NOTICE OF INTENT FOR DISCHARGE PURSUANT TO MASSACHUSETTS REMEDIATION GENERAL PERMIT MAG9100000

ARLINGTON HIGH SCHOOL
ARLINGTON, MASSACHUSETTS

FEBRUARY 24, 2020

Prepared For:

United States Environmental Protection Agency
Office of Ecosystem Protection
5 Post Office Square, Suite 100
Mail Code OEP06-01
Boston, MA 02109-3912

On Behalf Of:

Consigli Construction Co. Inc.
72 Sumner Street
Milford, MA 01757

PROJECT NO. 6531

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

February 24, 2020

United States Environmental Protection Agency
Office of Ecosystem Protection
5 Post Office Square, Suite 100
Mail Code OEP06-01
Boston, MA 02109-3912

Attention: EPA RGP Applications Coordinator

Reference: Arlington High School; 869 Massachusetts Avenue, Arlington, MA;
Notice of Intent for Temporary Construction Dewatering Discharge;
Massachusetts Remediation General Permit MAG910000

Ladies and Gentlemen:

On behalf of Consigli Construction Co., Inc., McPhail Associates, LLC (McPhail) has prepared the attached Notice of Intent (NOI) for coverage under the Remediation General Permit (RGP) MAG910000 for the discharge of construction dewatering effluent into the Mill Brook which flows into the Lower Mystic Lake via the on-site storm drainage system. The temporary construction dewatering discharge will occur during redevelopment of the Arlington High School located at 869 Massachusetts Avenue in Arlington, Massachusetts (project site). Refer to **Figure 1** for the general site locus.

These services were performed and this permit application was prepared in accordance with the authorization of HMFM Architects, Inc. These services are subject to the limitations contained in **Appendix A**.

This project is considered Activity Category III-G as defined in the RGP. Category III-G is defined as Contaminated Site Dewatering from Sites with Known Contamination. Based on historical and current soil and groundwater analysis completed at the site, the constituents of concern (COCs) are those identified under subcategory A (Inorganics), subcategory C (halogenated VOCs), subcategory D (non-halogenated SVOCs), and subcategory F (fuel parameters). The required Notice of Intent (NOI) Form contained in the RGP permit is included in **Appendix B**.

Applicant/Operator

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

Consigli Construction Co., Inc.
72 Sumner Street
Milford, MA 01757

Attention: Mr. John LaMarre; Senior Project Manager

Existing Conditions

Fronting onto Massachusetts Avenue to the south, the approximately 22-acre Arlington High School campus is bounded by the Arlington Department of Public Works (DPW) facility and residential properties to the west, the Minuteman Commuter Bikeway with residential properties on the other side thereof to the north, and to the east by residential and commercial properties. The existing school complex is located near the center of the campus and is surrounded by athletic fields, asphalt paved parking lots and landscaped areas. The remaining exterior portions of the site are occupied by a grassed area located along Massachusetts Avenue, a playground and basketball courts located adjacent to the northeast of the school complex as well as parking lots and driveways that connect to Millbrook Drive to the east and Massachusetts Avenue to the south. The existing conditions of the Arlington High School campus are shown on **Figure 2**.

Existing ground surface to the south of the existing school complex generally slopes downward from south to north from about Elevation +77 to Elevation +68. Within the northern portion of the campus, a majority of which is occupied by athletic fields, the existing grade gradually slopes from west to east from approximately Elevation +54 to about Elevation +45.

Proposed Scope of Site Development

The Arlington High School project includes the phased construction of a new school building in conjunction with phased demolition of the existing school building. The new school building will generally consist of four "wings" ranging from three to five stories which are connected by a central spine with a total plan area of approximately 145,900 square-feet. Additional site improvements will include the construction of parking lots, driveways, new athletic fields as well as a geothermal well field. In general, the proposed ground surface elevations and finish floor elevations will be higher than those currently existing across the school campus.

Site Environmental Setting and Surrounding Historical Places

Based on an on-line edition of the Massachusetts Geographic Information Systems MassDEP MCP Numerical Ranking System Map, the project site is not located within the boundaries of a Sole Source Aquifer, Potentially Productive Aquifer or within a Zone II, Interim Wellhead Protection Area as defined by the Massachusetts Department of Environmental Protection. Further, there are no public drinking water supply wells, no Areas of Critical Environmental Concern, no fish habitats, no habitats of Species of Special Concern or Threatened or Endangered Species within specified distances of the project site. No areas designated as solid waste facilities (landfills) are located within 0.5 miles of the subject site. A culverted portion of the Mill Brook traverses beneath the northern portion of the project site. The Mill Brook is classified by the DEP as a Class B surface water body and flows in a northeasterly direction into the Lower Mystic Lake. A copy of the Massachusetts DEP Phase I Site Assessment Map is included in **Appendix C**.

A review of information provided by the U.S. Fish and Wildlife Service in an Information for Planning and Conservation (IPaC) Trust Resource Report for the project site did not identify the presence of threatened or endangered species at or in the vicinity of the discharge location and/or discharge outfall. Further, the Trust Resource Report did not identify the presence of a critical habitat in the vicinity of the discharge outfall and/or discharge location. Based upon the above, the site is considered a criterion A pursuant to Appendix IV of the RGP. A copy of the IPaC Trust Resource Report and U.S. Fish and Wildlife Service's Nationwide Standard Conservation Measures are included in **Appendix C**.

As further discussed below, treated construction dewatering effluent will be discharged into the Mill Brook that flows into the Lower Mystic Lake. The dewatering of groundwater at the site will be temporary and intermittent. Groundwater discharged as part of the proposed project will be controlled and monitored. Treatment systems will consist of temporary structures. Therefore, based on the anticipated duration of construction dewatering and the location of its discharge into the Mill Brook, construction dewatering activities are not anticipated to affect historical listings. Hence, the site meets Permit Eligibility Criterion A in accordance with Appendix III of the RGP.

Site & Release History

Prior to its construction, the school campus consisted of undeveloped land. During this time period, the northern portion of the campus was occupied by Cutter's Mill Pond which was fed by Mill Brook. In 1908, the pond was drained and the area was backfilled over the next 20 years using soils and wastes from the former industrial sites that occupied the neighboring properties. Backfilling of the pond was completed by 1930, and the area was converted into a playground and playing field.

Historical records indicate that the project site was initially developed in 1914 with the construction of the 6-story Fusco Building (southwestern portion of the current school complex). Subsequently, from 1938 through 1981 the phased construction of the remaining buildings of the school complex were completed. During this time period, portions of the school complex were formerly heated by fuel oil that was stored within underground storage tanks (USTs) located to the north of the Collomb House and Downs House.

In summary, the former industrial and commercial use of surrounding properties has contaminated soil and groundwater across the project site. In addition, localized areas of soil have been contaminated by fuel oil that was stored in USTs and formerly used to heat the school complex. These releases of contamination have been documented with the DEP under Release Tracking Numbers (RTNs) 3-4241, 3-22352, 3-22371, 3-24460 and 3-30236.

In particular, soil and groundwater across the northern portion of the project site is contaminated by a release of hexavalent chromium, polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), petroleum hydrocarbons, lead and cyanide to which the DEP has assigned RTN 3-4241. In 2005, significant response actions were completed across the northern portion of the project site to mitigate exposure to soil and

groundwater that was contaminated by hexavalent chromium. Currently, the RTN 3-4241 site is being managed under the Remedy Operation Status provisions of the MCP.

Soil and groundwater at the southern portion of the project site is affected by a release of tetrachloroethene (PCE) to which RTN 3-30236 was assigned by the DEP. The release of PCE has migrated onto the site with the north-northeasterly direction of groundwater from a former off-site drycleaners located on the opposite side of Massachusetts Avenue.

Furthermore, soil and groundwater located beneath a portion of the Collomb House was affected by a waste oil release to which RTN 3-24460 was assigned by the DEP. The waste oil release was identified during the removal of a UST from beneath the former automotive shop that was located in the basement of the Collomb House. Petroleum constituents as well as PCE was identified in soil and groundwater within the UST grave. While response actions included the removal of contaminated soil, post remedial testing of soil samples from the vicinity of the excavation identified elevated levels of PCE. A Class A-2 Response Action Outcome Statement (Permanent Solution) was filed with the DEP for RTN 3-24460 site.

Construction Site Dewatering

Given its potential to mobilize contamination that is present in soil and groundwater, on-site recharge of dewatered groundwater is not considered feasible at the project site. In general, the depth of excavation required to install the proposed building foundation elements and subsurface utilities will not encounter groundwater, the surface of which ranges from about Elevation +46.7 at the northern portion of the project site to about Elevation +38.3 at the southern portion of the project site. However, there may be localized areas of excavation that may encounter groundwater and hence require dewatering. If required, the rate of construction dewatering within these localized areas of excavation may range from approximately 25 to 50 gallons per minute (gpm). These estimates do not include surface run-off which will be removed from the excavation during periods of precipitation.

However, it is anticipated that excess groundwater will be generated during the drilling of the geothermal boreholes that will require off-site discharge. Although difficult to estimate, the rate of excess groundwater generated during the drilling of the geothermal boreholes may range from 75 to 100 gpm.

Catch basins and associated stormwater drains located on the Arlington High School Campus connect to the Mill Brook culvert which traverses the northern portion of the project site. As mentioned above, Mill Brook eventually flows into the Lower Mystic Lake which is located approximately 0.65 miles to the northeast of the project site. The flow path of the discharge is shown on **Figure 2**.

Summary of Groundwater Analysis

On December 23, 2019, McPhail Associates, LLC obtained a sample of groundwater from monitoring well GP-108 (OW) located within the interior courtyard of the school complex. Additionally, on December 24, McPhail obtained a groundwater sample from monitoring well MW-04-5 located adjacent to the baseball field which occupies the western side of the school campus. The groundwater samples were submitted to a certified laboratory for analysis for the presence of compounds required under the EPA's Remediation General Permit (RGP) application, including total suspended solids (TSS), total residual chlorine, total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs) including total benzene, toluene, ethylbenzene and xylenes (BTEX), poly-aromatic hydrocarbons (PAHs), total phenols, PCBs, and total recoverable metals. Additionally, previous groundwater testing was completed to further evaluate the presence of VOCs at the southern portion of the project site as well as extractable petroleum hydrocarbons (EPH) and volatile petroleum hydrocarbons (VPH) near a UST located beneath the courtyard of the school complex. The results of the laboratory analysis are summarized in **Table 1**, and laboratory data reports are included in **Appendix D**.

Pursuant to Section 4.2.2 of the EPA 2017 RGP, a receiving water sample was obtained from the Mill Brook (42° 25' 12" N, 71° 09' 50" W), which is located approximately 240 feet upstream of the discharge location on January 8, 2020. The receiving water sample was analyzed for the presence of total recoverable metals, pH, and hardness. The results of the surface water testing are summarized on **Table 2** and the laboratory data report is included in the enclosed **Appendix E**.

A Dilution Factor (DF) was calculated for the detected levels of metals pursuant to the procedure contained in RGP MAG910000, Appendix V. The purpose of the DF calculation is to establish Total Recoverable Limits for metals, taking into consideration the anticipated dilution of the detected analyte upon discharge into the Mill Brook. The calculated DF was then used to find the appropriate Dilution Range Concentrations (DRCs) contained in MAG910000, Appendix IV. The Minimum Flow Rate calculated by the USGS Streamstats GIS database at the location of discharge into the Mill Brook for 7 consecutive days with a recurrence interval of 10 years (7Q10 flow) is 0.114 MGD thus resulting in a DF of 1.79 assuming a design flow rate of 100 GPM.

With the exception of hexavalent chromium, the results of the laboratory testing did not detect concentrations of the tested compounds which triggered Water Quality-Based Effluent Limitations (WQBELs). It is noted that the concentrations of trivalent chromium, naphthalene, trichlroroethene, tetrachlorothene and total petroleum hydrocarbons did not exceed applicable MCP reporting thresholds established in Appendix VI of the RGP. Documentation of NOI support calculations is included in **Appendix C**.

Although trivalent chromium, naphthalene, trichlroroethene, tetrachlorothene and total petroleum hydrocarbons were not detected at concentrations which exceed the applicable Technology Based Effluent Limitations (TBELs), these compounds have been identified as contaminants of concern in soil and groundwater at the project site. As a result, these

compounds are considered to be potentially present in the construction dewatering effluent. It is anticipated that the construction dewatering treatment system that is discussed below, which includes granular activated carbon and ion resin filtration will reduce potential concentrations of the above referenced contaminants of concern in the effluent to below the applicable TBELs.

In accordance with the RGP, and given that the project site is an MCP site, the proposed dewatering associated with this permit application is considered Contaminated Site Dewatering from Sites with Known Contamination (Category III-G). Based on historical and current groundwater analysis completed at the site and the constituents of concern (COCs) detected, subcategory A (Inorganics), subcategory C (halogenated VOCs), subcategory D (non-halogenated SVOCs), and subcategory F (fuel parameters) apply to the discharge.

Groundwater Treatment

Based upon the anticipated rates of construction dewatering in conjunction with the results of the above referenced groundwater analyses, it is our opinion that one 10,000-gallon capacity settling tank, bag filters, a granular activated carbon (GAC) filter, and ion resin exchange filter in series will be necessary to settle out and remove particulate matter as well as to remove potential chlorinated solvents and metals in effluent to meet the limits established by the US EPA prior to off-site discharge. A schematic of the treatment system is shown on **Figure 3**.

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

Summary and Conclusions

The purpose of this report is to summarize site environmental conditions and groundwater data to support a Notice of Intent to discharge under the Remediation General Permit for the off-site discharge of dewatered groundwater which will be encountered during redevelopment of the Arlington High School campus that is located at the 869 Massachusetts Avenue in Arlington, Massachusetts. The groundwater testing results reported in this application have been provided to the site owner.

Based on the results of the above referenced groundwater analyses, treatment of construction dewatering will be necessary to meet the effluent limits established by the US EPA prior to off-site discharge. The proposed construction dewatering effluent treatment system will consist of one 10,000-gallon capacity settling tank, bag filters, a granular activated carbon (GAC) filter and ion exchange resin filter in series. However, should the effluent monitoring results identify concentrations of contaminants that are in excess of the limits established by the RGP, additional mitigative measures will be implemented to meet the allowable discharge limits.

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

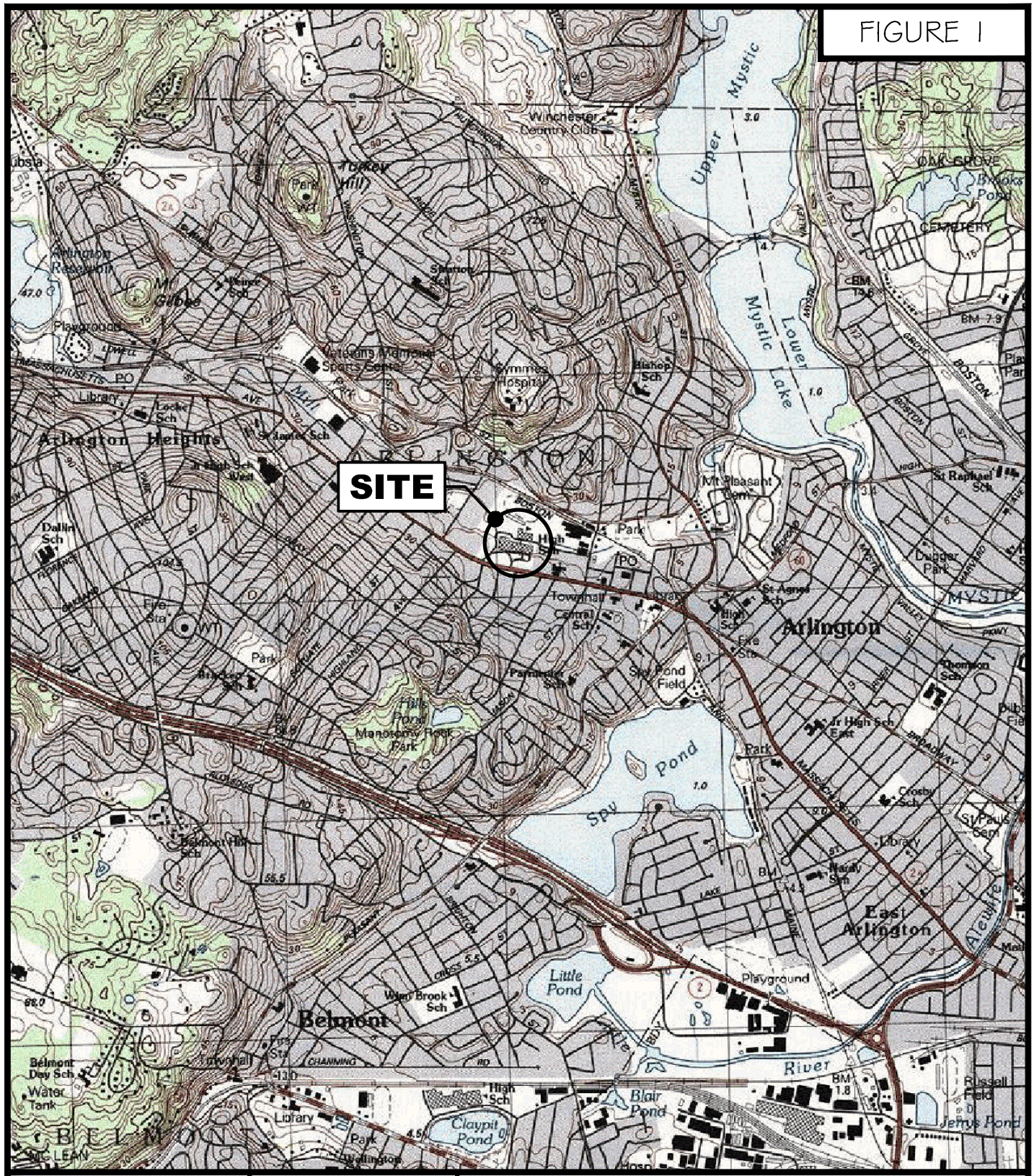
Sincerely,

McPHAIL ASSOCIATES, LLC

William J, Burns L.S.P.

