



September 20, 2018

U.S. Environmental Protection Agency – Region 1
Office of Ecosystem Protection
Industrial Permit Unit
5 Post Office Square – Suite 100 (OEP06-4)
Boston, MA 02109-3912
Attn: Dewatering General Permit NOI

To Whom it May Concern,

Coughlin Environmental Services (CES) is pleased to resubmit the attached Notice of Intent (NOI) for the National Pollutant Discharge Elimination System (NPDES) Dewatering General Permit (DGP) on behalf of The Elizabeth Stone House. This NOI has been submitted for the management of groundwater discharge from the proposed Elizabeth Stone House, to be constructed on the corner of Westminster Avenue and Washington Street in Roxbury, MA.

It is anticipated that excavation dewatering will be necessary for the building's strip footing foundation and piers. Dewatering may be needed over a period of approximately 30 days while the foundation excavations are open, and may require full time (24 hours/day) dewatering to maintain a dry excavation needed for proper foundation construction.

As such, it is expected that the primary dewatering and disposal system would entail re-infiltrating dewatering flows back into the ground elsewhere on the site. It is envisioned that one or more receiving pits (10 ft. by 10 ft by 4 ft deep) would be excavated about 50 feet away and used to re-infiltrate the dewatering waters on site. If the recharge capacity of the infiltration pits is exceeded and re-infiltration proves to be insufficient for dewatering water disposal, it will be discharged to the Roxbury municipal stormwater collection system via a catch basin located on the site. Discharge to the catch basins will flow through a sand bag filter for TSS removal.

Plans showing the area of excavation dewatering, re-infiltration pits and the proposed catch basin for disposal into the Roxbury municipal stormwater collection system are included in Appendix A. Groundwater Testing results are included in Appendix E.

Should you have any questions or concerns please contact the undersigned.

Sincerely,

A handwritten signature in blue ink, reading 'Daniel J. Coughlin'. Below the signature, the name and title are printed: 'Daniel J. Coughlin, P.E.' and 'Principal Engineer'.

enclosures

cc: MassDEP Division of Watershed Management, Worcester, MA
MassDEP Surface Water Discharge Permit Program, Boston, MA

CONSULTING ENGINEERS, PLANNERS AND SCIENTISTS

62 Montvale Avenue, Suite H
Stoneham, MA 02180-3637

Phone 781-832-1002
Fax 781-438-9654
E-mail mail@coughlinenvironmental.com

II. Suggested Notice of Intent (NOI) Format

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

a) Name of facility: The Elizabeth Stone House		Mailing Address for the Facility: 8 Notre Dame Street, Roxbury, MA 02119	
b) Location Address of the Facility (if different from mailing address): 3012 Washington Street & 13 Westminster Avenue, Boston, MA 02119	Facility Location	Type of Business: Transitional Housing	
	longitude: 71 deg. 5' 49" W latitude: 42 deg. 19' 0" N	Facility SIC codes: 8361	
c) Name of facility owner: The Elizabeth Stone House Owner's email: nhess@elizabethstone.org Owner's Tel #: (617) 427-9801 Owner's Fax #: (617) 427-6252 Address of owner (if different from facility address)			
Owner is (check one): 1. Federal _____ 2. State _____ 3. Private ☒ 4. Other _____ (Describe) _____			
Legal name of Operator, if not owner: The Elizabeth Stone House Operator Contact Name: Maryann Chaisson Operator Tel Number: (617) 409-5414 Fax Number: (617) 427-6252 Operator's email: mchaisson@elizabethstone.org Operator Address (if different from owner)			
d) Attach a topographic map indicating the location of the facility and the outfall(s) to the receiving water. Map attached? ☒			
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: _____ 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: Infiltration unless exceeds recharge capacity, then into drainage and to Charles River, Boston, MA

State Water Quality Classification: B Freshwater: YES Marine Water: NO

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.

c) Number of outfalls 1

For each outfall:

d) Estimate the maximum daily and average monthly flow of the discharge (in gallons per day – GPD). Max Daily Flow 30,000 GPD
Average Monthly Flow 900,000 GPD

e.) What is the maximum and minimum monthly pH of the discharge (in s.u.)? Max pH 6.5 Min pH 6.0

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.

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

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) Intermittent (I)

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 30

Is the discharge temporary? Yes ✓ No _____

If yes, approximate start date of dewatering October 1st, 2018 approximate end date of dewatering November 1st, 2018

i.) Latitude and longitude of each discharge within 100 feet (See http://www.epa.gov/tri/report/siting_tool): Outfall 1: long. 71 deg, 5' 33" lat. 42 deg, 21' 6"; Outfall 2: long. _____ lat. _____; Outfall 3: long. _____ lat. _____.

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 N/A 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): k.) Does the discharge occur in an ACEC? Yes _____ No <u>✓</u> 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 LC₅₀ in percent for aquatic organism(s)). No b) Please report any known remediation activities or water-quality issues in the vicinity of the discharge.

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? <u>A</u> b) Please attach documentation with your NOI supporting your response. Please see Appendix IV for acceptable documentation
--

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 <u>✓</u> ; Question 2: No <u>✓</u> Yes _____ b) Have any State or Tribal historic preservation officers been consulted in this determination? Yes _____ or No <u>✓</u> 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? <u>A</u> d) Is the project located on property of religious or cultural significance to an Indian Tribe? Yes _____ or No <u>✓</u> If yes, provide that name of the Indian Tribe associated with the property. _____
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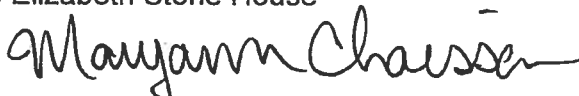
6. Supplemental Information: Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit

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: The Elizabeth Stone House

Operator signature: 

Print Full Name and Title: Maryann Chaisson, Director of Operations

Date: 09/20/2018

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.

APPENDIX A

Location and Locus Maps



TAKEN FROM U.S.G.S. 7.5x15 MINUTE SERIES TOPOGRAPHIC MAP OF BOSTON SOUTH, MASSACHUSETTS-1987.

CONTOUR INTERVAL IS 3 METERS

SITE COORDINATES: LATITUDE 42°19'01"
LONGITUDE 71°05'50"

UTM COORDINATES: 46: 86: 872mN
3: 27: 137mE



QUADRANGLE LOCATION



SCALE in FEET
1: 25,000

RANSOM

Consulting, Inc.

PREPARED FOR:

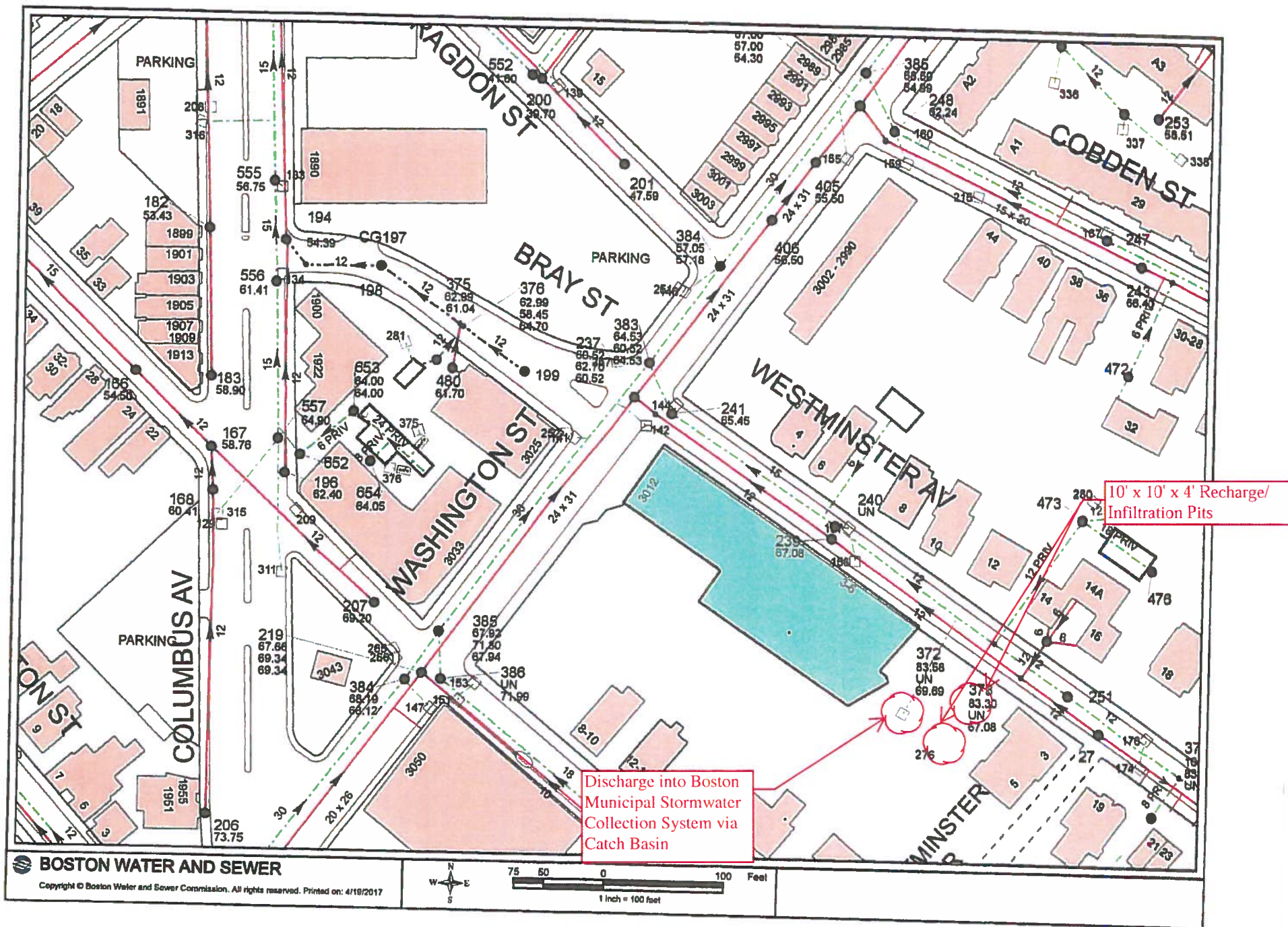
THE ELIZABETH STONE HOUSE
8 NOTRE DAME STREET
ROXBURY, MASSACHUSETTS

SITE:

3012 WASHINGTON STREET &
13 WESTMINSTER AVENUE
BOSTON, MASSACHUSETTS

SITE LOCATION MAP

DATE: FEBRUARY 2017
PROJECT: 121.01110
FIGURE: 1



Charles River

Discharge Outfall

CSO023
(1.47)

