HARVARD

CAMPUS SERVICES

Environmental Health & Safety

July 20, 2015

US Environmental Protection Agency
Dewatering GP Processing
Industrial Permit Unit (OEP 06-4)
5 Post Office Square – Suite 100
Boston, MA 02109-3912
Tracking #: 7014 1820 0000 8968 7920
Email: GeneralPermit.Dewatering@epa.gov

Re: Notice of Intent (NOI) – Harvard University Business School – Dewatering General Permit

To Whom it May Concern:

Please find enclosed a Notice of Intent (NOI) for coverage under the Dewatering General Permit for building foundation sumps located at Harvard University's Business School Campus in Allston, Massachusetts. This NOI is being submitted to obtain continued coverage for the site under the previous General Permit, MAG070323. The buildings covered by this NOI on the campus include Baker Hall, McCulloch Hall, and Shad Hall all of which have foundation dewatering activities.

The NOI follows the requirements as defined by the EPA and is being submitted concurrently to the Massachusetts Department of Environmental Protection. The NOI has been completed using the EPA's Suggested NOI Format and includes supporting data in attachments.

Should you have any questions, please contact me at 617-496-2445.

Sincerely,

Kathryn Kaminski, CHMM
Associate Director of Environmental Programs

Ecc: Gary Kassabian, Sean Reagan, Joshua Fawson, Kelly McQueeney – Harvard EHS
Jason Munro – Harvard Business School
Suzanne Warner – EPA
Robert Kubit - MassDEP

Cc: Massachusetts Department of Environmental Protection
Division of Watershed Management
8 New Bond Street
Worcester, MA 01606
Tracking #: 7014 1820 0000 8968 7913

II. Suggested Notice of Intent (NOI) Format

1. General facility information. Please provide the following information about the facility.

a) Name of facility:
Harvard Business School, Harvard University

Mailing Address for the Facility:
Harvard EH&S
46 Blackstone Street
Cambridge, MA 02139

b) Location Address of the Facility (if different from mailing address):
Harvard Business School, Shad Hall, 70 North Harvard Street, Boston, MA 02163

Facility Location
longitude: 71.123 N
latitude: 42.366 N

Type of Business:
University

Facility SIC codes:
8221

c) Name of facility owner: President and Fellows of Harvard College **Owner's email:** kathryn_kaminski@harvard.edu

Owner's Tel #: (617) 496-2445 **Owner's Fax #:** (617) 496-5509

Address of owner (if different from facility address)
Harvard University
1033 Massachusetts Avenue
Cambridge, MA 02139

Owner is (check one): 1. Federal____ 2. State_____ 3. Private__✔__ 4. Other _____(Describe)_____

Legal name of Operator, if not owner Harvard Business School

Operator Contact Name: Jason Munro

Operator Tel Number: (617) 495-1353 **Fax Number:** (617) 495-8640

Operator's email: jmunro@hbs.edu

Operator Address (if different from owner)

70 North Harvard Street, Boston, MA 02163

d) Attach a topographic map indicating the location of the facility and the outfall(s) to the receiving water. Map attached? __✔__ See Attachment 1 - Site Topographic Map

e) Check Yes or No for the following:

1. **Has a prior NPDES permit been granted for the discharge? Yes ✔___ No___ If Yes, Permit Number:** MAG070323
2. **Is the discharge a "new discharger" as defined by 40 CFR Section 122.2? Yes_____ No__✔__**
3. **Is the facility covered by an individual NPDES permit? Yes_____ No__✔__ If Yes, Permit Number ____**
4. **Is there a pending application on file with EPA for this discharge? Yes _____ No __✔__ If Yes, date of submittal:**

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

a) Name of receiving water into which discharge will occur: Charles River - BU Bridge to New Charles River Dam

State Water Quality Classification: B **Freshwater:** YES **Marine Water:** _____

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

- ☐ **1. Construction dewatering of groundwater intrusion and/or storm water accumulation.**
- ☐ **2. Short-term or long-term dewatering of foundation sumps.**
- ☐ **3. Other.**

Discharge Activity 2

Table 1 - NPDES Flow and pH Data			
January - June 2015	GPMo. Avg.	GPD Avg.	GPD Max
Baker	6,976	232	254
Shad	5,947	198	245
McCollough	5,700	189	214

c) Number of outfalls 3

For each outfall:

d) Estimate the maximum daily and average monthly flow of the discharge (in gallons per day – GPD). Max Daily Flow See table 1 above **GPD**
Average Monthly Flow See table 1 **GPD**

e.) What is the maximum and minimum monthly pH of the discharge (in s.u.)? Max pH <9 **Min pH** >6

f.) Identify the source of the discharge (i.e. potable water, surface water, or groundwater). If groundwater, the facility shall submit effluent test results, as required in Section 4.4.5 of the General Permit.

Discharge source is ground water see Attachment 2 - Groundwater Sampling Results

g.) What treatment does the wastewater receive prior to discharge?

Ground Water from McCulloch is pumped through a bag filter prior to discharge to remove TSS.

h.) Is the discharge continuous? Yes ✔ **No** ☐ **If no, is the discharge periodic (P) (occurs regularly, i.e., monthly or seasonally, but is not continuous all year) or intermittent (I) (occurs sometimes but not regularly) or both (B)** _____
If (P), number of days or months per year of the discharge _____ **and the specific months of discharge** _____;
If (I), number of days/year there is a discharge _____
Is the discharge temporary? Yes ☐ **No** ✔
If yes, approximate start date of dewatering _____ **approximate end date of dewatering** _____

i.) Latitude and longitude of each discharge within 100 feet (See http://www.epa.gov/tri/report/siting_tool): Outfall 1: long. 71.118 W **lat.** 42.366 N **; Outfall 2: long.** 71.122 W **lat.** 42.368 N **; Outfall 3: long.** 71.124 W **lat.** 42.369 N **.**

j.) If the source of the discharge is potable water, please provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water and attach any calculation sheets used to support stream flow and dilution calculations NOT APPLICABLE **cfs**
(See Appendix VII for equations and additional information)

MASSACHUSETTS FACILITIES: See Section 3.4 and Appendix 1 of the General Permit for more information on Areas of Critical Environmental Concern (ACEC):

See Attachment 3 -Areas of Critical Environmental Concern

k.) Does the discharge occur in an ACEC? Yes _____ No __✔__
If yes, provide the name of the ACEC: _____

3. Contaminant Information

a) Are any pH neutralization and/or dechlorination chemicals used in the discharge? If so, include the chemical name and manufacturer; maximum and average daily quantity used as well as the maximum and average daily expected concentrations (mg/l) in the discharge, and the vendor's reported aquatic toxicity (NOAEL and/or LC_{50} in percent for aquatic organism(s)). There are no treatment chemiclas used.

b) Please report any known remediation activities or water-quality issues in the vicinity of the discharge. See Attachment 4 - Remediation Activities

4. Determination of Endangered Species Act Eligibility: Provide documentation of ESA eligibility as required at Part 3.4 and Appendix IV. In addition, respond to the following questions.

a) Which of the three eligibility criteria listed in Appendix IV, Criterion (A, B, or C) have you met? A_____

b) Please attach documentation with your NOI supporting your response. Please see Appendix IV for acceptable documentation

See Attachment 5 - Endangered Species: Designated Critical Habitat

5. Documentation of National Historic Preservation Act requirements: Please respond to the following questions:

a) See Screening Process in Appendix III and respond to questions regarding your site and any historic properties listed or eligible for listing on the National Register of Historic Places. Question 1: Yes __✔__ No ____ ; Question 2: No __✔__ Yes _____

b) Have any State or Tribal historic preservation officers been consulted in this determination? Yes _____ or No __✔__ If yes, attach the results of the consultation(s).

c) Which of the three National Historic Preservation Act eligibility criterion listed in Appendix III, Criterion (A, B, or C) have you met? A_____

d) Is the project located on property of religious or cultural significance to an Indian Tribe? Yes _____ or No ____ If yes, provide that name of the Indian Tribe associated with the property. _____

See Attachment 6 - National Historic Preservation Act

6. 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

7. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22 (see below) including the following certification:

