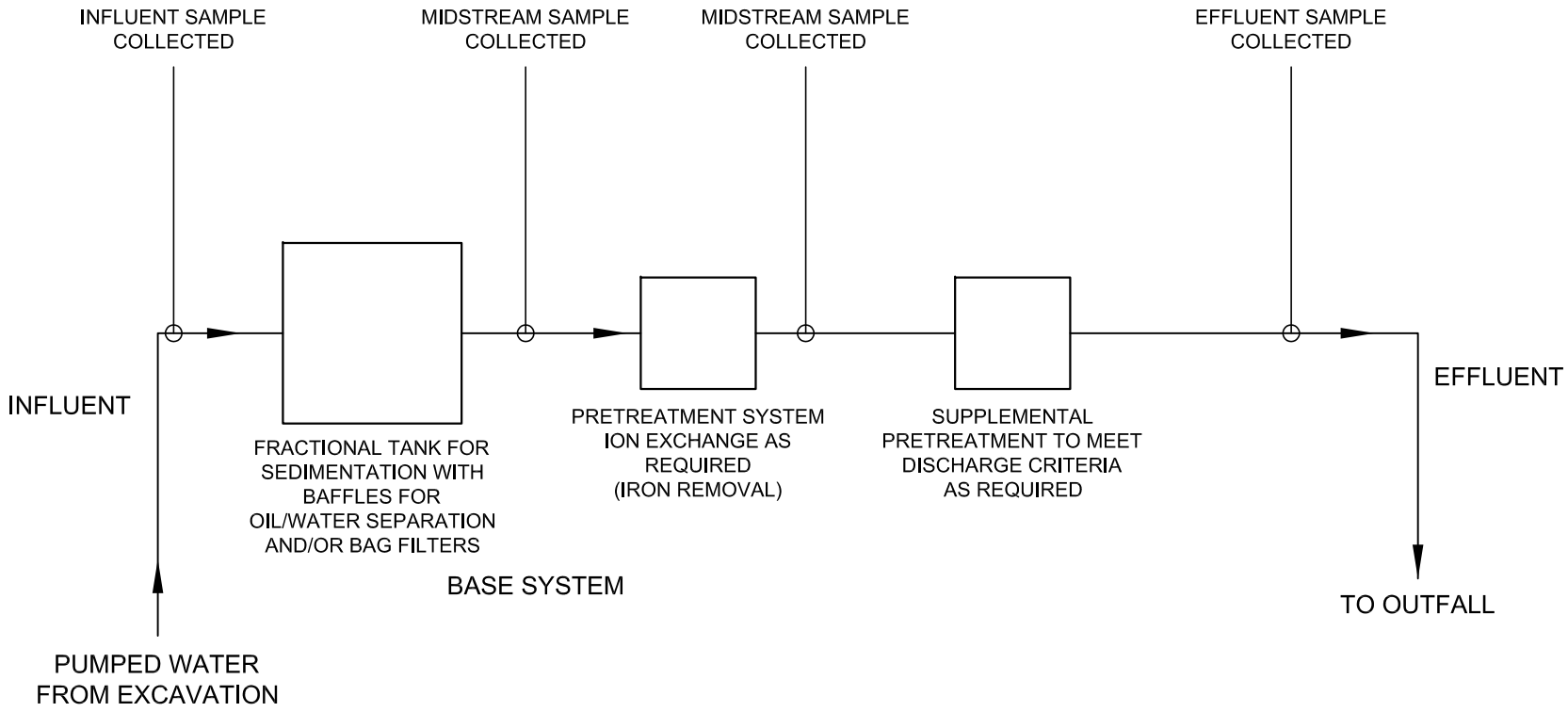
SITE AND SUBSURFACE EXPLORATION LOCATION PLAN

SCALE: AS SHOWN
MAY 2012

FIGURE 2

J:\GRAPHICS\38450\38450-040-B004.DWG

J:\GRAPHICS\38450\38450-043-A003.DWG



LEGEND:

DIRECTION OF FLOW

NOTE:

1. DETAILS OF TREATMENT SYSTEM MAY VARY FROM SYSTEM INDICATED ABOVE. SPECIFIC MEANS AND METHODS OF TREATMENT TO BE SELECTED BY CONTRACTOR. WATER WILL BE TREATED TO MEET REQUIRED EFFLUENT STANDARDS.

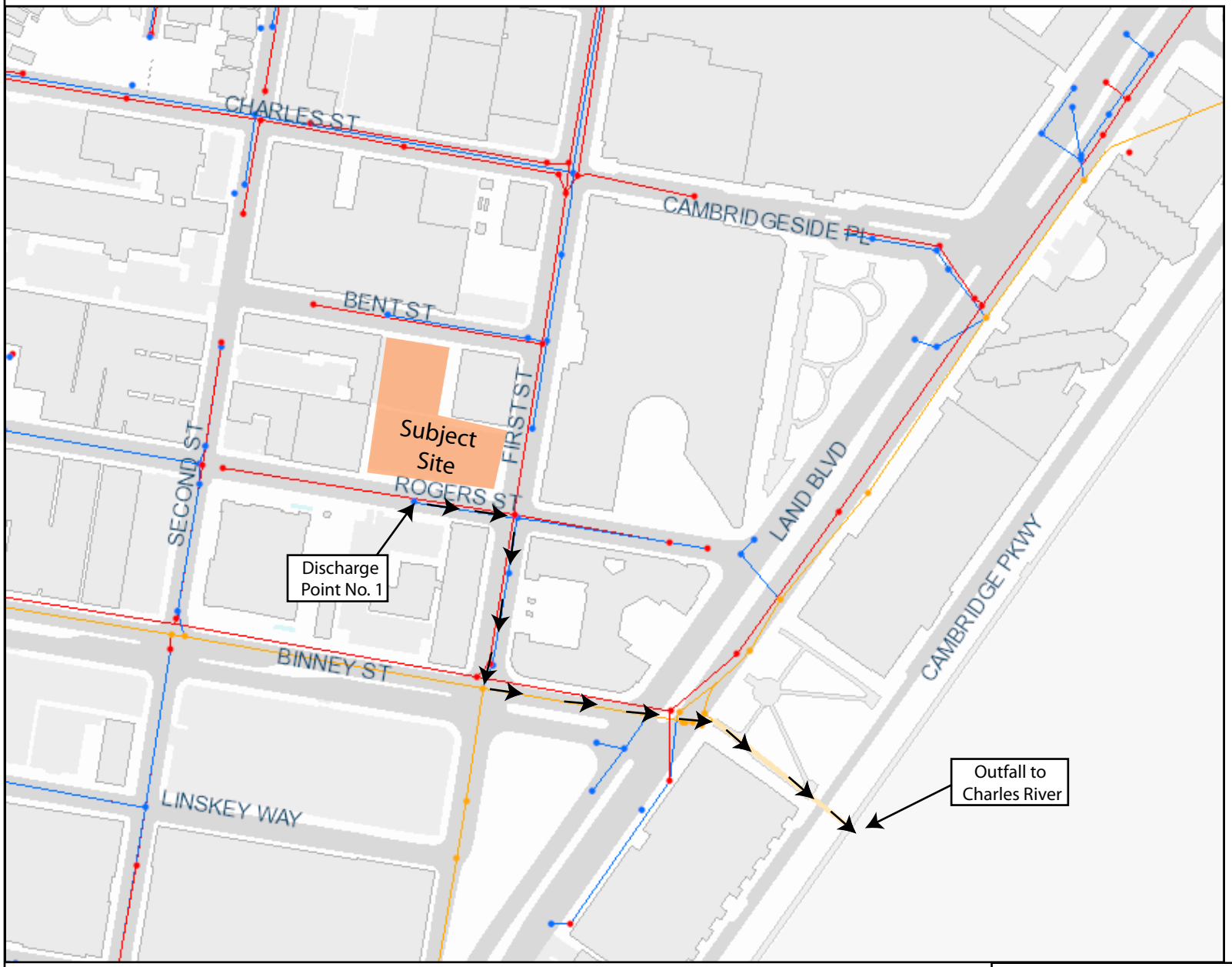
HALEY & ALDRICH

159 FIRST STREET
CAMBRIDGE, MASSACHUSETTS

PROPOSED TREATMENT SYSTEM SCHEMATIC

SCALE: NONE
MAY 2012

FIGURE 3



City of Cambridge, Massachsuetts

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LEGEND:

GRAVITY MAINS:
- SEWER
- STORMWATER
- COMBINED SEWER AND STORMWATER

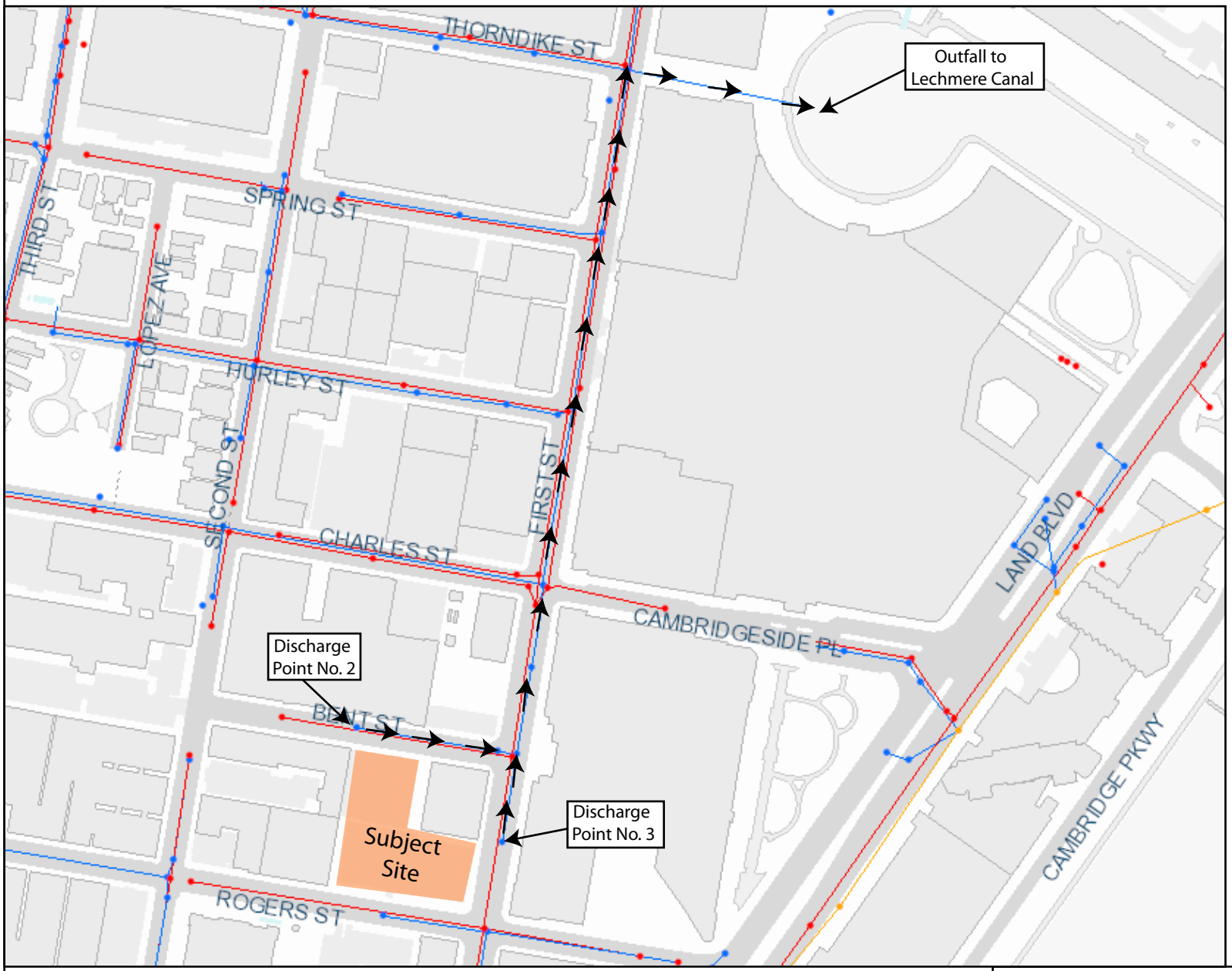
MANHOLES:
- SEWER
- STORMWATER
- COMBINED SEWER AND STORMWATER

HALEY & ALDRICH
159 FIRST STREET
CAMBRIDGE, MASSACHUSETTS

PROPOSED DEWATERING DISCHARGE ROUTE: DISCHARGE POINT NO. 1

SCALE: 1" = 202 FT
MAY 2012

FIGURE 4



City of Cambridge, Massachsuetts

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LEGEND:

GRAVITY MAINS:
- SEWER
- STORMWATER
- COMBINED SEWER AND STORMWATER

MANHOLES:
- SEWER
- STORMWATER
- COMBINED SEWER AND STORMWATER

HALEY & ALDRICH
159 FIRST STREET
CAMBRIDGE, MASSACHUSETTS

PROPOSED DEWATERING
DISCHARGE ROUTE:
DISCHARGE POINTS NOs. 2 & 3

SCALE: 1" = 202 FT
MAY 2012

FIGURE 5

APPENDIX A

Notice of Intent (NOI)
For Remediation General Permit (RGP)

B. Suggested Form for Notice of Intent (NOI) for the Remediation General Permit

1. General facility/site information. Please provide the following information about the site:

a) Name of **facility/site**: 159 First Street		**Facility/site** mailing address:		
Location of **facility/site**: longitude: 71° 4'42.83"W latitude: 42°21'58.59"N	Facility SIC code(s): NA	Street: 159 First Street		
b) Name of **facility/site owner:** 159 First Street Associates LP		Town: Cambridge		
Email address of facility/site owner: jhirsch@urbanspacesllc.com		State: Massachusetts	Zip: 02142	County: USA
Telephone no. of facility/site **owner**: 617-388-0370				
Fax no. of facility/site **owner**:		**Owner** is (check one): 1. Federal ○ 2. State/Tribal ○ 3. Private ◉ 4. Other ○ if so, describe:		
Address of **owner** (if different from site):				
Street: 10 McTernan Street				
Town: Cambridge	State: MA	Zip: 02139	County: USA	
c) Legal name of **operator**: URBN SPACES LLC	**Operator** telephone no: 617- 868 - 5558			
	Operator fax no.: 206-350-0742	**Operator** email: JHIRSCH@URBNSPACESLLC.COM		
Operator contact name and title: JEFF HIRSCH UCB PRESIDENT OF OPERATIONS				
Address of **operator** (if different from owner):	Street: - SAME -			
Town:	State:	Zip:	County:	

d) Check Y for "yes" or N for "no" for the following:
1. Has a prior NPDES permit exclusion been granted for the discharge? Y ○ N ⊙, if Y, number:
2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge?
Y ○ N ⊙, if Y, date and tracking #:
3. Is the discharge a "new discharge" as defined by 40 CFR 122.2? Y ⊙ N ○
4. For sites in Massachusetts, is the discharge covered under the Massachusetts Contingency Plan (MCP) and exempt from state permitting? Y ○ N ⊙

e) Is site/facility subject to any State permitting, license, or other action which is causing the generation of discharge? Y ○ N ⊙
If Y, please list:
1. site identification # assigned by the state of NH or MA:
2. permit or license # assigned:
3. state agency contact information: name, location, and telephone number:

f) Is the site/facility covered by any other EPA permit, including:
1. Multi-Sector General Permit? Y ○ N ⊙, if Y, number:
2. Final Dewatering General Permit? Y ○ N ⊙, if Y, number:
3. EPA Construction General Permit? Y ○ N ⊙, if Y, number:
4. Individual NPDES permit? Y ○ N ⊙, if Y, number:
5. any other water quality related individual or general permit? Y ○ N ⊙, if Y, number:

g) Is the site/facility located within or does it discharge to an Area of Critical Environmental Concern (ACEC)? Y ○ N ⊙

h) Based on the facility/site information and any historical sampling data, identify the sub-category into which the potential discharge falls.

Activity Category	**Activity Sub-Category**
I - Petroleum Related Site Remediation	A. Gasoline Only Sites ☐ B. Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges) ☐ C. Petroleum Sites with Additional Contamination ☐
II - Non Petroleum Site Remediation	A. Volatile Organic Compound (VOC) Only Sites ☐ B. VOC Sites with Additional Contamination ☐ C. Primarily Heavy Metal Sites ☐
III - Contaminated Construction Dewatering	A. General Urban Fill Sites ☒ B. Known Contaminated Sites ☐

IV - Miscellaneous Related Discharges	A. Aquifer Pump Testing to Evaluate Formerly Contaminated Sites ☐ B. Well Development/Rehabilitation at Contaminated/Formerly Contaminated Sites ☐ C. Hydrostatic Testing of Pipelines and Tanks ☐ D. Long-Term Remediation of Contaminated Sumps and Dikes ☐ E. Short-term Contaminated Dredging Drain Back Waters (if not covered by 401/404 permit) ☐

2. Discharge information. Please provide information about the discharge, (attaching additional sheets as necessary) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage:

Temporary Construction Dewatering

b) Provide the following information about each discharge:

1) Number of discharge points: 3

2) What is the **maximum** and **average flow rate** of discharge (in cubic feet per second, ft^3/s)?
Max. flow 0.17 Is maximum flow a **design value**? Y ○ N ⊙
Average flow (include units) 0.06 Is average flow a design value or estimate? estimate

3) Latitude and longitude of each discharge within 100 feet:

pt.1: lat	42°21'57.47"N	long	71° 4'42.63"W	pt.2: lat.	42°21'59.96"N	long.	71° 4'43.35"W ;
pt.3: lat	42°21'58.36"N	long	71° 4'40.82"W	pt.4: lat.		long.	;
pt.5: lat		long		pt.6: lat.		long.	;
pt.7: lat		long		pt.8: lat.		long.	; etc.

4) If hydrostatic testing, total volume of the discharge (gals): N/A

5) Is the discharge intermittent ⊙ or seasonal ○ ?
Is discharge ongoing? Y ○ N ⊙

c) Expected dates of discharge (mm/dd/yy): start 8/1/2012 end 8/1/2013

d) Please attach a line drawing or flow schematic showing water flow through the facility including:
1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s). See Figures 3, 4 & 5

3. Contaminant information.

a) Based on the sub-category selected (see Appendix III), indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
								concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids (TSS)		☐	☒	1	Grab	30,2540D	5000	18000		18000	
2. Total Residual Chlorine (TRC)		☒	☐	1	Grab	30, 4500CL-D	20	ND		ND	
3. Total Petroleum Hydrocarbons (TPH)		☒	☐	1	Grab	74, 1664A	4400	ND		ND	
4. Cyanide (CN)	57125	☐	☒	1	Grab	30, 3400CN-CE	5	15		15	
5. Benzene (B)	71432	☒	☐	1	Grab	1,8260B	0.5	ND		ND	
6. Toluene (T)	108883	☒	☐	1	Grab	1,8260B	0.75	ND		ND	
7. Ethylbenzene (E)	100414	☒	☐	1	Grab	1,8260B	0.5	ND		ND	
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207	☒	☐	1	Grab	1,8260B	1.0	ND		ND	
9. Total BTEX [2]	n/a	☒	☐	1	Grab	1,8260B	NA	ND		ND	
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) [3]	106934	☒	☐	1	Grab	1,8260B	2.0	ND		ND	
11. Methyl-tert-Butyl Ether (MtBE)	1634044	☒	☐	1	Grab	1,8260B	1.0	ND		ND	
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75650	☒	☐	1	Grab	1,8260B	2.0	ND		ND	

* Numbering system is provided to allow cross-referencing to Effluent Limits and Monitoring Requirements by Sub-Category included in Appendix III, as well as the Test Methods and Minimum Levels associated with each parameter provided in Appendix VI.

[2] BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

[3] EDB is a groundwater contaminant at fuel spill and pesticide application sites in New England.

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
								concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
13. tert-Amyl Methyl Ether (TAME)	9940508	☒	☐	1	Grab	1,8260B	2.0	ND		ND	
14. Naphthalene	91203	☐	☒	1	Grab	1,8270C-SIM	0.2	0.3		0.3	
15. Carbon Tetrachloride	56235	☒	☐	1	Grab	1,8260B	0.5	ND		ND	
16. 1,2 Dichlorobenzene (o-DCB)	95501	☒	☐	1	Grab	1,8270C	2.0	ND		ND	
17. 1,3 Dichlorobenzene (m-DCB)	541731	☒	☐	1	Grab	1,8270C	2.0	ND		ND	
18. 1,4 Dichlorobenzene (p-DCB)	106467	☒	☐	1	Grab	1,8270C	2.0	ND		ND	
18a. Total dichlorobenzene		☒	☐	1	Grab	1,8270C	NA	ND		ND	
19. 1,1 Dichloroethane (DCA)	75343	☒	☐	1	Grab	1,8260B	0.75	ND		ND	
20. 1,2 Dichloroethane (DCA)	107062	☒	☐	1	Grab	1,8260B	0.5	ND		ND	
21. 1,1 Dichloroethene (DCE)	75354	☒	☐	1	Grab	1,8260B	0.5	ND		ND	
22. cis-1,2 Dichloroethene (DCE)	156592	☒	☐	1	Grab	1,8260B	0.5	ND		ND	
23. Methylene Chloride	75092	☒	☐	1	Grab	1,8260B	3.0	ND		ND	
24. Tetrachloroethene (PCE)	127184	☒	☐	1	Grab	1,8260B	0.5	ND		ND	
25. 1,1,1 Trichloro-ethane (TCA)	71556	☒	☐	1	Grab	1,8260B	0.5	ND		ND	
26. 1,1,2 Trichloro-ethane (TCA)	79005	☒	☐	1	Grab	1,8260B	0.75	ND		ND	
27. Trichloroethene (TCE)	79016	☒	☐	1	Grab	1,8260B	0.5	ND		ND	

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
								concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
28. Vinyl Chloride (Chloroethene)	75014	☒	☐	1	Grab	1,8260B	1.0	ND		ND	
29. Acetone	67641	☒	☐	1	Grab	1,8260B	5.0	ND		ND	
30. 1,4 Dioxane	123911	☒	☐	1	Grab	1,8260B(M)	3	ND		ND	
31. Total Phenols	108952	☒	☐	1	Grab	1,8270C	NA	ND		ND	
32. Pentachlorophenol (PCP)	87865	☒	☐	1	Grab	1,8270C-SIM	0.8	ND		ND	
33. Total Phthalates (Phthalate esters) [4]		☒	☐	1	Grab	1,8270C	NA	ND		ND	
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	117817	☒	☐	1	Grab	1,8270C	3.0	ND		ND	
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		☒	☐	1	Grab						
a. Benzo(a) Anthracene	56553	☒	☐	1	Grab	1,8270C-SIM	0.2	ND		ND	
b. Benzo(a) Pyrene	50328	☒	☐	1	Grab	1,8270C-SIM	0.2	ND		ND	
c. Benzo(b)Fluoranthene	205992	☒	☐	1	Grab	1,8270C-SIM	0.2	ND		ND	
d. Benzo(k)Fluoranthene	207089	☒	☐	1	Grab	1,8270C-SIM	0.2	ND		ND	
e. Chrysene	21801	☒	☐	1	Grab	1,8270C-SIM	0.2	ND		ND	
f. Dibenzo(a,h)anthracene	53703	☒	☐	1	Grab	1,8270C-SIM	0.2	ND		ND	
g. Indeno(1,2,3-cd) Pyrene	193395	☒	☐	1	Grab	1,8270C-SIM	0.2	ND		ND	
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)		☒	☐	1	Grab						

[4] The sum of individual phthalate compounds.