JAMES J STORROW MEMO DR

JAMES J STORROW MEMO DR

CHARLES RIVER

MHP
(1.50)
(1.47)

Boston Marginal Conduit

PARKING

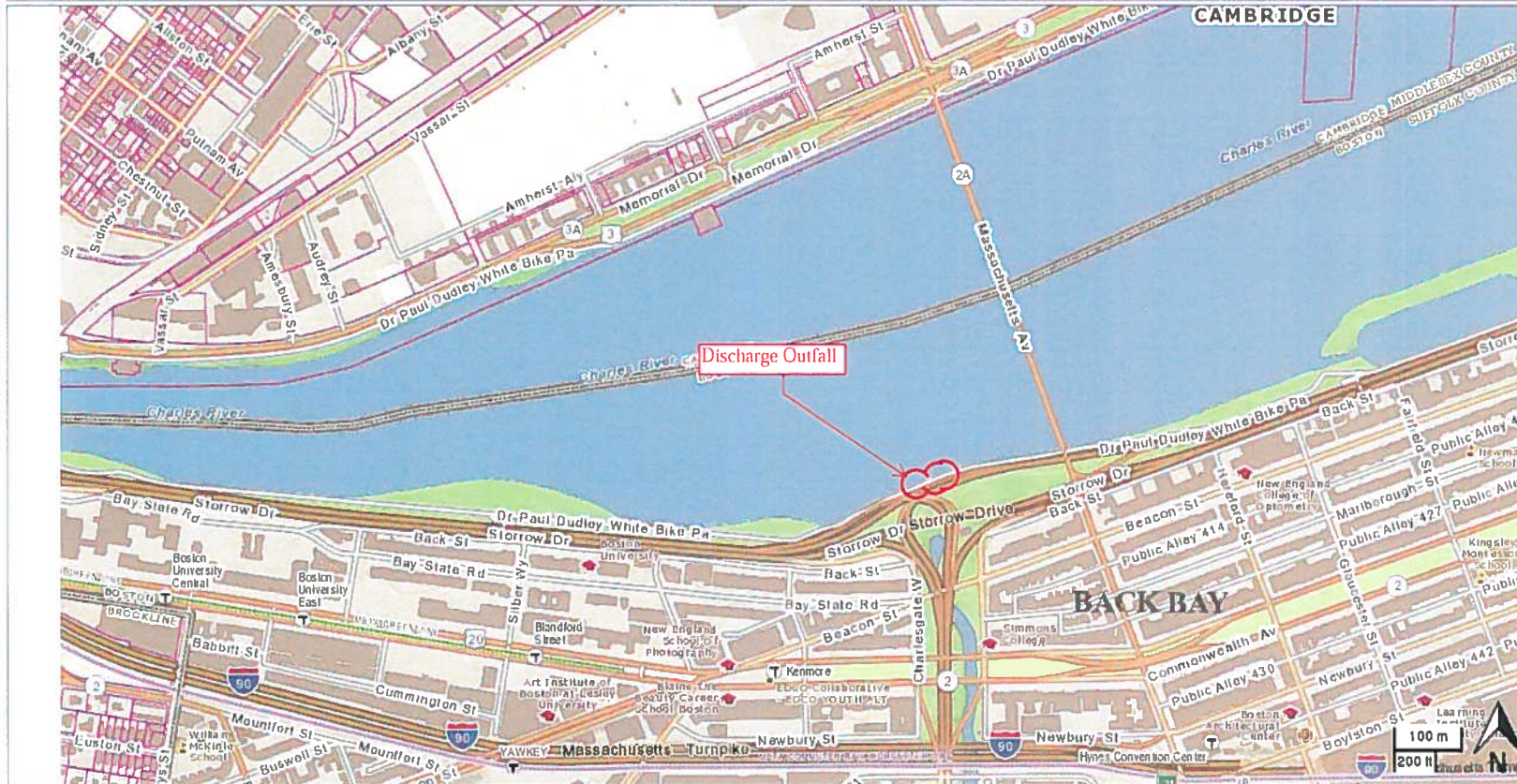
PARKING

 BOSTON WATER AND SEWER

Copyright © Boston Water and Sewer Commission. All rights reserved. Printed on: 4/18/2017



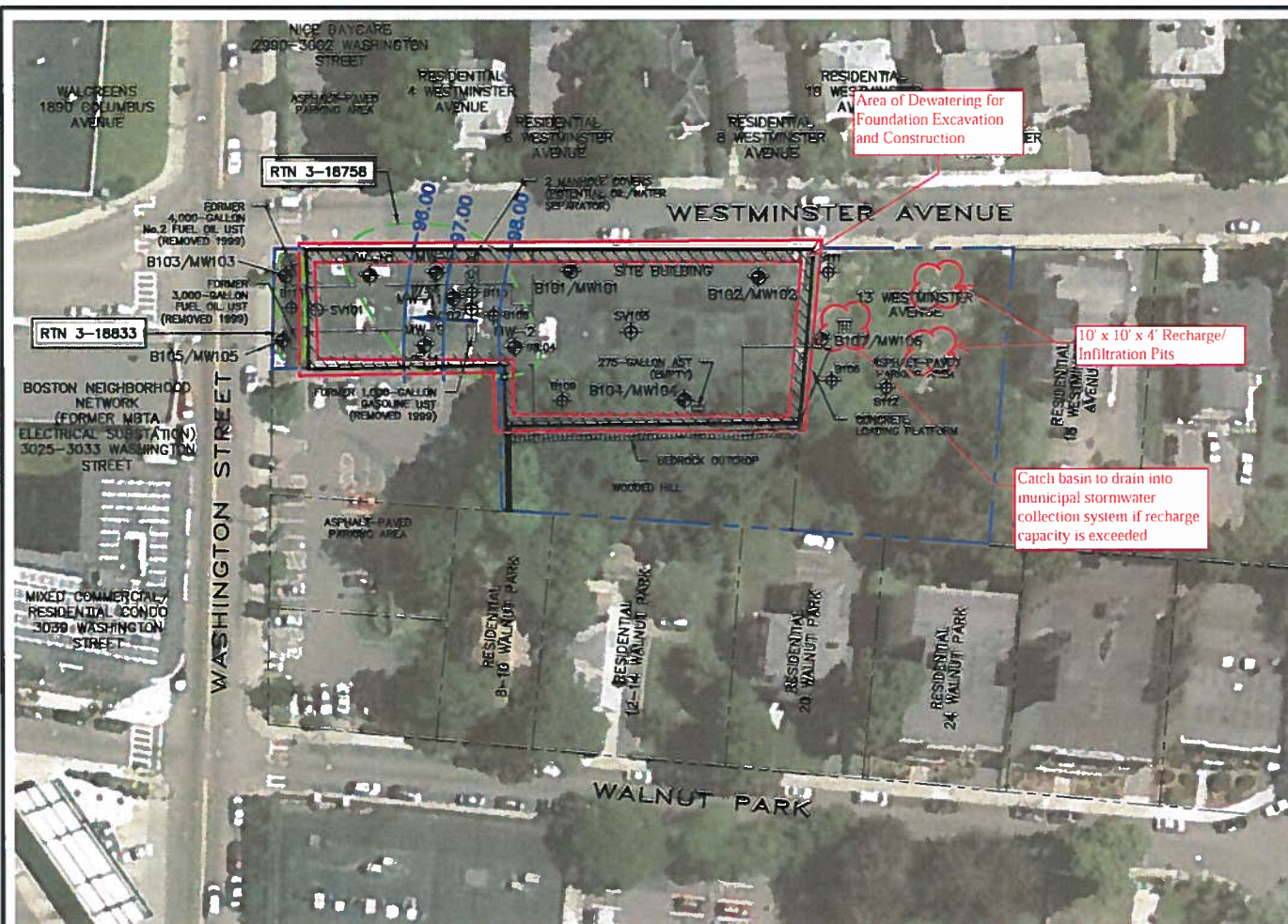
ACEC Check - The Elizabeth Stone House Discharge Outfall



- Areas of Critical Environmental Concern ACECs
- Tax Parcels for Query
- Detailed Features
- Tax Parcels
- Structures
- MassGIS Statewide Basemap
- MassGIS Topographic Features Basemap

APPENDIX B

Proposed Construction Plan Areas Requiring Dewatering

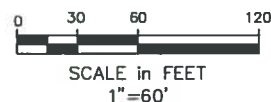


LEGEND:

- B103/MW103 SOIL BORING/MONITORING WELL
- SV101 TEMPORARY SOIL VAPOR WELL
- B110 SOIL BORING
- MW-2 98.04 MONITORING WELL WITH GROUNDWATER ELEVATION
- CATCH BASIN
- MANHOLE COVER
- DISPOSAL SITE BOUNDARY
- PARCEL BOUNDARY
- 98.00 GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- SITE BOUNDARY

NOTES:

1. SITE PLAN BASED ON MEASUREMENTS AND OBSERVATIONS MADE BY RANSOM CONSULTING, INC. FROM SEPTEMBER TO NOVEMBER 2012. AERIAL IMAGE IS PROVIDED BY GOOGLE EARTH.
2. SOME FEATURES ARE APPROXIMATE IN LOCATION AND SCALE.
3. THIS PLAN HAS BEEN PREPARED FOR THE ELIZABETH STONE HOUSE. ALL OTHER USES ARE NOT AUTHORIZED, UNLESS WRITTEN PERMISSION IS OBTAINED FROM RANSOM CONSULTING, INC.



RANSOM Consulting, Inc.