N:\Working Documents\Reports\6531 AHS RGP 020320.docx
WJB/jwp

FIGURE 1



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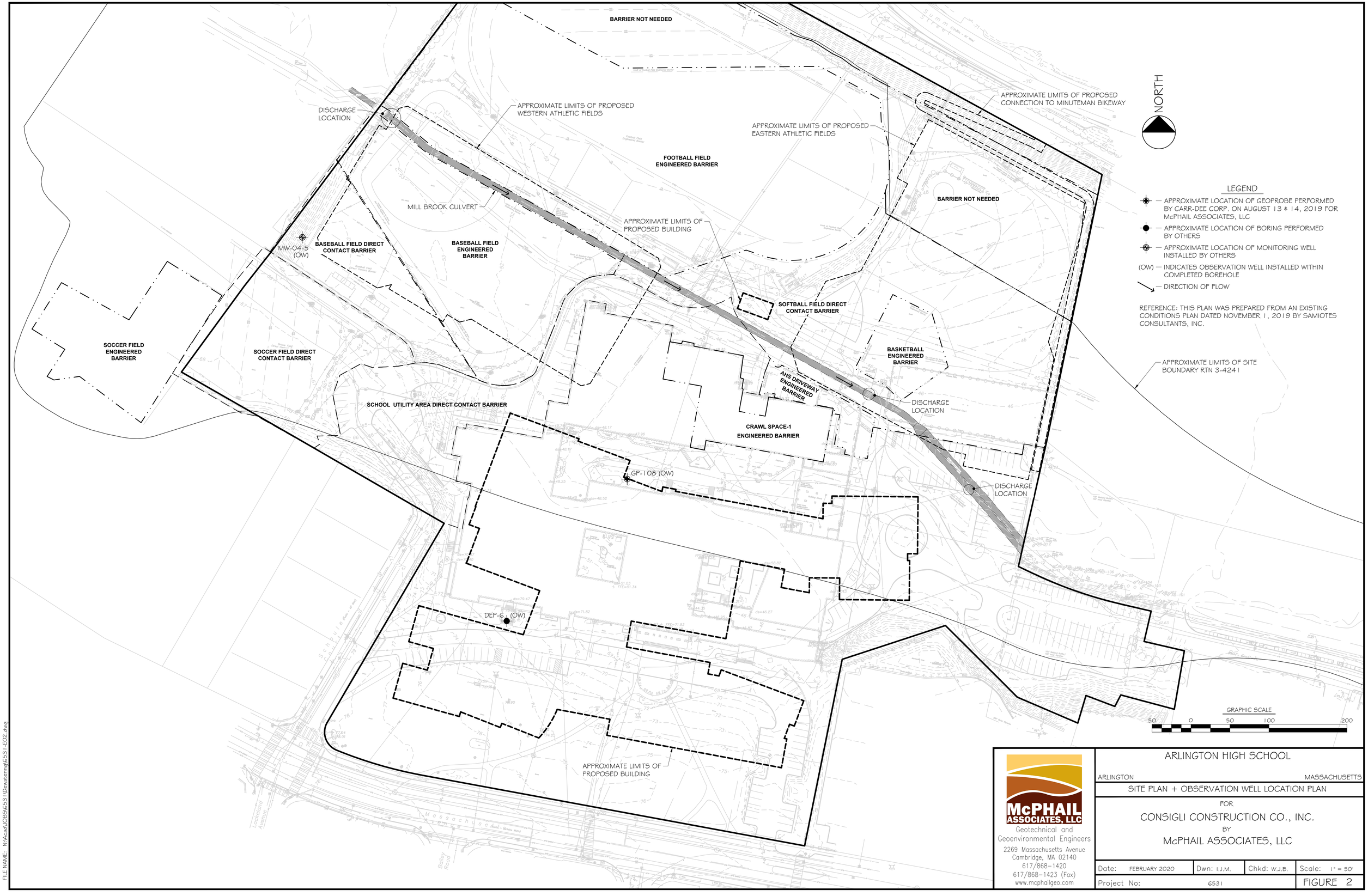
SCALE 1:25,000

PROJECT LOCATION PLAN

ARLINGTON HIGH SCHOOL

ARLINGTON MASSACHUSETTS



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ARLINGTON HIGH SCHOOL

ARLINGTON MASSACHUSETTS

SITE PLAN + OBSERVATION WELL LOCATION PLAN

FOR

CONSIGLI CONSTRUCTION CO., INC.

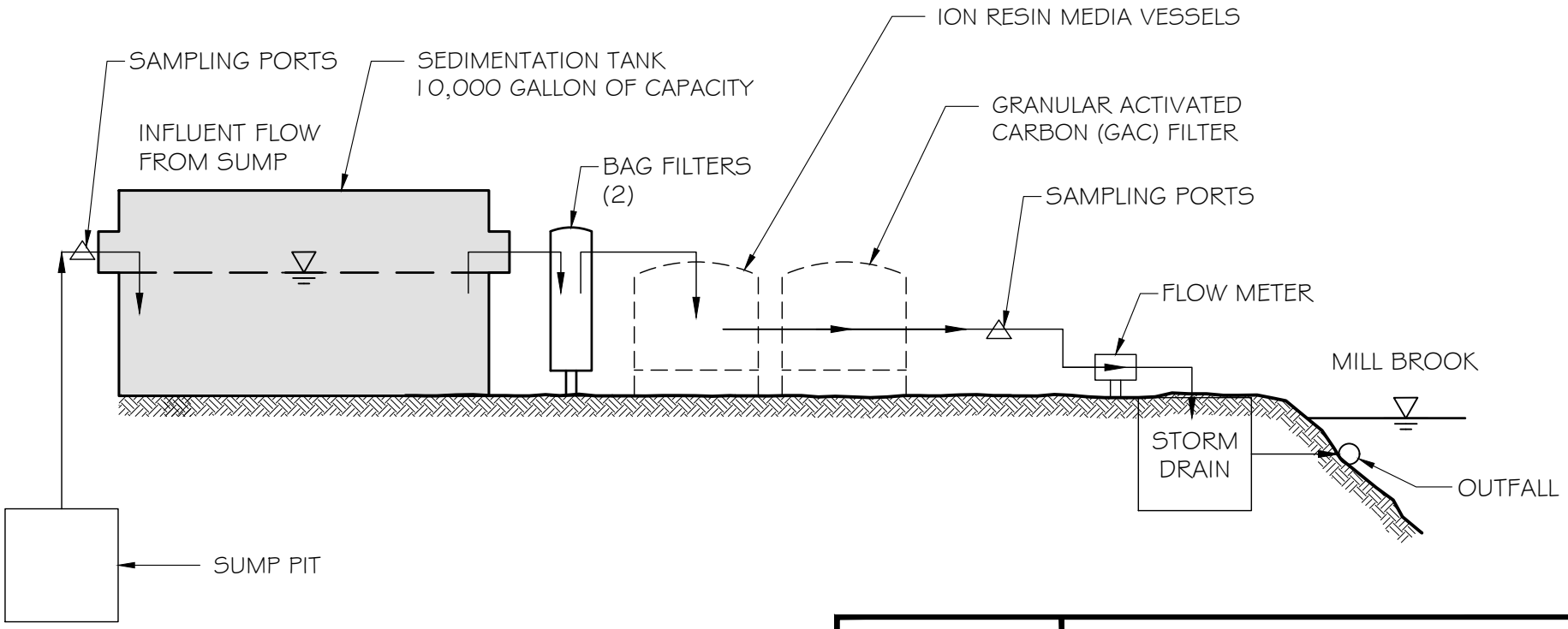
BY

McPHAIL ASSOCIATES, LLC

Date: FEBRUARY 2020	Dwn: I.J.M.	Chkd: W.J.B.	Scale: 1" = 50'
Project No: 6531			FIGURE 2

FILE NAME: N:\Acad\JOBS\6531\Dewatering\6531-E03.dwg

FIGURE 3



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ARLINGTON HIGH SCHOOL

ARLINGTON MASSACHUSETTS

SCHEMATIC OF TREATMENT SYSTEM

FOR

CONSIGLI CONSTRUCTION CO., INC.

BY

McPHAIL ASSOCIATES, LLC

CONSULTING GEOTECHNICAL ENGINEERS

Date: JANUARY 2020	Dwn: I.J.M.	Chkd: W.J.B.	Scale: N.T.S.
Project No: 6531			

TABLE 1
ANALYTICAL RESULTS - GROUNDWATER

Arlington High School
869 Massachusetts Avenue; Arlington, MA
Project No. 6531.9.T7

LOCATION	EPA ALFCCC	GW-2-14	GW-3-14	GP-108 (OW)	MW-04-5	GP-108 (OW)	DEP-6	MW-103
SAMPLING DATE				12/23/2019	12/24/2019	9/24/2019	9/24/2019	9/24/2019
LAB SAMPLE ID				L1961508-01	L1961602-01	L1944134-01	L1944134-02	L1944134-03
SAMPLE TYPE				Groundwater	Groundwater	WATER	WATER	WATER
Anions by Ion Chromatography								
Chloride (ug/l)	230000			**444000**	**748000**	-	-	-
General Chemistry								
Solids, Total Suspended (ug/l)				ND(5000)	ND(5000)	-	-	-
Cyanide, Total (ug/l)	5.2		30	ND(5)	5	-	-	-
Chlorine, Total Residual (ug/l)				ND(20)	ND(20)	-	-	-
pH (S.U.)				6.5	-	-	-	-
Nitrogen, Ammonia (ug/l)				77	856	-	-	-
TPH, SGT-HEM (ug/l)		5000	5000	ND(4000)	ND(4000)	-	-	-
Phenolics, Total (ug/l)				ND(30)	ND(30)	-	-	-
Hardness				111000	94000	-	-	-
Total Metals (ug/l)								
Antimony, Total			8000	ND(4)	ND(4)	-	-	-
Arsenic, Total	150		900	ND(1)	2.77	-	-	-
Cadmium, Total	0.25		4	ND(0.2)	ND(0.2)	-	-	-
Chromium, Total			300	143.1	19.5	-	-	-
Copper, Total				ND(1)	11.57	-	-	-
Chromium, Trivalent	74		600	ND(10)	19	-	-	-
Chromium, Hexavalent	11		300	**160**	ND(10)	-	-	-
Iron, Total	1000			ND(50)	284	-	-	-
Lead, Total	2.5		10	ND(1)	ND(1)	-	-	-
Mercury, Total	0.77		20	ND(0.2)	ND(0.2)	-	-	-
Nickel, Total	52		200	ND(2)	ND(2)	-	-	-
Selenium, Total	5		100	**ND(5)**	**ND(5)**	-	-	-
Silver, Total			7	ND(0.4)	ND(0.4)	-	-	-
Zinc, Total	120		900	ND(10)	ND(10)	-	-	-
Polychlorinated Biphenyls by GC (ug/l)								
Aroclor 1016		5	10	ND(0.25)	ND(0.25)	-	-	-
Aroclor 1221		5	10	ND(0.25)	ND(0.25)	-	-	-
Aroclor 1232		5	10	ND(0.25)	ND(0.25)	-	-	-
Aroclor 1242		5	10	ND(0.25)	ND(0.25)	-	-	-
Aroclor 1248		5	10	ND(0.25)	ND(0.25)	-	-	-
Aroclor 1254		5	10	ND(0.25)	ND(0.25)	-	-	-
Aroclor 1260		5	10	ND(0.2)	ND(0.2)	-	-	-
SUM				ND	ND	-	-	-
Semivolatile Organics by GC/MS (ug/l)								
Bis(2-ethylhexyl)phthalate			50000	ND(2.2)	ND(2.2)	-	-	-
Butyl benzyl phthalate				ND(5)	ND(5)	-	-	-
Di-n-butylphthalate				ND(5)	ND(5)	-	-	-
Di-n-octylphthalate				ND(5)	ND(5)	-	-	-
Diethyl phthalate		50000	9000	ND(5)	ND(5)	-	-	-
Dimethyl phthalate		50000	50000	ND(5)	ND(5)	-	-	-
SUM				ND	ND	-	-	-
Semivolatile Organics by GC/MS-SIM (ug/l)								
Acenaphthene			10000	ND(0.1)	2.9	-	-	-
Fluoranthene			200	ND(0.1)	ND(0.1)	-	-	-
Naphthalene		700	20000	ND(0.1)	0.89	-	-	-
Benzo(a)anthracene			1000	ND(0.1)	ND(0.1)	-	-	-
Benzo(a)pyrene			500	ND(0.1)	ND(0.1)	-	-	-
Benzo(b)fluoranthene			400	ND(0.1)	ND(0.1)	-	-	-
Benzo(k)fluoranthene			100	ND(0.1)	ND(0.1)	-	-	-
Chrysene			70	ND(0.1)	ND(0.1)	-	-	-
Acenaphthylene		10000	40	ND(0.1)	0.55	-	-	-
Anthracene			30	ND(0.1)	ND(0.1)	-	-	-
Benzo(ghi)perylene			20	ND(0.1)	ND(0.1)	-	-	-
Fluorene			40	ND(0.1)	0.6	-	-	-
Phenanthrene			10000	ND(0.1)	ND(0.1)	-	-	-
Dibenzo(a,h)anthracene			40	ND(0.1)	ND(0.1)	-	-	-
Indeno(1,2,3-cd)pyrene			100	ND(0.1)	ND(0.1)	-	-	-
Pyrene			20	ND(0.1)	0.23	-	-	-
Pentachlorophenol	15		200	ND(1)	ND(1)	-	-	-
SUM				ND	5.17	-	-	-
Microextractables by GC (ug/l)								
1,2-Dibromoethane		2	50000	ND(0.01)	ND(0.01)	-	-	-
Volatile Organics by GC/MS (ug/l)								
Methylene chloride		2000	50000	ND(1)	ND(1)	-	-	-
1,1-Dichloroethane		2000	20000	ND(1.5)	ND(1.5)	-	-	-
Carbon tetrachloride		2	5000	ND(1)	ND(1)	-	-	-
1,1,2-Trichloroethane		900	50000	ND(1.5)	ND(1.5)	-	-	-
Tetrachloroethene		50	30000	4.1	ND(1)	-	-	-
1,2-Dichloroethane		5	20000	ND(1.5)	ND(1.5)	-	-	-
1,1,1-Trichloroethane		4000	20000	ND(2)	ND(2)	-	-	-
Benzene		1000	10000	ND(1)	ND(1)	-	-	-
Toluene		50000	40000	ND(1)	ND(1)	-	-	-
Ethylbenzene		20000	5000	ND(1)	10	-	-	-
Vinyl chloride		2	50000	ND(1)	ND(1)	-	-	-
1,1-Dichloroethene		80	30000	ND(1)	ND(1)	-	-	-
cis-1,2-Dichloroethene		20	50000	ND(1)	ND(1)	-	-	-
Trichloroethene		5	5000	ND(1)	ND(1)	-	-	-
1,2-Dichlorobenzene		8000	2000	ND(5)	ND(5)	-	-	-
1,3-Dichlorobenzene		6000	50000	ND(5)	ND(5)	-	-	-
1,4-Dichlorobenzene		60	8000	ND(5)	ND(5)	-	-	-
p/m-Xylene		3000	5000	ND(2)	ND(2)	-	-	-
o-xylene		3000	5000	ND(1)	2.3	-	-	-
Xylenes, Total		3000	5000	ND(1)	2.3	-	-	-
Acetone		50000	50000	ND(10)	ND(10)	-	-	-
Methyl tert butyl ether		50000	50000	ND(10)	ND(10)	-	-	-
Tert-Butyl Alcohol				ND(100)	ND(100)	-	-	-
Tertiary-Amyl Methyl Ether				ND(20)	ND(20)	-	-	-
SUM				4.1	12.3	-	-	-
Volatile Organics by GC/MS-SIM (ug/l)								
1,4-Dioxane		6000	50000	ND(50)	ND(50)	-	-	-

ND-not detected in excess of the laboratory reporting limit in ()
Bold - exceeds EPA water quality criteria - freshwater (chronic)
Tested compounds not shown do not exceed labortory reporting limits

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869 Massachusetts Avenue; Arlington, MA
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LAB SAMPLE ID				L1961508-01	L1961602-01	L1944134-01	L1944134-02	L1944134-03
SAMPLE TYPE				Groundwater	Groundwater	WATER	WATER	WATER
MCP Volatile Organics (ug/l)								
Tetrachloroethene		50	30000	-	-	-	**130**	11
Trichloroethene		5	5000	-	-	-	**8.6**	ND(1)
cis-1,2-Dichloroethene		20	50000	-	-	-	**38**	ND(1)
1,2-Dichloroethene, Total				-	-	-	38	ND(1)
SUM				-	-	-	176.6	11
EPH w/MS Targets (ug/l)								
C9-C18 Aliphatics		5000	50000	-	-	ND(100)	-	-
C19-C36 Aliphatics			50000	-	-	ND(100)	-	-
C11-C22 Aromatics, Adjusted		50000	5000	-	-	ND(100)	-	-
Naphthalene		700	20000	-	-	ND(0.4)	-	-
2-Methylnaphthalene		2000	20000	-	-	ND(0.4)	-	-
Acenaphthylene		10000	40	-	-	ND(0.4)	-	-
Acenaphthene			10000	-	-	ND(0.4)	-	-
Fluorene			40	-	-	ND(0.4)	-	-
Phenanthrene			10000	-	-	ND(0.4)	-	-
Anthracene			30	-	-	ND(0.4)	-	-
Fluoranthene			200	-	-	ND(0.4)	-	-
Pyrene			20	-	-	ND(0.4)	-	-
Benzo(a)anthracene			1000	-	-	ND(0.4)	-	-
Chrysene			70	-	-	ND(0.4)	-	-
Benzo(b)fluoranthene			400	-	-	ND(0.4)	-	-
Benzo(k)fluoranthene			100	-	-	ND(0.4)	-	-
Benzo(a)pyrene			500	-	-	ND(0.2)	-	-
Indeno(1,2,3-cd)Pyrene			100	-	-	ND(0.4)	-	-
Dibenzo(a,h)anthracene			40	-	-	ND(0.4)	-	-
Benzo(ghi)perylene			20	-	-	ND(0.4)	-	-
Volatile Petroleum Hydrocarbons (ug/l)								
C9-C10 Aromatics		4000	50000	-	-	ND(100)	-	-
C5-C8 Aliphatics, Adjusted		3000	50000	-	-	ND(100)	-	-
C9-C12 Aliphatics, Adjusted		5000	50000	-	-	ND(100)	-	-
Benzene		1000	10000	-	-	ND(2)	-	-
Toluene		50000	40000	-	-	ND(2)	-	-
Ethylbenzene		20000	5000	-	-	ND(2)	-	-
p/m-Xylene		3000	5000	-	-	ND(2)	-	-
o-Xylene		3000	5000	-	-	ND(2)	-	-
Methyl tert butyl ether		50000	50000	-	-	ND(3)	-	-
Naphthalene		700	20000	-	-	ND(4)	-	-