I certify under penalty of law that (1) no biocides or other chemical additives except for those used for pH adjustment and/or dechlorination are used in the dewatering system; (2) the discharge consists solely of dewatering and authorized pH adjustment and/or dechlorination chemicals; (3) the discharge does not come in contact with any raw materials, intermediate product, water product or finished product; (4) if the discharge of dewatering subsequently mixes with other permitted wastewater (i.e. stormwater) prior to discharging to the receiving water, any monitoring provided under this permit will be only for dewatering discharge; (5) where applicable, the facility has complied with the requirements of this permit specific to the Endangered Species Act and National Historic Preservation Act; and (6) 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 Name: Harvard University - Harvard Business School

Operator signature:

Print Full Name and Title: Kathryn Kaminski - Associate Director of Environmental Programs
Duly authorized representative per 40 CFR 122.22 notification sumbitted December 2013)

Date: 7/20/2015

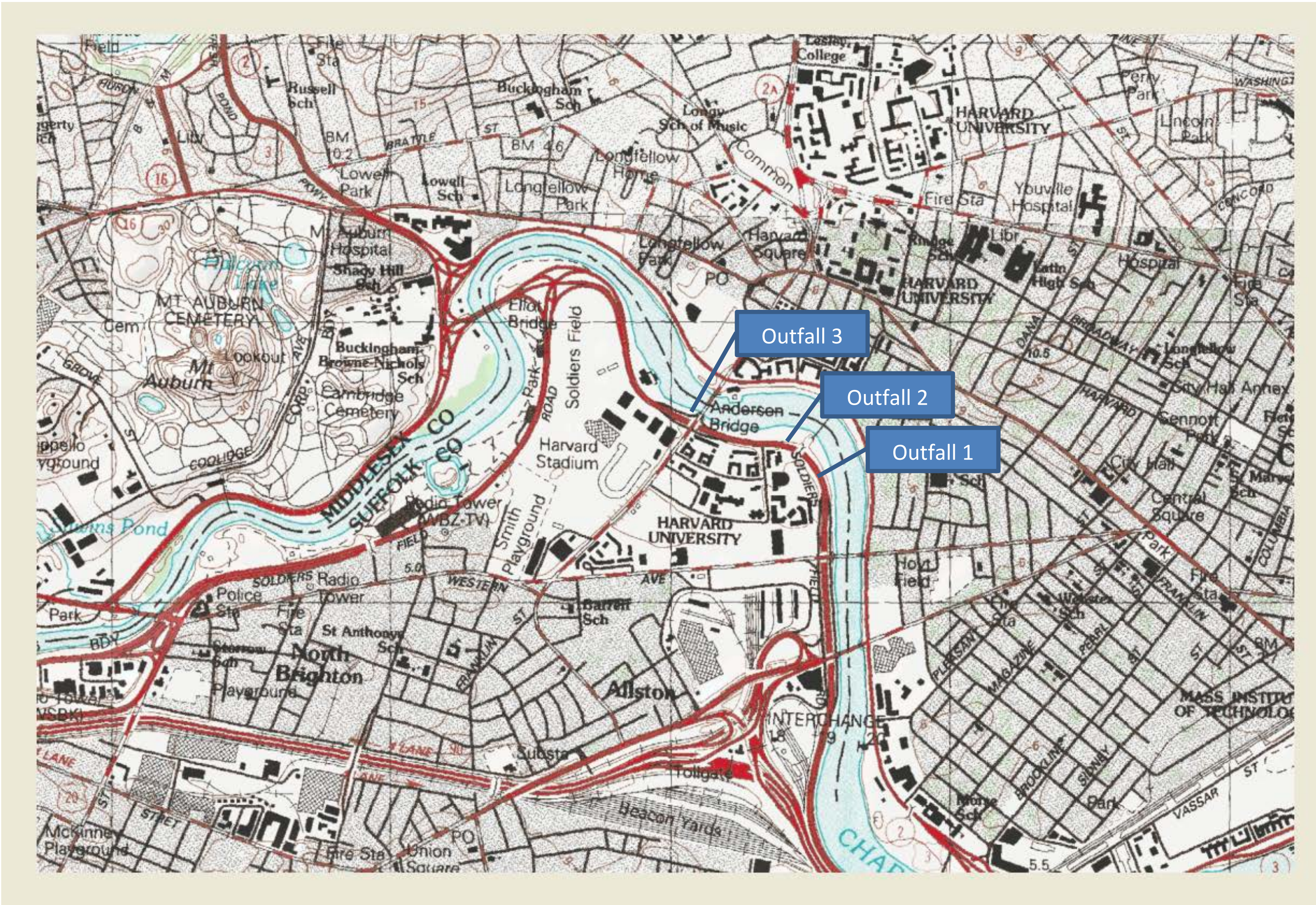
Federal regulations require this application to be signed as follows:

1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For partnership or sole proprietorship, by a general partner or the proprietor, respectively, or,
3. For a municipality, State, Federal or other public facility, by either a principal executive officer or ranking elected official.

Attachment 1

Site Topographic Map

Harvard Business School USGS Map



Attachment 2

Groundwater Sampling Results

Groundwater Sampling Results

All three discharge locations were non-detect for: antimony, arsenic, cadmium, chromium, mercury, nickel, silver, and zinc. Analytical results for copper and iron exceeded the EPA effluent limits of 5.2 ug/1 (copper) 1,000 ug/1 (iron) found in MAG910000, Appendix III, but are below the dilution factor adjusted limits for these metals as described below.

Per instructions contained in Appendix III, IV, and V of the Remediation & Miscellaneous Contaminated Sites General Permit (RGP MAG910000) the dilution factor for this discharge was calculated using the 2014 Charles River 7Q10 flow factor of 21.3 cfs.

- Qd = 0.00112 cfs (21,673 gallons per month) Maximum flow rate of the discharge in cubic feet per second.
- Qs = 21.3 cfs (7Q10 2014 Charles River MIT)
- Dilution Factor (DF) = (Qd + Qs)/Qd = 19,040

A DF over 100 corresponds to a dilution concentration limit of 520 ug/1 for copper and 5,000 ug/1 for iron therefore this discharge meets the eligibility requirements referenced in MAG070000 Appendix V 3.c.

ANALYTICAL REPORT

Lab Number:	L1515183
Client:	Harvard University EH&S 46 Blackstone Street Cambridge, MA 02139
ATTN:	Katheryn Gullifa
Phone:	(617) 496-2445
Project Name:	HARVARD BUSINESS SCHOOL
Project Number:	Not Specified
Report Date:	07/13/15

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), VA (460195), MD (348), IL (200077), NC (666), TX (T104704476), DOD (L2217), USDA (Permit #P-330-11-00240).

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

Project Name: HARVARD BUSINESS SCHOOL
Project Number: Not Specified

Lab Number: L1515183
Report Date: 07/13/15

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1515183-01	BAKER HALL	WATER	117 WESTERN AVE., BRIGHTON, MA	07/02/15 09:15	07/02/15
L1515183-02	SHAD HALL	WATER	117 WESTERN AVE., BRIGHTON, MA	07/02/15 08:45	07/02/15
L1515183-03	MCCULLOCH HALL	WATER	117 WESTERN AVE., BRIGHTON, MA	07/02/15 09:00	07/02/15

Project Name: HARVARD BUSINESS SCHOOL **Lab Number:** L1515183
Project Number: Not Specified **Report Date:** 07/13/15

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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

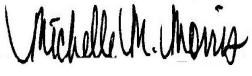
In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

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

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

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

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

Authorized Signature:  Michelle M. Morris

Title: Technical Director/Representative Date: 07/13/15

METALS

Project Name: HARVARD BUSINESS SCHOOL
Lab Number: L1515183
Project Number: Not Specified
Report Date: 07/13/15