PREPARED FOR:
THE ELIZABETH STONE HOUSE
8 NOTRE DAME STREET
ROXBURY, MASSACHUSETTS

SITE:
3012 WASHINGTON STREET &
13 WESTMINSTER AVENUE
BOSTON, MASSACHUSETTS

**GROUNDWATER
CONTOUR PLAN**
NOVEMBER 16, 2012

DATE: DECEMBER 2012
PROJECT: 121.01110
FIGURE: 3

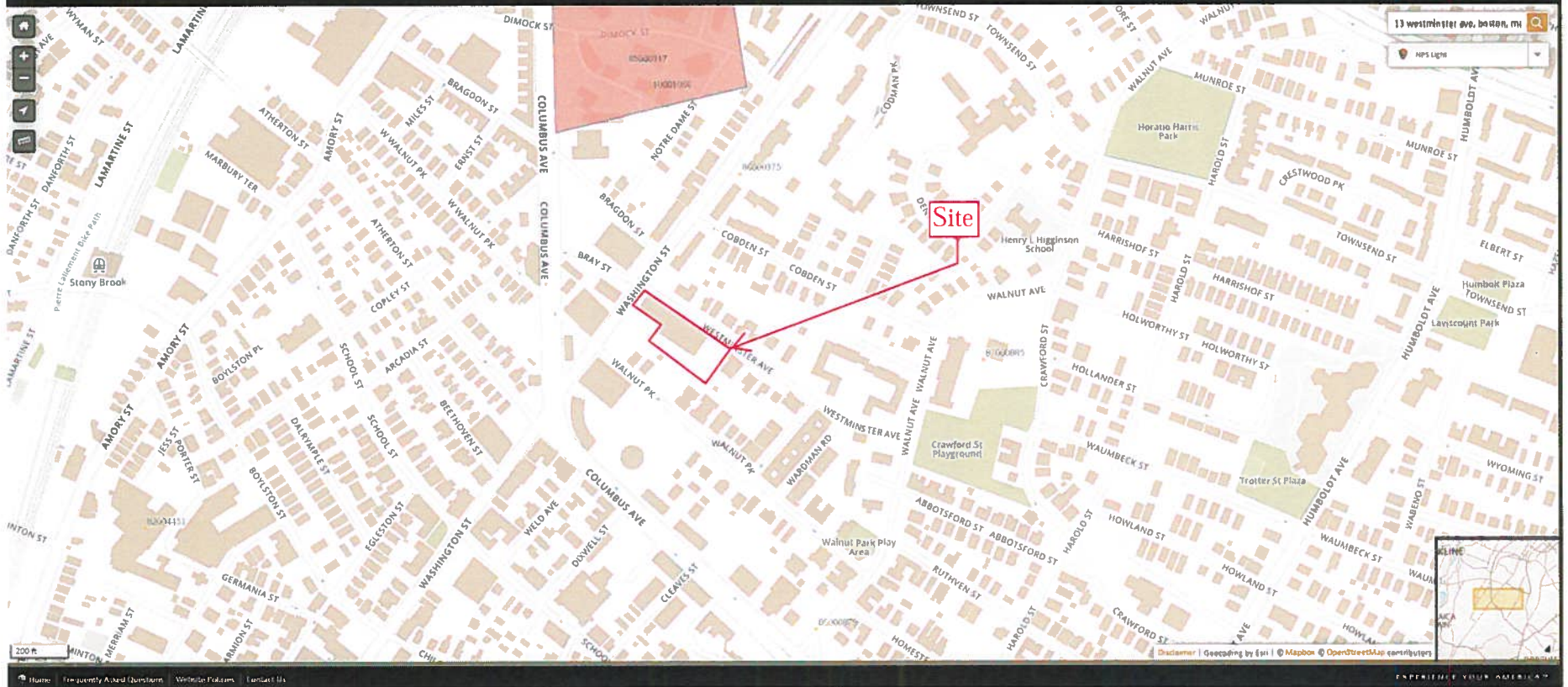
APPENDIX C

Historical Review

National Register of Historic Places

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

National Park Service
U.S. Department of the Interior



National Register of Historic Places GIS Map

APPENDIX D

IPaC Data

IPaC resource list

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

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

Project information

NAME

The Elizabeth Stone House

LOCATION

Suffolk County, Massachusetts



DESCRIPTION

Dewatering Activities for Building Construction

Local office

New England Ecological Services Field Office

☎ (603) 223-2541

📠 (603) 223-0104

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

<http://www.fws.gov/newengland>

Endangered species

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

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

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

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

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service.

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

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

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service³. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

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

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

Additional information can be found using the following links:

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

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

NAME

SEASON(S)

American Bittern *Botaurus lentiginosus*
<https://ecos.fws.gov/ecp/species/6582>

On Land: Breeding

American Oystercatcher <i>Haematopus palliatus</i> https://ecos.fws.gov/ecp/species/8935	On Land: Breeding
Bald Eagle <i>Haliaeetus leucocephalus</i> https://ecos.fws.gov/ecp/species/1626	On Land: Year-round
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> https://ecos.fws.gov/ecp/species/9399	On Land: Breeding
Blue-winged Warbler <i>Vermivora pinus</i>	On Land: Breeding
Canada Warbler <i>Wilsonia canadensis</i>	On Land: Breeding
Hudsonian Godwit <i>Limosa haemastica</i>	At Sea: Migrating
Least Bittern <i>Ixobrychus exilis</i> https://ecos.fws.gov/ecp/species/6175	On Land: Breeding
Olive-sided Flycatcher <i>Contopus cooperi</i> https://ecos.fws.gov/ecp/species/3914	On Land: Breeding
Peregrine Falcon <i>Falco peregrinus</i> https://ecos.fws.gov/ecp/species/8831	On Land: Breeding
Pied-billed Grebe <i>Podilymbus podiceps</i>	On Land: Breeding
Prairie Warbler <i>Dendroica discolor</i>	On Land: Breeding
Purple Sandpiper <i>Calidris maritima</i>	On Land: Wintering
Saltmarsh Sparrow <i>Ammodramus caudacutus</i>	On Land: Breeding
Seaside Sparrow <i>Ammodramus maritimus</i>	On Land: Breeding
Short-eared Owl <i>Asio flammeus</i> https://ecos.fws.gov/ecp/species/9295	On Land: Wintering
Snowy Egret <i>Egretta thula</i>	On Land: Breeding
Upland Sandpiper <i>Bartramia longicauda</i> https://ecos.fws.gov/ecp/species/9294	On Land: Breeding
Willow Flycatcher <i>Empidonax traillii</i> https://ecos.fws.gov/ecp/species/3482	On Land: Breeding
Wood Thrush <i>Hylocichla mustelina</i>	On Land: Breeding
Worm Eating Warbler <i>Helmitheros vermivorum</i>	On Land: Breeding

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

Landbirds:

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

Atlantic Seabirds:

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

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

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

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

Landbirds:

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

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

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

Atlantic Seabirds:

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

Facilities

Wildlife refuges

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

THERE ARE NO REFUGES AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

This location overlaps the following wetlands:

LAKE

[L1UBH](#)

A full description for each wetland code can be found at the National Wetlands Inventory website: <https://ecos.fws.gov/ipac/wetlands/decoder>

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 tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

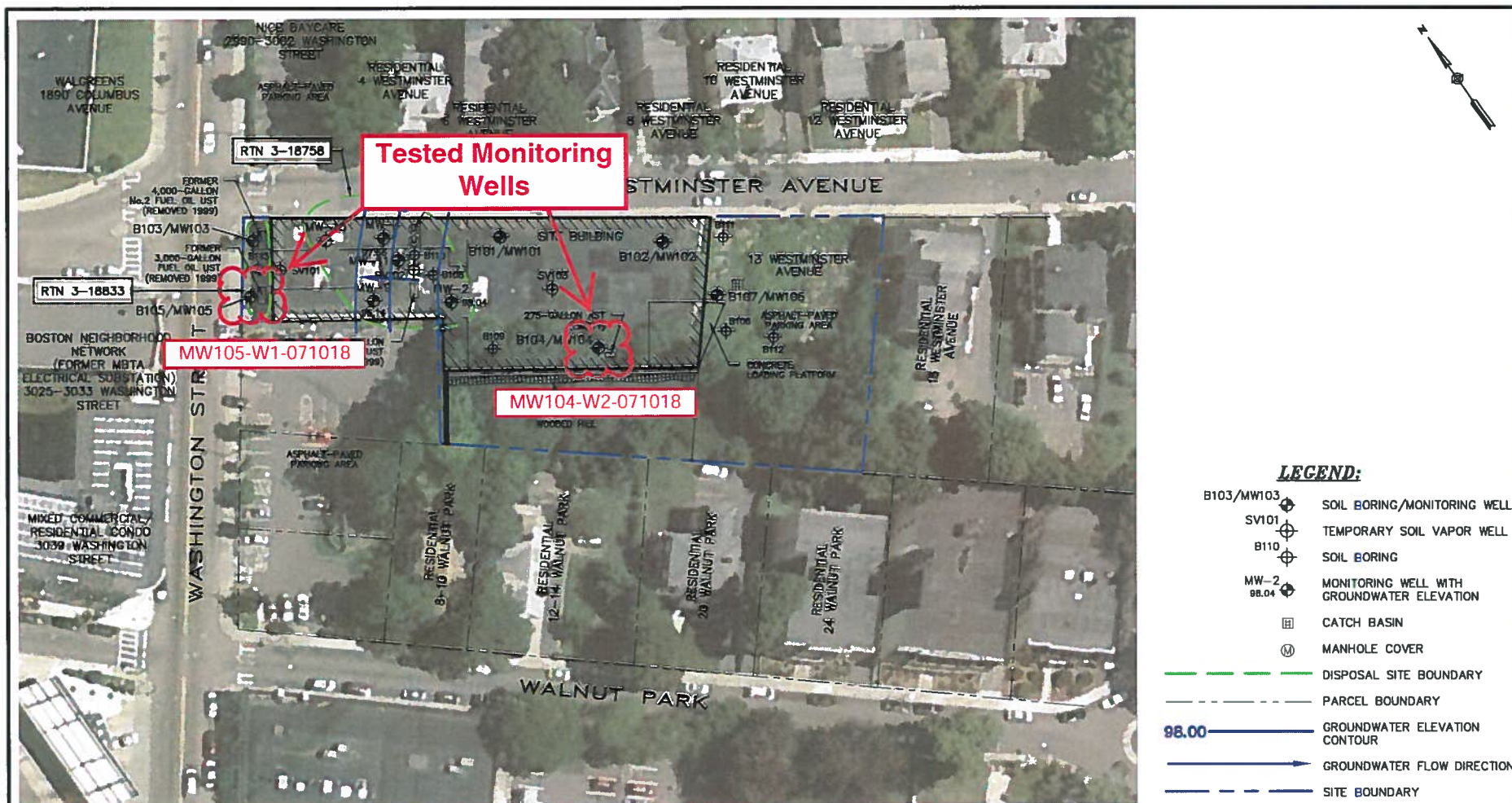
Data precautions

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.

Not for consultation

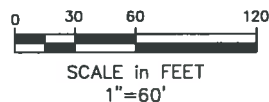
APPENDIX E

Groundwater Testing Results



NOTES:

1. SITE PLAN BASED ON MEASUREMENTS AND OBSERVATIONS MADE BY RANSOM CONSULTING, INC. FROM SEPTEMBER TO NOVEMBER 2012. AERIAL IMAGE IS PROVIDED BY GOOGLE EARTH.
2. SOME FEATURES ARE APPROXIMATE IN LOCATION AND SCALE.
3. THIS PLAN HAS BEEN PREPARED FOR THE ELIZABETH STONE HOUSE. ALL OTHER USES ARE NOT AUTHORIZED, UNLESS WRITTEN PERMISSION IS OBTAINED FROM RANSOM CONSULTING, INC.



