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

CERTIFIED MAIL RETURN RECEIPT REQUESTED

MAR 06 2015

Mr. Gary Talbot
Project Superintendent
Bowdoin Construction Corporation
220-1 Reservoir Street
Needham Heights, MA 02494

Re: Authorization to discharge under the Remediation General Permit (RGP) – MAG910000. Construction of a three-story mixed structure site located at 111 Elm Street, Newton, MA 02134, Suffolk County: Authorization # MAG910665

Dear Mr. Talbot:

Based on the review of a Notice of Intent (NOI) submitted by Amy M. Falconeiri from McPhail Associates, LL, on behalf of Waypoint KLA, for the site referenced above, the U.S. Environmental Protection Agency (EPA) hereby authorizes you, as the named 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 your consultant marked "Believed Present". The checklist also includes other parameters for which your laboratory reports indicated there was insufficient sensitivity to detect these parameters at the minimum levels established in Appendix VI of the RGP. Also, total petroleum hydrocarbons (PAHs), BTX, total metals, and polycyclic aromatic hydrocarbons, are included in view of the historic contamination and to guard against potential fluctuations of contamination that could be detected during the clean-up mitigation.

Also, please note that the metals included on the checklist are dilution dependent pollutants and subject to limitations based on selected dilution ranges and technology-based ceiling limitations. For each parameter the dilution factor 50.2 for this site is within a dilution range greater than fifty to one hundred (>50-100), established in the RGP. (See the RGP Appendix IV for Massachusetts facilities). Therefore, the limits for antimony of 141 ug/L, arsenic of 500 ug/L, cadmium of 10 ug/L, hexavalent chromium of 1,710 ug/L mg/L, copper of 260 ug/L, lead of 66 ug/L, nickel of 1,451 ug/L, selenium of 250 ug/L, zinc of 1,480 ug/L and iron of 5,000 ug/L, are required to achieve permit compliance at your site.

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 December 31, 2015. Please be advised that you may need to reapply for this permit authorization after the permit expiration date if the discharge termination is extended further than the termination date indicated above. Also regardless of the termination date 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, Chief
Storm Water and Construction
Permits Section

Enclosure

cc: Robert Kubit, MassDEP
David Turocy, Newton DPW
Amy M. Falconeiri, McPhail Associates, LLC

2010 Remediation General Permit
Summary of Monitoring Parameters[1]

NPDES Authorization Number:	**MAG910665**
Authorization Issued:	February, 2015
Facility/Site Name:	Building Construction Siete
Facility/Site Address:	111 Elm Street, Newton, MA 02134, Suffolk County
	Email address of owner: mariapaul15@comcast.net
Legal Name of Operator:	Bowdoin Construction Corporation
Operator contact name, title, and Address:	Mr. Gary Talbot, Project Superintendent, 220-1 Reservoir Street Needham Heights, MA 02494
	Email: gtalbot@bowdoinconstruction
Estimated date of the site's Completion:	December 31, 2015
Category and Sub-Category:	Category III- Contaminated Construction Site.- Subcategory A. General Urban Fill Sites
RGP Termination Date:	September 10, 2015
Receiving Water:	Cheesecake Brook to Charles River
To 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#160.2/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

	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)
√	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
	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

	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)
	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
	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 MA/Metal Limit H [10] = 50 mg/l CaCO3, Units = ug/l [11/12] Freshwater Limits		Minimum level=ML	
√	39. Antimony	141		ML	10
√	40. Arsenic **	500		ML	20
√	41. Cadmium **	10		ML	10
√	42. Chromium III (trivalent) **	1,710		ML	15
	43. Chromium VI (hexavalent) **	11.4		ML	10
√	44. Copper **	260		ML	15
√	45. Lead **	66		ML	20
	46. Mercury **	0.9		ML	02
√	47. Nickel **	1,451		ML	20
√	48. Selenium **	250		ML	20
	49. Silver	1.2		ML	10
√	50. Zinc **	1,480		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 "Aroclor 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

NOTICE OF INTENT FOR DISCHARGE - UNDER MASSACHUSETTS REMEDIAL - GENERAL PERMIT MAG910000 -

111 ELM STREET -

NEWTON, MASSACHUSETTS -

FEBRUARY 12, 2015 -

Prepared For: -
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY -
5 POST OFFICE SQUARE, SUITE 100 -
MAIL CODE OEP06-4 -
BOSTON, MA 02109-3912 -

On Behalf Of: -
Bowdoin Construction Corp. -
220-1 Reservoir Street -
Needham Heights, MA 02494 -

PROJECT NO. 5780

2269 Massachusetts Avenue
Cambridge, MA 02140
www.mcphailgeo.com
(617) 868 1420

February 12, 2015

United States Environmental Protection Agency
5 Post Office Square, Suite 100
Mail Code OEP06-4
Boston, MA 02109-3912

Attention: RGO-NOC Processing

Reference: 111 Elm Street; Newton, Massachusetts
Notice of Intent for Construction Dewatering Discharge Under
Massachusetts Remedial General Permit MAG910000

Ladies and Gentlemen:

The purpose of this letter report is to provide a summary of the site and groundwater quality information in support of an application for approval from the U.S. Environmental Protection Agency (EPA) for the temporary discharge of groundwater into the Charles River via a storm drain system during construction at the above referenced site. Refer to **Figure 1** Project Location Plan for the general site locus.

These services were performed and this permit application was prepared with the authorization of Waypoint KLA. These services are subject to the limitations contained in **Attachment A**.

The required Notice of Intent Form contained in the RGP permit is included in **Appendix B**.

Operator

The applicant for the Notice of Intent-Remedial General Permit is:

Bowdoin Construction Corp.
220-1 Reservoir Street
Needham Heights, MA 02494

Attention: Mark Doran

Tel: 781-444-6302
Fax: 781-444-4970

Existing Conditions

Fronting onto Elm Street to the east, the subject site is bounded by Border Street to the north and commercial properties to the south and west. The subject site consists of two (2) contiguous parcels of land. The subject site parcels with the addresses of 111 Elm Street and 8 Border Street are undeveloped.

Proposed Scope of Site Development

The proposed development of 111 Elm Street will include the construction of a three-story mixed use structure. An approximate 20 foot wide driveway will run through the western portion of the proposed structure. A basement will occupy the eastern portion of the proposed structure. The proposed structure will front onto Elm Street and Border Street. A paved surface parking lot is proposed to the south of the existing and proposed building.

Based on the DLA Architecture plans, the proposed structure will occupy a footprint of approximately 5,000 square feet. The basement floor slab at the eastern portion of the proposed structure will be at Elevation +40.7. The floor slab at the western portion of the proposed structure will be at Elevation +50.6.

Site Environmental Setting and Surrounding Historical Places

Based on an on-line edition of the Massachusetts DEP Phase I Site Assessment Map, the subject site is not located within the boundaries of a Potentially Productive Aquifer or within a Zone II, Interim Wellhead Protection Area as defined by the Massachusetts Department of Environmental Protection. Further, there are no public drinking water supply wells, no Areas of Critical Environmental Concern, no fish habitats, no habitats of Species of Special Concern or Threatened or Endangered Species within specified distances of the subject site. The Map indicates that there are no wetland areas on or within 500 feet of the subject site. The map indicates that Protected Open Space is located approximately 300 feet to the north of the subject site at the intersection of Elm Street and Webster Street. No areas designated as solid waste landfills are noted as being located within 1,000 feet of the site. A copy of the DEP Priority Resources Map depicting the location of the subject site is included in **Appendix C**.

A review of the most recent federal listing of threatened and endangered species published by the U.S. Fish and Wildlife Service identified no threatened and/or endangered species at or in the vicinity of the proposed discharge location and/or discharge outfall. In addition, a review of the Massachusetts Division of Fisheries and Wildlife on-line database identified no threatened or endangered species at the point of discharge and/or the discharge outfall. Based upon the above, the site is considered criterion A pursuant to Appendix IV of the RGP. A list of threatened and endangered species from the U.S. Fish and Wildlife Services and Massachusetts Division of Fisheries on-line databases is included in **Appendix C**.

The subject site is not listed on the State and National Register of Historical Places.

As further discussed below, treated construction dewatering effluent will be discharged into dedicated storm drains that flow into the Charles River. The dewatering of groundwater at the site will be temporary and intermittent. Therefore, based on the anticipated duration of construction dewatering and the location of its discharge into the Charles River, construction dewatering activities are not considered to affect the historical elements of the nearby

historical listings. Hence, the site meets Permit Eligibility Criteria 2 under the Remedial General Permit.

Site History

In summary, the 111 Elm Street portion of the subject site had been occupied by a filling station from at least 1931 to at least 1963. The 8 Border Street portion of the subject site had been occupied by an auto body shop from at least 1931 to at least 2003. Currently, the subject site is an active construction site.

Construction Site Dewatering

In connection with the redevelopment of the subject site, it is anticipated that excavation for the 1-level below grade basement will extend to the surface of groundwater. In addition, storm water run-off is anticipated to accumulate within localized trenches after periods of heavy precipitation requiring dewatering. Hence, groundwater dewatering will be necessary to facilitate construction of the proposed building.

It is anticipated that dewatering by means of strategically located sumps and trenches should suffice during the excavation and foundation construction operations. Intermittent groundwater discharge will be required during excavation at an estimated rate of 20 to 45 gallons per minute (GPM).

Given that the footprint of the proposed building occupies a majority of the subject site, temporary on-site collection and recharge of groundwater is not feasible. As a result, construction dewatering will require the discharge of collected groundwater and stormwater into the storm drain system under the requested Remedial General Permit.

A review of available subgrade utility plans provided by the City of Newton Engineering Department indicates the presence of a dedicated storm drain located beneath Elm Street. The stormwater drain located beneath Elm Street flows north approximately 15 feet and connects to the Cheesecake Brook culvert, which flows to the northeast where it eventually discharges into the Charles River. The Cheesecake Brook is a 6-foot by 10-foot culvert, which eventually changes to an 8 feet wide, open field stone culvert that flows north along Albemarle Road and discharges into the Charles River. The location of the relevant stormwater drain in relation to the subject site is indicated on **Figure 2**. The flow path of the discharge is shown in plans provided by the City of Newton Engineering Department which are included in **Figure 3**.

Summary of Groundwater Analysis

On September 5, 2014, a representative of McPhail Associates, LLC obtained groundwater a groundwater sample from monitoring well B-1(OW) located on the subject site. The purpose of the sampling and analysis was to further assess the presence of the contaminants of concern. The groundwater sample did not exhibit the presence of a sheen nor other visual or olfactory evidence of petroleum contamination. Prior to sampling, the well was purged using a peristaltic pump at a low flow rate. The groundwater sample was sent to a certified laboratory and chemically analyzed for the presence of VOCs. The results did not indicate concentrations of VOCs above the laboratory method detection limits with the exception of acetone. Specifically, acetone was detected at a concentration of 0.012 milligrams per liter (mg/l), which is below the Massachusetts Contingency Plan (MCP) RCGW-2 threshold of 50 mg/l. The location of the groundwater monitoring well is shown on Figure 2. Chemical test results are summarized in Table 1 and laboratory data is attached, and laboratory data is included in **Appendix D**.

Further, a report entitled "Environmental Assessment Report, 111 Elm Street and 8 Border Street, West Newton, MA" dated May 2006 and prepared by ENSOL, Inc. (ENSOL) was provided to McPhail by Waypoint KLA. ENSOL performed a subsurface investigation at the subject site to assess the presence of contamination in soil and groundwater. Specifically, the investigation included the advancement of soil borings and the installation of groundwater monitoring wells across the subject site. From each exploration, selected samples of soil and groundwater were obtained and submitted to a laboratory for chemical analyses. Based upon the analysis of soil samples obtained from explorations performed by ENSOL at the site, a release to soil was not been identified at the subject site. Visual and olfactory observations, field screening observations and analytical results of soil conducted by others at the site indicated that soil at the subject site had not been impacted by a release. Further, the ENSOL report indicated that three (3) monitoring wells identified as MW-1, MW-2 and MW-3 were installed and sampled by ENSOL on May 8, 2006. The three (3) groundwater samples were submitted to a laboratory for analyses for the presence of volatile petroleum hydrocarbons (VPH), extractable petroleum hydrocarbons (EPHs) and volatile organic compounds (VOCs). The ENSOL report indicated that the groundwater samples identified as MW-2 and MW-3 did not indicate the presence of VPHs, EPHs or VOCs above laboratory detection limits. The groundwater sample identified as MW-1 indicated the presence of some VPH, EPH and VOC constituents above laboratory detection limits, but below the applicable RCGW-2 Reporting Standards. The results of groundwater analysis during this time period are shown tables included in **Appendix E**.

Subsurface explorations performed at the subject site indicate that portions of the building are underlain by urban fill material that generally consists of a grayish-brown to black, silty sand and gravel which contains varying amounts of clay, brick, concrete, organics, ash and cinders. As a result, the dewatered groundwater will be passed through a treatment system that is discussed below, which include sedimentation components that will reduce potential concentrations of TSS in the effluent to below the applicable RGP discharge limits.

Groundwater Treatment

Based on the results of the above referenced groundwater analyses, it is our opinion that a 5,000-gallon capacity settling tank and bag filter in series will be required to settle out suspended particulates during construction dewatering to meet the applicable effluent limits established by the US EPA prior to off-site discharge. A schematic of the treatment system is shown on **Figure 4**.

A Best Management Practices Plan (BMPP) has been prepared as **Appendix F** to the RGP and will be posted at the site during the time period that temporary construction dewatering is occurring at the site.

Summary and Conclusions

The purpose of this report is to assess site environmental conditions and groundwater data to support an application for a Massachusetts Remedial General Permit for off-site discharge of groundwater which will be encountered during the redevelopment of the property located at 111 Elm Street in Newton, Massachusetts. The groundwater testing results reported in this application have been provided to the site owner.

Based on the results of the above referenced groundwater analyses, treatment of construction dewatering will be necessary to meet allowable effluent limits for TSS established by the US EPA prior to off-site discharge. The proposed construction dewatering effluent treatment system will consist of one settling tank 5,000-gallons in capacity and bag filter in series in order to meet the applicable discharge limits for TSS established by the RGP. However, should the effluent monitoring results indicate levels of TSS in excess of the limits established in the Massachusetts Remedial General Permit, additional mitigative measures will be implemented to meet the allowable discharge limits.

We trust that the above satisfies your present requirements. Should you have any questions or comments concerning the above, please do not hesitate to contact us.