SAMPLE RESULTS

Lab ID: L1515183-01
Client ID: BAKER HALL
Sample Location: 117 WESTERN AVE., BRIGHTON, MA
Matrix: Water
Date Collected: 07/02/15 09:15
Date Received: 07/02/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Antimony, Total	ND		mg/l	0.050	--	1	07/04/15 19:45	07/10/15 21:16	EPA 3005A	19,200.7	JH
Arsenic, Total	ND		mg/l	0.005	--	1	07/04/15 19:45	07/10/15 21:16	EPA 3005A	19,200.7	JH
Cadmium, Total	ND		mg/l	0.005	--	1	07/04/15 19:45	07/10/15 21:16	EPA 3005A	19,200.7	JH
Chromium, Total	ND		mg/l	0.01	--	1	07/04/15 19:45	07/10/15 21:16	EPA 3005A	19,200.7	JH
Copper, Total	ND		mg/l	0.010	--	1	07/04/15 19:45	07/10/15 21:16	EPA 3005A	19,200.7	JH
Iron, Total	2.4		mg/l	0.05	--	1	07/04/15 19:45	07/10/15 21:16	EPA 3005A	19,200.7	JH
Lead, Total	ND		mg/l	0.010	--	1	07/04/15 19:45	07/10/15 21:16	EPA 3005A	19,200.7	JH
Mercury, Total	ND		mg/l	0.00020	--	1	07/03/15 10:05	07/03/15 14:10	EPA 245.1	3,245.1	EA
Nickel, Total	ND		mg/l	0.025	--	1	07/04/15 19:45	07/10/15 21:16	EPA 3005A	19,200.7	JH
Silver, Total	ND		mg/l	0.007	--	1	07/04/15 19:45	07/10/15 21:16	EPA 3005A	19,200.7	JH
Zinc, Total	ND		mg/l	0.050	--	1	07/04/15 19:45	07/10/15 21:16	EPA 3005A	19,200.7	JH

Project Name: HARVARD BUSINESS SCHOOL
Lab Number: L1515183
Project Number: Not Specified
Report Date: 07/13/15

SAMPLE RESULTS

Lab ID: L1515183-02
Client ID: SHAD HALL
Sample Location: 117 WESTERN AVE., BRIGHTON, MA
Matrix: Water
Date Collected: 07/02/15 08:45
Date Received: 07/02/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Antimony, Total	ND		mg/l	0.050	--	1	07/04/15 19:45	07/10/15 21:20	EPA 3005A	19,200.7	JH
Arsenic, Total	ND		mg/l	0.005	--	1	07/04/15 19:45	07/10/15 21:20	EPA 3005A	19,200.7	JH
Cadmium, Total	ND		mg/l	0.005	--	1	07/04/15 19:45	07/10/15 21:20	EPA 3005A	19,200.7	JH
Chromium, Total	ND		mg/l	0.01	--	1	07/04/15 19:45	07/10/15 21:20	EPA 3005A	19,200.7	JH
Copper, Total	ND		mg/l	0.010	--	1	07/04/15 19:45	07/10/15 21:20	EPA 3005A	19,200.7	JH
Iron, Total	0.07		mg/l	0.05	--	1	07/04/15 19:45	07/10/15 21:20	EPA 3005A	19,200.7	JH
Lead, Total	ND		mg/l	0.010	--	1	07/04/15 19:45	07/10/15 21:20	EPA 3005A	19,200.7	JH
Mercury, Total	ND		mg/l	0.00020	--	1	07/03/15 10:05	07/03/15 14:12	EPA 245.1	3,245.1	EA
Nickel, Total	ND		mg/l	0.025	--	1	07/04/15 19:45	07/10/15 21:20	EPA 3005A	19,200.7	JH
Silver, Total	ND		mg/l	0.007	--	1	07/04/15 19:45	07/10/15 21:20	EPA 3005A	19,200.7	JH
Zinc, Total	ND		mg/l	0.050	--	1	07/04/15 19:45	07/10/15 21:20	EPA 3005A	19,200.7	JH

Project Name: HARVARD BUSINESS SCHOOL
Lab Number: L1515183
Project Number: Not Specified
Report Date: 07/13/15

SAMPLE RESULTS

Lab ID: L1515183-03
Client ID: MCCULLOCH HALL
Sample Location: 117 WESTERN AVE., BRIGHTON, MA
Matrix: Water
Date Collected: 07/02/15 09:00
Date Received: 07/02/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Antimony, Total	ND		mg/l	0.050	--	1	07/04/15 19:45	07/10/15 21:24	EPA 3005A	19,200.7	JH
Arsenic, Total	ND		mg/l	0.005	--	1	07/04/15 19:45	07/10/15 21:24	EPA 3005A	19,200.7	JH
Cadmium, Total	ND		mg/l	0.005	--	1	07/04/15 19:45	07/10/15 21:24	EPA 3005A	19,200.7	JH
Chromium, Total	ND		mg/l	0.01	--	1	07/04/15 19:45	07/10/15 21:24	EPA 3005A	19,200.7	JH
Copper, Total	0.015		mg/l	0.010	--	1	07/04/15 19:45	07/10/15 21:24	EPA 3005A	19,200.7	JH
Iron, Total	1.2		mg/l	0.05	--	1	07/04/15 19:45	07/10/15 21:24	EPA 3005A	19,200.7	JH
Lead, Total	ND		mg/l	0.010	--	1	07/04/15 19:45	07/10/15 21:24	EPA 3005A	19,200.7	JH
Mercury, Total	ND		mg/l	0.00020	--	1	07/03/15 10:05	07/03/15 14:14	EPA 245.1	3,245.1	EA
Nickel, Total	ND		mg/l	0.025	--	1	07/04/15 19:45	07/10/15 21:24	EPA 3005A	19,200.7	JH
Silver, Total	ND		mg/l	0.007	--	1	07/04/15 19:45	07/10/15 21:24	EPA 3005A	19,200.7	JH
Zinc, Total	ND		mg/l	0.050	--	1	07/04/15 19:45	07/10/15 21:24	EPA 3005A	19,200.7	JH

Project Name: HARVARD BUSINESS SCHOOL **Lab Number:** L1515183

Project Number: Not Specified **Report Date:** 07/13/15

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01-03 Batch: WG799700-1										
Mercury, Total	ND		mg/l	0.00020	--	1	07/03/15 10:05	07/03/15 14:01	3,245.1	EA

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01-03 Batch: WG799863-1										
Antimony, Total	ND		mg/l	0.050	--	1	07/04/15 19:45	07/09/15 23:40	19,200.7	JH
Arsenic, Total	ND		mg/l	0.005	--	1	07/04/15 19:45	07/09/15 23:40	19,200.7	JH
Cadmium, Total	ND		mg/l	0.005	--	1	07/04/15 19:45	07/09/15 23:40	19,200.7	JH
Chromium, Total	ND		mg/l	0.01	--	1	07/04/15 19:45	07/09/15 23:40	19,200.7	JH
Copper, Total	ND		mg/l	0.010	--	1	07/04/15 19:45	07/09/15 23:40	19,200.7	JH
Iron, Total	ND		mg/l	0.05	--	1	07/04/15 19:45	07/10/15 13:53	19,200.7	MC
Lead, Total	ND		mg/l	0.010	--	1	07/04/15 19:45	07/09/15 23:40	19,200.7	JH
Nickel, Total	ND		mg/l	0.025	--	1	07/04/15 19:45	07/09/15 23:40	19,200.7	JH
Silver, Total	ND		mg/l	0.007	--	1	07/04/15 19:45	07/09/15 23:40	19,200.7	JH
Zinc, Total	ND		mg/l	0.050	--	1	07/04/15 19:45	07/09/15 23:40	19,200.7	JH

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: HARVARD BUSINESS SCHOOL

Project Number: Not Specified

Lab Number: L1515183

Report Date: 07/13/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-03 Batch: WG799700-2								
Mercury, Total	108		-		85-115	-		
Total Metals - Westborough Lab Associated sample(s): 01-03 Batch: WG799863-2								
Antimony, Total	85		-		85-115	-		
Arsenic, Total	96		-		85-115	-		
Cadmium, Total	100		-		85-115	-		
Chromium, Total	90		-		85-115	-		
Copper, Total	101		-		85-115	-		
Iron, Total	100		-		85-115	-		
Lead, Total	101		-		85-115	-		
Nickel, Total	100		-		85-115	-		
Silver, Total	103		-		85-115	-		
Zinc, Total	94		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: HARVARD BUSINESS SCHOOL
Project Number: Not Specified