RANSOM Consulting, Inc.

PREPARED FOR:

THE ELIZABETH STONE HOUSE
8 NOTRE DAME STREET
ROXBURY, MASSACHUSETTS

SITE:

3012 WASHINGTON STREET &
13 WESTMINSTER AVENUE
BOSTON, MASSACHUSETTS

GROUNDWATER CONTOUR PLAN

NOVEMBER 16, 2012

DATE: DECEMBER 2012

PROJECT: 121.01110

FIGURE: 3



ANALYTICAL REPORT

Lab Number:	L1826098
Client:	Ransom Consulting, Inc. 400 Commercial Street Suite 404 Portland, ME 04101-4660
ATTN:	Jaime Madore
Phone:	(207) 772-2891
Project Name:	ELIZABETH STONE HOUSE
Project Number:	151.06163
Report Date:	07/17/18

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

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

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



Project Name: ELIZABETH STONE HOUSE
Project Number: 151.06163

Lab Number: L1826098
Report Date: 07/17/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1826098-01	MW104-W2-071018	WATER	DORCHESTER, MA	07/10/18 12:10	07/10/18
L1826098-02	MW105-W1-071018	WATER	DORCHESTER, MA	07/10/18 12:45	07/10/18

Project Name: ELIZABETH STONE HOUSE
Project Number: 151.06163

Lab Number: L1826098
Report Date: 07/17/18

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

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

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

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

HOLD POLICY

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

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

Project Name: ELIZABETH STONE HOUSE
Project Number: 151.06163

Lab Number: L1826098
Report Date: 07/17/18

Case Narrative (continued)

Report Submission

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

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

Authorized Signature:



Cristin Walker

Title: Technical Director/Representative

Date: 07/17/18

METALS

Project Name: ELIZABETH STONE HOUSE

Lab Number: L1826098

Project Number: 151.06163

Report Date: 07/17/18

SAMPLE RESULTS

Lab ID: L1826098-01
 Client ID: MW104-W2-071018
 Sample Location: DORCHESTER, MA

Date Collected: 07/10/18 12:10
 Date Received: 07/10/18
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	0.00042	1	07/12/18 10:45	07/13/18 12:03	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00035	J	mg/l	0.00100	0.00016	1	07/12/18 10:45	07/13/18 12:03	EPA 3005A	3,200.8	AM
Cadmium, Total	0.00019	J	mg/l	0.00020	0.00005	1	07/12/18 10:45	07/13/18 12:03	EPA 3005A	3,200.8	AM
Chromium, Total	0.00070	J	mg/l	0.00100	0.00017	1	07/12/18 10:45	07/13/18 12:03	EPA 3005A	3,200.8	AM
Copper, Total	0.00150		mg/l	0.00100	0.00038	1	07/12/18 10:45	07/13/18 12:03	EPA 3005A	3,200.8	AM
Iron, Total	0.388		mg/l	0.050	0.009	1	07/12/18 10:45	07/12/18 21:46	EPA 3005A	19,200.7	LC
Lead, Total	0.00109		mg/l	0.00100	0.00034	1	07/12/18 10:45	07/13/18 12:03	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	0.00009	1	07/11/18 12:27	07/11/18 19:51	EPA 245.1	3,245.1	EA
Nickel, Total	0.00173	J	mg/l	0.00200	0.00055	1	07/12/18 10:45	07/13/18 12:03	EPA 3005A	3,200.8	AM
Selenium, Total	0.00195	J	mg/l	0.00500	0.00173	1	07/12/18 10:45	07/13/18 12:03	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	07/12/18 10:45	07/13/18 12:03	EPA 3005A	3,200.8	AM
Zinc, Total	0.03626		mg/l	0.01000	0.00341	1	07/12/18 10:45	07/13/18 12:03	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	430		mg/l	0.660	NA	1	07/12/18 10:45	07/12/18 21:46	EPA 3005A	19,200.7	LC

General Chemistry - Mansfield Lab

Chromium, Trivalent	ND		mg/l	0.010	0.010	1		07/13/18 12:03	NA	107,-	
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Project Name: ELIZABETH STONE HOUSE

Lab Number: L1826098

Project Number: 151.06163

Report Date: 07/17/18

SAMPLE RESULTS

Lab ID: L1826098-02
 Client ID: MW105-W1-071018
 Sample Location: DORCHESTER, MA

Date Collected: 07/10/18 12:45
 Date Received: 07/10/18
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.00069	J	mg/l	0.00400	0.00042	1	07/12/18 10:45	07/13/18 12:08	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00235		mg/l	0.00100	0.00016	1	07/12/18 10:45	07/13/18 12:08	EPA 3005A	3,200.8	AM
Cadmium, Total	0.00015	J	mg/l	0.00020	0.00005	1	07/12/18 10:45	07/13/18 12:08	EPA 3005A	3,200.8	AM
Chromium, Total	0.00155		mg/l	0.00100	0.00017	1	07/12/18 10:45	07/13/18 12:08	EPA 3005A	3,200.8	AM
Copper, Total	0.00477		mg/l	0.00100	0.00038	1	07/12/18 10:45	07/13/18 12:08	EPA 3005A	3,200.8	AM
Iron, Total	4.03		mg/l	0.050	0.009	1	07/12/18 10:45	07/12/18 21:52	EPA 3005A	19,200.7	LC
Lead, Total	0.00314		mg/l	0.00100	0.00034	1	07/12/18 10:45	07/13/18 12:08	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	0.00009	1	07/11/18 12:27	07/11/18 19:53	EPA 245.1	3,245.1	EA
Nickel, Total	0.00253		mg/l	0.00200	0.00055	1	07/12/18 10:45	07/13/18 12:08	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	07/12/18 10:45	07/13/18 12:08	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	07/12/18 10:45	07/13/18 12:08	EPA 3005A	3,200.8	AM
Zinc, Total	0.01703		mg/l	0.01000	0.00341	1	07/12/18 10:45	07/13/18 12:08	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	286		mg/l	0.660	NA	1	07/12/18 10:45	07/12/18 21:52	EPA 3005A	19,200.7	LC

General Chemistry - Mansfield Lab

Chromium, Trivalent	ND		mg/l	0.010	0.010	1		07/13/18 12:08	NA	107,-	
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Project Name: ELIZABETH STONE HOUSE

Lab Number: L1826098

Project Number: 151.06163

Report Date: 07/17/18

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1134573-1										
Mercury, Total	ND		mg/l	0.00020	0.00009	1	07/11/18 12:27	07/11/18 18:59	3,245.1	EA

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1134919-1										
Antimony, Total	0.00208	J	mg/l	0.00400	0.00042	1	07/12/18 10:45	07/13/18 09:55	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	0.00016	1	07/12/18 10:45	07/13/18 09:55	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	07/12/18 10:45	07/13/18 09:55	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	0.00017	1	07/12/18 10:45	07/13/18 09:55	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	0.00038	1	07/12/18 10:45	07/13/18 09:55	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	0.00034	1	07/12/18 10:45	07/13/18 09:55	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	0.00055	1	07/12/18 10:45	07/13/18 09:55	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	07/12/18 10:45	07/13/18 09:55	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	07/12/18 10:45	07/13/18 09:55	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	07/12/18 10:45	07/13/18 09:55	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1134922-1										
Iron, Total	ND		mg/l	0.050	0.009	1	07/12/18 10:45	07/12/18 20:21	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A



Project Name: ELIZABETH STONE HOUSE

Lab Number: L1826098

Project Number: 151.06163

Report Date: 07/17/18

**Method Blank Analysis
Batch Quality Control**

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01-02 Batch: WG1134922-1									
Hardness	ND	mg/l	0.660	NA	1	07/12/18 10:45	07/12/18 20:21	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A



Lab Control Sample Analysis

Batch Quality Control

Project Name: ELIZABETH STONE HOUSE

Project Number: 151.06163

Lab Number: L1826098

Report Date: 07/17/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1134573-2								
Mercury, Total	107		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1134919-2								
Antimony, Total	87		-		85-115	-		
Arsenic, Total	104		-		85-115	-		
Cadmium, Total	108		-		85-115	-		
Chromium, Total	104		-		85-115	-		
Copper, Total	103		-		85-115	-		
Lead, Total	105		-		85-115	-		
Nickel, Total	102		-		85-115	-		
Selenium, Total	103		-		85-115	-		
Silver, Total	101		-		85-115	-		
Zinc, Total	106		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1134922-2								
Iron, Total	106		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 Batch: WG1134922-2								
Hardness	106		-		85-115	-		

INORGANICS & MISCELLANEOUS

Project Name: ELIZABETH STONE HOUSE
Project Number: 151.06163

Lab Number: L1826098
Report Date: 07/17/18

SAMPLE RESULTS

Lab ID: L1826098-01
Client ID: MW104-W2-071018
Sample Location: DORCHESTER, MA

Date Collected: 07/10/18 12:10
Date Received: 07/10/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	6.4		SU	-	NA	1	-	07/11/18 01:30	121,4500H+-B	MA
Chromium, Hexavalent	ND		mg/l	0.010	0.003	1	07/11/18 01:35	07/11/18 02:16	1,7196A	UN
Anions by Ion Chromatography - Westborough Lab										
Chloride	678.		mg/l	25.0	4.20	50	-	07/13/18 22:56	44,300.0	AU



Project Name: ELIZABETH STONE HOUSE

Lab Number: L1826098

Project Number: 151.06163

Report Date: 07/17/18

SAMPLE RESULTS

Lab ID: L1826098-02
 Client ID: MW105-W1-071018
 Sample Location: DORCHESTER, MA

Date Collected: 07/10/18 12:45
 Date Received: 07/10/18
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	7.0		SU	-	NA	1	-	07/11/18 01:30	121,4500H+-B	MA
Chromium, Hexavalent	ND		mg/l	0.010	0.003	1	07/11/18 01:35	07/11/18 02:16	1,7196A	UN
Anions by Ion Chromatography - Westborough Lab										
Chloride	817.		mg/l	25.0	4.20	50	-	07/13/18 23:08	44,300.0	AU



Project Name: ELIZABETH STONE HOUSE

Lab Number: L1826098

Project Number: 151.06163

Report Date: 07/17/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1134401-1										
Chromium, Hexavalent	ND		mg/l	0.010	0.003	1	07/11/18 01:35	07/11/18 02:13	1,7196A	UN
Anions by Ion Chromatography - Westborough Lab for sample(s): 01-02 Batch: WG1135608-1										
Chloride	ND		mg/l	0.500	0.083	1	-	07/13/18 17:32	44,300.0	AU