ND-not detected in excess of the laboratory reporting limit in ()
Bold - exceeds EPA water quality criteria - freshwater (chronic)
Tested compounds not shown do not exceed labortory reporting limits

Table 2 - Analytical Results
Surface Water

Arlington High School
869 Massachusetts Avenue; Arlington, MA
Project No. 6531.9.T7

LOCATION	EPA-ALFCCC	Units	MILL BROOK
SAMPLING DATE			1/8/2020
LAB SAMPLE ID			L2000855-01
SAMPLE TYPE			Seep Water
SAMPLE DEPTH (ft.)			
General Chemistry			
Chromium, Trivalent	74	ug/l	ND(10)
pH (H)		SU	7.5
Nitrogen, Ammonia		ug/l	88
Chromium, Hexavalent	11	ug/l	ND(10)
Total Hardness by SM 2340B			
Hardness		ug/l	79800
Total Metals			
Antimony, Total		ug/l	ND(4)
Arsenic, Total	150	ug/l	ND(1)
Cadmium, Total	0.25	ug/l	ND(0.2)
Chromium, Total		ug/l	ND(1)
Copper, Total		ug/l	1.87
Iron, Total	1000	ug/l	891
Lead, Total	2.5	ug/l	1.71
Mercury, Total	0.77	ug/l	ND(0.2)
Nickel, Total	52	ug/l	ND(2)
Selenium, Total	5	ug/l	**ND(5)**
Silver, Total		ug/l	ND(0.4)
Zinc, Total	120	ug/l	ND(10)

ND-not detected in excess of the laboratory reporting limit in ()
Bold - exceeds EPA water quality criteria - freshwater (chronic)
Tested compounds not shown do not exceed labortory reporting limits

APPENDIX A:

LIMITATIONS

LIMITATIONS

The purpose of this report is to present the results of testing of groundwater samples obtained from monitoring wells located at the Arlington High School campus located at 869 Massachusetts Avenue in Arlington, Massachusetts, in support of an application for approval of construction site dewatering discharge into surface waters of the Commonwealth of Massachusetts under EPA's Massachusetts Remediation General Permit MAG910000.

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

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

Laboratory analyses have been performed for specific constituents during this assessment, as described in the text.

This report and application have been prepared on behalf of and for the exclusive use of HMFH Architects, Inc., the Town of Arlington and Consigli Construction Co., Inc. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, other than submission to relevant governmental agencies, nor used in whole or in part by any other party without the prior written consent of McPhail Associates, LLC.

APPENDIX B:

NOTICE OF INTENT TRANSMITTAL FORM
ARLINGTON DEWATERING DISCHARGE PERMIT

II. Suggested Format for the Remediation General Permit Notice of Intent (NOI)

A. General site information:

<table>
<tr><td rowspan="2">1. Name of site:
Arlington High School</td><td colspan="3">Site address: 869
Street: Massachusetts Avenue</td></tr>
<tr><td>City: Arlington</td><td>State: MA</td><td>Zip: 02476</td></tr>
<tr><td rowspan="4">2. Site owner
Town of Arlington

Owner is (check one): ☐ Federal ☐ State/Tribal ☐ Private
■ Other; if so, specify: Municipal</td><td colspan="3">Contact Person: Mr. Adam Chapdelaine</td></tr>
<tr><td colspan="2">Telephone: 781-316-3010</td><td>Email: achapdelaine@town.arlington.ma</td></tr>
<tr><td colspan="3">Mailing address: 730
Street: Massachusetts Avenue Annex</td></tr>
<tr><td>City: Arlington</td><td>State: MA</td><td>Zip: 02476</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
Consigli Construction Co., Inc.</td><td colspan="3">Contact Person: John LaMarre</td></tr>
<tr><td colspan="2">Telephone: 617-293-5296</td><td>Email: JLaMarre@consigli.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 72 Sumner Street</td></tr>
<tr><td>City: Milford</td><td>State: MA</td><td>Zip: 01757</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:

NPDES permit is (check all that apply: ☐ RGP ☐ DGP ☐ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="3">5. Other regulatory program(s) that apply to the site (check all that apply):
■ MA Chapter 21e; list RTN(s):
3-4241, 3-30236, 3-24460
☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:
☐ CERCLA
☐ UIC Program
☐ POTW Pretreatment
☐ CWA Section 404</td></tr>
</table>

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Mill Brook	MA71-07	Class B

Receiving water is (check any that apply): ☐ Outstanding Resource Water ☐ Ocean Sanctuary ☐ territorial sea ☐ Wild and Scenic River

2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): ■ Yes ☐ No

Are sensitive receptors present near the site? (check one): ☐ Yes ■ No
If yes, specify:

3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP. Not an ORW, No TMDL Listed, Escherichia Coli - Impairment

4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.	0.114 MGD
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.	1.79

6. Has the operator received confirmation from the appropriate State for the 7Q10and dilution factor indicated? (check one): ■ Yes ☐ No
If yes, indicate date confirmation received: 01/30/2020

7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No

C. Source water information:

1. Source water(s) is (check any that apply):

■ Contaminated groundwater Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No	☐ Contaminated surface water Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ☐ Yes ☐ No	☐ The receiving water ☐ A surface water other than the receiving water; if so, indicate waterbody:	☐ Potable water; if so, indicate municipality or origin: ☐ Other; if so, specify:

2. Source water contaminants: Chromium VI, Chromium III, CVOCs, TPH	
a. For source waters that are contaminated groundwater or contaminated surface water, indicate are any contaminants present that are not included in the RGP? (check one): ☐ Yes ■ No If yes, indicate the contaminant(s) and the maximum concentration present in accordance with the instructions in Appendix VIII.	b. For a source water that is a surface water other than the receiving water, potable water or other, indicate any contaminants present at the maximum concentration in accordance with the instructions in Appendix VIII? (check one): ☐ Yes ☐ No
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): ☐ Yes ■ No	

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ☐ Existing discharge ■ New discharge ☐ New source	
Outfall(s): Outfall No. 1. Outfall No. 2 Outfall No. 3	Outfall location(s): (Latitude, Longitude) 42.4197, -71.1628 42.4186, -71.1609 42.4180, -71.1601
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: On-site storm drain system which discharges in Mill Brook culvert ☐ A private storm sewer system ■ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ■ Yes ☐ No Has the operator has received permission from the owner to use such system for discharges? (check one): ■ Yes ☐ No, if so, explain, with an estimated timeframe for obtaining permission: Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): ☐ Yes ■ No	
Provide the expected start and end dates of discharge(s) (month/year): 04/01/2020 - 05/01/2025 Indicate if the discharge is expected to occur over a duration of: ☐ less than 12 months ■ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

<table>
<tr><td>2. Activity Category: (check all that apply)</td><td colspan="2">3. Contamination Type Category: (check all that apply)</td></tr>
<tr><td rowspan="4">☐ I – Petroleum-Related Site Remediation
☐ II – Non-Petroleum-Related Site Remediation
■ III – Contaminated Site Dewatering
☐ IV – Dewatering of Pipelines and Tanks
☐ V – Aquifer Pump Testing
☐ VI – Well Development/Rehabilitation
☐ VII – Collection Structure Dewatering/Remediation
☐ VIII – Dredge-Related Dewatering</td><td colspan="2">a. If Activity Category I or II: (check all that apply)

☐ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
☐ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
☐ F. Fuels Parameters</td></tr>
<tr><td colspan="2">b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)</td></tr>
<tr><td>■ G. Sites with Known Contamination</td><td>☐ H. Sites with Unknown Contamination</td></tr>
<tr><td>c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply)

■ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
■ C. Halogenated Volatile Organic Compounds
■ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
■ F. Fuels Parameters</td><td>d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply</td></tr>
</table>

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia		✔	2	121.4500	75	856	466.5	Report mg/L	---
Chloride		✔	2	443000	500	748000	596000	Report µg/l	---
Total Residual Chlorine	✔		2	121,4500	20	<DL	<DL	0.2 mg/L	
Total Suspended Solids		✔	2	121,2450I	5000	<DL	<DL	30 mg/L	
Antimony	✔		2	1,6020A	4	<DL	<DL	206 µg/L	
Arsenic	✔		2	1,6020A	1	2.77	1.885	104 µg/L	
Cadmium	✔		2	1,6020A	0.2	<DL	<DL	10.2 µg/L	
Chromium III		✔	2	1,6020A	10	19	14.5	323 µg/L	
Chromium VI		✔	2	1,6020A	1	160	85	323 µg/L	
Copper	✔		2	1,6020A	1	11.57	6.29	242 µg/L	20
Iron	✔		2	19200.7	50	284	167	5,000 µg/L	
Lead	✔		2	1,6020A	1	<DL	<DL	160 µg/L	
Mercury	✔		2	3,245.1	0.2	<DL	<DL	0.739 µg/L	
Nickel	✔		2	1,6020A	2	<DL	<DL	1,450 µg/L	
Selenium	✔		2	1,6020A	5	<DL	<DL	235.8 µg/L	
Silver	✔		2	1,6020A	0.4	<DL	<DL	35.1 µg/L	
Zinc	✔		2	1,6020A	10	<DL	<DL	420 µg/L	
Cyanide	✔		2	121.4500	5	5	5	178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX	✔		2	128,624.1	1	14.3	9.15	100 µg/L	---
Benzene	✔		2	128,624.1	1	<DL	<DL	5.0 µg/L	---
1,4 Dioxane	✔		2	128,624.1	50	<DL	<DL	200 µg/L	---
Acetone	✔		2	128,624.1	10	<DL	<DL	7.97 mg/L	---
Phenol	✔		2	128,624.1	2.0	<DL	<DL	1,080 µg/L	

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✔		2	128,624.1	1	<DL	<DL	4.4 µg/L	
1,2 Dichlorobenzene	✔		2	128,624.1	5	<DL	<DL	600 µg/L	---
1,3 Dichlorobenzene	✔		2	128,624.1	5	<DL	<DL	320 µg/L	---
1,4 Dichlorobenzene	✔		2	128,624.1	5	<DL	<DL	5.0 µg/L	---
Total dichlorobenzene	✔		2	128,624.1	5	<DL	<DL	763 µg/L in NH	---
1,1 Dichloroethane	✔		2	128,624.1	1.5	<DL	<DL	70 µg/L	---
1,2 Dichloroethane	✔		2	128,624.1	1.5	<DL	<DL	5.0 µg/L	---
1,1 Dichloroethylene	✔		2	128,624.1	1	<DL	<DL	3.2 µg/L	---
Ethylene Dibromide	✔		2	128,624.1	1	<DL	<DL	0.05 µg/L	---
Methylene Chloride	✔		2	128,624.1	1	<DL	<DL	4.6 µg/L	---
1,1,1 Trichloroethane	✔		2	128,624.1	2	<DL	<DL	200 µg/L	---
1,1,2 Trichloroethane	✔		2	128,624.1	1.5	<DL	<DL	5.0 µg/L	---
Trichloroethylene		✔	2	128,624.1	1	<DL	<DL	5.0 µg/L	---
Tetrachloroethylene		✔	2	128,624.1	1	4.1	2.55	5.0 µg/L	
cis-1,2 Dichloroethylene		✔	2	128,624.1	1	<DL	<DL	70 µg/L	---
Vinyl Chloride		✔	2	128,624.1	1	<DL	<DL	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✔		2	129,625.1	0.1	<DL	<DL	190 µg/L	
Diethylhexyl phthalate	✔		2	129,625.1	0.1	<DL	<DL	101 µg/L	
Total Group I PAHs	✔		2	129,625.1	0.1	5.17	3.89	1.0 µg/L	---
Benzo(a)anthracene	✔		2	129,625.1	0.1	<DL	<DL	As Total PAHs	
Benzo(a)pyrene	✔		2	129,625.1	0.1	<DL	<DL		
Benzo(b)fluoranthene	✔		2	129,625.1	0.1	<DL	<DL		
Benzo(k)fluoranthene	✔		2	129,625.1	0.1	<DL	<DL		
Chrysene	✔		2	129,625.1	0.1	<DL	<DL		
Dibenzo(a,h)anthracene	✔		2	129,625.1	0.1	<DL	<DL		
Indeno(1,2,3-cd)pyrene	✔		2	129,625.1	0.1	<DL	<DL		

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs			2	18270D-S	0.1	5.17	3.89	100 µg/L	---
Naphthalene		✔	2	129,625.1	2.5	0.89	0.5	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		2	127.608.3	0.25	<DL	<DL	0.000064 µg/L	---
Pentachlorophenol	✔		2	18270D-S	0.8	<DL	<DL	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons		✔	2	74.1664A	400	<DL	<DL	5.0 mg/L	---
Ethanol	✔							Report mg/L	---
Methyl-tert-Butyl Ether	✔		2	1,8260C	1.0	<DL	<DL	70 µg/L	
tert-Butyl Alcohol	✔		2	1,8260C	10	<DL	<DL	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		2	1,8260C	20	<DL	<DL	90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
pH - Influent			1	121,4500		6.5	6.5		
temperature -Influent			1	Horiba					
hardness - Influent			2	EPA 300		111000	102500		
pH - receiving water			1	121,4500		7.5	7.5		
Hardness - Receiving Water			1	EPA 300		79800	79800		
Temp - Receiving Water									
		✔							

E. Treatment system information

1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply)

☐ Adsorption/Absorption ☐ Advanced Oxidation Processes ☐ Air Stripping ■ Granulated Activated Carbon ("GAC")/Liquid Phase Carbon Adsorption
■ Ion Exchange ☐ Precipitation/Coagulation/Flocculation ☐ Separation/Filtration ☐ Other; if so, specify:

2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.
Bag filters, sedimentation tank, GAC filter and ion resin exchange filter in series

Identify each major treatment component (check any that apply):
■ Fractionation tanks☐ Equalization tank ☐ Oil/water separator ☐ Mechanical filter ■ Media filter
☐ Chemical feed tank ☐ Air stripping unit ■ Bag filter ☐ Other; if so, specify:

Indicate if either of the following will occur (check any that apply):
☐ Chlorination ☐ De-chlorination

3. Provide the **design flow capacity** in gallons per minute (gpm) of the most limiting component. Indicate the most limiting component: Fractionation tank Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	100
Provide the proposed maximum effluent flow in gpm.	100
Provide the average effluent flow in gpm.	50
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	N/A

4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one): ■ Yes ☐ No

F. Chemical and additive information

1. Indicate the type(s) of chemical or additive that will be applied to effluent prior to discharge or that may otherwise be present in the discharge(s): (check all that apply)

☐ Algaecides/biocides ☐ Antifoams ☐ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ☐ Flocculants ☐ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ☐ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ☐ Other; if so, specify:

2. Provide the following information for each chemical/additive, using attachments, if necessary:

a. Product name, chemical formula, and manufacturer of the chemical/additive;
b. Purpose or use of the chemical/additive or remedial agent;
c. Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
d. The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive;
e. Any material compatibility risks for storage and/or use including the control measures used to minimize such risks; and
f. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).

3. Has the operator attached an explanation which demonstrates that the addition of such chemicals/additives may be authorized under this general permit in accordance with the instructions in F, above? (check one): ☐ Yes ■ No; if no, has the operator attached data that demonstrates each of the 126 priority pollutants in CWA Section 307(a) and 40 CFR Part 423.15(j)(1) are non-detect in discharges with the addition of the proposed chemical/additive? (check one): ■ Yes ☐ No

G. Endangered Species Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

■ **FWS Criterion A**: No endangered or threatened species or critical habitat are in proximity to the discharges or related activities or come in contact with the "action area".

☐ **FWS Criterion B**: Formal or informal consultation with the FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by FWS on a finding that the discharges and related activities are "not likely to adversely affect" listed species or critical habitat (informal consultation). Has the operator completed consultation with FWS? (check one): ☐ Yes ☐ No; if no, is consultation underway? (check one): ☐ Yes ☐ No

☐ **FWS Criterion C**: Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the operator and affirmed by EPA, that the discharges and related activities will have "no effect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the FWS. This determination was made by: (check one) ☐ the operator ☐ EPA ☐ Other; if so, specify:

☐ **NMFS Criterion**: A determination made by EPA is affirmed by the operator that the discharges and related activities will have "no effect" or are "not likely to adversely affect" any federally threatened or endangered listed species or critical habitat under the jurisdiction of NMFS and will not result in any take of listed species. Has the operator previously completed consultation with NMFS? (check one): ☐ Yes ☐ No

2. Has the operator attached supporting documentation of ESA eligibility in accordance with the instructions in Appendix I, and G, above? (check one): ☐ Yes ☐ No

Does the supporting documentation include any written concurrence or finding provided by the Services? (check one): ☐ Yes ☐ No; if yes, attach.

H. National Historic Preservation Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

■ **Criterion A**: No historic properties are present. The discharges and discharge-related activities (e.g., BMPs) do not have the potential to cause effects on historic properties.

☐ **Criterion B**: Historic properties are present. Discharges and discharge related activities do not have the potential to cause effects on historic properties.

☐ **Criterion C**: Historic properties are present. The discharges and discharge-related activities have the potential to have an effect or will have an adverse effect on historic properties.

2. Has the operator attached supporting documentation of NHPA eligibility in accordance with the instructions in H, above? (check one): ☐ Yes ■ No

Does the supporting documentation include any written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the operator will carry out to mitigate or prevent any adverse effects on historic properties? (check one): ☐ Yes ■ No

I. Supplemental information

Describe any supplemental information being provided with the NOI. Include attachments if required or otherwise necessary.