Sincerely,

McPHAIL ASSOCIATES, LLC

Amy M. Falconeiri

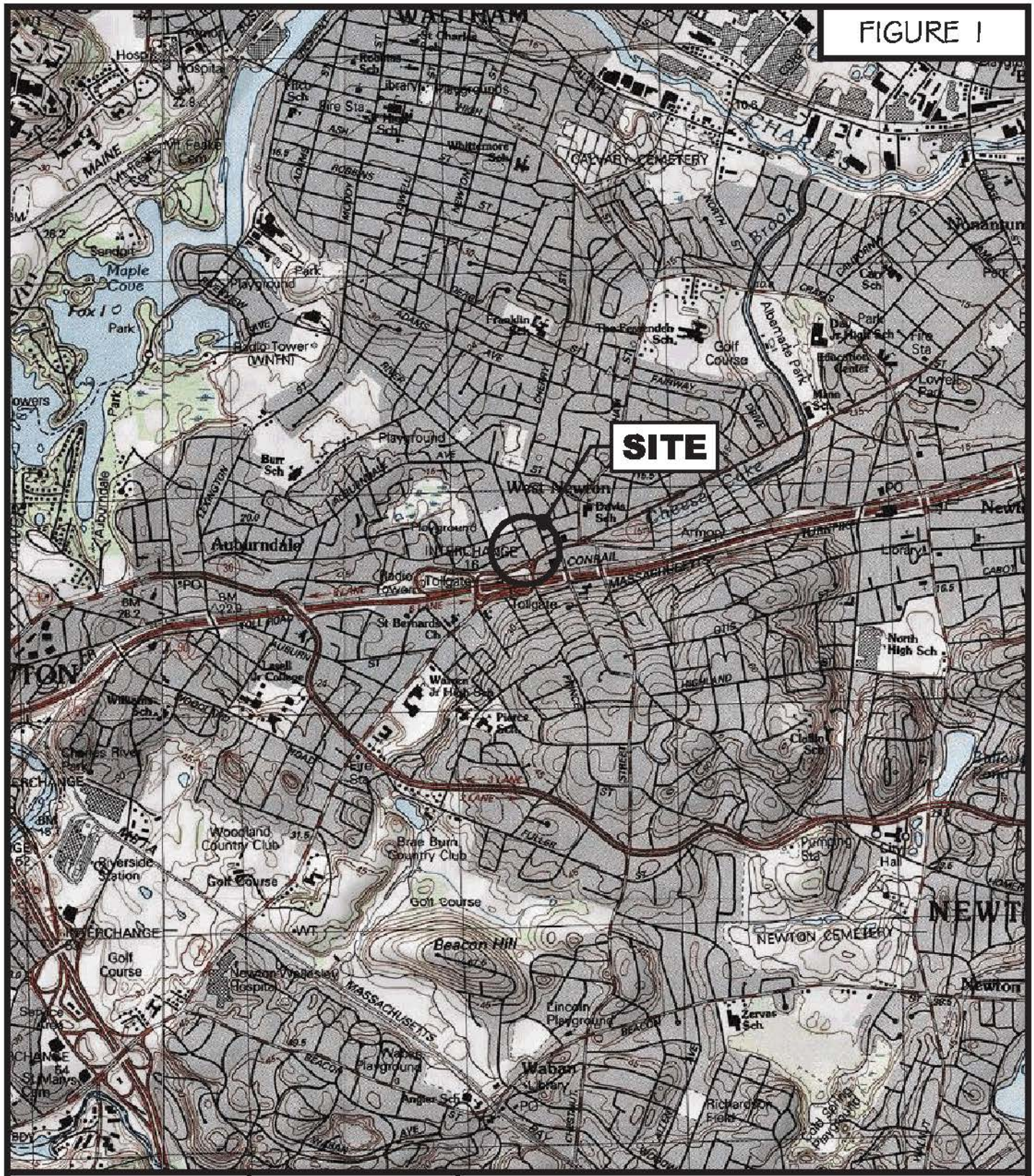
Ambrose J. Donovan, P.E., L.S.P.

AMF/ajd

F:\WP5\Reports\5780_RGP_020915.docx

C: Elm Trust 96
Bowdoin Construction Corp.

FIGURE 1



McPHAIL ASSOCIATES, LLC
Geotechnical and Geoenvironmental Engineers
2269 Massachusetts Avenue
Cambridge, MA 02140
617/868-1420
617/868-1423 (Fax)
www.mcphailgeo.com

N

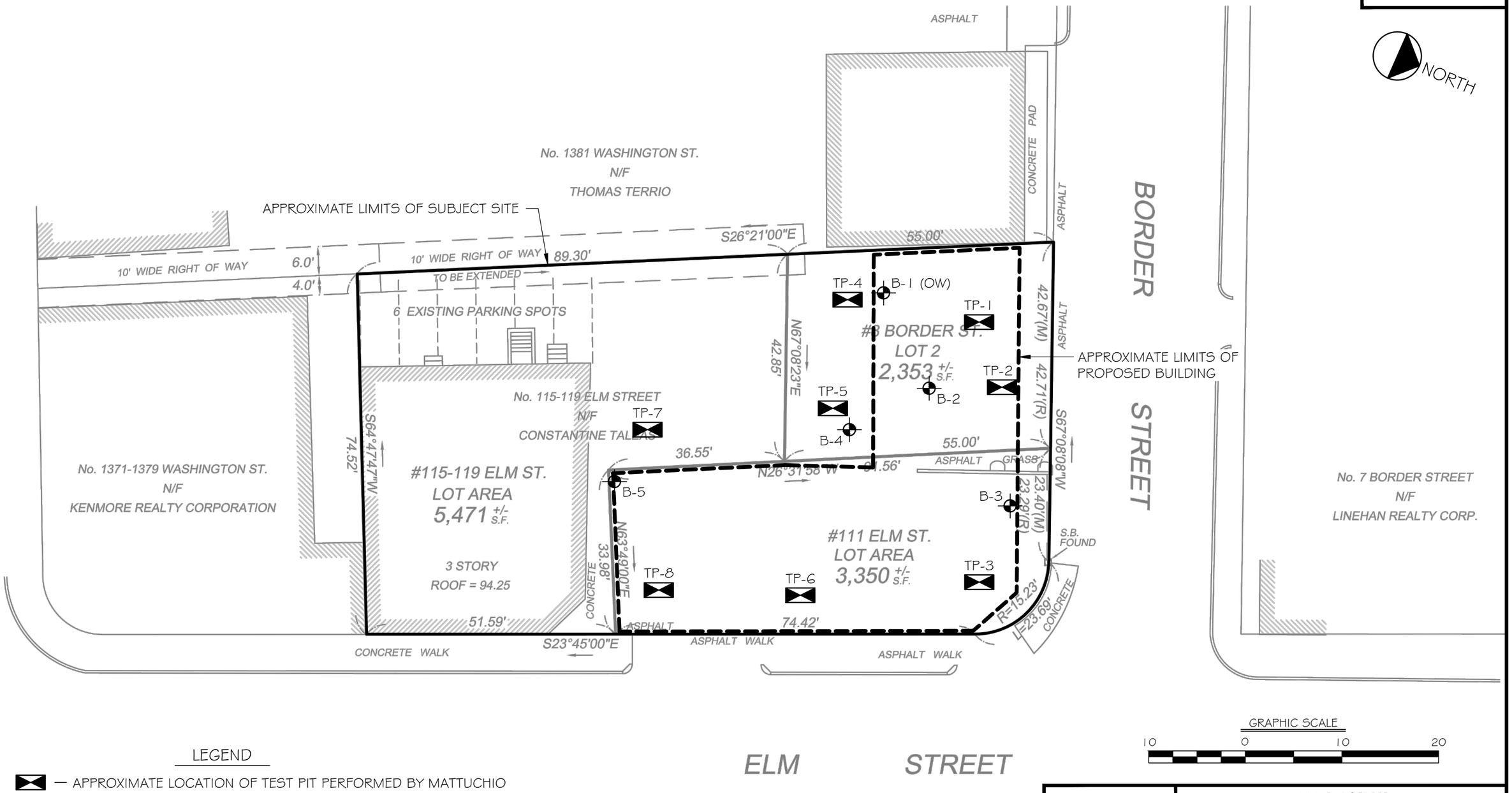
SCALE 1:25,000

PROJECT LOCATION PLAN

111 ELM STREET

NEWTON MASSACHUSETTS

FIGURE 2



GRAPHIC SCALE

10 0 10 20

LEGEND

— APPROXIMATE LOCATION OF TEST PIT PERFORMED BY MATTUCHIO CONSTRUCTION CO., INC. ON JULY 18, 2014 FOR McPHAIL ASSOCIATES, LLC.

— APPROXIMATE LOCATION OF BORING PERFORMED BY CARR-DEE CORP. ON SEPTEMBER 2, 2014 FOR McPHAIL ASSOCIATES, LLC.

(OW) — DENOTES OBSERVATION WELL INSTALLED WITHIN COMPLETED BOREHOLE.

REFERENCE: THIS PLAN WAS PREPARED FROM A 10-SCALE DRAWING ENTITLED "SITE PLAN" DATED APRIL 5, 2011 BY BOSTON SURVEY, INC.

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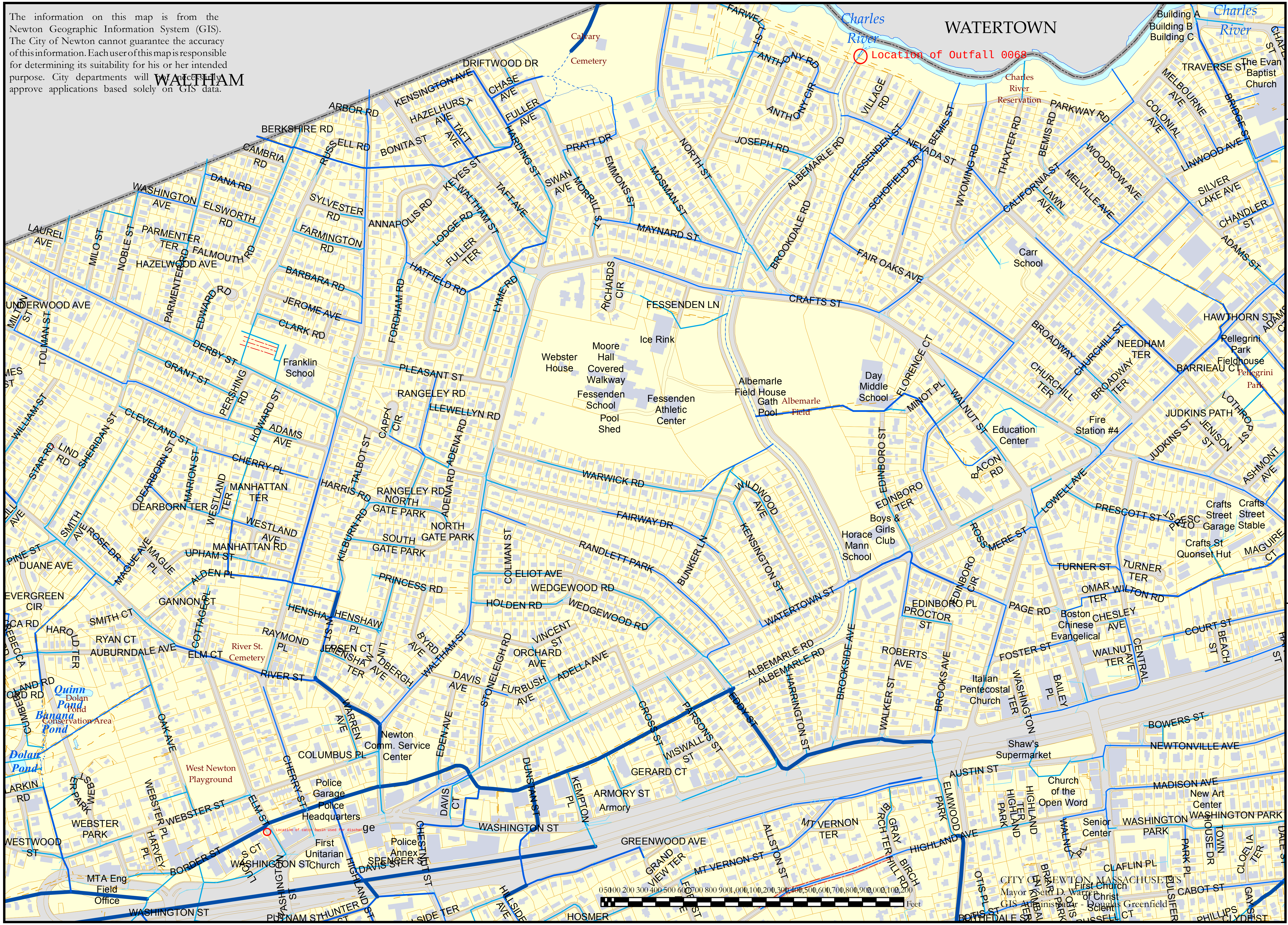
111 ELM STREET
NEWTON MASSACHUSETTS

SUBSURFACE EXPLORATION PLAN

FOR
WAYPOINT KLA
BY
McPHAIL ASSOCIATES, LLC

Date: SEPTEMBER 2014	Dwn: F.G.P.	Chkd: A.M.F.	Scale: 1" = 20'
Project No: 5780			

FILE NAME: H:\Acad\JOBS\5780\5780-FO2.dwg


The information on this map is from the Newton Geographic Information System (GIS). The City of Newton cannot guarantee the accuracy of this information. Each user of this map is responsible for determining its suitability for his or her intended purpose. City departments will not necessarily approve applications based solely on GIS data.
WALTHAM
WATERTOWN
Charles River
Location of Outfall 0068
Charles River Reservation
Calvary Cemetery
Carr School
Webster House
Moore Hall Covered Walkway
Fessenden School
Pool Shed
Ice Rink
Fessenden Athletic Center
Albemarle Field House
Gath Pool
Albemarle Field
Day Middle School
Franklin School
Education Center
Fire Station #4
Horace Mann School
Boys & Girls Club
Pellegrini Park Fieldhouse
Crafts Street Garage
Crafts Street Stable
Crafts St Quonset Hut
Boston Chinese Evangelical
Italian Pentecostal Church
Shaw's Supermarket
Church of the Open Word
Senior Center
New Art Center
River St. Cemetery
Quinn Pond
Dolan Pond
Banana Pond
Dolan Pond Conservation Area
West Newton Playground
Newton Comm. Service Center
Police Garage
Police Headquarters
Police Annex
First Unitarian Church
Armory
MTA Eng Field Office
CRAFTS ST
WASHINGTON ST
WATERTOWN ST
ALBEMARLE RD
WALTHAM ST
RIVER ST
WEBSTER ST
HIGHLAND AVE
AUBURNDALE AVE
CITY OF NEWTON, MASSACHUSETTS
Mayor Setti D. Warren
GIS Administrator - Douglas Greenfield
Feet

Base Map

City of Newton, Massachusetts

Legend

- Open Space Names
- Street Names-Local Scale

Storm Drain Mains

Type

- Main Line 2"-10"
- Main Line 12"-20"
- Main Line 21"-40"
- Main Line over 40"
- Double Main Line
- Catchbasin Connector
- Flow Connection
- Bleeder
- Ditch
- Brook
- Paved Brook
- Overflow
- Pavement Edge
- City Easements

Streams

Streams

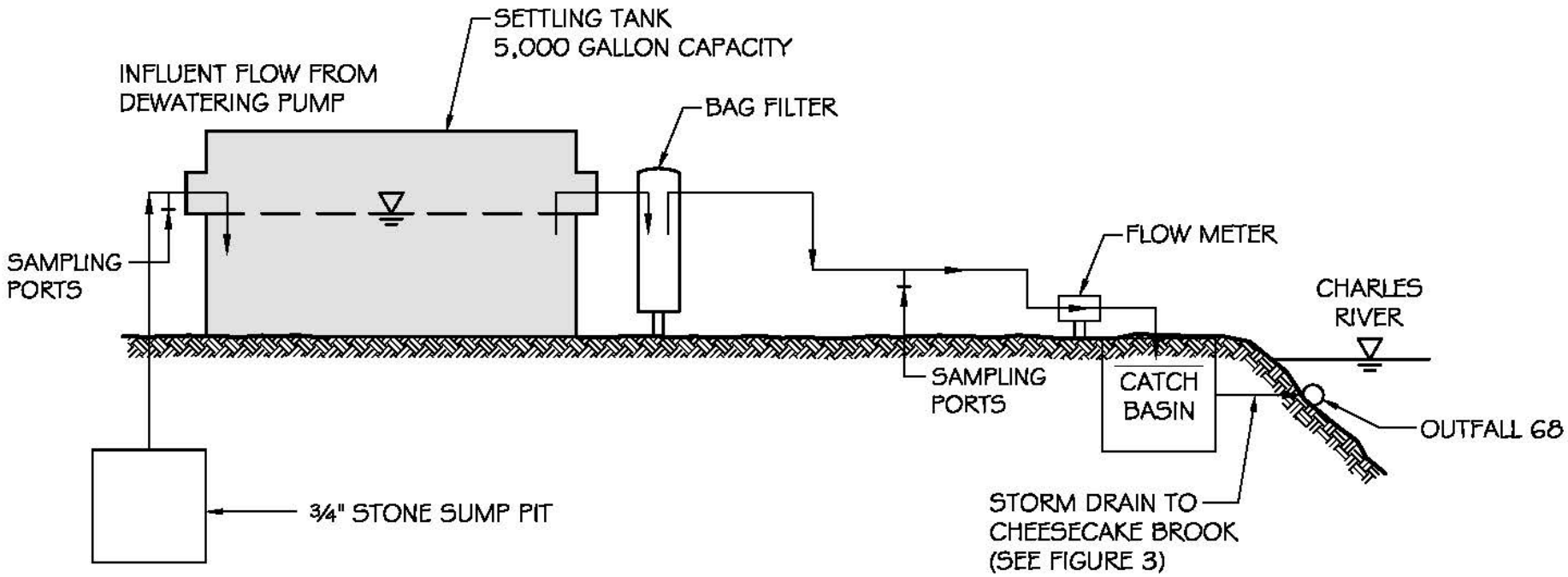
- Intermittent
- Perennial
- Massachusetts Town Boundaries
- Lakes & Rivers
- Building Footprints
- Property Boundaries
- Building Outlines
- Surface Water
- Property Boundaries