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
								concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
h. Acenaphthene	83329	☐	☒	1	Grab	1,8270C-SIM	0.2	10		10	
i. Acenaphthylene	208968	☐	☒	1	Grab	1,8270C-SIM	0.2	0.31		0.31	
j. Anthracene	120127	☐	☒	1	Grab	1,8270C-SIM	0.2	0.65		0.65	
k. Benzo(ghi) Perylene	191242	☒	☐	1	Grab	1,8270C-SIM	0.2	ND		ND	
l. Fluoranthene	206440	☐	☒	1	Grab	1,8270C-SIM	0.2	1.8		1.8	
m. Fluorene	86737	☐	☒	1	Grab	1,8270C-SIM	0.2	0.7		0.7	
n. Naphthalene	91203	☐	☒	1	Grab	1,8270C-SIM	0.2	0.3		0.3	
o. Phenanthrene	85018	☒	☐	1	Grab	1,8270C-SIM	0.2	ND		ND	
p. Pyrene	129000	☐	☒	1	Grab	1,8270C-SIM	0.2	1		1	
37. Total Polychlorinated Biphenyls (PCBs)	85687; 84742; 117840; 84662; 131113; 117817.	☒	☐	1	Grab	5,608	0.25	ND		ND	
38. Chloride	16887006	☐	☒	1	Grab	44,300.0	12000	720000		720000	
39. Antimony	7440360	☐	☒	2	Grab	1,6020	0.5	1.9		1.9	
40. Arsenic	7440382	☐	☒	2	Grab	1,6020	0.5	2.8		2.8	
41. Cadmium	7440439	☒	☐	2	Grab	1,6020	0.2	ND		ND	
42. Chromium III (trivalent)	16065831	☒	☐	2	Grab	1,6020	1	ND		ND	
43. Chromium VI (hexavalent)	18540299	☒	☐	1	Grab	30,3500CR-D	10	ND		ND	
44. Copper	7440508	☒	☐	2	Grab	1,6020	1	ND		ND	
45. Lead	7439921	☒	☐	2	Grab	1,6020	1	ND		ND	
46. Mercury	7439976	☒	☐	2	Grab	3,245.1	0.2	ND		ND	
47. Nickel	7440020	☐	☒	2	Grab	1,6020	0.5	2.1		2.1	
48. Selenium	7782492	☒	☐	2	Grab	1,6020	5	ND		ND	
49. Silver	7440224	☒	☐	2	Grab	1,6020	0.4	ND		ND	
50. Zinc	7440666	☐	☒	2	Grab	1,6020	10.0	19.6		19.6	
51. Iron	7439896	☐	☒	2	Grab	19,200.7	50	6600		6600	
Other (describe):		☐	☐								

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
								concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
Refer to Attached Table		☐	☐								
		☐	☐								

b) For discharges where **metals** are believed present, please fill out the following (attach results of any calculations):

Step 1: Do any of the metals in the influent exceed the effluent limits in Appendix III (i.e., the limits set at zero dilution)? Y ⊙ N ○	If yes, which metals? iron
Step 2: For any metals which exceed the **Appendix III** limits, calculate the **dilution factor (DF)** using the formula in Part I.A.3.c (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metal: iron DF: 105.1 Metal: DF: Metal: DF: Metal: DF: Etc.	Look up the limit calculated at the corresponding dilution factor in **Appendix IV.** Do any of the metals in the **influent** have the potential to exceed the corresponding **effluent** limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y ⊙ N ○ If Y, list which metals: iron

4. Treatment system information. Please describe the treatment system using separate sheets as necessary, including:

a) A description of the treatment system, including a schematic of the proposed or existing treatment system:

See attached Figure 3

b) Identify each applicable treatment unit (check all that apply):	Frac. tank ☒	Air stripper ☐	Oil/water separator ☒	Equalization tanks ☐	Bag filter ☒	GAC filter ☐
	Chlorination ☐	De-chlorination ☐	Other (please describe):	Ion exchange, as required		

c) Proposed **average** and **maximum flow rates** (gallons per minute) for the discharge and the **design flow rate**(s) (gallons per minute) of the treatment system:
Average flow rate of discharge 25 gpm Maximum flow rate of treatment system 75 gpm
Design flow rate of treatment system 75 gpm

d) A description of chemical additives being used or planned to be used (attach MSDS sheets):

NA

5. Receiving surface water(s). Please provide information about the receiving water(s), using separate sheets as necessary:

a) Identify the discharge pathway:	Direct to receiving water ☐	Within facility (sewer) ☐	Storm drain ☒	Wetlands ☐	Other (describe):

b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:
Effluent will be discharged to storm drains which either discharge directly into the Charles River or that discharge first into the Lechmere Canal.

c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water:
1. For multiple discharges, number the discharges sequentially.
2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water
The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.

d) Provide the state water quality classification of the receiving water B

e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water 17.7 cfs
Please attach any calculation sheets used to support stream flow and dilution calculations.

f) Is the receiving water a listed 303(d) water quality impaired or limited water? Y ⊙ N ○ If yes, for which pollutant(s)?

Is there a final TMDL? Y ⊙ N ○ If yes, for which pollutant(s)? priority organics and pathogens. Documented as Category 5 Waters "Waters requiring a TMDL"

6. ESA and NHPA Eligibility.

Please provide the following information according to requirements of Permit Parts I.A.4 and I.A.5 Appendices II and VII.

a) Using the instructions in Appendix VII and information on Appendix II, under which criterion listed in Part I.C are you eligible for coverage under this general permit?

A ⊙ B ○ C ○ D ○ E ○ F ○

b) If you selected Criterion D or F, has consultation with the federal services been completed? Y ○ N ○ Underway ○

c) If consultation with U.S. Fish and Wildlife Service and/or NOAA Fisheries Service was completed, was a written concurrence finding that the discharge is "not likely to adversely affect" listed species or critical habitat received? Y ⊙ N ○

d) Attach documentation of ESA eligibility as described in the NOI instructions and required by Appendix VII, Part I.C, Step 4.

e) Using the instructions in Appendix VII, under which criterion listed in Part II.C are you eligible for coverage under this general permit?

1 ○ 2 ⊙ 3 ○

f) If Criterion 3 was selected, attach all written correspondence with the State or Tribal historic preservation officers, including any terms and conditions that outline measures the applicant must follow to mitigate or prevent adverse effects due to activities regulated by the RGP.

7. Supplemental information.

Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit.

8. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following certification:

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 gather and evaluate 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, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Facility/Site Name:	159 First Street
Operator signature:	
Printed Name &Title:	JEFF HIRSCH VICE PRESIDENT OF OPERATIONS
Date:	5/29/12

APPENDIX B

Best Management Practices Plan (BMPP)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
REMEDIATION GENERAL PERMIT
TEMPORARY CONSTRUCTION DEWATERING
159 FIRST STREET
CAMBRIDGE, MASSACHUSETTS

Best Management Practices Plan

A Notice of Intent for a Remediation General Permit (RGP) under the National Pollutant Discharge Elimination System (NPDES) has been submitted to the US Environmental Protection Agency (EPA) in anticipation of temporary construction site dewatering planned to occur during proposed construction of a 6-story building with one level of below grade parking at 159 First Street in Cambridge, Massachusetts. This Best Management Practices Plan (BMPP) has been prepared as an Appendix to the RGP and will be posted at the site during the time period that temporary construction dewatering is occurring at the site.

Water Treatment and Management

Construction dewatering will be conducted from sumps located inside the excavation. The excavation will be surrounded by steel sheets toeing into the marine clay layer. The treatment system will be designed by the contractor. Prior to discharge, collected water will likely be routed through a sedimentation tank with an oil/water separator component or bag filters, at a minimum, to remove suspended solids and undissolved chemical constituents. Supplemental pretreatment may be required to meet discharge criteria as shown in the Proposed Treatment System Schematic included in Figure 3. Supplemental pretreatment may include Ion Exchange. Construction dewatering under this RGP NOI will include piping and discharging to storm drains located near the site. Depending on the discharge point selected for dewatering, drains travel either north to the Lechmere Canal and then to the Charles River, or to the southeast directly to the Charles River.

Discharge Monitoring and Compliance

Regular sampling and testing will be conducted at the treated effluent as required by the RGP. This includes chemical testing required within the first month of discharging, and the monthly testing to be conducted through the end of the scheduled discharge.

Monitoring will include checking the condition of the treatment system, assessing the need for treatment system adjustments based on monitoring data, observing and recording daily flow rates and discharge quantities, and verifying the flow path of the discharged effluent.

The total monthly flow will be monitored by checking and documenting the flow through the flow meter to be installed on the system. Flow will be maintained below the "system design flow" by regularly monitoring flow and adjusting the amount of construction dewatering as needed.

Monthly monitoring reports will be compiled and maintained at the site.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
REMEDIATION GENERAL PERMIT
TEMPORARY CONSTRUCTION DEWATERING
159 FIRST STREET
CAMBRIDGE, MASSACHUSETTS

System Maintenance

A number of methods will be used to minimize the potential for violations for the term of this permit. Scheduled regular maintenance of the treatment system will be conducted to verify proper operation. Regular maintenance will include checking the condition of the treatment system equipment such as the fractionization tanks, filters, hoses, pumps, and flow meters. Equipment will be monitored daily for potential issues or unscheduled maintenance requirements.

Employees who have direct or indirect responsibility for ensuring compliance with the RGP will be trained by the Operator.

Miscellaneous Items

Due to the nature of the excavation, erosion control and the nature of the site and surrounding infrastructure, it is not anticipated that there will be any run off into the site from other sources, as well as no run off from the site.

Site security for the treatment system can be covered within the overall site security plan.

No adverse affects of designated water uses of surrounding surface water bodies is anticipated. The Charles River is the nearest surface water body to the site located approximately 0.2 miles from the construction activities on site. As mentioned earlier, the discharged effluent will be pumped directly to a storm drain located near the site and into existing below grade infrastructure.

Management of Treatment System Materials

No potential sources of pollutants are anticipated during construction dewatering activities. Dewatering effluent will be pumped directly to the treatment system from the excavation with use of hoses and sumps to minimize handling. The contractor will establish staging areas on the site for any equipment or materials storage which may be possible sources of pollution away from any dewatering activities.

Sediment from the fractionalization tank used in the treatment system will be characterized and disposed of as soil at an appropriate receiving facility in accordance with applicable laws and regulations. If used, Ion Exchange resin will be likely recycled and/or manifested to the appropriate receiving facility. Bag filters, if used, will be placed in drums and manifested for off-site disposal.

APPENDIX C

National Register of Historic Places and Massachusetts Historical Commission Documentation

Massachusetts Historical Commission

William Francis Galvin, Secretary of the Commonwealth

Massachusetts Cultural Resource Information System

MACRIS

Scanned forms and photos now available for selected towns!

The Massachusetts Cultural Resource Information System (MACRIS) allows you to search the Massachusetts Historical Commission database for information on historic properties and areas in the Commonwealth.

Users of the database should keep in mind that it does not include information on all historic properties and areas in Massachusetts, nor does it reflect all the information on file on historic properties and areas at the Massachusetts Historical Commission.

Click here to begin your search of the MACRIS database.

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Cambridge; Place: East Cambridge; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
CAM.B	Lockhart, William L. and Company Coffin Factory		Cambridge	
CAM.C	Blake and Knowles Steam Pump Company		Cambridge	
CAM.E	East Cambridge Historic District		Cambridge	
CAM.F	Winter Street Historic District		Cambridge	
CAM.G	Cambridge Multiple Resource Area		Cambridge	
CAM.H	Lechmere Point Corporation Houses		Cambridge	
CAM.I	Sacred Heart Church, Rectory, School and Convent		Cambridge	
CAM.AJ	Charles River Basin Historic District		Cambridge	
CAM.AO	East Cambridge		Cambridge	
CAM.AV	Blake and Knowles Steam Pump Company		Cambridge	
CAM.352	Blake and Knowles Main Foundry	180 Bent St	Cambridge	1895
CAM.357	Blake and Knowles Machine Shop #2	195 Binney St	Cambridge	1917
CAM.358	Blake and Knowles Machine Shop #3	199 Binney St	Cambridge	1918
CAM.356	Blake and Knowles Erecting and Assembling Building	201 Binney St	Cambridge	1903
CAM.906	Cambridge Parkway Bridge over Broad Canal	Cambridge Pkwy	Cambridge	1957
CAM.931	Cambridge Parkway	Cambridge Pkwy	Cambridge	1900
CAM.379	Middlesex County Registry of Deeds Building	Cambridge St	Cambridge	1896
CAM.380	Middlesex County Clerk of Courts Building	Cambridge St	Cambridge	1889
CAM.912	Longfellow Bridge - West Boston Bridge	Cambridge St	Cambridge	1907
CAM.914	Lechmere Square Streetcar Station	Cambridge St	Cambridge	1922
CAM.372		82-84 Cambridge St	Cambridge	1937
CAM.373	Davenport, A. H. - Irving and Casson Company	88-134 Cambridge St	Cambridge	1866
CAM.378		160 Cambridge St	Cambridge	1965
CAM.93	East Cambridge Savings Bank	292 Cambridge St	Cambridge	1931
CAM.94	Union Railway Car Barn	613-621 Cambridge St	Cambridge	1869

Inv. No.	Property Name	Street	Town	Year
CAM.99	Boston and Maine Railroad Signal Tower A	Charles River	Cambridge	1931
CAM.911	Charles River Railroad Draw Bridge #1	Charles River	Cambridge	1931
CAM.920	Charles River Dam	Charles River	Cambridge	1905
CAM.928	Lechmere Canal	Charles River	Cambridge	1909
CAM.929	Broad Canal	Charles River	Cambridge	1805
CAM.932	Charles River Basin Granite Seawall and Iron Fence	Charles River	Cambridge	
CAM.908	Commercial Avenue Bridge over Lechmere Canal	Commercial Ave	Cambridge	1907
CAM.1318	Metropolitan District Commission Stables	Commercial Ave	Cambridge	
CAM.123		42 Edward J. Lopez Ave	Cambridge	1830
CAM.430	Cambridge Public Library - O'Connell Branch	Fifth St	Cambridge	1938
CAM.441		69-71 Fifth St	Cambridge	
CAM.452	Hall, Jesse House	75 Fifth St	Cambridge	1837
CAM.428		82 Fifth St	Cambridge	
CAM.429		83 Fifth St	Cambridge	
CAM.907	First Street Bridge over Broad Canal	First St	Cambridge	1924
CAM.147	Athenaeum Press Building	215 First St	Cambridge	1895
CAM.502	Lechmere Point Corporation Row House	47 Gore St	Cambridge	1821
CAM.503	Lechmere Point Corporation Row House	49 Gore St	Cambridge	1821
CAM.504	Lechmere Point Corporation Row House	51 Gore St	Cambridge	1821
CAM.1317	Metropolitan District Commission Boat House	Lechmere Canal	Cambridge	1910
CAM.913	East Cambridge Viaduct - Lechmere Viaduct	O'Brien Hwy	Cambridge	1910
CAM.349	Lockhart, William L. Coffin Factory Warehouse	195-199 O'Brien Hwy	Cambridge	1873
CAM.271	Barnes, James B. House	200 O'Brien Hwy	Cambridge	1824
CAM.348	Lockhart, William L. Coffin Factory Main Building	201 O'Brien Hwy	Cambridge	1870
CAM.272	Lockart, William L. Company Building	209 O'Brien Hwy	Cambridge	1859
CAM.461	Putnam School	Otis St	Cambridge	1889
CAM.465	Saint Hedwig's Parish Church	Otis St	Cambridge	1939
CAM.468	Otis Hospital	Otis St	Cambridge	
CAM.371	Woodbury, James A. - Geldowsky, Ferdinand Building	2-28 Otis St	Cambridge	1869
CAM.374		31 Otis St	Cambridge	1900
CAM.473	Hall, Lewis and William A. Rowhouse	55 Otis St	Cambridge	1851
CAM.474	Hall, Lewis and William A. Rowhouse	57 Otis St	Cambridge	1851
CAM.475	Hall, Lewis and William A. Rowhouse	59 Otis St	Cambridge	1851
CAM.485	Hazard, Samuel L. House	60 Otis St	Cambridge	1871
CAM.476	Hall, Lewis and William A. Rowhouse	61 Otis St	Cambridge	1851
CAM.484		62 Otis St	Cambridge	

Inv. No.	Property Name	Street	Town	Year
CAM.472	Sortwell, Daniel R. Double House	63-65 Otis St	Cambridge	1871
CAM.483		64 Otis St	Cambridge	
CAM.471		65 1/2 Otis St	Cambridge	
CAM.482	Jones, Andrew - Hall, William A. Double House	66-68 Otis St	Cambridge	1846
CAM.470	Goss, Abiel Double House	67-69 Otis St	Cambridge	1839
CAM.481		70 Otis St	Cambridge	
CAM.469		73-75 Otis St	Cambridge	
CAM.480		74 Otis St	Cambridge	
CAM.479		78 Otis St	Cambridge	
CAM.477	Clark, Josias - Cummings, Daniel P. Rowhouse	80 Otis St	Cambridge	1861
CAM.478	Clark, Josias - Cummings, Daniel P. Rowhouse	82 Otis St	Cambridge	1861
CAM.467	Deshon, Royal P. House	93 Otis St	Cambridge	1842
CAM.460		94 Otis St	Cambridge	
CAM.466		95-97 Otis St	Cambridge	
CAM.459		96 Otis St	Cambridge	
CAM.458		98 Otis St	Cambridge	
CAM.457	Taylor, Oliver House	100 Otis St	Cambridge	1848
CAM.455	Adams, Jabez F. - Atwood, Samuel S. Rowhouse	102 Otis St	Cambridge	1848
CAM.464	Bridgeman, John L. Double House	103-105 Otis St	Cambridge	1843
CAM.456	Adams, Jabez F. - Atwood, Samuel S. Rowhouse	104 Otis St	Cambridge	1848
CAM.454		106-108 Otis St	Cambridge	
CAM.463		107-109 Otis St	Cambridge	
CAM.453		110 Otis St	Cambridge	
CAM.462		113 Otis St	Cambridge	
CAM.439		117 1/2 Otis St	Cambridge	
CAM.440		117-119 Otis St	Cambridge	
CAM.451		118 Otis St	Cambridge	
CAM.450		120 Otis St	Cambridge	
CAM.448	Dennison, James Double House	122-124 Otis St	Cambridge	1870
CAM.449		122 1/2-124 1/2 Otis St	Cambridge	
CAM.438		123 Otis St	Cambridge	
CAM.437		125-127 Otis St	Cambridge	
CAM.447		126-128 Otis St	Cambridge	
CAM.436		129-131 Otis St	Cambridge	
CAM.446		130 Otis St	Cambridge	
CAM.445		132 Otis St	Cambridge	

Inv. No.	Property Name	Street	Town	Year
CAM.435		133-135 Otis St	Cambridge	
CAM.275	Hoyt, Benjamin House	134 Otis St	Cambridge	1868
CAM.443		136-138 Otis St	Cambridge	
CAM.434	Warren, Moses - Smith, Benjamin G. Rowhouse	137 Otis St	Cambridge	1852
CAM.1339	Warren, Moses - Smith, Benjamin G. Rowhouse	139 Otis St	Cambridge	1852
CAM.442		140 Otis St	Cambridge	1895
CAM.1340	Warren, Moses - Smith, Benjamin G. Rowhouse	141 Otis St	Cambridge	1852
CAM.1341	Warren, Moses - Smith, Benjamin G. Rowhouse	143 Otis St	Cambridge	1852
CAM.1342	Warren, Moses - Smith, Benjamin G. Rowhouse	145 Otis St	Cambridge	1852
CAM.433	Fraser, John B. Double House	147-149 Otis St	Cambridge	1846
CAM.432		151 Otis St	Cambridge	
CAM.415	Hastings, Deborah House	72 Sciarappa St	Cambridge	1823
CAM.416		74 Sciarappa St	Cambridge	
CAM.401	Pendexter, Charles House	80-82 Sciarappa St	Cambridge	1847
CAM.1321	Boston Museum of Science	Science Park	Cambridge	1951
CAM.1322	Hayden Planetarium	Science Park	Cambridge	1958
CAM.375	Roby, Ebenezer Rowhouse	30 Second St	Cambridge	1836
CAM.376	Roby, Ebenezer Rowhouse	32 Second St	Cambridge	1836
CAM.377	Roby, Ebenezer Rowhouse	34 Second St	Cambridge	1836
CAM.364	Hall, Jesse Rowhouse	36 Second St	Cambridge	1842
CAM.365	Hall, Jesse Rowhouse	38 Second St	Cambridge	1842
CAM.366	Hall, Jesse Rowhouse	40 Second St	Cambridge	1842
CAM.367	Hall, Jesse Rowhouse	42 Second St	Cambridge	1842
CAM.368	Hall, Jesse Rowhouse	44 Second St	Cambridge	1842
CAM.369	Hall, Jesse Rowhouse	46 Second St	Cambridge	1842
CAM.370		50 Second St	Cambridge	
CAM.308	American Net and Twine Company Factory	155R Second St	Cambridge	1875
CAM.506	Sacred Heart Roman Catholic Church	39 Sixth St	Cambridge	1874
CAM.431		40 Sixth St	Cambridge	
CAM.508	Sacred Heart Roman Catholic Church Rectory	49 Sixth St	Cambridge	1885
CAM.325	Harugari Hall	154 Spring St	Cambridge	1873
CAM.353	Blake and Knowles Core Shop #1	Third St	Cambridge	1889
CAM.354	Blake and Knowles Core Shop #2	Third St	Cambridge	1890
CAM.505	Lechmere Point Corporation Row House	25 Third St	Cambridge	1821
CAM.381	Rollins, John W. Rowhouse	83 Third St	Cambridge	1860
CAM.382	Rollins, John W. Rowhouse	85 Third St	Cambridge	1860
CAM.383	Rollins, John W. Rowhouse	87 Third St	Cambridge	1860
CAM.384	Rollins, John W. Rowhouse	89 Third St	Cambridge	1860