Has the operator attached data, including any laboratory case narrative and chain of custody used to support the application? (check one): ■ Yes ☐ No

Has the operator attached the certification requirement for the Best Management Practices Plan (BMPP)? (check one): ■ Yes ☐ No

J. Certification requirement

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 gathered and evaluated 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, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	
BMPP certification statement: A BMPP Statement has been implemented in accordance with good engineering practices following Part 2.5 of the RGP and shall be implemented upon initiation of discharge.	
Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ■ No ☐
Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐
Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐ NA ☐
Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.	Check one: Yes ☐ No ■ NA ■
Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	Check one: Yes ☐ No ■ NA ■
Signature:	Date: 2/24/20
Print Name and Title: John LaMarre, Senior Project Manager	

APPENDIX C:

DEP PRIORITY RESOURCES MAP

USGS STREAMFLOW STATISTICS REPORT

DILUTION FACTOR AND WQBEL CALCULATIONS

ADDITIONAL NOI SUPPORT INFORMATION

MassDEP - Bureau of Waste Site Cleanup

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

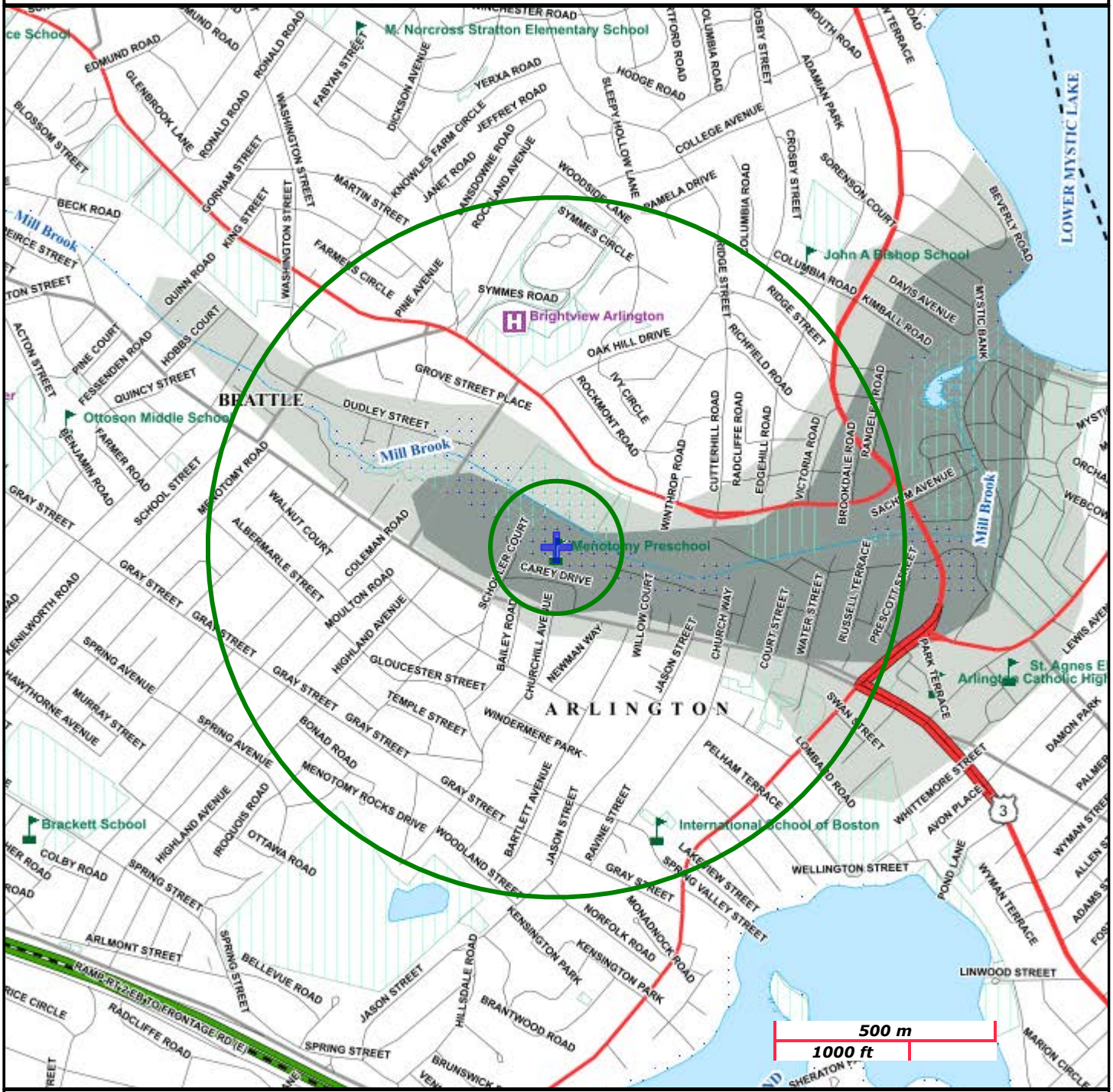
Site Information:

869 MASSACHUSETTS AVE ARLINGTON, MA

NAD83 UTM Meters:
4698487mN , 322146mE (Zone: 19)
February 3, 2020

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: https://www.mass.gov/orgs/massgis-bureau-of-geographic-information.

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

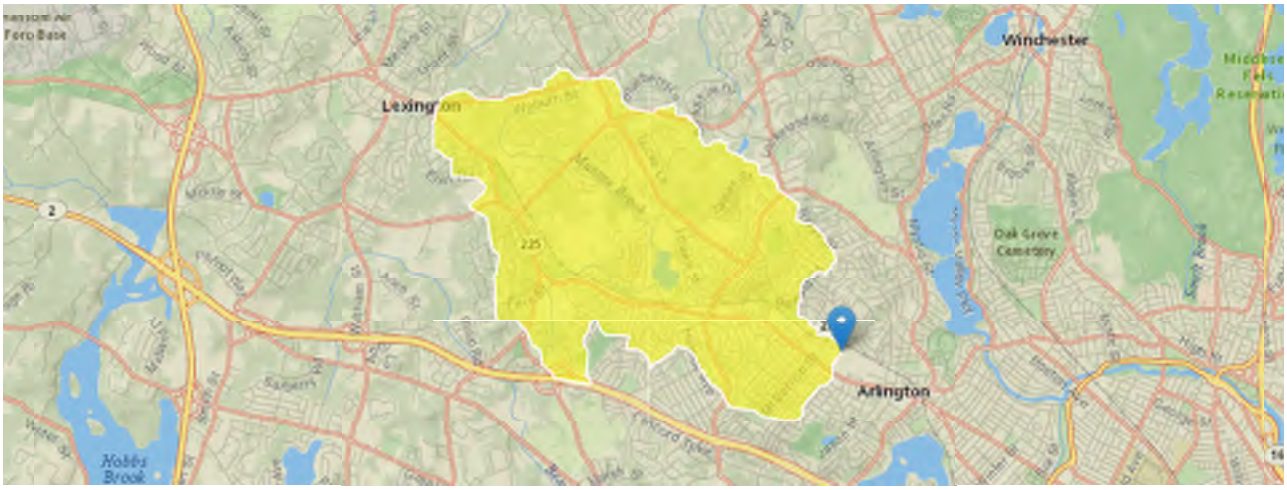
FEMA 100yr Floodplain; Protected Open Space; ACEC

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

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

StreamStats Report

Region ID: MA
Workspace ID: MA20191230143442307000
Clicked Point (Latitude, Longitude): 42.42008, -71.16407
Time: 2019-12-30 09:34:57 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	4.5	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	3.065	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.17	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters[Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	4.5	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	3.065	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.17	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Flow Report[Statewide Low Flow WRIR00 4135]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	Plu	SE	SEp
7 Day 2 Year Low Flow	0.417	ft^3/s	0.15	1.12	49.5	49.5
7 Day 10 Year Low Flow	0.176	ft^3/s	0.0495	0.585	70.8	70.8

Low-Flow Statistics Citations

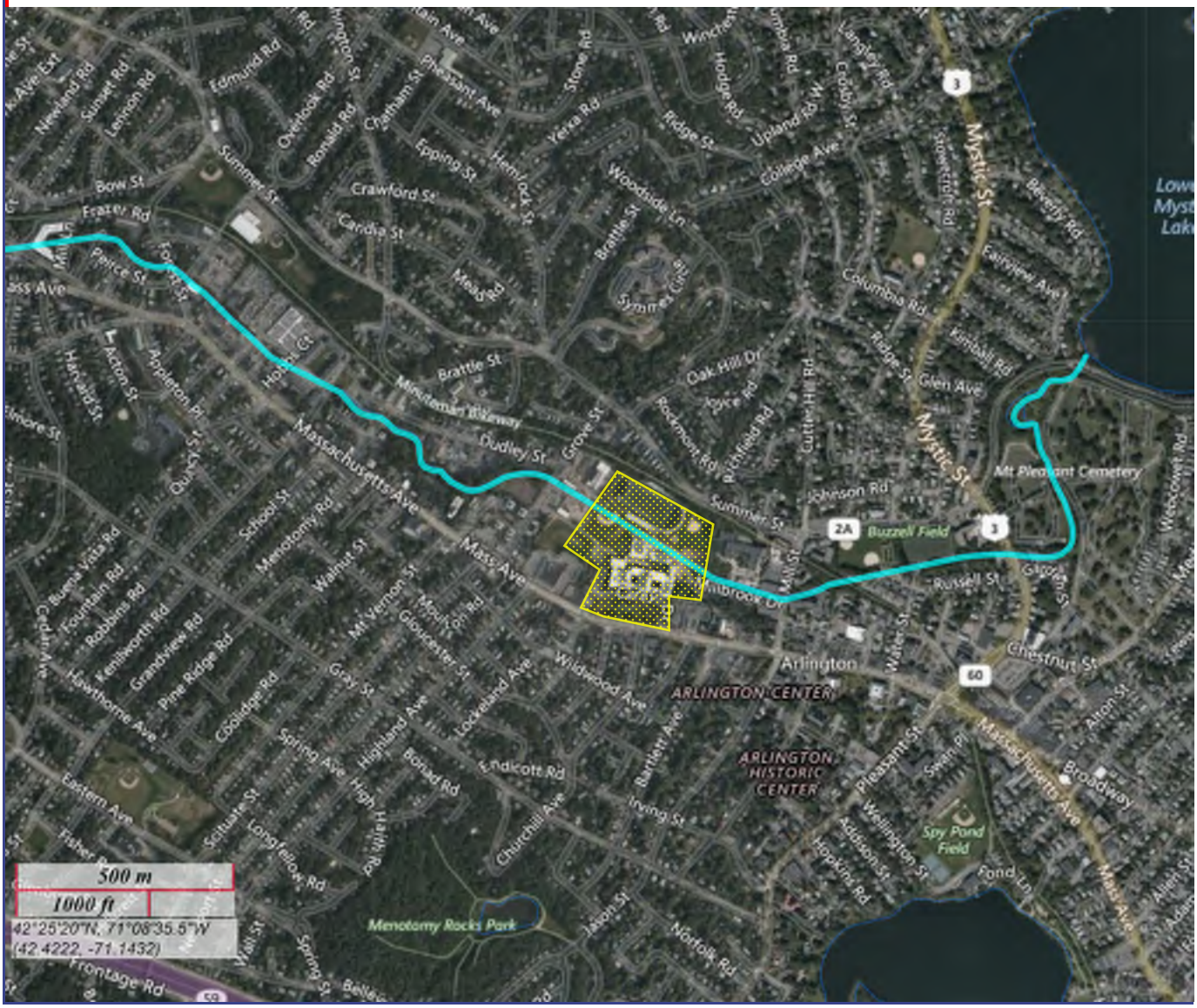
Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

MassDEP Online Map Viewer

2014 Integrated List of Waters Map

Helpful Links:

- The Clean Water Act
- MassDEP Total Maximum Daily Loads



Dilution Factor	1.8					
A. Inorganics	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	0.2	mg/L	**20**	µg/L	50	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	1147	µg/L		
Arsenic	**104**	µg/L	18	µg/L		
Cadmium	**10.2**	µg/L	1.4844	µg/L		
Chromium III	**323**	µg/L	531.9	µg/L		
Chromium VI	323	µg/L	**20.5**	µg/L		
Copper	**242**	µg/L	59.3	µg/L		
Iron	**5000**	µg/L	1086	µg/L		
Lead	**160**	µg/L	37.62	µg/L		
Mercury	**0.739**	µg/L	1.62	µg/L		
Nickel	**1450**	µg/L	335.3	µg/L		
Selenium	**235.8**	µg/L	9.0	µg/L		
Silver	**35.1**	µg/L	91.1	µg/L		
Zinc	**420**	µg/L	771.8	µg/L		
Cyanide	**178**	mg/L	9.3	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7970**	µg/L	---			
Phenol	**1,080**	µg/L	538	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**	µg/L	2.9	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
Methylene Chloride	**4.6**	µg/L	---			
1,1,1 Trichloroethane	**200**	µg/L	---			
1,1,2 Trichloroethane	**5.0**	µg/L	---			
Trichloroethylene	**5.0**	µg/L	---			
Tetrachloroethylene	**5.0**	µg/L	5.9	µg/L		
cis-1,2 Dichloroethylene	**70**	µg/L	---			
Vinyl Chloride	**2.0**	µg/L	---			
D. Non-Halogenated SVOCs						
Total Phthalates	190	µg/L	---	µg/L		
Diethylhexyl phthalate	**101**	µg/L	3.9	µg/L		

Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	**1.0**	µg/L	0.0068	µg/L	---	µg/L
Benzo(a)pyrene	**1.0**	µg/L	0.0068	µg/L	---	µg/L
Benzo(b)fluoranthene	**1.0**	µg/L	0.0068	µg/L	---	µg/L
Benzo(k)fluoranthene	**1.0**	µg/L	0.0068	µg/L	---	µg/L
Chrysene	**1.0**	µg/L	0.0068	µg/L	---	µg/L
Dibenzo(a,h)anthracene	**1.0**	µg/L	0.0068	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	**1.0**	µg/L	0.0068	µg/L	---	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---			
Naphthalene	**20**	µg/L	---			
E. Halogenated SVOCs						
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---		0.5	µg/L
Pentachlorophenol	**1.0**	µg/L	---			
F. Fuels Parameters						
Total Petroleum Hydrocarbons	**5.0**	mg/L	---			
Ethanol	**Report**	mg/L	---			
Methyl-tert-Butyl Ether	**70**	µg/L	36	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

Massachusetts Category 5 Waters
"Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE	EPA TMDL NO.
Malden River	MA71-05	Headwaters south of Exchange Street, Malden to confluence with Mystic River, Everett/Medford.	2.3	MILES	(Debris/Floatables/Trash*)	
					Chlordane	
					DDT	
					Dissolved oxygen saturation	
					Escherichia coli	
					Fecal Coliform	
					Foam/Flocs/Scum/Oil Slicks	
					Oxygen, Dissolved	
					PCB in Fish Tissue	
					pH, High	
					Phosphorus (Total)	
					Secchi disk transparency	
					Sediment Bioassays -- Chronic Toxicity Freshwater	
					Taste and Odor	
					Total Suspended Solids (TSS)	
Mill Brook	MA71-07	Headwaters south of Massachusetts Avenue, Lexington to inlet of Lower Mystic Lake, Arlington (portions culverted underground).	3.9	MILES	(Physical substrate habitat alterations*)	
					Escherichia coli	
Mill Creek	MA71-08	From Route 1, Chelsea/Revere to confluence with Chelsea River, Chelsea/Revere.	0.02	SQUARE MILES	Fecal Coliform	
					Other	
					PCB in Fish Tissue	
Mystic River	MA71-02	Outlet Lower Mystic Lake, Arlington/Medford to Amelia Earhart Dam, Somerville/Everett.	4.9	MILES	(Fish-Passage Barrier*)	
					Arsenic	
					Chlordane	
					Chlorophyll-a	
					DDT	
					Dissolved oxygen saturation	
					Escherichia coli	
					PCB in Fish Tissue	
					Phosphorus (Total)	
					Secchi disk transparency	
					Sediment Bioassays -- Chronic Toxicity Freshwater	

IPaC resource list

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

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

Project information

NAME

Arlington High School

LOCATION

Middlesex County, Massachusetts

DESCRIPTION

Arlington MA, 22 Acres Redevelopment

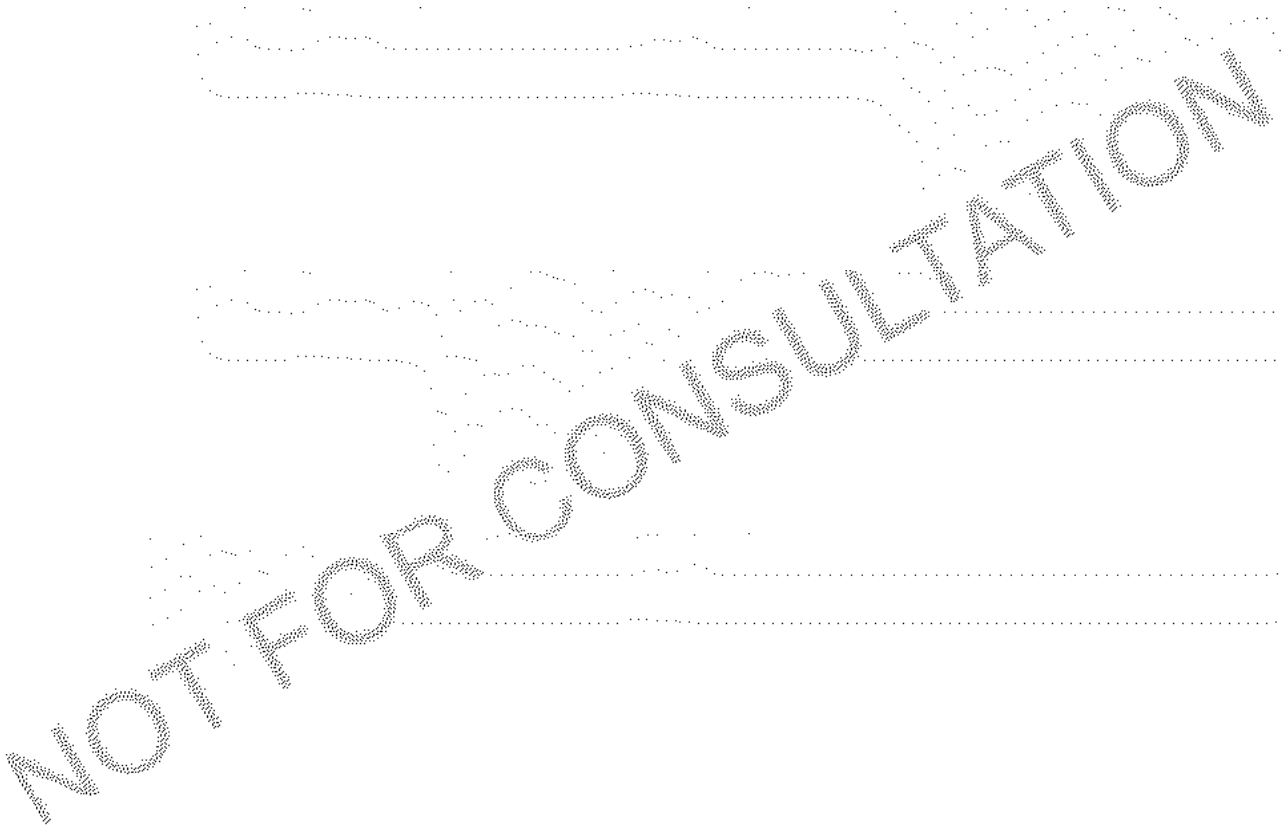
Local office

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

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

http://www.fws.gov/newengland



Endangered species

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

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

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

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

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

Listed species

[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act [1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are

available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Cerulean Warbler *Dendroica cerulea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 29 to Jul 20

