



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 1

**5 Post Office Square, Suite 100
BOSTON, MA 02109-3912**

CERTIFIED MAIL RETURN RECEIPT REQUESTED

JAN 26 2015

Russell Parkman
Project Manager
GZA GeoEnvironmental, Inc.
249 Vanderbilt Avenue
Norwood, MA 02062

Re: Authorization to discharge under the Remediation General Permit (RGP) –
MAG910000. Joseph M. Smith Community Health Center site located at 1420 Soldiers
Field Road, Brighton, MA 02134 Suffolk County; Authorization # MAG910656

Dear Mr. Parkman:

After having reviewed your Notice of Intent (NOI) submittal on behalf of Joseph M. Smith Community Health Center referenced above, the U.S. Environmental Protection Agency (EPA) hereby authorizes you, as the named Operator, to discharge in accordance with the provisions of the RGP at that site. Your authorization number is listed above.

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

Please note the enclosed checklist includes parameters that exceeded Appendix III limits. The checklist also includes other parameters for which your laboratory reports indicated there was insufficient sensitivity to detect these parameters at the minimum levels established in Appendix VI of the RGP.

Also, please note that the metals included on the checklist are dilution dependent pollutants and subject to limitations based on a dilution factor range (DFR), due to the ample dilution at the point of discharge (131) the DFR applicable for this pollutant is within a dilution range greater than one hundred (>100) established in the RGP. (See the RGP Appendix IV for Massachusetts facilities). Therefore, the limit for arsenic of 540

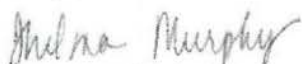
ug/L, cadmium of 10 ug/L, copper of 520 ug/L, lead of 132 ug/L, nickel of 2, 380 ug/L, and zinc of 1,480 ug/L shall not be exceeded in the discharge.

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

This EPA general permit and authorization to discharge will expire on September 9, 2015. You have not reported termination date for this site. Please be aware you are required to reapply for coverage after the EPA expired permit has been reissued. The reissuance date as well as the reapplication submittal date will be posted on the web at that time. Also, regardless of your project termination date you are required to submit a Notice of Termination (NOT) to the attention of the contact person indicated below within 30 days of project completion.

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

Sincerely,



Thelma Murphy, Chief
Storm Water and Construction
Permits Section

Enclosure

cc: Robert Kubit, MassDEP
Stephen Shea, BWSC

**2010 Remediation General Permit
Summary of Monitoring Parameters^[1]**

NPDES Authorization Number:	MAG910656
Authorization Issued:	January, 2015
Facility/Site Name:	Joseph Smith Community Health Center
Facility/Site Address:	1420 Soldiers Field Road, Brighton, MA 02134, Suffolk County
	Email address of owner: ebrowne@jmchc.org
Legal Name of Operator:	GZA GeoEnvironmental, Inc.
Operator contact name, title, and Address:	Russell Parkman, Senior Project Manager located at 249 Vanderbilt Avenue
	Email: Not Provided. Telephone n.: 7812785831
Estimated date of the site's Completion:	Not provided or unknown
Category and Sub-Category:	Category II- Non Petroleum Site Remediation. Subcategory B. VOC Sites with Additional Contamination
RGP Termination Date:	September 10, 2015
Receiving Water:	Charles River

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

	<u>Parameter</u>	<u>Effluent Limit/Method#/ML</u> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
✓	1. Total Suspended Solids (TSS)	30 milligrams/liter (mg/L) **, 50 mg/L for hydrostatic testing ** Me#160.2/ML5ug/L
	2. Total Residual Chlorine (TRC) ¹	Freshwater = 11 ug/L ** Saltwater = 7.5 ug/L **/ Me#330.5/ML 20ug/L
✓	3. Total Petroleum Hydrocarbons (TPH)	5.0 mg/L/ Me# 1664A/ML 5.0mg/L
	4. Cyanide (CN) ^{2, 3}	Freshwater = 5.2 ug/l ** Saltwater = 1.0 ug/L **/ Me#335.4/ML 10ug/L
	5. Benzene (B)	5ug/L /50.0 ug/L for hydrostatic testing only/ Me#8260C/ML 2 ug/L
	6. Toluene (T)	(limited as ug/L total BTEX)/ Me#8260C/ ML 2ug/L
	7. Ethylbenzene (E)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L
	8. (m,p,o) Xylenes (X)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L
	9. Total Benzene, Toluene, Ethyl Benzene, and Xylenes	100 ug/L/ Me#8260C/ ML 2ug/L

	<u>Parameter</u>	<u>Effluent Limit/Method# /ML</u> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
	(BTEX) ⁴	
	10. Ethylene Dibromide (EDB) (1,2- Dibromoethane)	0.05 ug/l/ Me#8260C/ ML 10ug/L
	11. Methyl-tert-Butyl Ether (MtBE)	70.0 ug/l/Me#8260C/ML 10ug/L
	12.tert-Butyl Alcohol (TBA) (TertiaryButanol)	Monitor Only(ug/L)/Me#8260C/ML 10ug/L
	13. tert-Amyl Methyl Ether (TAME)	Monitor Only(ug/L)/Me#8260C/ML 10ug/L
	14. Naphthalene ⁵	20 ug/L /Me#8260C/ML 2ug/L
	15. Carbon Tetrachloride	4.4 ug/L /Me#8260C/ ML 5ug/L
	16. 1,2 Dichlorobenzene (o- DCB)	600 ug/L /Me#8260C/ ML 5ug/L
	17. 1,3 Dichlorobenzene (m- DCB)	320 ug/L /Me#8260C/ ML 5ug/L
	18. 1,4 Dichlorobenzene (p- DCB)	5.0 ug/L /Me#8260C/ ML 5ug/L
	18a. Total dichlorobenzene	763 ug/L - NH only /Me#8260C/ ML 5ug/L
	19. 1,1 Dichloroethane (DCA)	70 ug/L /Me#8260C/ ML 5ug/L
	20. 1,2 Dichloroethane (DCA)	5.0 ug/L /Me#8260C/ ML 5ug/L
	21. 1,1 Dichloroethene (DCE)	3.2 ug/L/Me#8260C/ ML 5ug/L
	22. cis-1,2 Dichloroethene (DCE)	70 ug/L/Me#8260C/ ML 5ug/L
	23. Methylene Chloride	4.6 ug/L/Me#8260C/ ML 5ug/L
	24. Tetrachloroethene (PCE)	5.0 ug/L/Me#8260C/ ML 5ug/L
	25. 1,1,1 Trichloro-ethane (TCA)	200 ug/L/Me#8260C/ ML 5ug/L
	26. 1,1,2 Trichloro-ethane (TCA)	5.0 ug/L /Me#8260C/ ML 5ug/L
	27. Trichloroethene (TCE)	5.0 ug/L /Me#8260C/ ML 5ug/L
	28. Vinyl Chloride (Chloroethene)	2.0 ug/L /Me#8260C/ ML 5ug/L
✓	29. Acetone	Monitor Only(ug/L)/Me#8260C/ML 50ug/L
✓	30. 1,4 Dioxane	Monitor Only /Me#1624C/ML 50ug/L
	31. Total Phenols	300 ug/L Me#420.1&420.2/ML 2 ug/L/ Me# 420.4 /ML 50ug/L
	32. Pentachlorophenol (PCP)	1.0 ug/L /Me#8270D/ML 5ug/L, Me#604 &625/ML 10ug/L
	33. Total Phthalates (Phthalate esters) ⁶	3.0 ug/L ** /Me#8270D/ML 5ug/L, Me#606/ML 10ug/L& Me#625/ML 5ug/L
	34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]	6.0 ug/L /Me#8270D/ML 5ug/L, Me#606/ML 10ug/L & Me#625/ML 5ug/L
	35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	10.0 ug/L

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

	<u>Metal parameter</u>	<u>Total Recoverable MA/Metal Limit H¹⁰ = 50 mg/l CaCO₃, Units = ug/l (11/12)</u>		<u>Minimum level=ML</u>	
		<u>Freshwater Limits</u>			
	39. Antimony	5.6		ML	10
✓	40. Arsenic **	10		ML	20
✓	41. Cadmium **	0.2		ML	10
	42. Chromium III (trivalent) **	48.8		ML	15
	43. Chromium VI (hexavalent) **	11.4		ML	10
✓	44. Copper **	5.2		ML	15
✓	45. Lead **	1.3		ML	20
	46. Mercury **	0.9		ML	02
✓	47. Nickel **	29		ML	20
	48. Selenium **	5		ML	20
	49. Silver	1.2		ML	10
✓	50. Zinc **	66.6		ML	15
	51. Iron	1,000		ML	20

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

Footnotes:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

¹⁴ Temperature sampling per Method 170.1

January 7, 2015
File No. 18.0170852.10



372 Merrimac Street
Newburyport
Massachusetts 01950
781-278-4800 Phone
978-465-2640 FAX
www.gza.com

Mr. Victor Alvarez
United States Environmental Protection Agency – Region 1
5 Post Office Square, Mail Code OEP06-4
Boston, Massachusetts, 02109-3912

Re: Submittal of Notice of Intent (NOI)
Remedial General Permit
Joseph Smith, 1420 Soldiers Field Road
Brighton, Massachusetts

Dear Mr. Alvarez:

GZA GeoEnvironmental, Inc. (GZA) is submitting the attached Notice of Intent (NOI) form (Attachment 1) for the Remedial General Permit (RGP) for the Joseph M. Smith Community Health Center project (the Site) located in Brighton, Massachusetts.

BACKGROUND

The Site is located between Western Avenue and Soldiers Field Road in Brighton, Massachusetts. The subject property was most recently occupied by a Massachusetts State Police barracks and a Department of Conservation and Recreation (DCR) vehicle maintenance facility. A site locus plan is included as Figure 1 (Attachment 2), and a site plan is shown on Figure 2 (Attachment 3). The Owner is planning to construct a new medical facility on land granted from the Commonwealth of Massachusetts. The site is currently listed as an MCP disposal site under two open Release Tracking Numbers (RTNs). RTN 3-28635 was issued for a spill from a 10,000-gallon No. 2 fuel oil underground storage tank (UST) removed in 1998. This UST was located along the building wall between the salt storage shed and the southeast corner of the main Site building. RTN 3-28636 was assigned to the property for an apparently separate release of chlorinated solvents found in soil and groundwater at the Site; this release appears to have originated on the southeast portion of the 1420 Soldiers Field Road property.

During the implementation of remedial strategies, discharge of treated water will be required for the duration of the remediation project.

The remediation strategies at the Site include the use of a High Vacuum Extraction (HVE) system. HVE is performed by applying a relatively high vacuum to the selected wells for the purpose of simultaneously extracting groundwater, dense-non-aqueous phase liquid, and vapor. The HVE will include 8 extraction wells seen on the site plan in Figure 2 (Attachment 3).

The extracted groundwater will be pumped into a 20,000 gallon sedimentation tank before being treated with a bag house filter and liquid phase granulated carbon (LGAC). The flow rate of the LGAC system is designed to be 10 gpm. The bag filters and LGAC will be replaced periodically and the tank will be cleaned out when sediments accumulate to a depth equal to one-quarter of the liquid level. A flow meter will be installed so that the discharge quantity can be observed. Treatment schematics are attached in Figure 4 (Attachment 5). The treatment system will be accessible for maintenance, monitoring, and sampling purpose.



The proposed discharge point is the catch basin located in the northwestern corner of the 1420 Soldiers Field Road property. The approximate location of the catch basin is shown in Figure 2 (Attachment 3). This catch basin leads to storm drain lines owned by the Department of Conservation and Recreation (DCR). According to utility maps obtained from the DCR, the storm drain lines have been determined to ultimately outlet into the Charles River as shown in Figure 3 (Attachment 4).

The sedimentation tank will hold 20,000 gallons. The tank size was based on an assumed maximum pumping rate of 50 gallons per minute (gpm). The actual pumping rate may vary due to the size and depth of well/sumps and hydrogeologic characteristics of the soil/fill material. In addition to the sedimentation tank, water will be pumped through a bag filters and activated carbon units prior to discharge. The bag filters will be replaced periodically and the tank will be cleaned out when sediments accumulate to a depth equal to one-quarter of the liquid level. A flow meter will be installed so that the discharge quantity can be observed.

NOTICE OF INTENT

This NOI has included a review of literature pertaining to Areas of Critical Environmental Concern (ACEC), Endangered Species Act (ESA), and the National Historic Preservation Act (NHPA), as documented below:

- Review of Appendix I “Areas of Critical Environmental Concern” (June 2009) found that the Site does not discharge to an ACEC.
- Review of Appendix II “Federally Listed Endangered and Threatened Species in Massachusetts” (July 2008) found that there are no listed species in the Allston/ Brighton neighborhood of the City of Boston, Massachusetts.
- Review of the Massachusetts Geographic Information Systems (MassGIS) DEP Priority Resources Map of Allston shows that there are no ACECs and no habitats of Species of Special Concern or Threatened or Endangered Species within 500 feet of the subject site. Therefore, permit eligibility meets “Criterion A.” As shown on the map generated by the MassGIS online viewer, which can be found in Attachment 6, no ACECs or Estimated Habitats of Rare Wildlife areas are located within a half mile downstream of the discharge location.
- Review of the New England Field Office Division of Fisheries and Wildlife online database identified no threatened or endangered species at the point of discharge. Additionally, National Oceanic and Atmospheric Administration (NOAA) was contacted for information regarding oceanic fisheries and their response (Attachment 7) states that no listed species will be affected by the discharges into the Charles River.
- An electronic review of the Massachusetts Cultural Resource Information System database, made available through Massachusetts Historical Commission, found one listing for a historical building, Metropolitan District Commission Police Station, on the Site. The police station was decommissioned in 2013 and the building is currently undergoing demolition in preparation for construction of the Joseph Smith Community Health Center project. Additionally, the Charles River Speedway Buildings located adjacent to the Site are also listed as historical buildings. The documentation of this review can be found in Attachment 8. The water generated during the excavation for the new building foundation will be treated on-Site and then pumped directly into a catch basin located on-Site. The historical properties adjacent to the Site will not be affected by the discharge and, therefore, permit eligibility meets “Criterion 2.”
- Laboratory analytical results shown in Part 3 of Attachment 1 are included as Attachment 9. Groundwater was tested on February 3, 2014. Groundwater samples were taken from TP-8, which is located to the east of the existing electrical shed within the footprint of the foundation area anticipated to require dewatering. It should be noted that a few of the results were not



reported to the required minimum level (ML) of the test method. However, we do not have reason to believe these parameters are present in the groundwater based on historical use. The only detected analytes which exceeded the effluent limits listed in Appendix III were arsenic, cadmium and copper. A dilution factor was calculated for the discharge point (Attachment 10) and used to compare to the corresponding effluent limits in Appendix IV. None of the analytes exceeded the limits set in Appendix IV.