N W E S

Map Date: February 10 2015

FILE NAME: H:\Acad\JOBS\5780\Dewatering Permit\5780-E04.dwg

FIGURE 4



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111 ELM STREET
NEWTON MASSACHUSETTS

SCHEMATIC OF TREATMENT SYSTEM
FOR
WAYPOINT KLA
BY
McPHAIL ASSOCIATES, LLC

Date: FEBRUARY 2015	Dwn: I.J.M.	Chkd: A.M.F.	Scale: N.T.S.
Project No: 5780			

Table 1
111 Elm Street, Newton, MA
Job #5780
Summary of Chemical Test Results - Groundwater

LOCATION	RCGW-2-14	B-1 (OW)
SAMPLING DATE		9/5/2014
LAB SAMPLE ID		L1420386-01
Volatile Organic Compounds (mg/l)		
1,1,1,2-Tetrachloroethane	0.01	ND
1,1,1-Trichloroethane	4	ND
1,1,2,2-Tetrachloroethane	0.009	ND
1,1,2-Trichloroethane	0.9	ND
1,1-Dichloroethane	2	ND
1,1-Dichloroethene	0.08	ND
1,1-Dichloropropene		ND
1,2,3-Trichlorobenzene		ND
1,2,3-Trichloropropane	10	ND
1,2,4-Trichlorobenzene	0.2	ND
1,2,4-Trimethylbenzene	100	ND
1,2-Dibromo-3-chloropropane	1	ND
1,2-Dibromoethane	0.002	ND
1,2-Dichlorobenzene	2	ND
1,2-Dichloroethane	0.005	ND
1,2-Dichloroethene (total)		ND
1,2-Dichloropropane	0.003	ND
1,3,5-Trimethylbenzene	1	ND
1,3-Dichlorobenzene	6	ND
1,3-Dichloropropane	50	ND
1,3-Dichloropropene, Total	0.01	ND
1,4-Dichlorobenzene	0.06	ND
1,4-Dioxane	6	ND
2,2-Dichloropropane		ND
2-Butanone	50	ND
2-Hexanone	10	ND
4-Methyl-2-pentanone	50	ND
Acetone	50	0.012
Benzene	1	ND
Bromobenzene	10	ND
Bromochloromethane		ND
Bromodichloromethane	0.006	ND
Bromoform	0.7	ND
Bromomethane	0.007	ND
Carbon disulfide	10	ND
Carbon tetrachloride	0.002	ND
Chlorobenzene	0.2	ND
Chloroethane	10	ND
Chloroform	0.05	ND
Chloromethane	10	ND
cis-1,2-Dichloroethene	0.02	ND
cis-1,3-Dichloropropene	0.01	ND
Dibromochloromethane	0.02	ND
Dibromomethane	50	ND
Dichlorodifluoromethane	100	ND
Ethyl ether	10	ND
Ethyl-Tert-Butyl-Ether		ND
Ethylbenzene	5	ND
Hexachlorobutadiene	0.05	ND
Isopropyl Ether	10	ND
Isopropylbenzene	100	ND
Methyl tert butyl ether	5	ND
Methylene chloride	2	ND
n-Butylbenzene		ND
n-Propylbenzene	10	ND
Naphthalene	0.7	ND
o-Chlorotoluene	10	ND
o-Xylene	3	ND
p-Chlorotoluene		ND
p-Isopropyltoluene	10	ND
p/m-Xylene	3	ND
sec-Butylbenzene		ND
Styrene	0.1	ND
tert-Butylbenzene	10	ND
Tertiary-Amyl Methyl Ether		ND
Tetrachloroethene	0.05	ND
Tetrahydrofuran	50	ND
Toluene	40	ND
trans-1,2-Dichloroethene	0.08	ND
trans-1,3-Dichloropropene	0.01	ND
Trichloroethene	0.005	ND
Trichlorofluoromethane	100	ND
Vinyl chloride	0.002	ND
Xylene (Total)	3	ND

ND-Not Detected Above Laboratory Detection Limits ( )

McPhail Associates, LLC

APPENDIX A:

LIMITATIONS

LIMITATIONS

The purpose of this report is to present the results of testing of a groundwater sample obtained from a monitoring well located at 111 Elm Street in Newton, Massachusetts, in support of an application for approval of construction site dewatering discharge into surface waters of the Commonwealth of Massachusetts under EPA's Massachusetts Remedial General Permit MAG910000.

The observations were made under the conditions stated in this report. The conclusions presented above were based on these observations. If variations in the nature and extent of subsurface conditions between the widely spaced subsurface explorations become evident in the future, it will be necessary to re-evaluate the conclusions presented herein after performing on-site observations and noting the characteristics of any variations.

The conclusions submitted in this report are based in part upon chemical test data obtained from analysis of groundwater samples, and are contingent upon their validity. The data have been reviewed, and interpretations have been made in the text. It should also be noted that fluctuations in the types and levels of contaminants and variations in their flow paths may occur due to changes in seasonal water table, past practices used in disposal and other factors.

Chemical analyses have been performed for specific constituents during the course of this site assessment, as described in the text. However, it should be noted that additional chemical constituents not searched for during the current study may be present in soil and/or groundwater at the site.

This report and application have been prepared on behalf of and for the exclusive use of Waypoint KLA. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party nor used in whole or in part by any other party without prior written consent of McPhail Associates, LLC.

APPENDIX B:

NOTICE OF INTENT TRANSMITTAL FORM

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:** 111 Elm Street		**Facility/site** mailing address:			
Location of **facility/site:** longitude: -71.134639 latitude: 42.205666	Facility SIC code(s):	Street: 111 Elm Street			
b) Name of **facility/site owner:** Elm Trust 96		Town: Newton			
Email address of facility/site owner: mariapaul15@comcast.net		State: MA	Zip: 02134	County: Suffiolk	
Telephone no. of facility/site **owner:** 617-787-0300					
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: 196 Harvard Ave., #7					
Town: Allston	State: MA	Zip: 02134	County: Suffolk		
c) Legal name of **operator**: Bowdoin Construction Corp.	**Operator** telephone no: 781-444-6302				
	Operator fax no.: 781-444-4970	**Operator** email: mdoran@bowdoinconstructio			
Operator contact name and title: Mr. Mark Doran, Project Manager					
Address of **operator** (if different from owner):	Street: 220-1 Reservoir Street				
Town: Needham Heights	State: MA	Zip: 02494	County: Norfolk		

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: 1

2) What is the **maximum** and **average flow rate** of discharge (in cubic feet per second, ft^3/s)?
Max. flow 0.5 Is maximum flow a **design value**? Y ○ N ◉
Average flow (include units) 0.2 Is average flow a design value or estimate? Estimated

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

pt.1: lat	42.346825	long	-71.105711	pt.2: lat.		long.	;
pt.3: lat		long		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):

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

c) Expected dates of discharge (mm/dd/yy): start Feb 16, 2015 end Dec 31, 2015

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). Please refer to the attached report

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)		☐	☒								
2. Total Residual Chlorine (TRC)		☒	☐								
3. Total Petroleum Hydrocarbons (TPH)		☒	☐								
4. Cyanide (CN)	57125	☒	☐								
5. Benzene (B)	71432	☒	☐	1	grab	8260C	0.5 ug/l	ND			
6. Toluene (T)	108883	☒	☐	1	grab	8260C	1 ug/l	ND			
7. Ethylbenzene (E)	100414	☒	☐	1	grab	8260C	1 ug/l	ND			
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207	☒	☐	1	grab	8260C	1 ug/l	ND			
9. Total BTEX [2]	n/a	☒	☐	1	grab			ND			
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) [3]	106934	☒	☐	1	grab	8260C	2 ug/l	ND			
11. Methyl-tert-Butyl Ether (MtBE)	1634044	☒	☐	1	grab	8260C	2 ug/l	ND			
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75650	☒	☐	1	grab	8260C	10 ug/l	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	8260C	2 ug/l	ND			
14. Naphthalene	91203	☒	☐	1	grab	8260C	2 ug/l	ND			
15. Carbon Tetrachloride	56235	☒	☐	1	grab	8260C	1 ug/l	ND			
16. 1,2 Dichlorobenzene (o-DCB)	95501	☒	☐	1	grab	8260C	2 ug/l	ND			
17. 1,3 Dichlorobenzene (m-DCB)	541731	☒	☐	1	grab	8260C	2 ug/l	ND			
18. 1,4 Dichlorobenzene (p-DCB)	106467	☒	☐	1	grab	8260C	2 ug/l	ND			
18a. Total dichlorobenzene		☒	☐	1	grab			ND			
19. 1,1 Dichloroethane (DCA)	75343	☒	☐	1	grab	8260C	1 ug/l	ND			
20. 1,2 Dichloroethane (DCA)	107062	☒	☐	1	grab	8260C	1 ug/l	ND			
21. 1,1 Dichloroethene (DCE)	75354	☒	☐	1	grab	8260C	1 ug/l	ND			
22. cis-1,2 Dichloroethene (DCE)	156592	☒	☐	1	grab	8260C	1 ug/l	ND			
23. Methylene Chloride	75092	☒	☐	1	grab	8260C	2 ug/l	ND			
24. Tetrachloroethene (PCE)	127184	☒	☐	1	grab	8260C	1 ug/l	ND			
25. 1,1,1 Trichloro-ethane (TCA)	71556	☒	☐	1	grab	8260C	1 ug/l	ND			
26. 1,1,2 Trichloro-ethane (TCA)	79005	☒	☐	1	grab	8260C	1 ug/l	ND			
27. Trichloroethene (TCE)	79016	☒	☐	1	grab	8260C	1 ug/l	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	8260C	1 ug/l	ND			
29. Acetone	67641	☒	☐	1	grab	8260C	5 ug/l	0.000012			
30. 1,4 Dioxane	123911	☒	☐	1	grab	8260C	250 ug/l	ND			
31. Total Phenols	108952	☒	☐		grab			ND			
32. Pentachlorophenol (PCP)	87865	☒	☐								
33. Total Phthalates (Phthalate esters) [4]		☒	☐								
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	117817	☒	☐								
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		☒	☐								
a. Benzo(a) Anthracene	56553	☒	☐								
b. Benzo(a) Pyrene	50328	☒	☐								
c. Benzo(b)Fluoranthene	205992	☒	☐								
d. Benzo(k)Fluoranthene	207089	☒	☐								
e. Chrysene	21801	☒	☐								
f. Dibenzo(a,h)anthracene	53703	☒	☐								
g. Indeno(1,2,3-cd) Pyrene	193395	☒	☐								
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)		☒	☐								

[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	☒	☐								
i. Acenaphthylene	208968	☒	☐								
j. Anthracene	120127	☒	☐								
k. Benzo(ghi) Perylene	191242	☒	☐								
l. Fluoranthene	206440	☒	☐								
m. Fluorene	86737	☒	☐								
n. Naphthalene	91203	☒	☐								
o. Phenanthrene	85018	☒	☐								
p. Pyrene	129000	☒	☐								
37. Total Polychlorinated Biphenyls (PCBs)	85687; 84742; 117840; 84662; 131113; 117817.	☒	☐								
38. Chloride	16887006	☒	☐								
39. Antimony	7440360	☒	☐								
40. Arsenic	7440382	☒	☐								
41. Cadmium	7440439	☒	☐								
42. Chromium III (trivalent)	16065831	☒	☐								
43. Chromium VI (hexavalent)	18540299	☒	☐								
44. Copper	7440508	☒	☐								
45. Lead	7439921	☒	☐								
46. Mercury	7439976	☒	☐								
47. Nickel	7440020	☒	☐								
48. Selenium	7782492	☒	☐								
49. Silver	7440224	☒	☐								
50. Zinc	7440666	☒	☐								
51. Iron	7439896	☒	☐								
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)
Total Chromium		☒	☐								
		☐	☐								

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?
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: DF: 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:

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:

Sediment tank and/or bag filters in series.

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):			

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 50 gpm Maximum flow rate of treatment system 200 gpm
Design flow rate of treatment system 500 gpm

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

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:
Please refer to the attached report for description of discharge pathway.

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 Class B

e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water 24.6 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)?
chlorophyll-a, combined biota/habitat bioassesements, DDT, dissolved oxygen, oil and grease, secchi disk transparency, nutruent /eutrophication, biological indicators, phosphorous, PCB in fish tissue.
Is there a final TMDL? Y ◉ N ○ If yes, for which pollutant(s)? TMDL for pathogens and nutrients

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.

Please refer to the attached report.

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:	111 Elm Street, Newton, MA
Operator signature:	
Printed Name &Title:	Gary Tal/BST Job SUPT
Date:	2-13-15

APPENDIX C:

DEP PRIORITY RESOURCES MAP

U.S. FISH AND WILDLIFE SERVICES - LIST OF THREATENED AND ENDANGERED SPECIES

MASSACHUSETTS DIVISION OF FISHERIES - LIST OF THREATENED AND ENDANGERED SPECIES

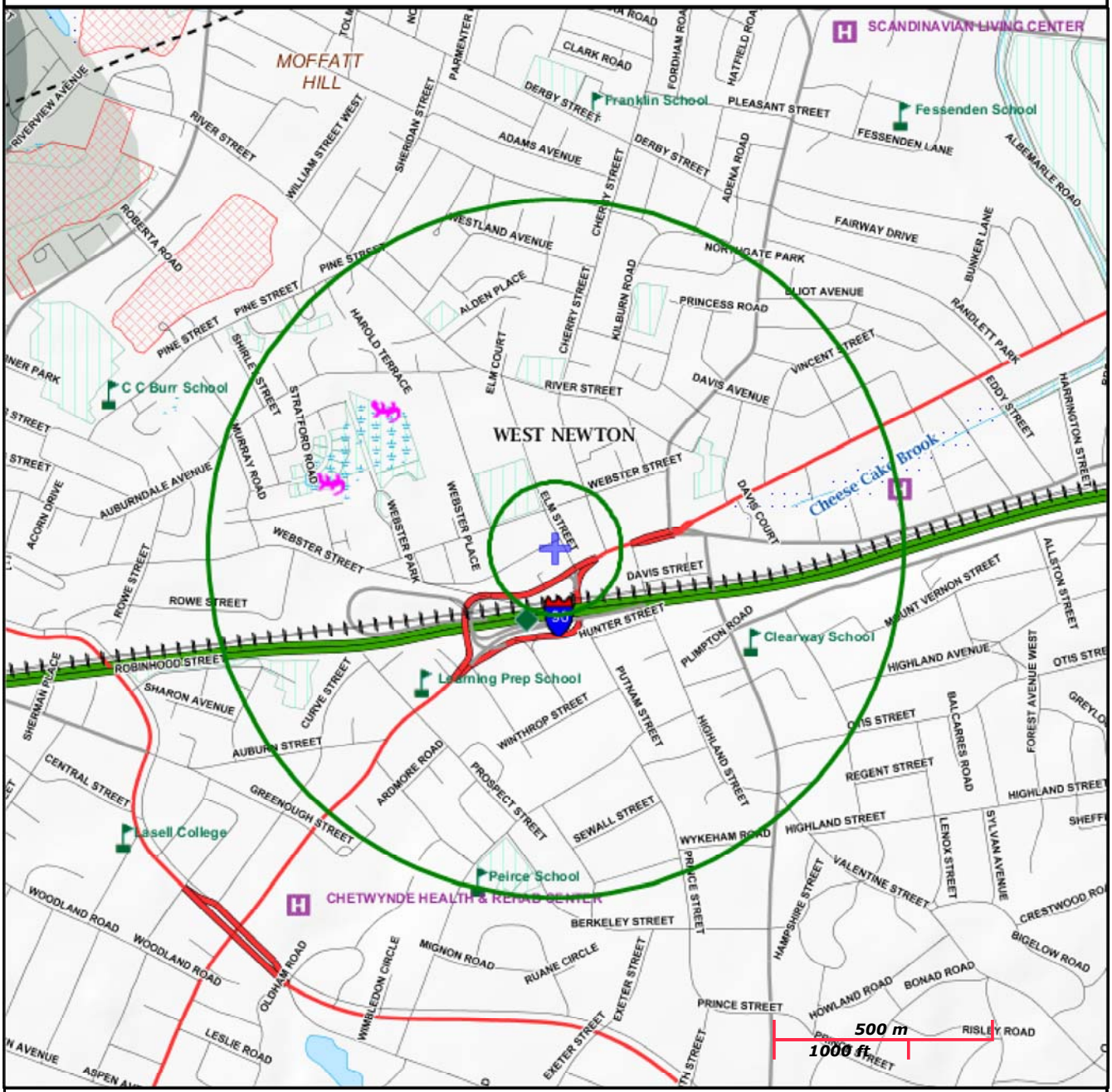
MassDEP - Bureau of Waste Site Cleanup

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

Site Information:
111 ELM STREET
111 ELM STREET NEWTON, MA
NAD83 UTM Meters:
5213416mN , -7929239mE (Zone: 18)
February 5, 2015