Dunlin Calidris alpina arcticola This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Evening Grosbeak Coccothraustes vespertinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Kentucky Warbler Oporornis formosus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Nelson's Sparrow Ammodramus nelsoni This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Sep 5
Prairie Warbler Dendroica discolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler Protonotaria citrea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Red-throated Loon Gavia stellata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Rusty Blackbird Euphagus carolinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Semipalmated Sandpiper Calidris pusilla This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere

Snowy Owl Bubo scandiacus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

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

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R5UBFx

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

APPENDIX D:

LABORATORY ANALYTICAL DATA – GROUNDWATER

ANALYTICAL REPORT

Lab Number:	L1961508
Client:	McPhail Associates 2269 Massachusetts Avenue Cambridge, MA 02140
ATTN:	Ambrose Donovan
Phone:	(617) 868-1420
Project Name:	ARLINGTON HIGH SCHOOL
Project Number:	6531.9.T7
Report Date:	12/31/19

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

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

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1961508-01	GP-108 (OW)	GROUNDWATER	ARLINGTON, MA	12/23/19 13:00	12/23/19

Project Name:	ARLINGTON HIGH SCHOOL	**Lab Number:**	L1961508
Project Number:	6531.9.T7	**Report Date:**	12/31/19

Case Narrative

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

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

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

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	ARLINGTON HIGH SCHOOL	**Lab Number:**	L1961508
Project Number:	6531.9.T7	**Report Date:**	12/31/19

Case Narrative (continued)

Report Revision

December 31, 2019: The sample ID has been amended.

Sample Receipt

The analyses performed were specified by the project manager.

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

Authorized Signature: Cristin Walker

Title: Technical Director/Representative Date: 12/31/19

ORGANICS

VOLATILES

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961508

Project Number: 6531.9.T7 **Report Date:** 12/31/19

SAMPLE RESULTS

Lab ID: L1961508-01
Client ID: GP-108 (OW)
Sample Location: ARLINGTON, MA

Date Collected: 12/23/19 13:00
Date Received: 12/23/19
Field Prep: Not Specified

Sample Depth: 5-2
Matrix: Groundwater
Analytical Method: 128,624.1
Analytical Date: 12/26/19 17:17
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethane	ND		ug/l	1.5	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.5	--	1
Tetrachloroethene	4.1		ug/l	1.0	--	1
1,2-Dichloroethane	ND		ug/l	1.5	--	1
1,1,1-Trichloroethane	ND		ug/l	2.0	--	1
Benzene	ND		ug/l	1.0	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	5.0	--	1
1,3-Dichlorobenzene	ND		ug/l	5.0	--	1
1,4-Dichlorobenzene	ND		ug/l	5.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
Acetone	ND		ug/l	10	--	1
Methyl tert butyl ether	ND		ug/l	10	--	1
Tert-Butyl Alcohol	ND		ug/l	100	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--	1

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961508

Project Number: 6531.9.T7 **Report Date:** 12/31/19

SAMPLE RESULTS

Lab ID: L1961508-01 Date Collected: 12/23/19 13:00

Client ID: GP-108 (OW) Date Received: 12/23/19

Sample Location: ARLINGTON, MA Field Prep: Not Specified

Sample Depth: 5-2

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	95		60-140
Fluorobenzene	93		60-140
4-Bromofluorobenzene	100		60-140

Project Name: ARLINGTON HIGH SCHOOL
Lab Number: L1961508
Project Number: 6531.9.T7
Report Date: 12/31/19

SAMPLE RESULTS

Lab ID: L1961508-01
Client ID: GP-108 (OW)
Sample Location: ARLINGTON, MA

Date Collected: 12/23/19 13:00
Date Received: 12/23/19
Field Prep: Not Specified

Sample Depth: 5-2
Matrix: Groundwater
Analytical Method: 128,624.1-SIM
Analytical Date: 12/26/19 17:17
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	50	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	77		60-140
4-Bromofluorobenzene	89		60-140

Project Name: ARLINGTON HIGH SCHOOL
Lab Number: L1961508
Project Number: 6531.9.T7
Report Date: 12/31/19

SAMPLE RESULTS

Lab ID: L1961508-01
Client ID: GP-108 (OW)
Sample Location: ARLINGTON, MA

Date Collected: 12/23/19 13:00
Date Received: 12/23/19
Field Prep: Not Specified

Sample Depth: 5-2
Matrix: Groundwater
Analytical Method: 14,504.1
Analytical Date: 12/24/19 19:48
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 12/24/19 14:35

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

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7
Lab Number: L1961508
Report Date: 12/31/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 12/24/19 17:18
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 12/24/19 14:35

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1324601-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	A

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961508

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 12/26/19 12:58
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1324981-4					
Methylene chloride	ND		ug/l	1.0	--
1,1-Dichloroethane	ND		ug/l	1.5	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.5	--
Tetrachloroethene	ND		ug/l	1.0	--
1,2-Dichloroethane	ND		ug/l	1.5	--
1,1,1-Trichloroethane	ND		ug/l	2.0	--
Benzene	ND		ug/l	1.0	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	5.0	--
1,3-Dichlorobenzene	ND		ug/l	5.0	--
1,4-Dichlorobenzene	ND		ug/l	5.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
Acetone	ND		ug/l	10	--
Methyl tert butyl ether	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	100	--
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961508

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 12/26/19 12:58
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1324981-4					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	95		60-140
Fluorobenzene	95		60-140
4-Bromofluorobenzene	101		60-140

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961508

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 12/26/19 12:58
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1325181-4					
1,4-Dioxane	ND		ug/l	50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	78		60-140
4-Bromofluorobenzene	92		60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL

Project Number: 6531.9.T7

Lab Number: L1961508

Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 01		Batch: WG1324601-2						
1,2-Dibromoethane	85		-		80-120	-			A

Lab Control Sample Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1324981-3								
Methylene chloride	80		-		60-140	-		28
1,1-Dichloroethane	80		-		50-150	-		49
Carbon tetrachloride	95		-		70-130	-		41
1,1,2-Trichloroethane	100		-		70-130	-		45
Tetrachloroethene	100		-		70-130	-		39
1,2-Dichloroethane	90		-		70-130	-		49
1,1,1-Trichloroethane	95		-		70-130	-		36
Benzene	95		-		65-135	-		61
Toluene	100		-		70-130	-		41
Ethylbenzene	95		-		60-140	-		63
Vinyl chloride	60		-		5-195	-		66
1,1-Dichloroethene	80		-		50-150	-		32
cis-1,2-Dichloroethene	85		-		60-140	-		30
Trichloroethene	85		-		65-135	-		48
1,2-Dichlorobenzene	110		-		65-135	-		57
1,3-Dichlorobenzene	100		-		70-130	-		43
1,4-Dichlorobenzene	100		-		65-135	-		57
p/m-Xylene	92		-		60-140	-		30
o-xylene	90		-		60-140	-		30
Acetone	76		-		40-160	-		30
Methyl tert butyl ether	80		-		60-140	-		30
Tert-Butyl Alcohol	84		-		60-140	-		30
Tertiary-Amyl Methyl Ether	90		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1324981-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	100				60-140
Fluorobenzene	97				60-140
4-Bromofluorobenzene	98				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1325181-3								
1,4-Dioxane	91		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	80				60-140
4-Bromofluorobenzene	94				60-140

Matrix Spike Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL

Project Number: 6531.9.T7

Lab Number: L1961508

Report Date: 12/31/19

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*	*Column*
Microextractables by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324601-3 QC Sample: L1960341-01 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.249	0.222	89		-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.249	0.230	92		-	-		80-120	-		20	A
1,2,3-Trichloropropane	ND	0.249	0.226	91		-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: ARLINGTON HIGH SCHOOL
Lab Number: L1961508
Project Number: 6531.9.T7
Report Date: 12/31/19

SAMPLE RESULTS

Lab ID: L1961508-01
Client ID: GP-108 (OW)
Sample Location: ARLINGTON, MA

Date Collected: 12/23/19 13:00
Date Received: 12/23/19
Field Prep: Not Specified

Sample Depth: 5-2
Matrix: Groundwater
Analytical Method: 129,625.1
Analytical Date: 12/25/19 07:34
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 12/24/19 01:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		42-122
2-Fluorobiphenyl	72		46-121
4-Terphenyl-d14	95		47-138

Project Name: ARLINGTON HIGH SCHOOL
Lab Number: L1961508
Project Number: 6531.9.T7
Report Date: 12/31/19

SAMPLE RESULTS

Lab ID: L1961508-01
Client ID: GP-108 (OW)
Sample Location: ARLINGTON, MA

Date Collected: 12/23/19 13:00
Date Received: 12/23/19
Field Prep: Not Specified

Sample Depth: 5-2
Matrix: Groundwater
Analytical Method: 129,625.1-SIM
Analytical Date: 12/26/19 15:10
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 12/24/19 01:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	--	1
Fluoranthene	ND		ug/l	0.10	--	1
Naphthalene	ND		ug/l	0.10	--	1
Benzo(a)anthracene	ND		ug/l	0.10	--	1
Benzo(a)pyrene	ND		ug/l	0.10	--	1
Benzo(b)fluoranthene	ND		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	ND		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	ND		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	ND		ug/l	0.10	--	1
Phenanthrene	ND		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--	1
Pyrene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	1.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	53		25-87
Phenol-d6	41		16-65
Nitrobenzene-d5	99		42-122
2-Fluorobiphenyl	88		46-121
2,4,6-Tribromophenol	64		45-128
4-Terphenyl-d14	120		47-138

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961508

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 12/25/19 07:08
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 12/24/19 01:26

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1324285-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		42-122
2-Fluorobiphenyl	80		46-121
4-Terphenyl-d14	98		47-138

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961508

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 12/26/19 10:58
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 12/24/19 01:27

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1324286-1					
Acenaphthene	ND		ug/l	0.10	--
Fluoranthene	ND		ug/l	0.10	--
Naphthalene	ND		ug/l	0.10	--
Benzo(a)anthracene	ND		ug/l	0.10	--
Benzo(a)pyrene	ND		ug/l	0.10	--
Benzo(b)fluoranthene	ND		ug/l	0.10	--
Benzo(k)fluoranthene	ND		ug/l	0.10	--
Chrysene	ND		ug/l	0.10	--
Acenaphthylene	ND		ug/l	0.10	--
Anthracene	ND		ug/l	0.10	--
Benzo(ghi)perylene	ND		ug/l	0.10	--
Fluorene	ND		ug/l	0.10	--
Phenanthrene	ND		ug/l	0.10	--
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--
Pyrene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	1.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	58		25-87
Phenol-d6	44		16-65
Nitrobenzene-d5	108		42-122
2-Fluorobiphenyl	98		46-121
2,4,6-Tribromophenol	69		45-128
4-Terphenyl-d14	133		47-138

Lab Control Sample Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1324285-3								
Bis(2-ethylhexyl)phthalate	124		-		29-137	-		82
Butyl benzyl phthalate	134		-		1-140	-		60
Di-n-butylphthalate	**129**	Q	-		8-120	-		47
Di-n-octylphthalate	125		-		19-132	-		69
Diethyl phthalate	114		-		1-120	-		100
Dimethyl phthalate	111		-		1-120	-		183

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	81				42-122
2-Fluorobiphenyl	82				46-121
4-Terphenyl-d14	94				47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1324286-2								
Acenaphthene	103		-		60-132	-		30
Fluoranthene	111		-		43-121	-		30
Naphthalene	103		-		36-120	-		30
Benzo(a)anthracene	106		-		42-133	-		30
Benzo(a)pyrene	107		-		32-148	-		30
Benzo(b)fluoranthene	107		-		42-140	-		30
Benzo(k)fluoranthene	103		-		25-146	-		30
Chrysene	104		-		44-140	-		30
Acenaphthylene	112		-		54-126	-		30
Anthracene	104		-		43-120	-		30
Benzo(ghi)perylene	112		-		1-195	-		30
Fluorene	109		-		70-120	-		30
Phenanthrene	104		-		65-120	-		30
Dibenzo(a,h)anthracene	117		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	116		-		1-151	-		30
Pyrene	110		-		70-120	-		30
Pentachlorophenol	97		-		38-152	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1324286-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	66				25-87
Phenol-d6	52				16-65
Nitrobenzene-d5	117				42-122
2-Fluorobiphenyl	107				46-121
2,4,6-Tribromophenol	76				45-128
4-Terphenyl-d14	134				47-138

PCBS

Project Name: ARLINGTON HIGH SCHOOL
Lab Number: L1961508
Project Number: 6531.9.T7
Report Date: 12/31/19

SAMPLE RESULTS

Lab ID: L1961508-01
Client ID: GP-108 (OW)
Sample Location: ARLINGTON, MA

Date Collected: 12/23/19 13:00
Date Received: 12/23/19
Field Prep: Not Specified

Sample Depth: 5-2
Matrix: Groundwater
Analytical Method: 127,608.3
Analytical Date: 12/27/19 17:33
Analyst: WR

Extraction Method: EPA 608.3
Extraction Date: 12/25/19 05:29
Cleanup Method: EPA 3665A
Cleanup Date: 12/26/19
Cleanup Method: EPA 3660B
Cleanup Date: 12/26/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.200	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	74		37-123	B
Decachlorobiphenyl	91		38-114	B
2,4,5,6-Tetrachloro-m-xylene	73		37-123	A
Decachlorobiphenyl	84		38-114	A

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961508

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 12/27/19 18:44
Analyst: WR

Extraction Method: EPA 608.3
Extraction Date: 12/25/19 05:29
Cleanup Method: EPA 3665A
Cleanup Date: 12/26/19
Cleanup Method: EPA 3660B
Cleanup Date: 12/26/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1324706-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	58		37-123	B
Decachlorobiphenyl	74		38-114	B
2,4,5,6-Tetrachloro-m-xylene	55		37-123	A
Decachlorobiphenyl	64		38-114	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG1324706-2									
Aroclor 1016	68		-		50-140	-		36	A
Aroclor 1260	65		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	65				37-123	B
Decachlorobiphenyl	84				38-114	B
2,4,5,6-Tetrachloro-m-xylene	67				37-123	A
Decachlorobiphenyl	76				38-114	A

METALS

Project Name: ARLINGTON HIGH SCHOOL
Lab Number: L1961508
Project Number: 6531.9.T7
Report Date: 12/31/19

SAMPLE RESULTS

Lab ID: L1961508-01
Client ID: GP-108 (OW)
Sample Location: ARLINGTON, MA
Date Collected: 12/23/19 13:00
Date Received: 12/23/19
Field Prep: Not Specified

Sample Depth: 5-2
Matrix: Groundwater

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	12/27/19 14:26	12/30/19 09:30	EPA 3005A	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	12/27/19 14:26	12/30/19 09:30	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	12/27/19 14:26	12/30/19 09:30	EPA 3005A	3,200.8	AM
Chromium, Total	0.1431		mg/l	0.00100	--	1	12/27/19 14:26	12/30/19 09:30	EPA 3005A	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	12/27/19 14:26	12/30/19 09:30	EPA 3005A	3,200.8	AM
Iron, Total	ND		mg/l	0.050	--	1	12/27/19 14:26	12/27/19 23:11	EPA 3005A	19,200.7	LC
Lead, Total	ND		mg/l	0.00100	--	1	12/27/19 14:26	12/30/19 09:30	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	12/27/19 12:53	12/27/19 16:52	EPA 245.1	3,245.1	AL
Nickel, Total	ND		mg/l	0.00200	--	1	12/27/19 14:26	12/30/19 09:30	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	12/27/19 14:26	12/30/19 09:30	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	12/27/19 14:26	12/30/19 09:30	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	12/27/19 14:26	12/30/19 09:30	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	111		mg/l	0.660	NA	1	12/27/19 14:26	12/27/19 23:11	EPA 3005A	19,200.7	LC
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		12/30/19 09:30	NA	107,-	

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961508

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1325292-1										
Mercury, Total	ND		mg/l	0.00020	--	1	12/27/19 12:53	12/27/19 16:03	3,245.1	AL

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1325303-1										
Iron, Total	ND		mg/l	0.050	--	1	12/27/19 14:26	12/27/19 21:14	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1325303-1										
Hardness	ND		mg/l	0.660	NA	1	12/27/19 14:26	12/27/19 21:14	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1325307-1										
Antimony, Total	ND		mg/l	0.00400	--	1	12/27/19 14:26	12/30/19 08:52	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	12/27/19 14:26	12/30/19 08:52	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	12/27/19 14:26	12/30/19 08:52	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	12/27/19 14:26	12/30/19 08:52	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	12/27/19 14:26	12/30/19 08:52	3,200.8	AM