Lab Number: L1515183
Report Date: 07/13/15

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG799700-4 QC Sample: L1514682-01 Client ID: MS Sample												
Mercury, Total	0.00031	0.005	0.00534	101		-	-		70-130	-		20
Total Metals - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG799863-4 QC Sample: L1515125-01 Client ID: MS Sample												
Antimony, Total	ND	0.5	0.476	95		-	-		75-125	-		20
Arsenic, Total	ND	0.12	0.127	106		-	-		75-125	-		20
Cadmium, Total	ND	0.051	0.054	105		-	-		75-125	-		20
Chromium, Total	ND	0.2	0.20	100		-	-		75-125	-		20
Copper, Total	ND	0.25	0.276	110		-	-		75-125	-		20
Iron, Total	0.38	1	1.5	112		-	-		75-125	-		20
Lead, Total	ND	0.51	0.539	106		-	-		75-125	-		20
Nickel, Total	ND	0.5	0.525	105		-	-		75-125	-		20
Silver, Total	ND	0.05	0.055	109		-	-		75-125	-		20
Zinc, Total	ND	0.5	0.500	100		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: HARVARD BUSINESS SCHOOL
Project Number: Not Specified

Lab Number: L1515183
Report Date: 07/13/15

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG799700-3 QC Sample: L1514682-01 Client ID: DUP Sample						
Mercury, Total	0.00031	0.00031	mg/l	1		20
Total Metals - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG799863-3 QC Sample: L1515125-01 Client ID: DUP Sample						
Copper, Total	ND	ND	mg/l	NC		20
Zinc, Total	ND	ND	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: HARVARD BUSINESS SCHOOL
Project Number: Not Specified

Lab Number: L1515183
Report Date: 07/13/15

SAMPLE RESULTS

Lab ID: L1515183-01
Client ID: BAKER HALL
Sample Location: 117 WESTERN AVE., BRIGHTON, MA
Matrix: Water

Date Collected: 07/02/15 09:15
Date Received: 07/02/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chloride	1300		mg/l	100	--	100	-	07/06/15 11:33	30,4500CL-E	LA
Chromium, Hexavalent	ND		mg/l	0.010	--	1	07/02/15 18:55	07/02/15 19:11	119,3500CR-B	MR

Project Name: HARVARD BUSINESS SCHOOL
Project Number: Not Specified

Lab Number: L1515183
Report Date: 07/13/15

SAMPLE RESULTS

Lab ID: L1515183-02
Client ID: SHAD HALL
Sample Location: 117 WESTERN AVE., BRIGHTON, MA
Matrix: Water

Date Collected: 07/02/15 08:45
Date Received: 07/02/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chloride	730		mg/l	10	--	10	-	07/06/15 09:50	30,4500CL-E	LA
Chromium, Hexavalent	ND		mg/l	0.010	--	1	07/02/15 18:55	07/02/15 19:11	119,3500CR-B	MR

Project Name: HARVARD BUSINESS SCHOOL
Project Number: Not Specified

Lab Number: L1515183
Report Date: 07/13/15

SAMPLE RESULTS

Lab ID: L1515183-03
Client ID: MCCULLOCH HALL
Sample Location: 117 WESTERN AVE., BRIGHTON, MA
Matrix: Water

Date Collected: 07/02/15 09:00
Date Received: 07/02/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chloride	1700		mg/l	100	--	100	-	07/06/15 11:35	30,4500CL-E	LA
Chromium, Hexavalent	ND		mg/l	0.010	--	1	07/02/15 18:55	07/02/15 19:12	119,3500CR-B	MR

Project Name: HARVARD BUSINESS SCHOOL **Lab Number:** L1515183

Project Number: Not Specified **Report Date:** 07/13/15

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG799546-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	07/02/15 18:55	07/02/15 19:11	119,3500CR-B	MR
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG800013-1										
Chloride	ND		mg/l	1.0	--	1	-	07/06/15 09:22	30,4500CL-E	LA

Lab Control Sample Analysis

Batch Quality Control

Project Name: HARVARD BUSINESS SCHOOL

Project Number: Not Specified

Lab Number: L1515183

Report Date: 07/13/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG799546-2								
Chromium, Hexavalent	96		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG800013-2								
Chloride	103		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: HARVARD BUSINESS SCHOOL
Project Number: Not Specified

Lab Number: L1515183
Report Date: 07/13/15

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG799546-4 QC Sample: L1515183-02 Client ID: SHAD HALL												
Chromium, Hexavalent	ND	0.1	0.098	98		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG800013-4 QC Sample: L1514930-02 Client ID: MS Sample												
Chloride	49	20	68	95		-	-		58-140	-		7

Lab Duplicate Analysis
Batch Quality Control

Project Name: HARVARD BUSINESS SCHOOL
Project Number: Not Specified

Lab Number: L1515183
Report Date: 07/13/15

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG799546-3 QC Sample: L1515183-02 Client ID: SHAD HALL						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG800013-3 QC Sample: L1514930-02 Client ID: DUP Sample						
Chloride	49	49	mg/l	0		7

Project Name: HARVARD BUSINESS SCHOOL
Project Number: Not Specified

Lab Number: L1515183
Report Date: 07/13/15

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(*)
L1515183-01A	Plastic 250ml HNO3 preserved	A	<2	2.8	Y	Absent	NI-UI(180),SB-UI(180),AG-UI(180),ZN-UI(180),FE-UI(180),HG-U(28),CD-UI(180),CR-UI(180),AS-UI(180),CU-UI(180),PB-UI(180)
L1515183-01B	Plastic 500ml unpreserved	A	7	2.8	Y	Absent	HEXCR-3500(1)
L1515183-01C	Plastic 250ml unpreserved	A	7	2.8	Y	Absent	CL-4500(28)
L1515183-02A	Plastic 250ml HNO3 preserved	A	<2	2.8	Y	Absent	NI-UI(180),SB-UI(180),AG-UI(180),ZN-UI(180),FE-UI(180),HG-U(28),CD-UI(180),CR-UI(180),AS-UI(180),CU-UI(180),PB-UI(180)
L1515183-02B	Plastic 500ml unpreserved	A	7	2.8	Y	Absent	HEXCR-3500(1)
L1515183-02C	Plastic 250ml unpreserved	A	7	2.8	Y	Absent	CL-4500(28)
L1515183-03A	Plastic 250ml HNO3 preserved	A	<2	2.8	Y	Absent	NI-UI(180),SB-UI(180),AG-UI(180),ZN-UI(180),FE-UI(180),HG-U(28),CD-UI(180),CR-UI(180),AS-UI(180),CU-UI(180),PB-UI(180)
L1515183-03B	Plastic 500ml unpreserved	A	7	2.8	Y	Absent	HEXCR-3500(1)
L1515183-03C	Plastic 250ml unpreserved	A	7	2.8	Y	Absent	CL-4500(28)

*Values in parentheses indicate holding time in days

Project Name:	HARVARD BUSINESS SCHOOL	**Lab Number:**	L1515183
Project Number:	Not Specified	**Report Date:**	07/13/15

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.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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

Terms

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. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
C	- Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

Report Format: Data Usability Report

Project Name:	HARVARD BUSINESS SCHOOL	**Lab Number:**	L1515183
Project Number:	Not Specified	**Report Date:**	07/13/15

Data Qualifiers

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

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

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

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

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

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

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

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

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

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

Report Format: Data Usability Report

Project Name:	HARVARD BUSINESS SCHOOL	**Lab Number:**	L1515183
Project Number:	Not Specified	**Report Date:**	07/13/15

REFERENCES

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

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

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

119 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 21st Edition.

LIMITATION OF LIABILITIES

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

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

Certification Information

Last revised December 16, 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 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.

L1515183

EST Associates, Inc.