Please do not hesitate to contact the undersigned at (617) 963-1014 if you have any questions or require further information.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

A handwritten signature in blue ink, appearing to read 'Russell Parkman'.

Russell Parkman, P.E.
Senior Project Manager

A handwritten signature in blue ink, appearing to read 'Lawrence Feldman'.

Lawrence Feldman
Consultant/Reviewer

A handwritten signature in black ink, appearing to read 'Frank Vetere'.

Frank Vetere, LSP, P.E.
Associate Principal

Attachments: Attachment 1: NOI Form
Attachment 2: Figure 1 – Site Locus Map
Attachment 3: Figure 2 – Site Plan
Attachment 4: Figure 3 – Storm Drain Outfall Location
Attachment 5: Figure 4 – Process Flow Diagram
Attachment 6: MassGIS DEP Priority Resources Map
Attachment 7: Correspondence with NOAA Fisheries Service
Attachment 8: MHC Report
Attachment 9: Laboratory Analytical Results
Attachment 10: Dilution Factor Calculation

cc: MassDEP – Northeastern Region

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ATTACHMENT 1

NOI FORM

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

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

a) Name of facility/site : Joseph M. Smith Community HHealth		Facility/site mailing address:	
Location of facility/site :	Facility SIC code(s):	Street: 1420 Soldiers Field Road	
longitude: -71.14			
latitude: 42.36			
b) Name of facility/site owner :		Town: Brighton	
Email address of facility/site owner: ebrowne@jmschc.org		State: MA	Zip: 2134
Telephone no. of facility/site owner: 617-208-1511		County:	
Fax no. of facility/site owner:		Owner is (check one): 1. Federal <input type="radio"/> 2. State/Tribal <input type="radio"/> 3. Private <input checked="" type="radio"/> 4. Other <input type="radio"/> if so, describe:	
Address of owner (if different from site):			
Street: 267 Western Avenue			
Town: Allston	State: MA	Zip: 02134	County:
c) Legal name of operator : GZA GeoEnvironmental Inc.		Operator telephone no:	
Operator fax no.: 781-278-5701		Operator email: 781-278-5831	
Operator contact name and title: Russell Parkman, Senior Project Manager			
Address of operator (if different from owner):		Street: 249 Vanderbilt Avenue	
Town: Norwood	State: MA	Zip: 02062	County:

<p>d) Check Y for "yes" or N for "no" for the following:</p> <p>1. Has a prior NPDES permit exclusion been granted for the discharge? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input style="width: 150px;" type="text"/></p> <p>2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, date and tracking #: <input style="width: 400px;" type="text"/></p> <p>3. Is the discharge a "new discharge" as defined by 40 CFR 122.2? Y <input checked="" type="radio"/> N <input type="radio"/></p> <p>4. For sites in Massachusetts, is the discharge covered under the Massachusetts Contingency Plan (MCP) and exempt from state permitting? Y <input checked="" type="radio"/> N <input type="radio"/></p>	
<p>e) Is site/facility subject to any State permitting, license, or other action which is causing the generation of discharge? Y <input type="radio"/> N <input checked="" type="radio"/></p> <p>If Y, please list:</p> <p>1. site identification # assigned by the state of NH or MA: <input style="width: 250px;" type="text"/></p> <p>2. permit or license # assigned: <input style="width: 150px;" type="text"/></p> <p>3. state agency contact information: name, location, and telephone number: <input style="width: 300px;" type="text"/></p>	<p>f) Is the site/facility covered by any other EPA permit, including:</p> <p>1. Multi-Sector General Permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input style="width: 100px;" type="text"/></p> <p>2. Final Dewatering General Permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input style="width: 100px;" type="text"/></p> <p>3. EPA Construction General Permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input style="width: 100px;" type="text"/></p> <p>4. Individual NPDES permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input style="width: 100px;" type="text"/></p> <p>5. any other water quality related individual or general permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input style="width: 100px;" type="text"/></p>
<p>g) Is the site/facility located within or does it discharge to an Area of Critical Environmental Concern (ACEC)? Y <input type="radio"/> N <input checked="" type="radio"/></p>	
<p>h) Based on the facility/site information and any historical sampling data, identify the sub-category into which the potential discharge falls.</p>	
<p>Activity Category</p>	<p>Activity Sub-Category</p>
<p>I - Petroleum Related Site Remediation</p>	<p>A. Gasoline Only Sites <input type="checkbox"/></p> <p>B. Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges) <input type="checkbox"/></p> <p>C. Petroleum Sites with Additional Contamination <input type="checkbox"/></p>
<p>II - Non Petroleum Site Remediation</p>	<p>A. Volatile Organic Compound (VOC) Only Sites <input type="checkbox"/></p> <p>B. VOC Sites with Additional Contamination <input checked="" type="checkbox"/></p> <p>C. Primarily Heavy Metal Sites <input type="checkbox"/></p>
<p>III - Contaminated Construction Dewatering</p>	<p>A. General Urban Fill Sites <input type="checkbox"/></p> <p>B. Known Contaminated Sites <input type="checkbox"/></p>

IV - Miscellaneous Related Discharges	A. Aquifer Pump Testing to Evaluate Formerly Contaminated Sites <input type="checkbox"/> B. Well Development/Rehabilitation at Contaminated/Formerly Contaminated Sites <input type="checkbox"/> C. Hydrostatic Testing of Pipelines and Tanks <input type="checkbox"/> D. Long-Term Remediation of Contaminated Sumps and Dikes <input type="checkbox"/> E. Short-term Contaminated Dredging Drain Back Waters (if not covered by 401/404 permit) <input type="checkbox"/>
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2. Discharge information. Please provide information about the discharge, (attaching additional sheets as necessary) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage:	
Discharge of extracted and treated groundwater for site remediation.	
b) Provide the following information about each discharge:	
1) Number of discharge points: 1	2) What is the maximum and average flow rate of discharge (in cubic feet per second, ft ³ /s)? Max. flow 0.11 Is maximum flow a design value ? Y <input checked="" type="radio"/> N <input type="radio"/> Average flow (include units) 0.01 Is average flow a design value or estimate? estimate
3) Latitude and longitude of each discharge within 100 feet:	
pt.1: lat 42.3626 long -71.1445	pt.2: lat. <input type="text"/> long. <input type="text"/>
pt.3: lat <input type="text"/> long <input type="text"/>	pt.4: lat. <input type="text"/> long. <input type="text"/>
pt.5: lat <input type="text"/> long <input type="text"/>	pt.6: lat. <input type="text"/> long. <input type="text"/>
pt.7: lat <input type="text"/> long <input type="text"/>	pt.8: lat. <input type="text"/> long. <input type="text"/> etc.
4) If hydrostatic testing, total volume of the discharge (gals): <input type="text"/>	5) Is the discharge intermittent <input checked="" type="radio"/> or seasonal <input type="radio"/> ? Is discharge ongoing? Y <input type="radio"/> N <input checked="" type="radio"/>
c) Expected dates of discharge (mm/dd/yy): start 10/15/2014 end <input type="text"/>	
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water. 2. contributing flow from the operation. 3. treatment units. and 4. discharge points and receiving waters(s). <input type="text"/>	

3. Contaminant information.

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

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
1. Total Suspended Solids (TSS)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	2540D	5000	<5000			
2. Total Residual Chlorine (TRC)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	4500-CL E	10.0	<10			
3. Total Petroleum Hydrocarbons (TPH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	1664A	5000	<5000			
4. Cyanide (CN)	57125	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	4500 CN CE	5.0	<5			
5. Benzene (B)	71432	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	2.0	<1.0			
6. Toluene (T)	108883	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	2.0	<1.0			
7. Ethylbenzene (E)	100414	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	2.0	<1.0			
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	4.0	<1.0			
9. Total BTEX ²	n/a	<input checked="" type="checkbox"/>	<input type="checkbox"/>			CALC	2.0	<1.0			
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) ³	106934	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	504.1	0.01	<0.015			
11. Methyl-tert-Butyl Ether (MtBE)	1634044	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	10.0	<1.0			
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75650	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	10.0	<25.0			

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

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

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

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
13. tert-Amyl Methyl Ether (TAME)	9940508	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	10.0	<1.0			
14. Naphthalene	91203	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	2.0	<1.0			
15. Carbon Tetrachloride	56235	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	5.0	<1.0			
16. 1,2 Dichlorobenzene (o-DCB)	95501	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	5.0	<1.0			
17. 1,3 Dichlorobenzene (m-DCB)	541731	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	5.0	<1.0			
18. 1,4 Dichlorobenzene (p-DCB)	106467	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	5.0	<1.0			
18a. Total dichlorobenzene		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	CLAC		<1.0			
19. 1,1 Dichloroethane (DCA)	75343	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	5.0	<1.0			
20. 1,2 Dichloroethane (DCA)	107062	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	5.0	<1.0			
21. 1,1 Dichloroethene (DCE)	75354	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	5.0	<1.0			
22. cis-1,2 Dichloroethene (DCE)	156592	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	5.0	<1.0			
23. Methylene Chloride	75092	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	5.0	<2.0			
24. Tetrachloroethene (PCE)	127184	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	5.0	<1.0			
25. 1,1,1 Trichloro-ethane (TCA)	71556	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	5.0	<1.0			
26. 1,1,2 Trichloro-ethane (TCA)	79005	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	5.0	<1.0			
27. Trichloroethene (TCE)	79016	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	5.0	<1.0			

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
28. Vinyl Chloride (Chloroethene)	75014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8260B	5.0	<1.0			
29. Acetone	67641	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	8260B	50.0	14.7			
30. 1,4 Dioxane	123911	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	8270D SIM	5.0	0.3			
31. Total Phenols	108952	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	420.1	2.0	<100			
32. Pentachlorophenol (PCP)	87865	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.84			
33. Total Phthalates (Phthalate esters) ⁴		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM		<2.34			
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	117817	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<2.34			
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>								
a. Benzo(a) Anthracene	56553	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.05			
b. Benzo(a) Pyrene	50328	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SI	5.0	<0.05			
c. Benzo(b)Fluoranthene	205992	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.05			
d. Benzo(k)Fluoranthene	207089	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.05			
e. Chrysene	21801	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.05			
f. Dibenzo(a,h)anthracene	53703	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.05			
g. Indeno(1,2,3-cd) Pyrene	193395	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.05			
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)		<input type="checkbox"/>	<input checked="" type="checkbox"/>								

⁴ The sum of individual phthalate compounds.

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
								concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
h. Acenaphthene	83329	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.19			
i. Acenaphthylene	208968	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.19			
j. Anthracene	120127	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.19			
k. Benzo(ghi) Perylene	191242	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.19			
l. Fluoranthene	206440	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.19			
m. Fluorene	86737	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.19			
n. Naphthalene	91203	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.19			
o. Phenanthrene	85018	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.19			
p. Pyrene	129000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8270C SIM	5.0	<0.19			
37. Total Polychlorinated Biphenyls (PCBs)	85687; 84742; 117840; 84662; 131113; 117817.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	8082A	0.5	<0.09			
38. Chloride	16887006	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	3000.0	100	2200000			
39. Antimony	7440360	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	6020A	0.5	<0.4			
40. Arsenic	7440382	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	6020A	1.0	25.7			
41. Cadmium	7440439	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	6020A	0.2	1.1			
42. Chromium III (trivalent)	16065831	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	CALC		<10			
43. Chromium VI (hexavalent)	18540299	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	7196A	10.0	<10			
44. Copper	7440508	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	6020A	0.5	18.6			
45. Lead	7439921	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	6020A	0.2	0.4			
46. Mercury	7439976	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	7470A	0.2	<0.20			
47. Nickel	7440020	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	6020A	0.2	21.6			
48. Selenium	7782492	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	6020A	2.0	<4.0			
49. Silver	7440224	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	6020A	0.2	<0.4			
50. Zinc	7440666	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Grab	6010B	15	42			
51. Iron	7439896	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Grab	6010B	20	<100			
Other (describe):		<input type="checkbox"/>	<input type="checkbox"/>								

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
								concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
		<input type="checkbox"/>	<input type="checkbox"/>								
		<input type="checkbox"/>	<input type="checkbox"/>								

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

<p><i>Step 1:</i> Do any of the metals in the influent exceed the effluent limits in Appendix III (i.e., the limits set at zero dilution)? Y <input checked="" type="radio"/> N <input type="radio"/></p>	<p>If yes, which metals? Arsenic, Cadmium, Copper</p>								
<p><i>Step 2:</i> For any metals which exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part I.A.3.c (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals?</p> <table border="1"> <tr> <td>Metal: Arsenic</td> <td>DF: 214</td> </tr> <tr> <td>Metal: Cadmium</td> <td>DF: 214</td> </tr> <tr> <td>Metal: Copper</td> <td>DF: 214</td> </tr> <tr> <td>Metal: _____</td> <td>DF: _____</td> </tr> </table> <p>Etc.</p>	Metal: Arsenic	DF: 214	Metal: Cadmium	DF: 214	Metal: Copper	DF: 214	Metal: _____	DF: _____	<p>Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y <input type="radio"/> N <input checked="" type="radio"/> If Y, list which metals:</p>
Metal: Arsenic	DF: 214								
Metal: Cadmium	DF: 214								
Metal: Copper	DF: 214								
Metal: _____	DF: _____								