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

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



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

MASSACHUSETTS AREAS OF CRITICAL ENVIRONMENTAL CONCERN
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

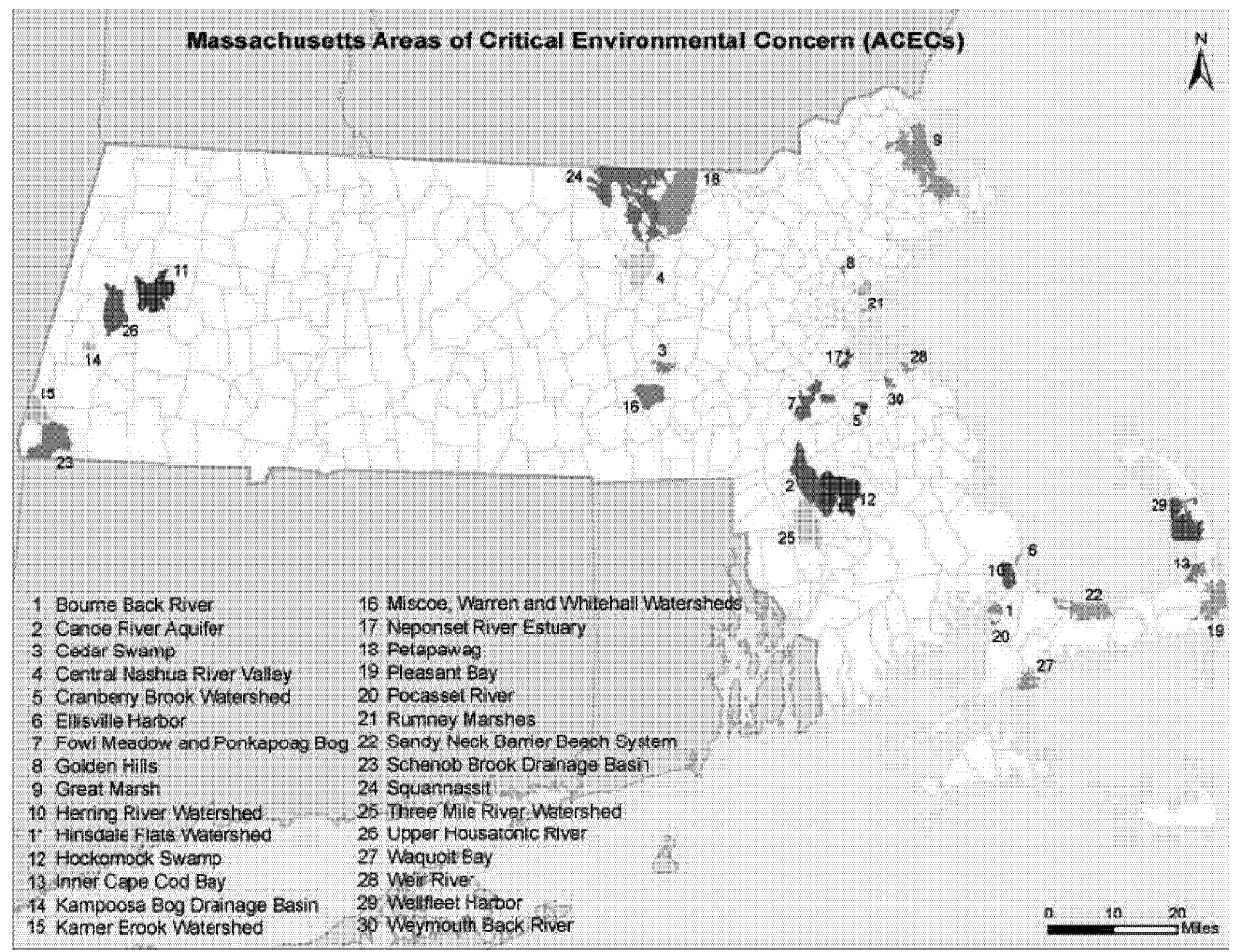
ACEC acreages above are based on MassGIS calculations and may differ from numbers originally presented in designation documents and other ACEC publications due to improvements in accuracy of GIS data and boundary clarifications. Listed acreages have been rounded to the nearest 50 or 10 depending on whether 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

TOWN	ACEC
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

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	Raynham and 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
	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.	Hadley, 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, and Wareham
	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.

7/31/2008

APPENDIX D:

LABORATORY ANALYTICAL DATA – GROUNDWATER

ANALYTICAL REPORT

Lab Number:	L1420386
Client:	McPhail Associates 2269 Massachusetts Avenue Cambridge, MA 02140
ATTN:	Ambrose Donovan
Phone:	(617) 868-1420
Project Name:	111 ELM ST.
Project Number:	5780.9.01
Report Date:	09/10/14

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: 111 ELM ST.
Project Number: 5780.9.01

Lab Number: L1420386
Report Date: 09/10/14

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1420386-01	B-1 (OW)	WATER	NEWTON, MA	09/05/14 11:00	09/05/14

Project Name:	111 ELM ST.	**Lab Number:**	L1420386
Project Number:	5780.9.01	**Report Date:**	09/10/14

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name: 111 ELM ST.
Project Number: 5780.9.01

Lab Number: L1420386
Report Date: 09/10/14

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.

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

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

Project Name:	111 ELM ST.	**Lab Number:**	L1420386
Project Number:	5780.9.01	**Report Date:**	09/10/14

Case Narrative (continued)

MCP Related Narratives

Volatile Organics

In reference to question H:

The initial calibration, associated with L1420386-01, did not meet the method required minimum response factor on the lowest calibration standard for 1,4-dioxane (0.00297), as well as the average response factor for acetone, 1,4-dioxane.

The continuing calibration standard, associated with L1420386-01, is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.

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

Authorized Signature: Cristin Walker

Title: Technical Director/Representative Date: 09/10/14

ORGANICS

VOLATILES

Project Name: 111 ELM ST. **Lab Number:** L1420386

Project Number: 5780.9.01 **Report Date:** 09/10/14

SAMPLE RESULTS

Lab ID: L1420386-01
Client ID: B-1 (OW)
Sample Location: NEWTON, MA
Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 09/09/14 15:44
Analyst: MM

Date Collected: 09/05/14 11:00
Date Received: 09/05/14
Field Prep: Not Specified

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

Project Name: 111 ELM ST. **Lab Number:** L1420386

Project Number: 5780.9.01 **Report Date:** 09/10/14

SAMPLE RESULTS

Lab ID: L1420386-01 Date Collected: 09/05/14 11:00

Client ID: B-1 (OW) Date Received: 09/05/14

Sample Location: NEWTON, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	12		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1

Project Name: 111 ELM ST. **Lab Number:** L1420386

Project Number: 5780.9.01 **Report Date:** 09/10/14

SAMPLE RESULTS

Lab ID: L1420386-01 Date Collected: 09/05/14 11:00

Client ID: B-1 (OW) Date Received: 09/05/14

Sample Location: NEWTON, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	102		70-130

Project Name: 111 ELM ST.
Project Number: 5780.9.01

Lab Number: L1420386
Report Date: 09/10/14

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/09/14 06:54
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01 Batch: WG720312-3					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,3-Dichloropropene, Total	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--

Project Name: 111 ELM ST.
Project Number: 5780.9.01

Lab Number: L1420386
Report Date: 09/10/14

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/09/14 06:54
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01 Batch: WG720312-3					
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
Xylene (Total)	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
1,2-Dichloroethene (total)	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
2-Butanone	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	2.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--

Project Name: 111 ELM ST. **Lab Number:** L1420386

Project Number: 5780.9.01 **Report Date:** 09/10/14

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/09/14 06:54
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01 Batch: WG720312-3					
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Ethyl ether	ND		ug/l	2.0	--
Isopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: 111 ELM ST.

Project Number: 5780.9.01

Lab Number: L1420386

Report Date: 09/10/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG720312-1 WG720312-2								
Methylene chloride	107		112		70-130	5		20
1,1-Dichloroethane	110		114		70-130	4		20
Chloroform	107		112		70-130	5		20
Carbon tetrachloride	86		96		70-130	11		20
1,2-Dichloropropane	107		108		70-130	1		20
Dibromochloromethane	87		95		70-130	9		20
1,1,2-Trichloroethane	101		108		70-130	7		20
Tetrachloroethene	101		106		70-130	5		20
Chlorobenzene	104		111		70-130	7		20
Trichlorofluoromethane	105		111		70-130	6		20
1,2-Dichloroethane	106		111		70-130	5		20
1,1,1-Trichloroethane	100		107		70-130	7		20
Bromodichloromethane	96		102		70-130	6		20
trans-1,3-Dichloropropene	96		103		70-130	7		20
cis-1,3-Dichloropropene	98		102		70-130	4		20
1,1-Dichloropropene	106		111		70-130	5		20
Bromoform	81		90		70-130	11		20
1,1,2,2-Tetrachloroethane	108		114		70-130	5		20
Benzene	106		111		70-130	5		20
Toluene	105		110		70-130	5		20
Ethylbenzene	107		113		70-130	5		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 111 ELM ST.

Project Number: 5780.9.01

Lab Number: L1420386

Report Date: 09/10/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG720312-1 WG720312-2								
Chloromethane	86		89		70-130	3		20
Bromomethane	94		102		70-130	8		20
Vinyl chloride	98		105		70-130	7		20
Chloroethane	124		128		70-130	3		20
1,1-Dichloroethene	108		115		70-130	6		20
trans-1,2-Dichloroethene	107		114		70-130	6		20
Trichloroethene	106		111		70-130	5		20
1,2-Dichlorobenzene	105		106		70-130	1		20
1,3-Dichlorobenzene	106		108		70-130	2		20
1,4-Dichlorobenzene	103		106		70-130	3		20
Methyl tert butyl ether	105		110		70-130	5		20
p/m-Xylene	106		111		70-130	5		20
o-Xylene	105		111		70-130	6		20
cis-1,2-Dichloroethene	112		117		70-130	4		20
Dibromomethane	104		110		70-130	6		20
1,2,3-Trichloropropane	105		110		70-130	5		20
Styrene	107		112		70-130	5		20
Dichlorodifluoromethane	76		82		70-130	8		20
Acetone	129		130		70-130	1		20
Carbon disulfide	97		105		70-130	8		20
2-Butanone	111		111		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 111 ELM ST.

Project Number: 5780.9.01

Lab Number: L1420386

Report Date: 09/10/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG720312-1 WG720312-2								
4-Methyl-2-pentanone	102		102		70-130	0		20
2-Hexanone	105		106		70-130	1		20
Bromochloromethane	102		111		70-130	8		20
Tetrahydrofuran	111		119		70-130	7		20
2,2-Dichloropropane	102		107		70-130	5		20
1,2-Dibromoethane	95		103		70-130	8		20
1,3-Dichloropropane	104		110		70-130	6		20
1,1,1,2-Tetrachloroethane	96		104		70-130	8		20
Bromobenzene	102		106		70-130	4		20
n-Butylbenzene	110		109		70-130	1		20
sec-Butylbenzene	107		110		70-130	3		20
tert-Butylbenzene	105		107		70-130	2		20
o-Chlorotoluene	111		114		70-130	3		20
p-Chlorotoluene	106		111		70-130	5		20
1,2-Dibromo-3-chloropropane	82		97		70-130	17		20
Hexachlorobutadiene	107		107		70-130	0		20
Isopropylbenzene	124		126		70-130	2		20
p-Isopropyltoluene	107		110		70-130	3		20
Naphthalene	80		82		70-130	2		20
n-Propylbenzene	111		115		70-130	4		20
1,2,3-Trichlorobenzene	81		87		70-130	7		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 111 ELM ST.

Project Number: 5780.9.01

Lab Number: L1420386

Report Date: 09/10/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG720312-1 WG720312-2								
1,2,4-Trichlorobenzene	89		92		70-130	3		20
1,3,5-Trimethylbenzene	107		110		70-130	3		20
1,2,4-Trimethylbenzene	108		110		70-130	2		20
Ethyl ether	112		116		70-130	4		20
Isopropyl Ether	111		118		70-130	6		20
Ethyl-Tert-Butyl-Ether	103		109		70-130	6		20
Tertiary-Amyl Methyl Ether	98		102		70-130	4		20
1,4-Dioxane	103		99		70-130	4		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	104		101		70-130
Dibromofluoromethane	99		100		70-130

Project Name: 111 ELM ST.
Project Number: 5780.9.01

Lab Number: L1420386
Report Date: 09/10/14

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(*)
L1420386-01A	Vial HCl preserved	A	N/A	5.1	Y	Absent	MCP-8260-10(14)
L1420386-01B	Vial HCl preserved	A	N/A	5.1	Y	Absent	MCP-8260-10(14)

*Values in parentheses indicate holding time in days

Project Name:	111 ELM ST.	**Lab Number:**	L1420386
Project Number:	5780.9.01	**Report Date:**	09/10/14

GLOSSARY

Acronyms

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

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

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

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 ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.

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.

Report Format: Data Usability Report

Project Name:	111 ELM ST.	**Lab Number:**	L1420386
Project Number:	5780.9.01	**Report Date:**	09/10/14

Data Qualifiers

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

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

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

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

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

Report Format: Data Usability Report

Project Name:	111 ELM ST.	**Lab Number:**	L1420386
Project Number:	5780.9.01	**Report Date:**	09/10/14

REFERENCES

97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

LIMITATION OF LIABILITIES

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

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

Certification Information

Last revised April 15, 2014

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

Westborough Facility
EPA 524.2: Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.
EPA 8260C: 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.
EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.
EPA 8270D: 1-Methylnaphthalene, Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 625: 4-Chloroaniline, 4-Methylphenol.
SM4500: Soil: Total Phosphorus, TKN, NO2, NO3.
EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility
EPA 8270D: Biphenyl.
EPA 2540D: TSS
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:

Drinking Water
EPA 200.8: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7**: Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;
EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

Non-Potable Water
EPA 200.8: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;
EPA 200.7: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;
EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF**.