Lab Control Sample Analysis

Batch Quality Control

Project Name: ELIZABETH STONE HOUSE**Lab Number:** L1826098**Project Number:** 151.06163**Report Date:** 07/17/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1134401-2								
Chromium, Hexavalent	97		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1134407-1								
pH	100		-		99-101	-		5
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 Batch: WG1135608-2								
Chloride	101		-		90-110	-		

Matrix Spike Analysis Batch Quality Control

Project Name: ELIZABETH STONE HOUSE

Project Number: 151.06163

Lab Number: L1826098

Report Date: 07/17/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1134401-4 QC Sample: L1826098-01 Client ID: MW104-W2-071018												
Chromium, Hexavalent	ND	0.1	0.100	100		-	-		85-115	-		20

Lab Duplicate Analysis *Batch Quality Control*

Project Name: ELIZABETH STONE HOUSE

Project Number: 151.06163

Lab Number: L1826098

Report Date: 07/17/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1134401-3 QC Sample: L1826098-02 Client ID: MW105-W1-071018						
Chromium, Hexavalent	ND	ND	mg/l	NC		20

Project Name: ELIZABETH STONE HOUSE
Project Number: 151.06163

Serial_No:07171812:39
Lab Number: L1826098
Report Date: 07/17/18

Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1826098-01A	Plastic 250ml HNO3 preserved	A	<2	<2	2.3	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1826098-01B	Plastic 500ml unpreserved	A	7	7	2.3	Y	Absent		CL-300(28),HEXCR-7196(1),PH-4500(.01)
L1826098-02A	Plastic 250ml HNO3 preserved	A	<2	<2	2.3	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1826098-02B	Plastic 500ml unpreserved	A	7	7	2.3	Y	Absent		CL-300(28),HEXCR-7196(1),PH-4500(.01)

Project Name: ELIZABETH STONE HOUSE

Lab Number: L1826098

Project Number: 151.06163

Report Date: 07/17/18

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

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

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related

Report Format: DU Report with 'J' Qualifiers



Project Name: ELIZABETH STONE HOUSE

Lab Number: L1826098

Project Number: 151.06163

Report Date: 07/17/18

Data Qualifiers

projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



Project Name: ELIZABETH STONE HOUSE
Project Number: 151.06163

Lab Number: L1826098
Report Date: 07/17/18

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.
- 19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.
- 44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.
- 107 Alpha Analytical - In-house calculation method.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at its 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.



Alpha Analytical, Inc.
 Facility: **Company-wide**
 Department: **Quality Assurance**
 Title: **Certificate/Approval Program Summary**

ID No.: **17873**
 Revision 11
 Published Date: 1/8/2018 4:15:49 PM
 Page 1 of 1

Certification Information

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

Westborough Facility

EPA 624: m/p-xylene, o-xylene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzoethiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, SM4500P-E, SM4500P-B, E,**

SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: SM9223B-Colilert-QT; Enterolert-QT, SM9221E, SM9222D.

Mansfield Facility:

Drinking Water

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

EPA 522.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.

EPA 245.1 Hg.

SM2340B

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

PAGE 1 OF 1

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

Additional Project Information:

Project Information

ALPHA Quote #

Turn-Around Time

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

Date Due:

Report Information - Data Deliverables

☒ ADEx ☒ EMAIL

Billing Information

☒ Same as Client Info	PO #: <i>TBD</i>
---	------------------

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 *Brownfield* Criteria

ANALYSIS		SAMPLE INFO	
VOC: ☐ 8200 ☐ 624 ☐ 524.2		Filtration	
SVOC: ☐ ABN ☐ PAH		☐ Field	
METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15		☐ Lab to do	
METALS: ☐ RCR45 ☐ RCR48 ☐ PPT13		Preservation	
VPH: ☐ Ranges & Targets ☐ Ranges Only		☐ Lab to do	
☐ PCB ☐ PEST			
TPH: ☐ Quant Only ☐ Fingerprint			
RGP metals			
Chloride			
Trichrome - Calc			
PH			
Hardness			
Sample Comments			

Sample Comments

ALPHA Lab ID
(Lab Use Only)

Sample ID

Collection

Sample Matrix

Sample	Initial
--------	---------

26098-01	MW104-W2-071018	7/10/18	12:10	GW	CRW
-02	MW105-W1-071018	7/10/18	12:45	GW	CRW

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 = HNO₃
D = H₂SO₄
E = NaOH
F = MeOH
G = NaHSO₄
H = Na₂S₂O₇
I = Ascorbic Acid
J = NH₄Cl
K = Zn Acetate
O = Other

Container Type

Preservative

Relinquished By

DateTime

Received By:

DateTime

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

See reverse side
FORM NO 01-01 (rev 12-Mar-2012)



November 9, 2018

Ms. Michelle Kozminski
U.S. EPA Region 1
5 Post Office Square – OEP06-4
Boston, MA 02109-3912
Attn: Dewatering General Permit

RE: Elizabeth Stone House Dewatering General Permit

Dear Michelle,

We received your findings that the Elizabeth Stone House (ESH) is not eligible for coverage under the Dewatering General Permit (DGP) according to the sampling data submitted in the Notice of Intent (NOI) specifically due to the high chloride, iron, and lead results and the fact that the pH was low for one of the samples. The groundwater samples represented by the sampling data provided with the NOI were collected on July 10, 2018 from MW-104 and MW-105 by Ransom Consulting. In October, 2018 we tried to re-verify the original integrity of the samples collected in July 2018. After further research by Ransom and examination of their field records and observations, they concluded that the sample collection in July was likely flawed that the sample may not be representative of actual conditions. Field data indicated significant sediment and turbidity were present due to little water volume within the wells and the inability to properly purge the wells. Unfortunately this information was not presented to us prior to filing the original DGR NOI. ESH requested that Ransom resample the same wells for the same analytical parameters as were tested in July, 2018. Attached are the results from the October sampling events and a summary of their findings and conclusions from the two sampling events.

Ransom concluded that the concentrations of metals detected in the groundwater samples collected at the site in July 2018 are not representative of metal concentrations in the groundwater. Furthermore, only the iron concentration in the groundwater sample from MW-105 (2.26 mg/l) exceeded the Water Quality Based Effluent Limit (WQBEL) of 1 mg/l. No other parameters exceeded the WQBELs provided in Table 2 of the 2017 Remediation General Permit during the October sampling event.

During dewatering operations it is proposed that flows from the two dewatering locations will be blended together before entering the Roxbury municipal stormwater collection system. Although the pH from one of the samples was just below the acceptable minimum pH of 6.5, mixing the flows will bring the pH within the acceptable range of 6.5-8.3. Blending the flows will also reduce the iron concentration. Due to the groundwater contours on-site (see Attachment A of the Ransom report) and the topography of the site (see Attached USGS Map) dewatering flows will be higher from the Southern end of the site. A higher portion of the flow will be represented by the groundwater sampling results from MW-104. The iron concentration in the groundwater sample collected from MW-104 was 0.108 mg/l, well below the WQBEL of 1.0 mg/l/

CONSULTING ENGINEERS, PLANNERS AND SCIENTISTS

62 Montvale Avenue, Suite H
Stoneham, MA 02180-3637

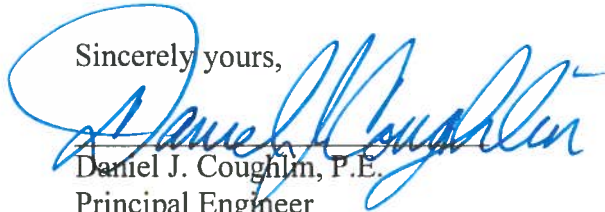
Phone 781-832-1002
Fax 781-438-9654
E-mail mail@coughlinenvironmental.com

November 9, 2018

It is still expected that the primary dewatering and disposal system would entail re-infiltrating dewatering flows back into the ground elsewhere on the site. It is envisioned that one or more receiving pits (10 ft. by 10 ft. by 4 ft. deep) would be excavated about 50 ft. away and used to re-infiltrate the dewatering water on site. It is only if the recharge capacity of the infiltration pits is exceeded and re-infiltration proves to be insufficient for dewatering disposal will dewatering flows be discharged to the Roxbury municipal stormwater collection system. Standard dewatering operations under a discharge scenario will use a fractionalization (frac) tank to settle solids and provide a more clarified flow for discharge. It is anticipated that the frac tank should help to further reduce the iron present in the blended flow and thereby more easily allow full compliance with the 1 mg/l iron limit. After the frac tank, the water would flow into a catch basin located on the site provided with a silt sock or bag filter for additional TSS removal prior to being discharged

Based on the October sampling event results and the detailed dewatering plan we would like to be reconsidered for coverage under the DGP for the Elizabeth Stone House. Please contact us with any comments on this letter or any further steps we may need to take.