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961508

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Lead, Total	ND	mg/l	0.00100	--	1	12/27/19 14:26	12/30/19 08:52	3,200.8	AM
Nickel, Total	ND	mg/l	0.00200	--	1	12/27/19 14:26	12/30/19 08:52	3,200.8	AM
Selenium, Total	ND	mg/l	0.00500	--	1	12/27/19 14:26	12/30/19 08:52	3,200.8	AM
Silver, Total	ND	mg/l	0.00040	--	1	12/27/19 14:26	12/30/19 08:52	3,200.8	AM
Zinc, Total	ND	mg/l	0.01000	--	1	12/27/19 14:26	12/30/19 08:52	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1325292-2								
Mercury, Total	98		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1325303-2								
Iron, Total	102		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1325303-2								
Hardness	105		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1325307-2								
Antimony, Total	86		-		85-115	-		
Arsenic, Total	100		-		85-115	-		
Cadmium, Total	104		-		85-115	-		
Chromium, Total	100		-		85-115	-		
Copper, Total	94		-		85-115	-		
Lead, Total	102		-		85-115	-		
Nickel, Total	101		-		85-115	-		
Selenium, Total	106		-		85-115	-		
Silver, Total	98		-		85-115	-		
Zinc, Total	100		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325292-3 QC Sample: L1961510-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00463	93		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325292-5 QC Sample: L1961510-02 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00456	91		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325303-3 QC Sample: L1961446-01 Client ID: MS Sample												
Iron, Total	0.471	1	1.54	107		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325303-3 QC Sample: L1961446-01 Client ID: MS Sample												
Hardness	267	66.2	331	97		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325303-7 QC Sample: L1961206-01 Client ID: MS Sample												
Iron, Total	0.305	1	1.35	104		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325303-7 QC Sample: L1961206-01 Client ID: MS Sample												
Hardness	38.9	66.2	108	104		-	-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325307-3 QC Sample: L1961446-01 Client ID: MS Sample									
Antimony, Total	0.00494	0.5	0.5212	103	-	-	70-130	-	20
Arsenic, Total	0.01356	0.12	0.1378	104	-	-	70-130	-	20
Cadmium, Total	ND	0.051	0.05637	110	-	-	70-130	-	20
Chromium, Total	0.04242	0.2	0.2510	104	-	-	70-130	-	20
Copper, Total	0.00773	0.25	0.2621	102	-	-	70-130	-	20
Lead, Total	ND	0.51	0.5381	106	-	-	70-130	-	20
Nickel, Total	0.00290	0.5	0.5226	104	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1363	114	-	-	70-130	-	20
Silver, Total	ND	0.05	0.05051	101	-	-	70-130	-	20
Zinc, Total	0.01676	0.5	0.5531	107	-	-	70-130	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325292-4 QC Sample: L1961510-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325292-6 QC Sample: L1961510-02 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325303-4 QC Sample: L1961446-01 Client ID: DUP Sample						
Iron, Total	0.471	0.578	mg/l	20		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325303-4 QC Sample: L1961446-01 Client ID: DUP Sample						
Hardness	267	266	mg/l	0		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325307-4 QC Sample: L1961446-01 Client ID: DUP Sample						
Antimony, Total	0.00494	0.00597	mg/l	19		20
Arsenic, Total	0.01356	0.01359	mg/l	0		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.04242	0.04142	mg/l	2		20
Copper, Total	0.00773	0.00754	mg/l	3		20
Lead, Total	ND	ND	mg/l	NC		20
Nickel, Total	0.00290	0.00273	mg/l	6		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.01676	0.01574	mg/l	6		20

INORGANICS
&
MISCELLANEOUS

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

SAMPLE RESULTS

Lab ID: L1961508-01
Client ID: GP-108 (OW)
Sample Location: ARLINGTON, MA

Date Collected: 12/23/19 13:00
Date Received: 12/23/19
Field Prep: Not Specified

Sample Depth: 5-2
Matrix: Groundwater

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	12/30/19 11:10	121,2540D	EM
Cyanide, Total	ND		mg/l	0.005	--	1	12/24/19 09:45	12/26/19 09:56	121,4500CN-CE	LH
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	12/23/19 22:30	121,4500CL-D	AS
pH (H)	6.5		SU	-	NA	1	-	12/23/19 21:16	121,4500H+-B	AS
Nitrogen, Ammonia	0.077		mg/l	0.075	--	1	12/24/19 16:57	12/24/19 19:28	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	12/26/19 16:30	12/26/19 21:30	74,1664A	ML
Phenolics, Total	ND		mg/l	0.030	--	1	12/26/19 05:20	12/26/19 08:52	4,420.1	MV
Chromium, Hexavalent	0.160		mg/l	0.010	--	1	12/23/19 19:20	12/23/19 19:50	1,7196A	AS
Anions by Ion Chromatography - Westborough Lab										
Chloride	444.		mg/l	5.00	--	10	-	12/24/19 21:18	44,300.0	DP

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961508

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1324222-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	12/23/19 19:20	12/23/19 19:48	1,7196A	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1324251-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	12/23/19 22:30	121,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1324272-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	12/24/19 16:57	12/24/19 19:00	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1324370-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	12/30/19 11:10	121,2540D	EM
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1324425-1										
Cyanide, Total	ND		mg/l	0.005	--	1	12/24/19 09:45	12/26/19 09:28	121,4500CN-CE	LH
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1324738-1										
Phenolics, Total	ND		mg/l	0.030	--	1	12/26/19 05:20	12/26/19 08:48	4,420.1	MV
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1324991-1										
Chloride	ND		mg/l	0.500	--	1	-	12/24/19 20:56	44,300.0	DP
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1325010-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	12/26/19 16:30	12/26/19 21:30	74,1664A	ML

Lab Control Sample Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1324222-2								
Chromium, Hexavalent	100		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1324239-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1324251-2								
Chlorine, Total Residual	104		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1324272-2								
Nitrogen, Ammonia	92		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1324425-2								
Cyanide, Total	94		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1324738-2								
Phenolics, Total	95		-		70-130	-		
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1324991-2								
Chloride	96		-		90-110	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL

Project Number: 6531.9.T7

Lab Number: L1961508

Report Date: 12/31/19

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1325010-2					
TPH	90	-	64-132	-	34

Matrix Spike Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324222-4 QC Sample: L1961508-01 Client ID: GP-108 (OW)												
Chromium, Hexavalent	0.160	0.1	0.255	95		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324251-4 QC Sample: L1961508-01 Client ID: GP-108 (OW)												
Chlorine, Total Residual	ND	0.25	0.21	84		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324272-4 QC Sample: L1900012-146 Client ID: MS Sample												
Nitrogen, Ammonia	1.89	4	5.42	88		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324425-4 QC Sample: L1961446-02 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.197	98		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324738-4 QC Sample: L1961602-01 Client ID: MS Sample												
Phenolics, Total	ND	0.4	0.37	94		-	-		70-130	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324991-3 QC Sample: L1961151-01 Client ID: MS Sample												
Chloride	80.1	20	94.8	**73**	Q	-	-		90-110	-		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1325010-4 QC Sample: L1900012-153 Client ID: MS Sample												
TPH	ND	20	17.4	87		-	-		64-132	-		34

Lab Duplicate Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324222-3 QC Sample: L1961508-01 Client ID: GP-108 (OW)						
Chromium, Hexavalent	0.160	0.159	mg/l	1		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324239-2 QC Sample: L1961409-01 Client ID: DUP Sample						
pH	6.5	6.5	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324251-3 QC Sample: L1961508-01 Client ID: GP-108 (OW)						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324272-3 QC Sample: L1900012-146 Client ID: DUP Sample						
Nitrogen, Ammonia	1.89	1.55	mg/l	20		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324370-2 QC Sample: L1900012-176 Client ID: DUP Sample						
Solids, Total Suspended	4100	4100	mg/l	0		29
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324425-3 QC Sample: L1961446-01 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324738-3 QC Sample: L1961602-01 Client ID: DUP Sample						
Phenolics, Total	ND	ND	mg/l	NC		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324991-4 QC Sample: L1961151-01 Client ID: DUP Sample						
Chloride	80.1	78.3	mg/l	2		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1325010-3 QC Sample: L1900012-152 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961508
Report Date: 12/31/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1961508-01A	Vial HCl preserved	A	NA		3.9	Y	Absent		624.1-RGP(14),624.1-SIM-RGP(14)
L1961508-01B	Vial HCl preserved	A	NA		3.9	Y	Absent		624.1-RGP(14),624.1-SIM-RGP(14)
L1961508-01C	Vial HCl preserved	A	NA		3.9	Y	Absent		504(14)
L1961508-01D	Plastic 250ml unpreserved	A	7	7	3.9	Y	Absent		HEXCR-7196(1)
L1961508-01E	Plastic 250ml NaOH preserved	A	>12	>12	3.9	Y	Absent		TCN-4500(14)
L1961508-01F	Plastic 250ml HNO3 preserved	A	<2	<2	3.9	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1961508-01G	Plastic 250ml unpreserved	A	7	7	3.9	Y	Absent		PH-4500(.01)
L1961508-01H	Plastic 500ml H2SO4 preserved	A	<2	<2	3.9	Y	Absent		TPHENOL-420(28),NH3-4500(28)
L1961508-01I	Plastic 500ml unpreserved	A	7	7	3.9	Y	Absent		CL-300(28),TRC-4500(1)
L1961508-01J	Plastic 950ml unpreserved	A	7	7	3.9	Y	Absent		TSS-2540(7)
L1961508-01K	Amber 1000ml HCl preserved	A	NA		3.9	Y	Absent		TPH-1664(28)
L1961508-01L	Amber 1000ml HCl preserved	A	NA		3.9	Y	Absent		TPH-1664(28)
L1961508-01M	Amber 1000ml Na2S2O3	A	7	7	3.9	Y	Absent		PCB-608.3(7)
L1961508-01N	Amber 1000ml Na2S2O3	A	7	7	3.9	Y	Absent		PCB-608.3(7)
L1961508-01O	Amber 1000ml Na2S2O3	A	7	7	3.9	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1961508-01P	Amber 1000ml Na2S2O3	A	7	7	3.9	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)

*Values in parentheses indicate holding time in days

Project Name:	ARLINGTON HIGH SCHOOL	**Lab Number:**	L1961508
Project Number:	6531.9.T7	**Report Date:**	12/31/19

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

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

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

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

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

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

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

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

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

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

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	ARLINGTON HIGH SCHOOL	**Lab Number:**	L1961508
Project Number:	6531.9.T7	**Report Date:**	12/31/19

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

Terms

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

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

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

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

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

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

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

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

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

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

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

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

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

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

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

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

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

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

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

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

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

R - Analytical results are from sample re-analysis.

Report Format: Data Usability Report

Project Name:	ARLINGTON HIGH SCHOOL	**Lab Number:**	L1961508
Project Number:	6531.9.T7	**Report Date:**	12/31/19

Data Qualifiers

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	ARLINGTON HIGH SCHOOL	**Lab Number:**	L1961508
Project Number:	6531.9.T7	**Report Date:**	12/31/19

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

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

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

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

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

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

74 Method 1664,Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.

107 Alpha Analytical - In-house calculation method.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

127 Method 608.3: Organochlorine Pesticides and PCBs by GC/HSD, EPA 821-R-16-009, December 2016.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

LIMITATION OF LIABILITIES

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

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

Certification Information

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 12/23/19

ALPHA Job #: L1961508

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

Project Information

Project Name: Arlington High School
Project Location: Arlington, MA
Project #: 6531.9.T7
Project Manager: Joe Wold
ALPHA Quote #:

Report Information - Data Deliverables

☒ ADEx ☐ EMAIL

Billing Information

☐ Same as Client info PO #:

Client Information

Client: McPhail Associates, LLC
Address: 2269 Massachusetts Avenue
Cambridge, MA 02140
Phone: (617) 868-1420
Email: JWold@McPhailgeo.com

Regulatory Requirements & Project Information Requirements

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

Turn-Around Time

☒ Standard ☐ RUSH *(only confirmed if pre-approved!)*
Date Due:

Additional Project Information:

☐ Run TCLP (if triggered)

Sample "Sample ID" Nomenclature: B-100, S-1

ALPHA Lab ID (Lab Use Only)	Sample ID	Sample Depth	Sample Material	Collection Date	Collection Time	Sampler Initials	Soil Assessment Package IV (less VOC)	VOC: ☒ 8260 and 504	Total Solids	SVOC: ☐ PAH	EPH: ☐ Ranges & Targets ☐ Ranges Only	VPH: ☒ Ranges & Targets ☐ Ranges Only	TOTAL METALS: ☐ RCRA8 ☐ PP13 ☐ MCP 14	DISSOLVED METALS: ☐ RCRA8 ☐ PP13 ☐ MCP 14	METALS: Total Sb,Be,Ni,Tl,V,Zn	☒ PCBs ☐ Pesticides	RGP Section A Inorganics	TSS, pH, Hardness			SAMPLE INFO *Filtration* ☐ Field ☐ Lab to do *Preservation* ☐ Lab to do Sample Comments	TOTAL # BOTTLES
L1961508-01	INFLUENT	5' 2"	GW	12-23-19	1300	MSD		X	X	X		X	X			X	X	X				16
	~~EFFLUENT~~							~~X~~	~~X~~	~~X~~		~~X~~	~~X~~			~~X~~	~~X~~					
Container Type								V	P	A		A				A	P	P				
Preservative								D	A	H		G				H	C	A				

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

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

Sample Material
F=Fill S=Sand
O=Organics C=Clay
N=Natural T=Till
GM=Glaciomarine
GW=Groundwater

RGP Section A Inorganics :
Ammonia, Chloride, TRC, TSS, CrVI, CrIII, Total Cyanide, Total RGP Metals

Relinquished By:	Date/Time	Received By:	Date/Time
	12-23-19 1500	McPhail Associates secure sample storage for laboratory pick-up	
McPhail Associates secure sample storage for laboratory pick-up			12-23-19 1600
	12-23-19 1738		12/23 1917 35

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

DOC ID: 25188 Rev 0 (11/26/2017)

ANALYTICAL REPORT

Lab Number:	L1961602
Client:	McPhail Associates 2269 Massachusetts Avenue Cambridge, MA 02140
ATTN:	Ambrose Donovan
Phone:	(617) 868-1420
Project Name:	ARLINGTON HIGH SCHOOL
Project Number:	6531.9.T7
Report Date:	12/31/19

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

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

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1961602-01	MW-04-5	GROUNDWATER	ARLINGTON, MA	12/24/19 09:30	12/24/19

Project Name:	ARLINGTON HIGH SCHOOL	**Lab Number:**	L1961602
Project Number:	6531.9.T7	**Report Date:**	12/31/19

Case Narrative

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

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

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

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	ARLINGTON HIGH SCHOOL	**Lab Number:**	L1961602
Project Number:	6531.9.T7	**Report Date:**	12/31/19

Case Narrative (continued)

Report Submission

The analysis of Ethanol was subcontracted. A copy of the laboratory report is included as an addendum.

Please note: This data is only available in PDF format and is not available on Data Merger.

Semivolatile Organics by SIM

WG1324987-1: The surrogate recovery is above the acceptance criteria for 2,4,6-tribromophenol (137%). Since the blank was non-detect for all target analytes, re-analysis was not required.

The WG1324987-2 LCS recovery, associated with L1961602-01, is above the acceptance criteria for pentachlorophenol (155%); however, the associated sample is non-detect to the RL for this target analyte. The results of the original analysis are reported.

The surrogate recovery for the WG1324987-2 LCS, associated with L1961602-01, is outside the acceptance criteria for 2,4,6-tribromophenol (161%).