Inv. No.	Property Name	Street	Town	Year
CAM.331	Old Middlesex County Superior Courthouse	90 Third St	Cambridge	1814
CAM.385	Rollins, John W. Rowhouse	91 Third St	Cambridge	1860
CAM.386	Rollins, John W. Rowhouse	93 Third St	Cambridge	1860
CAM.387	Rollins, John W. Rowhouse	95 Third St	Cambridge	1860
CAM.314	Holy Cross Polish National Catholic Church	99 Third St	Cambridge	1827
CAM.315	Bottle House Block	204-214 Third St	Cambridge	1826
CAM.350	Blake and Knowles Machine Shop #1	265 Third St	Cambridge	1889
CAM.351	Blake and Knowles Office Headhouse	265 Third St	Cambridge	1892
CAM.355	Blake and Knowles Smith Shop and Brass Foundry	275 Third St	Cambridge	1890
CAM.326	Cambridge Gas Light Company Purifying Plant	354 Third St	Cambridge	1908
CAM.388	Stevens, Atherton H. Rowhouse	59 Thorndike St	Cambridge	1827
CAM.395	Smallidge, Samuel House	66 Thorndike St	Cambridge	1827
CAM.389	Bates, Moses Jr. House	69 Thorndike St	Cambridge	1844
CAM.396	Buck, Silas B. House	70 Thorndike St	Cambridge	1845
CAM.390	Tufts, Sophia Kimball Double House	71-73 Thorndike St	Cambridge	1857
CAM.397	Wellington, Peter House	74 Thorndike St	Cambridge	1843
CAM.391		75 Thorndike St	Cambridge	
CAM.398		76 Thorndike St	Cambridge	
CAM.392		77 Thorndike St	Cambridge	
CAM.399		78 Thorndike St	Cambridge	
CAM.393		79-81 Thorndike St	Cambridge	
CAM.400		80 Thorndike St	Cambridge	
CAM.394		83 Thorndike St	Cambridge	
CAM.402	Stickney, Francis H. - Davies, Benjamin Rowhouse	84 Thorndike St	Cambridge	1867
CAM.417	Clark, Cornelius - Kneeland, W. W. House	85 Thorndike St	Cambridge	1822
CAM.403	Stickney, Francis H. - Davies, Benjamin Rowhouse	86 Thorndike St	Cambridge	1867
CAM.404	Stickney, Francis H. - Davies, Benjamin Rowhouse	88 Thorndike St	Cambridge	1867
CAM.418		89-91 Thorndike St	Cambridge	
CAM.405	Stickney, Francis H. - Davies, Benjamin Rowhouse	90 Thorndike St	Cambridge	1867
CAM.406	Stickney, Francis H. - Davies, Benjamin Rowhouse	92 Thorndike St	Cambridge	1867
CAM.419	Whitacre, Celeste I. Rowhouse	93 Thorndike St	Cambridge	1885
CAM.407	Stickney, Francis H. - Davies, Benjamin Rowhouse	94 Thorndike St	Cambridge	1867
CAM.420	Whitacre, Celeste I. Rowhouse	95 Thorndike St	Cambridge	1885

Inv. No.	Property Name	Street	Town	Year
CAM.408	Train, Isaac House	96 Thorndike St	Cambridge	1826
CAM.421	Whitacre, Celeste I. Rowhouse	97 Thorndike St	Cambridge	1885
CAM.422	Davies, Daniel House	97 1/2 Thorndike St	Cambridge	1843
CAM.409		98 Thorndike St	Cambridge	
CAM.423		99 Thorndike St	Cambridge	
CAM.424	Daniels, Granville W. House	101 Thorndike St	Cambridge	1868
CAM.410		102 Thorndike St	Cambridge	
CAM.411	Spare, Elijah Jr. Double House	104-106 Thorndike St	Cambridge	1846
CAM.425	Eaton, Charles House	109 Thorndike St	Cambridge	1857
CAM.412	Quimby, Amos House	110 Thorndike St	Cambridge	1857
CAM.426		111-113 Thorndike St	Cambridge	
CAM.413	Stickney, Francis H. Double House	112-114 Thorndike St	Cambridge	1863
CAM.427		113 1/2 Thorndike St	Cambridge	
CAM.414	Bacon, Henry A. House	116 Thorndike St	Cambridge	1865
CAM.507	Sacred Heart Roman Catholic School and Convent	163 Thorndike St	Cambridge	1902
CAM.500		19 Winter St	Cambridge	1855
CAM.492		21 Winter St	Cambridge	1854
CAM.486	Leighton, Thomas H. House	22 Winter St	Cambridge	1833
CAM.491		24 Winter St	Cambridge	1854
CAM.493		25 Winter St	Cambridge	1854
CAM.494		27 Winter St	Cambridge	1854
CAM.496		28-30 Winter St	Cambridge	1854
CAM.495		29 Winter St	Cambridge	1854
CAM.497		31-33 Winter St	Cambridge	1854
CAM.501		34-42 Winter St	Cambridge	1875
CAM.498		61 Winter St	Cambridge	1854
CAM.499		65 Winter St	Cambridge	1854
CAM.489	Stevens, Atherton Haugh House	67 Winter St	Cambridge	1843
CAM.490	Stevens, Atherton Haugh House	71 Winter St	Cambridge	1843
CAM.487	Stevens, Atherton Haugh House	74 Winter St	Cambridge	1838
CAM.1344		75 Winter St	Cambridge	
CAM.1345	Stevens, Atherton Haugh House	77 Winter St	Cambridge	1838
CAM.488	Stevens, Atherton Haugh House	79 Winter St	Cambridge	1838

Google earth

feet 1000

meters 400

APPENDIX D

Endangered Species Act Documentation

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

January 17, 2012

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

(http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm)

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact Mr. Anthony Tur of this office at 603-223-2541 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

MASSACHUSETTS AREAS OF CRITICAL ENVIRONMENTAL CONCERN
November 2010

Total Approximate Acreage: 268,000 acres
Approximate acreage and designation date follow ACEC names below.

Bourne Back River
(1,850 acres, 1989) Bourne

Canoe River Aquifer and Associated Areas (17,200 acres, 1991) Easton, Foxborough, Mansfield, Norton, Sharon, and Taunton

Cedar Swamp
(1,650 acres, 1975) Hopkinton and Westborough

Central Nashua River Valley
(12,900 acres, 1996) Bolton, Harvard, Lancaster, and Leominster

Cranberry Brook Watershed
(1,050 acres, 1983) Braintree and Holbrook

Ellisville Harbor
(600 acres, 1980) Plymouth

Fowl Meadow and Ponkapoag Bog
(8,350 acres, 1992) Boston, Canton, Dedham, Milton, Norwood, Randolph, Sharon, and Westwood

Golden Hills
(500 acres, 1987) Melrose, Saugus, and Wakefield

Great Marsh (originally designated as Parker River/Essex Bay)
(25,500 acres, 1979) Essex, Gloucester, Ipswich, Newbury, and Rowley

Herring River Watershed
(4,450 acres, 1991) Bourne and Plymouth

Hinsdale Flats Watershed
(14,500 acres, 1992) Dalton, Hinsdale, Peru, and Washington

Hockomock Swamp
(16,950 acres, 1990) Bridgewater, Easton, Norton, Raynham, Taunton, and West Bridgewater

Inner Cape Cod Bay
(2,600 acres, 1985) Brewster, Eastham, and Orleans

Kampoosa Bog Drainage Basin
(1,350 acres, 1995) Lee and Stockbridge

Karner Brook Watershed
(7,000 acres, 1992) Egremont and Mount Washington

Miscoe, Warren, and Whitehall Watersheds
(8,700 acres, 2000) Grafton, Hopkinton, and Upton

Neponset River Estuary
(1,300 acres, 1995) Boston, Milton, and Quincy

Petapawag
(25,680 acres, 2002) Ayer, Dunstable, Groton, Pepperell, and Tyngsborough

Pleasant Bay
(9,240 acres, 1987) Brewster, Chatham, Harwich, and Orleans

Pocasset River
(160 acres, 1980) Bourne

Rumney Marshes
(2,800 acres, 1988) Boston, Lynn, Revere, Saugus, and Winthrop

Sandy Neck Barrier Beach System
(9,130 acres, 1978) Barnstable and Sandwich

Schenob Brook Drainage Basin
(13,750 acres, 1990) Mount Washington and Sheffield

Squannassit
(37,420 acres, 2002) Ashby, Ayer, Groton, Harvard, Lancaster, Lunenburg, Pepperell, Shirley, and Townsend

Three Mile River Watershed
(14,280 acres, 2008) Dighton, Norton, Taunton

Upper Housatonic River
(12,280 acres, 2009) Lee, Lenox, Pittsfield, Washington

Waquoit Bay
(2,580 acres, 1979) Falmouth and Mashpee

Weir River
(950 acres, 1986) Cohasset, Hingham, and Hull

Wellfleet Harbor
(12,480 acres, 1989) Eastham, Truro, and Wellfleet

Weymouth Back River
(800 acres, 1982) Hingham and Weymouth

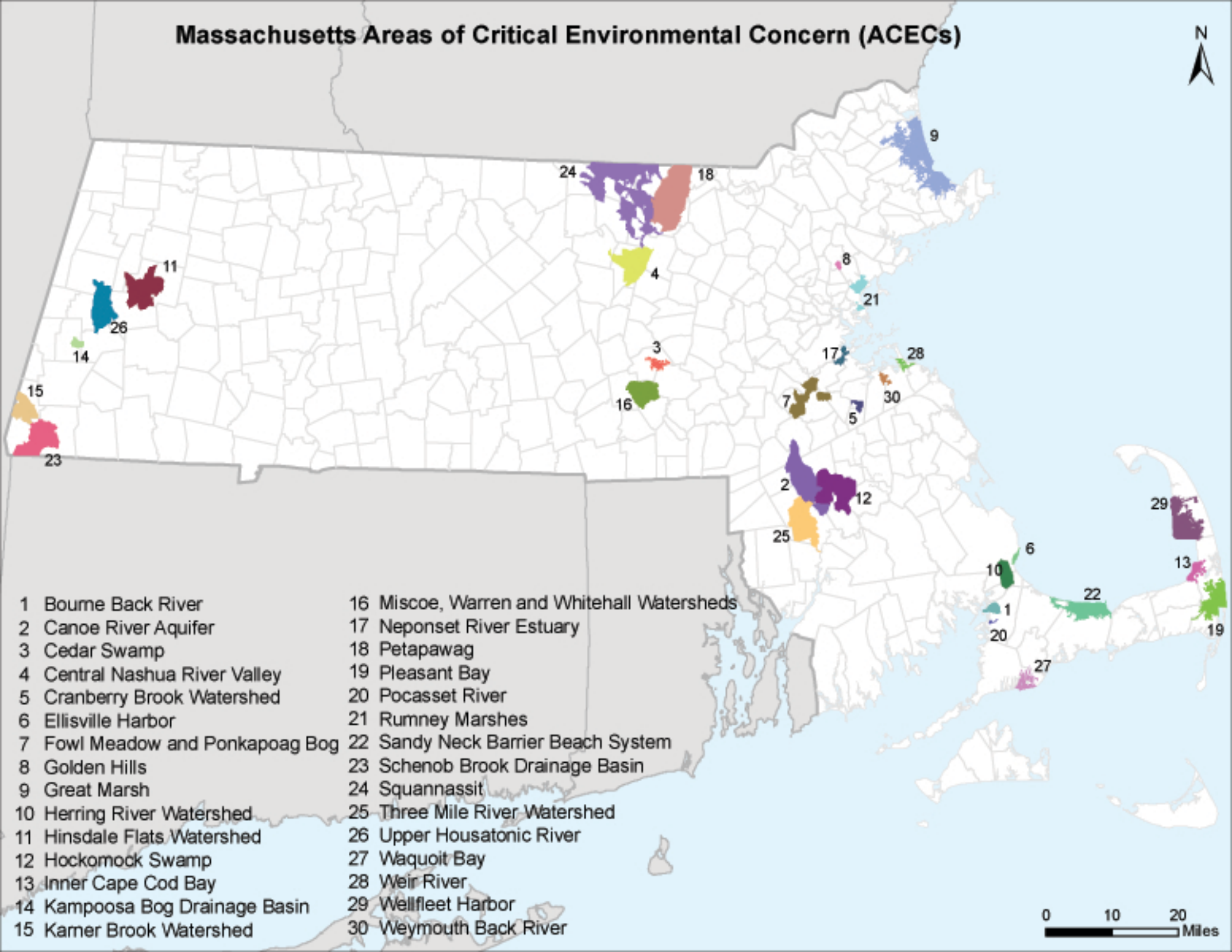
ACEC acreages above are based on MassGIS calculations and may differ from numbers originally presented in designation documents and other ACEC publications due to improvements in accuracy of GIS data and boundary clarifications. Listed acreages have been rounded to the nearest 50 or 10 depending on whether boundary clarification has occurred. For more information please see, http://www.mass.gov/dcr/stewardship/acec/aboutMaps.htm.

Towns with ACECs within their Boundaries — November 2010

TOWN	ACEC
Ashby	Squannassit
Ayer	Petapawag
	Squannassit
Barnstable	Sandy Neck Barrier Beach System
Bolton	Central Nashua River Valley
Boston	Rumney Marshes
	Fowl Meadow and Ponkapoag Bog
	Neponset River Estuary
Bourne	Pocasset River
	Bourne Back River
	Herring River Watershed
Braintree	Cranberry Brook Watershed
Brewster	Pleasant Bay
	Inner Cape Cod Bay
Bridgewater	Hockomock Swamp
Canton	Fowl Meadow and Ponkapoag Bog
Chatham	Pleasant Bay
Cohasset	Weir River
Dalton	Hinsdale Flats Watershed
Dedham	Fowl Meadow and Ponkapoag Bog
Dighton	Three Mile River Watershed
Dunstable	Petapawag
Eastham	Inner Cape Cod Bay
	Wellfleet Harbor
Easton	Canoe River Aquifer
	Hockomock Swamp
Egremont	Karner Brook Watershed
Essex	Great Marsh
Falmouth	Waquoit Bay
Foxborough	Canoe River Aquifer
Gloucester	Great Marsh
Grafton	Miscoe-Warren-Whitehall Watersheds
Groton	Petapawag
	Squannassit
Harvard	Central Nashua River Valley
	Squannassit
Harwich	Pleasant Bay
Hingham	Weir River
	Weymouth Back River
Hinsdale	Hinsdale Flats Watershed
Holbrook	Cranberry Brook Watershed
Hopkinton	Miscoe-Warren-Whitehall Watersheds
	Cedar Swamp
Hull	Weir River
Ipswich	Great Marsh
Lancaster	Central Nashua River Valley
	Squannassit
Lee	Kampoosa Bog Drainage Basin
	Upper Housatonic River
Lenox	Upper Housatonic River
Leominster	Central Nashua River Valley
Lunenburg	Squannassit
Lynn	Rumney Marshes
Mansfield	Canoe River Aquifer
Mashpee	Waquoit Bay
Melrose	Golden Hills
Milton	Fowl Meadow and Ponkapoag Bog
	Neponset River Estuary
Mt. Washington	Karner Brook Watershed
	Schenob Brook
Newbury	Great Marsh
Norton	Hockomock Swamp
	Canoe River Aquifer
	Three Mile River Watershed
Norwood	Fowl Meadow and Ponkapoag Bog
Orleans	Inner Cape Cod Bay
	Pleasant Bay
Pepperell	Petapawag
	Squannassit
Peru	Hinsdale Flats Watershed
Pittsfield	Upper Housatonic River
Plymouth	Herring River Watershed
	Ellisville Harbor
Quincy	Neponset River Estuary
Randolph	Fowl Meadow and Ponkapoag Bog
Raynham	Hockomock Swamp
Revere	Rumney Marshes
Rowley	Great Marsh
Sandwich	Sandy Neck Barrier Beach System
Saugus	Rumney Marshes
	Golden Hills
Sharon	Canoe River Aquifer
	Fowl Meadow and Ponkapoag Bog
Sheffield	Schenob Brook
Shirley	Squannassit
Stockbridge	Kampoosa Bog Drainage Basin
Taunton	Hockomock Swamp
	Canoe River Aquifer
	Three Mile River Watershed
Truro	Wellfleet Harbor
Townsend	Squannassit
Tyngsborough	Petapawag
Upton	Miscoe-Warren-Whitehall Watersheds
Wakefield	Golden Hills
Washington	Hinsdale Flats Watershed
	Upper Housatonic River
Wellfleet	Wellfleet Harbor
W Bridgewater	Hockomock Swamp
Westborough	Cedar Swamp
Westwood	Fowl Meadow and Ponkapoag Bog
Weymouth	Weymouth Back River
Winthrop	Rumney Marshes

.

Massachusetts Areas of Critical Environmental Concern (ACECs)



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

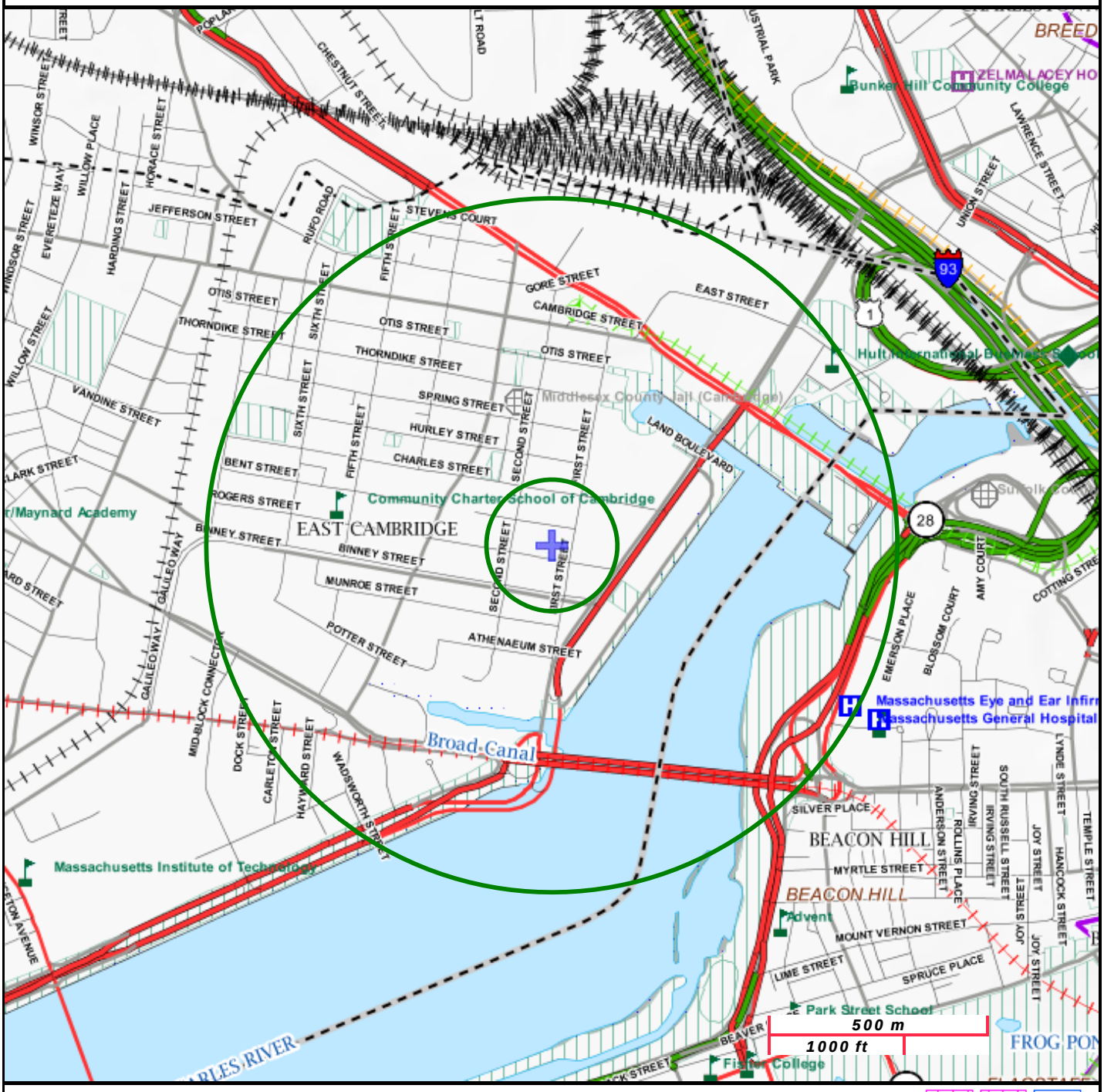
MassDEP - Bureau of Waste Site Cleanup

MCP Numerical Ranking System Map: 500 feet & 0.5 Mile Radii

Site Information:
150 FIRST STREET
150 FIRST ST CAMBRIDGE, MA
3-000023447
NAD83 UTM Meters:
4692532mN, 328847mE (Zone: 19)
April 17, 2012

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

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct
Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam
Aquifers: Medium Yield, High Yield, EPA Sole Source
Non Potential Drinking Water Source Area: Medium, High (Yield)
PWS Protection Areas: Zone II, IWPA, Zone A
Hydrography: Open Water, PWS Reservoir, Tidal Flat
Wetlands: Freshwater, Saltwater, Cranberry Bog
FEMA 100yr Floodplain; Protected Open Space; ACEC
Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential
Solid Waste Landfill; PWS: Com.GW,SW, Emerg., Non-Com.

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Barnstable	Piping Plover	Threatened	Coastal Beaches	All Towns
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Chatham
	Sandplain gerardia	Endangered	Open areas with sandy soils.	Sandwich and Falmouth.
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Bourne (north of the Cape Cod Canal)
Berkshire	Bog Turtle	Threatened	Wetlands	Egremont and Sheffield
Bristol	Piping Plover	Threatened	Coastal Beaches	Fairhaven, Dartmouth, Westport
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Fairhaven, New Bedford, Dartmouth, Westport
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Taunton
Dukes	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Piping Plover	Threatened	Coastal Beaches	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Aquinnah and Chilmark
	Sandplain gerardia	Endangered	Open areas with sandy soils.	West Tisbury
Essex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Gloucester, Essex and Manchester
	Piping Plover	Threatened	Coastal Beaches	Gloucester, Essex, Ipswich, Rowley, Revere, Newbury, Newburyport and Salisbury
Franklin	Northeastern bulrush	Endangered	Wetlands	Montague, Warwick
	Dwarf wedgemussel	Endangered	Mill River	Whately
Hampshire	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Hadley
	Puritan tiger beetle	Threatened	Sandy beaches along the Connecticut River	Northampton and Hadley
	Dwarf wedgemussel	Endangered	Rivers and Streams.	Hatfield, Amherst and Northampton
Hampden	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Southwick
Middlesex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Groton
Nantucket	Piping Plover	Threatened	Coastal Beaches	Nantucket
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Nantucket
	American burying beetle	Endangered	Upland grassy meadows	Nantucket
Plymouth	Piping Plover	Threatened	Coastal Beaches	Scituate, Marshfield, Duxbury, Plymouth, Wareham and Mattapoisett
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Kingston, Middleborough, Carver, Plymouth, Bourne, Wareham, Halifax, and Pembroke
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Plymouth, Marion, Wareham, and Mattapoisett.
Suffolk	Piping Plover	Threatened	Coastal Beaches	Winthrop
Worcester	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Leominster

-Eastern cougar and gray wolf are considered extirpated in Massachusetts.
-Endangered gray wolves are not known to be present in Massachusetts, but dispersing individuals from source populations in Canada may occur statewide.
-Critical habitat for the Northern Red-bellied Cooter is present in Plymouth County.

Revised 10/7/2011

Rare Species by Town

MESA (Massachusetts Endangered Species Act) and Federal Status

Quick Links

» Town Index
» MESA List
» Contact Us

E = Endangered T = Threatened SC = Special Concern

Most Recent Observation

This field represents the most recent observation of that species in a town. However, because they are rare, many MESA-listed species are difficult to detect even when they are present. Natural Heritage does not have the resources to be able to conduct methodical species surveys in each town on a regular basis. Therefore, the fact that the 'Most Recent Observation' recorded for a species may be several years old should not be interpreted as meaning that the species no longer occurs in a town. However, Natural Heritage regards records older than twenty-five years historic.

Click on a town below to view MESA-listed species for that town. To print the species for a particular town, highlight the species using your mouse, go to Print under the File Menu, click on 'Selection' under 'Print Range' and click OK.

For more information about a particular species, view the list of Natural Heritage Fact Sheets.

These data were extracted from the database of the Natural Heritage and Endangered Species Program in September 2009.