EST Associates, Inc.
51 Fremont Street
Needham, MA 02494
Phone (781) 455-0003
Fax (781) 455-8336
www.estassociates.com

Chain of Custody Record

Container Type	Sample Type	
P - Plastic	1. Wastewater	5. Surface Water
G - Glass	2. Groundwater	6. Storm Water
V - VOA	3. Soil	7. Other ________
B - Bacteria	4. Drinking Water	

Laboratory: Alpha Analytical Labs (508) 898-9220

Lab Invoice To: Harvard Business

Lab Report To: jmonro@hbs.edu

EST Invoice To: Harvard Business
1353-NC-xx JD
Q: 4950202-09

Site: Harvard Business School
Address: 117 Western Ave
Brighton MA
Contact: Jason Monro
Phone #: (617) 495-1353
Description: *NPDES Permit Renewal Sampling*

Client: Harvard University - Shad Hall
Address: 70 N. Harvard St
Boston MA 02163-
Contact: Jason Monro
Phone #: (617) 495-1353
Fax #:

☐ **Rush** _____Day Turnaround

LOCATION (Sample Identification)	Sample Type	Container			Sampling		Preservative *	Laboratory Analysis	Notes
		Size	Type	#	Date	Time			
Baker Hall	2	250 ml	P	1	7/2/15	0915	HNO3	Sb, As, Cd, Cr, Cu, Fe, Hg, Ni, Ag, Zn, Pb	pH = 7.17
Baker Hall	2	500 ml	P	1	↓	↓	None	Cr VI	
Baker Hall	2	250 ml	P	1	↓	↓	None	Chloride	
Shad Hall	2	250 ml	P	1	7/2/15	0845	HNO3	Sb, As, Cd, Cr, Cu, Fe, Hg, Ni, Ag, Zn, Pb	pH = 7.01
Shad Hall	2	500 ml	P	1	↓	↓	None	Cr VI	
Shad Hall	2	250 ml	P	1	↓	↓	None	Chloride	
McCulloch Hall	2	250 ml	P	1	7/2/15	0900	HNO3	Sb, As, Cd, Cr, Cu, Fe, Hg, Ni, Ag, Zn, Pb	pH = 7.39
McCulloch Hall	2	500 ml	P	1	↓	↓	None	Cr VI	
McCulloch Hall	2	250 ml	P	1	↓	↓	None	Chloride	

Sampler's Name (Print)	*Signature*	DATE	TIME
Andrew Gerety	Andrew Gerety	7/2/15	1015

Additional Comments:

**All samples chilled to 4 degrees celsius.*

NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	Andrew Gerety	Pat [illegible]	7/2/15	1250
2	Pat [illegible]	[illegible]	7-2-15	1440
3				
4				
5				

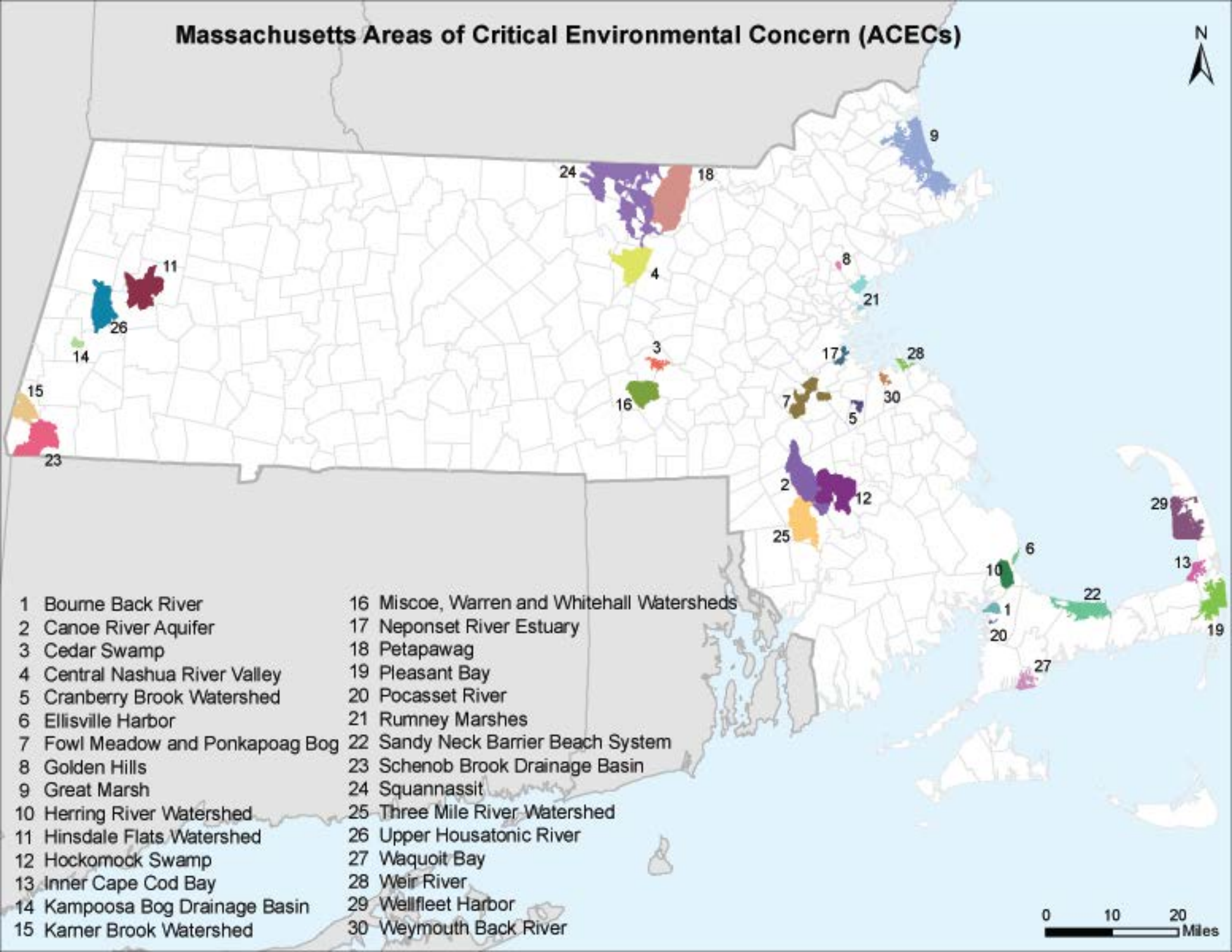
Attachment 3

Areas of Critical Environmental Concern

Areas of Critical Environmental Concern

Based on the most recent listing of Areas of Critical Environmental Concern (ACEC) provided by the Massachusetts Department of Conservation and Recreation, included herein, there are no ACEC's in the vicinity of the project.

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

MASSACHUSETTS AREAS OF CRITICAL ENVIRONMENTAL CONCERN
November 2010

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

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

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

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

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

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

Ellisville Harbor
(600 acres, 1980) Plymouth

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

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

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

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

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

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

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

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

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

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

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

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

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

Pocasset River
(160 acres, 1980) Bourne

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

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

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

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

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

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

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

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

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

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

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

Towns with ACECs within their Boundaries — November 2010

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

.