Sincerely yours,

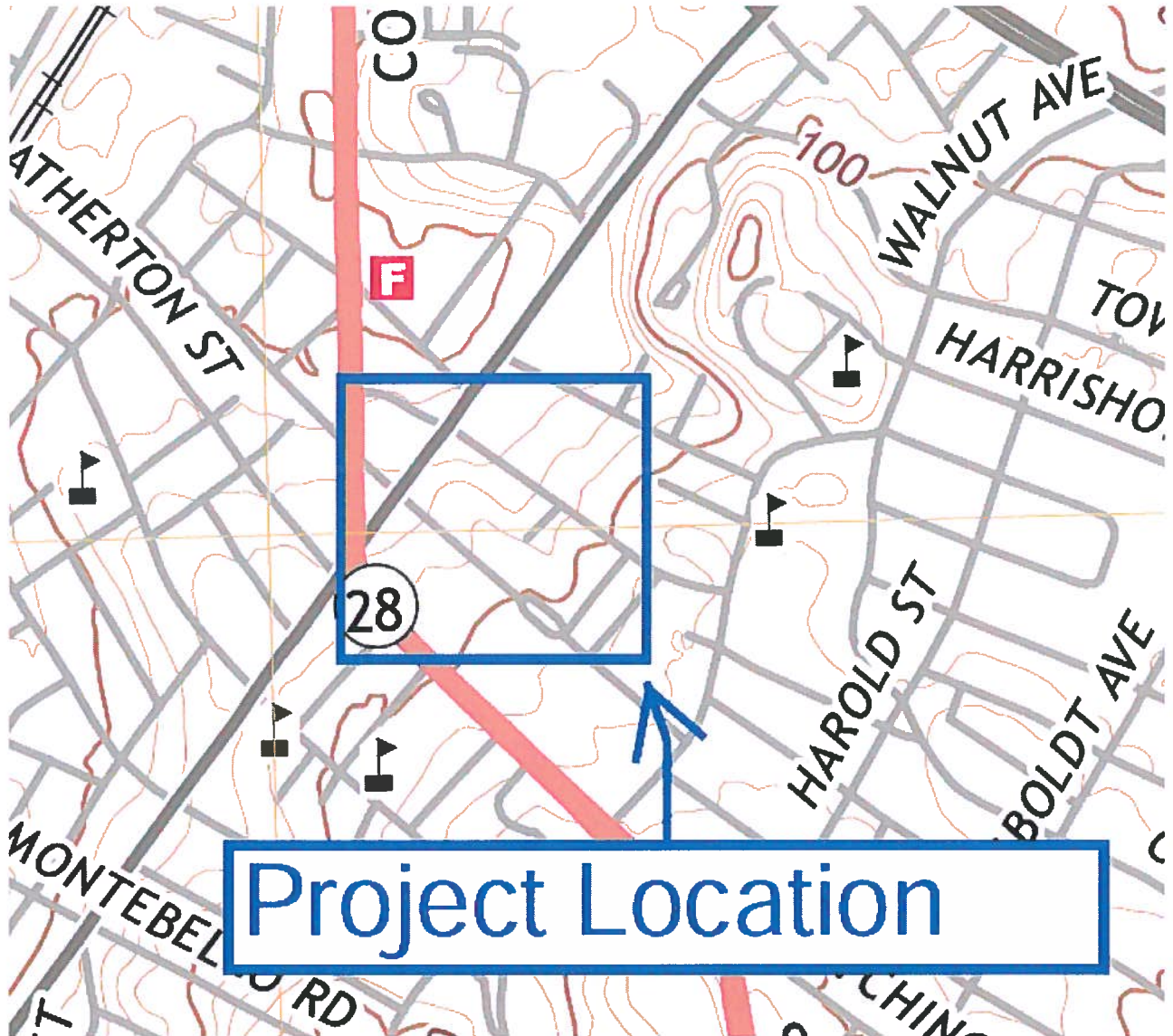


Daniel J. Coughlin, P.E.
Principal Engineer

cc:

United States Geological Survey Topography Map

From: Boston South Quadrangle



October 26, 2018

Project 121.01110.007

Ms. Nancy Hess, Executive Director
The Elizabeth Stone House
8 Notre Dame Street
Roxbury, Massachusetts 02119

RE: Summary of Groundwater Sampling – October 2018
Elizabeth Stone House
3012 Washington Street and 13 Westminster Avenue
Roxbury, Massachusetts

Dear Ms. Hess:

Ransom Consulting, Inc. (Ransom) has prepared this letter summarizing the groundwater sampling event completed for the Elizabeth Stone House (ESH) at the above-referenced property in Roxbury, Massachusetts (the Site). Ransom understands that the analytical data is required for the preparation of a Remediation General Permit (RGP) Notice of Intent (NOI) by Coughlin Environmental Services LLC (Coughlin).

BACKGROUND

In July 2018, Ransom was asked by ESH to collect groundwater samples from monitoring wells MW-4, MW104, and MW105 and was provided with a list of analytical parameters for which the samples were to be analyzed. The completed laboratory chemical analysis report was transmitted to ESH upon receipt for use by Coughlin. The locations of the groundwater monitoring wells at the Site are shown on the attached November 16, 2012 Groundwater Contour Plan provided as Attachment A.

On October 18, 2018, Ransom participated in a conference call pertaining to the proposed redevelopment of the Site. Coughlin reported that metals concentrations as detected in the July 2018 samples were problematic with respect to the requirements for the desired permit. Following a review of the field sampling notes, Ransom noted that well MW-4 was not sampled in July 2018 because it was dry. Well MW104, a 1-inch diameter well, contained 2.25 feet of water when initially gauged during the July sampling event. The well went dry after 5 minutes of purging at a low flow rate; the sample was collected when an adequate volume of water recharged into the well. Well MW105, a 2-inch diameter well, contained 3.02 feet of water when initially gauged during the July event. The water column dropped to 1.9 feet after 3 minutes of purging at a low flow rate; the sample was collected without additional purging to ensure that an adequate volume of water would be available for chemical analysis.

Ms. Ms. Nancy Hess
The Elizabeth Stone House

The samples were observed to be silty; Ransom suspected that the low purge volumes, poor recharge, and inability to document stabilization of the water prior to sampling likely resulted in entrained sediment in the samples and the presence of sediment could have influenced the analytical results. In October 2018, ESH requested that Ransom resample the wells for the same analytical parameters as were tested in July 2018.

GROUNDWATER SAMPLING

On October 22, 2018, Ransom was present at the Site to gauge three groundwater monitoring wells for depth to groundwater. If adequate water was present in each well, Ransom was to collect groundwater samples from monitoring wells MW4, MW104 and MW105 using low-flow sampling procedures based on the U.S. EPA document *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells* dated September 20, 2017.

Well MW4 appears to have been destroyed or was obstructed by debris; therefore, Ransom gauged adjacent well MW-10. Well MW-10 contained 4.69 feet of water but went dry after 5 minutes of purging and the recharge was slow. Wells MW104 and MW105 contained water columns of 2.48 feet and 4.69 feet, respectively, and both wells were recharging adequately during purging. While the wells were being purged, Ransom recorded the turbidity, oxidation/reduction potential (ORP), pH, dissolved oxygen, specific conductivity, and temperature of the samples.

Well MW104 was purged for 30 minutes; the turbidity of the groundwater decreased from 47.6 to 1.82 Nephelometric Turbidity Units (NTU) prior to sampling. Well MW105 was purged for 35 minutes; the turbidity of the groundwater decreased from 29.5 to 11.9 NTU prior to sampling. In well MW10, the initial groundwater sample turbidity was 1,360 NTU; after one hour after purging, the turbidity of the groundwater in the recharged well was 48.6 NTU.

After purging was terminated, groundwater samples were dispensed directly into laboratory-prepared glassware and stored on ice until delivery to Alpha Analytical, Inc. (Alpha) of Westborough, Massachusetts for chemical analysis. As requested by Coughlin, the samples from wells MW104 and MW105 were analyzed for the following:

1. Total metals (antimony, arsenic, cadmium, chromium III, copper, lead, nickel, selenium, silver, and zinc) by U.S. EPA Method 200.8;
2. Total iron by U.S. EPA Method 200.7;
3. Total mercury by U.S. EPA Method 245.1;
4. Total hexavalent chromium by U.S. EPA Method 7196A;
5. Hardness by U.S. EPA Method 200.7;
6. Chloride by U.S. EPA Method 300.0; and

Ms. Ms. Nancy Hess
The Elizabeth Stone House

7. pH by U.S. EPA Method 4500H+-B.

Because of the elevated turbidity in the groundwater sample collected from MW10, Ransom opined that the sample quality was not sufficiently representative for an analysis of total metals; therefore, only a filtered metals sample was collected for MW10. Ransom also collected filtered groundwater samples from wells MW104 and MW105 in the event that analysis for dissolved metals is desired in the future. The three filtered samples were not submitted for analysis but have been held for analysis at a later date, if desired.

CHEMICAL ANALYSIS RESULTS

As shown in Table 1, arsenic, chromium, copper, iron, lead, and zinc were detected in at least one of the groundwater samples collected from wells MW104 and MW105 at the following maximum concentrations:

Metal	Maximum Concentration (milligrams per liter)
Arsenic	0.0014
Chromium	0.00101
Copper	0.00465
Iron	2.26
Lead	0.00101
Zinc	0.02228

The hardness of the samples was 317 and 59.7 mg/l; chloride was detected at concentrations of 583 and 202 mg/l, and the pH was 6.4 and 7.0 S.U. For reference purposes, Table 1 also includes the chemical analysis results for the groundwater samples collected in July 2018. A copy of the laboratory chemical analysis report is provided as Attachment B.

DISCUSSION

Based on the initial water column, purging volumes, recharge rates, and final turbidity measurements, the groundwater samples collected from wells MW104 and MW105 are representative of the groundwater conditions at the Site. The turbidity in the sample collected from MW105 was above 5 NTU; there is the potential for entrained sediment in that sample to be contributing to the total metals concentrations but not to the extent that the sample would be deemed to be unrepresentative of the groundwater quality. Accordingly, Ransom opines that the concentrations of metals detected in the groundwater samples collected at the Site in July 2018 are not representative of metals concentrations in groundwater as a result of the observed high turbidity of these samples.

For reference only, Ransom compared the concentrations in groundwater to the Water Quality-Based Effluent Limit (WQBEL) provided in Table 2 of the 2017 Remediation General Permit (RGP). Note that Site-Specific Effluent Limits will be calculated by the permitting engineer and may differ from the

Ms. Ms. Nancy Hess
The Elizabeth Stone House

WQBEL. The iron concentration in the groundwater sample from well MW105 (2.26 mg/l) exceeds the WQBEL of 1 mg/l; the iron concentration in the groundwater sample collected from well MW104 was 0.108 mg/l. No other parameters exceeded the WQBEL during the October sampling event.

If you have any questions regarding this letter, please feel free to call us.
Sincerely,

RANSOM CONSULTING, INC.