Cambridge | Canton | Carlisle | Carver | Charlemont | Charlton | Chatham | Chelmsford | Chelsea | Cheshire | Chester |Chesterfield | Chicopee | Chilmark | Clarksburg | Clinton | Cohasset | Colrain | Concord | Conway | Cummington

Town	Taxonomic Group	Scientific Name	Common Name	MESA Status	Federal Status	Most Recent Observation
CAMBRIDGE	Amphibian	Ambystoma laterale	Blue-spotted Salamander	SC		1917
CAMBRIDGE	Amphibian	Scaphiopus holbrookii	Eastern Spadefoot	T		1892
CAMBRIDGE	Beetle	Cicindela duodecimguttata	Twelve-spotted Tiger Beetle	SC		1932
CAMBRIDGE	Bird	Ammodramus henslowii	Henslow's Sparrow	E		1871
CAMBRIDGE	Bird	Botaurus lentiginosus	American Bittern	E		1906

CAMBRIDGE	Bird	Cistothorus platensis	Sedge Wren	E	1840
CAMBRIDGE	Bird	Gallinula chloropus	Common Moorhen	SC	1890
CAMBRIDGE	Bird	Ixobrychus exilis	Least Bittern	E	1890
CAMBRIDGE	Bird	Tyto alba	Barn Owl	SC	Historic
CAMBRIDGE	Butterfly/Moth	Eacles imperialis	Imperial Moth	T	Historic
CAMBRIDGE	Fish	Notropis bifrenatus	Bridle Shiner	SC	1928
CAMBRIDGE	Mussel	Ligumia nasuta	Eastern Pondmussel	SC	1940
CAMBRIDGE	Reptile	Glyptemys insculpta	Wood Turtle	SC	Historic
CAMBRIDGE	Reptile	Terrapene carolina	Eastern Box Turtle	SC	1892
CAMBRIDGE	Segmented Worm	Macrobdella sestertia	New England Medicinal Leech	SC	1800s
CAMBRIDGE	Vascular Plant	Carex gracilescens	Slender Woodland Sedge	E	1891
CAMBRIDGE	Vascular Plant	Cyperus engelmannii	Engelmann's Umbrella-sedge	T	2007
CAMBRIDGE	Vascular Plant	Gentiana andrewsii	Andrews' Bottle Gentian	E	1854
CAMBRIDGE	Vascular Plant	Isoetes lacustris	Lake Quillwort	E	Historic
CAMBRIDGE	Vascular Plant	Platanthera flava var. herbiola	Pale Green Orchis	T	Historic
CAMBRIDGE	Vascular Plant	Potamogeton friesii	Fries' Pondweed	E	1880
CAMBRIDGE	Vascular Plant	Scirpus longii	Long's Bulrush	T	1913
CAMBRIDGE	Vascular Plant	Suaeda calceoliformis	American Sea-blite	SC	1912
CAMBRIDGE	Vascular Plant	Viola brittoniana	Britton's Violet	T	1843

Town	Taxonomic Group	Scientific Name	Common Name	MESA Status	Federal Status	Most Recent Observation
CANTON	Amphibian	Ambystoma laterale	Blue-spotted Salamander	SC		1978
CANTON	Bird	Cistothorus platensis	Sedge Wren	E		1893
CANTON	Butterfly/Moth	Callophrys hesseli	Hessel's Hairstreak	SC		2001
CANTON	Butterfly/Moth	Chaetaglaea cerata	Waxed Sallow Moth	SC		1987
CANTON	Butterfly/Moth	Metarranthis pilosaria	Coastal Swamp Metarranthis Moth	SC		1994
CANTON	Butterfly/Moth	Papaipema appassionata	Pitcher Plant Borer Moth	T		2002
CANTON	Butterfly/Moth	Satyrium favonius	Oak Hairstreak	SC		2004
CANTON	Dragonfly/Damselfly	Enallagma daeckii	Attenuated Bluet	SC		2008
CANTON	Dragonfly/Damselfly	Enallagma laterale	New England Bluet	SC		2008
CANTON	Dragonfly/Damselfly	Enallagma pictum	Scarlet Bluet	T		2009
CANTON	Reptile	Emydoidea blandingii	Blanding's Turtle	T		1994
CANTON	Reptile	Terrapene carolina	Eastern Box Turtle	SC		1917
CANTON	Vascular Plant	Ageratina aromatica	Lesser Snakeroot	E		1895
CANTON	Vascular Plant	Amelanchier nantucketensis	Nantucket Shadbush	SC		2009

APPENDIX E

City of Cambridge Dewatering Permit Application

PERMIT TO DEWATER

Location: 159 First Street, Cambridge, MA

x Temporary

_____ Permanent

Owner: (Lessee) 159 First Street Associates, LP

Contractor: _____

I. The property owner, (Lessee) 159 First Street Associates, LP agrees to hold harmless and indemnify the City of Cambridge for any liability on the part of the City directly or indirectly arising out of the dewatering operation.

II. The issuance of this permit is based in part on the submission packet of the applicant with documentation as follows:
NPDES RGP Application for Temporary Construction Dewatering

III. In addition, the application has been reviewed by the City under third party agreement as documented in the following reports:
Not applicable

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

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

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

VII. If in the future the EPA requires the City of Cambridge to bring existing stormwater drainage into compliance with EPA quality standards, as a condition to the continuation of discharge of that stormwater (also including groundwater) into an EPA regulated system into which the (Lessee) 159 First Street Associates, LP (property owner) drains, the owner will agree to maintain its water discharge with such EPA water quality standards.

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

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

X. Where material or debris has washed or flowed into or has been placed in existing gutters, drains, pipes or structures, such material or debris shall be entirely removed and satisfactorily disposed of by the Contractor during the progress of work as directed by the Public Works Department.

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

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

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

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

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

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

Not Applicable

JEFF HIRSCH

URBAN SPACES LLC 617-868-5558

City Manager

Property Manager: Corporate Entity
President, General Partner or Trustee
Trustee with Instrument of Authority

Date

5/29/12

Date

City Solicitor

Contractor

Date

Date

Commissioner of Public Works

Contractor

Date

Date

Cc: Engineering

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

APPENDIX F

Laboratory Data Reports

ANALYTICAL REPORT

Lab Number:	L1206384
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Iliana Alvarado
Phone:	(617) 886-7448
Project Name:	159 FIRST STREET
Project Number:	38450-043
Report Date:	04/23/12

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

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

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1206384-01	HA-8 (OW)	Not Specified	04/12/12 10:30

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

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 all of the requirements of NELAC, for all NELAC accredited parameters. 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. 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. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for 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.

Please contact Client Services at 800-624-9220 with any questions.

Report Submission

This report replaces the report issued on April 18, 2012. tert-Butyl Alcohol and Tertiary-Amyl Methyl Ether are now included in the Volatile Organics analysis.

Project Name:	159 FIRST STREET	**Lab Number:**	L1206384
Project Number:	38450-043	**Report Date:**	04/23/12

Case Narrative (continued)

Dissolved Metals

L1206384-01: The Dissolved result is greater than the Total result for Iron. The sample containers were verified as being labeled correctly by the laboratory, and aliquots were analyzed from each bottle, confirming the original results.

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: Elizabeth Simmons

Title: Technical Director/Representative Date: 04/23/12

ORGANICS

VOLATILES

Project Name: 159 FIRST STREET
Project Number: 38450-043
Lab Number: L1206384
Report Date: 04/23/12

SAMPLE RESULTS

Lab ID: L1206384-01
Client ID: HA-8 (OW)
Sample Location: Not Specified
Matrix: Water
Analytical Method: 1,8260B
Analytical Date: 04/16/12 00:43
Analyst: PD

Date Collected: 04/12/12 10:30
Date Received: 04/12/12
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	3.0	--	1
1,1-Dichloroethane	ND		ug/l	0.75	--	1
Chloroform	ND		ug/l	0.75	--	1
Carbon tetrachloride	ND		ug/l	0.50	--	1
1,2-Dichloropropane	ND		ug/l	1.8	--	1
Dibromochloromethane	ND		ug/l	0.50	--	1
1,1,2-Trichloroethane	ND		ug/l	0.75	--	1
Tetrachloroethene	ND		ug/l	0.50	--	1
Chlorobenzene	ND		ug/l	0.50	--	1
Trichlorofluoromethane	ND		ug/l	2.5	--	1
1,2-Dichloroethane	ND		ug/l	0.50	--	1
1,1,1-Trichloroethane	ND		ug/l	0.50	--	1
Bromodichloromethane	ND		ug/l	0.50	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.5	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	0.75	--	1
Ethylbenzene	ND		ug/l	0.50	--	1
Chloromethane	ND		ug/l	2.5	--	1
Bromomethane	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	0.50	--	1
trans-1,2-Dichloroethene	ND		ug/l	0.75	--	1
Trichloroethene	ND		ug/l	0.50	--	1
1,2-Dichlorobenzene	ND		ug/l	2.5	--	1
1,3-Dichlorobenzene	ND		ug/l	2.5	--	1
1,4-Dichlorobenzene	ND		ug/l	2.5	--	1

Project Name: 159 FIRST STREET **Lab Number:** L1206384

Project Number: 38450-043 **Report Date:** 04/23/12

SAMPLE RESULTS

Lab ID: L1206384-01 Date Collected: 04/12/12 10:30

Client ID: HA-8 (OW) Date Received: 04/12/12

Sample Location: Not Specified Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	--	1
p/m-Xylene	ND		ug/l	1.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	--	1
Dibromomethane	ND		ug/l	5.0	--	1
1,4-Dichlorobutane	ND		ug/l	5.0	--	1
1,2,3-Trichloropropane	ND		ug/l	5.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	5.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	5.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
Vinyl acetate	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Ethyl methacrylate	ND		ug/l	5.0	--	1
Acrylonitrile	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.5	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.5	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.5	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Bromobenzene	ND		ug/l	2.5	--	1
n-Butylbenzene	ND		ug/l	0.50	--	1
sec-Butylbenzene	ND		ug/l	0.50	--	1
tert-Butylbenzene	ND		ug/l	2.5	--	1
o-Chlorotoluene	ND		ug/l	2.5	--	1
p-Chlorotoluene	ND		ug/l	2.5	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Isopropylbenzene	ND		ug/l	0.50	--	1
p-Isopropyltoluene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	2.5	--	1
n-Propylbenzene	ND		ug/l	0.50	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	--	1

Project Name: 159 FIRST STREET **Lab Number:** L1206384

Project Number: 38450-043 **Report Date:** 04/23/12

SAMPLE RESULTS

Lab ID: L1206384-01 Date Collected: 04/12/12 10:30

Client ID: HA-8 (OW) Date Received: 04/12/12

Sample Location: Not Specified Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	--	1
Ethyl ether	ND		ug/l	2.5	--	1
Tert-Butyl Alcohol	ND		ug/l	10	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	97		70-130

Project Name: 159 FIRST STREET
Project Number: 38450-043
Lab Number: L1206384
Report Date: 04/23/12

SAMPLE RESULTS

Lab ID:	L1206384-01	Date Collected:	04/12/12 10:30
Client ID:	HA-8 (OW)	Date Received:	04/12/12
Sample Location:	Not Specified	Field Prep:	See Narrative
Matrix:	Water		
Analytical Method:	1,8260B(M)		
Analytical Date:	04/16/12 00:43		
Analyst:	PD		

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

Project Name: 159 FIRST STREET
Project Number: 38450-043
Lab Number: L1206384
Report Date: 04/23/12

SAMPLE RESULTS

Lab ID:	L1206384-01	Date Collected:	04/12/12 10:30
Client ID:	HA-8 (OW)	Date Received:	04/12/12
Sample Location:	Not Specified	Field Prep:	See Narrative
Matrix:	Water		
Analytical Method:	14,504.1	Extraction Date:	04/17/12 15:00
Analytical Date:	04/17/12 18:06		
Analyst:	SH		

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

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260B(M)
Analytical Date: 04/15/12 19:02
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG529313-3					
1,4-Dioxane	ND		ug/l	3.0	--

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260B
Analytical Date: 04/15/12 19:02
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG529324-3					
Methylene chloride	ND		ug/l	3.0	--
1,1-Dichloroethane	ND		ug/l	0.75	--
Chloroform	ND		ug/l	0.75	--
Carbon tetrachloride	ND		ug/l	0.50	--
1,2-Dichloropropane	ND		ug/l	1.8	--
Dibromochloromethane	ND		ug/l	0.50	--
1,1,2-Trichloroethane	ND		ug/l	0.60	--
Tetrachloroethene	ND		ug/l	0.50	--
Chlorobenzene	ND		ug/l	0.50	--
Trichlorofluoromethane	ND		ug/l	2.5	--
1,2-Dichloroethane	ND		ug/l	0.38	--
1,1,1-Trichloroethane	ND		ug/l	0.50	--
Bromodichloromethane	ND		ug/l	0.50	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.5	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	0.75	--
Ethylbenzene	ND		ug/l	0.50	--
Chloromethane	ND		ug/l	2.5	--
Bromomethane	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	0.057	--
trans-1,2-Dichloroethene	ND		ug/l	0.75	--
Trichloroethene	ND		ug/l	0.50	--
1,2-Dichlorobenzene	ND		ug/l	2.5	--
1,3-Dichlorobenzene	ND		ug/l	2.5	--
1,4-Dichlorobenzene	ND		ug/l	2.5	--

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260B
Analytical Date: 04/15/12 19:02
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG529324-3					
Methyl tert butyl ether	ND		ug/l	1.0	--
p/m-Xylene	ND		ug/l	1.0	--
o-Xylene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	0.50	--
Dibromomethane	ND		ug/l	5.0	--
1,4-Dichlorobutane	ND		ug/l	5.0	--
1,2,3-Trichloropropane	ND		ug/l	5.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	5.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	5.0	--
2-Butanone	ND		ug/l	5.0	--
Vinyl acetate	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Ethyl methacrylate	ND		ug/l	5.0	--
Acrylonitrile	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.5	--
Tetrahydrofuran	ND		ug/l	5.0	--
2,2-Dichloropropane	ND		ug/l	2.5	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.5	--
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	--
Bromobenzene	ND		ug/l	2.5	--
n-Butylbenzene	ND		ug/l	0.50	--
sec-Butylbenzene	ND		ug/l	0.50	--
tert-Butylbenzene	ND		ug/l	2.5	--
o-Chlorotoluene	ND		ug/l	2.5	--
p-Chlorotoluene	ND		ug/l	2.5	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	--
Hexachlorobutadiene	ND		ug/l	0.50	--

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260B
Analytical Date: 04/15/12 19:02
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG529324-3					
Isopropylbenzene	ND		ug/l	0.50	--
p-Isopropyltoluene	ND		ug/l	0.50	--
Naphthalene	ND		ug/l	2.5	--
n-Propylbenzene	ND		ug/l	0.50	--
1,2,3-Trichlorobenzene	ND		ug/l	2.5	--
1,2,4-Trichlorobenzene	ND		ug/l	2.5	--
1,3,5-Trimethylbenzene	ND		ug/l	2.5	--
1,3,5-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.5	--
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	--
Ethyl ether	ND		ug/l	2.5	--
Isopropyl Ether	ND		ug/l	2.0	--
Tert-Butyl Alcohol	ND		ug/l	10	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	91		70-130

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 04/17/12 17:20
Analyst: SH

Extraction Date: 04/17/12 15:00

Parameter	Result	Qualifier	Units	RL	MDL
Pesticides by GC - Westborough Lab for sample(s): 01 Batch: WG529766-1					
1,2-Dibromoethane	ND		ug/l	0.010	--
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	--

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET

Project Number: 38450-043

Lab Number: L1206384

Report Date: 04/23/12

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: WG529313-1 WG529313-2								
1,4-Dioxane	87		92		70-130	6		25
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG529324-1 WG529324-2								
Methylene chloride	95		93		70-130	2		20
1,1-Dichloroethane	96		93		70-130	3		20
Chloroform	94		90		70-130	4		20
Carbon tetrachloride	88		87		63-132	1		20
1,2-Dichloropropane	101		100		70-130	1		20
Dibromochloromethane	89		89		63-130	0		20
1,1,2-Trichloroethane	97		97		70-130	0		20
Tetrachloroethene	100		98		70-130	2		20
Chlorobenzene	92		89		75-130	3		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET

Project Number: 38450-043

Lab Number: L1206384

Report Date: 04/23/12

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: WG529324-1 WG529324-2								
Trichlorofluoromethane	93		88		62-150	6		20
1,2-Dichloroethane	93		89		70-130	4		20
1,1,1-Trichloroethane	91		91		67-130	0		20
Bromodichloromethane	89		88		67-130	1		20
trans-1,3-Dichloropropene	91		89		70-130	2		20
cis-1,3-Dichloropropene	91		91		70-130	0		20
1,1-Dichloropropene	89		89		70-130	0		20
Bromoform	90		90		54-136	0		20
1,1,2,2-Tetrachloroethane	90		85		67-130	6		20
Benzene	97		93		70-130	4		25
Toluene	91		89		70-130	2		25
Ethylbenzene	98		95		70-130	3		20
Chloromethane	99		100		64-130	1		20
Bromomethane	110		120		39-139	9		20
Vinyl chloride	97		95		55-140	2		20
Chloroethane	91		85		55-138	7		20
1,1-Dichloroethene	79		75		61-145	5		25
trans-1,2-Dichloroethene	91		85		70-130	7		20
Trichloroethene	101		103		70-130	2		25
1,2-Dichlorobenzene	99		96		70-130	3		20
1,3-Dichlorobenzene	102		98		70-130	4		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET

Project Number: 38450-043

Lab Number: L1206384

Report Date: 04/23/12

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: WG529324-1 WG529324-2								
1,4-Dichlorobenzene	99		95		70-130	4		20
Methyl tert butyl ether	83		84		63-130	1		20
p/m-Xylene	98		94		70-130	4		20
o-Xylene	98		95		70-130	3		20
cis-1,2-Dichloroethene	98		92		70-130	6		20
Dibromomethane	95		97		70-130	2		20
1,4-Dichlorobutane	87		85		70-130	2		20
1,2,3-Trichloropropane	97		92		64-130	5		20
Styrene	98		94		70-130	4		20
Dichlorodifluoromethane	88		84		36-147	5		20
Acetone	87		86		58-148	1		20
Carbon disulfide	74		72		51-130	3		20
2-Butanone	79		79		63-138	0		20
Vinyl acetate	90		91		70-130	1		20
4-Methyl-2-pentanone	89		88		59-130	1		20
2-Hexanone	86		84		57-130	2		20
Ethyl methacrylate	**66**	Q	**66**	Q	70-130	0		20
Acrylonitrile	80		81		70-130	1		20
Bromochloromethane	98		96		70-130	2		20
Tetrahydrofuran	74		79		58-130	7		20
2,2-Dichloropropane	101		103		63-133	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET

Project Number: 38450-043

Lab Number: L1206384

Report Date: 04/23/12

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: WG529324-1 WG529324-2								
1,2-Dibromoethane	91		91		70-130	0		20
1,3-Dichloropropane	97		95		70-130	2		20
1,1,1,2-Tetrachloroethane	90		89		64-130	1		20
Bromobenzene	105		100		70-130	5		20
n-Butylbenzene	95		90		53-136	5		20
sec-Butylbenzene	98		93		70-130	5		20
tert-Butylbenzene	92		87		70-130	6		20
o-Chlorotoluene	97		92		70-130	5		20
p-Chlorotoluene	99		94		70-130	5		20
1,2-Dibromo-3-chloropropane	84		88		41-144	5		20
Hexachlorobutadiene	90		90		63-130	0		20
Isopropylbenzene	90		87		70-130	3		20
p-Isopropyltoluene	103		98		70-130	5		20
Naphthalene	96		97		70-130	1		20
n-Propylbenzene	90		83		69-130	8		20
1,2,3-Trichlorobenzene	97		97		70-130	0		20
1,2,4-Trichlorobenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	96		92		64-130	4		20
1,2,4-Trimethylbenzene	101		97		70-130	4		20
trans-1,4-Dichloro-2-butene	85		81		70-130	5		20
Ethyl ether	82		78		59-134	5		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET

Project Number: 38450-043

Lab Number: L1206384

Report Date: 04/23/12

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: WG529324-1 WG529324-2								
Isopropyl Ether	87		86		70-130	1		20
tert-Butyl Alcohol	84		95		70-130	12		20
Ethyl-Tert-Butyl-Ether	100		100		70-130	0		20
Tertiary-Amyl Methyl Ether	92		92		66-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		91		70-130
Toluene-d8	98		100		70-130
4-Bromofluorobenzene	100		99		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET

Project Number: 38450-043

Lab Number: L1206384

Report Date: 04/23/12

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Pesticides by GC - Westborough Lab Associated sample(s): 01 Batch: WG529766-2								
1,2-Dibromoethane	111		-		70-130	-		20
1,2-Dibromo-3-chloropropane	89		-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Pesticides by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529766-3 QC Sample: L1206384-01 Client ID: HA-8 (OW)												
1,2-Dibromoethane	ND	0.252	0.272	108		-	-		70-130	-		20
1,2-Dibromo-3-chloropropane	ND	0.252	0.231	91		-	-		70-130	-		20

SEMIVOLATILES

Project Name: 159 FIRST STREET
Project Number: 38450-043
Lab Number: L1206384
Report Date: 04/23/12

SAMPLE RESULTS

Lab ID:	L1206384-01	Date Collected:	04/12/12 10:30
Client ID:	HA-8 (OW)	Date Received:	04/12/12
Sample Location:	Not Specified	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270C	Extraction Date:	04/15/12 20:11
Analytical Date:	04/18/12 12:33		
Analyst:	JB		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzidine	ND		ug/l	20	--	1
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Hexachlorocyclopentadiene	ND		ug/l	20	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/l	2.0	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
2-Nitroaniline	ND		ug/l	5.0	--	1
3-Nitroaniline	ND		ug/l	5.0	--	1
4-Nitroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	3.0		ug/l	2.0	--	1
n-Nitrosodimethylamine	ND		ug/l	2.0	--	1

Project Name: 159 FIRST STREET **Lab Number:** L1206384

Project Number: 38450-043 **Report Date:** 04/23/12

SAMPLE RESULTS

Lab ID: L1206384-01 Date Collected: 04/12/12 10:30

Client ID: HA-8 (OW) Date Received: 04/12/12

Sample Location: Not Specified Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
P-Chloro-M-Cresol	ND		ug/l	2.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1
4,6-Dinitro-o-cresol	ND		ug/l	10	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Benzoic Acid	ND		ug/l	50	--	1
Benzyl Alcohol	ND		ug/l	2.0	--	1
Carbazole	14		ug/l	2.0	--	1
Pyridine	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	71		21-120
Phenol-d6	50		10-120
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	92		15-120
2,4,6-Tribromophenol	**128**	Q	10-120
4-Terphenyl-d14	122		41-149

Project Name: 159 FIRST STREET
Project Number: 38450-043
Lab Number: L1206384
Report Date: 04/23/12

SAMPLE RESULTS

Lab ID:	L1206384-01	Date Collected:	04/12/12 10:30
Client ID:	HA-8 (OW)	Date Received:	04/12/12
Sample Location:	Not Specified	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270C-SIM	Extraction Date:	04/14/12 10:46
Analytical Date:	04/16/12 14:38		
Analyst:	JC		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	10		ug/l	0.20	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	1.8		ug/l	0.20	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	0.30		ug/l	0.20	--	1
Benzo(a)anthracene	ND		ug/l	0.20	--	1
Benzo(a)pyrene	ND		ug/l	0.20	--	1
Benzo(b)fluoranthene	ND		ug/l	0.20	--	1
Benzo(k)fluoranthene	ND		ug/l	0.20	--	1
Chrysene	ND		ug/l	0.20	--	1
Acenaphthylene	0.31		ug/l	0.20	--	1
Anthracene	0.65		ug/l	0.20	--	1
Benzo(ghi)perylene	ND		ug/l	0.20	--	1
Fluorene	0.70		ug/l	0.20	--	1
Phenanthrene	ND		ug/l	0.20	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--	1
Pyrene	1.0		ug/l	0.20	--	1
1-Methylnaphthalene	0.20		ug/l	0.20	--	1
2-Methylnaphthalene	ND		ug/l	0.20	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	52		21-120
Phenol-d6	40		10-120
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	68		15-120
2,4,6-Tribromophenol	96		10-120
4-Terphenyl-d14	98		41-149