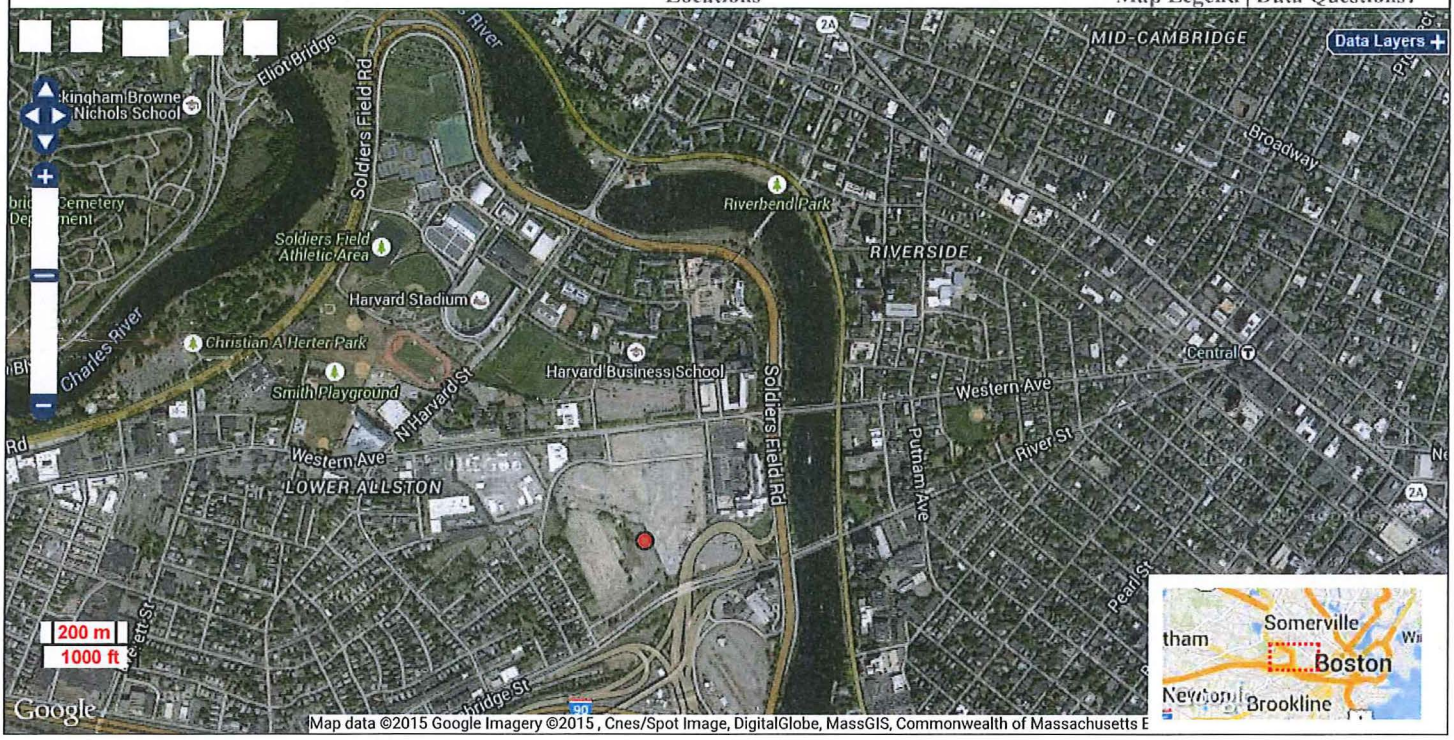
Attachment 4
Remediation Activities

Remediation Activities

There have been releases reported to the MassDEP for locations within the vicinity of the buildings where foundation dewatering occurs at the Harvard Business School. Most of the releases were related to soil contamination and have been closed out. Currently there is one open site located at 100 Western Avenue (RTTN: 3-0029441) which is under active remediation to treat groundwater. Information related to the release from the MassDEP Reportable Release Lookup tool is attached. Please note that this release does not impact groundwater for the locations identified in this NOI.

Reportable Release Lookup

Locations | Map Legend | Data Questions?



● Open Sites ● Closed Sites ● Closed Sites with Use Limitation

The search returned 1 result | Search Keywords >> '3-0029441' | Data last updated: 06/30/2015

Page:1 of 1 | Sorted by: RTN | GIS | Previous | Next

Select	RTN	City/ Town	Release Address	Site Name Location Aid	Reporting Category	Notification Date	Compliance Status	Date	Phase	RAO Class	Chemical Type	Files	GIS
☐	3-0029441	BOSTON-ALLSTON	100 WESTERN AVE	AREA A-1 AREA A-2 AND AREA E	120 DY	2010-07-26	TIER 2	2011-07-22	PHASE IV		Oil and Hazardous Material	Files	MAP

Page:1 of 1 | Previous | Next

Site Information			
Site Number:	**3-0029441**	Category:	120 DY
Site Name:	AREA A-1 AREA A-2 AND AREA E	Release Type:	TIER 2
Address:	100 WESTERN AVE	Current date:	7/22/2011
Town:	BOSTON-ALLSTON	Phase:	PHASE IV
Zipcode:	02134-1037	RAO Class:	
Official notification date:	7/26/2010	Locationtype:	UNKNOWN
Initial status date:	7/26/2011	Source:	UNKNOWN
Click Here for Supporting Documents			

Response Action Information	
Response Action Type:	PHASIV Phase 4
Status:	STRCVD Status or Interim Report Received
Submittal Date:	05/28/2015
RAO class:	
Activity & Use Limitation:	
Response Action Type:	TCLASS Tier Classification
Status:	LNKVIC RTN Linked to TCLASS Via IRA Completion Statement
Submittal Date:	03/24/2015
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHASII Phase 2
Status:	CSRCVD Completion Statement Received
Submittal Date:	03/28/2014
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHSIII Phase 3
Status:	CSRCVD Completion Statement Received
Submittal Date:	03/28/2014
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHASEI Phase 1
Status:	CSRCVD Completion Statement Received
Submittal Date:	07/22/2011
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RNF Release Notification Form Received
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	10/05/2010
RAO class:	
Activity & Use Limitation:	
Response Action Type:	REL Potential Release or Threat of Release
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	07/26/2010
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RNF Release Notification Form Received
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	07/26/2010
RAO class:	
Activity & Use Limitation:	

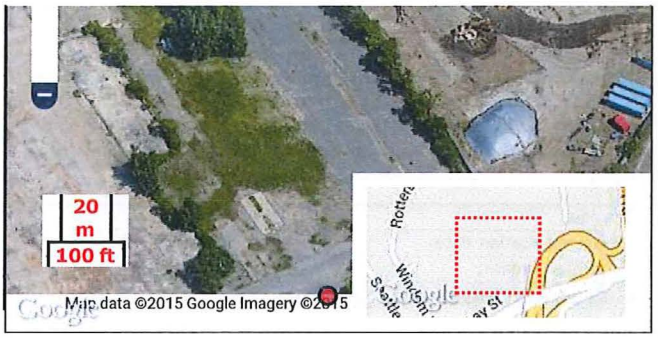
Chemicals		
Chemical	**Amount**	**Units**
2,4-DIMETHYLPHENOL	2.2	MG/KG
2-METHYLNAPHTHALENE	180	MG/KG
ACENAPHTHENE	100	MG/KG
ACENAPHTHYLENE	29	MG/KG
ANTIMONY	1000	MG/KG
ARSENIC	77	MG/KG
BARIUM	2300	MG/KG
BENZO[A]ANTHRACENE	48	MG/KG
BENZO[A]PYRENE	41	MG/KG
BENZO[B]FLUORANTHENE	50	MG/KG
C11 THRU C22 AROMATIC HYDROCARBONS	29400	MG/KG
C9 THRU C10 AROMATIC HYDROCARBONS	1010	MG/KG
C9 THRU C12 ALIPHATIC HYDROCARBONS	1740	MG/KG
C9 THRU C18 ALIPHATIC HYDROCARBONS	2120	MG/KG
CADMIUM	41	MG/KG
CHLORDANE	2.25	MG/KG
CHROMIUM	510	MG/KG
DIBENZO[A,H]ANTHRACENE	5	MG/KG
DICHLOROETHYLENE-CIS	87	MG/KG
DICHLOROETHYLENE-CIS	290	UG/L
FLUORENE	200	UG/L
INDENO(1,2,3-CD)PYRENE	25	MG/KG
LEAD	28	UG/L
LEAD	24000	MG/KG
MERCURY	180	MG/KG
NAPHTHALENE	380	MG/KG
NAPHTHALENE	1000	UG/L
NICKEL	180	MG/KG
PHENANTHRENE	240	MG/KG
TETRACHLOROETHYLENE	2.3	MG/KG
TRICHLOROETHENE	13	MG/KG
TRICHLOROETHENE	230	UG/L
VINYL CHLORIDE	1.8	MG/KG
VINYL CHLORIDE	81	UG/L
ZINC	14000	MG/KG

LSPs	
LSP#	**Name**
4003	SOKOL, STEFAN C
6508	DOHERTY, RICHARD E
9451	ZIRBEL, MARTHA L
7122	HENRY, KIM M
8959	DELTUFO, ANTHONY M

Tier Classification Detail							
NRS Totals	**II**	**III**	**IV**	**V**	**VI**	**Zone 2**	**Imminent Hazard**
340	185	150	30	20	-45	N	N

Secondary RTNs
3-0032300
3-0032333
3-0029635

Location



Open Sites Closed Sites Closed Sites with Use Limitation

Attachment 5
Endangered Species: Designated Critical Habitat

Endangered Species Act

Per the information provided in the IPaC Trust Resource Report (included in this attachment) "*There are no endangered species identified for this project area*" and "*There is no critical habitat within this project area*".