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

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 12/31/19

ORGANICS

VOLATILES

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961602

Project Number: 6531.9.T7 **Report Date:** 12/31/19

SAMPLE RESULTS

Lab ID: L1961602-01
Client ID: MW-04-5
Sample Location: ARLINGTON, MA

Date Collected: 12/24/19 09:30
Date Received: 12/24/19
Field Prep: Not Specified

Sample Depth:
Matrix: Groundwater
Analytical Method: 128,624.1
Analytical Date: 12/26/19 17:54
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethane	ND		ug/l	1.5	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.5	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethane	ND		ug/l	1.5	--	1
1,1,1-Trichloroethane	ND		ug/l	2.0	--	1
Benzene	ND		ug/l	1.0	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	10		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	5.0	--	1
1,3-Dichlorobenzene	ND		ug/l	5.0	--	1
1,4-Dichlorobenzene	ND		ug/l	5.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-xylene	2.3		ug/l	1.0	--	1
Xylenes, Total	2.3		ug/l	1.0	--	1
Acetone	ND		ug/l	10	--	1
Methyl tert butyl ether	ND		ug/l	10	--	1
Tert-Butyl Alcohol	ND		ug/l	100	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--	1

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961602

Project Number: 6531.9.T7 **Report Date:** 12/31/19

SAMPLE RESULTS

Lab ID: L1961602-01 Date Collected: 12/24/19 09:30

Client ID: MW-04-5 Date Received: 12/24/19

Sample Location: ARLINGTON, MA Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	99		60-140
Fluorobenzene	98		60-140
4-Bromofluorobenzene	98		60-140

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961602

Project Number: 6531.9.T7 **Report Date:** 12/31/19

SAMPLE RESULTS

Lab ID: L1961602-01
Client ID: MW-04-5
Sample Location: ARLINGTON, MA

Date Collected: 12/24/19 09:30
Date Received: 12/24/19
Field Prep: Not Specified

Sample Depth:
Matrix: Groundwater
Analytical Method: 128,624.1-SIM
Analytical Date: 12/26/19 17:54
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	50	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	81		60-140
4-Bromofluorobenzene	89		60-140

Project Name: ARLINGTON HIGH SCHOOL
Lab Number: L1961602
Project Number: 6531.9.T7
Report Date: 12/31/19

SAMPLE RESULTS

Lab ID: L1961602-01
Client ID: MW-04-5
Sample Location: ARLINGTON, MA

Date Collected: 12/24/19 09:30
Date Received: 12/24/19
Field Prep: Not Specified

Sample Depth:
Matrix: Groundwater
Analytical Method: 14,504.1
Analytical Date: 12/26/19 18:23
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 12/26/19 15:04

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

Project Name: ARLINGTON HIGH SCHOOL
Lab Number: L1961602
Project Number: 6531.9.T7
Report Date: 12/31/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 12/26/19 16:26
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 12/26/19 15:04

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1324958-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	A

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961602

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 12/26/19 12:58
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1324981-4					
Methylene chloride	ND		ug/l	1.0	--
1,1-Dichloroethane	ND		ug/l	1.5	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.5	--
Tetrachloroethene	ND		ug/l	1.0	--
1,2-Dichloroethane	ND		ug/l	1.5	--
1,1,1-Trichloroethane	ND		ug/l	2.0	--
Benzene	ND		ug/l	1.0	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	5.0	--
1,3-Dichlorobenzene	ND		ug/l	5.0	--
1,4-Dichlorobenzene	ND		ug/l	5.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
Acetone	ND		ug/l	10	--
Methyl tert butyl ether	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	100	--
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961602

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 12/26/19 12:58
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1324981-4					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	95		60-140
Fluorobenzene	95		60-140
4-Bromofluorobenzene	101		60-140

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961602

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 12/26/19 12:58
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1325181-4					
1,4-Dioxane	ND		ug/l	50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	78		60-140
4-Bromofluorobenzene	92		60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL

Project Number: 6531.9.T7

Lab Number: L1961602

Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 01		Batch: WG1324958-2						
1,2-Dibromoethane	90		-		80-120	-			A

Lab Control Sample Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1324981-3								
Methylene chloride	80		-		60-140	-		28
1,1-Dichloroethane	80		-		50-150	-		49
Carbon tetrachloride	95		-		70-130	-		41
1,1,2-Trichloroethane	100		-		70-130	-		45
Tetrachloroethene	100		-		70-130	-		39
1,2-Dichloroethane	90		-		70-130	-		49
1,1,1-Trichloroethane	95		-		70-130	-		36
Benzene	95		-		65-135	-		61
Toluene	100		-		70-130	-		41
Ethylbenzene	95		-		60-140	-		63
Vinyl chloride	60		-		5-195	-		66
1,1-Dichloroethene	80		-		50-150	-		32
cis-1,2-Dichloroethene	85		-		60-140	-		30
Trichloroethene	85		-		65-135	-		48
1,2-Dichlorobenzene	110		-		65-135	-		57
1,3-Dichlorobenzene	100		-		70-130	-		43
1,4-Dichlorobenzene	100		-		65-135	-		57
p/m-Xylene	92		-		60-140	-		30
o-xylene	90		-		60-140	-		30
Acetone	76		-		40-160	-		30
Methyl tert butyl ether	80		-		60-140	-		30
Tert-Butyl Alcohol	84		-		60-140	-		30
Tertiary-Amyl Methyl Ether	90		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1324981-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	100				60-140
Fluorobenzene	97				60-140
4-Bromofluorobenzene	98				60-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1325181-3								
1,4-Dioxane	91		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	80				60-140
4-Bromofluorobenzene	94				60-140

Matrix Spike Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL

Project Number: 6531.9.T7

Lab Number: L1961602

Report Date: 12/31/19

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*	*Column*
Microextractables by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324958-3 QC Sample: L1960989-02 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.246	0.213	86		-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.246	0.212	86		-	-		80-120	-		20	A
1,2,3-Trichloropropane	ND	0.246	0.244	99		-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: ARLINGTON HIGH SCHOOL
Lab Number: L1961602
Project Number: 6531.9.T7
Report Date: 12/31/19

SAMPLE RESULTS

Lab ID: L1961602-01
Client ID: MW-04-5
Sample Location: ARLINGTON, MA

Date Collected: 12/24/19 09:30
Date Received: 12/24/19
Field Prep: Not Specified

Sample Depth:
Matrix: Groundwater
Analytical Method: 129,625.1
Analytical Date: 12/27/19 11:15
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 12/26/19 15:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		42-122
2-Fluorobiphenyl	65		46-121
4-Terphenyl-d14	80		47-138

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961602

Project Number: 6531.9.T7 **Report Date:** 12/31/19

SAMPLE RESULTS

Lab ID: L1961602-01
Client ID: MW-04-5
Sample Location: ARLINGTON, MA

Date Collected: 12/24/19 09:30
Date Received: 12/24/19
Field Prep: Not Specified

Sample Depth:
Matrix: Groundwater
Analytical Method: 129,625.1-SIM
Analytical Date: 12/27/19 13:46
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 12/26/19 15:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	2.9		ug/l	0.10	--	1
Fluoranthene	ND		ug/l	0.10	--	1
Naphthalene	0.89		ug/l	0.10	--	1
Benzo(a)anthracene	ND		ug/l	0.10	--	1
Benzo(a)pyrene	ND		ug/l	0.10	--	1
Benzo(b)fluoranthene	ND		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	ND		ug/l	0.10	--	1
Acenaphthylene	0.55		ug/l	0.10	--	1
Anthracene	ND		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	0.60		ug/l	0.10	--	1
Phenanthrene	ND		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--	1
Pyrene	0.23		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	1.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	33		25-87
Phenol-d6	23		16-65
Nitrobenzene-d5	63		42-122
2-Fluorobiphenyl	87		46-121
2,4,6-Tribromophenol	121		45-128
4-Terphenyl-d14	102		47-138

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961602

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 12/27/19 03:41
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 12/26/19 15:33

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1324986-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		42-122
2-Fluorobiphenyl	66		46-121
4-Terphenyl-d14	83		47-138

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961602

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 12/27/19 12:55
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 12/26/19 15:35

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1324987-1					
Acenaphthene	ND		ug/l	0.10	--
Fluoranthene	ND		ug/l	0.10	--
Naphthalene	ND		ug/l	0.10	--
Benzo(a)anthracene	ND		ug/l	0.10	--
Benzo(a)pyrene	ND		ug/l	0.10	--
Benzo(b)fluoranthene	ND		ug/l	0.10	--
Benzo(k)fluoranthene	ND		ug/l	0.10	--
Chrysene	ND		ug/l	0.10	--
Acenaphthylene	ND		ug/l	0.10	--
Anthracene	ND		ug/l	0.10	--
Benzo(ghi)perylene	ND		ug/l	0.10	--
Fluorene	ND		ug/l	0.10	--
Phenanthrene	ND		ug/l	0.10	--
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--
Pyrene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	1.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	47		25-87
Phenol-d6	36		16-65
Nitrobenzene-d5	81		42-122
2-Fluorobiphenyl	92		46-121
2,4,6-Tribromophenol	**137**	Q	45-128
4-Terphenyl-d14	126		47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1324986-2								
Bis(2-ethylhexyl)phthalate	100		-		29-137	-		82
Butyl benzyl phthalate	113		-		1-140	-		60
Di-n-butylphthalate	105		-		8-120	-		47
Di-n-octylphthalate	102		-		19-132	-		69
Diethyl phthalate	96		-		1-120	-		100
Dimethyl phthalate	95		-		1-120	-		183

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	68				42-122
2-Fluorobiphenyl	67				46-121
4-Terphenyl-d14	80				47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1324987-2								
Acenaphthene	100		-		60-132	-		30
Fluoranthene	117		-		43-121	-		30
Naphthalene	94		-		36-120	-		30
Benzo(a)anthracene	110		-		42-133	-		30
Benzo(a)pyrene	125		-		32-148	-		30
Benzo(b)fluoranthene	130		-		42-140	-		30
Benzo(k)fluoranthene	105		-		25-146	-		30
Chrysene	96		-		44-140	-		30
Acenaphthylene	112		-		54-126	-		30
Anthracene	106		-		43-120	-		30
Benzo(ghi)perylene	112		-		1-195	-		30
Fluorene	109		-		70-120	-		30
Phenanthrene	101		-		65-120	-		30
Dibenzo(a,h)anthracene	122		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	134		-		1-151	-		30
Pyrene	115		-		70-120	-		30
Pentachlorophenol	**155**	Q	-		38-152	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1324987-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	53				25-87
Phenol-d6	37				16-65
Nitrobenzene-d5	89				42-122
2-Fluorobiphenyl	106				46-121
2,4,6-Tribromophenol	**161**	Q			45-128
4-Terphenyl-d14	136				47-138

PCBS

Project Name: ARLINGTON HIGH SCHOOL
Lab Number: L1961602
Project Number: 6531.9.T7
Report Date: 12/31/19

SAMPLE RESULTS

Lab ID: L1961602-01
Client ID: MW-04-5
Sample Location: ARLINGTON, MA

Date Collected: 12/24/19 09:30
Date Received: 12/24/19
Field Prep: Not Specified

Sample Depth:
Matrix: Groundwater
Analytical Method: 127,608.3
Analytical Date: 12/27/19 17:45
Analyst: WR

Extraction Method: EPA 608.3
Extraction Date: 12/25/19 05:29
Cleanup Method: EPA 3665A
Cleanup Date: 12/26/19
Cleanup Method: EPA 3660B
Cleanup Date: 12/26/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.200	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	70		37-123	B
Decachlorobiphenyl	82		38-114	B
2,4,5,6-Tetrachloro-m-xylene	71		37-123	A
Decachlorobiphenyl	78		38-114	A

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 12/27/19 18:44
Analyst: WR

Extraction Method: EPA 608.3
Extraction Date: 12/25/19 05:29
Cleanup Method: EPA 3665A
Cleanup Date: 12/26/19
Cleanup Method: EPA 3660B
Cleanup Date: 12/26/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1324706-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	58		37-123	B
Decachlorobiphenyl	74		38-114	B
2,4,5,6-Tetrachloro-m-xylene	55		37-123	A
Decachlorobiphenyl	64		38-114	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG1324706-2									
Aroclor 1016	68		-		50-140	-		36	A
Aroclor 1260	65		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	65				37-123	B
Decachlorobiphenyl	84				38-114	B
2,4,5,6-Tetrachloro-m-xylene	67				37-123	A
Decachlorobiphenyl	76				38-114	A

METALS

Project Name: ARLINGTON HIGH SCHOOL
Lab Number: L1961602
Project Number: 6531.9.T7
Report Date: 12/31/19

SAMPLE RESULTS

Lab ID: L1961602-01
Client ID: MW-04-5
Sample Location: ARLINGTON, MA
Date Collected: 12/24/19 09:30
Date Received: 12/24/19
Field Prep: Not Specified

Sample Depth:
Matrix: Groundwater

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	12/27/19 20:59	12/30/19 12:14	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00277		mg/l	0.00100	--	1	12/27/19 20:59	12/30/19 12:14	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	12/27/19 20:59	12/30/19 12:14	EPA 3005A	3,200.8	AM
Chromium, Total	0.01950		mg/l	0.00100	--	1	12/27/19 20:59	12/30/19 12:14	EPA 3005A	3,200.8	AM
Copper, Total	0.01157		mg/l	0.00100	--	1	12/27/19 20:59	12/30/19 12:14	EPA 3005A	3,200.8	AM
Iron, Total	0.284		mg/l	0.050	--	1	12/27/19 20:59	12/30/19 13:30	EPA 3005A	19,200.7	LC
Lead, Total	ND		mg/l	0.00100	--	1	12/27/19 20:59	12/30/19 12:14	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	12/27/19 12:53	12/27/19 16:54	EPA 245.1	3,245.1	AL
Nickel, Total	ND		mg/l	0.00200	--	1	12/27/19 20:59	12/30/19 12:14	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	12/27/19 20:59	12/30/19 12:14	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	12/27/19 20:59	12/30/19 12:14	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	12/27/19 20:59	12/30/19 12:14	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	94.0		mg/l	0.660	NA	1	12/27/19 20:59	12/30/19 13:30	EPA 3005A	19,200.7	LC
General Chemistry - Mansfield Lab											
Chromium, Trivalent	0.019		mg/l	0.010	--	1		12/30/19 12:14	NA	107,-	

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961602

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1325292-1										
Mercury, Total	ND		mg/l	0.00020	--	1	12/27/19 12:53	12/27/19 16:03	3,245.1	AL

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1325379-1										
Iron, Total	ND		mg/l	0.050	--	1	12/27/19 20:59	12/30/19 09:50	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1325379-1										
Hardness	ND		mg/l	0.660	NA	1	12/27/19 20:59	12/30/19 09:50	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1325387-1										
Antimony, Total	ND		mg/l	0.00400	--	1	12/27/19 20:59	12/30/19 10:53	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	12/27/19 20:59	12/30/19 10:53	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	12/27/19 20:59	12/30/19 10:53	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	12/27/19 20:59	12/30/19 10:53	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	12/27/19 20:59	12/30/19 10:53	3,200.8	AM

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961602

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Lead, Total	ND	mg/l	0.00100	--	1	12/27/19 20:59	12/30/19 10:53	3,200.8	AM
Nickel, Total	ND	mg/l	0.00200	--	1	12/27/19 20:59	12/30/19 10:53	3,200.8	AM
Selenium, Total	ND	mg/l	0.00500	--	1	12/27/19 20:59	12/30/19 10:53	3,200.8	AM
Silver, Total	ND	mg/l	0.00040	--	1	12/27/19 20:59	12/30/19 10:53	3,200.8	AM
Zinc, Total	ND	mg/l	0.01000	--	1	12/27/19 20:59	12/30/19 10:53	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1325292-2								
Mercury, Total	98		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1325379-2								
Iron, Total	112		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1325379-2								
Hardness	103		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1325387-2								
Antimony, Total	86		-		85-115	-		
Arsenic, Total	105		-		85-115	-		
Cadmium, Total	103		-		85-115	-		
Chromium, Total	100		-		85-115	-		
Copper, Total	98		-		85-115	-		
Lead, Total	105		-		85-115	-		
Nickel, Total	101		-		85-115	-		
Selenium, Total	113		-		85-115	-		
Silver, Total	97		-		85-115	-		
Zinc, Total	101		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325292-3 QC Sample: L1961510-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00463	93		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325292-5 QC Sample: L1961510-02 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00456	91		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325379-3 QC Sample: L1960667-01 Client ID: MS Sample												
Iron, Total	0.508	1	1.64	113		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325379-3 QC Sample: L1960667-01 Client ID: MS Sample												
Hardness	50.1	66.2	118	103		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325379-7 QC Sample: L1960667-02 Client ID: MS Sample												
Iron, Total	0.373	1	1.51	114		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325379-7 QC Sample: L1960667-02 Client ID: MS Sample												
Hardness	29.5	66.2	97.7	103		-	-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325387-3 QC Sample: L1960667-01 Client ID: MS Sample									
Antimony, Total	ND	0.5	0.4393	88	-	-	70-130	-	20
Arsenic, Total	0.0011	0.12	0.1211	100	-	-	70-130	-	20
Cadmium, Total	ND	0.051	0.05144	101	-	-	70-130	-	20
Chromium, Total	ND	0.2	0.2018	101	-	-	70-130	-	20
Copper, Total	0.00641	0.25	0.2550	99	-	-	70-130	-	20
Lead, Total	ND	0.51	0.5373	105	-	-	70-130	-	20
Nickel, Total	ND	0.5	0.5191	104	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1336	111	-	-	70-130	-	20
Silver, Total	ND	0.05	0.04946	99	-	-	70-130	-	20
Zinc, Total	ND	0.5	0.5142	103	-	-	70-130	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325292-4 QC Sample: L1961510-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325292-6 QC Sample: L1961510-02 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325379-4 QC Sample: L1960667-01 Client ID: DUP Sample						
Iron, Total	0.508	0.520	mg/l	2		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325379-8 QC Sample: L1960667-02 Client ID: DUP Sample						
Iron, Total	0.373	0.394	mg/l	5		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1325387-4 QC Sample: L1960667-01 Client ID: DUP Sample						
Copper, Total	0.00641	0.00650	mg/l	1		20
Lead, Total	ND	ND	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

SAMPLE RESULTS

Lab ID: L1961602-01
Client ID: MW-04-5
Sample Location: ARLINGTON, MA

Date Collected: 12/24/19 09:30
Date Received: 12/24/19
Field Prep: Not Specified

Sample Depth:
Matrix: Groundwater

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	12/26/19 07:38	121,2540D	EM
Cyanide, Total	0.005		mg/l	0.005	--	1	12/26/19 08:05	12/26/19 10:39	121,4500CN-CE	LH
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	12/24/19 18:23	121,4500CL-D	AS
Nitrogen, Ammonia	0.856		mg/l	0.075	--	1	12/26/19 10:10	12/26/19 23:24	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	12/26/19 16:30	12/26/19 21:30	74,1664A	ML
Phenolics, Total	ND		mg/l	0.030	--	1	12/26/19 05:20	12/26/19 08:54	4,420.1	MV
Chromium, Hexavalent	ND		mg/l	0.010	--	1	12/24/19 19:20	12/24/19 19:48	1,7196A	AS
Anions by Ion Chromatography - Westborough Lab										
Chloride	748.		mg/l	12.5	--	25	-	12/27/19 03:56	44,300.0	DS

Project Name: ARLINGTON HIGH SCHOOL **Lab Number:** L1961602

Project Number: 6531.9.T7 **Report Date:** 12/31/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1324640-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	12/24/19 19:20	12/24/19 19:47	1,7196A	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1324653-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	12/24/19 18:23	121,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1324738-1										
Phenolics, Total	ND		mg/l	0.030	--	1	12/26/19 05:20	12/26/19 08:48	4,420.1	MV
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1324748-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	12/26/19 07:38	121,2540D	EM
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1324763-1										
Cyanide, Total	ND		mg/l	0.005	--	1	12/26/19 08:05	12/26/19 10:20	121,4500CN-CE	LH
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1324794-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	12/26/19 10:10	12/26/19 23:19	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1325010-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	12/26/19 16:30	12/26/19 21:30	74,1664A	ML
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1325131-1										
Chloride	ND		mg/l	0.500	--	1	-	12/27/19 01:26	44,300.0	DS