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 04/16/12 12:50
Analyst: JC

Extraction Method: EPA 3510C
Extraction Date: 04/14/12 10:46

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG529177-1					
Acenaphthene	ND		ug/l	0.20	--
2-Chloronaphthalene	ND		ug/l	0.20	--
Fluoranthene	ND		ug/l	0.20	--
Hexachlorobutadiene	ND		ug/l	0.50	--
Naphthalene	ND		ug/l	0.20	--
Benzo(a)anthracene	ND		ug/l	0.20	--
Benzo(a)pyrene	ND		ug/l	0.20	--
Benzo(b)fluoranthene	ND		ug/l	0.20	--
Benzo(k)fluoranthene	ND		ug/l	0.20	--
Chrysene	ND		ug/l	0.20	--
Acenaphthylene	ND		ug/l	0.20	--
Anthracene	ND		ug/l	0.20	--
Benzo(ghi)perylene	ND		ug/l	0.20	--
Fluorene	ND		ug/l	0.20	--
Phenanthrene	ND		ug/l	0.20	--
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--
Pyrene	ND		ug/l	0.20	--
1-Methylnaphthalene	ND		ug/l	0.20	--
2-Methylnaphthalene	ND		ug/l	0.20	--
Pentachlorophenol	ND		ug/l	0.80	--
Hexachlorobenzene	ND		ug/l	0.80	--
Hexachloroethane	ND		ug/l	0.80	--

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C-SIM
Analytical Date: 04/16/12 12:50
Analyst: JC

Extraction Method: EPA 3510C
Extraction Date: 04/14/12 10:46

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG529177-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	59		21-120
Phenol-d6	42		10-120
Nitrobenzene-d5	98		23-120
2-Fluorobiphenyl	79		15-120
2,4,6-Tribromophenol	108		10-120
4-Terphenyl-d14	122		41-149

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C
Analytical Date: 04/17/12 22:22
Analyst: JB

Extraction Method: EPA 3510C
Extraction Date: 04/15/12 20:11

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG529292-1					
Benzidine	ND		ug/l	20	--
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--
1,2-Dichlorobenzene	ND		ug/l	2.0	--
1,3-Dichlorobenzene	ND		ug/l	2.0	--
1,4-Dichlorobenzene	ND		ug/l	2.0	--
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--
2,4-Dinitrotoluene	ND		ug/l	5.0	--
2,6-Dinitrotoluene	ND		ug/l	5.0	--
Azobenzene	ND		ug/l	2.0	--
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	--
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--
Hexachlorocyclopentadiene	ND		ug/l	20	--
Isophorone	ND		ug/l	5.0	--
Nitrobenzene	ND		ug/l	2.0	--
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/l	2.0	--
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	--
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	--
Aniline	ND		ug/l	2.0	--
4-Chloroaniline	ND		ug/l	5.0	--
2-Nitroaniline	ND		ug/l	5.0	--
3-Nitroaniline	ND		ug/l	5.0	--
4-Nitroaniline	ND		ug/l	5.0	--
Dibenzofuran	ND		ug/l	2.0	--
n-Nitrosodimethylamine	ND		ug/l	2.0	--

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270C
Analytical Date: 04/17/12 22:22
Analyst: JB

Extraction Method: EPA 3510C
Extraction Date: 04/15/12 20:11

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG529292-1					
2,4,6-Trichlorophenol	ND		ug/l	5.0	--
P-Chloro-M-Cresol	ND		ug/l	2.0	--
2-Chlorophenol	ND		ug/l	2.0	--
2,4-Dichlorophenol	ND		ug/l	5.0	--
2,4-Dimethylphenol	ND		ug/l	5.0	--
2-Nitrophenol	ND		ug/l	10	--
4-Nitrophenol	ND		ug/l	10	--
2,4-Dinitrophenol	ND		ug/l	20	--
4,6-Dinitro-o-cresol	ND		ug/l	10	--
Phenol	ND		ug/l	5.0	--
2-Methylphenol	ND		ug/l	5.0	--
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--
2,4,5-Trichlorophenol	ND		ug/l	5.0	--
Benzoic Acid	ND		ug/l	50	--
Benzyl Alcohol	ND		ug/l	2.0	--
Carbazole	ND		ug/l	2.0	--
Pyridine	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	75		21-120
Phenol-d6	49		10-120
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	97		15-120
2,4,6-Tribromophenol	79		10-120
4-Terphenyl-d14	139		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET

Project Number: 38450-043

Lab Number: L1206384

Report Date: 04/23/12

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: WG529177-2 WG529177-3								
Acenaphthene	70		74		37-111	6		40
2-Chloronaphthalene	74		75		40-140	1		40
Fluoranthene	94		99		40-140	5		40
Hexachlorobutadiene	55		57		40-140	4		40
Naphthalene	66		68		40-140	3		40
Benzo(a)anthracene	85		90		40-140	6		40
Benzo(a)pyrene	69		78		40-140	12		40
Benzo(b)fluoranthene	78		86		40-140	10		40
Benzo(k)fluoranthene	79		85		40-140	7		40
Chrysene	84		88		40-140	5		40
Acenaphthylene	80		82		40-140	2		40
Anthracene	77		85		40-140	10		40
Benzo(ghi)perylene	80		86		40-140	7		40
Fluorene	74		81		40-140	9		40
Phenanthrene	74		77		40-140	4		40
Dibenzo(a,h)anthracene	79		86		40-140	8		40
Indeno(1,2,3-cd)Pyrene	74		82		40-140	10		40
Pyrene	93		100		26-127	7		40
1-Methylnaphthalene	66		68		40-140	3		40
2-Methylnaphthalene	65		67		40-140	3		40
Pentachlorophenol	92		99		9-103	7		40

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET

Project Number: 38450-043

Lab Number: L1206384

Report Date: 04/23/12

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: WG529177-2 WG529177-3								
Hexachlorobenzene	80		83		40-140	4		40
Hexachloroethane	55		60		40-140	9		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	51		55		21-120
Phenol-d6	38		44		10-120
Nitrobenzene-d5	83		89		23-120
2-Fluorobiphenyl	69		73		15-120
2,4,6-Tribromophenol	93		107		10-120
4-Terphenyl-d14	107		113		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET

Project Number: 38450-043

Lab Number: L1206384

Report Date: 04/23/12

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: WG529292-2 WG529292-3								
Benzidine	12		21		10-75	**55**	Q	30
1,2,4-Trichlorobenzene	79		72		39-98	9		30
Bis(2-chloroethyl)ether	107		98		40-140	9		30
1,2-Dichlorobenzene	86		77		40-140	11		30
1,3-Dichlorobenzene	81		76		40-140	6		30
1,4-Dichlorobenzene	83		78		36-97	6		30
3,3'-Dichlorobenzidine	**173**	Q	**154**	Q	40-140	12		30
2,4-Dinitrotoluene	**112**	Q	**105**	Q	24-96	6		30
2,6-Dinitrotoluene	109		103		40-140	6		30
Azobenzene	107		102		40-140	5		30
4-Chlorophenyl phenyl ether	102		98		40-140	4		30
4-Bromophenyl phenyl ether	106		102		40-140	4		30
Bis(2-chloroisopropyl)ether	102		94		40-140	8		30
Bis(2-chloroethoxy)methane	109		102		40-140	7		30
Hexachlorocyclopentadiene	61		57		40-140	7		30
Isophorone	108		102		40-140	6		30
Nitrobenzene	100		94		40-140	6		30
NitrosoDiPhenylAmine(NDPA)/DPA	**187**	Q	**178**	Q	40-140	5		30
Bis(2-Ethylhexyl)phthalate	135		119		40-140	13		30
Butyl benzyl phthalate	122		114		40-140	7		30
Di-n-butylphthalate	118		110		40-140	7		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

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: WG529292-2 WG529292-3								
Di-n-octylphthalate	116		111		40-140	4		30
Diethyl phthalate	104		99		40-140	5		30
Dimethyl phthalate	104		100		40-140	4		30
Aniline	46		48		40-140	4		30
4-Chloroaniline	69		66		40-140	4		30
2-Nitroaniline	114		107		52-143	6		30
3-Nitroaniline	88		84		25-145	5		30
4-Nitroaniline	117		108		51-143	8		30
Dibenzofuran	100		95		40-140	5		30
n-Nitrosodimethylamine	67		59		22-74	13		30
2,4,6-Trichlorophenol	113		102		30-130	10		30
P-Chloro-M-Cresol	**114**	Q	**109**	Q	23-97	4		30
2-Chlorophenol	114		106		27-123	7		30
2,4-Dichlorophenol	114		109		30-130	4		30
2,4-Dimethylphenol	92		97		30-130	5		30
2-Nitrophenol	108		100		30-130	8		30
4-Nitrophenol	76		70		10-80	8		30
2,4-Dinitrophenol	78		74		20-130	5		30
4,6-Dinitro-o-cresol	94		92		20-164	2		30
Phenol	60		56		12-110	7		30
2-Methylphenol	105		97		30-130	8		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET

Project Number: 38450-043

Lab Number: L1206384

Report Date: 04/23/12

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: WG529292-2 WG529292-3								
3-Methylphenol/4-Methylphenol	99		92		30-130	7		30
2,4,5-Trichlorophenol	113		110		30-130	3		30
Benzoic Acid	24		23		10-164	4		30
Benzyl Alcohol	90		82		26-116	9		30
Carbazole	108		100		55-144	8		30
Pyridine	24		34		10-66	**34**	Q	30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	83		77		21-120
Phenol-d6	60		55		10-120
Nitrobenzene-d5	104		101		23-120
2-Fluorobiphenyl	97		91		15-120
2,4,6-Tribromophenol	128	Q	126	Q	10-120
4-Terphenyl-d14	122		114		41-149

PCBS

Project Name: 159 FIRST STREET
Project Number: 38450-043
Lab Number: L1206384
Report Date: 04/23/12

SAMPLE RESULTS

Lab ID:	L1206384-01	Date Collected:	04/12/12 10:30
Client ID:	HA-8 (OW)	Date Received:	04/12/12
Sample Location:	Not Specified	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 608
Analytical Method:	5,608	Extraction Date:	04/15/12 14:38
Analytical Date:	04/17/12 20:11	Cleanup Method1:	EPA 3665A
Analyst:	KB	Cleanup Date1:	04/16/12
		Cleanup Method2:	EPA 3665A
		Cleanup Date2:	04/16/12

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	82		30-150
Decachlorobiphenyl	68		30-150

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,608
Analytical Date: 04/17/12 19:05
Analyst: KB

Extraction Method: EPA 608
Extraction Date: 04/15/12 14:38
Cleanup Method1: EPA 3665A
Cleanup Date1: 04/16/12
Cleanup Method2: EPA 3665A
Cleanup Date2: 04/16/12

Parameter	Result	Qualifier	Units	RL	MDL
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG529279-1					
Aroclor 1016	ND		ug/l	0.250	--
Aroclor 1221	ND		ug/l	0.250	--
Aroclor 1232	ND		ug/l	0.250	--
Aroclor 1242	ND		ug/l	0.250	--
Aroclor 1248	ND		ug/l	0.250	--
Aroclor 1254	ND		ug/l	0.250	--
Aroclor 1260	ND		ug/l	0.250	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	80		30-150
Decachlorobiphenyl	66		30-150

Matrix Spike Analysis
Batch Quality Control

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529279-3 QC Sample: L1206247-01 Client ID: MS Sample												
Aroclor 1016	ND	1.11	1.29	116		-	-		40-140	-		50
Aroclor 1260	ND	1.11	0.961	86		-	-		40-140	-		50

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	81				30-150
Decachlorobiphenyl	77				30-150

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET

Project Number: 38450-043

Lab Number: L1206384

Report Date: 04/23/12

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG529279-2								
Aroclor 1016	77		-		40-140	-		50
Aroclor 1260	70		-		40-140	-		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	75				30-150
Decachlorobiphenyl	72				30-150

Lab Duplicate Analysis
Batch Quality Control

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Polychlorinated Biphenyls by GC - Westborough Lab (OW) Associated sample(s): 01 QC Batch ID: WG529279-4 QC Sample: L1206384-01 Client ID: HA-8						
Aroclor 1016	ND	ND	ug/l	NC		50
Aroclor 1221	ND	ND	ug/l	NC		50
Aroclor 1232	ND	ND	ug/l	NC		50
Aroclor 1242	ND	ND	ug/l	NC		50
Aroclor 1248	ND	ND	ug/l	NC		50
Aroclor 1254	ND	ND	ug/l	NC		50
Aroclor 1260	ND	ND	ug/l	NC		50

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	82		79		30-150
Decachlorobiphenyl	68		63		30-150

METALS

Project Name: 159 FIRST STREET
Project Number: 38450-043
Lab Number: L1206384
Report Date: 04/23/12

SAMPLE RESULTS

Lab ID: L1206384-01
Client ID: HA-8 (OW)
Sample Location: Not Specified
Matrix: Water
Date Collected: 04/12/12 10:30
Date Received: 04/12/12
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Antimony, Total	0.0019		mg/l	0.0005	--	1	04/13/12 17:30	04/16/12 13:06	EPA 3005A	1,6020	AK
Arsenic, Total	0.0028		mg/l	0.0005	--	1	04/13/12 17:30	04/16/12 13:06	EPA 3005A	1,6020	AK
Cadmium, Total	ND		mg/l	0.0002	--	1	04/13/12 17:30	04/16/12 13:06	EPA 3005A	1,6020	AK
Chromium, Total	ND		mg/l	0.0010	--	1	04/13/12 17:30	04/16/12 13:06	EPA 3005A	1,6020	AK
Copper, Total	ND		mg/l	0.0010	--	1	04/13/12 17:30	04/16/12 13:06	EPA 3005A	1,6020	AK
Iron, Total	6.6		mg/l	0.05	--	1	04/13/12 17:30	04/17/12 16:55	EPA 3005A	19,200.7	AI
Lead, Total	ND		mg/l	0.0010	--	1	04/13/12 17:30	04/16/12 13:06	EPA 3005A	1,6020	AK
Mercury, Total	ND		mg/l	0.0002	--	1	04/13/12 15:50	04/16/12 11:10	EPA 245.1	3,245.1	KL
Nickel, Total	0.0021		mg/l	0.0005	--	1	04/13/12 17:30	04/16/12 13:06	EPA 3005A	1,6020	AK
Selenium, Total	ND		mg/l	0.005	--	1	04/13/12 17:30	04/16/12 13:06	EPA 3005A	1,6020	AK
Silver, Total	ND		mg/l	0.0004	--	1	04/13/12 17:30	04/16/12 13:06	EPA 3005A	1,6020	AK
Zinc, Total	0.0196		mg/l	0.0100	--	1	04/13/12 17:30	04/16/12 13:06	EPA 3005A	1,6020	AK
Dissolved Metals - Westborough Lab											
Antimony, Dissolved	0.0019		mg/l	0.0005	--	1	04/16/12 12:35	04/17/12 11:31	EPA 3005A	1,6020	AK
Arsenic, Dissolved	0.0028		mg/l	0.0005	--	1	04/16/12 12:35	04/17/12 11:31	EPA 3005A	1,6020	AK
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	04/16/12 12:35	04/17/12 11:31	EPA 3005A	1,6020	AK
Chromium, Dissolved	ND		mg/l	0.0010	--	1	04/16/12 12:35	04/17/12 11:31	EPA 3005A	1,6020	AK
Copper, Dissolved	ND		mg/l	0.0010	--	1	04/16/12 12:35	04/17/12 11:31	EPA 3005A	1,6020	AK
Iron, Dissolved	7.2		mg/l	0.05	--	1	04/16/12 12:35	04/17/12 16:13	EPA 3005A	19,200.7	AI
Lead, Dissolved	ND		mg/l	0.0010	--	1	04/16/12 12:35	04/17/12 11:31	EPA 3005A	1,6020	AK
Mercury, Dissolved	ND		mg/l	0.0002	--	1	04/13/12 15:50	04/16/12 10:34	EPA 245.1	3,245.1	KL
Nickel, Dissolved	0.0024		mg/l	0.0005	--	1	04/16/12 12:35	04/17/12 11:31	EPA 3005A	1,6020	AK
Selenium, Dissolved	ND		mg/l	0.005	--	1	04/16/12 12:35	04/17/12 11:31	EPA 3005A	1,6020	AK
Silver, Dissolved	ND		mg/l	0.0004	--	1	04/16/12 12:35	04/17/12 11:31	EPA 3005A	1,6020	AK
Zinc, Dissolved	0.0121		mg/l	0.0100	--	1	04/16/12 12:35	04/17/12 11:31	EPA 3005A	1,6020	AK

Project Name: 159 FIRST STREET
Project Number: 38450-043
Lab Number: L1206384
Report Date: 04/23/12

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Westborough Lab for sample(s): 01 Batch: WG529018-1										
Mercury, Dissolved	ND		mg/l	0.0002	--	1	04/13/12 15:50	04/16/12 10:27	3,245.1	KL

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01 Batch: WG529019-1										
Mercury, Total	ND		mg/l	0.0002	--	1	04/13/12 15:50	04/16/12 10:43	3,245.1	KL

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01 Batch: WG529037-1										
Antimony, Total	ND		mg/l	0.0005	--	1	04/13/12 17:30	04/16/12 12:15	1,6020	AK
Arsenic, Total	ND		mg/l	0.0005	--	1	04/13/12 17:30	04/16/12 12:15	1,6020	AK
Cadmium, Total	ND		mg/l	0.0002	--	1	04/13/12 17:30	04/16/12 12:15	1,6020	AK
Chromium, Total	ND		mg/l	0.0010	--	1	04/13/12 17:30	04/16/12 12:15	1,6020	AK
Copper, Total	ND		mg/l	0.0010	--	1	04/13/12 17:30	04/16/12 12:15	1,6020	AK
Lead, Total	ND		mg/l	0.0010	--	1	04/13/12 17:30	04/16/12 12:15	1,6020	AK
Nickel, Total	ND		mg/l	0.0005	--	1	04/13/12 17:30	04/16/12 12:15	1,6020	AK
Selenium, Total	ND		mg/l	0.005	--	1	04/13/12 17:30	04/16/12 12:15	1,6020	AK
Silver, Total	ND		mg/l	0.0004	--	1	04/13/12 17:30	04/16/12 12:15	1,6020	AK
Zinc, Total	ND		mg/l	0.0100	--	1	04/13/12 17:30	04/16/12 12:15	1,6020	AK

Prep Information

Digestion Method: EPA 3005A

Project Name: 159 FIRST STREET
Project Number: 38450-043
Lab Number: L1206384
Report Date: 04/23/12

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01 Batch: WG529056-1										
Iron, Total	ND		mg/l	0.05	--	1	04/13/12 17:30	04/17/12 16:28	19,200.7	AI

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Westborough Lab for sample(s): 01 Batch: WG529400-1										
Antimony, Dissolved	ND		mg/l	0.0005	--	1	04/16/12 12:35	04/17/12 11:03	1,6020	AK
Arsenic, Dissolved	ND		mg/l	0.0005	--	1	04/16/12 12:35	04/17/12 11:03	1,6020	AK
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	04/16/12 12:35	04/17/12 11:03	1,6020	AK
Chromium, Dissolved	ND		mg/l	0.0010	--	1	04/16/12 12:35	04/17/12 11:03	1,6020	AK
Copper, Dissolved	ND		mg/l	0.0010	--	1	04/16/12 12:35	04/17/12 11:03	1,6020	AK
Lead, Dissolved	ND		mg/l	0.0010	--	1	04/16/12 12:35	04/17/12 11:03	1,6020	AK
Nickel, Dissolved	ND		mg/l	0.0005	--	1	04/16/12 12:35	04/17/12 11:03	1,6020	AK
Selenium, Dissolved	ND		mg/l	0.005	--	1	04/16/12 12:35	04/17/12 11:03	1,6020	AK
Silver, Dissolved	ND		mg/l	0.0004	--	1	04/16/12 12:35	04/17/12 11:03	1,6020	AK
Zinc, Dissolved	ND		mg/l	0.0100	--	1	04/16/12 12:35	04/17/12 11:03	1,6020	AK

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Westborough Lab for sample(s): 01 Batch: WG529401-1										
Iron, Dissolved	ND		mg/l	0.05	--	1	04/16/12 12:35	04/17/12 16:07	19,200.7	AI

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET

Project Number: 38450-043

Lab Number: L1206384

Report Date: 04/23/12

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Westborough Lab Associated sample(s): 01 Batch: WG529018-2								
Mercury, Dissolved	103		-		85-115	-		
Total Metals - Westborough Lab Associated sample(s): 01 Batch: WG529019-2								
Mercury, Total	103		-		85-115	-		
Total Metals - Westborough Lab Associated sample(s): 01 Batch: WG529037-2								
Antimony, Total	101		-		80-120	-		
Arsenic, Total	112		-		80-120	-		
Cadmium, Total	113		-		80-120	-		
Chromium, Total	105		-		80-120	-		
Copper, Total	109		-		80-120	-		
Lead, Total	104		-		80-120	-		
Nickel, Total	109		-		80-120	-		
Selenium, Total	117		-		80-120	-		
Silver, Total	101		-		80-120	-		
Zinc, Total	110		-		80-120	-		
Total Metals - Westborough Lab Associated sample(s): 01 Batch: WG529056-2								
Iron, Total	100		-		85-115	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET

Project Number: 38450-043

Lab Number: L1206384

Report Date: 04/23/12

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Dissolved Metals - Westborough Lab Associated sample(s): 01 Batch: WG529400-2					
Antimony, Dissolved	98	-	80-120	-	
Arsenic, Dissolved	111	-	80-120	-	
Cadmium, Dissolved	114	-	80-120	-	
Chromium, Dissolved	107	-	80-120	-	
Copper, Dissolved	108	-	80-120	-	
Lead, Dissolved	105	-	80-120	-	
Nickel, Dissolved	110	-	80-120	-	
Selenium, Dissolved	118	-	80-120	-	
Silver, Dissolved	102	-	80-120	-	
Zinc, Dissolved	115	-	80-120	-	
Dissolved Metals - Westborough Lab Associated sample(s): 01 Batch: WG529401-2					
Iron, Dissolved	100	-	85-115	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529018-4 QC Sample: L1206384-01 Client ID: HA-8 (OW)												
Mercury, Dissolved	ND	0.001	0.0013	126		-	-		70-130	-		20
Total Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529019-4 QC Sample: L1205587-01 Client ID: MS Sample												
Mercury, Total	ND	0.001	0.0013	127		-	-		70-130	-		20
Total Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529037-4 QC Sample: L1206176-21 Client ID: MS Sample												
Antimony, Total	ND	0.5	0.4974	99		-	-		80-120	-		20
Arsenic, Total	ND	0.12	0.1327	110		-	-		80-120	-		20
Cadmium, Total	ND	0.051	0.0577	113		-	-		80-120	-		20
Chromium, Total	ND	0.2	0.2095	105		-	-		80-120	-		20
Copper, Total	0.0020	0.25	0.2696	107		-	-		80-120	-		20
Lead, Total	ND	0.51	0.5311	104		-	-		80-120	-		20
Nickel, Total	0.0012	0.5	0.5332	106		-	-		80-120	-		20
Selenium, Total	ND	0.12	0.136	113		-	-		80-120	-		20
Silver, Total	ND	0.05	0.0497	99		-	-		80-120	-		20
Zinc, Total	0.0250	0.5	0.5726	110		-	-		80-120	-		20
Total Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529056-4 QC Sample: L1206247-01 Client ID: MS Sample												
Iron, Total	3.1	1	4.1	100		-	-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Dissolved Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529400-4 QC Sample: L1206384-01 Client ID: HA-8 (OW)									
Antimony, Dissolved	0.0019	0.5	0.5173	103	-	-	80-120	-	20
Arsenic, Dissolved	0.0028	0.12	0.1413	115	-	-	80-120	-	20
Cadmium, Dissolved	ND	0.051	0.0568	111	-	-	80-120	-	20
Chromium, Dissolved	ND	0.2	0.2062	103	-	-	80-120	-	20
Copper, Dissolved	ND	0.25	0.2556	102	-	-	80-120	-	20
Lead, Dissolved	ND	0.51	0.5436	106	-	-	80-120	-	20
Nickel, Dissolved	0.0024	0.5	0.5121	102	-	-	80-120	-	20
Selenium, Dissolved	ND	0.12	0.141	118	-	-	80-120	-	20
Silver, Dissolved	ND	0.05	0.0494	99	-	-	80-120	-	20
Zinc, Dissolved	0.0121	0.5	0.5442	106	-	-	80-120	-	20
Dissolved Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529401-4 QC Sample: L1206384-01 Client ID: HA-8 (OW)									
Iron, Dissolved	7.2	1	8.1	90	-	-	75-125	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Dissolved Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529018-3 QC Sample: L1206384-01 Client ID: HA-8 (OW)						
Mercury, Dissolved	ND	ND	mg/l	NC		20
Total Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529019-3 QC Sample: L1205587-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529037-3 QC Sample: L1206176-21 Client ID: DUP Sample						
Antimony, Total	ND	ND	mg/l	NC		20
Total Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529056-3 QC Sample: L1206247-01 Client ID: DUP Sample						
Iron, Total	3.1	3.1	mg/l	0		20
Dissolved Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529400-3 QC Sample: L1206384-01 Client ID: HA-8 (OW)						
Antimony, Dissolved	0.0019	0.002	mg/l	4		20
Arsenic, Dissolved	0.0028	0.0027	mg/l	0		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	0.0024	0.0026	mg/l	5		20
Selenium, Dissolved	ND	ND	mg/l	NC		20
Silver, Dissolved	ND	ND	mg/l	NC		20
Zinc, Dissolved	0.0121	0.0127	mg/l	5		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Dissolved Metals - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529401-3 QC Sample: L1206384-01 Client ID: HA-8 (OW)					
Iron, Dissolved	7.2	7.3	mg/l	1	20

INORGANICS
&
MISCELLANEOUS

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

SAMPLE RESULTS

Lab ID: L1206384-01
Client ID: HA-8 (OW)
Sample Location: Not Specified
Matrix: Water

Date Collected: 04/12/12 10:30
Date Received: 04/12/12
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	18		mg/l	5.0	NA	1	-	04/13/12 09:15	30,2540D	DW
Cyanide, Total	0.015		mg/l	0.005	--	1	04/16/12 11:15	04/16/12 16:35	30,4500CN-CE	JO
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	04/13/12 01:00	30,4500CL-D	ML
TPH	ND		mg/l	4.40	--	1.1	04/16/12 17:15	04/18/12 15:30	74,1664A	JO
Phenolics, Total	ND		mg/l	0.03	--	1	04/16/12 17:20	04/16/12 19:59	4,420.1	TP
Chromium, Hexavalent	ND		mg/l	0.010	--	1	04/13/12 03:30	04/13/12 03:43	30,3500CR-D	DE
Anions by Ion Chromatography - Westborough Lab										
Chloride	720		mg/l	12	--	25	-	04/13/12 23:09	44,300.0	AU

Project Name: 159 FIRST STREET
Project Number: 38450-043
Lab Number: L1206384
Report Date: 04/23/12

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: WG528897-3										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	04/13/12 01:00	30,4500CL-D	ML
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG528911-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	04/13/12 03:30	04/13/12 03:42	30,3500CR-D	DE
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG528942-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	04/13/12 09:15	30,2540D	DW
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG529154-1										
Chloride	ND		mg/l	0.50	--	1	-	04/13/12 18:33	44,300.0	AU
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG529381-1										
Cyanide, Total	ND		mg/l	0.005	--	1	04/16/12 11:15	04/16/12 16:06	30,4500CN-CE	JO
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG529516-2										
TPH	ND		mg/l	4.00	--	1	04/16/12 17:15	04/18/12 15:30	74,1664A	JO
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG529528-1										
Phenolics, Total	ND		mg/l	0.03	--	1	04/16/12 17:20	04/16/12 19:56	4,420.1	TP

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG528897-1								
Chlorine, Total Residual	101		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG528911-2								
Chromium, Hexavalent	100		-		85-115	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG529154-2								
Chloride	100		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG529381-2								
Cyanide, Total	109		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG529516-1								
TPH	85		-		64-132	-		34
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG529528-2								
Phenolics, Total	100		-		82-111	-		12

Matrix Spike Analysis
Batch Quality Control

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

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: WG528911-4 QC Sample: L1206384-01 Client ID: HA-8 (OW)												
Chromium, Hexavalent	ND	0.1	0.108	108		-	-		85-115	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529154-3 QC Sample: L1206247-01 Client ID: MS Sample												
Chloride	80	100	180	104		-	-		40-151	-		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529381-3 QC Sample: L1206430-02 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.240	**120**	Q	-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529516-3 QC Sample: L1206384-01 Client ID: HA-8 (OW)												
TPH	ND	21.5	17.6	82		-	-		64-132	-		34
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529528-3 QC Sample: L1206384-01 Client ID: HA-8 (OW)												
Phenolics, Total	ND	0.8	0.78	98		-	-		77-124	-		12

Lab Duplicate Analysis
Batch Quality Control

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG528897-2 QC Sample: L1206384-01 Client ID: HA-8 (OW)						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG528911-3 QC Sample: L1206384-01 Client ID: HA-8 (OW)						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG528942-2 QC Sample: L1206219-01 Client ID: DUP Sample						
Solids, Total Suspended	160	150	mg/l	6		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529154-4 QC Sample: L1206247-01 Client ID: DUP Sample						
Chloride	80	79	mg/l	1		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529381-4 QC Sample: L1206528-01 Client ID: DUP Sample						
Cyanide, Total	0.008	0.007	mg/l	11		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529516-4 QC Sample: L1206247-01 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG529528-4 QC Sample: L1206247-01 Client ID: DUP Sample						
Phenolics, Total	ND	ND	mg/l	NC		12

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206384
Report Date: 04/23/12

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1206384-01A	Vial HCl preserved	A	N/A	4.4	Y	Absent	8260-SIM(14),8260(14)
L1206384-01B	Vial HCl preserved	A	N/A	4.4	Y	Absent	8260-SIM(14),8260(14)
L1206384-01C	Vial Na2S2O3 preserved	A	N/A	4.4	Y	Absent	504(14)
L1206384-01D	Vial Na2S2O3 preserved	A	N/A	4.4	Y	Absent	504(14)
L1206384-01E	Plastic 250ml HNO3 preserved	A	<2	4.4	Y	Absent	SE-6020T(180),CR-6020T(180),NI-6020T(180),CU-6020T(180),ZN-6020T(180),FE-UI(180),PB-6020T(180),HG-U(28),AS-6020T(180),SB-6020T(180),AG-6020T(180),CD-6020T(180)
L1206384-01F	Amber 1000ml Na2S2O3	A	7	4.4	Y	Absent	PCB-608(7)
L1206384-01G	Amber 1000ml Na2S2O3	A	7	4.4	Y	Absent	PCB-608(7)
L1206384-01H	Amber 1000ml unpreserved	A	7	4.4	Y	Absent	8270TCL(7),8270TCL-SIM(7)
L1206384-01I	Amber 1000ml unpreserved	A	7	4.4	Y	Absent	8270TCL(7),8270TCL-SIM(7)
L1206384-01J	Amber 1000ml unpreserved	A	7	4.4	Y	Absent	8270TCL(7),8270TCL-SIM(7)
L1206384-01K	Amber 1000ml unpreserved	A	7	4.4	Y	Absent	8270TCL(7),8270TCL-SIM(7)
L1206384-01L	Plastic 500ml unpreserved	A	7	4.4	Y	Absent	HEXCR-3500(1)
L1206384-01M	Plastic 250ml NaOH preserved	A	>12	4.4	Y	Absent	TCN-4500(14)
L1206384-01N	Amber 1000ml HCl preserved	A	N/A	4.4	Y	Absent	TPH-1664(28)
L1206384-01O	Amber 1000ml HCl preserved	A	N/A	4.4	Y	Absent	TPH-1664(28)
L1206384-01P	Amber 1000ml H2SO4 preserved	A	<2	4.4	Y	Absent	TPHENOL-420(28)
L1206384-01Q	Plastic 250ml unpreserved	A	7	4.4	Y	Absent	CL-300(28),TRC-4500(1)
L1206384-01S	Plastic 1000ml unpreserved	A	7	4.4	Y	Absent	TSS-2540(7)
L1206384-01T	Plastic 250ml HNO3 preserved	A	<2	4.4	Y	Absent	CU-6020S(180),FE-RI(180),SE-6020S(180),ZN-6020S(180),CR-6020S(180),NI-6020S(180),PB-6020S(180),AG-6020S(180),AS-6020S(180),HG-R(28),SB-6020S(180),CD-6020S(180)

*Values in parentheses indicate holding time in days

Project Name:	159 FIRST STREET	**Lab Number:**	L1206384
Project Number:	38450-043	**Report Date:**	04/23/12

GLOSSARY

Acronyms

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.

NI - Not Ignitable.

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.

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.

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 five times (5x) 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.

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 RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value 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.

Report Format: Data Usability Report

Project Name:	159 FIRST STREET	**Lab Number:**	L1206384
Project Number:	38450-043	**Report Date:**	04/23/12

Data Qualifiers

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.

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:	159 FIRST STREET	**Lab Number:**	L1206384
Project Number:	38450-043	**Report Date:**	04/23/12

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

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

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

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

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

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

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

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.

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.

Certificate/Approval Program Summary

Last revised January 30, 2012 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D))

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E).)

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3.3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 2540C, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, 9010B, 9040B, 9030B, 7470A, 7196A, 2340B, EPA 200.7, 6010, 200.8, 6020, 245.1, 1311, 1312, 3005A, Enterolert, 9223D, 9222D. Organic Parameters: 608, 8081, 8082, 8330, 8151A, 624, 8260, 3510C, 3630C, 5030B, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Solid Waste/Soil (Inorganic Parameters: 9010B, 9012A, 9014A, 9040B, 9045C, 6010B, 7471A, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B. Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260B, 8270C, 8330, 8151A, 8081A, 8082, 3540C, 3546, 3580A, 3630C, 5030B, 5035.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (*Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn); 245.1, SM4500H,B, EPA 120.1,

SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.
Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: 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-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B;Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 350.2, 351.1, 353.2, 410.4, 420.1, 1664A, SW-846 9010, 9030, 9040B, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 3630C, 5030B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050C, 9065,1311, 1312, 3005A, 3050B. Organic Parameters: SW-846 3540C, 3546, 3550B, 3580A, 3630C, 5030B, 5035, 8260B, 8270C, 8330, 8151A, 8015B, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 6020, 6020A, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, 3015, EPA 6010B, 6010C, 7196A, 3060A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8081B, 8082, 8082A, 8151A, 8330, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 6010C, 7196A, 3060A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 7471B, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3545, 3546, 3550B, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500H-B, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-04-1-C, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, EPA 9040B, SM4500-HB, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 9010B, 9030B.. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: 1010, 1030, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8015B, 8081A, 8151A, 8330, 8082, 3540C, 3545, 3546, 3580, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Drinking Water Program Certificate/Lab ID: 25700. (Inorganic Parameters: Chloride EPA 300.0. Organic Parameters: 524.2)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Organic Parameters: EPA 524.2, 504.1)

Non-Potable Water (Inorganic Parameters: EPA 1312, 200.7, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P,BE. Organic Parameters: EPA 3510C, 3005A, 3630C, 5030B, 625, 624, 608, 8081A, 8081B, 8082, 802A, 8151A, 8260B, 8270C, 8270D, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 3060A, 6010B, 6010C, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3546, 3580A, 3630C, 5035, 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8260B, 8270C, 8270D, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NY-DOH.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476-09-1. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 $S2^{-}$D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Virginia Division of Consolidated Laboratory Services Certificate/Lab ID: 460195. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 3005A,3015,1312,6010B,6010C,SM4500S-D, SM4500-CN-CE, Lachat 10-204-00-1-X. Organic Parameters: EPA 8260B)

Solid & Hazardous Waste (Inorganic Parameters: EPA 3050B, 1311, 1312, 6010B, 6010C, 9030B, 9010B, 9012A, 9014. Organic Parameters: EPA 5035, 5030B, 8260B.)

Department of Defense, L-A-B Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6020, 245.1, 245.2, 7470A, 9040B, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 5220D, 5310C, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8270C, 8330A, 625, 8082, 8081A, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 7471A, 9010, 9012A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8270C, 8330A/B-prep, 8082, 8081A, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

The following analytes are not included in our current NELAP/TNI Scope of Accreditation:
EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO2 in a soil matrix, NO3 in a soil matrix, SO4 in a soil matrix.

ALPHA Job # L1206884

HALEY & ALDRICH

Haley & Aldrich, Inc.
465 Medford St.,
Suite 2200,
Boston, MA 02129-1402

CHAIN OF CUSTODY RECORD

Phone (617) 886-7400
Fax (617) 886-7600
Page 1 of 1

H&A FILE NO.	38450-043	LABORATORY	ALPHA ANALYTICAL
PROJECT NAME	159 First Street	ADDRESS	WESTBOROUGH, MA
H&A CONTACT	Corinne McKenzie	CONTACT	Gina Hall
		DELIVERY DATE	4/12/12
		TURNAROUND TIME	5 DAY
		PROJECT MANAGER	Iliana Alvarado

Sample No.	Date	Time	Depth	Type	1. TSS	2. Cl, TRC	3. TCN	4. Total RGP Metals	5. TPH	6. VOCs by 8260	7. SVOC by 8270/8270 SIM	8. PCBs by 608	9. Total Phenol	10. EDB by 504	11. Hexavalent Chromium	12. Dissolved RGP Metals		Number of Containers
HA-8(OW)	4/12/12	1085	—	Aq.	X	X	X	X	X	X	X	X	X	X	X	X		19

Analysis Requested

Comments (special instructions, precautions, additional method numbers, etc.)

Laboratory to use applicable DEP CAM methods, unless otherwise directed.

4. Sb, As, Cd, Cr, Cu, Fe, Pb, Hg, Ni, Se, Ag, Zn (Total)
12. Sb, As, Cd, Cr, Cu, Fe, Pb, Hg, Ni, Se, Ag, Zn (Dissolved)
ANALYSIS FOR NPDES RGP PARAMETERS

Sampled and Relinquished by	Received by
Sign	Sign
Print Corinne McKenzie	Print Michael A. Augusto
Firm H&A	Firm H&A
Date 4/12/12 Time 1230	Date 4/12/12 Time 1520
Relinquished by	**Received by**
Sign	Sign
Print Michael A. Augusto	Print
Firm H&A	Firm
Date 4/12/12 Time 1520	Date 4/12/12 Time 1530
Relinquished by	**Received by**
Sign	Sign
Print	Print
Firm	Firm
Date 4/12/12 Time 164	Date 4/12/12 Time 1640

LIQUID

	1	2	3	4	5	6	7	8	9	10	11	12		
VOA Vial						X			X	X				
Amber Glass					X		X	X	X					
Plastic Bottle	X	X	X	X							X	X		
Preservative	A	A	A,C	A,D	A,F	A,F	A	A,I	A,E	A,I	A	A,B,D		
Volume	100ml	500ml	250ml	250ml	1000ml	40ml	1000ml	1000ml	1000ml	40ml	500ml	250ml		

SOLID

VOA Vial														
Amber Glass														
Clear Glass														
Preservative														
Volume														

Sampling Comments

Evidence samples were tampered with? YES NO
If YES, please explain in section below.

PRESERVATION KEY

A	Sample chilled	C	NaOH	E	H_2SO_4
B	Sample filtered	D	HNO_3	F	HCL
G	Methanol I Na25203				
H	Water/NaHSO4 (circle)				

Presumptive Certainty Data Package (Laboratory to use applicable DEP CAM methods)

If Presumptive Certainty Data Package is needed, initial all sections:

X The required minimum field QC samples, as designated in BWSC CAM-VII have been or will be collected, as appropriate, to meet the requirements of Presumptive Certainty.

____ Matrix Spike (MS) samples for MCP Metals and/or Cyanide are included and identified herein.

X This Chain of Custody Record (specify) ____ includes _X_ does not include samples defined as Drinking Water Samples.

____ If this Chain of Custody Record identifies samples defined as Drinking Water Samples, Trip Blanks and Field Duplicates are included and identified and analysis of TICs are required, as appropriate. Laboratory should (specify if applicable) ____ analyze

Required Reporting Limits and Data Quality Objectives

- ☐ RC-S1
- ☐ RC-S2
- ☐ RC-GW1
- ☒ RC-GW2
- ☐ S1
- ☐ S2
- ☐ S3
- ☐ GW1
- ☒ GW2
- ☐ GW3

WHITE - Laboratory CANARY - Project Manager PINK - Haley & Aldrich Laboratory GOLDENROD - Haley & Aldrich Contact

APRIL 2011

Form 3003

ANALYTICAL REPORT

Lab Number:	L1206921
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Iliana Alvarado
Phone:	(617) 886-7448
Project Name:	159 FIRST STREET
Project Number:	38450-043
Report Date:	04/26/12

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

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

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206921
Report Date: 04/26/12

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1206921-01	HA-8 (OW)	Not Specified	04/12/12 10:30

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206921
Report Date: 04/26/12

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 all of the requirements of NELAC, for all NELAC accredited parameters. 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. 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. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for 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.

Please contact Client Services at 800-624-9220 with any questions.

---

pH

The analysis was performed with the method required holding time exceeded, at the client's request.

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: Cynthia McQueen

Title: Technical Director/Representative Date: 04/26/12

INORGANICS
&
MISCELLANEOUS

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206921
Report Date: 04/26/12

SAMPLE RESULTS

Lab ID: L1206921-01
Client ID: HA-8 (OW)
Sample Location: Not Specified
Matrix: Water

Date Collected: 04/12/12 10:30
Date Received: 04/12/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	7.4		SU	-	NA	1	-	04/20/12 21:32	30,4500H+-B	DC

Lab Control Sample Analysis

Batch Quality Control

Project Name: 159 FIRST STREET

Project Number: 38450-043

Lab Number: L1206921

Report Date: 04/26/12

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG530691-2								
pH	101		-		99-101	-		5

Lab Duplicate Analysis
Batch Quality Control

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206921
Report Date: 04/26/12

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG530691-1 QC Sample: L1206921-01 Client ID: HA-8 (OW)						
pH (H)	7.4	7.4	SU	0		5

Project Name: 159 FIRST STREET
Project Number: 38450-043

Lab Number: L1206921
Report Date: 04/26/12

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information **Custody Seal**

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1206921-01A	Plastic 500ml unpreserved	A	7	4.4	Y	Absent	PH-4500(.01)

*Values in parentheses indicate holding time in days

Project Name:	159 FIRST STREET	**Lab Number:**	L1206921
Project Number:	38450-043	**Report Date:**	04/26/12

GLOSSARY

Acronyms

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.
NI	- Not Ignitable.
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.

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.

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 five times (5x) 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.
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 RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value 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.

Report Format: Data Usability Report

Project Name:	159 FIRST STREET	**Lab Number:**	L1206921
Project Number:	38450-043	**Report Date:**	04/26/12

Data Qualifiers

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.

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

REFERENCES

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

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.

Certificate/Approval Program Summary

Last revised January 30, 2012 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D))

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E).)

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3.3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 2540C, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, 9010B, 9040B, 9030B, 7470A, 7196A, 2340B, EPA 200.7, 6010, 200.8, 6020, 245.1, 1311, 1312, 3005A, Enterolert, 9223D, 9222D. Organic Parameters: 608, 8081, 8082, 8330, 8151A, 624, 8260, 3510C, 3630C, 5030B, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Solid Waste/Soil (Inorganic Parameters: 9010B, 9012A, 9014A, 9040B, 9045C, 6010B, 7471A, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B. Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260B, 8270C, 8330, 8151A, 8081A, 8082, 3540C, 3546, 3580A, 3630C, 5030B, 5035.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (*Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn); 245.1, SM4500H,B, EPA 120.1,

SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.
Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: 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-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B;Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 350.2, 351.1, 353.2, 410.4, 420.1, 1664A, SW-846 9010, 9030, 9040B, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 3630C, 5030B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050C, 9065,1311, 1312, 3005A, 3050B. Organic Parameters: SW-846 3540C, 3546, 3550B, 3580A, 3630C, 5030B, 5035, 8260B, 8270C, 8330, 8151A, 8015B, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 6020, 6020A, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, 3015, EPA 6010B, 6010C, 7196A, 3060A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8081B, 8082, 8082A, 8151A, 8330, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 6010C, 7196A, 3060A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 7471B, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3545, 3546, 3550B, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500H-B, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-04-1-C, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, EPA 9040B, SM4500-HB, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 9010B, 9030B.. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: 1010, 1030, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8015B, 8081A, 8151A, 8330, 8082, 3540C, 3545, 3546, 3580, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Drinking Water Program Certificate/Lab ID: 25700. (Inorganic Parameters: Chloride EPA 300.0. Organic Parameters: 524.2)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Organic Parameters: EPA 524.2, 504.1)

Non-Potable Water (Inorganic Parameters: EPA 1312, 200.7, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P,BE. Organic Parameters: EPA 3510C, 3005A, 3630C, 5030B, 625, 624, 608, 8081A, 8081B, 8082, 802A, 8151A, 8260B, 8270C, 8270D, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 3060A, 6010B, 6010C, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3546, 3580A, 3630C, 5035, 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8260B, 8270C, 8270D, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NY-DOH.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476-09-1. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 $S2^{-}$D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Virginia Division of Consolidated Laboratory Services Certificate/Lab ID: 460195. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 3005A,3015,1312,6010B,6010C,SM4500S-D, SM4500-CN-CE, Lachat 10-204-00-1-X. Organic Parameters: EPA 8260B)

Solid & Hazardous Waste (Inorganic Parameters: EPA 3050B, 1311, 1312, 6010B, 6010C, 9030B, 9010B, 9012A, 9014. Organic Parameters: EPA 5035, 5030B, 8260B.)

Department of Defense, L-A-B Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6020, 245.1, 245.2, 7470A, 9040B, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 5220D, 5310C, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8270C, 8330A, 625, 8082, 8081A, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 7471A, 9010, 9012A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8270C, 8330A/B-prep, 8082, 8081A, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

The following analytes are not included in our current NELAP/TNI Scope of Accreditation:
EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO2 in a soil matrix, NO3 in a soil matrix, SO4 in a soil matrix.