Based on the IPaC report foundation it has been determined that dewatering activities at the Harvard Business School meet: *USFWS Criterion A: No endangered or threatened species or critical habitat are in proximity to the discharges or related activities.*

Furthermore, a review of the Massachusetts Priority Habitat and Estimated Habitat Natural Heritage and Endangered Species Program, there are no NHESP Priority Habitats in the location of the project. A copy of the map showing the location is attached.

Harvard Business School - Notice of Intent

IPaC Trust Resource Report

Generated July 10, 2015 02:32 PM MDT

US Fish & Wildlife Service

IPaC Trust Resource Report

Project Description

NAME

Harvard Business School - Notice of Intent

PROJECT CODE

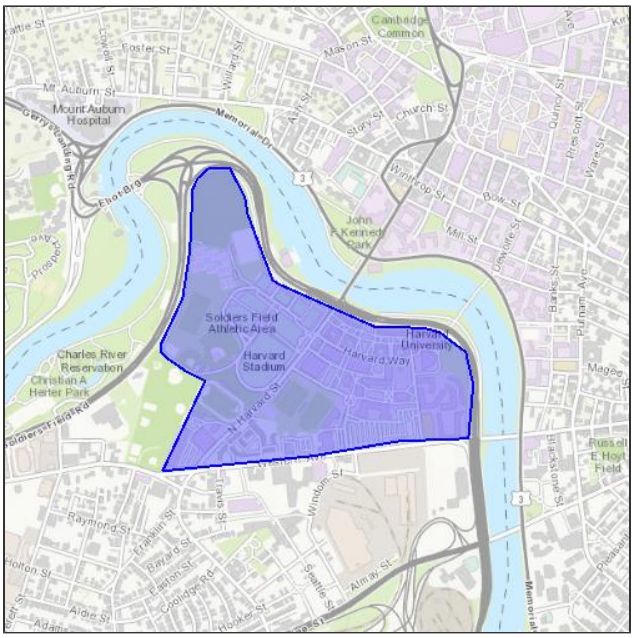
JRNLK-BW27F-FQHPM-CUEFC-MPBDAI

LOCATION

Suffolk County, Massachusetts

DESCRIPTION

Harvard Business School - Notice of Intent



U.S. Fish & Wildlife Contact Information

Species in this report are managed by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 3301-5094
(603) 223-2541

Endangered Species

Proposed, candidate, threatened, and endangered species that are managed by the Endangered Species Program and should be considered as part of an effect analysis for this project.

This unofficial species list is for informational purposes only and does not fulfill the requirements under Section 7 of the Endangered Species Act, which states that Federal agencies are required to "request of the Secretary of Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action." This requirement applies to projects which are conducted, permitted or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can be obtained by returning to this project on the IPaC website and requesting an Official Species List from the regulatory documents section.

There are no endangered species identified for this project area

Critical Habitats

Potential effects to critical habitat(s) within the project area must be analyzed along with the endangered species themselves.

There is no critical habitat within this project area

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity which results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service (1). There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

You are responsible for complying with the appropriate regulations for the protection of birds as part of this project. This involves analyzing potential impacts and implementing appropriate conservation measures for all project activities.

American Oystercatcher Haematopus palliatus — **Bird of conservation concern**
Season: Breeding
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0G8

American Bittern Botaurus lentiginosus — **Bird of conservation concern**
Season: Breeding
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0F3

Bald Eagle Haliaeetus leucocephalus — **Bird of conservation concern**
Year-round
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B008

Black-billed Cuckoo Coccyzus erythropthalmus — **Bird of conservation concern**
Season: Breeding
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0HI

Blue-winged Warbler Vermivora pinus — **Bird of conservation concern**
Season: Breeding

Canada Warbler Wilsonia canadensis — **Bird of conservation concern**
Season: Breeding

Hudsonian Godwit Limosa haemastica — **Bird of conservation concern**
Season: Migrating

Least Bittern Ixobrychus exilis — **Bird of conservation concern**
Season: Breeding

Peregrine Falcon Falco peregrinus — **Bird of conservation concern**
Season: Breeding
https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0FU

Pied-billed Grebe Podilymbus podiceps — **Bird of conservation concern**
Season: Breeding

Prairie Warbler Dendroica discolor — **Bird of conservation concern**
Season: Breeding

Purple Sandpiper Calidris maritima — **Bird of conservation concern**
Season: Wintering

Saltmarsh Sparrow Ammodramus caudacutus — **Bird of conservation concern**
Season: Breeding

Seaside Sparrow Ammodramus maritimus — **Bird of conservation concern**
Season: Breeding

Short-eared Owl Asio flammeus **Bird of conservation concern**

Season: Wintering

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0HD

Snowy Egret Egretta thula **Bird of conservation concern**

Season: Breeding

Upland Sandpiper Bartramia longicauda **Bird of conservation concern**

Season: Breeding

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0HC

Wood Thrush Hylocichla mustelina **Bird of conservation concern**

Season: Breeding

Worm Eating Warbler Helmitheros vermivorum **Bird of conservation concern**

Season: Breeding

Refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. If your project overlaps or otherwise impacts a Refuge, please contact that Refuge to discuss the authorization process.

There are no refuges within this project area

Wetlands

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

Project proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate U.S. Army Corps of Engineers District.

DATA LIMITATIONS

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

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

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

DATA EXCLUSIONS

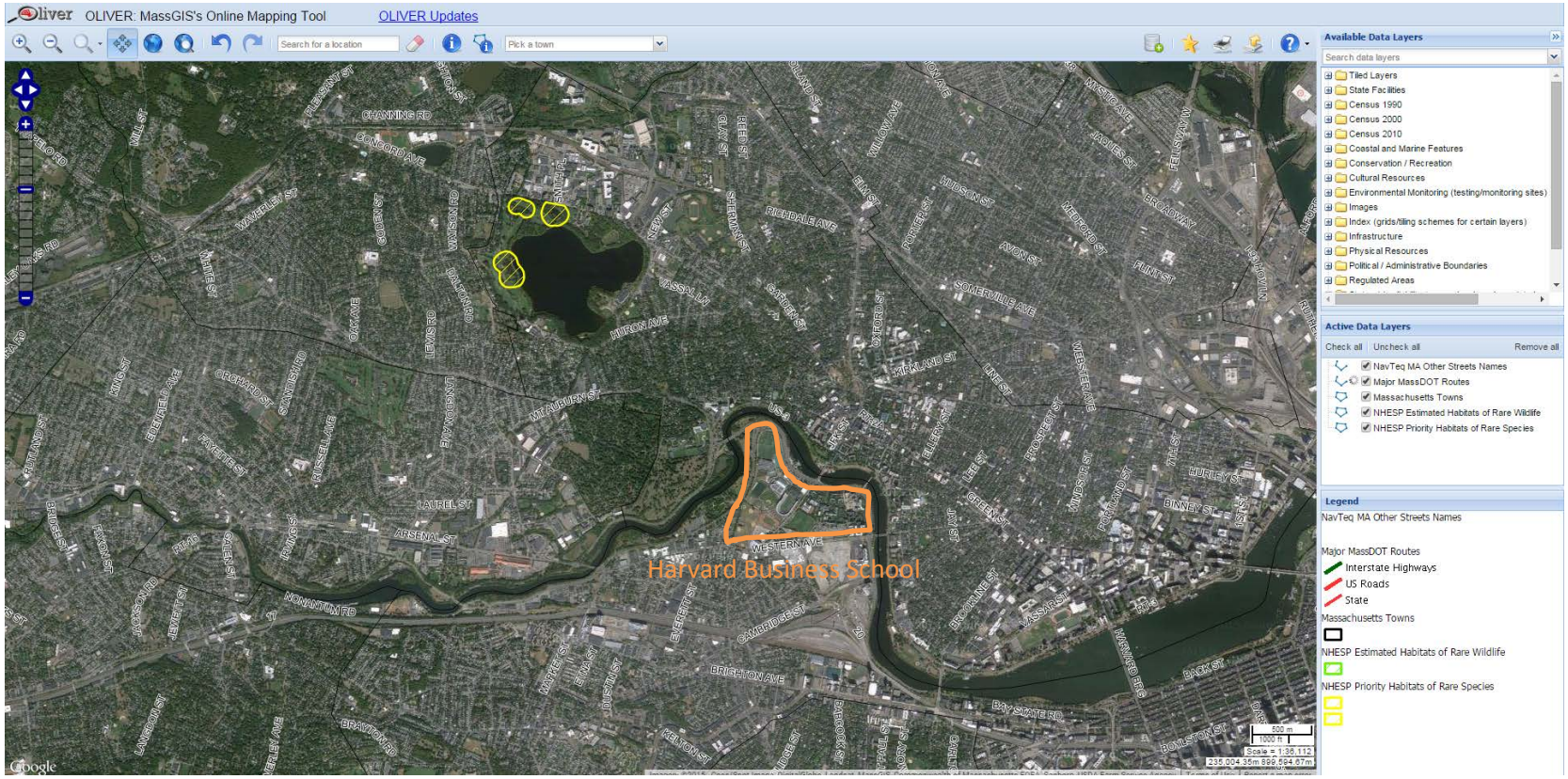
Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and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