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

<p>a) A description of the treatment system, including a schematic of the proposed or existing treatment system:</p> <p>Extracted water will be treated with bag filters followed by GAC filters.</p>						
b) Identify each applicable treatment unit (check all that apply):	Frac. tank <input type="checkbox"/>	Air stripper <input type="checkbox"/>	Oil/water separator <input type="checkbox"/>	Equalization tanks <input type="checkbox"/>	Bag filter <input checked="" type="checkbox"/>	GAC filter X
	Chlorination <input type="checkbox"/>	De-chlorination <input type="checkbox"/>	Other (please describe):			

<p>c) Proposed average and maximum flow rates (gallons per minute) for the discharge and the design flow rate(s) (gallons per minute) of the treatment system:</p> <p>Average flow rate of discharge <input style="width: 80px;" type="text" value="5"/> gpm Maximum flow rate of treatment system <input style="width: 80px;" type="text" value="50"/> gpm</p> <p>Design flow rate of treatment system <input style="width: 80px;" type="text" value="50"/> gpm</p>
<p>d) A description of chemical additives being used or planned to be used (attach MSDS sheets):</p> <div style="border: 1px solid black; height: 40px; margin-top: 5px;"></div> <p>None Anticipated</p>

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

<p>a) Identify the discharge pathway:</p>	<p>Direct to receiving water <input type="checkbox"/></p>	<p>Within facility (sewer) <input type="checkbox"/></p>	<p>Storm drain <input checked="" type="checkbox"/></p>	<p>Wetlands <input type="checkbox"/></p>	<p>Other (describe): <div style="border: 1px solid black; height: 20px; width: 100%;"></div></p>
<p>b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div>					
<p>c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water:</p> <p>1. For multiple discharges, number the discharges sequentially.</p> <p>2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water</p> <p>The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.</p>					
<p>d) Provide the state water quality classification of the receiving water <input style="width: 100px;" type="text" value="Class B"/></p>					
<p>e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water <input style="width: 150px;" type="text" value="14.3"/> cfs</p> <p>Please attach any calculation sheets used to support stream flow and dilution calculations.</p>					
<p>f) Is the receiving water a listed 303(d) water quality impaired or limited water? Y <input checked="" type="radio"/> N <input type="radio"/> If yes, for which pollutant(s)?</p> <p>Is there a final TMDL? Y <input checked="" type="radio"/> N <input type="radio"/> If yes, for which pollutant(s)? <input style="width: 400px;" type="text" value="nutrients, phosphorus, pathogens"/></p>					

6. ESA and NHPA Eligibility.

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


<p>a) Using the instructions in Appendix VII and information on Appendix II, under which criterion listed in Part I.C are you eligible for coverage under this general permit? A <input checked="" type="radio"/> B <input type="radio"/> C <input type="radio"/> D <input type="radio"/> E <input type="radio"/> F <input type="radio"/></p> <p>b) If you selected Criterion D or F, has consultation with the federal services been completed? Y <input type="radio"/> N <input type="radio"/> Underway <input type="radio"/></p> <p>c) If consultation with U.S. Fish and Wildlife Service and/or NOAA Fisheries Service was completed, was a written concurrence finding that the discharge is "not likely to adversely affect" listed species or critical habitat received? Y <input checked="" type="radio"/> N <input type="radio"/></p> <p>d) Attach documentation of ESA eligibility as described in the NOI instructions and required by Appendix VII, Part I.C, Step 4.</p>
<p>e) Using the instructions in Appendix VII, under which criterion listed in Part II.C are you eligible for coverage under this general permit? 1 <input type="radio"/> 2 <input checked="" type="radio"/> 3 <input type="radio"/></p> <p>f) If Criterion 3 was selected, attach all written correspondence with the State or Tribal historic preservation officers, including any terms and conditions that outline measures the applicant must follow to mitigate or prevent adverse effects due to activities regulated by the RGP.</p>

7. Supplemental information.

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

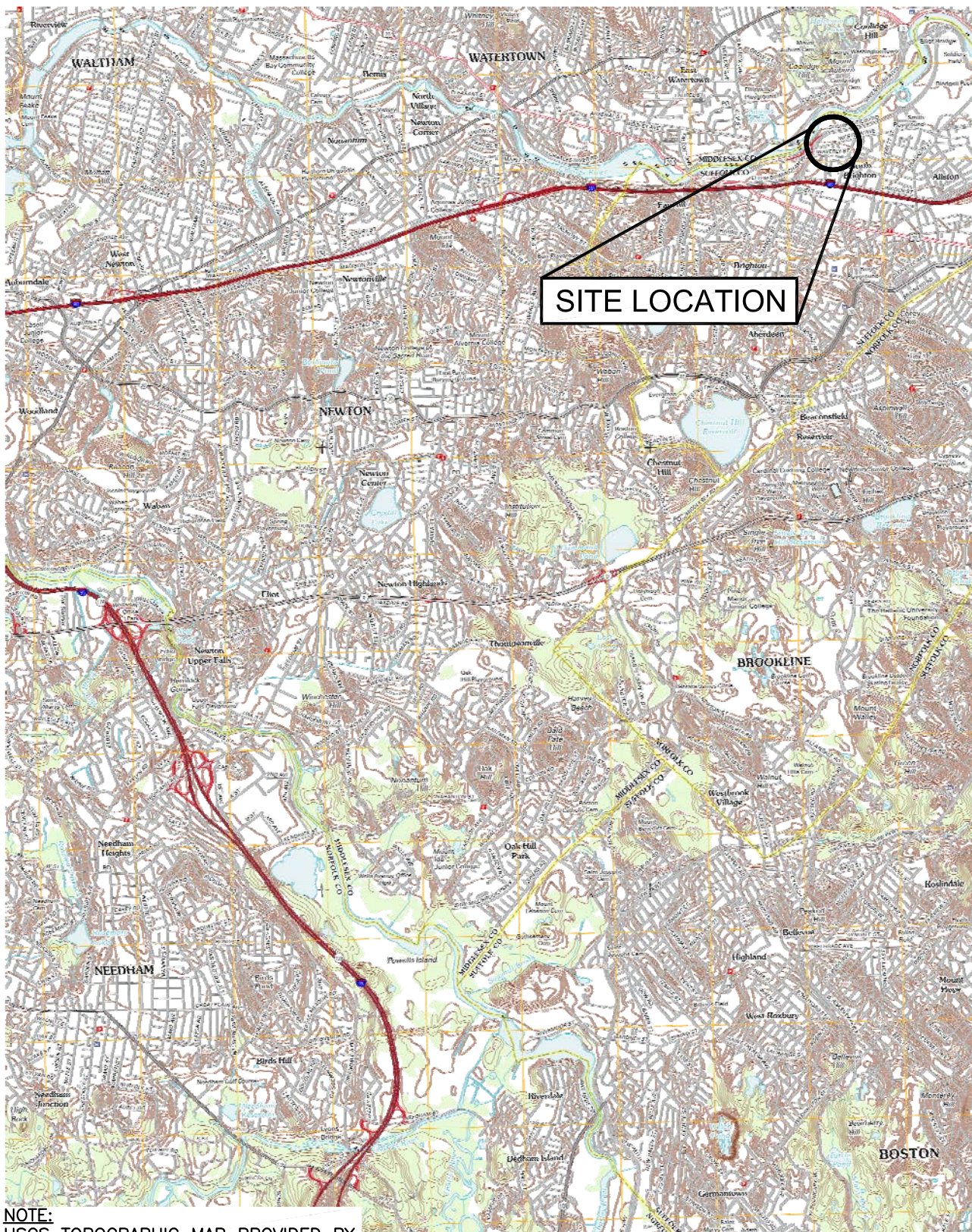
8. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Facility/Site Name:	Joseph M Smith Community Health Center	
Operator signature:		
Printed Name & Title:	Russell Parkman, Senior Project Manager	
Date:	1/7/15	

ATTACHMENT 2

FIGURE 1 – SITE LOCUS MAP





NOTE:
USGS TOPOGRAPHIC MAP PROVIDED BY
THE US DEPARTMENT OF THE INTERIOR

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SUPPLEMENTAL SITE INVESTIGATION AND ANALYSIS

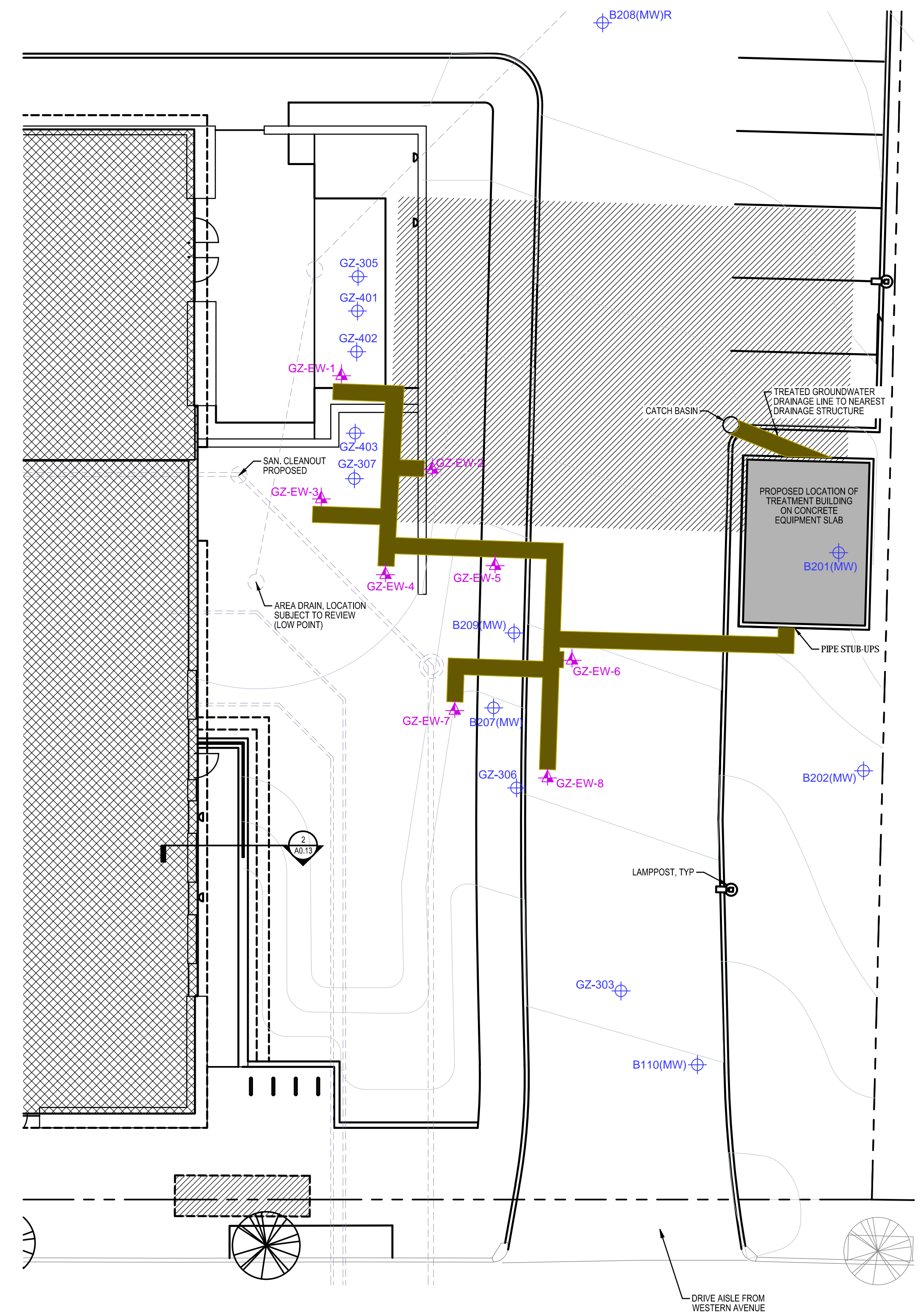
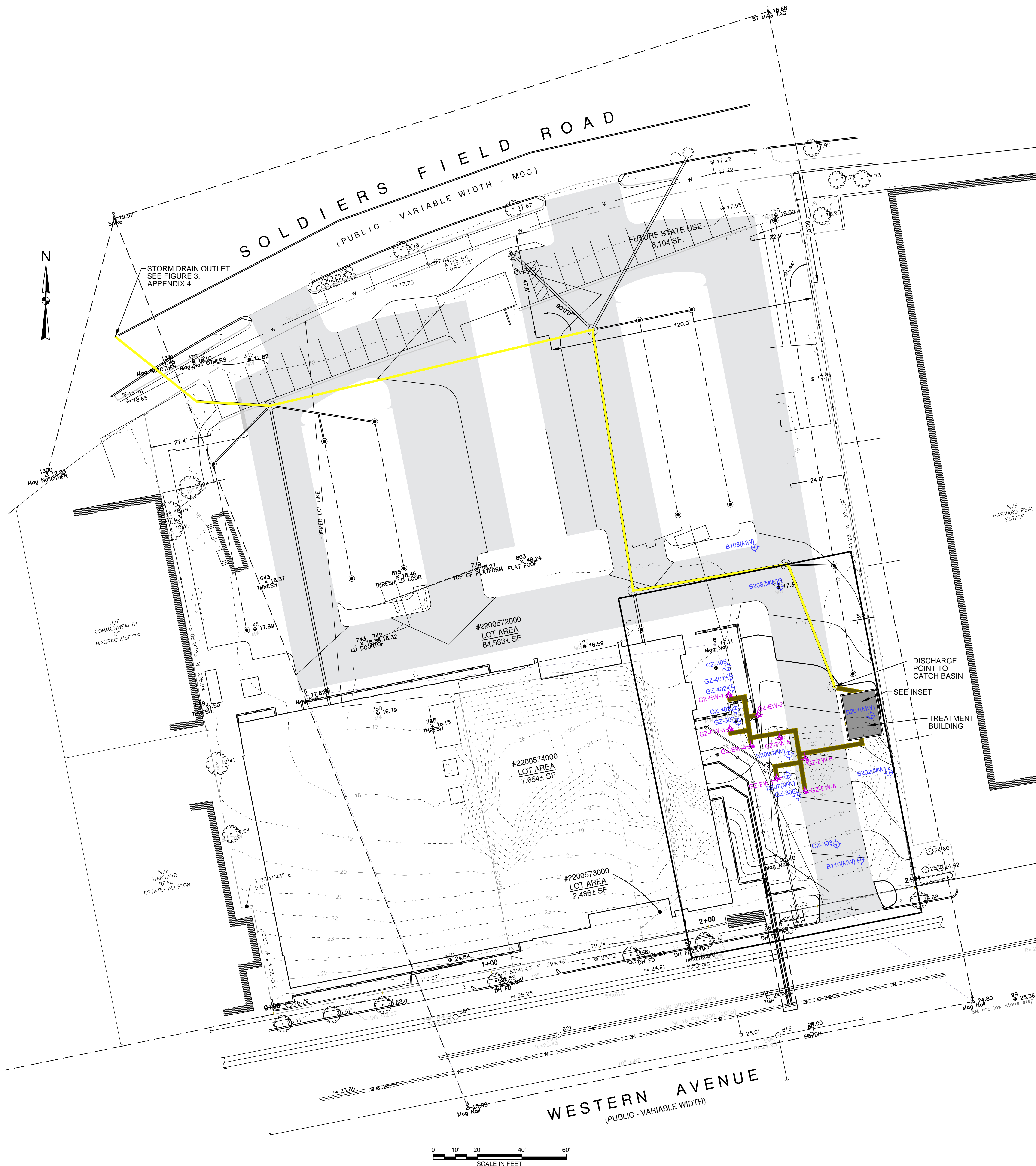
1420 SOLDIERS FIELD ROAD
ALLSTON, MASSACHUSETTS
RTNs 3-28635 AND 3-28636