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

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 9/5/14

ALPHA Job #: L1420386

ALPHA ANALYTICAL — World Class Chemistry
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Client Information

Client: McPhail Associates
Address: 2269 Mass Ave. Cambridge, MA
Phone: 617-868-1420
Email:

Additional Project Information:

Project Information

Project Name: 111 Elm St.
Project Location: Newton, MA
Project #: 5780.9.01
Project Manager: Amy Falconeiri
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 9/12/14

Report Information - Data Deliverables

☐ ADEx ☐ EMAIL

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements & Project Information Requirements

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

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	ANALYSIS: VOC: ☒ 8260 ☐ 624 ☐ 524.2	SVOC: ☐ ABN ☐ PAH	METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15	METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13	EPH: ☐ Ranges & Targets ☐ Ranges Only	VPH: ☐ Ranges & Targets ☐ Ranges Only	☐ PCB ☐ PEST	TPH: ☐ Quant Only ☐ Fingerprint	SAMPLE INFO: Filtration ☐ Field ☐ Lab to do; Preservation ☐ Lab to do	Sample Comments	TOTAL # BOTTLES
20386 01	B-1 (OW)	9/5/14	11:00	H2O	MJG	X									2-vials	2
Container Type						V										
Preservative						B										

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

Preservative
A= None
B= HCl
C= HNO_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
	9/5/14 @ 14:00		9/5/14 1700

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

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

7A
Volatile Organics CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1420386

Instrument ID: Jack.i Calibration Date: 09-SEP-2014 Time: 05:17

Lab File ID: 0909A01 Init. Calib. Date(s): 03-AUG-2 03-AUG-2

Sample No: 8260 CCAL Init. Calib. Times : 10:51 15:43

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
dichlorodifluoromethane	.66841	.51083	.1	-24	20	F
chloromethane	1.0074	.86696	.1	-14	20	
vinyl chloride	.81524	.8014	.1	-2	20	
bromomethane	.34785	.32666	.1	-6	20	
chloroethane	.39941	.49701	.1	24	20	F
trichlorofluoromethane	.81598	.85956	.1	5	20	
ethyl ether	.25173	.28249	.05	12	20	
1,1,-dichloroethene	.52186	.5612	.1	8	20	
carbon disulfide	1.6481	1.5979	.1	-3	20	
freon-113	.59423	.64001	.1	8	20	
iodomethane	.87469	.29577	.05	-66	20	F
acrolein	.07267	.08503	.05	17	20	
methylene chloride	.58757	.62787	.1	7	20	
acetone	.09353	.12034	.1	29	20	F
trans-1,2-dichloroethene	.58845	.63006	.1	7	20	
methyl acetate	.28304	.32854	.1	16	20	
methyl tert butyl ether	1.1953	1.2541	.1	5	20	
tert butyl alcohol	.03317	.03139	.05	-5	20	F
Diisopropyl Ether	2.4301	2.7074	.01	11	20	
1,1-dichloroethane	1.2108	1.3276	.2	10	20	
acrylonitrile	.15032	.16856	.05	12	20	
Halothane	.46787	.46788	.05	0	20	
Ethyl-Tert-Butyl-Ether	2.0038	2.0637	.05	3	20	
vinyl acetate	1.2442	1.2874	.05	3	20	
cis-1,2-dichloroethene	.63642	.71043	.1	12	20	
2,2-dichloropropane	.91063	.92471	.05	2	20	
cyclohexane	1.4771	1.5177	.01	3	30	
bromochloromethane	.30109	.30875	.05	3	20	
chloroform	1.0437	1.1169	.2	7	20	
carbontetrachloride	.85493	.73861	.1	-14	20	
tetrahydrofuran	.12841	.14288	.05	11	20	
ethyl acetate	.41394	.41188	.05	0	20	
1,1,1-trichloroethane	.94489	.949	.1	0	20	
1,1-dichloropropene	.90594	.95773	.05	6	20	
2-butanone	.17761	.19655	.1	11	20	
benzene	2.6161	2.783	.5	6	20	
Tertiary-Amyl Methyl Ether	1.4656	1.4292	.05	-2	20	
1,2-dichloroethane	.73888	.78454	.1	6	20	

FORM VII MCP-8260-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1420386

Instrument ID: Jack.i Calibration Date: 09-SEP-2014 Time: 05:17

Lab File ID: 0909A01 Init. Calib. Date(s): 03-AUG-2 03-AUG-2

Sample No: 8260 CCAL Init. Calib. Times : 10:51 15:43

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
methyl cyclohexane	1.2408	1.3167	.01	6	30	
trichloroethene	.64419	.68552	.2	6	20	
dibromomethane	.2963	.30772	.05	4	20	
1,2-dichloropropane	.84958	.90839	.1	7	20	
bromodichloromethane	.58885	.56546	.2	-4	20	
1,4-dioxane	.00348	.00357	.05	3	20	F
2-chloroethylvinyl ether	.3551	.32966	.05	-7	20	
cis-1,3-dichloropropene	1.0158	.9911	.2	-2	20	
toluene	2.0706	2.1773	.4	5	20	
tetrachloroethene	.98952	.99915	.2	1	20	
4-methyl-2-pentanone	.15978	.16223	.1	2	20	
trans-1,3-dichloropropene	.95062	.91561	.1	-4	20	
1,1,2-trichloroethane	.44412	.44917	.1	1	20	
ethyl-methacrylate	.70765	.68865	.01	-3	30	
chlorodibromomethane	.67641	.59099	.1	-13	20	
1,3-dichloropropane	.93244	.97062	.05	4	20	
1,2-dibromoethane	.54529	.52033	.1	-5	20	
2-hexanone	.31922	.33463	.1	5	20	
chlorobenzene	2.3048	2.4055	.5	4	20	
ethyl benzene	3.9654	4.2469	.1	7	20	
1,1,1,2-tetrachloroethane	.78942	.75995	.05	-4	20	
p/m xylene	1.5882	1.6892	.1	6	20	
o xylene	1.5283	1.6093	.3	5	20	
bromoform	.72678	.59158	.1	-19	20	
styrene	2.4262	2.5890	.3	7	20	
isopropylbenzene	7.9361	9.8511	.1	24	20	F
bromobenzene	1.8553	1.8847	.05	2	20	
1,4-dichlorobutane	1.9729	2.1423	.01	9	30	
n-propylbenzene	8.7262	9.6920	.05	11	20	
1,1,2,2,-tetrachloroethane	.98443	1.0665	.3	8	20	
4-ethyltoluene	7.7565	8.5246	.05	10	20	
2-chlorotoluene	5.5913	6.2141	.05	11	20	
1,2,3-trichloropropane	.846	.88544	.05	5	20	
1,3,5-trimethybenzene	6.2558	6.7166	.05	7	20	
trans-1,4-dichloro-2-butene	.33143	.26331	.05	-21	20	F
4-chorotoluene	5.0967	5.4154	.05	6	20	
tert-butylbenzene	5.6542	5.965	.05	5	20	
1,2,4-trimethylbenzene	6.1973	6.6651	.05	8	20	

FORM VII MCP-8260-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1420386

Instrument ID: Jack.i Calibration Date: 09-SEP-2014 Time: 05:17

Lab File ID: 0909A01 Init. Calib. Date(s): 03-AUG-2 03-AUG-2

Sample No: 8260 CCAL Init. Calib. Times : 10:51 15:43

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
sec-butylbenzene	8.1161	8.6949	.01	7	20	
p-isopropyltoluene	6.8694	7.3601	.05	7	20	
1,3-dichlorobenzene	3.4533	3.6779	.6	7	20	
1,4-dichlorobenzene	3.4256	3.5342	.5	3	20	
p-diethylbenzene	4.0660	4.1906	.05	3	20	
n-butylbenzene	5.4612	5.9896	.05	10	20	
1,2-dichlorobenzene	3.0361	3.1826	.4	5	20	
1,2,4,5-tetramethylbenzene	5.5862	5.7468	.05	3	20	
1,2-dibromo-3-chloropropane	.15999	.13103	.05	-18	20	
1,3,5-trichlorobenzene	.9941	.95414	.05	-4	20	
1,2,4-trichlorobenzene	1.6306	1.4574	.2	-11	20	
hexachlorobutadiene	.73128	.78203	.05	7	20	
naphthalene	3.0915	2.4720	.05	-20	20	F
1,2,3-trichlorobenzene	1.3046	1.0623	.05	-19	20	
dibromofluoromethane	.24597	.24258	.05	-1	20	
1,2-dichloroethane-d4	.27173	.25514	.05	-6	20	
toluene-d8	1.2908	1.2352	.01	-4	20	
4-bromofluorobenzene	.91741	.95385	.05	4	20	

FORM VII MCP-8260-10

APPENDIX E:

ENSOL'S GROUNDWATER RESULTS SUMMARY TABLE

ENSOL'S LABORATORY TEST DATA REPORT

collected from well MW-2 or MW-3. Groundwater collected from well MW-1 was reported to contain low levels of compounds associated with a mixture of oil, gasoline, and cleaning solvent. However, all of the reported concentrations are below the applicable regulatory release notification and cleanup criteria, and hence the levels do not represent a reportable release and notification to the DEP is not required.

Table 3: Summary of Groundwater Chemistry, ug/L

Compound	MW-1	MW-2	MW-3	MCP RCGW-2
VPH compounds:				
C5-C8 VPH aliphatics	390	<20	<20	1,000
C9-C12 VPH aliphatics	200	<20	<20	1,000
C9-C10 VPH aromatics	2,200	<20	<20	4,000
ethylbenzene	60	<5	<5	4,000
xylenes	80	<5	<5	500
all other VPH VOCs	ND	ND	ND	
EPH compounds:				
C9-C18 EPH aliphatics	<530	na	na	1,000
C19-C36 EPH aliphatics	<530	na	na	20,000
C11-C22 EPH aromatics	570	na	na	30,000
naphthalene	0.6	na	na	1,000
2-methylnaphthalene	32	na	na	3,000
other PAHs	trace	na	na	>>10
chlorinated VOCs:				
cis-1,2-dichloroethene	10	<5	<5	100
tetrachloroethene	36	<5	<5	50
all other VOCs	ND	ND	ND	

GROUNDWATER ANALYTICAL

Groundwater Analytical, Inc.
P.O. Box 1200
228 Main Street
Buzzards Bay, MA 02532

Telephone (508) 759-4441
FAX (508) 759-4475

May 15, 2006

Mr. David A. Wright
ENSOL, Inc.
100 Treble Cove Road
Suite 5
Billerica, MA 01862

LABORATORY REPORT

Project: **Elm/2241**
Lab ID: **94446**
Received: **05-08-06**

Dear David:

Enclosed are the analytical results for the above referenced project. The project was processed for Priority turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC standards, except as may be specifically noted, or described in the project narrative. This report may only be used or reproduced in its entirety.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/kh
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **Elm/2241**
Client: **ENSOL, Inc.**
Lab ID: **94446**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **05-08-06**

Temperature: **2.0'C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
94446-1	MW-1		Aqueous	5/8/06 0:00	EPA 8260B Volatile Halocarbons				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C774367	40 mL VOA Vial	Proline	BX19715	HCl	R-4601F	01-27-06	n/a		
C774366	40 mL VOA Vial	Proline	BX19715	HCl	R-4601F	01-27-06	n/a		
C774365	40 mL VOA Vial	Proline	BX19715	HCl	R-4601F	01-27-06	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
94446-2	MW-2		Aqueous	5/8/06 0:00	EPA 8260B Volatile Halocarbons				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C723192	40 mL VOA Vial	Proline	BX19927	HCl	R-4601F	02-13-06	02-17-06		
C774369	40 mL VOA Vial	Proline	BX19715	HCl	R-4601F	01-27-06	n/a		
C774368	40 mL VOA Vial	Proline	BX19715	HCl	R-4601F	01-27-06	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
94446-3	MW-3		Aqueous	5/8/06 0:00	EPA 8260B Volatile Halocarbons				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C723193	40 mL VOA Vial	Proline	BX19927	HCl	R-4601F	02-13-06	02-17-06		
C774381	40 mL VOA Vial	Proline	BX19715	HCl	R-4601F	01-27-06	n/a		
C774380	40 mL VOA Vial	Proline	BX19715	HCl	R-4601F	01-27-06	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
94446-4	B1A-S4		Soil	5/8/06 0:00	EPA 6010B Pb Total MA DEP EPH with PAHs				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C760239	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
94446-5	B4-S4		Soil	5/8/06 0:00	EPA 6010B Pb Total				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C760240	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
94446-6	B1A-S4		Soil	5/8/06 0:00	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C776603	40 mL VOA Vial	Proline	BX19597	Methanol	R-4727W	01-16-06	02-08-06		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
94446-7	B4-S4		Soil	5/8/06 0:00	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C776580	40 mL VOA Vial	Proline	BX19597	Methanol	R-4727W	01-16-06	02-08-06		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
94446-8	B5-S4		Soil	5/8/06 0:00	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C741509	40 mL VOA Vial	Proline	BX19597	Methanol	R-4727W	01-16-06	02-08-06		
C760238	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
94446-9	MW-1		Aqueous	5/8/06 0:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C727486	1 L Amber Glass	Proline	BX20829	H2SO4	R-4845B	04-12-06	n/a		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project: **Elm/2241**
Client: **ENSOL, Inc.**
Lab ID: **94446**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **05-08-06**

Temperature: **2.0'C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
94446-10	MW-1		Aqueous	5/8/06 0:00	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C735799	40 mL VOA Vial	n/a	n/a	HCl	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
94446-11	MW-2		Aqueous	5/8/06 0:00	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C735797	40 mL VOA Vial	n/a	n/a	HCl	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
94446-12	MW-3		Aqueous	5/8/06 0:00	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C735798	40 mL VOA Vial	n/a	n/a	HCl	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

Data Certification

Project: **Elm/2241** Lab ID: **94446**
Client: **ENSOL, Inc.** Received: **05-08-06 18:35**

MA DEP Compendium of Analytical Methods

Project Location: **n/a** MA DEP RTN: **n/a**

This Form provides certifications for the following data set:

EPA 8021B: 94446-01,-02,-03
MA DEP VPH: 94446-06,-07,-08,-10,-11,-12
MA DEP EPH: 94446-04,-09
EPA 6010B: 94446-04,-05

Sample Matrices:	Groundwater (X)	Soil/Sediment (X)	Drinking Water ( )	Other ( )	
MCP SW-846	8260B ( )	8151A ( )	8330 ( )	6010B (X)	7470A/1A ( )
Methods Used	8270C ( )	8081A ( )	VPH (X)	6020 ( )	9012A[2] ( )
As specified in MA DEP Compendium of Analytical Methods. (check all that apply)	8082 ( )	8021B (X)	EPH (X)	7000 S[3] ( )	Other ( )
	1. List Release Tracking Number (RTN), if known.				
	2. SW-846 Method 9012A (Equivalent to 9014) or MA DEP Physiologically Available Cyanide (PAC) Method				
	3. S - SW-846 Methods 7000 Series. List individual method and analyte.				

An affirmative response to questions A, B, C and D is required for "Presumptive Certainty" status.

A.	Were all samples received by the laboratory in a condition consistent with that described on the Chain-of-Custody documentation for the data set?	Yes
B.	Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	Yes
C.	Does the analytical data included in this report meet all the requirements for "Presumptive Certainty," as described in Section 2.0 of the MA DEP document CAM VII A, *Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data* ?	Yes
D.	VPH and EPH methods only: Was the VPH or EPH method run without significant modifications, as specified in Section 11.3?	Yes

A response to questions E and F below is required for "Presumptive Certainty" status.

E.	Were all QC performance standards and recommendations for the specified methods achieved?	No
F.	Were results for all analyte-list compounds/elements for the specified method(s) reported?	No

All No answers are addressed in the attached Project Narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Position: Operations Manager
Printed Name: Eric H. Jensen Date: 05-16-06

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	B1A-S4	Matrix:	Soil
Project:	Elm/2241	Container:	250 mL Glass
Client:	ENSOL, Inc.	Preservation:	Cool
Laboratory ID:	94446-04	QC Batch ID:	EP-2310-M
Sampled:	05-08-06 00:00	Instrument ID:	GC-9 Agilent 6890
Received:	05-08-06 18:35	Sample Weight:	16 g
Extracted:	05-10-06 20:00	Final Volume:	1 mL
Analyzed (AL):	05-13-06 00:04	% Solids:	91
Analyzed (AR):	05-13-06 00:48	Aliphatic Dilution Factor:	1
Analyst:	CMM	Aromatic Dilution Factor:	1

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	31
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	31
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	31
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	31

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	0.52
91-57-6	2-Methylnaphthalene	BRL		mg/Kg	0.52
85-01-8	Phenanthrene	BRL		mg/Kg	0.52
83-32-9	Acenaphthene	BRL		mg/Kg	0.52
208-96-8	Acenaphthylene	BRL		mg/Kg	0.52
86-73-7	Fluorene	BRL		mg/Kg	0.52
120-12-7	Anthracene	BRL		mg/Kg	0.52
206-44-0	Fluoranthene	BRL		mg/Kg	0.52
129-00-0	Pyrene	BRL		mg/Kg	0.52
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.52
218-01-9	Chrysene	BRL		mg/Kg	0.52
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.52
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.52
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.52
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.52
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.52
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.52

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	2.8	2.5	89 %	40 - 140 %
	2-Bromonaphthalene	2.8	2.3	83 %	40 - 140 %
Extraction:	Chloro-octadecane	2.8	2.4	85 %	40 - 140 %
	ortho-Terphenyl	2.8	2.5	88 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	**MW-1**	Matrix:	**Aqueous**
Project:	**Elm/2241**	Container:	**1 L Amber Glass**
Client:	**ENSOL, Inc.**	Preservation:	**H2SO4/Cool**
Laboratory ID:	**94446-09**	QC Batch ID:	**EP-1732-F**
Sampled:	**05-08-06 00:00**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**05-08-06 18:35**	Sample Volume:	**950 mL**
Extracted:	**05-11-06 10:00**	Final Volume:	**1 mL**
Analyzed (AL):	**05-15-06 18:47**	Aliphatic Dilution Factor:	**1**
Analyzed (AR):	**05-15-06 19:31**	Aromatic Dilution Factor:	**1**
Analyst:	**CMM**		