ALPHA Job # L1206921 / L1206384 LT 4/20

CHAIN OF CUSTODY RECORD

HALEY & ALDRICH
Haley & Aldrich, Inc.
465 Medford St.,
Suite 2200,
Boston, MA 02129-1402
Phone (617) 886-7400
Fax (617) 886-7600

H&A FILE NO. 38450-043
PROJECT NAME 159 First Street
H&A CONTACT Corinne McKenzie

LABORATORY ALPHA ANALYTICAL
ADDRESS WESTBOROUGH, MA
CONTACT Gina Hall

DELIVERY DATE 4/12/12
TURNAROUND TIME 5 DAY
PROJECT MANAGER Iliana Alvarado

Sample No.	Date	Time	Depth	Type	1. TSS	2. Cl, TRC	3. TCN	4. Total RCP Metals	5. TPH	6. VOCs by 8260	7. SVOC by 8270/8270 SIM	8. PCBs by 608	9. Total Phenol	10. EDB by 504	11. Hexavalent Chromium	12. Dissolved RCP Metals	pH	Number of Containers
HA-8(OW)	4/12/12	1085	—	Aq.	X	X	X	X	X	X	X	X	X	X	X	X	X	19

Comments (special instructions, precautions, additional method numbers, etc.)

Laboratory to use applicable DEP CAM methods, unless otherwise directed.

~~4. Sb, As, Cd, Cr, Cu, Fe, Pb, Hg, Ni, Se, Ag, Zn~~ (Total)
~~12. Sb, As, Cd, Cr, Cu, Fe, Pb, Hg, Ni,~~ Se, Ag, Zn (Dissolved)
~~ANALYSIS FOR NPDES RGP PARAMETERS~~

Sampled and Relinquished by	Received by
Sign	Sign
Print Corinne McKenzie	Print Michael A. Augusto
Firm H&A	Firm H&A
Date 4/12/12 Time 1230	Date 4/12/12 Time 15:20
Relinquished by	**Received by**
Sign	Sign
Print Michael A. Augusto	Print
Firm H&A	Firm
Date 4/12/12 Time 15:20	Date Time 1580
Relinquished by	**Received by**
Sign	Sign
Print	Print
Firm	Firm
Date 4/12/12 Time 164	Date 4/12/12 Time 1640

	1. TSS	2. Cl, TRC	3. TCN	4. Total RCP Metals	5. TPH	6. VOCs by 8260	7. SVOC by 8270/8270 SIM	8. PCBs by 608	9. Total Phenol	10. EDB by 504	11. Hexavalent Chromium	12. Dissolved RCP Metals	
LIQUID													
VOA Vial						X			X				
Amber Glass					X		X	X	X				
Plastic Bottle	X	X	X	X							X	X	
Preservative	A	A	A,C	A,D	A,F	A,F	A	A,I	A,E	A,I	A	A,B,D	
Volume	1000ml	500ml	250 ml	250ml	1000 ml	40ml	1000 ml	1000ml	1000 ml	40ml	500ml	250 ml	
SOLID													
VOA Vial													
Amber Glass													
Clear Glass													
Preservative													
Volume													

Sampling Comments

Evidence samples were tampered with? YES NO
If YES, please explain in section below.

PRESERVATION KEY

A Sample chilled C NaOH E H_2SO_4 G Methanol I Na25203
B Sample filtered D HNO_3 F HCL H Water/NaHSO4 (circle)

Presumptive Certainty Data Package (Laboratory to use applicable DEP CAM methods)

If Presumptive Certainty Data Package is needed, initial all sections:

X The required minimum field QC samples, as designated in BWSC CAM-VII have been or will be collected, as appropriate, to meet the requirements of Presumptive Certainty.

____ Matrix Spike (MS) samples for MCP Metals and/or Cyanide are included and identified herein.

X This Chain of Custody Record (specify) ____ includes _X_ does not include samples defined as Drinking Water Samples.

____ If this Chain of Custody Record identifies samples defined as Drinking Water Samples, Trip Blanks and Field Duplicates are included and identified and analysis of TICs are required, as appropriate. Laboratory should (specify if applicable) ____ analyze

Required Reporting Limits and Data Quality Objectives

☐ RC-S1 ☐ S1 ☐ GW1
☐ RC-S2 ☐ S2 ☒ GW2
☐ RC-GW1 ☐ S3 ☐ GW3
☒ RC-GW2

WHITE - Laboratory CANARY - Project Manager PINK - Haley & Aldrich Laboratory GOLDENROD - Haley & Aldrich Contact

APRIL 2011

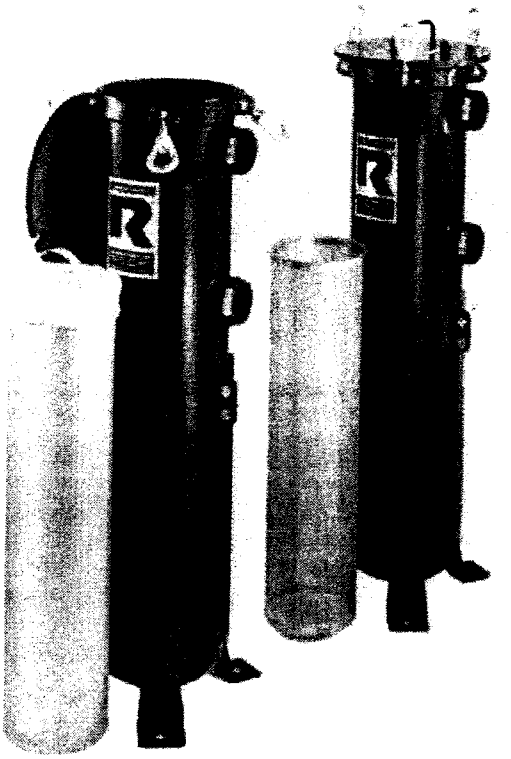
Form 3003

APPENDIX G

Material Safety Data Sheets (MSDSs) and Fact Sheets

Model NCO Bag or Cartridge Filter Housings

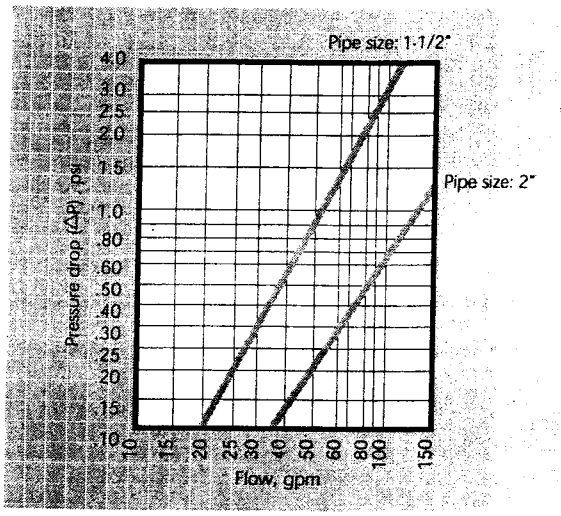
Low cost filter housings for flow rates to 100 gpm*



NCO high-capacity filters offer an exceptional value in basic filtration applications. Offered in a size 2 and size 12 bag housing, the NCO is also available with our Platinum 700 cartridge series.

NCO housings provide large dirt-holding capacity combined with a rugged design rated to 150 psi. The housings incorporate a newly designed hinged, eyenut cover that is easily removed, reducing time spent on bag or cartridge change-out. The NCO bag housing offers versatility for any piping arrangement, utilizing our unistyle design (side and bottom outlet). Two connection sizes are available for both bag and cartridge filters.

The NCO housings are electropolished creating a smooth, easy-to-clean surface. Customize them with several options including, gauges and switches. A variety of filter bags or cartridges (rated 0.5µ absolute to 100µ nominal) can be utilized in this housing. Keep your filtration process cost effective without sacrificing quality.



* Based on housing only. Fluid viscosity, filter bag used, and expected dirt loading should be considered when sizing a filter.

Permanently piped housings are opened without special tools

Carbon or stainless steel housings

Covers are O-ring sealed

O-ring seals: Buna N, EPR and Viton®

150 psi rated housing

Heavy-duty basket, over 50% open area

Uses standard number 1, 2 or 12 size bags and 500 or 700 series cartridges

Filter selection surface area is:
2.3 square feet (number 1 size bag),
4.4 square feet (number 2 size bag),
5.6 square feet (number 12 size bag)
85 square feet (500 series cartridge)
125 square feet (700 series cartridge)

1-1/2-inch or 2-inch NPT inlet and outlet

1/4-inch NPT vent connection

Adjustable leg assembly

How To Order

Build an ordering code as shown in the example.

NSF
QUALITY SYSTEM REGISTERED TO ISO 9001: 1994

Example : **NCO8-30 - 2P - * - 150 - C - B - PB**
(Housing: NCO8-30 - 2P - * - 150 | Options: C - B - PB)

MODEL
NCO8 (#1, #2 bag & 500 cartridge)
NLCO8 (#12 bag)
NCO8135 (700 cartridge)
NCO8135 convertible

BASKET SIZE
15-inch (NCO only) = **15**
30-inch (NCO or NLCO) = **30**
NCO8135 = **No Symbol**

PIPE SIZE
1-1/2-inch female NPT = **1-1/2P**
2-inch female NPT = **2P**

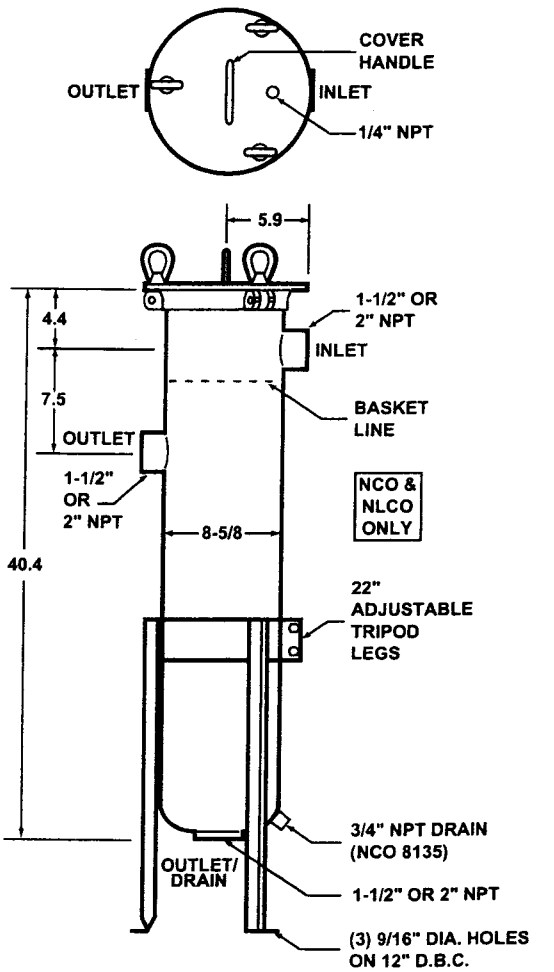
OUTLET STYLE
Side/Bottom Unistyle (NCO or NLCO) = *****
Bottom = **1**

PRESSURE RATING
150 psi = **150**

HOUSING MATERIAL
Carbon steel = **C**
304 Stainless steel = **S**

COVER SEAL
Buna N = **B**
Ethylene propylene = **E**
Viton® Fluoroelastomer = **V**

BASKET TYPE
Filter bag basket (NCO or NLCO) = **PB**
700 Cartridge (NCO8135) = **700**
Convertible (NCO8135) = **700PB**



1. Filter bags are specified separately. See Rosedale Master Catalog 3rd edition.
2. Basket material is compatible with housing.
3. Weight (approximately): 70 lbs.

Rosedale Products, Inc.
3730 W. Liberty Rd, Ann Arbor, MI 48103
Tel: 800-821-5373 or 734-665-8201
Fax: 734-665-2214
http://www.rosedaleproducts.com/
E-mail: filters@rosedaleproducts.com

Call us today for our complete catalog or visit our web site to see our entire product line.

Sheet NCO-100 5M605 Printed in USA

RESINTECH®

ASM-10-HP

ANION EXCHANGE RESIN
ARSENIC SELECTIVE

RESINTECH ASM-10-HP is a strongly basic hybrid anion exchange resin specially formulated to selectively remove arsenic. It is supplied in the salt form as clean, moist, tough, uniform, spherical beads.

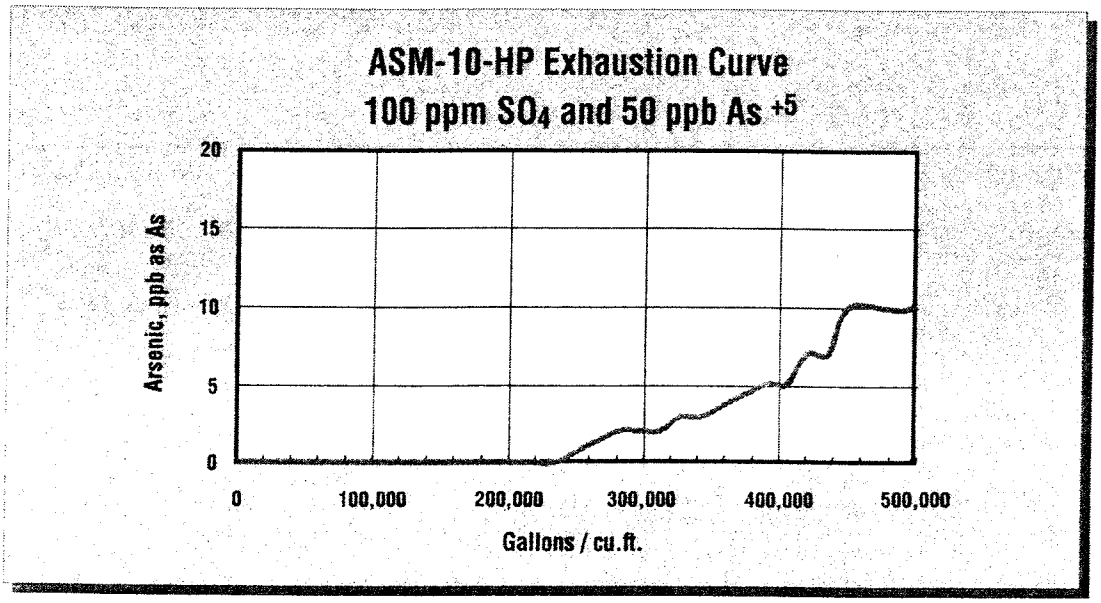
RESINTECH ASM-10-HP exhibits extraordinary throughput capacity in arsenic removal service on potable water supplies. Its performance is virtually unaffected by common anions, such as chlorides, bicarbonates or sulfates. It is effective over the entire pH range of potable water.

RESINTECH ASM-10-HP is also available in organic trap, perchlorate selective and nitrate selective configured resins. These resins are fully selective for arsenic, but still retain their original ion exchange selectivity.

FEATURES & BENEFITS

- **TREMENDOUS AFFINITY FOR ARSENIC OVER OTHER ANIONS**
  Highest arsenic removal capacity of organic based arsenic removal media
- **MADE FROM NSF/ANSI-61 VALIDATED ANION EXCHANGE RESIN**
- **NO ARSENIC DUMPING**
  Effluent arsenic levels will not exceed influent levels if resin is operated past exhaustion point
- **EFFECTIVE ACROSS THE ENTIRE POTABLE WATER pH RANGE**
- **SINGLE USE OR REGENERABLE APPLICATIONS**
- **SUPERIOR PHYSICAL STABILITY**
  Spherical and uniform particle size provide low pressure drop and greater resistance to bed compaction. Unlike granular, coated medias, ASM-10-HP will not shed particles.

Exhaustion Curve



1 Resintech Plaza • 160 Cooper Road • West Berlin,NJ 08091 • Phone:(856)768-9600 • Fax:(856)768-9601 • E-mail:ixresin@resintech.com • Web Site:www.resintech.com

RESINTECH® ASM-10-HP

PHYSICAL PROPERTIES (Cl form)

Polymer Structure	Styrene with DVB
Functional Group	$R\text{-}N\text{-}R^{+}Cl^{-}$
Ionic Form, as shipped	Chloride
Physical Form	Tough, Spherical Beads
Screen Size Distribution	16 to 50 Nominal
- 50 mesh (U.S. Std)	Less than 1 Percent
pH Range	4 to 10
Water Retention	35 to 55 Percent
Solubility	Insoluble
Approximate Shipping Weight	44 lbs./ft^3
Total Capacity	>1.0 meq / mL
Sphericity	> 93 Percent

WATER QUALITY GUIDELINES

Feedwater quality (aside from arsenic) should generally be of potable quality. Please consult your ResinTech technical salesman for recommendations outside the following guidelines:

Conductivity	1000 micromhos/cm
Chloride	250 ppm
Sulfate	250 ppm
pH	5.5 to 9.5
Phosphate	5 ppm
Silica	10 ppm
Turbidity	5 NTU
Chlorine	0.3 ppm

SUGGESTED OPERATING CONDITIONS

Flow Rate	2 to 10 gpm/cu. ft.
	1 to 20 gpm/sq. ft.
Pressure Loss	25 psi max.
Temperature	170°F max.

OPERATING CAPACITY

Under ideal conditions, the 1st cycle throughput capacity for arsenic removal with approximately 50 ppb As^{+5} in the inlet is greater than 500,000 gallons per cu. ft., while producing less than 10 ppb of effluent arsenic. The throughput capacity varies inversely with changes in the influent arsenic levels.

RESINTECH ASM-10-HP has modest capacity for arsenite (As^{+3}). It is suggested that if the arsenite concentration exceeds 20% of the total arsenic present, the feedwater should be pre-chlorinated to ensure conversion to arsenate (As^{+5}).

ASM-10-HP is also selective for other oxy-anions, such as selenate. It will remove modest amounts of both phosphate and silica.

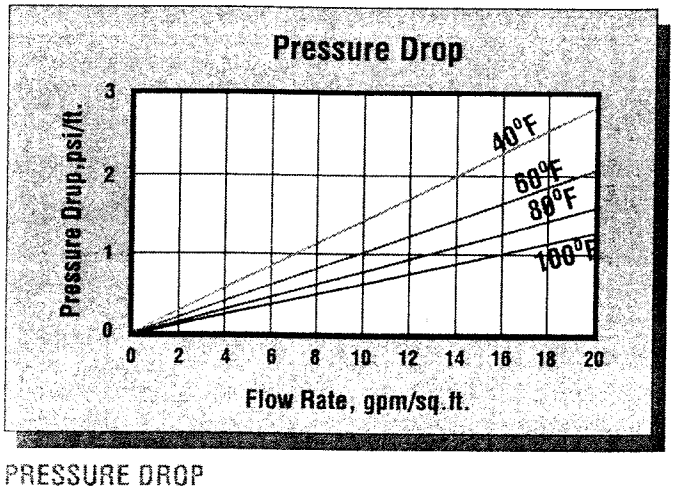
REGENERATION

ResinTech ASM-10-HP can be partially regenerated in the field with alkaline brine. For additional information contact your local ResinTech representative.

DISPOSAL

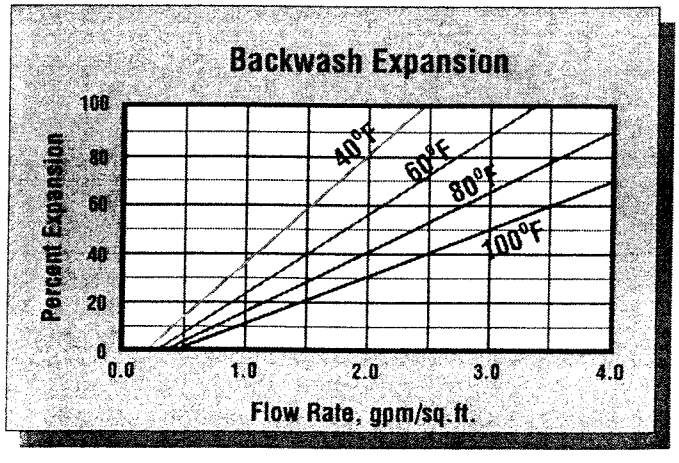
It is recommended that users review local regulations and consult with local authorities on the best method of disposal.

HYDRAULIC PROPERTIES



PRESSURE DROP

The graph above shows the expected pressure loss per foot of bed depth as a function of flow rate at various water temperatures.



BACKWASH

After each cycle the resin bed should be backwashed at a rate that expands the bed 50 to 75 percent. This will remove any foreign matter and reclassify the bed.

RESINTECH CGS

CATION EXCHANGE RESIN
SOFTENING GRADE
Na FORM

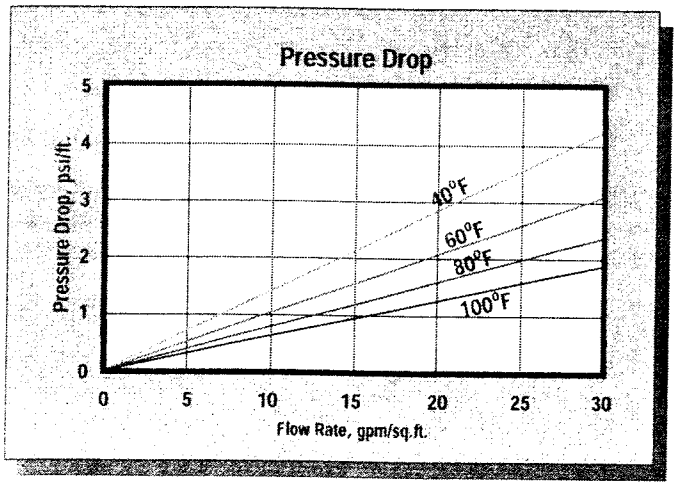
RESINTECH CGS is a high purity, light colored, high capacity, gel type sulfonated polystyrene cation resin supplied in the sodium form as moist, tough uniform spherical beads. *ResinTech CGS* specifically is intended for use in all water softening applications,including beverages, potable water and water used for food processing. It's high capacity and high DVB content provide long life and good chlorine resistance in all potable water applications. (It is also available as a dark colored product *RESINTECH CGS-BL* with identical properties.)

FEATURES & BENEFITS

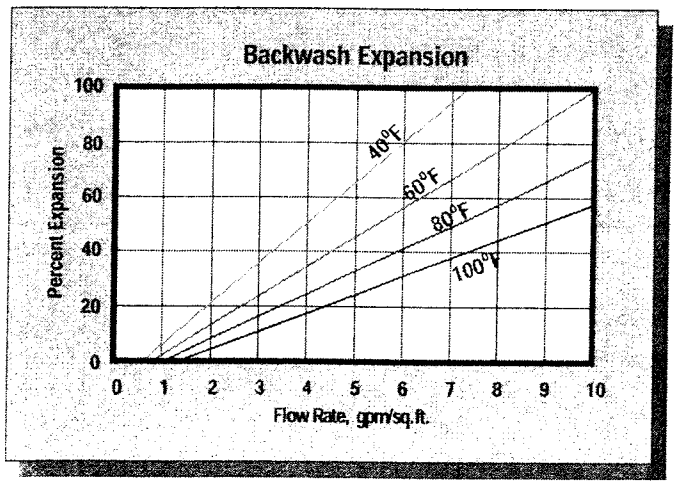
- **COMPLIES WITH FDA REGULATIONS FOR POTABLE WATER APPLICATIONS**
  Conforms to paragraph 21CFR173.25 of the Food Additives Regulations of the F.D.A.*
- **EXCELLENT REGENERATION EFFICIENCY**
  Virtually the same operating capacity as premium grade *ResinTech CG8-BL*
- **NSF/ANSI-61 VALIDATED**
- **UNIFORM PARTICLE SIZE**
  16 to plus 50 mesh range; gives a LOWER PRESSURE DROP while maintaining SUPERIOR KINETICS.
- **SUPERIOR PHYSICAL STABILITY**
  90% plus sphericity and high crush strengths together with a very uniform particle size provide greater resistance to bead breakage while maintaining low pressure drops.
- **LOW COLOR THROW**

*For potable water applications, the resin must be properly pre-treated, usually by multiple exhaustion and regeneration cycles, to insure compliance with extractable levels.