SITE LOCATION PLAN

NO.	ISSUE/DESCRIPTION			BY DATE
PREPARED BY:		PREPARED FOR:		
 GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		 <i>Joseph M. Smith</i> <i>Community Health Center</i>		
PROJ MGR:	MLS	REVIEWED BY:	FSV	CHECKED BY: FSV
DESIGNED BY:	MLS	DRAWN BY:	MLS	SCALE: 1" = 5000'
DATE:	11/9/2012	PROJECT NO.	18.0170852.04	REVISION NO.
				FIGURE 1 SHEET NO.

ATTACHMENT 3

FIGURE 2 – SITE PLAN



- LEGEND**
- MONITORING WELL - DECOMMISSIONED OR NOT FOUND
 - EXTRACTION WELL
 - TRENCH - 4' DEPTH
 - TREATED WATER DISCHARGE

SOURCE:
1. THE PLAN WAS DEVELOPED FROM ELECTRONIC FILES PROVIDED BY ISEIGNITY, LLC ENTITLED "CRAWL SPACE FLOOR PLAN", DATE ISSUED: AUGUST 1, 2013. PLAN NO: A2-01. CAD FILE: A2-01.DWG

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JOSEPH M. SMITH COMMUNITY HEALTH CENTER 1420 SOLDIERS FIELD ROAD ALLSTON (BOSTON), MASSACHUSETTS			
PROPOSED SITE PLAN			
PREPARED BY:	GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR:	Joseph M. Smith Community Health Center
PROJ. MGR:	RBP	REVIEWED BY:	FSV
DESIGNED BY:	JY	DRAWN BY:	ISEIGNITY
DATE:	11-12-2014	PROJECT NO:	18.0170852.10
		CHECKED BY:	RBP
		SCALE:	AS SHOWN
		REVISION NO.	
		FIGURE	3

ATTACHMENT 4

FIGURE 3 – STORM DRAIN OUTFALL LOCATION



Notes:

1. Map imagery provided by Bing Maps
2. Catch basin, manhole, and storm drain locations are approximate. Information provided by DCR.

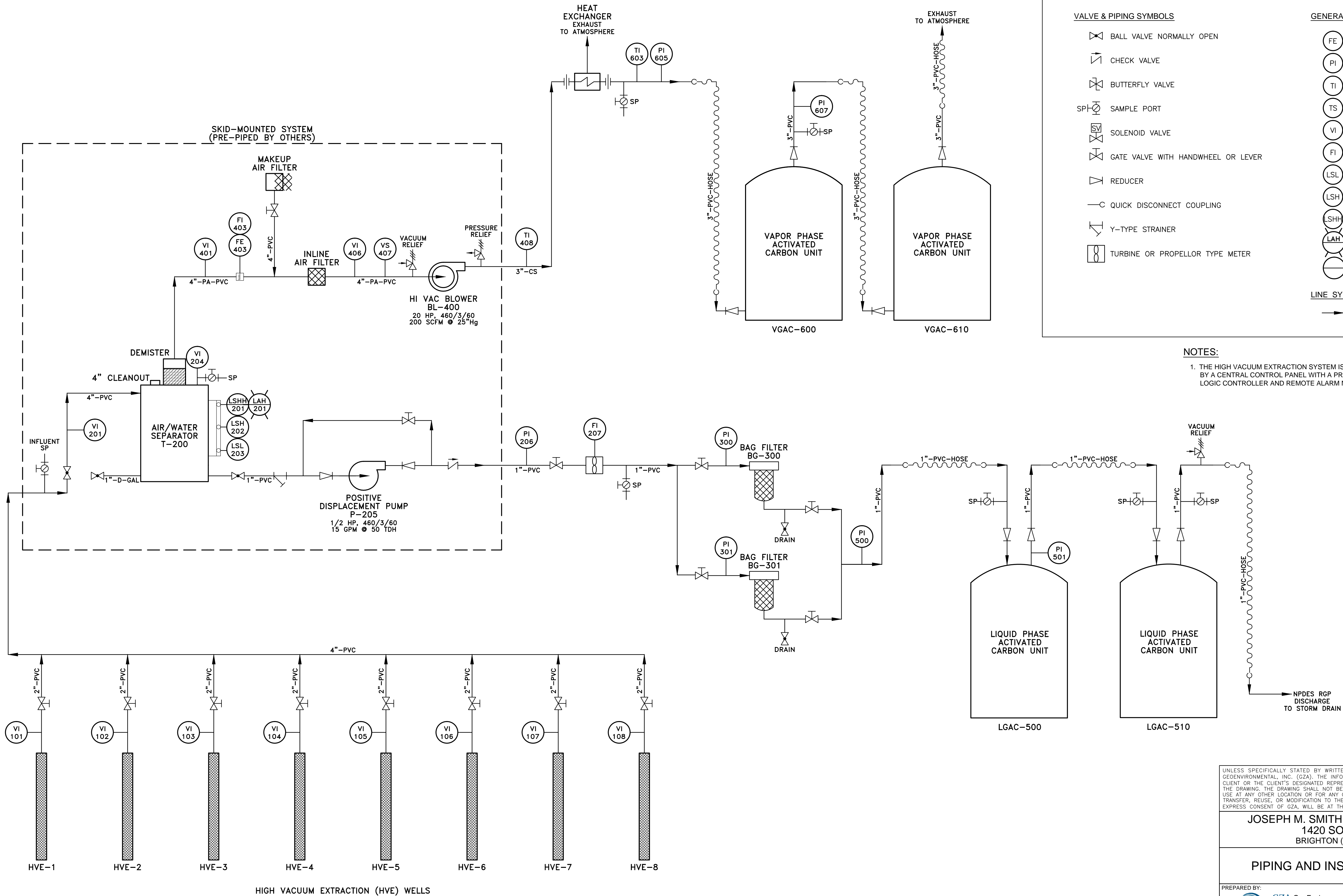
UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

<p>1420 SOLDIERS FIELD ROAD ALLSTON, MASSACHUSETTS RTNs 3-28635 AND 3-28636</p>	<p>PREPARED BY:</p>		<p>PREPARED FOR:</p>	
	<p>GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com</p>		<p> Joseph M. Smith Community Health Center</p>	
	<p>PROJ MGR: MLS</p>	<p>REVIEWED BY: FSV</p>	<p>CHECKED BY: FSV</p>	<p>FIGURE 3 SHEET NO.</p>
	<p>DESIGNED BY: MLS</p>	<p>DRAWN BY: MLS</p>	<p>SCALE: 1" = 500'</p>	
<p>DISCHARGE LOCATION PLAN</p>		<p>DATE: 4/28/14</p>	<p>PROJECT NO. 18.0170852.04</p>	<p>REVISION NO.</p>

ATTACHMENT 5

FIGURE 4 – PROCESS FLOW DIAGRAM

© 2014 - GZA GeoEnvironmental, Inc. GZA-U:\Branch\Newburyport\18.0170852.10\FIGURES\CAD\170852-10_PID-v2.dwg [GZA-FIG-6] December 10, 2014 - 2:06pm elaine.donohue



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JOSEPH M. SMITH COMMUNITY HEALTH CENTER
1420 SOLDIERS FIELD ROAD
BRIGHTON (BOSTON), MASSACHUSETTS

PIPING AND INSTRUMENTATION DIAGRAM

PREPARED BY:



GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:



Joseph M. Smith
Community Health Center

PROJ MGR:

RBP

DESIGNED BY:

JY

DATE:

12-10-2014

REVIEWED BY:

FSV

DRAWN BY:

VKGW/EMD

PROJECT NO.

18.0170852.10

CHECKED BY:

RBP

SCALE:

NOT TO SCALE

REVISION NO.

FIGURE

6

ATTACHMENT 6

MASSGIS DEP PRIORITY RESOURCES MAP

MassDEP - Bureau of Waste Site Cleanup

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

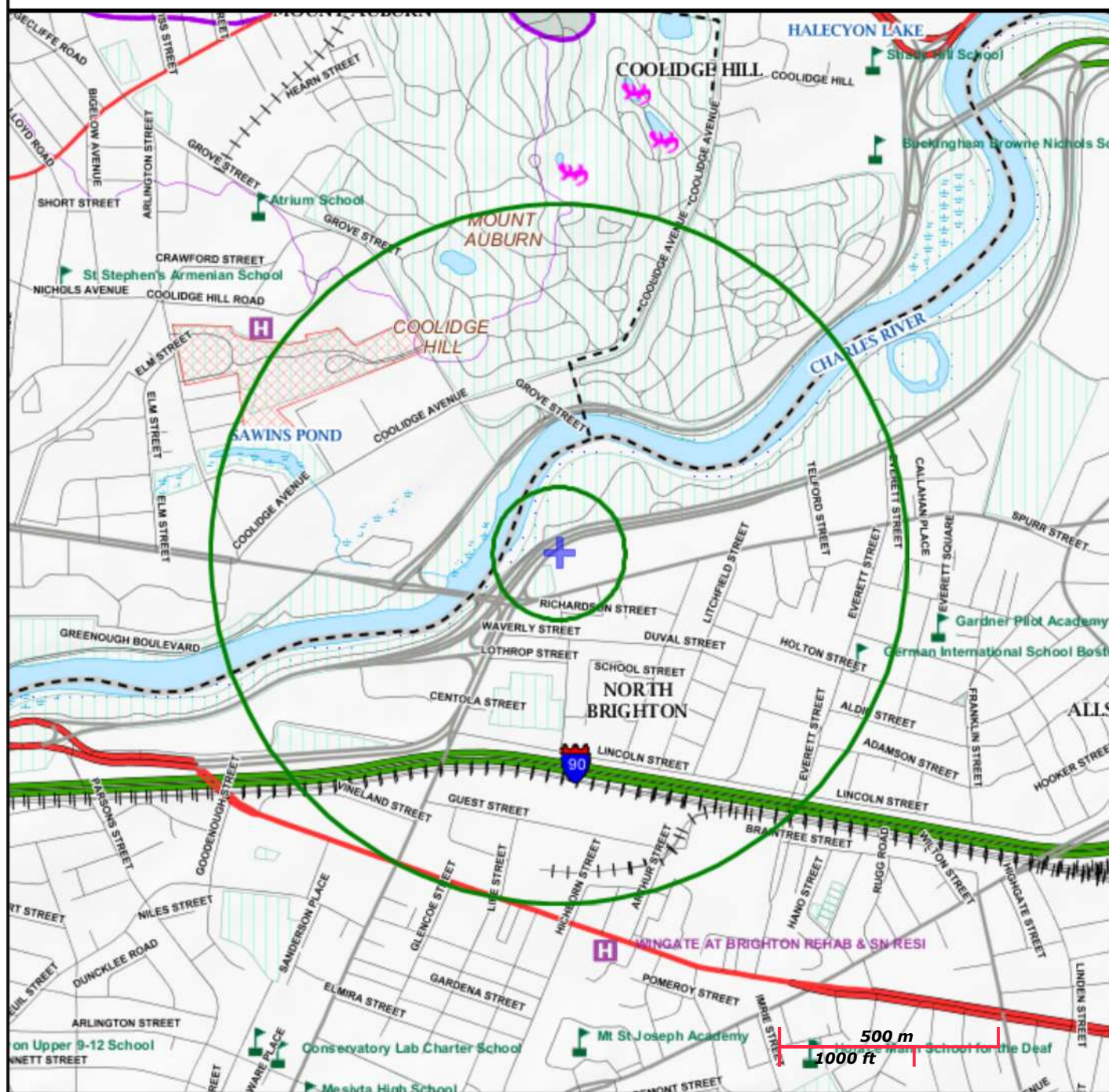
JOSEPH SMITH
1420 SOLDIERS FIELD ROAD BOSTON, MA
NAD83 UTM Meters:
5215447mN, -7919769mE (Zone: 18)
April 22, 2014

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



MassDEP

Commonwealth of Massachusetts
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail

Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct

Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam

Aquifers: Medium Yield, High Yield, EPA Sole Source

Non Potential Drinking Water Source Area: Medium, High (Yield)

PWS Protection Areas: Zone II, IWPA, Zone A

Hydrography: Open Water, PWS Reservoir, Tidal Flat

Wetlands: Freshwater, Saltwater, Cranberry Bog

FEMA 100yr Floodplain; Protected Open Space; ACEC

Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential

Solid Waste Landfill; PWS: Com. GW, SW, Emerg., Non-Com.