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		ug/L	530
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		ug/L	530
n-C11 to n-C22 Aromatic Hydrocarbons †◊	570		ug/L	160
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	640		ug/L	160

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	42	39	92 %	40 - 140 %
	2-Bromonaphthalene	42	38	91 %	40 - 140 %
Extraction:	Chloro-octadecane	42	27	65 %	40 - 140 %
	ortho-Terphenyl	42	24	58 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Sample extraction performed by separatory funnel technique.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified)
MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID:	MW-1	Matrix:	Aqueous
Project:	Elm/2241	Container:	1 L Amber Glass
Client:	ENSOL, Inc.	Preservation:	H2SO4
Laboratory ID:	94446-09	QC Batch ID:	EP-1732-F
Sampled:	05-08-06 00:00	Instrument ID:	MS-6 HP 6890
Received:	05-08-06 18:35	Sample Volume:	950 mL
Extracted:	05-11-06 10:00	Final Volume:	1 mL
Analyzed:	05-16-06 09:06	Dilution Factor:	2
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	0.6	j	ug/L	1.1
91-57-6	2-Methylnaphthalene	32		ug/L	1.1
208-96-8	Acenaphthylene	BRL		ug/L	1.1
83-32-9	Acenaphthene	2.1		ug/L	1.1
86-73-7	Fluorene	3.1		ug/L	1.1
85-01-8	Phenanthrene	3.2		ug/L	1.1
120-12-7	Anthracene	BRL		ug/L	1.1
206-44-0	Fluoranthene	0.7	j	ug/L	1.1
129-00-0	Pyrene	0.7	j	ug/L	1.1
56-55-3	Benzo[a]anthracene	0.2		ug/L	0.2
218-01-9	Chrysene	0.1	j	ug/L	0.2
205-99-2	Benzo[b]fluoranthene	0.1	j	ug/L	0.2
207-08-9	Benzo[k]fluoranthene	BRL		ug/L	0.2
50-32-8	Benzo[a]pyrene	BRL		ug/L	0.2
193-39-5	Indeno[1,2,3-c,d]pyrene	0.2		ug/L	0.2
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/L	0.2
191-24-2	Benzo[g,h,i]perylene	BRL		ug/L	0.2

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	42	19	45 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3510C.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

j Indicates an estimated value detected below the reporting limit for the analyte.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	MW-1	Matrix:	Aqueous
Project:	Elm/2241	Container:	40 mL VOA Vial
Client:	ENSOL, Inc.	Preservation:	HCl/Cool
Laboratory ID:	94446-01	QC Batch ID:	VM4-3538-W
Sampled:	05-08-06 00:00	Instrument ID:	MS-4 HP 6890
Received:	05-08-06 18:35	Sample Volume:	25 mL
Analyzed:	05-13-06 03:54	Dilution Factor:	10
Analyst:	EMC		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/L	5
74-87-3	Chloromethane	BRL		ug/L	5
75-01-4	Vinyl Chloride	BRL		ug/L	5
74-83-9	Bromomethane	BRL		ug/L	5
75-00-3	Chloroethane	BRL		ug/L	5
75-69-4	Trichlorofluoromethane	BRL		ug/L	5
75-35-4	1,1-Dichloroethene	BRL		ug/L	5
75-09-2	Methylene Chloride	BRL		ug/L	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/L	5
75-34-3	1,1-Dichloroethane	BRL		ug/L	5
156-59-2	*cis*-1,2-Dichloroethene	10		ug/L	5
67-66-3	Chloroform	BRL		ug/L	5
107-06-2	1,2-Dichloroethane	BRL		ug/L	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/L	5
56-23-5	Carbon Tetrachloride	BRL		ug/L	5
78-87-5	1,2-Dichloropropane	BRL		ug/L	5
79-01-6	Trichloroethene	BRL		ug/L	5
75-27-4	Bromodichloromethane	BRL		ug/L	5
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/L	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/L	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/L	5
124-48-1	Dibromochloromethane	BRL		ug/L	5
127-18-4	Tetrachloroethene	36		ug/L	5
108-90-7	Chlorobenzene	BRL		ug/L	5
75-25-2	Bromoform	BRL		ug/L	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/L	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/L	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/L	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/L	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	10	8.8	88 %	70 - 130 %
1,2-Dichloroethane-d_4	10	8.7	87 %	70 - 130 %
Toluene-d_8	10	8.9	89 %	70 - 130 %
4-Bromofluorobenzene	10	8.7	87 %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	MW-2	Matrix:	Aqueous
Project:	Elm/2241	Container:	40 mL VOA Vial
Client:	ENSOL, Inc.	Preservation:	HCl/Cool
Laboratory ID:	94446-02	QC Batch ID:	VM4-3538-W
Sampled:	05-08-06 00:00	Instrument ID:	MS-4 HP 6890
Received:	05-08-06 18:35	Sample Volume:	25 mL
Analyzed:	05-13-06 04:22	Dilution Factor:	1
Analyst:	EMC		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/L	0.5
74-87-3	Chloromethane	BRL		ug/L	0.5
75-01-4	Vinyl Chloride	BRL		ug/L	0.5
74-83-9	Bromomethane	BRL		ug/L	0.5
75-00-3	Chloroethane	BRL		ug/L	0.5
75-69-4	Trichlorofluoromethane	BRL		ug/L	0.5
75-35-4	1,1-Dichloroethene	BRL		ug/L	0.5
75-09-2	Methylene Chloride	BRL		ug/L	0.5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/L	0.5
75-34-3	1,1-Dichloroethane	BRL		ug/L	0.5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/L	0.5
67-66-3	Chloroform	BRL		ug/L	0.5
107-06-2	1,2-Dichloroethane	BRL		ug/L	0.5
71-55-6	1,1,1-Trichloroethane	BRL		ug/L	0.5
56-23-5	Carbon Tetrachloride	BRL		ug/L	0.5
78-87-5	1,2-Dichloropropane	BRL		ug/L	0.5
79-01-6	Trichloroethene	BRL		ug/L	0.5
75-27-4	Bromodichloromethane	BRL		ug/L	0.5
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/L	0.5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/L	0.5
79-00-5	1,1,2-Trichloroethane	BRL		ug/L	0.5
124-48-1	Dibromochloromethane	BRL		ug/L	0.5
127-18-4	Tetrachloroethene	BRL		ug/L	0.5
108-90-7	Chlorobenzene	BRL		ug/L	0.5
75-25-2	Bromoform	BRL		ug/L	0.5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/L	0.5
541-73-1	1,3-Dichlorobenzene	BRL		ug/L	0.5
106-46-7	1,4-Dichlorobenzene	BRL		ug/L	0.5
95-50-1	1,2-Dichlorobenzene	BRL		ug/L	0.5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	10	8.8	88 %	70 - 130 %
1,2-Dichloroethane-d_4	10	8.9	89 %	70 - 130 %
Toluene-d_8	10	8.5	85 %	70 - 130 %
4-Bromofluorobenzene	10	8.2	82 %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	MW-3	Matrix:	Aqueous
Project:	Elm/2241	Container:	40 mL VOA Vial
Client:	ENSOL, Inc.	Preservation:	HCl/Cool
Laboratory ID:	94446-03	QC Batch ID:	VM4-3538-W
Sampled:	05-08-06 00:00	Instrument ID:	MS-4 HP 6890
Received:	05-08-06 18:35	Sample Volume:	25 mL
Analyzed:	05-13-06 04:52	Dilution Factor:	1
Analyst:	EMC		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/L	0.5
74-87-3	Chloromethane	BRL		ug/L	0.5
75-01-4	Vinyl Chloride	BRL		ug/L	0.5
74-83-9	Bromomethane	BRL		ug/L	0.5
75-00-3	Chloroethane	BRL		ug/L	0.5
75-69-4	Trichlorofluoromethane	BRL		ug/L	0.5
75-35-4	1,1-Dichloroethene	BRL		ug/L	0.5
75-09-2	Methylene Chloride	BRL		ug/L	0.5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/L	0.5
75-34-3	1,1-Dichloroethane	BRL		ug/L	0.5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/L	0.5
67-66-3	Chloroform	BRL		ug/L	0.5
107-06-2	1,2-Dichloroethane	BRL		ug/L	0.5
71-55-6	1,1,1-Trichloroethane	BRL		ug/L	0.5
56-23-5	Carbon Tetrachloride	BRL		ug/L	0.5
78-87-5	1,2-Dichloropropane	BRL		ug/L	0.5
79-01-6	Trichloroethene	BRL		ug/L	0.5
75-27-4	Bromodichloromethane	BRL		ug/L	0.5
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/L	0.5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/L	0.5
79-00-5	1,1,2-Trichloroethane	BRL		ug/L	0.5
124-48-1	Dibromochloromethane	BRL		ug/L	0.5
127-18-4	Tetrachloroethene	BRL		ug/L	0.5
108-90-7	Chlorobenzene	BRL		ug/L	0.5
75-25-2	Bromoform	BRL		ug/L	0.5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/L	0.5
541-73-1	1,3-Dichlorobenzene	BRL		ug/L	0.5
106-46-7	1,4-Dichlorobenzene	BRL		ug/L	0.5
95-50-1	1,2-Dichlorobenzene	BRL		ug/L	0.5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	10	8.9	89 %	70 - 130 %
1,2-Dichloroethane-d_4	10	9.3	93 %	70 - 130 %
Toluene-d_8	10	8.5	85 %	70 - 130 %
4-Bromofluorobenzene	10	8.5	85 %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**B1A-S4**	Matrix:	**Soil**
Project:	**Elm/2241**	Container:	**250 mL Glass**
Client:	**ENSOL, Inc.**	Preservation:	**Cool**
Laboratory ID:	**94446-04**	Percent Solids:	**91**
Sampled:	**05-08-06 00:00**		
Received:	**05-08-06 18:35**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0860-S	EPA 3050B	05-11-06 08:03	0.5 g	ICP-1 PE 3000	MFP

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7439-92-1	Lead, Total	BRL		mg/Kg	11	1	05-11-06 15:24	EPA 6010B[1]

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**B4-S4**	Matrix:	**Soil**
Project:	**Elm/2241**	Container:	**250 mL Glass**
Client:	**ENSOL, Inc.**	Preservation:	**Cool**
Laboratory ID:	**94446-05**	Percent Solids:	**95**
Sampled:	**05-08-06 00:00**		
Received:	**05-08-06 18:35**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0860-S	EPA 3050B	05-11-06 08:03	0.5 g	ICP-1 PE 3000	MFP

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7439-92-1	Lead, Total	39		mg/Kg	10	1	05-11-06 15:09	EPA 6010B[1]

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
DF Dilution Factor.

GROUNDWATER ANALYTICAL

Massachusetts DEP VPH Method
Volatile Petroleum Hydrocarbons by GC/PID/FID

Field ID:	B1A-S4	Matrix:	Soil
Project:	Elm/2241	Container:	40 mL VOA Vial
Client:	ENSOL, Inc.	Preservation:	Methanol/Cool
Laboratory ID:	94446-06	QC Batch ID:	VG3-2142-E
Sampled:	05-08-06 00:00	Instrument ID:	GC-3 HP 5890
Received:	05-08-06 18:35	Sample Weight:	15 g
Analyzed:	05-10-06 21:52	Final Volume:	15 mL
Analyst:	JH	% Solids:	91
		Dilution Factor:	1

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons †◊	BRL		mg/Kg	1.1
n-C9 to n-C12 Aliphatic Hydrocarbons †⊗	BRL		mg/Kg	1.1
n-C9 to n-C10 Aromatic Hydrocarbons †	BRL		mg/Kg	1.1
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.1
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		mg/Kg	0.11
71-43-2	Benzene ¤	BRL		mg/Kg	0.11
108-88-3	Toluene ¤	BRL		mg/Kg	0.11
100-41-4	Ethylbenzene ‡	BRL		mg/Kg	0.11
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene ‡	BRL		mg/Kg	0.11
95-47-6	*ortho*- Xylene ‡	BRL		mg/Kg	0.11
91-20-3	Naphthalene	BRL		mg/Kg	0.54

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	2.7	2.6	96 %	70 - 130 %
2,5-Dibromotoluene (FID)	2.7	2.6	99 %	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.

⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.

¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.

‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

Massachusetts DEP VPH Method
Volatile Petroleum Hydrocarbons by GC/PID/FID

Field ID:	B4-S4	Matrix:	Soil
Project:	Elm/2241	Container:	40 mL VOA Vial
Client:	ENSOL, Inc.	Preservation:	Methanol/Cool
Laboratory ID:	94446-07	QC Batch ID:	VG3-2142-E
Sampled:	05-08-06 00:00	Instrument ID:	GC-3 HP 5890
Received:	05-08-06 18:35	Sample Weight:	14 g
Analyzed:	05-10-06 22:33	Final Volume:	15 mL
Analyst:	JH	% Solids:	95
		Dilution Factor:	1

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons †◊	BRL		mg/Kg	1.1
n-C9 to n-C12 Aliphatic Hydrocarbons †⊗	BRL		mg/Kg	1.1
n-C9 to n-C10 Aromatic Hydrocarbons †	BRL		mg/Kg	1.1
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.1
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		mg/Kg	0.11
71-43-2	Benzene ¤	BRL		mg/Kg	0.11
108-88-3	Toluene ¤	BRL		mg/Kg	0.11
100-41-4	Ethylbenzene ‡	BRL		mg/Kg	0.11
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene ‡	BRL		mg/Kg	0.11
95-47-6	*ortho*- Xylene ‡	BRL		mg/Kg	0.11
91-20-3	Naphthalene	BRL		mg/Kg	0.57

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	2.9	2.5	89 %	70 - 130 %
2,5-Dibromotoluene (FID)	2.9	2.6	90 %	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.

⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.

¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.

‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

Massachusetts DEP VPH Method
Volatile Petroleum Hydrocarbons by GC/PID/FID

Field ID:	B5-S4	Matrix:	Soil
Project:	Elm/2241	Container:	40 mL VOA Vial
Client:	ENSOL, Inc.	Preservation:	Methanol/Cool
Laboratory ID:	94446-08	QC Batch ID:	VG3-2142-E
Sampled:	05-08-06 00:00	Instrument ID:	GC-3 HP 5890
Received:	05-08-06 18:35	Sample Weight:	13 g
Analyzed:	05-10-06 23:13	Final Volume:	15 mL
Analyst:	JH	% Solids:	95
		Dilution Factor:	1

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons †◊	BRL		mg/Kg	1.2
n-C9 to n-C12 Aliphatic Hydrocarbons †⊗	BRL		mg/Kg	1.2
n-C9 to n-C10 Aromatic Hydrocarbons †	BRL		mg/Kg	1.2
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.2
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.2

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		mg/Kg	0.12
71-43-2	Benzene ¤	BRL		mg/Kg	0.12
108-88-3	Toluene ¤	BRL		mg/Kg	0.12
100-41-4	Ethylbenzene ‡	BRL		mg/Kg	0.12
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene ‡	BRL		mg/Kg	0.12
95-47-6	*ortho*- Xylene ‡	BRL		mg/Kg	0.12
91-20-3	Naphthalene	BRL		mg/Kg	0.62

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	3.1	2.7	89 %	70 - 130 %
2,5-Dibromotoluene (FID)	3.1	2.7	87 %	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.

⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.

¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.

‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

Massachusetts DEP VPH Method
Volatile Petroleum Hydrocarbons by GC/PID/FID

Field ID:	MW-1	Matrix:	Aqueous
Project:	Elm/2241	Container:	40 mL VOA Vial
Client:	ENSOL, Inc.	Preservation:	HCl/Cool
Laboratory ID:	94446-10	QC Batch ID:	VG1-2448-W
Sampled:	05-08-06 00:00	Instrument ID:	GC-1 HP 5890
Received:	05-08-06 18:35	Sample Volume:	5 mL
Analyzed:	05-11-06 23:16	Dilution Factor:	5
Analyst:	TA		

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons †◊	390		ug/L	100
n-C9 to n-C12 Aliphatic Hydrocarbons †⊗	200		ug/L	100
n-C9 to n-C10 Aromatic Hydrocarbons †	2,200		ug/L	100
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	390		ug/L	100
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	2,500		ug/L	100

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		ug/L	25
71-43-2	Benzene ¤	BRL		ug/L	5
108-88-3	Toluene ¤	BRL		ug/L	25
100-41-4	Ethylbenzene ‡	60		ug/L	25
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene ‡	80		ug/L	25
95-47-6	*ortho*- Xylene ‡	BRL		ug/L	25
91-20-3	Naphthalene	BRL		ug/L	25

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	50	50	100 %	70 - 130 %
2,5-Dibromotoluene (FID)	50	47	95 %	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.

⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.

¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.

‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

Massachusetts DEP VPH Method
Volatile Petroleum Hydrocarbons by GC/PID/FID

Field ID:	MW-2	Matrix:	Aqueous
Project:	Elm/2241	Container:	40 mL VOA Vial
Client:	ENSOL, Inc.	Preservation:	HCl/Cool
Laboratory ID:	94446-11	QC Batch ID:	VG10-2608-W
Sampled:	05-08-06 00:00	Instrument ID:	GC-10 Agilent 6890
Received:	05-08-06 18:35	Sample Volume:	5 mL
Analyzed:	05-12-06 11:58	Dilution Factor:	1
Analyst:	TA		

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons †◊	BRL		ug/L	20
n-C9 to n-C12 Aliphatic Hydrocarbons †⊗	BRL		ug/L	20
n-C9 to n-C10 Aromatic Hydrocarbons †	BRL		ug/L	20
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL		ug/L	20
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	BRL		ug/L	20

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		ug/L	5
71-43-2	Benzene ¤	BRL		ug/L	1
108-88-3	Toluene ¤	BRL		ug/L	5
100-41-4	Ethylbenzene ‡	BRL		ug/L	5
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene ‡	BRL		ug/L	5
95-47-6	*ortho*- Xylene ‡	BRL		ug/L	5
91-20-3	Naphthalene	BRL		ug/L	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	50	54	109 %	70 - 130 %
2,5-Dibromotoluene (FID)	50	53	106 %	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.

⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.

¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.

‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

Massachusetts DEP VPH Method
Volatile Petroleum Hydrocarbons by GC/PID/FID

Field ID:	MW-3	Matrix:	Aqueous
Project:	Elm/2241	Container:	40 mL VOA Vial
Client:	ENSOL, Inc.	Preservation:	HCl/Cool
Laboratory ID:	94446-12	QC Batch ID:	VG1-2448-W
Sampled:	05-08-06 00:00	Instrument ID:	GC-1 HP 5890
Received:	05-08-06 18:35	Sample Volume:	5 mL
Analyzed:	05-12-06 00:37	Dilution Factor:	1
Analyst:	TA		

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons †◊	BRL		ug/L	20
n-C9 to n-C12 Aliphatic Hydrocarbons †⊗	BRL		ug/L	20
n-C9 to n-C10 Aromatic Hydrocarbons †	BRL		ug/L	20
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL		ug/L	20
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	BRL		ug/L	20

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		ug/L	5
71-43-2	Benzene ¤	BRL		ug/L	1
108-88-3	Toluene ¤	BRL		ug/L	5
100-41-4	Ethylbenzene ‡	BRL		ug/L	5
108-38-3 and 106-42-3	*meta*-Xylene and *para*-Xylene ‡	BRL		ug/L	5
95-47-6	*ortho*- Xylene ‡	BRL		ug/L	5
91-20-3	Naphthalene	BRL		ug/L	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	50	52	104 %	70 - 130 %
2,5-Dibromotoluene (FID)	50	49	97 %	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

Report Notations:

- BRL: Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- †: Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊: n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗: n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤: Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡: Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

Project Narrative

Project:	**Elm/2241**	Lab ID:	**94446**
Client:	**ENSOL, Inc.**	Received:	**05-08-06 18:35**

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. Samples 94446-01 through -03 were analyzed by EPA 8260B versus EPA 8021B due to instrument repair.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. MA DEP VPH Note: Sample 94446-10. Sample was diluted prior to analysis. Dilution was required to keep all target analytes within calibration.
2. EPA 8260B Note: Sample 94446-01. Sample was diluted prior to analysis. Dilution was required to keep all target analytes within calibration.
3. EPA 8260B Note: Samples 94446-01, -02, -03. Samples were analyzed for select analytes only, as requested by client.
4. MA DEP EPH Note: Sample 94446-09. Sample was diluted prior to analysis. Dilution was required to keep all target analytes within calibration.

ENSOL, Inc. Chain of Custody

100 Treble Cove Road
N. Billerica, MA 01862

tel: 978-670-0755
fax: 978-670-0767

Project # & Name: 2241 ELM

Turn-Around Time: RUSH 5-days

Sampling Date: MAY 8, 2006

Sampling Time:

Sampled by: D. Wright

Comments: 2.0°C

☒ need MCP S-1/GW-1 D.L.s
☒ need MCP CAM QA/QC report (field QC sampling rqmts. met)

SAMPLE ID	MATRIX: soil	MATRIX: water	MATRIX: air		# CONTAINERS: glass jar - 8 oz.	VOA vial/jar	plastic bottle - 250 mL	amber litre		PRESERVATION: on ice	methanol - VOAs	hydrochloric acid -VOAs	sulfuric acid - litre	nitric acid	filtered - 0.45 µ		ANALYSIS REQUIRED: VOCs - 8260	VOCs - 8010 by 8021	VOCs - 8020 by 8021	TPH - fingerprint	TPH - CT	MADEP VPH w/ VOCs	MADEP EPH w/ PAHs	Lead	ABNs - 8270	PCBs - 8082	RCRA-8 metals	Priority-13 metals	TCLP	ignit. / react. / pH	sulfate / nitrate	Fe / Mn
B1A - S4	✓				1	1				✓	✓											✓	✓	✓								
B4 - S4	✓				1	1				✓	✓											✓		✓								
B5 - S4	✓				1	1				✓	✓											✓										
MW - 1		✓				3		1		✓		✓	✓					✓				✓	✓									
MW - 2		✓				3				✓		✓						✓				✓										
MW - 3		✓				3				✓		✓						✓				✓										

RELINQUISHED BY	ORGANIZATION	RELINQUISHED TO	ORGANIZATION	DATE	TIME
[signature]	ENSOL	Alan Maddigan	G.W. Analytical	5-8-06	15:30
Alan Maddigan	Groundwater A.	Amber Rabert	GWA	5-8-06	18:35

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,* US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste,* US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	MA DEP VPH	Instrument ID:	GC-3 HP 5890	Instrument ID:	GC-3 HP 5890
QC Batch ID:	VG3-2142-E	Analyzed:	05-10-06 09:25	Analyzed:	05-10-06 10:05
Matrix:	Soil	Analyst:	JH	Analyst:	JH
Units:	mg/Kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
109-66-0	*n*-Pentane	2.5	2.2	86 %	2.5	2.2	88 %	2 %	70 - 130 %	25%
107-83-5	2-Methylpentane	2.5	2.2	90 %	2.5	2.3	92 %	3 %	70 - 130 %	25%
540-84-1	2,2,4-Trimethylpentane	2.5	2.2	87 %	2.5	2.2	89 %	3 %	70 - 130 %	25%
n/a	Aliphatic Group 1	7.5	6.6	88 %	7.5	6.7	90 %	2 %	70 - 130 %	25%
111-84-2	*n*-Nonane	2.5	2.6	102 %	2.5	2.6	103 %	1 %	70 - 130 %	25%
124-18-5	*n*-Decane	2.5	2.7	110 %	2.5	2.7	107 %	3 %	70 - 130 %	25%
1678-93-9	*n*-Butylcyclohexane	2.5	2.7	108 %	2.5	2.7	109 %	0 %	70 - 130 %	25%
n/a	Aliphatic Group 2	7.5	8.0	107 %	7.5	8.0	106 %	1 %	70 - 130 %	25%
1634-04-4	Methyl *tert*-butyl Ether	2.5	2.2	88 %	2.5	2.3	91 %	3 %	70 - 130 %	25%
71-43-2	Benzene	2.5	2.5	100 %	2.5	2.6	103 %	3 %	70 - 130 %	25%
108-88-3	Toluene	2.5	2.4	95 %	2.5	2.4	98 %	2 %	70 - 130 %	25%
100-41-4	Ethylbenzene	2.5	2.5	99 %	2.5	2.5	101 %	2 %	70 - 130 %	25%
108-38-3 and 106-42-3	*meta*-Xylene and *para*-Xylene	5.0	5.0	100 %	5.0	5.1	103 %	2 %	70 - 130 %	25%
95-47-6	*ortho*- Xylene	2.5	2.3	94 %	2.5	2.4	96 %	2 %	70 - 130 %	25%
95-63-6	1,2,4-Trimethylbenzene	2.5	2.4	98 %	2.5	2.5	100 %	2 %	70 - 130 %	25%
91-20-3	Naphthalene	2.5	2.1	83 %	2.5	2.2	89 %	6 %	70 - 130 %	25%
n/a	Aromatic Group	23	21	95 %	23	22	98 %	3 %	70 - 130 %	25%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2,5-Dibromotoluene (PID)	2.5	2.3	93 %	2.5	2.3	94 %		70 - 130 %
2,5-Dibromotoluene (FID)	2.5	2.3	93 %	2.5	2.3	93 %		70 - 130 %

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	MA DEP VPH	Instrument ID:	GC-3 HP 5890
QC Batch ID:	VG3-2142-E	Analyzed:	05-10-06 10:45
Matrix:	Soil	Analyst:	JH

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons †◊	BRL		mg/Kg	1.0
n-C9 to n-C12 Aliphatic Hydrocarbons †⊗	BRL		mg/Kg	1.0
n-C9 to n-C10 Aromatic Hydrocarbons †	BRL		mg/Kg	1.0
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.0
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.0

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		mg/Kg	0.10
71-43-2	Benzene ¤	BRL		mg/Kg	0.10
108-88-3	Toluene ¤	BRL		mg/Kg	0.10
100-41-4	Ethylbenzene ‡	BRL		mg/Kg	0.10
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene ‡	BRL		mg/Kg	0.10
95-47-6	*ortho*- Xylene ‡	BRL		mg/Kg	0.10
91-20-3	Naphthalene	BRL		mg/Kg	0.10

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	2.5	2.4	96 %	70 - 130 %
2,5-Dibromotoluene (FID)	2.5	2.4	96 %	70 - 130 %

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.

⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.

¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.

‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

Category: Metals
Matrix: Soil
Units: mg/Kg

Sample Type	Method	QC Batch ID	Prep Method	Prepared	Analyzed	Instrument ID	Analyst
LCS	EPA 6010B	MB-0860-SL	EPA 3050B	05-11-06 08:03	05-11-06 15:02	ICP-1 PE 3000	MFP
LCSD	EPA 6010B	MB-0860-SL	EPA 3050B	05-11-06 08:03	05-11-06 15:05	ICP-1 PE 3000	MFP

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits		Method
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	LCS	RPD	
7439-92-1	Lead	120	98	83%	120	100	86%	2 %	80-120 %	30 %	EPA 6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **Metals**
Matrix: **Soil**

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Volume	Instrument ID	Analyst
EPA 6010B	MB-0860-SB	EPA 3050B	05-11-06 08:03	0.5 g	ICP-1 PE 3000	MFP

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7439-92-1	Lead	BRL		mg/Kg	10	1	05-11-06 14:59	EPA 6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
DF Dilution Factor.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	MA DEP EPH Method	Instrument ID:	GC-9 Agilent 6890	Instrument ID:	GC-9 Agilent 6890
QC Batch ID:	EP-2310-M	Extracted:	05-10-06 20:00	Extracted:	05-10-06 20:00
Matrix:	Soil	Analyzed (AL):	05-15-06 18:53	Analyzed (AL):	05-15-06 20:21
Units:	mg/Kg	Analyzed (AR):	05-15-06 19:37	Analyzed (AR):	05-15-06 21:05
		Analyst:	CMM	Analyst:	CMM

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
111-84-2	*n*-Nonane (C_9)	3.3	2.0	60 %	3.3	2.1	62 %	3 %	30 - 140 %	25%
124-18-5	*n*-Decane (C_{10})	3.3	2.3	68 %	3.3	2.3	70 %	2 %	40 - 140 %	25%
112-40-3	*n*-Dodecane (C_{12})	3.3	2.3	70 %	3.3	2.4	73 %	4 %	40 - 140 %	25%
629-59-4	*n*-Tetradecane (C_{14})	3.3	2.6	79 %	3.3	2.6	80 %	2 %	40 - 140 %	25%
544-76-3	*n*-Hexadecane (C_{16})	3.3	2.9	88 %	3.3	3.0	91 %	3 %	40 - 140 %	25%
593-45-3	*n*-Octadecane (C_{18})	3.3	3.3	99 %	3.3	3.4	102 %	3 %	40 - 140 %	25%
n/a	*n*-C9 to *n*-C18 Group	20	15	77 %	20	16	80 %	3 %	40 - 140 %	25%
629-92-5	*n*-Nonadecane (C_{19})	3.3	3.2	96 %	3.3	3.2	96 %	0 %	40 - 140 %	25%
112-95-8	*n*-Eicosane (C_{20})	3.3	3.1	94 %	3.3	3.2	98 %	4 %	40 - 140 %	25%
629-97-0	*n*-Docosane (C_{22})	3.3	3.1	93 %	3.3	3.2	96 %	4 %	40 - 140 %	25%
646-31-1	*n*-Tetracosane (C_{24})	3.3	2.8	85 %	3.3	2.9	88 %	4 %	40 - 140 %	25%
630-01-3	*n*-Hexacosane (C_{26})	3.3	2.8	86 %	3.3	2.9	89 %	4 %	40 - 140 %	25%
630-02-4	*n*-Octacosane (C_{28})	3.3	2.7	83 %	3.3	2.8	86 %	4 %	40 - 140 %	25%
638-68-6	*n*-Triacontane (C_{30})	3.3	2.7	81 %	3.3	2.8	84 %	4 %	40 - 140 %	25%
630-06-8	*n*-Hexatriacontane (C_{36})	3.3	2.4	73 %	3.3	2.5	75 %	3 %	40 - 140 %	25%
n/a	*n*-C19 to *n*-C36 Group	26	23	86 %	26	24	89 %	3 %	40 - 140 %	25%
91-20-3	Naphthalene	3.3	2.3	69 %	3.3	2.3	70 %	1 %	40 - 140 %	25%
91-57-6	2-Methylnaphthalene	3.3	2.5	75 %	3.3	2.5	76 %	1 %	40 - 140 %	25%
208-96-8	Acenaphthylene	3.3	2.5	76 %	3.3	2.6	77 %	1 %	40 - 140 %	25%
83-32-9	Acenaphthene	3.3	2.6	79 %	3.3	2.6	80 %	1 %	40 - 140 %	25%
86-73-7	Fluorene	3.3	2.8	84 %	3.3	2.8	85 %	1 %	40 - 140 %	25%
85-01-8	Phenanthrene	3.3	3.0	92 %	3.3	3.1	94 %	2 %	40 - 140 %	25%
120-12-7	Anthracene	3.3	3.2	98 %	3.3	3.3	100 %	2 %	40 - 140 %	25%
206-44-0	Fluoranthene	3.3	3.1	93 %	3.3	3.2	96 %	3 %	40 - 140 %	25%
129-00-0	Pyrene	3.3	3.1	95 %	3.3	3.1	95 %	0 %	40 - 140 %	25%
56-55-3	Benzo[a]anthracene	3.3	3.1	94 %	3.3	3.1	95 %	1 %	40 - 140 %	25%
218-01-9	Chrysene	3.3	3.0	92 %	3.3	3.1	95 %	3 %	40 - 140 %	25%
205-99-2	Benzo[b]fluoranthene	3.3	2.7	81 %	3.3	2.8	84 %	3 %	40 - 140 %	25%
207-08-9	Benzo[k]fluoranthene	3.3	2.9	88 %	3.3	3.0	90 %	2 %	40 - 140 %	25%
50-32-8	Benzo[a]pyrene	3.3	2.8	84 %	3.3	2.9	87 %	4 %	40 - 140 %	25%
193-39-5	Indeno[1,2,3-c,d]pyrene	3.3	2.7	83 %	3.3	2.8	86 %	4 %	40 - 140 %	25%
53-70-3	Dibenzo[a,h]anthracene	3.3	2.8	84 %	3.3	2.8	86 %	2 %	40 - 140 %	25%
191-24-2	Benzo[g,h,i]perylene	3.3	2.7	81 %	3.3	2.8	85 %	4 %	40 - 140 %	25%
n/a	PAH Group	56	48	85 %	56	49	87 %	2 %	40 - 140 %	25%