DATA PRECAUTIONS

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

There are no wetlands identified in this project area

Massachusetts Priority Habitat Map – Harvard Business School



Notes:

1. Delineation of Harvard Business School approximate and does not reflect actual property lines.
2. Source: http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm

Attachment 6
National Historic Preservation Act

National Historic and Preservation Act

As provided in the attached excerpt from Harvard University's Campus in Allston – Institutional Master Plan, there are locations in the immediate vicinity of the Harvard Business School that are listed in the State and National Registers of Historic Places and/or that are included in the Inventory of Historic and Archaeological Assets of the Commonwealth. These properties are listed in Table 2 of the attached excerpt.

Harvard University has determined that the foundation dewatering activities described in this NOI will not impact the locations listed in Table 2 and therefore meets *Criterion A: The discharges do not have the potential to cause effects on historic properties.* This is based on the fact that foundation dewatering activities have been in place for over seven years, will not be altered in the course of this permit NOI, and that the discharge has previously been permitted by the EPA (permit #:MAG070323).

Notes:

1. Information included in this attachment was obtained from the 2013 Harvard University Allston Campus Institutional Master Plan, revised October 2013.

HISTORIC RESOURCES

Harvard's campus includes or is located in the vicinity of several properties listed in the State and National Registers of Historic Places and/or included in the Inventory of Historic and Archaeological Assets of the Commonwealth. These include Harvard Stadium, a property listed in the State and National Registers of Historic Places and a National Historic Landmark. These properties are part of the Harvard Business School-Athletic Facilities Area included in the Inventory of Historic and Archaeological Assets of the Commonwealth. The IMP area is also adjacent to the State-and-National Register-listed Charles River Basin Historic District.

Over the ten-year term of the IMP, there are a number of properties that will attain 45 years of age. These properties are depicted in Figure 13 and include Cotting House (1968), Baker Hall (1970), McCollum (1970), Rockefeller (1970), Burden Hall (1971), Cumnock (1975), Soldiers Field Park (1975), 224 Western Avenue (1975), Blodgett Pool (1977), Gordon Indoor Track (1977), and Bright Hockey (1978).

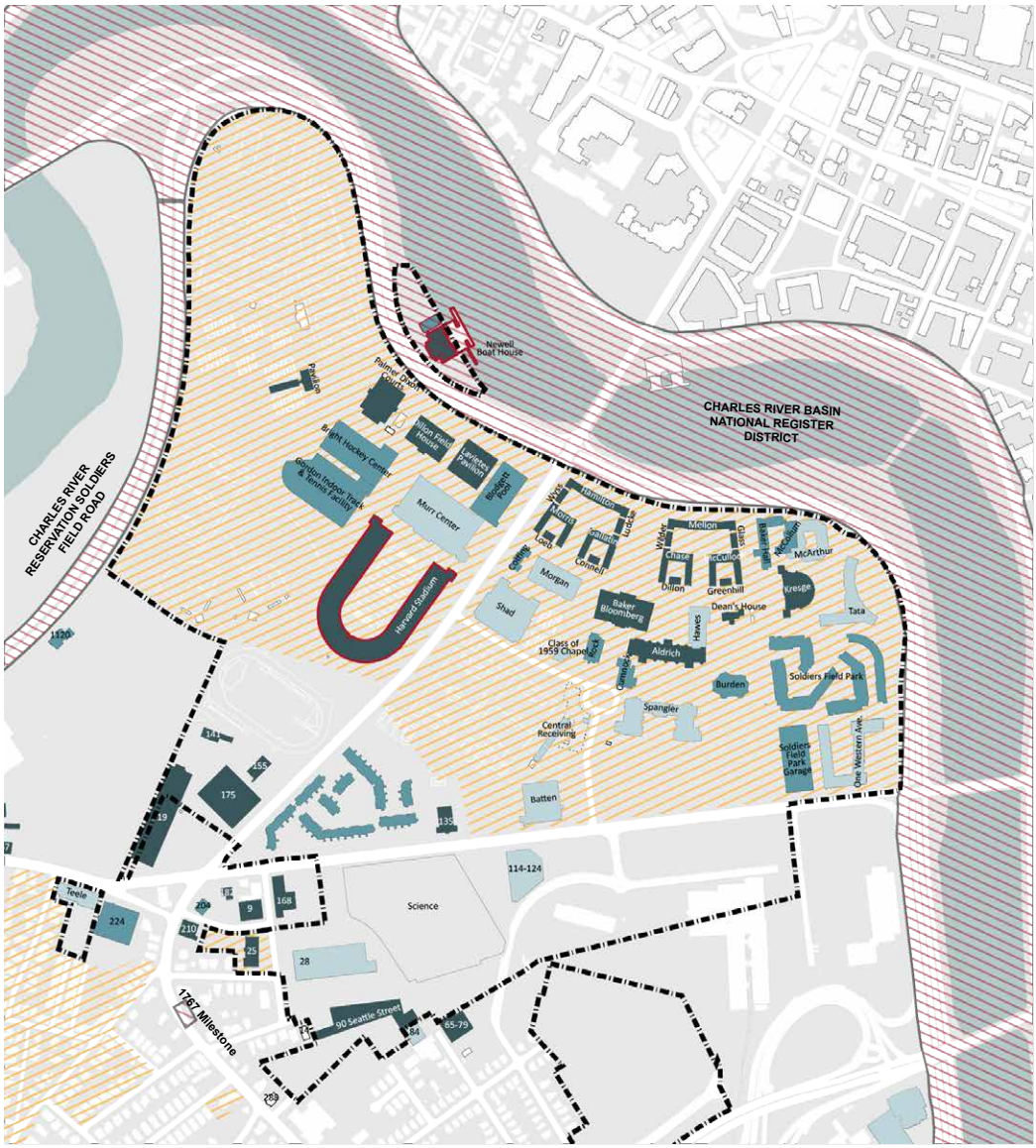


Figure 13: Allston Historic Buildings (2013)

National Register Designation Building

National Register District

MHC Inventoried Area

45+ Years Old by 2013 (Built prior to 1968)

45 Years Old by 2023 (Built 1969 -1978)

Recent Buildings (1979 - Present)

IMP Boundary

Note: The scoping determination comment letter by the Boston Landmarks Commission requested identification of buildings reaching 45 years of age within the Ten-Year time frame of the IMP.

The building age shown in Figure 13 is based on the original date of construction; renovations and additions are not accounted for.

Table 2: Historic Resources within or adjacent to the Allston Campus

Name	Address
Properties Listed in the State and National Registers of Historic Places	
Charles River Reservation – Soldiers Field Road, Boston	Soldiers Field Road
Charles River Basin Historic District, Boston and Cambridge	Eliot Bridge to Charles River Dam including parkland and parkways in Boston and Cambridge
Harvard Stadium	79 North Harvard Street
Newell Boat House	801-805 Soldiers Field Road
1767 Milestone	240 North Harvard Street
Properties Included in the Inventory of Historic and Archaeological Assets of the Commonwealth	
Harvard Business School – Athletic Facilities Area	Soldiers Field Road, North Harvard Street
David L. Barrett School	25 Travis Street