ATTACHMENT 7

CORRESPONDENCE WITH NOAA FISHERIES SERVICE

Jennifer McKechnie

From: Christine Vaccaro - NOAA Federal <christine.vaccaro@noaa.gov>
Sent: Tuesday, April 22, 2014 12:39 PM
To: Jennifer McKechnie
Subject: Re: Remediation General Permit Question

Hi there,

We do not expect any of our species to be affected by these discharges. As such, no consultation is required.

Cheers,
Chris

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

On Tue, Apr 22, 2014 at 12:26 PM, Jennifer McKechnie <jennifer.mckechnie@gza.com> wrote:

Hi Christine,

GZA is submitting a Notice of Intent for a Remediation General Permit (RPG) for construction dewatering at 1420 Soldiers Field Road in Allston, MA. The effluent will be discharged to the Charles River. I have attached a map with the approximate location of the catch basin to which we will be discharging. We are currently working with DCR to determine the exact location of the discharge point into the Charles. For the RGP application we need to investigate whether the proposed temporary discharge has the potential to adversely affect any federally listed species in the Charles River downstream of this area. Do you have readily available information on this?

Thanks for your help.

Feel free to email or call me with any questions.

Jenn

Jennifer McKechnie

Assistant Project Manager

GZA GeoEnvironmental, Inc.

249 Vanderbilt Avenue

Norwood, Massachusetts 02062

[781-278-3864](tel:781-278-3864)

[781-589-3866](tel:781-589-3866) (cell)

[781-278-5701](tel:781-278-5701) (fax)

jennifer.mckechne@gza.com



PROACTIVE BY DESIGN.® Our Company Commitment.

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For information about GZA GeoEnvironmental, Inc. and its services, please visit our website at www.gza.com.

ATTACHMENT 8

MHC REPORT

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Boston; Place: Allston; Street Name: Soldiers Field Rd;

Inv. No.	Property Name	Street	Town	Year
BOS.8350	Harvard Business School - Kresge Hall	Soldiers Field Rd	Boston	1953
BOS.8351	Harvard Business School - Teele Hall	Soldiers Field Rd	Boston	1968
BOS.8352	Harvard Business School - Burden Hall	Soldiers Field Rd	Boston	1969
BOS.8353	Harvard Business School - Cumnock Hall	Soldiers Field Rd	Boston	1969
BOS.8354	Soldiers Field Park Apartments	Soldiers Field Rd	Boston	1974
BOS.8355	Harvard Business School - Shadd Gymnasium	Soldiers Field Rd	Boston	1990
BOS.8356	Harvard Business School Chapel	Soldiers Field Rd	Boston	1990
BOS.8357	Harvard Business School Dean's Residence	Soldiers Field Rd	Boston	1929
BOS.8358	Harvard Business School - Humphrey Hall	Soldiers Field Rd	Boston	1926
BOS.8359	Harvard Business School - McCullough Hall	Soldiers Field Rd	Boston	1926
BOS.8360	Harvard Business School - Glass Hall	Soldiers Field Rd	Boston	1926
BOS.8361	Harvard Business School - Mellon Hall	Soldiers Field Rd	Boston	1926
BOS.8362	Harvard Business School - Dillon Hall	Soldiers Field Rd	Boston	1926
BOS.8363	Harvard Business School - Chase Hall	Soldiers Field Rd	Boston	1926
BOS.8364	Harvard Business School Students Club	Soldiers Field Rd	Boston	1926
BOS.8365	Harvard Business School - Aldrich Hall	Soldiers Field Rd	Boston	1953
BOS.8366	Harvard Business School - Baker Library	Soldiers Field Rd	Boston	1927
BOS.8367	Harvard Business School - Hamilton Hall	Soldiers Field Rd	Boston	1926
BOS.8368	Harvard Business School Faculty Club	Soldiers Field Rd	Boston	1926
BOS.8369	Harvard Business School - Gallatin Hall	Soldiers Field Rd	Boston	1926
BOS.8370	Harvard Business School - Fowler Hall	Soldiers Field Rd	Boston	1926
BOS.8371	Harvard Business School - Morgan Hall	Soldiers Field Rd	Boston	1927
BOS.8372	Harvard Business School - Loeb Hall	Soldiers Field Rd	Boston	1926
BOS.8373	Harvard Business School - Morris Hall	Soldiers Field Rd	Boston	1926
BOS.8374	Harvard Business School - Sherman Hall	Soldiers Field Rd	Boston	1926
BOS.8376	Harvard University - Briggs Cage	Soldiers Field Rd	Boston	1926
BOS.8377	Harvard University - Dillon Field House	Soldiers Field Rd	Boston	1929

Inv. No.	Property Name	Street	Town	Year
BOS.8378	Harvard University - Dixon, Palmer Tennis Courts	Soldiers Field Rd	Boston	1965
BOS.8379	Harvard University - Bright Hockey Center	Soldiers Field Rd	Boston	1950
BOS.8380	Harvard University Gordon Track and Tennis Center	Soldiers Field Rd	Boston	1950
BOS.9602	Charles River Reservation - Soldiers Field Road	Soldiers Field Rd	Boston	1899
BOS.9603	Soldiers Field Road Planted Median	Soldiers Field Rd	Boston	1920
BOS.9605	Soldiers Field Underpass at Western Avenue	Soldiers Field Rd	Boston	1954
BOS.9606	Soldiers Field Road - North Beacon Street Oval	Soldiers Field Rd	Boston	1958
BOS.8312	Harvard University - Newell Boat House	801-805 Soldiers Field Rd	Boston	1900
BOS.8063	Institute of Contemporary Art	1175 Soldiers Field Rd	Boston	1959
BOS.8064	Charles River Speedway Superintendent's Residence	1420-1440 Soldiers Field Rd	Boston	1899
BOS.9731	Charles River Speedway Courtyard	1420-1440 Soldiers Field Rd	Boston	1899
BOS.15893	Charles River Speedway Headquarters and Stable	1420-1440 Soldiers Field Rd	Boston	1899
BOS.15894	Metropolitan District Commission Police Station	1420-1440 Soldiers Field Rd	Boston	1904
BOS.15895	Charles River Speedway - South Shed	1420-1440 Soldiers Field Rd	Boston	1899
BOS.15896	Charles River Speedway - East Shed	1420-1440 Soldiers Field Rd	Boston	1899
BOS.15897	Charles River Speedway Garage	1420-1440 Soldiers Field Rd	Boston	1940
BOS.15898	Charles River Speedway Maintenance Garage	1420-1440 Soldiers Field Rd	Boston	1940

ATTACHMENT 9

LABORATORY ANALYTICAL RESULTS



CERTIFICATE OF ANALYSIS

Russell Parkman
GZA GeoEnvironmental, Inc.
372 Merrimac Street
Newburyport, MA 01950

RE: Joseph Smith (18.0170852.10)
ESS Laboratory Work Order Number: 1402014

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 3:21 pm, Feb 12, 2014

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith

ESS Laboratory Work Order: 1402014

SAMPLE RECEIPT

The following samples were received on February 03, 2014 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

For EPH soil samples, the aromatic range results have been corrected for identified cartridge contaminant in accordance with the CAM protocol.

Lab Number	Sample Name	Matrix	Analysis
1402014-01	TP-8	Ground Water	1664A, 2540D, 300.0, 420.1, 4500 CN CE, 4500-Cl E, 504.1, 6010B, 6020A, 7196A, 7470A, 8082A, 8260B, 8270C SIM, 8270D, Calc



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith

ESS Laboratory Work Order: 1402014

PROJECT NARRATIVE

Classical Chemistry

1402014-01

[The maximum holding time listed in 40 CFR Part 136 Table II for pH, Dissolved Oxygen, Sulfite and Residual Chlorine is fifteen minutes.](#)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith

ESS Laboratory Work Order: 1402014

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith
Client Sample ID: TP-8
Date Sampled: 02/03/14 12:45
Percent Solids: N/A

ESS Laboratory Work Order: 1402014
ESS Laboratory Sample ID: 1402014-01
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 3005A

Total Metals Aqueous

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (0.4)		6020A		4	LLZ	02/10/14 14:09	50	25	CB40701
Arsenic	25.7 (0.2)		6020A		2	LLZ	02/07/14 14:31	50	25	CB40701
Cadmium	1.1 (0.4)		6020A		4	LLZ	02/10/14 14:09	50	25	CB40701
Chromium (III)	ND (10)		Calc		1	EEM	02/06/14 15:39	1	1	[CALC]
Copper	18.6 (0.2)		6020A		2	LLZ	02/07/14 14:31	50	25	CB40701
Iron	ND (100)		6010B		2	LLZ	02/07/14 11:19	50	25	CB40609
Lead	0.4 (0.4)		6020A		4	LLZ	02/10/14 14:09	50	25	CB40701
Mercury	ND (0.20)		7470A		1	NAR	02/07/14 10:13	20	40	CB40619
Nickel	21.6 (0.2)		6020A		2	LLZ	02/07/14 14:31	50	25	CB40701
Selenium	ND (4.0)		6020A		4	JP	02/10/14 20:04	50	25	CB40701
Silver	ND (0.4)		6020A		4	LLZ	02/10/14 14:09	50	25	CB40701
Zinc	42 (25)		6010B		1	JP	02/06/14 15:39	50	25	CB40609



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith
Client Sample ID: TP-8
Date Sampled: 02/03/14 12:45
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1402014
ESS Laboratory Sample ID: 1402014-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: TAJ
Prepared: 2/4/14 16:00
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	02/04/14 21:14		CB40430
Aroclor 1221	ND (0.09)		8082A		1	02/04/14 21:14		CB40430
Aroclor 1232	ND (0.09)		8082A		1	02/04/14 21:14		CB40430
Aroclor 1242	ND (0.09)		8082A		1	02/04/14 21:14		CB40430
Aroclor 1248	ND (0.09)		8082A		1	02/04/14 21:14		CB40430
Aroclor 1254	ND (0.09)		8082A		1	02/04/14 21:14		CB40430
Aroclor 1260	ND (0.09)		8082A		1	02/04/14 21:14		CB40430
Aroclor 1262	ND (0.09)		8082A		1	02/04/14 21:14		CB40430
Aroclor 1268	ND (0.09)		8082A		1	02/04/14 21:14		CB40430

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: Decachlorobiphenyl	75 %		30-150
Surrogate: Decachlorobiphenyl [2C]	73 %		30-150
Surrogate: Tetrachloro-m-xylene	55 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	66 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith
Client Sample ID: TP-8
Date Sampled: 02/03/14 12:45
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1402014
ESS Laboratory Sample ID: 1402014-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1-Trichloroethane	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
1,1,2-Trichloroethane	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
1,1-Dichloroethane	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
1,1-Dichloroethene	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
1,2-Dichlorobenzene	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
1,2-Dichloroethane	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
1,3-Dichlorobenzene	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
1,4-Dichlorobenzene	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Acetone	14.7 (10.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Benzene	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Carbon Tetrachloride	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Ethylbenzene	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Methylene Chloride	ND (2.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Naphthalene	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Tertiary-butyl Alcohol	ND (25.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Tetrachloroethene	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Toluene	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Trichloroethene	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Vinyl Chloride	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Xylene O	ND (1.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520
Xylene P,M	ND (2.0)		8260B		1	02/05/14 14:02	CXB0038	CB40520

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichloroethane-d4	89 %		70-130
Surrogate: 4-Bromofluorobenzene	99 %		70-130
Surrogate: Dibromofluoromethane	90 %		70-130
Surrogate: Toluene-d8	102 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith
Client Sample ID: TP-8
Date Sampled: 02/03/14 12:45
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 1402014
ESS Laboratory Sample ID: 1402014-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: EEB
Prepared: 2/10/14 19:02

8270D(SIM) Semi-Volatile Organic Compounds w/ Isotope Dilution

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,4-Dioxane	0.3 (0.2)		8270D		1	02/11/14 21:57	CXB0106	CB41031
<hr/>								
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
Surrogate: 1,4-Dioxane-d8		85 %		15-115				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith
Client Sample ID: TP-8
Date Sampled: 02/03/14 12:45
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1402014
ESS Laboratory Sample ID: 1402014-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: IBM
Prepared: 2/6/14 10:45

8270C(SIM) Polynuclear Aromatic Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Acenaphthene	ND (0.19)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Acenaphthylene	ND (0.19)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Anthracene	ND (0.19)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Benzo(a)anthracene	ND (0.05)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Benzo(a)pyrene	ND (0.05)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Benzo(b)fluoranthene	ND (0.05)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Benzo(g,h,i)perylene	ND (0.19)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Benzo(k)fluoranthene	ND (0.05)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
bis(2-Ethylhexyl)phthalate	ND (2.34)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Butylbenzylphthalate	ND (2.34)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Chrysene	ND (0.05)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Dibenzo(a,h)Anthracene	ND (0.05)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Diethylphthalate	ND (2.34)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Dimethylphthalate	ND (2.34)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Di-n-butylphthalate	ND (2.34)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Di-n-octylphthalate	ND (2.34)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Fluoranthene	ND (0.19)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Fluorene	ND (0.19)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Indeno(1,2,3-cd)Pyrene	ND (0.05)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Naphthalene	0.27 (0.19)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Pentachlorophenol	ND (0.84)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Phenanthrene	ND (0.19)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602
Pyrene	ND (0.19)		8270C SIM		1	02/07/14 0:02	CXB0055	CB40602