QC Surrogate Compound		Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Fractionation:	2-Fluorobiphenyl	2.7	2.6	96 %	2.7	2.5	93 %		40 - 140 %
	2-Bromonaphthalene	2.7	2.6	96 %	2.7	2.5	93 %		40 - 140 %
Extraction:	Chloro-octadecane	2.7	2.4	89 %	2.7	2.4	89 %		40 - 140 %
	ortho-Terphenyl	2.7	2.4	89 %	2.7	2.5	93 %		40 - 140 %

Fractionation Breakthrough Evaluation						QC Limits
91-20-3	Naphthalene	LCS	0 %	LCSD	0 %	5%
91-57-6	2-Methylnaphthalene	LCS	1 %	LCSD	1 %	5%

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Method modified by use of microwave accelerated solvent extraction technique.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

The LCS and LCSD are prepared from separate source standards than those used for calibration.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	MA DEP EPH	Instrument ID:	GC-9 Agilent 6890
QC Batch ID:	EP-2310-M	Extracted:	05-10-06 20:00
Matrix:	Soil	Analyzed (AL):	05-15-06 17:25
		Analyzed (AR):	05-15-06 18:09
		Analyst:	CMM

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	30
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	30
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	30
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	30

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	0.50
91-57-6	2-Methylnaphthalene	BRL		mg/Kg	0.50
85-01-8	Phenanthrene	BRL		mg/Kg	0.50
83-32-9	Acenaphthene	BRL		mg/Kg	0.50
208-96-8	Acenaphthylene	BRL		mg/Kg	0.50
86-73-7	Fluorene	BRL		mg/Kg	0.50
120-12-7	Anthracene	BRL		mg/Kg	0.50
206-44-0	Fluoranthene	BRL		mg/Kg	0.50
129-00-0	Pyrene	BRL		mg/Kg	0.50
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.50
218-01-9	Chrysene	BRL		mg/Kg	0.50
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.50
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.50
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.50
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.50
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.50
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.50

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	2.7	2.5	96 %	40 - 140 %
	2-Bromonaphthalene	2.7	2.4	89 %	40 - 140 %
Extraction:	Chloro-octadecane	2.7	2.5	93 %	40 - 140 %
	ortho-Terphenyl	2.7	2.4	91 %	40 - 140 %

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Sample extraction performed by microwave accelerated solvent extraction technique.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	MA DEP EPH Method	Instrument ID:	GC-9 Agilent 6890	Instrument ID:	GC-9 Agilent 6890
QC Batch ID:	EP-1732-F	Extracted:	05-11-06 10:00	Extracted:	05-11-06 10:00
Matrix:	Aqueous	Analyzed (AL):	05-12-06 00:43	Analyzed (AL):	05-12-06 02:11
Units:	ug/L	Analyzed (AR):	05-12-06 01:27	Analyzed (AR):	05-12-06 02:55
		Analyst:	CMM	Analyst:	CMM

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
111-84-2	*n*-Nonane (C_9)	50	23	45 %	50	24	49 %	7 %	30 - 140 %	25%
124-18-5	*n*-Decane (C_{10})	50	27	54 %	50	29	57 %	6 %	40 - 140 %	25%
112-40-3	*n*-Dodecane (C_{12})	50	28	57 %	50	31	61 %	7 %	40 - 140 %	25%
629-59-4	*n*-Tetradecane (C_{14})	50	32	63 %	50	34	69 %	8 %	40 - 140 %	25%
544-76-3	*n*-Hexadecane (C_{16})	50	36	72 %	50	39	78 %	7 %	40 - 140 %	25%
593-45-3	*n*-Octadecane (C_{18})	50	40	81 %	50	44	88 %	9 %	40 - 140 %	25%
n/a	*n*-C9 to *n*-C18 Group	300	190	62 %	300	200	67 %	8 %	40 - 140 %	25%
629-92-5	*n*-Nonadecane (C_{19})	50	40	79 %	50	43	86 %	8 %	40 - 140 %	25%
112-95-8	*n*-Eicosane (C_{20})	50	40	79 %	50	44	87 %	10 %	40 - 140 %	25%
629-97-0	*n*-Docosane (C_{22})	50	40	81 %	50	45	89 %	10 %	40 - 140 %	25%
646-31-1	*n*-Tetracosane (C_{24})	50	37	75 %	50	42	83 %	11 %	40 - 140 %	25%
630-01-3	*n*-Hexacosane (C_{26})	50	38	75 %	50	42	84 %	11 %	40 - 140 %	25%
630-02-4	*n*-Octacosane (C_{28})	50	37	73 %	50	41	82 %	12 %	40 - 140 %	25%
638-68-6	*n*-Triacontane (C_{30})	50	37	73 %	50	41	82 %	12 %	40 - 140 %	25%
630-06-8	*n*-Hexatriacontane (C_{36})	50	33	67 %	50	38	75 %	12 %	40 - 140 %	25%
n/a	*n*-C19 to *n*-C36 Group	400	300	75 %	400	330	84 %	11 %	40 - 140 %	25%
91-20-3	Naphthalene	50	27	54 %	50	35	69 %	24 %	40 - 140 %	25%
91-57-6	2-Methylnaphthalene	50	29	58 %	50	37	75 %	24 %	40 - 140 %	25%
208-96-8	Acenaphthylene	50	29	59 %	50	38	75 %	25 %	40 - 140 %	25%
83-32-9	Acenaphthene	50	30	61 %	50	39	78 %	24 %	40 - 140 %	25%
86-73-7	Fluorene	50	32	64 %	50	41	81 %	23 %	40 - 140 %	25%
85-01-8	Phenanthrene	50	35	70 %	50	44	88 %	23 %	40 - 140 %	25%
120-12-7	Anthracene	50	38	76 %	50	47	93 %	20 %	40 - 140 %	25%
206-44-0	Fluoranthene	50	36	72 %	50	45	90 %	22 %	40 - 140 %	25%
129-00-0	Pyrene	50	36	72 %	50	45	90 %	22 %	40 - 140 %	25%
56-55-3	Benzo[a]anthracene	50	36	72 %	50	44	89 %	21 %	40 - 140 %	25%
218-01-9	Chrysene	50	38	76 %	50	45	91 %	18 %	40 - 140 %	25%
205-99-2	Benzo[b]fluoranthene	50	35	70 %	50	43	87 %	21 %	40 - 140 %	25%
207-08-9	Benzo[k]fluoranthene	50	39	79 %	50	47	94 %	17 %	40 - 140 %	25%
50-32-8	Benzo[a]pyrene	50	37	75 %	50	45	90 %	19 %	40 - 140 %	25%
193-39-5	Indeno[1,2,3-c,d]pyrene	50	38	76 %	50	47	93 %	20 %	40 - 140 %	25%
53-70-3	Dibenzo[a,h]anthracene	50	38	76 %	50	44	89 %	15 %	40 - 140 %	25%
191-24-2	Benzo[g,h,i]perylene	50	37	74 %	50	45	89 %	18 %	40 - 140 %	25%
n/a	PAH Group	850	590	70 %	850	730	86 %	21 %	40 - 140 %	25%

QC Surrogate Compound		Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Fractionation:	2-Fluorobiphenyl	40	31	78 %	40	38	94 %		40 - 140 %
	2-Bromonaphthalene	40	31	77 %	40	37	93 %		40 - 140 %
Extraction:	Chloro-octadecane	40	29	72 %	40	33	82 %		40 - 140 %
	ortho-Terphenyl	40	28	70 %	40	35	87 %		40 - 140 %

Fractionation Breakthrough Evaluation						QC Limits
91-20-3	Naphthalene	LCS	0 %	LCSD	0 %	5%
91-57-6	2-Methylnaphthalene	LCS	3 %	LCSD	2 %	5%

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Sample extraction performed by separatory funnel technique.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

The LCS and LCSD are prepared from separate source standards than those used for calibration.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	MA DEP EPH	Instrument ID:	GC-9 Agilent 6890
QC Batch ID:	EP-1732-F	Extracted:	05-11-06 10:00
Matrix:	Aqueous	Analyzed (AL):	05-11-06 23:19
		Analyzed (AR):	05-12-06 00:00
		Analyst:	CMM

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		ug/L	500
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		ug/L	500
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		ug/L	150
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		ug/L	150

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	40	33	84 %	40 - 140 %
	2-Bromonaphthalene	40	32	79 %	40 - 140 %
Extraction:	Chloro-octadecane	40	33	83 %	40 - 140 %
	ortho-Terphenyl	40	31	77 %	40 - 140 %

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by separatory funnel technique.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA 8270C Modified	Instrument ID:	MS-6 HP 6890	Instrument ID:	MS-6 HP 6890
QC Batch ID:	EP-1732-F	Extracted:	05-11-06 10:00	Extracted:	05-11-06 10:00
Matrix:	Aqueous	Analyzed:	05-12-06 00:20	Analyzed:	05-12-06 01:00
Units:	ug/L	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
91-20-3	Naphthalene	5.0	2.7	53 %	5.0	2.8	55 %	4 %	40 - 140 %	20%
91-57-6	2-Methylnaphthalene	5.0	2.9	58 %	5.0	3.1	61 %	6 %	40 - 140 %	20%
85-01-8	Phenanthrene	5.0	3.3	66 %	5.0	3.5	70 %	6 %	40 - 140 %	20%
83-32-9	Acenaphthene	5.0	3.4	68 %	5.0	3.6	72 %	6 %	40 - 140 %	20%
208-96-8	Acenaphthylene	5.0	3.2	64 %	5.0	3.3	67 %	5 %	40 - 140 %	20%
86-73-7	Fluorene	5.0	3.5	70 %	5.0	3.7	73 %	4 %	40 - 140 %	20%
120-12-7	Anthracene	5.0	3.3	66 %	5.0	3.5	69 %	4 %	40 - 140 %	20%
206-44-0	Fluoranthene	5.0	3.6	71 %	5.0	3.9	77 %	8 %	40 - 140 %	20%
129-00-0	Pyrene	5.0	3.5	70 %	5.0	3.7	74 %	6 %	40 - 140 %	20%
56-55-3	Benzo[a]anthracene	5.0	3.8	75 %	5.0	4.0	80 %	6 %	40 - 140 %	20%
218-01-9	Chrysene	5.0	3.5	70 %	5.0	3.7	75 %	6 %	40 - 140 %	20%
205-99-2	Benzo[b]fluoranthene	5.0	3.6	73 %	5.0	3.9	79 %	8 %	40 - 140 %	20%
207-08-9	Benzo[k]fluoranthene	5.0	3.7	73 %	5.0	3.8	77 %	5 %	40 - 140 %	20%
50-32-8	Benzo[a]pyrene	5.0	3.9	79 %	5.0	4.2	84 %	7 %	40 - 140 %	20%
193-39-5	Indeno[1,2,3-c,d]pyrene	5.0	3.7	74 %	5.0	3.9	79 %	7 %	40 - 140 %	20%
53-70-3	Dibenzo[a,h]anthracene	5.0	3.4	68 %	5.0	3.7	74 %	7 %	40 - 140 %	20%
191-24-2	Benzo[g,h,i]perylene	5.0	3.9	77 %	5.0	4.1	82 %	6 %	40 - 140 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
ortho -Terphenyl	40	25	63 %	40	25	63 %		40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3510C.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

The LCS and LCSD are prepared from separate source standards than those used for calibration.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	EPA Method 8270C (Mod.) - EPH PAHs by GC/MS-SIM	Instrument ID:	MS-6 HP 6890
QC Batch ID:	EP-1732-F	Extracted:	05-11-06 10:00
Matrix:	Aqueous	Analyzed:	05-12-06 01:39
		Analyst:	MJB

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		ug/L	0.5
91-57-6	2-Methylnaphthalene	BRL		ug/L	0.5
208-96-8	Acenaphthylene	BRL		ug/L	0.5
83-32-9	Acenaphthene	BRL		ug/L	0.5
86-73-7	Fluorene	BRL		ug/L	0.5
85-01-8	Phenanthrene	BRL		ug/L	0.5
120-12-7	Anthracene	BRL		ug/L	0.5
206-44-0	Fluoranthene	BRL		ug/L	0.5
129-00-0	Pyrene	BRL		ug/L	0.5
56-55-3	Benzo[a]anthracene	BRL		ug/L	0.1
218-01-9	Chrysene	BRL		ug/L	0.1
205-99-2	Benzo[b]fluoranthene	BRL		ug/L	0.1
207-08-9	Benzo[k]fluoranthene	BRL		ug/L	0.1
50-32-8	Benzo[a]pyrene	BRL		ug/L	0.1
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/L	0.1
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/L	0.1
191-24-2	Benzo[g,h,i]perylene	BRL		ug/L	0.1

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	40	23	59 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3510C.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states. Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT, Department of Health Services, PH-0586

Categories: Potable Water, Wastewater, Solid Waste and Soil
http://www.dph.state.ct.us/BRS/Environmental_Lab/OutStateLabList.htm

FLORIDA, Department of Health, Bureau of Laboratories, E87643

Categories: SDWA, CWA, RCRA/CERCLA
http://www.floridadep.org/labs/qa/dohforms.htm

MAINE, Department of Human Services, MA103

Categories: Drinking Water and Wastewater
http://www.state.me.us/dhs/eng/water/Compliance.htm

MASSACHUSETTS, Department of Environmental Protection, M-MA-103

Categories: Potable Water and Non-Potable Water
http://www.state.ma.us/dep/bspt/wes/files/certlabs.pdf

NEW HAMPSHIRE, Department of Environmental Services, 202703

Categories: Drinking Water and Wastewater
http://www.des.state.nh.us/asp/NHELAP/labsview.asp

NEW YORK, Department of Health, 11754

Categories: Potable Water, Non-Potable Water and Solid Waste
http://www.wadsworth.org/labcert/elap/comm.html

PENNSYLVANIA, Department of Environmental Protection, 68-665

Environmental Laboratory Registration (Non-drinking water and Non-wastewater)
http://www.dep.state.pa.us/Labs/Registered/

RHODE ISLAND, Department of Health, 54

Categories: Surface Water, Air, Wastewater, Potable Water, Sewage
http://www.healthri.org/labs/labsCT_MA.htm

U.S. Department of Agriculture, Soil Permit, S-53921

Foreign soil import permit

VERMONT, Department of Environmental Conservation, Water Supply Division

Category: Drinking Water
http://www.vermontdrinkingwater.org/wsops/labtable.PDF

APPENDIX F:

BEST MANAGEMENT PRACTICE 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 dewatering that may occur at the 111 Elm Street property located in Newton, 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

If groundwater is encountered during construction, dewatering effluent is anticipated to be pumped from localized sumps and trenches within the excavations directly into a settling tank. The effluent will then flow through any necessary treatment systems and discharge through hoses into a storm water catch basin located on Elm Street. Based upon a review of the City of Newton stormwater drain GIS database, the stormwater drain beneath Elm Street ultimately discharges into the Charles River. Dewatering effluent treatment may consist of bag filters, GAC filtration or ion exchange, as required.

Discharge Monitoring and Compliance

Regular sampling and testing will be conducted at the influent to the system and the treated effluent as required by the RGP. This includes chemical testing required within days 1and 3 of initial discharge 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.

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 settling tanks, bag filters, resin filter system, 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 Contractor.

Miscellaneous Items

It is anticipated that the erosion control measures and the nature of the site will minimize potential runoff to or from the site. The project specifications also include requirements for erosion control. Site security for the treatment system will be covered within the overall site security plan.

No adverse affects on designated uses of surrounding surface water bodies is anticipated. The nearest surface water body is the Cheesecake Brook which is located 2,000 feet to the west of the subject site. Dewatering effluent will be pumped to a settling tank. Water within the settling tank will pumped through bag filters and a ion resin exchange system in series prior to discharge to the storm drains.

Management of Treatment System Materials

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 for equipment or materials storage that may be possible sources of pollution away from any dewatering activities, to the extent practicable.

Sediment from the tank used in the treatment system will be characterized and removed from the site to an appropriate receiving facility, in accordance with applicable laws and regulations. If used, the ion exchange resin may be recycled and/or removed from the site to an appropriate receiving facility. Bag filters carbon filtration resin will be disposed of as necessary.