 Nancy Marshall
2018.10.26 12:00:09 -04'00'

Nancy E. Marshall, P.E.
Project Manager

Timothy J. Snay, LSP, LEP
Principal, Vice President

NEM/TJS:ts

Attachments

TABLE 1- SUMMARY OF GROUNDWATER SAMPLE CHEMICAL ANALYSIS RESULTS

Proposed Elizabeth Stone House
3012 Washington Street and 13 Westminster Avenue
Roxbury, Massachusetts

Parameter	MW104		MW105		Water Quality Based Effluent Limit
Sample Date	7/10/2018	10/22/2018	7/10/2018	10/22/2018	
pH (SU)	6.4	6.4	7.0	7.0	
Metals, Total	Concentrations in milligrams per liter (mg/L)				
Antimony	ND (0.00042)	BRL (0.00400)	0.00069 J	BRL (0.00400)	0.640
Arsenic	0.00035 J	BRL (0.00100)	0.00235	0.00140	0.01
Cadmium	0.00019 J	BRL (0.00020)	0.00015 J	BRL (0.00020)	0.00025
Chromium	0.00070 J	BRL (0.00100)	0.00155	0.00101	0.074
Copper	0.0015	BRL (0.00100)	0.00477	0.00465	0.009
Iron	0.388	0.108	4.03	2.26	1.0
Lead	0.00109	BRL (0.00100)	0.00314	0.00101	0.0025
Mercury	ND (0.00009)	BRL (0.00020)	ND (0.00009)	BRL (0.00020)	0.00077
Nickel	0.00173 J	BRL (0.00200)	0.00253	BRL (0.00200)	0.052
Selenium	0.00195 J	BRL (0.00500)	ND (0.00173)	BRL (0.00500)	0.005
Silver	ND (0.00016)	BRL (0.00040)	ND (0.00016)	BRL (0.00040)	0.0032
Zinc	0.03626	0.02228	0.01703	BRL (0.01000)	0.120
Hex. Chromium	ND (0.003)	BRL (0.010)	ND (0.003)	BRL (0.010)	0.011
Misc.	Concentrations in mg/L				
Hardness	430	317	286	59.7	Report Only
Chloride	678	583	817	202	Report Only

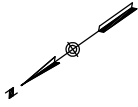
Notes:

1. The samples were collected on the dates indicated by Ransom Consulting, Inc. and analyzed by Alpha Analytical, Inc. of Westborough, Massachusetts.
2. ND () = Not detected at the Method Detection Limit shown in the parenthesis.
3. BRL () = Not detected at the Laboratory Reporting (Quantitation) Limit shown in the parenthesis.
4. J = Estimated concentration since it is below the Laboratory's Quantitation Limit.
5. Water Quality Based Effluent Limit (WQBEL) is taken from the 2017 Remediation General Permit (RGP), Table 2 and is **provided for reference only**. The Site-Specific Effluent Limits will be calculated by the permitting engineer.
6. Highlighted values exceed the WQBEL provided in the RGP.

ATTACHMENT A

Groundwater Contour Plan, November 16, 2012

Summary of Groundwater Sampling – October 2018
Elizabeth Stone House
3012 Washington Street and 13 Westminster Avenue
Roxbury, Massachusetts



Legend:

- BI03/MW103
- SV101
- BI110
- MW-2 98.04
- CATCH BASIN
- MANHOLE COVER
- DISPOSAL SITE BOUNDARY
- PARCEL BOUNDARY
- GROUNDWATER ELEVATION CONTOUR
- 98.00
- GROUNDWATER FLOW DIRECTION
- SITE BOUNDARY

1. SITE PLAN BASED ON MEASUREMENTS AND OBSERVATIONS MADE BY RANSOM CONSULTING, INC. FROM SEPTEMBER TO NOVEMBER 2012. AERIAL IMAGE IS PROVIDED BY GOOGLE EARTH.
2. SOME FEATURES ARE APPROXIMATE IN LOCATION AND SCALE.
3. THIS PLAN HAS BEEN PREPARED FOR THE ELIZABETH STONE HOUSE. ALL OTHER USES ARE NOT AUTHORIZED, UNLESS WRITTEN PERMISSION IS OBTAINED FROM RANSOM CONSULTING, INC.

SCALE in FEET
1" = 60'

ATTACHMENT B

Laboratory Chemical Analysis Data Report

Summary of Groundwater Sampling – October 2018
Elizabeth Stone House
3012 Washington Street and 13 Westminster Avenue
Roxbury, Massachusetts



ANALYTICAL REPORT

Lab Number:	L1843056
Client:	Ransom Consulting, Inc. 12 Kent Way Suite 100 Byfield, MA 01922-1221
ATTN:	Nancy Marshall
Phone:	(978) 465-1822
Project Name:	ELIZABETH STONE HOUSE
Project Number:	121.01110.007
Report Date:	10/23/18

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

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

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



Project Name: ELIZABETH STONE HOUSE
Project Number: 121.01110.007

Lab Number: L1843056
Report Date: 10/23/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1843056-01	MW-10-W1-102218	WATER	ROXBURY, MA	10/22/18 13:30	10/22/18
L1843056-02	MW104-W1-102218	WATER	ROXBURY, MA	10/22/18 10:45	10/22/18
L1843056-03	MW105-W1-102218	WATER	ROXBURY, MA	10/22/18 13:00	10/22/18

Project Name: ELIZABETH STONE HOUSE
Project Number: 121.01110.007

Lab Number: L1843056
Report Date: 10/23/18

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

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

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

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

HOLD POLICY

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

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

Project Name: ELIZABETH STONE HOUSE
Project Number: 121.01110.007

Lab Number: L1843056
Report Date: 10/23/18

Case Narrative (continued)

Sample Receipt

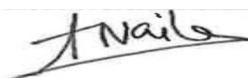
The analyses performed were specified by the client.

Anions by Ion Chromatography

The WG1171054-3 MS recovery for Chloride (77%), performed on L1843056-02, does not apply because the sample concentration is greater than four times the spike amount added.

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

Authorized Signature:



Amita Naik

Title: Technical Director/Representative

Date: 10/23/18

METALS

Project Name: ELIZABETH STONE HOUSE**Lab Number:** L1843056**Project Number:** 121.01110.007**Report Date:** 10/23/18**SAMPLE RESULTS**

Lab ID: L1843056-02

Date Collected: 10/22/18 10:45

Client ID: MW104-W1-102218

Date Received: 10/22/18

Sample Location: ROXBURY, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	10/23/18 07:25	10/23/18 11:48	EPA 3005A	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	10/23/18 07:25	10/23/18 11:48	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	10/23/18 07:25	10/23/18 11:48	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	10/23/18 07:25	10/23/18 11:48	EPA 3005A	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	10/23/18 07:25	10/23/18 11:48	EPA 3005A	3,200.8	AM
Iron, Total	0.108		mg/l	0.050	--	1	10/23/18 07:25	10/23/18 11:17	EPA 3005A	19,200.7	LC
Lead, Total	ND		mg/l	0.00100	--	1	10/23/18 07:25	10/23/18 11:48	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	10/23/18 10:08	10/23/18 12:15	EPA 245.1	3,245.1	MG
Nickel, Total	ND		mg/l	0.00200	--	1	10/23/18 07:25	10/23/18 11:48	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	10/23/18 07:25	10/23/18 11:48	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	10/23/18 07:25	10/23/18 11:48	EPA 3005A	3,200.8	AM
Zinc, Total	0.02228		mg/l	0.01000	--	1	10/23/18 07:25	10/23/18 11:48	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	317		mg/l	0.660	NA	1	10/23/18 07:25	10/23/18 11:17	EPA 3005A	19,200.7	LC

General Chemistry - Mansfield Lab

Chromium, Trivalent	ND		mg/l	0.010	--	1	10/23/18 11:48	NA	107,-		
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Project Name: ELIZABETH STONE HOUSE**Lab Number:** L1843056**Project Number:** 121.01110.007**Report Date:** 10/23/18**SAMPLE RESULTS**

Lab ID: L1843056-03

Date Collected: 10/22/18 13:00

Client ID: MW105-W1-102218

Date Received: 10/22/18

Sample Location: ROXBURY, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	10/23/18 07:25	10/23/18 11:51	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00140		mg/l	0.00100	--	1	10/23/18 07:25	10/23/18 11:51	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	10/23/18 07:25	10/23/18 11:51	EPA 3005A	3,200.8	AM
Chromium, Total	0.00101		mg/l	0.00100	--	1	10/23/18 07:25	10/23/18 11:51	EPA 3005A	3,200.8	AM
Copper, Total	0.00465		mg/l	0.00100	--	1	10/23/18 07:25	10/23/18 11:51	EPA 3005A	3,200.8	AM
Iron, Total	2.26		mg/l	0.050	--	1	10/23/18 07:25	10/23/18 11:39	EPA 3005A	19,200.7	LC
Lead, Total	0.00101		mg/l	0.00100	--	1	10/23/18 07:25	10/23/18 11:51	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	10/23/18 10:08	10/23/18 12:21	EPA 245.1	3,245.1	MG
Nickel, Total	ND		mg/l	0.00200	--	1	10/23/18 07:25	10/23/18 11:51	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	10/23/18 07:25	10/23/18 11:51	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	10/23/18 07:25	10/23/18 11:51	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	10/23/18 07:25	10/23/18 11:51	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	59.7		mg/l	0.660	NA	1	10/23/18 07:25	10/23/18 11:39	EPA 3005A	19,200.7	LC

General Chemistry - Mansfield Lab

Chromium, Trivalent	ND		mg/l	0.010	--	1	10/23/18 11:51	NA	107,-
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Project Name: ELIZABETH STONE HOUSE

Lab Number: L1843056

Project Number: 121.01110.007

Report Date: 10/23/18

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 02-03 Batch: WG1171119-1										
Antimony, Total	ND		mg/l	0.00400	--	1	10/23/18 07:25	10/23/18 11:25	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	10/23/18 07:25	10/23/18 11:25	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	10/23/18 07:25	10/23/18 11:25	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	10/23/18 07:25	10/23/18 11:25	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	10/23/18 07:25	10/23/18 11:25	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	10/23/18 07:25	10/23/18 11:25	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	10/23/18 07:25	10/23/18 11:25	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	10/23/18 07:25	10/23/18 11:25	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	10/23/18 07:25	10/23/18 11:25	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	10/23/18 07:25	10/23/18 11:25	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 02-03 Batch: WG1171120-1										
Iron, Total	ND		mg/l	0.050	--	1	10/23/18 07:25	10/23/18 11:09	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 02-03 Batch: WG1171120-1										
Hardness	ND		mg/l	0.660	NA	1	10/23/18 07:25	10/23/18 11:09	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A



Project Name: ELIZABETH STONE HOUSE**Lab Number:** L1843056**Project Number:** 121.01110.007**Report Date:** 10/23/18

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 02-03 Batch: WG1171222-1										
Mercury, Total	ND		mg/l	0.00020	--	1	10/23/18 10:08	10/23/18 12:12	3,245.1	MG

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis
Batch Quality Control

Project Name: ELIZABETH STONE HOUSE
Project Number: 121.01110.007

Lab Number: L1843056
Report Date: 10/23/18

Parameter	LCS		LCSD		%Recovery		RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual	%Recovery	Limits			
Total Metals - Mansfield Lab Associated sample(s): 02-03 Batch: WG1171119-2									
Antimony, Total	99		-		85-115		-		
Arsenic, Total	96		-		85-115		-		
Cadmium, Total	102		-		85-115		-		
Chromium, Total	97		-		85-115		-		
Copper, Total	96		-		85-115		-		
Lead, Total	105		-		85-115		-		
Nickel, Total	101		-		85-115		-		
Selenium, Total	97		-		85-115		-		
Silver, Total	98		-		85-115		-		
Zinc, Total	108		-		85-115		-		
Total Metals - Mansfield Lab Associated sample(s): 02-03 Batch: WG1171120-2									
Iron, Total	92		-		85-115		-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 02-03 Batch: WG1171120-2									
Hardness	96		-		85-115		-		
Total Metals - Mansfield Lab Associated sample(s): 02-03 Batch: WG1171222-2									
Mercury, Total	97		-		85-115		-		