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	57 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	90 %		15-110
<i>Surrogate: 2-Fluorobiphenyl</i>	65 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	77 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	74 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith
Client Sample ID: TP-8
Date Sampled: 02/03/14 12:45
Percent Solids: N/A

ESS Laboratory Work Order: 1402014
ESS Laboratory Sample ID: 1402014-01
Sample Matrix: Ground Water

Classical Chemistry

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Chloride	2200 (500)		300.0		1000	EEM	02/06/14 19:01	mg/L	CB40615
Hexavalent Chromium	ND (10)		7196A		1	EEM	02/03/14 17:50	ug/L	CB40329
Phenols	ND (0.10)		420.1		1	EEM	02/06/14 14:15	mg/L	CB40616
Total Cyanide (LL)	ND (0.0050)		4500 CN CE		1	JLK	02/06/14 12:45	mg/L	CB40621
Total Petroleum Hydrocarbon	ND (5)		1664A		1	CRR	02/06/14 10:20	mg/L	CB40613
Total Residual Chlorine	ND (0.01)		4500-Cl E		1	EEM	02/03/14 17:35	mg/L	CB40328
Total Suspended Solids	ND (5)		2540D		1	EEM	02/06/14 16:30	mg/L	CB40618



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith
Client Sample ID: TP-8
Date Sampled: 02/03/14 12:45
Percent Solids: N/A
Initial Volume: 35
Final Volume: 2
Extraction Method: 504/8011

ESS Laboratory Work Order: 1402014
ESS Laboratory Sample ID: 1402014-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: ML
Prepared: 2/7/14 14:30

504.1 1,2-Dibromoethane / 1,2-Dibromo-3-chloropropane

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2-Dibromoethane	ND (0.015)		504.1		1	02/07/14 14:59		CB40708
<hr/>								
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: Pentachloroethane</i>		77 %		30-150				
<i>Surrogate: Pentachloroethane [2C]</i>		82 %		30-150				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith

ESS Laboratory Work Order: 1402014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals Aqueous										
Batch CB40609 - 3005A										
Blank										
Iron	ND	50	ug/L							
Zinc	ND	25	ug/L							
LCS										
Iron	1240	50	ug/L	1250		99	80-120			
Zinc	244	25	ug/L	250.0		98	80-120			
LCS Dup										
Iron	1370	50	ug/L	1250		110	80-120	11	20	
Zinc	249	25	ug/L	250.0		100	80-120	2	20	
Batch CB40619 - 245.1/7470A										
Blank										
Mercury	ND	0.20	ug/L							
LCS										
Mercury	6.15	0.20	ug/L	6.000		102	80-120			
LCS Dup										
Mercury	6.23	0.20	ug/L	6.000		104	80-120	1	20	
Batch CB40701 - 3005A										
Blank										
Antimony	ND	0.5	ug/L							
Arsenic	ND	1.0	ug/L							
Cadmium	ND	0.2	ug/L							
Copper	0.5	0.5	ug/L							
Lead	ND	0.2	ug/L							
Nickel	ND	0.2	ug/L							
Selenium	ND	2.0	ug/L							
Silver	ND	0.2	ug/L							
LCS										
Antimony	26.7	0.5	ug/L	25.00		107	80-120			
Arsenic	26.4	1.0	ug/L	25.00		106	80-120			
Cadmium	24.9	0.2	ug/L	25.00		99	80-120			
Copper	27.5	0.5	ug/L	25.00		110	80-120			
Lead	26.8	0.2	ug/L	25.00		107	80-120			
Nickel	26.3	0.2	ug/L	25.00		105	80-120			
Selenium	26.1	2.0	ug/L	25.00		104	80-120			
Silver	25.7	0.2	ug/L	25.00		103	80-120			
LCS Dup										
Antimony	27.3	0.5	ug/L	25.00		109	80-120	2	20	
Arsenic	25.1	1.0	ug/L	25.00		100	80-120	5	20	
Cadmium	24.5	0.2	ug/L	25.00		98	80-120	1	20	
Copper	26.2	0.5	ug/L	25.00		105	80-120	5	20	
Lead	28.8	0.2	ug/L	25.00		115	80-120	7	20	
Nickel	25.1	0.2	ug/L	25.00		100	80-120	5	20	
Selenium	23.6	2.0	ug/L	25.00		95	80-120	10	20	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith

ESS Laboratory Work Order: 1402014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals Aqueous

Batch CB40701 - 3005A

Silver	25.5	0.2	ug/L	25.00		102	80-120	0.9	20	
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8082A Polychlorinated Biphenyls (PCB)

Batch CB40430 - 3510C

Blank										
Aroclor 1016	ND	0.10	ug/L							
Aroclor 1016 (1)	ND	0.10	ug/L							
Aroclor 1016 (1) [2C]	ND	0.10	ug/L							
Aroclor 1016 (2)	ND	0.10	ug/L							
Aroclor 1016 (2) [2C]	ND	0.10	ug/L							
Aroclor 1016 (3)	ND	0.10	ug/L							
Aroclor 1016 (3) [2C]	ND	0.10	ug/L							
Aroclor 1016 (4)	ND	0.10	ug/L							
Aroclor 1016 (4) [2C]	ND	0.10	ug/L							
Aroclor 1016 (5)	ND	0.10	ug/L							
Aroclor 1016 (5) [2C]	ND	0.10	ug/L							
Aroclor 1221	ND	0.10	ug/L							
Aroclor 1221 (1)	ND	0.10	ug/L							
Aroclor 1221 (1) [2C]	ND	0.10	ug/L							
Aroclor 1221 (2)	ND	0.10	ug/L							
Aroclor 1221 (2) [2C]	ND	0.10	ug/L							
Aroclor 1221 (3)	ND	0.10	ug/L							
Aroclor 1221 (3) [2C]	ND	0.10	ug/L							
Aroclor 1221 (4)	ND	0.10	ug/L							
Aroclor 1221 (4) [2C]	ND	0.10	ug/L							
Aroclor 1221 (5)	ND	0.10	ug/L							
Aroclor 1221 (5) [2C]	ND	0.10	ug/L							
Aroclor 1232	ND	0.10	ug/L							
Aroclor 1232 (1)	ND	0.10	ug/L							
Aroclor 1232 (1) [2C]	ND	0.10	ug/L							
Aroclor 1232 (2)	ND	0.10	ug/L							
Aroclor 1232 (2) [2C]	ND	0.10	ug/L							
Aroclor 1232 (3)	ND	0.10	ug/L							
Aroclor 1232 (3) [2C]	ND	0.10	ug/L							
Aroclor 1232 (4)	ND	0.10	ug/L							
Aroclor 1232 (4) [2C]	ND	0.10	ug/L							
Aroclor 1232 (5)	ND	0.10	ug/L							
Aroclor 1232 (5) [2C]	ND	0.10	ug/L							
Aroclor 1242	ND	0.10	ug/L							
Aroclor 1242 (1)	ND	0.10	ug/L							
Aroclor 1242 (1) [2C]	ND	0.10	ug/L							
Aroclor 1242 (2)	ND	0.10	ug/L							
Aroclor 1242 (2) [2C]	ND	0.10	ug/L							
Aroclor 1242 (3)	ND	0.10	ug/L							
Aroclor 1242 (3) [2C]	ND	0.10	ug/L							



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith

ESS Laboratory Work Order: 1402014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CB40430 - 3510C

Aroclor 1242 (4)	ND	0.10	ug/L
Aroclor 1242 (4) [2C]	ND	0.10	ug/L
Aroclor 1242 (5)	ND	0.10	ug/L
Aroclor 1242 (5) [2C]	ND	0.10	ug/L
Aroclor 1248	ND	0.10	ug/L
Aroclor 1248 (1)	ND	0.10	ug/L
Aroclor 1248 (1) [2C]	ND	0.10	ug/L
Aroclor 1248 (2)	ND	0.10	ug/L
Aroclor 1248 (2) [2C]	ND	0.10	ug/L
Aroclor 1248 (3)	ND	0.10	ug/L
Aroclor 1248 (3) [2C]	ND	0.10	ug/L
Aroclor 1248 (4)	ND	0.10	ug/L
Aroclor 1248 (4) [2C]	ND	0.10	ug/L
Aroclor 1248 (5)	ND	0.10	ug/L
Aroclor 1248 (5) [2C]	ND	0.10	ug/L
Aroclor 1254	ND	0.10	ug/L
Aroclor 1254 (1)	ND	0.10	ug/L
Aroclor 1254 (1) [2C]	ND	0.10	ug/L
Aroclor 1254 (2)	ND	0.10	ug/L
Aroclor 1254 (2) [2C]	ND	0.10	ug/L
Aroclor 1254 (3)	ND	0.10	ug/L
Aroclor 1254 (3) [2C]	ND	0.10	ug/L
Aroclor 1254 (4)	ND	0.10	ug/L
Aroclor 1254 (4) [2C]	ND	0.10	ug/L
Aroclor 1254 (5)	ND	0.10	ug/L
Aroclor 1254 (5) [2C]	ND	0.10	ug/L
Aroclor 1260	ND	0.10	ug/L
Aroclor 1260 (1)	ND	0.10	ug/L
Aroclor 1260 (1) [2C]	ND	0.10	ug/L
Aroclor 1260 (2)	ND	0.10	ug/L
Aroclor 1260 (2) [2C]	ND	0.10	ug/L
Aroclor 1260 (3)	ND	0.10	ug/L
Aroclor 1260 (3) [2C]	ND	0.10	ug/L
Aroclor 1260 (4)	ND	0.10	ug/L
Aroclor 1260 (4) [2C]	ND	0.10	ug/L
Aroclor 1260 (5)	ND	0.10	ug/L
Aroclor 1260 (5) [2C]	ND	0.10	ug/L
Aroclor 1262	ND	0.10	ug/L
Aroclor 1262 (1)	ND	0.10	ug/L
Aroclor 1262 (1) [2C]	ND	0.10	ug/L
Aroclor 1262 (2)	ND	0.10	ug/L
Aroclor 1262 (2) [2C]	ND	0.10	ug/L
Aroclor 1262 (3)	ND	0.10	ug/L
Aroclor 1262 (3) [2C]	ND	0.10	ug/L
Aroclor 1262 (4)	ND	0.10	ug/L



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith

ESS Laboratory Work Order: 1402014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CB40430 - 3510C

Aroclor 1262 (4) [2C]	ND	0.10	ug/L							
Aroclor 1262 (5)	ND	0.10	ug/L							
Aroclor 1262 (5) [2C]	ND	0.10	ug/L							
Aroclor 1268	ND	0.10	ug/L							
Aroclor 1268 (1)	ND	0.10	ug/L							
Aroclor 1268 (1) [2C]	ND	0.10	ug/L							
Aroclor 1268 (2)	ND	0.10	ug/L							
Aroclor 1268 (2) [2C]	ND	0.10	ug/L							
Aroclor 1268 (3)	ND	0.10	ug/L							
Aroclor 1268 (3) [2C]	ND	0.10	ug/L							
Aroclor 1268 (4)	ND	0.10	ug/L							
Aroclor 1268 (4) [2C]	ND	0.10	ug/L							
Aroclor 1268 (5)	ND	0.10	ug/L							
Aroclor 1268 (5) [2C]	ND	0.10	ug/L							

Surrogate: Decachlorobiphenyl	0.0362		ug/L	0.05000		72	30-150
Surrogate: Decachlorobiphenyl [2C]	0.0339		ug/L	0.05000		68	30-150
Surrogate: Tetrachloro-m-xylene	0.0274		ug/L	0.05000		55	30-150
Surrogate: Tetrachloro-m-xylene [2C]	0.0312		ug/L	0.05000		62	30-150

LCS

Aroclor 1016	0.77	0.10	ug/L	1.000		77	40-140
Aroclor 1260	0.75	0.10	ug/L	1.000		75	40-140
Surrogate: Decachlorobiphenyl	0.0398		ug/L	0.05000		80	30-150
Surrogate: Decachlorobiphenyl [2C]	0.0383		ug/L	0.05000		77	30-150
Surrogate: Tetrachloro-m-xylene	0.0312		ug/L	0.05000		62	30-150
Surrogate: Tetrachloro-m-xylene [2C]	0.0358		ug/L	0.05000		72	30-150

LCS Dup

Aroclor 1016	0.75	0.10	ug/L	1.000		75	40-140	3	20
Aroclor 1260	0.74	0.10	ug/L	1.000		74	40-140	1	20
Surrogate: Decachlorobiphenyl	0.0373		ug/L	0.05000		75	30-150		
Surrogate: Decachlorobiphenyl [2C]	0.0365		ug/L	0.05000		73	30-150		
Surrogate: Tetrachloro-m-xylene	0.0331		ug/L	0.05000		66	30-150		
Surrogate: Tetrachloro-m-xylene [2C]	0.0368		ug/L	0.05000		74	30-150		

8260B Volatile Organic Compounds

Batch CB40520 - 5030B

Blank

1,1,1-Trichloroethane	ND	1.0	ug/L							
1,1,2-Trichloroethane	ND	1.0	ug/L							
1,1-Dichloroethane	ND	1.0	ug/L							
1,1-Dichloroethene	ND	1.0	ug/L							
1,2-Dichlorobenzene	ND	1.0	ug/L							
1,2-Dichloroethane	ND	1.0	ug/L							