HYDRAULIC PROPERTIES



PRESSURE DROP - The graph above shows the expected pressure loss per foot of bed depth as a function of flow rate, at various temperatures.



BACKWASH - After each cycle the resin bed should be backwashed at a rate that expands the bed 50 to 75 percent. This will remove any foreign matter and reclassify the bed. The graph above shows the expansion characteristics of *RESINTECH CGS* in the sodium form.

1 Resintech Plaza • 160 Cooper Road • West Berlin,NJ 08091 • Phone:(856)768 9600 • Fax:(856)768 9601 • E mail:ixresin@resintech.com • Web Site:www.resintech.com

RESINTECH® CGS

PHYSICAL PROPERTIES

Polymer Structure	Styrene Crosslinked with DVB
Functional Group	$R\text{-}(SO_3)^-M^+$
Ionic Form, as shipped	Sodium
Physical Form	Tough, Spherical Beads
Screen Size Distribution	16 to 50
+16 mesh (U.S. Std)	< 5 percent
-50 mesh (U.S. Std)	< 1 percent
pH Range	0 to 14
Sphericity	90+ percent
Uniformity Coefficient	Approx. 1.6
Water Retention	
Sodium Form	48 to 54 percent
Solubility	Insoluble
Shipping Weight	
Sodium Form	48 lbs./cu.ft.
Total Capacity	
Sodium Form	1.8 meq/ml min

SUGGESTED OPERATING CONDITIONS

Maximum Temperature	
Sodium Form	250^0 F
Minimum Bed Depth	24 inches
Backwash Rate	50 to 75% Bed Expansion
Regenerant (NaCl or KCl)	
Concentration	10 to 15 percent
Flow Rate	0.5 to 1.5 gpm/cu.ft.
Contact Time	> 20 minutes
Level	4 to 15 pounds/cu.ft.
Displacement Rate	Same as Regen Flow Rate
Volume	10 to 15 gallons/cu.ft.
Fast Rinse Rate	Same as Service Flow Rate
Volume	35 to 60 gallons/cu.ft.
Service Flow Rate	2 to 10 gpm/cu.ft.

OPERATING CAPACITY

Sodium Chloride (NaCl) Regeneration

The sodium cycle operating capacity of *RESINTECH CGS* for hardness removal at various regeneration levels with an influent calcium/magnesium ratio of 2/1 and a hardness level of 500 ppm, as $CaCO_3$, is shown in the following table:

Pounds NaOH/cu.ft.	Capacity Kilograins/cu.ft.
5	20.0
7.5	25.4
10	29.0
15	33.0

Potassium Chloride (KCl) Regeneration

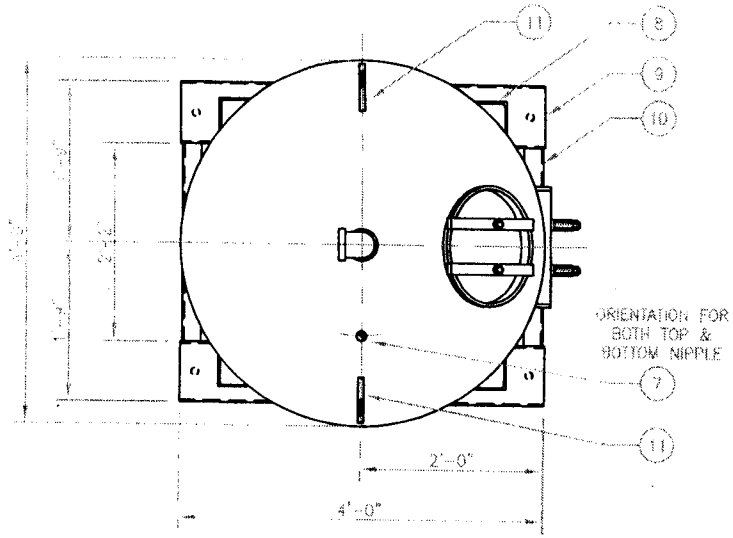
The potassium cycle operating capacity of *RESINTECH CGS* for hardness removal at various regeneration levels with an influent calcium/magnesium ratio of 2/1 and a hardness level of 500 ppm, as $CaCO_3$, is shown in the following table:

Pounds NaOH/cu.ft.	Capacity Kilograins/cu.ft.
5	16.6
7.5	21.8
10	26.6
15	31.2

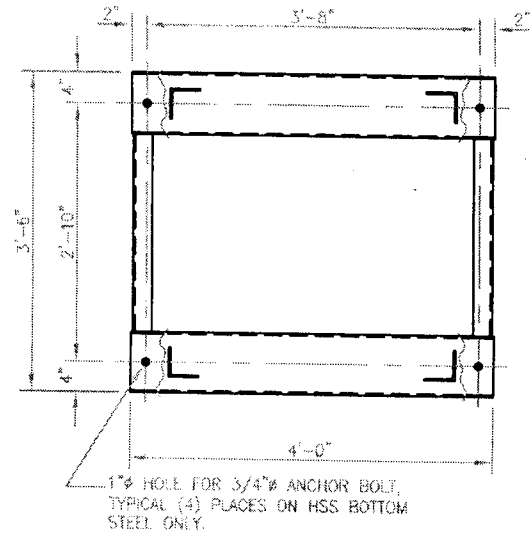
APPLICATIONS

Softening

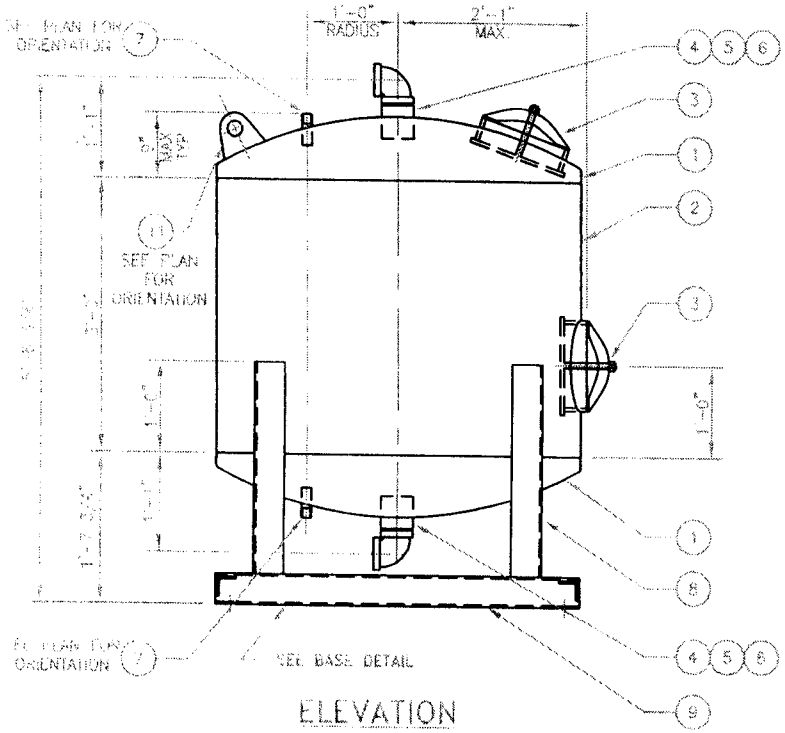
RESINTECH CGS is ideally suited for industrial, commercial, or residential softening applications where free chlorine is not present because of its high capacity, uniform particle size and good physical stability.



PLAN



BASE DETAIL



ELEVATION

#	QTY.	DESCRIPTION
1	2	C.S. STD. Flanged&Dished Non-Code tank head 3/16" THK.
2	1	C.S. 3/16" THK. x 48" OD x 36" Long
3	2	C.S. Elliptical Non-Code Manway Assembly 12"x16" w/ 2 yoke
4	2	3"ø, 150 LBS, C.S. Black Pipe Threaded Coupling
5	2	3"ø, SCH 40, C.S. Close Threaded Nipple
6	2	3"ø, 150 LBS, C.S. Black Pipe 90° Elbow
7	2	1"ø, SCH 40, C.S. 4" Long Threaded Nipple
8	4	Angle 4" x 4" x 1/4" Support Leg
9	2	HSS 8" x 4" x 1/4" Base
10	2	Angle 2 1/2" x 2 1/2" x 1/4" Cross Tie
11	2	Lifting Lug (Design by Fabricator, See Note 2)

GENERAL NOTES

1) MATERIAL SHALL BE CARBON STEEL GRADE A 36 UNLESS NOTED OTHERWISE.

2) FABRICATOR TO DESIGN LIFTING LUGS TO MEET 4000 LBS LIFTING REQUIREMENT.

3) TANK INTERIOR SHALL BE SANDBLASTED TO SSPC-SP-5 WHITE METAL FINISH, PAINTING BY OTHERS.

4) TANK EXTERIOR SANDBLASTING AND PAINTING BY OTHERS.

5) TANK SHALL BE LEVEL +/- ONE DEGREE.

6) FABRICATION TOLERANCE SHALL BE +/- (1/4) INCH.

7) UNLESS NOTED OTHERWISE, ALL WELDS SHALL BE SEAL WELD, ALL JOINTS SHALL BE WELDED BOTH SIDE WHERE APPLICABLE.

8) STEEL PLATES JOINING METHOD SHOWN ARE INTENDED FOR REFERENCES ONLY, FINAL STEEL JOINING METHOD SHALL BE DETERMINE BY FABRICATOR TO SUIT THEIR SHOP PREFERENCES.

9) THE TANK SHALL BE PRESSURE TESTED TO HOLD WATER AT FULL CAPACITY AT 75 PSI PRIOR SHIPMENT.

10) THIS DRAWINGS IS THE PROPERTY OF GROUND/WATER TREATMENT & TECHNOLOGY, INC

NO.	REVISIONS	DATE
A	FOR QUOTATION	06/28/05

1000 LBS LIQUID PHASE ADSORPTION TANK GENERAL ARRANGEMENT & DETAILS

SCALE:	NONE	APPROVED:	DRAWN BY: TLo
DATE:	06/27/05		

GROUNDWATER TREATMENT & TECHNOLOGY
P.O. BOX 1174
DENVILLE, NJ 07834

FILE: 11-1181 DRAWING NUMBER: M-01

SBG1

ANION EXCHANGE RESIN TYPE ONE GEL Cl OR OH FORM

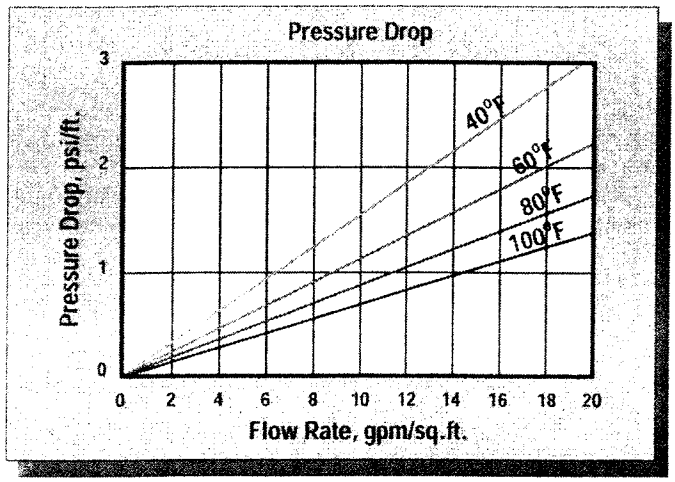
ResinTech SBG1 is a high capacity, shock resistant, gelular, Type 1, strongly basic anion exchange resin supplied in the chloride or hydroxide form as moist, tough, uniform, spherical beads. *ResinTech SBG1* is intended for use in all types of deionization systems and chemical processing applications. It is similar to *ResinTech SBG1P* but has a higher volumetric capacity and exhibits lower TOC leach rates. This makes it the better performer in single use applications such as in cartridge deionization and when high levels of regeneration are used such as in polishing mixed beds. On the other hand, *ResinTech SBG1P* is more resistant to organic fouling and gives higher operating capacities at low regeneration levels such as those used in make up demineralizers.

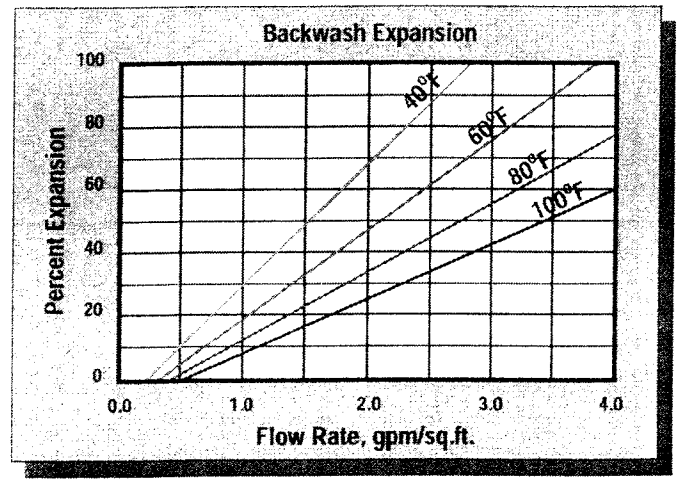
FEATURES & BENEFITS

- **COMPLIES WITH FDA REGULATIONS FOR POTABLE WATER APPLICATIONS.**
  Conforms to paragraph 21CFR173.125 of the Food Additives Regulations of the F.D.A.*
- **HIGH TOTAL CAPACITY**
  Provides longer run lengths in single use applications or where high levels of regeneration are used such as in mixed bed polishers, cartridge demineralizers.
- **UNIFORM PARTICLE SIZE**
  16 to plus 50 mesh range; gives a LOWER PRESSURE DROP while maintaining SUPERIOR KINETICS.
- **SUPERIOR PHYSICAL STABILITY**
- **LOWER TOC LEACH RATE**
  Makes it ideal for polishing mixed beds in wafer washing and other high purity water polishing applications.

*For potable water applications, the resin must be properly pre-treated, usually by multiple exhaustion and regeneration cycles, to ensure compliance with extractable levels.

HYDRAULIC PROPERTIES





PRESSURE DROP

The graph above shows the expected pressure loss per foot of bed depth as a function of flow rate, at various temperatures.

BACKWASH

After each cycle the resin bed should be backwashed at a rate that expands the bed 50 to 75 percent. This will remove any foreign matter and reclassify the bed. The graph above shows the expansion characteristics of *ResinTech SBG1* in the sodium form.

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RESINTECH® SBG1

PHYSICAL PROPERTIES

Polymer Structure	Styrene Crosslinked with DVB
Functional Group	R-N-$(CH_3)_3{}^+Cl^-$
Ionic Form, as shipped	Chloride or Hydroxide
Physical Form	Tough, Spherical Beads
Screen Size Distribution	16 to 50
+16 mesh (U.S. Std)	< 5 percent
-50 mesh (U.S. Std)	< 1 percent
pH Range	0 to14
Sphericity	> 93 percent
Uniformity Coefficient	Approx. 1.6
Water Retention	
Chloride Form	43 to 50 percent
Hydroxide Form	Approx. 53 to 60 percent
Solubility	Insoluble
Approximate Shipping Weight	
Cl Form	44 lbs/cu.ft.
OH Form	41 lbs/cu.ft.
Swelling Cl- to OH-	18 to 25 percent
Total Capacity	
Cl Form	1.45 meq/ml min
OH Form	1.15 meq/ml min

SUGGESTED OPERATING CONDITIONS

Maximum Continuous Temperature	
Hydroxide Form	140°F
alt Form	170°F
Minimum Bed Depth	24 inches
Backwash Rate	50 to 75 percent Bed Expansion
Regenerant Concentration*	2 to 6 percent
Regenerant Flow Rate	0.25 to 1.0 gpm/cu.ft.
Regenerant Contact Time	At least 40 Minutes
Regenerant Level	4 to 10 pounds/cu.ft.
Displacement Rinse Rate	Same as Regenerant Flow Rate
Displacement Rinse Volume	10 to 15 gals/cu.ft.
Fast Rinse Rate	Same as Service Flow Rate
Fast Rinse Volume	35 to 60 gals/cu.ft.
Service Flow Rates	
Polishing Mixed Beds	3 to 15 gpm/cu.ft.
Non-Polishing Apps.	2 to 4 gpm/cu.ft.

OPERATING CAPACITY

The operating capacity of *RESINTECH SBG1* for a variety of acids at various regeneration levels when treating an influent with a concentration 500 ppm, expressed as $CaCO_3$ is shown in the following table:

Pounds NaOH/ft³	Capacity Kilograms per cubic foot			
	HCl	H_2SO_4	H_2SiO_3	H_2CO_3
4	11.3	14.0	14.7	18.6
6	12.8	16.3	17.3	19.8
8	14.3	13.3	19.5	21.6
10	15.5	20.0	22.2	22.2

APPLICATIONS

DEMINERALIZATION – *RESINTECH SBG1* is highly recommended for use in mixed bed demineralizers, wherever complete ion removal; superior physical and osmotic stability and low TOC leachables are required such as in wafer fabrication and other ultrapure applications.

RESINTECH SBG1 has high total capacity and low swelling on regeneration and provides maximum operating capacity in cartridge deionization applications. It is ideal for single use applications such as precious metal recovery, radwaste disposal and purification of toxic waste streams.

Highly crosslinked Type 1, styrenic anion exchangers have greater thermal and oxidation resistance than other types of strong base resins. They can be operated and regenerated at higher temperatures. The combination of lower porosity, high total capacity and Type 1 functionality make *RESINTECH SBG1* the resin of choice when water temperatures exceed 85°F and where the combination of carbon dioxide, borate and silica exceed 40% of the total anions.

RESINTECH SBG1P and *RESINTECH SBG1* are quite similar; the difference between them is the degree of porosity. *RESINTECH SBG1P* has greater porosity that gives it faster kinetics, and greater ability to reversibly sorb slow moving ions such as Naturally occurring Organic Matter (NOM). At lower regeneration levels and where chlorides make up a substantial portion of the anion load, or where the removal and elution of naturally occurring organics is of concern *RESINTECH SBG1P*, SBACR or SBG2 should be considered. At the higher regeneration levels used in mixed bed polishers *RESINTECH SBG1* provides higher capacity, and the lowest possible TOC leach rates.

Applied Polymer Systems, Inc.

Material Safety Data Sheet

1. IDENTIFICATION OF THE PRODUCT AND THE COMPANY

Product Name: APS 702aa Floc Log

Supplied:

Applied Polymer Systems, Inc.
519 Industrial Drive
Woodstock, GA 30189
www.siltstop.com
Tel. 678-494-5998
Fax. 678-494-5298

2. COMPOSITION/INFORMATION ON INGREDIENTS

Identification of the preparation: Anionic water-soluble Co-polymer gel

3. HAZARD IDENTIFICATION

Placement of these materials on wet walking surface will create extreme slipping hazard.

4. FIRST AID MEASURES

Inhalation: None

Skin contact: Contact with wet skin could cause dryness and chapping. Wash with soap and water. Use of rubber gloves required.

Eye contact: Rinse thoroughly with plenty of water, also under the eyelids, seek medical attention in case of persistent irritation.

Ingestion: Consult a physician

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water, water spray, foam, carbon dioxide, dry powder.

Special fire-fighting precautions: Floc Logs that become wet render surfaces extremely slippery.

Protective equipment for firefighters: No special equipment required.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: No special precautions required.

Methods for cleaning up: Dry wipe as well as possible. Keep in suitable and closed containers for disposal. After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Handling: Avoid contact with skin and eyes. Wash hands after handling.

Storage: Keep in a cool, dry place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls: Use dry handling areas only.

Personal protection equipment

Respiratory Protection:	None
Hand protection:	Dry cloth, leather or rubber gloves.
Eye Protection:	Safety glasses with side shields. Do not wear contact lenses.
Skin protection:	No special protective clothing required.
Hygiene measures:	Wash hands before breaks and at end of work day.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Granular semi-solid gel
Color:	White to Brown
Odor:	None
pH:	7.89
Melting point:	N/A
Flash point:	N/A
Vapor density:	N/A

10. STABILITY AND REACTIVITY

Stability: Product is stable, no hazardous polymerization will occur.

Materials to avoid: Oxidizing agents may cause exothermic reactions.

Hazardous decomposition products: Thermal decomposition may produce nitrogen oxides (NOx), carbon oxides.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral:

LC 50/*Daphnia Magna*/48h/>420mg/L

Inhalation: None

12. ECOLOGICAL INFORMATION

Water Flea: LC 50/*Daphnia Magna*/48h/>420mg/l

Algae: EC 50/*Selenastrum capricornutum*/96h>500mg/l

Bioaccumulation: The product is not expected to bioaccumulate.

Persistence / degradability: Not readily biodegradable: (~85% after 180 days).

13. TRANSPORT AND REGULATORY INFORMATION

Not regulated by DOT, **RCRA status-Not a hazardous waste**

NFPA and HMIS ratings:

NFPA	**Health:**	**3**	**Flammability:**	**0**	**Reactivity:**	**1**
HMIS	**Health**	**2**	**Flammability**	**0**	**Reactivity**	**1**

Back

Floc Log Specifications:

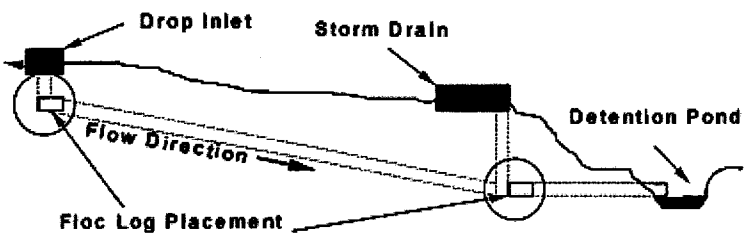
Floc Log Specifications:
ANSI/NSF Standard Drinking Water Treatment Chemical Additives
EPA/600/R-98/182 168 Hr. Chronic Toxicity Test (Pimephales promelas)
EPA/600/4-90/027F 48Hr. Acute Static Screen Toxicity Test (Daphnia Magna)

APS, Inc. currently has over (40) types of Floc Log ®. Each are designed for specific soils or lithologies. Each Floc Log ® is tailored for the specific requirement of water chemistry and soil within your geographical area. Most soils within EPA Region 4 have been classified and will not require a soil and water sample. Areas outside EPA Region 4 will require a soil and water sample. There is no charge for this analysis.

Floc Log ® is available in two forms, clarifier and particle. Clarifier Floc Log ® is used for colloidal water and very fine suspended particles. Particle Floc Log ® is used for heavily particle laden water in areas before sediment traps and sediment ponds.

Enhancement tools and Engineering designs are available on request:
APS Particle Curtain, APS Soft Armor,
APS Floc Log Mix Tank, APS Byron Box

Consult your local distributor or Applied Polymer Systems, Inc. for proper Floc Log © type, correct application and other Silt Stop products.



Applied Polymer Systems, Inc.
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info@siltstop.com