Matrix Spike Analysis
Batch Quality Control

Project Name: ELIZABETH STONE HOUSE
Project Number: 121.01110.007

Lab Number: L1843056
Report Date: 10/23/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD Qual	RPD Limits
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Total Metals - Mansfield Lab Associated sample(s): 02-03 QC Batch ID: WG1171119-3 QC Sample: L1843056-02 Client ID: MW104-W1-102218

Antimony, Total	ND	0.5	0.5539	111	-	-	70-130	-	20
Arsenic, Total	ND	0.12	0.1251	104	-	-	70-130	-	20
Cadmium, Total	ND	0.051	0.05579	109	-	-	70-130	-	20
Chromium, Total	ND	0.2	0.2099	105	-	-	70-130	-	20
Copper, Total	ND	0.25	0.2555	102	-	-	70-130	-	20
Lead, Total	ND	0.51	0.5686	111	-	-	70-130	-	20
Nickel, Total	ND	0.5	0.5222	104	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1225	102	-	-	70-130	-	20
Silver, Total	ND	0.05	0.05183	104	-	-	70-130	-	20
Zinc, Total	0.02228	0.5	0.6489	125	-	-	70-130	-	20

Total Metals - Mansfield Lab Associated sample(s): 02-03 QC Batch ID: WG1171120-3 QC Sample: L1843056-02 Client ID: MW104-W1-102218

Iron, Total	0.108	1	1.06	95	-	-	75-125	-	20
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Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 02-03 QC Batch ID: WG1171120-3 QC Sample: L1843056-02 Client ID: MW104-W1-102218

Hardness	317	66.2	372	83	-	-	75-125	-	20
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Total Metals - Mansfield Lab Associated sample(s): 02-03 QC Batch ID: WG1171222-3 QC Sample: L1843056-02 Client ID: MW104-W1-102218

Mercury, Total	ND	0.005	0.00458	92	-	-	70-130	-	20
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Lab Duplicate Analysis
Batch Quality Control

Project Name: ELIZABETH STONE HOUSE
Project Number: 121.01110.007

Lab Number: L1843056
Report Date: 10/23/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 02-03 QC Batch ID: WG1171119-4 QC Sample: L1843056-02 Client ID: MW104-W1-102218						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	ND	ND	mg/l	NC		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	ND	ND	mg/l	NC		20
Copper, Total	ND	ND	mg/l	NC		20
Lead, Total	ND	ND	mg/l	NC		20
Nickel, Total	ND	ND	mg/l	NC		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.02228	0.02196	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 02-03 QC Batch ID: WG1171120-4 QC Sample: L1843056-02 Client ID: MW104-W1-102218						
Iron, Total	0.108	0.109	mg/l	1		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 02-03 QC Batch ID: WG1171120-4 QC Sample: L1843056-02 Client ID: MW104-W1-102218						
Hardness	317	320	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 02-03 QC Batch ID: WG1171222-4 QC Sample: L1843056-02 Client ID: MW104-W1-102218						
Mercury, Total	ND	ND	mg/l	NC		20



INORGANICS & MISCELLANEOUS

Project Name: ELIZABETH STONE HOUSE

Project Number: 121.01110.007

Lab Number: L1843056

Report Date: 10/23/18

SAMPLE RESULTS

Lab ID: L1843056-01

Client ID: MW-10-W1-102218

Sample Location: ROXBURY, MA

Date Collected: 10/22/18 13:30

Date Received: 10/22/18

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	8.0		SU	-	NA	1	-	10/22/18 22:41	121,4500H+-B	AS
Chromium, Hexavalent	ND		mg/l	0.010	--	1	10/23/18 01:00	10/23/18 01:30	1,7196A	MA



Project Name: ELIZABETH STONE HOUSE
Project Number: 121.01110.007

Lab Number: L1843056
Report Date: 10/23/18

SAMPLE RESULTS

Lab ID: L1843056-02
Client ID: MW104-W1-102218
Sample Location: ROXBURY, MA

Date Collected: 10/22/18 10:45
Date Received: 10/22/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	6.4		SU	-	NA	1	-	10/22/18 22:41	121,4500H+-B	AS
Chromium, Hexavalent	ND		mg/l	0.010	--	1	10/23/18 01:00	10/23/18 01:31	1,7196A	MA
Anions by Ion Chromatography - Westborough Lab										
Chloride	583.		mg/l	12.5	--	25	-	10/23/18 00:04	44,300.0	JR



Project Name: ELIZABETH STONE HOUSE

Project Number: 121.01110.007

Lab Number: L1843056

Report Date: 10/23/18

SAMPLE RESULTS

Lab ID: L1843056-03

Client ID: MW105-W1-102218

Sample Location: ROXBURY, MA

Date Collected: 10/22/18 13:00

Date Received: 10/22/18

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	7.0		SU	-	NA	1	-	10/22/18 22:41	121,4500H+-B	AS
Chromium, Hexavalent	ND		mg/l	0.010	--	1	10/23/18 01:00	10/23/18 01:31	1,7196A	MA
Anions by Ion Chromatography - Westborough Lab										
Chloride	202.		mg/l	12.5	--	25	-	10/23/18 00:28	44,300.0	JR



Project Name: ELIZABETH STONE HOUSE**Lab Number:** L1843056**Project Number:** 121.01110.007**Report Date:** 10/23/18**Method Blank Analysis**
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1171049-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	10/23/18 01:00	10/23/18 01:29	1,7196A	MA
Anions by Ion Chromatography - Westborough Lab for sample(s): 02-03 Batch: WG1171054-1										
Chloride	ND		mg/l	0.500	--	1	-	10/22/18 18:28	44,300.0	JR

Lab Control Sample Analysis
Batch Quality Control

Project Name: ELIZABETH STONE HOUSE
Project Number: 121.01110.007

Lab Number: L1843056
Report Date: 10/23/18

Parameter	LCS		LCSD		%Recovery		RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual	%Recovery	Limits			
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1171023-1									
pH	100		-		99-101		-		5
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1171049-2									
Chromium, Hexavalent	96		-		85-115		-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 02-03 Batch: WG1171054-2									
Chloride	95		-		90-110		-		



Project Name: ELIZABETH STONE HOUSE
Project Number: 121.01110.007

Matrix Spike Analysis
Batch Quality Control

Lab Number: L1843056
Report Date: 10/23/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	%Recovery Qual	MSD Recovery Limits	RPD Qual Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1171049-4 QC Sample: L1843056-03 Client ID: MW105-W1-102218									
Chromium, Hexavalent	ND	0.1	0.098	98		-	-	85-115	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1171054-3 QC Sample: L1843056-02 Client ID: MW104-W1-102218									
Chloride	583	100	660	77	Q	-	-	90-110	18



Lab Duplicate Analysis
Batch Quality Control

Project Name: ELIZABETH STONE HOUSE
Project Number: 121.01110.007

Lab Number: L1843056
Report Date: 10/23/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1171049-3 QC Sample: L1843056-02 Client ID: MW104-W1-102218						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1171054-4 QC Sample: L1843056-02 Client ID: MW104-W1-102218						
Chloride	583	583	mg/l	0		18



Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information
Cooler A
Custody Seal Absent

Container Information			Initial			Final			Frozen			Analysis(*)
Container ID	Container Type	Cooler	pH	pH	deg C	Pres	Seal	Date/Time				
L1843056-01A	Plastic 500ml unpreserved	A	7	7	3.5	Y	Absent					HEXCR-7196(1),PH-4500(.01)
L1843056-01B	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent					HOLD-METAL-DISSOLVED(180)
L1843056-02A	Plastic 500ml unpreserved	A	7	7	3.5	Y	Absent					CL-300(28),HEXCR-7196(1),PH-4500(.01)
L1843056-02C	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent					HOLD-METAL-DISSOLVED(180)
L1843056-02D	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent					CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1843056-03A	Plastic 500ml unpreserved	A	7	7	3.5	Y	Absent					CL-300(28),HEXCR-7196(1),PH-4500(.01)
L1843056-03C	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent					HOLD-METAL-DISSOLVED(180)
L1843056-03D	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent					CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)

Project Name: ELIZABETH STONE HOUSE
Project Number: 121.01110.007

Lab Number: L1843056
Report Date: 10/23/18

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

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

Report Format: Data Usability Report



Project Name: ELIZABETH STONE HOUSE**Lab Number:** L1843056**Project Number:** 121.01110.007**Report Date:** 10/23/18**Data Qualifiers**

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: ELIZABETH STONE HOUSE
Project Number: 121.01110.007

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Report Date: 10/23/18

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.
- 19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.
- 44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.
- 107 Alpha Analytical - In-house calculation method.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

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

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



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 12

Department: **Quality Assurance**

Published Date: 10/9/2018 4:58:19 PM

Title: **Certificate/Approval Program Summary**

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Certification Information

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

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**EPA 6860:** SCM: Perchlorate**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** 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 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.** **EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

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

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From: [Jake Moorman](#)
To: [Vuto, Michelle](#)
Cc: dcoughlin@coughlinenvironmental.com
Subject: RE: NPDES Notice of Intent
Date: Wednesday, November 14, 2018 2:13:24 PM

Hi Michelle,

The current dewatering plan entails blending the flows from multiple locations into a single frac tank. The pH of the sample from MW-104 was recorded to be 6.4, just below the minimum required pH of 6.5. We believe the pH of the blended water will be within the 6.5-8.3 range for pH. However, it is anticipated that the Contractor will have a storage of Calcium Carbonate on-site in the event that the water leaving the frac tank does not meet the pH standard set by the EPA.

Let me know if you need any other information.

Sincerely,

Jake Moorman

From: Vuto, Michelle [<mailto:Vuto.Michelle@epa.gov>]
Sent: Wednesday, November 14, 2018 1:56 PM
To: Jake Moorman
Cc: dcoughlin@coughlinenvironmental.com
Subject: RE: NPDES Notice of Intent

Hi Jake,

EPA is concerned that the project's discharge may not meet the 6.5-8.3 range for pH. Can you please respond with what pH treatment the site will use to ensure that the discharge will meet this range?

Thanks,
Michelle