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith

ESS Laboratory Work Order: 1402014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch CB40520 - 5030B

1,3-Dichlorobenzene	ND	1.0	ug/L							
1,4-Dichlorobenzene	ND	1.0	ug/L							
Acetone	ND	10.0	ug/L							
Benzene	ND	1.0	ug/L							
Carbon Tetrachloride	ND	1.0	ug/L							
cis-1,2-Dichloroethene	ND	1.0	ug/L							
Ethylbenzene	ND	1.0	ug/L							
Methyl tert-Butyl Ether	ND	1.0	ug/L							
Methylene Chloride	ND	2.0	ug/L							
Naphthalene	ND	1.0	ug/L							
Tertiary-amyl methyl ether	ND	1.0	ug/L							
Tertiary-butyl Alcohol	ND	25.0	ug/L							
Tetrachloroethene	ND	1.0	ug/L							
Toluene	ND	1.0	ug/L							
Trichloroethene	ND	1.0	ug/L							
Vinyl Chloride	ND	1.0	ug/L							
Xylene O	ND	1.0	ug/L							
Xylene P,M	ND	2.0	ug/L							
Surrogate: 1,2-Dichloroethane-d4	22.7		ug/L	25.00		91	70-130			
Surrogate: 4-Bromofluorobenzene	24.9		ug/L	25.00		99	70-130			
Surrogate: Dibromofluoromethane	22.8		ug/L	25.00		91	70-130			
Surrogate: Toluene-d8	25.7		ug/L	25.00		103	70-130			

LCS

1,1,1-Trichloroethane	9.4		ug/L	10.00		94	70-130			
1,1,2-Trichloroethane	9.6		ug/L	10.00		96	70-130			
1,1-Dichloroethane	9.8		ug/L	10.00		98	70-130			
1,1-Dichloroethene	9.6		ug/L	10.00		96	70-130			
1,2-Dichlorobenzene	10.2		ug/L	10.00		102	70-130			
1,2-Dichloroethane	8.8		ug/L	10.00		88	70-130			
1,3-Dichlorobenzene	10.4		ug/L	10.00		104	70-130			
1,4-Dichlorobenzene	10.0		ug/L	10.00		100	70-130			
Acetone	55.1		ug/L	50.00		110	70-130			
Benzene	10.1		ug/L	10.00		101	70-130			
Carbon Tetrachloride	9.6		ug/L	10.00		96	70-130			
cis-1,2-Dichloroethene	9.7		ug/L	10.00		97	70-130			
Ethylbenzene	10.5		ug/L	10.00		105	70-130			
Methyl tert-Butyl Ether	9.7		ug/L	10.00		97	70-130			
Methylene Chloride	9.4		ug/L	10.00		94	70-130			
Naphthalene	11.0		ug/L	10.00		110	70-130			
Tertiary-amyl methyl ether	9.6		ug/L	10.00		96	70-130			
Tertiary-butyl Alcohol	50.2		ug/L	50.00		100	70-130			
Tetrachloroethene	9.7		ug/L	10.00		97	70-130			
Toluene	10.3		ug/L	10.00		103	70-130			
Trichloroethene	9.8		ug/L	10.00		98	70-130			
Vinyl Chloride	10.4		ug/L	10.00		104	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Joseph Smith

ESS Laboratory Work Order: 1402014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch CB40520 - 5030B

Xylene O	10.8		ug/L	10.00		108	70-130			
Xylene P,M	21.2		ug/L	20.00		106	70-130			
Surrogate: 1,2-Dichloroethane-d4	24.0		ug/L	25.00		96	70-130			
Surrogate: 4-Bromofluorobenzene	24.9		ug/L	25.00		100	70-130			
Surrogate: Dibromofluoromethane	24.6		ug/L	25.00		98	70-130			
Surrogate: Toluene-d8	25.8		ug/L	25.00		103	70-130			

LCS Dup

1,1,1-Trichloroethane	9.5		ug/L	10.00		95	70-130	2	25	
1,1,2-Trichloroethane	9.4		ug/L	10.00		94	70-130	2	25	
1,1-Dichloroethane	9.4		ug/L	10.00		94	70-130	5	25	
1,1-Dichloroethene	9.2		ug/L	10.00		92	70-130	5	25	
1,2-Dichlorobenzene	9.9		ug/L	10.00		99	70-130	3	25	
1,2-Dichloroethane	8.9		ug/L	10.00		89	70-130	0.7	25	
1,3-Dichlorobenzene	9.7		ug/L	10.00		97	70-130	7	25	
1,4-Dichlorobenzene	9.6		ug/L	10.00		96	70-130	4	25	
Acetone	48.5		ug/L	50.00		97	70-130	13	25	
Benzene	10.2		ug/L	10.00		102	70-130	0.1	25	
Carbon Tetrachloride	9.3		ug/L	10.00		93	70-130	3	25	
cis-1,2-Dichloroethene	9.6		ug/L	10.00		96	70-130	0.9	25	
Ethylbenzene	10.2		ug/L	10.00		102	70-130	3	25	
Methyl tert-Butyl Ether	9.6		ug/L	10.00		96	70-130	1	25	
Methylene Chloride	9.3		ug/L	10.00		93	70-130	0.7	25	
Naphthalene	10.6		ug/L	10.00		106	70-130	4	25	
Tertiary-amyl methyl ether	9.5		ug/L	10.00		95	70-130	1	25	
Tertiary-butyl Alcohol	50.6		ug/L	50.00		101	70-130	0.6	25	
Tetrachloroethene	9.0		ug/L	10.00		90	70-130	7	25	
Toluene	10.2		ug/L	10.00		102	70-130	0.8	25	
Trichloroethene	9.4		ug/L	10.00		94	70-130	3	25	
Vinyl Chloride	10.2		ug/L	10.00		102	70-130	3	25	
Xylene O	10.4		ug/L	10.00		104	70-130	4	25	
Xylene P,M	21.0		ug/L	20.00		105	70-130	0.7	25	
Surrogate: 1,2-Dichloroethane-d4	24.5		ug/L	25.00		98	70-130			
Surrogate: 4-Bromofluorobenzene	24.7		ug/L	25.00		99	70-130			
Surrogate: Dibromofluoromethane	23.7		ug/L	25.00		95	70-130			
Surrogate: Toluene-d8	25.3		ug/L	25.00		101	70-130			

8270D(SIM) Semi-Volatile Organic Compounds w/ Isotope Dilution

Batch CB41031 - 3520C

Blank

1,4-Dioxane	ND	0.2	ug/L							
Surrogate: 1,4-Dioxane-d8	4.11		ug/L	5.000		82	15-115			

LCS

1,4-Dioxane	8.8	0.2	ug/L	10.00		88	40-140			
Surrogate: 1,4-Dioxane-d8	3.68		ug/L	5.000		74	15-115			



CERTIFICATE OF ANALYSIS

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Client Project ID: Joseph Smith

ESS Laboratory Work Order: 1402014

Quality Control Data

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8270D(SIM) Semi-Volatile Organic Compounds w/ Isotope Dilution

Batch CB41031 - 3520C

LCS Dup

1,4-Dioxane	8.4	0.2	ug/L	10.00		84	40-140	5	20	
Surrogate: 1,4-Dioxane-d8	4.41		ug/L	5.000		88	15-115			

8270C(SIM) Polynuclear Aromatic Hydrocarbons

Batch CB40602 - 3510C

Blank

Acenaphthene	ND	0.20	ug/L							
Acenaphthylene	ND	0.20	ug/L							
Anthracene	ND	0.20	ug/L							
Benzo(a)anthracene	ND	0.05	ug/L							
Benzo(a)pyrene	ND	0.05	ug/L							
Benzo(b)fluoranthene	ND	0.05	ug/L							
Benzo(g,h,i)perylene	ND	0.20	ug/L							
Benzo(k)fluoranthene	ND	0.05	ug/L							
bis(2-Ethylhexyl)phthalate	ND	2.50	ug/L							
Butylbenzylphthalate	ND	2.50	ug/L							
Chrysene	ND	0.05	ug/L							
Dibenzo(a,h)Anthracene	ND	0.05	ug/L							
Diethylphthalate	ND	2.50	ug/L							
Dimethylphthalate	ND	2.50	ug/L							
Di-n-butylphthalate	ND	2.50	ug/L							
Di-n-octylphthalate	ND	2.50	ug/L							
Fluoranthene	ND	0.20	ug/L							
Fluorene	ND	0.20	ug/L							
Indeno(1,2,3-cd)Pyrene	ND	0.05	ug/L							
Naphthalene	ND	0.20	ug/L							
Pentachlorophenol	ND	0.90	ug/L							
Phenanthrene	ND	0.20	ug/L							
Pyrene	ND	0.20	ug/L							
Surrogate: 1,2-Dichlorobenzene-d4	1.51		ug/L	2.500		60	30-130			
Surrogate: 2,4,6-Tribromophenol	3.15		ug/L	3.750		84	15-110			
Surrogate: 2-Fluorobiphenyl	1.71		ug/L	2.500		68	30-130			
Surrogate: Nitrobenzene-d5	1.98		ug/L	2.500		79	30-130			
Surrogate: p-Terphenyl-d14	1.88		ug/L	2.500		75	30-130			

LCS

Acenaphthene	2.16	0.20	ug/L	4.000		54	40-140			
Acenaphthylene	2.10	0.20	ug/L	4.000		53	40-140			
Anthracene	2.62	0.20	ug/L	4.000		66	40-140			
Benzo(a)anthracene	2.81	0.05	ug/L	4.000		70	40-140			
Benzo(a)pyrene	2.54	0.05	ug/L	4.000		64	40-140			
Benzo(b)fluoranthene	2.87	0.05	ug/L	4.000		72	40-140			
Benzo(g,h,i)perylene	2.85	0.20	ug/L	4.000		71	40-140			
Benzo(k)fluoranthene	2.69	0.05	ug/L	4.000		67	40-140			



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8270C(SIM) Polynuclear Aromatic Hydrocarbons

Batch CB40602 - 3510C

bis(2-Ethylhexyl)phthalate	3.09	2.50	ug/L	4.000		77	40-140			
Butylbenzylphthalate	3.51	2.50	ug/L	4.000		88	40-140			
Chrysene	2.78	0.05	ug/L	4.000		70	40-140			
Dibenzo(a,h)Anthracene	3.00	0.05	ug/L	4.000		75	40-140			
Diethylphthalate	2.55	2.50	ug/L	4.000		64	40-140			
Dimethylphthalate	2.55	2.50	ug/L	4.000		64	40-140			
Di-n-butylphthalate	2.70	2.50	ug/L	4.000		67	40-140			
Di-n-octylphthalate	3.21	2.50	ug/L	4.000		80	40-140			
Fluoranthene	2.99	0.20	ug/L	4.000		75	40-140			
Fluorene	2.37	0.20	ug/L	4.000		59	40-140			
Indeno(1,2,3-cd)Pyrene	2.95	0.05	ug/L	4.000		74	40-140			
Naphthalene	2.06	0.20	ug/L	4.000		51	40-140			
Pentachlorophenol	3.13	0.90	ug/L	4.000		78	30-130			
Phenanthrene	2.61	0.20	ug/L	4.000		65	40-140			
Pyrene	2.75	0.20	ug/L	4.000		69	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	1.30		ug/L	2.500		52	30-130			
Surrogate: 2,4,6-Tribromophenol	3.79		ug/L	3.750		101	15-110			
Surrogate: 2-Fluorobiphenyl	1.58		ug/L	2.500		63	30-130			
Surrogate: Nitrobenzene-d5	1.78		ug/L	2.500		71	30-130			
Surrogate: p-Terphenyl-d14	1.85		ug/L	2.500		74	30-130			

LCS Dup

Acenaphthene	2.27	0.20	ug/L	4.000		57	40-140	5	20	
Acenaphthylene	2.22	0.20	ug/L	4.000		56	40-140	6	20	
Anthracene	2.74	0.20	ug/L	4.000		68	40-140	4	20	
Benzo(a)anthracene	3.03	0.05	ug/L	4.000		76	40-140	8	20	
Benzo(a)pyrene	2.70	0.05	ug/L	4.000		67	40-140	6	20	
Benzo(b)fluoranthene	3.00	0.05	ug/L	4.000		75	40-140	4	20	
Benzo(g,h,i)perylene	3.00	0.20	ug/L	4.000		75	40-140	5	20	
Benzo(k)fluoranthene	2.86	0.05	ug/L	4.000		72	40-140	6	20	
bis(2-Ethylhexyl)phthalate	3.18	2.50	ug/L	4.000		80	40-140	3	20	
Butylbenzylphthalate	3.50	2.50	ug/L	4.000		88	40-140	0.3	20	
Chrysene	3.02	0.05	ug/L	4.000		75	40-140	8	20	
Dibenzo(a,h)Anthracene	3.14	0.05	ug/L	4.000		78	40-140	5	20	
Diethylphthalate	2.65	2.50	ug/L	4.000		66	40-140	4	20	
Dimethylphthalate	2.69	2.50	ug/L	4.000		67	40-140	5	20	
Di-n-butylphthalate	2.83	2.50	ug/L	4.000		71	40-140	5	20	
Di-n-octylphthalate	3.35	2.50	ug/L	4.000		84	40-140	4	20	
Fluoranthene	3.08	0.20	ug/L	4.000		77	40-140	3	20	
Fluorene	2.49	0.20	ug/L	4.000		62	40-140	5	20	
Indeno(1,2,3-cd)Pyrene	3.06	0.05	ug/L	4.000		76	40-140	4	20	
Naphthalene	2.22	0.20	ug/L	4.000		55	40-140	7	20	
Pentachlorophenol	2.97	0.90	ug/L	4.000		74	30-130	5	20	
Phenanthrene	2.68	0.20	ug/L	4.000		67	40-140	3	20	
Pyrene	3.05	0.20	ug/L	4.000		76	40-140	10	20	
Surrogate: 1,2-Dichlorobenzene-d4	1.29		ug/L	2.500		51	30-130			



CERTIFICATE OF ANALYSIS

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Quality Control Data

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8270C(SIM) Polynuclear Aromatic Hydrocarbons

Batch CB40602 - 3510C

Surrogate: 2,4,6-Tribromophenol	2.65		ug/L	3.750		71	15-110			
Surrogate: 2-Fluorobiphenyl	1.51		ug/L	2.500		60	30-130			
Surrogate: Nitrobenzene-d5	1.82		ug/L	2.500		73	30-130			
Surrogate: p-Terphenyl-d14	1.99		ug/L	2.500		80	30-130			

Classical Chemistry

Batch CB40328 - General Preparation

Blank

Total Residual Chlorine	ND	0.01	mg/L							
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LCS

Total Residual Chlorine	0.74		mg/L	0.7300		101	85-115			
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Batch CB40329 - General Preparation

Blank

Hexavalent Chromium	ND	10	ug/L							
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LCS

Hexavalent Chromium	498	10	ug/L	499.8		100	90-110			
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LCS Dup

Hexavalent Chromium	496	10	ug/L	499.8		99	90-110	0.4	20	
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Batch CB40613 - General Preparation

Blank

Total Petroleum Hydrocarbon	ND	5	mg/L							
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LCS

Total Petroleum Hydrocarbon	13	5	mg/L	19.38		68	66-114			
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Batch CB40615 - General Preparation

Blank

Chloride	ND	0.5	mg/L							
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LCS

Chloride	2.4		mg/L	2.500		95	90-110			
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Batch CB40616 - General Preparation

Blank

Phenols	ND	0.10	mg/L							
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LCS

Phenols	0.10	0.10	mg/L	0.1000		97	80-120			
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LCS

Phenols	1.03	0.10	mg/L	1.000		103	80-120			
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Batch CB40618 - General Preparation

Blank

Total Suspended Solids	ND	5	mg/L							
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LCS

Total Suspended Solids	66		mg/L	65.00		102	80-120			
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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Classical Chemistry

Batch CB40621 - TCN Prep

Blank

Total Cyanide (LL)	ND	0.0050	mg/L							
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LCS

Total Cyanide (LL)	0.0195	0.0050	mg/L	0.02006		97	90-110			
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LCS

Total Cyanide (LL)	0.150	0.0050	mg/L	0.1504		99	90-110			
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LCS Dup

Total Cyanide (LL)	0.148	0.0050	mg/L	0.1504		99	90-110	0.7	20	
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504.1 1,2-Dibromoethane / 1,2-Dibromo-3-chloropropane

Batch CB40708 - 504/8011

Blank

1,2-Dibromoethane	ND	0.015	ug/L							
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1,2-Dibromoethane [2C]	ND	0.015	ug/L							
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Surrogate: Pentachloroethane	0.154		ug/L	0.2000		77	30-150			
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Surrogate: Pentachloroethane [2C]	0.156		ug/L	0.2000		78	30-150			
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LCS

1,2-Dibromoethane	0.192	0.015	ug/L	0.2000		96	70-130			
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1,2-Dibromoethane [2C]	0.177	0.015	ug/L	0.2000		88	70-130			
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Surrogate: Pentachloroethane	0.165		ug/L	0.2000		82	30-150			
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Surrogate: Pentachloroethane [2C]	0.162		ug/L	0.2000		81	30-150			
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LCS

1,2-Dibromoethane	0.070	0.015	ug/L	0.08000		87	70-130			
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1,2-Dibromoethane [2C]	0.069	0.015	ug/L	0.08000		87	70-130			
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Surrogate: Pentachloroethane	0.0929		ug/L	0.08000		116	30-150			
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Surrogate: Pentachloroethane [2C]	0.0974		ug/L	0.08000		122	30-150			
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CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
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ESS Laboratory Work Order: 1402014

Notes and Definitions

U	Analyte included in the analysis, but not detected
HT	The maximum holding time listed in 40 CFR Part 136 Table II for pH, Dissolved Oxygen, Sulfite and Residual Chlorine is fifteen minutes.
D	Diluted.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 1402014

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)

A2LA Accredited: Testing Cert# 2864.01

<http://www.a2la.org/scopepdf/2864-01.pdf>

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI0002

http://www.maine.gov/dep/blwq/topic/vessel/lab_list.pdf

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/labcert/labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_Opra/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

CHEMISTRY

A2LA Accredited: Testing Cert # 2864.01

Lead in Paint, Phthalates, Lead in Children's Metals Products (Including Jewelry)

<http://www.A2LA.org/dirsearchnew/newsearch.cfm>

CPSC ID# 1141

Lead Paint, Lead in Children's Metals Jewelry

<http://www.cpsc.gov/cgi-bin/labapplist.aspx>

Sample and Cooler Receipt Checklist

Client: GZA GeoEnvironmental, Inc.
Client Project ID: _____
Shipped/Delivered Via: ESS Courier

ESS Project ID: 14020014
Date Project Due: 2/10/14
Days For Project: 5 Day

Items to be checked upon receipt:

- | | | | |
|---|-------------------------------|---|---|
| 1. Air Bill Manifest Present? | <input type="checkbox"/> * No | 10. Are the samples properly preserved? | <input type="checkbox"/> Yes |
| Air No.: | | 11. Proper sample containers used? | <input type="checkbox"/> Yes |
| 2. Were Custody Seals Present? | <input type="checkbox"/> No | 12. Any air bubbles in the VOA vials? | <input type="checkbox"/> No |
| 3. Were Custody Seals Intact? | <input type="checkbox"/> N/A | 13. Holding times exceeded? | <input type="checkbox"/> No |
| 4. Is Radiation count < 100 CPM? | <input type="checkbox"/> Yes | 14. Sufficient sample volumes? | <input type="checkbox"/> Yes |
| 5. Is a cooler present? | <input type="checkbox"/> Yes | 15. Any Subcontracting needed? | <input type="checkbox"/> No |
| Cooler Temp: <u>2.6</u> | | 16. Are ESS labels on correct containers? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Iced With: <u>Ice</u> | | 17. Were samples received intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 6. Was COC included with samples? | <input type="checkbox"/> Yes | ESS Sample IDs: _____ | |
| 7. Was COC signed and dated by client? | <input type="checkbox"/> Yes | Sub Lab: _____ | |
| 8. Does the COC match the sample | <input type="checkbox"/> Yes | Analysis: _____ | |
| 9. Is COC complete and correct? | <input type="checkbox"/> Yes | TAT: _____ | |
| 18. Was there need to call project manager to discuss status? If yes, please explain. | | | |

Who was called?: _____ By whom? _____

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative	PH	time
1	Yes	1 L Glass	2	H2SO4		
1	Yes	1 L Glass	6	NP		
1	Yes	1 L Plastic	1	NP		
1	Yes	250 ml Plastic	1	HNO3		
1	Yes	250 ml Plastic	1	NaOH		
1	Yes	40 ml - VOA	6	HCL		
1	Yes	500 ml Plastic	1	NP		

Completed By: [Signature] Date/Time: 2/3/14 1723
Reviewed By: [Signature] Date/Time: 2/3/14 1730

-10
at
2/3/14

ATTACHMENT 10

DILUTION FACTOR CALCULATION

DILUTION FACTOR CALCULATIONS
NOTICE OF INTENT FOR THE REMEDIATION GENERAL PERMIT
1420 Solders Field Road, Brighton, Massachusetts

$$DF = \frac{Q_d + Q_s}{Q_d}$$

Where,

DF = Dilution Factor

Q_d = Maximum Flow Rate of the Discharge in cubic feet per second (cfs) (1.0 gpm = 0.00223 cfs)

Q_s = Receiving Water 7Q10 Flow (cfs) where,

7Q10 = Minimum Flow (cfs) for 7 Consecutive Days with a Recurrence Interval of 10 Years.

Q_d = 50 gpm = 0.11 cfs

Q_s = 23.4 cfs (M7D10Y on attached USGS Streamstats Ungaged Site Report)

$$\therefore DF = \frac{Q_d + Q_s}{Q_d} = \frac{0.11 + 23.4}{0.11} = 214$$



Streamstats Ungaged Site Report

Date: Tue Dec 9 2014 12:02:26 Mountain Standard Time

Site Location: Massachusetts

NAD27 Latitude: 42.3628 (42 21 46)

NAD27 Longitude: -71.1467 (-71 08 48)

NAD83 Latitude: 42.3629 (42 21 46)

NAD83 Longitude: -71.1462 (-71 08 46)

ReachCode: 01090001000111

Measure: 57.06

Drainage Area: 278 mi²

Percent Urban: 42.9 %

Percent Impervious: 16.3 %

Low Flows Basin Characteristics			
100% Statewide Low Flow (278 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	278 (above max value 149)	1.61	149
Mean Basin Slope from 250K DEM (percent)	2.34	0.32	24.6
Stratified Drift per Stream Length (square mile per mile)	0.22	0	1.29
Massachusetts Region (dimensionless)	0	0	1

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Probability of Perennial Flow Basin Characteristics			
100% Perennial Flow Probability (278 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	278 (above max value 1.99)	0.01	1.99
Percent Underlain By Sand And Gravel (percent)	47.10	0	100
Percent Forest (percent)	42.69	0	100
Massachusetts Region (dimensionless)	0	0	1

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Low Flows Streamflow Statistics					
Statistic	Flow (ft ³ /s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
D50	297				
D60	244				
D70	167				
D75	136				
D80	106				
D85	84.5				
D90	65.4				
D95	44.1				
D98	29.4				
D99	24.4				
M7D2Y	47.4				
AUGD50	90.5				
M7D10Y	23.4				

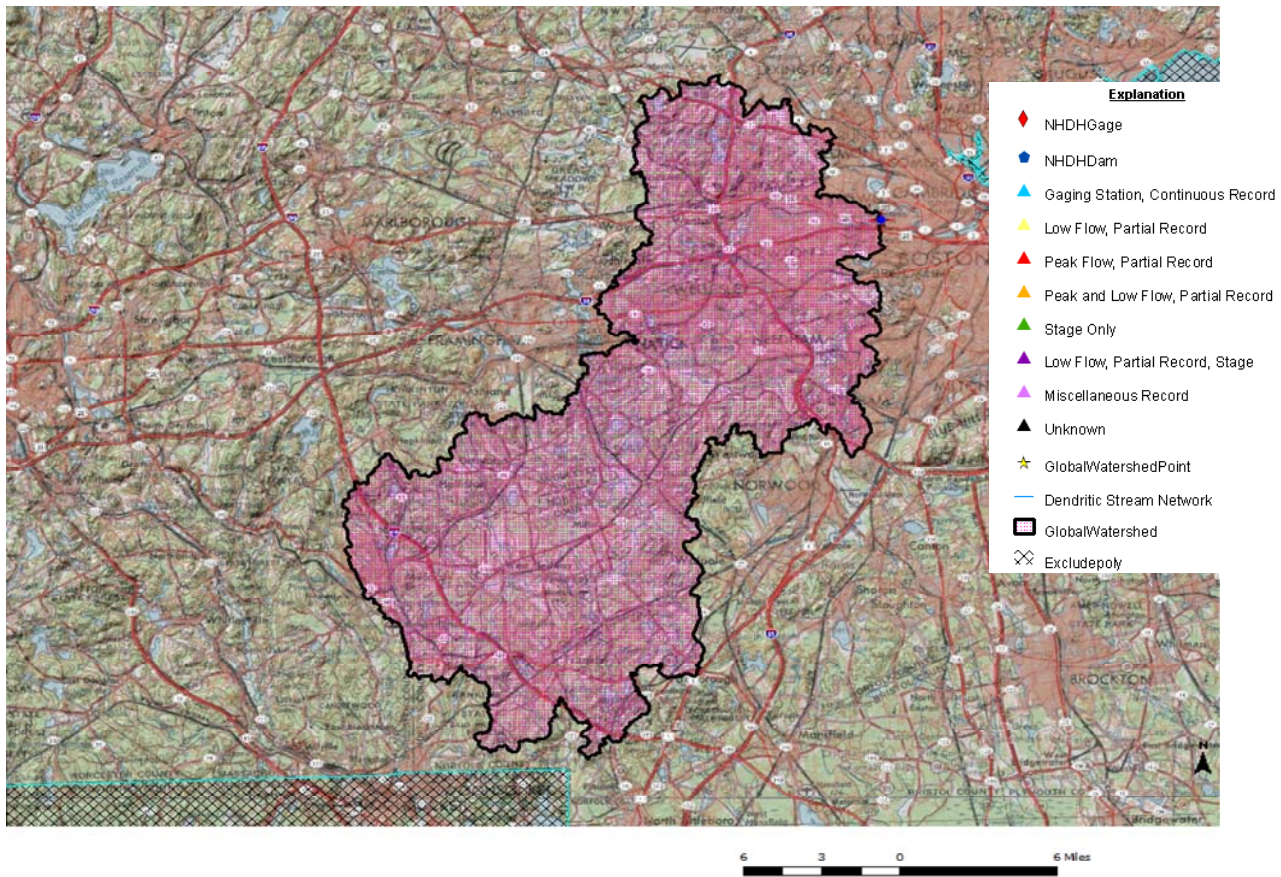
The equation for estimating the probability of perennial flow is applicable for most areas of Massachusetts except eastern Buzzards Bay, Cape Cod, and the Island regions. The estimate obtained from the equation assumes natural flow conditions at the site. The equation also is best used for sites with drainage areas between 0.01 to 1.99 mi², as errors beyond for basins beyond these bounds are unknown.

Probability of Perennial Flow Statistics		
Statistic	Value	Standard Error (percent)
PROBPEREN	1	



Massachusetts StreamStats

StreamStats Print Page



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