Lab Control Sample Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1324640-2								
Chromium, Hexavalent	102		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1324653-2								
Chlorine, Total Residual	104		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1324738-2								
Phenolics, Total	95		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1324763-2								
Cyanide, Total	102		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1324794-2								
Nitrogen, Ammonia	106		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1325010-2								
TPH	90		-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1325131-2								
Chloride	97		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324640-4 QC Sample: L1961602-01 Client ID: MW-04-5												
Chromium, Hexavalent	ND	0.1	0.102	102		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324653-4 QC Sample: L1961616-01 Client ID: MS Sample												
Chlorine, Total Residual	ND	0.25	0.26	104		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324738-4 QC Sample: L1961602-01 Client ID: MW-04-5												
Phenolics, Total	ND	0.4	0.37	94		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324763-4 QC Sample: L1961616-01 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.186	93		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324794-4 QC Sample: L1961463-03 Client ID: MS Sample												
Nitrogen, Ammonia	39.0	4	30.2	**0**	Q	-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1325010-4 QC Sample: L1900012-153 Client ID: MS Sample												
TPH	ND	20	17.4	87		-	-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1325131-3 QC Sample: L1961616-01 Client ID: MS Sample												
Chloride	20.6	4	24.0	**83**	Q	-	-		90-110	-		18

Lab Duplicate Analysis

Batch Quality Control

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324640-3 QC Sample: L1961602-01 Client ID: MW-04-5						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324653-3 QC Sample: L1961602-01 Client ID: MW-04-5						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324738-3 QC Sample: L1961602-01 Client ID: MW-04-5						
Phenolics, Total	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324748-2 QC Sample: L1961561-01 Client ID: DUP Sample						
Solids, Total Suspended	14	13	mg/l	7		29
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324763-3 QC Sample: L1961602-01 Client ID: MW-04-5						
Cyanide, Total	0.005	0.005	mg/l	6		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1324794-3 QC Sample: L1961463-02 Client ID: DUP Sample						
Nitrogen, Ammonia	0.542	0.417	mg/l	**26**	Q	20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1325010-3 QC Sample: L1900012-152 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1325131-4 QC Sample: L1961616-01 Client ID: DUP Sample						
Chloride	20.6	20.6	mg/l	0		18

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1961602-01A	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1961602-01B	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1961602-01C	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1961602-01D	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1961602-01E	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1961602-01F	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		504(14)
L1961602-01G	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		504(14)
L1961602-01H	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		504(14)
L1961602-01I	Vial unpreserved	A	NA		4.5	Y	Absent		SUB-ETHANOL(14)
L1961602-01J	Vial unpreserved	A	NA		4.5	Y	Absent		SUB-ETHANOL(14)
L1961602-01K	Vial unpreserved	A	NA		4.5	Y	Absent		SUB-ETHANOL(14)
L1961602-01L	Plastic 250ml NaOH preserved	A	>12	>12	4.5	Y	Absent		TCN-4500(14)
L1961602-01M	Plastic 250ml HNO3 preserved	A	<2	<2	4.5	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1961602-01N	Plastic 500ml H2SO4 preserved	A	<2	<2	4.5	Y	Absent		NH3-4500(28)
L1961602-01O	Plastic 950ml unpreserved	A	7	7	4.5	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1)
L1961602-01P	Plastic 950ml unpreserved	A	7	7	4.5	Y	Absent		TSS-2540(7)
L1961602-01Q	Amber 950ml H2SO4 preserved	A	<2	<2	4.5	Y	Absent		TPHENOL-420(28)
L1961602-01R	Amber 1000ml HCl preserved	A	NA		4.5	Y	Absent		TPH-1664(28)
L1961602-01S	Amber 1000ml HCl preserved	A	NA		4.5	Y	Absent		TPH-1664(28)
L1961602-01T	Amber 1000ml Na2S2O3	A	7	7	4.5	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1961602-01U	Amber 1000ml Na2S2O3	A	7	7	4.5	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)

*Values in parentheses indicate holding time in days

Project Name: ARLINGTON HIGH SCHOOL
Project Number: 6531.9.T7

Lab Number: L1961602
Report Date: 12/31/19

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L1961602-01V	Amber 1000ml Na2S2O3	A	7	7	4.5	Y	Absent		PCB-608.3(7)
L1961602-01W	Amber 1000ml Na2S2O3	A	7	7	4.5	Y	Absent		PCB-608.3(7)
L1961602-01X	Amber 1000ml Na2S2O3	A	7	7	4.5	Y	Absent		PCB-608.3(7)
L1961602-01Y	Amber 1000ml Na2S2O3	A	7	7	4.5	Y	Absent		PCB-608.3(7)

*Values in parentheses indicate holding time in days

Project Name:	ARLINGTON HIGH SCHOOL	**Lab Number:**	L1961602
Project Number:	6531.9.T7	**Report Date:**	12/31/19

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

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

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

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

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

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

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

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

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

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

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	ARLINGTON HIGH SCHOOL	**Lab Number:**	L1961602
Project Number:	6531.9.T7	**Report Date:**	12/31/19

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

Terms

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

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

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

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

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

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

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

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

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

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

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

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

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

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

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

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

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

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

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

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

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

R - Analytical results are from sample re-analysis.

Report Format: Data Usability Report

Project Name:	ARLINGTON HIGH SCHOOL	**Lab Number:**	L1961602
Project Number:	6531.9.T7	**Report Date:**	12/31/19

Data Qualifiers

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	ARLINGTON HIGH SCHOOL	**Lab Number:**	L1961602
Project Number:	6531.9.T7	**Report Date:**	12/31/19

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

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

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

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

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

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

74 Method 1664,Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.

107 Alpha Analytical - In-house calculation method.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

127 Method 608.3: Organochlorine Pesticides and PCBs by GC/HSD, EPA 821-R-16-009, December 2016.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

LIMITATION OF LIABILITIES

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

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

Certification Information

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL — World Class Chemistry

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 12/24/19

ALPHA Job #: L1961602

Project Information

Project Name: Arlington High School

Project Location: Arlington, MA

Project #: 6531.9.T7

Project Manager: Joe Wold

ALPHA Quote #:

Client Information

Client: McPhail Associates, LLC

Address: 2269 Massachusetts Aveq

Cambridge, MA 02140

Phone: 6178681420

Fax:

Email: jwold@mcphailgeo.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☐ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
NPDES RGP	

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☒ No Are MCP Analytical Methods Required?

☐ Yes ☒ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TGP Metals (200.8) (A), Hardness	TSS (A)	Ammonia (4500 A)	TCN	HexCrhom, TRC-4500, Ph, Cl	624.1, 624.1 SIM, 504 EDB	~~pH~~	Total Phenol	TPH-1664	PCBs(608.3), 625.1(RGP), 625.1-SIM	Sub-Ethanol		Sample Specific Comments	TOTAL # BOTTLES
61602-01	Influent	12/24/19	0930	GW	~~TH~~ TJH	☒	☒	☒	☒	☒	☒	☐	☒	☒	☒	☒	☐		
Container Type						P	P	P	P	P	V	P	A	A	A	V	-		
Preservative						C	A	D	E	A	H	N	D	B	H	A	-		

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	12/24/19 12:10	[signature] AAL	12/24/19 1210
[signature]	12/24/19 1323	[signature] AAL	12/24/19

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

Tek Lab, Inc.
5445 Horsehoe Lake Road
Collinsville, IL 62234-7425

Alpha Job Number
L1961602

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 603.319.5010 Email: mgulli@alphalab.com	Project Location: MA Project Manager: Melissa Gulli **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L1961602

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	INFLUENT	12-24-19 09:30	Groundwater	Ethanol by EPA 1671 Revision A	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
Form No: AL_subcoc				

Shipment Receipt

Transaction Date: 26 Dec 2019 **Tracking Number:** 1ZE306540197484719

1 Address Information

Ship To:
Tek Lab, Inc.
5445 Horseshoe Lake Road
COLLINSVILLE IL 622347425

Ship From:
Walkup
Login Dept Westboro
8 Walkup Dr
Westborough MA 01581
Telephone:508-898-9220
email:login@alphalab.com

Return Address:
Walkup
Login Dept Westboro
8 Walkup Dr
Westborough MA 01581
Telephone:508-898-9220 email:login@alphalab.com

2 Package Information

	Weight	Dimensions / Packaging	Declared Value	Reference Numbers
1.	13.0 lbs (15.0 lbs billable)	14 x 14 x 10in. Other Packaging	100.00 USD	

3 UPS Shipping Service and Shipping Options

Service: UPS Next Day Air

Guaranteed By: End of Day Friday, Dec 27, 2019

Shipping Fees Subtotal: 165.44 USD

Transportation	154.26 USD
Fuel Surcharge	11.18 USD
Declared Value	0.00 USD
Package 1	

4 Payment Information

Bill Shipping Charges to: Shipper's Account E30654

Shipping Charges:	**165.44 USD**
A discount has been applied for this shipment. **Negotiated Charges:**	**59.55 USD**
Subtotal Shipping Charges:	**59.55 USD**
Total Charges:	**59.55 USD**

Note: This document is not an invoice. Your final invoice may vary from the displayed reference rates.

* For delivery and guarantee information, see the UPS Service Guide ({0}). To speak to a customer service representative, call 1-800-PICK-UPS for domestic services and 1-800-782-7892 for international services.

Teklab, Inc.
Environmental Laboratory
http://www.teklabinc.com/

December 31, 2019

Melissa Gulli
Alpha Analytical
145 Flanders Road
Westborough, MA 01581
TEL: (603) 319-5010
FAX:

RE: L1961602 **WorkOrder:** 19121633

Dear Melissa Gulli:

TEKLAB, INC received 1 sample on 12/27/2019 10:18:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Marvin L. Darling II

Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Teklab, Inc.
Environmental Laboratory

Report Contents

http://www.teklabinc.com/

Client: Alpha Analytical
Client Project: L1961602

Work Order: 19121633
Report Date: 31-Dec-2019

This reporting package includes the following:

Teklab, Inc. Environmental Laboratory

Definitions

http://www.teklabinc.com/

Client: Alpha Analytical **Work Order:** 19121633

Client Project: L1961602 **Report Date:** 31-Dec-2019

Abbr Definition

*	Analytes on report marked with an asterisk are not NELAP accredited
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
CRQL	A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.
DNI	Did not ignite
DUP	Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample is a sample matrix, free from the analytes of interest,spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	"The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
C -	RL shown is a Client Requested Quantitation Limit	E -	Value above quantitation range
H -	Holding times exceeded	I -	Associated internal standard was outside method criteria
J -	Analyte detected below quantitation limits	M -	Manual Integration used to determine area response
ND -	Not Detected at the Reporting Limit	R -	RPD outside accepted recovery limits
S -	Spike Recovery outside recovery limits	T -	TIC(Tentatively identified compound)
X -	Value exceeds Maximum Contaminant Level		

Teklab, Inc.
Environmental Laboratory

Case Narrative

http://www.teklabinc.com/

Client: Alpha Analytical
Client Project: L1961602

Work Order: 19121633
Report Date: 31-Dec-2019

Cooler Receipt Temp: 1.2 °C

Locations

Collinsville

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425
Phone (618) 344-1004
Fax (618) 344-1005
Email jhriley@teklabinc.com

Springfield

Address 3920 Pintail Dr
Springfield, IL 62711-9415
Phone (217) 698-1004
Fax (217) 698-1005
Email KKlostermann@teklabinc.com

Kansas City

Address 8421 Nieman Road
Lenexa, KS 66214
Phone (913) 541-1998
Fax (913) 541-1998
Email jhriley@teklabinc.com

Collinsville Air

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425
Phone (618) 344-1004
Fax (618) 344-1005
Email EHurley@teklabinc.com

Chicago

Address 1319 Butterfield Rd.
Downers Grove, IL 60515
Phone (630) 324-6855
Fax
Email arenner@teklabinc.com

Teklab, Inc. Environmental Laboratory

Accreditations

http://www.teklabinc.com/

Client: Alpha Analytical

Client Project: L1961602

Work Order: 19121633

Report Date: 31-Dec-2019

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2020	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2020	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2020	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2020	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2020	Collinsville
Arkansas	ADEQ	88-0966		3/14/2020	Collinsville
Illinois	IDPH	17584		5/31/2021	Collinsville
Indiana	ISDH	C-IL-06		1/31/2020	Collinsville
Kentucky	KDEP	98006		12/31/2019	Collinsville
Kentucky	UST	0073		1/31/2020	Collinsville
Louisiana	LDPH	LA016		12/31/2019	Collinsville
Missouri	MDNR	930		1/31/2022	Collinsville
Missouri	MDNR	00930		5/31/2021	Collinsville
Tennessee	TDEC	04905		1/31/2020	Collinsville

Teklab, Inc.
Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 19121633
Client Project: L1961602
Report Date: 31-Dec-2019
Lab ID: 19121633-001
Client Sample ID: INFLUENT
Matrix: GROUNDWATER
Collection Date: 12/24/2019 9:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 1671A, PHARMACEUTICAL MANUFACTURING INDUSTRY NON-PURGEABLE VOLATILE ORGANICS								
Ethanol	*	20		**ND**	mg/L	1	12/27/2019 20:11	R271087

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Alpha Analytical
Client Project: L1961602

Work Order: 19121633
Report Date: 31-Dec-2019

EPA 600 1671A, PHARMACEUTICAL MANUFACTURING INDUSTRY NON-PURGEABLE VOLATILE ORG

Batch R271087 **SampType:** MBLK Units **mg/L**
SampID: MBLK-122719

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	20		**ND**						12/27/2019

Batch R271087 **SampType:** LCS Units **mg/L**
SampID: LCS-122719

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	20		**220**	250.0	0	86.3	70	132	12/27/2019

Batch R271087 **SampType:** MS Units **mg/L**
SampID: 19121417-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	20		**220**	250.0	0	86.0	70	132	12/27/2019

Batch R271087 **SampType:** MSD Units **mg/L** RPD Limit **30**
SampID: 19121417-002AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ethanol	20		**250**	250.0	0	102.0	215.1	16.94	12/27/2019

Teklab, Inc. Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Alpha Analytical

Client Project: L1961602

Work Order: 19121633

Report Date: 31-Dec-2019

Carrier: UPS

Received By: KMT

Completed by: Amber M. Dilallo
On: 27-Dec-2019

Reviewed by: Elizabeth A. Hurley
On: 27-Dec-2019

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 1.2
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☐	No ☑		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☑	No ☐	No VOA vials ☐
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	NA ☐
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑

Any No responses must be detailed below or on the COC.

19L1633

Subcontract Chain of Custody

Tek Lab, Inc.
5445 Horsehoe Lake Road
Collinsville, IL 62234-7425

Alpha Job Number
L1961602

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 603.319.5010
Email: mgulli@alphalab.com

Project Information

Project Location: MA
Project Manager: Melissa Gulli

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L1961602

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
19L1633-01	INFLUENT	12-24-19 09:30	Groundwater	Ethanol by EPA 1671 Revision A	

Relinquished By:	Date/Time:	Received By:	Date/Time:
		iPS	12/27/19 1018

Form No: AL_subcoc

1.2 °C LTG3 ΦHS 12/27/19 12/27

APPENDIX E:

LABORATORY ANALYTICAL DATA – SURFACE WATER

Certification Information

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL — World Class Chemistry

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 1/8/20

ALPHA Job #: L2000855

Client Information

Client: McPhail Associates, LLC
Address: 2269 Massachusetts Avenue
Cambridge, MA 02140
Phone: (617) 868-1420
Fax:
Email: jwold@mcphailgeo.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Arlington High School
Project Location: Arlington, MA
Project #: 6531.9.T7
Project Manager: JSW
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information — Data Deliverables

☐ FAX ☐ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program: NPDES RGP
Criteria:

Other Project Specific Requirements/Comments/Detection Limits:

Circle the following if required; -

SALINITY HARDNESS PH

Sect. A inorganics: Ammonia, Chloride, TRC,TSS,CrVI,CrIII, Tot-CN, RGP Metals
B- Non-Hal- VOC- 8260, 8260-SIM, Tot. Phenol Sect C- VOC- 8260 & 504
D: 8270/8270-SIM: E- PCB's, PCP(8270/8270-SIM): F-TPH, 8260, Sub-Ethanol

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	RGP Metals (200.8) (A)	Ammonia (4500 (A))	CrVI	ph/ Hardness	TOTAL # BOTTLES
00855-01	Mill Brook	1/8/20	12:00	SW	JSW	☒	☒	☒	☒	4
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
						☐	☐	☐	☐	
Container Type						P	P	P	P	
Preservative						C	D	A	A	

Relinquished By:	Date/Time	Received By:	Date/Time
	1/8/2020 12:30		1/8/20 1400
	1/8/20 1740	DAL	1/8/20 1740

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

APPENDIX F:

BEST MANAGEMENT PRACTICE PLAN

A Notice of Intent for a Remediation General Permit (RGP) under the National Pollutant Discharge Elimination System (NPDES) has been submitted to the US Environmental Protection Agency (EPA) in anticipation of temporary construction dewatering that will occur during redevelopment of the Arlington High School located at 869 Massachusetts Avenue in Arlington, Massachusetts. This Best Management Practices Plan (BMPP) has been prepared as an Appendix to the RGP application and will be posted at the site during the time period that temporary construction dewatering is occurring at the site.

Water Treatment and Management

During installation of the proposed geothermal wells and excavation activities related to the construction of the proposed Arlington High School complex, dewatering effluent is anticipated to be pumped from localized sumps and trenches within the excavation directly into a settling tank. Existing plans that have been prepared for the Arlington High School campus indicate that the on-site storm drainage system connects to the Mill Brook culvert which traverses beneath the northern portion of the site. Dewatering effluent treatment will consist of a settling tank and bag filters to remove suspended soil particulates as well as a granular activated carbon filter and ion resign exchange filter to remove CVOCs and metals prior to off-site discharge.

Discharge Monitoring and Compliance

Regular sampling and testing will be conducted of both the influent to the system and the treated effluent as required by the RGP. During the first week of discharge, the operator must sample the untreated influent and treated effluent two times: one (1) sample of untreated influent and one (1) sample of treated effluent be collected on the first day of discharge, and one (1) sample of untreated influent and one (1) sample of treated effluent must be collected on one additional non-consecutive day within the first week of discharge. Samples must be analyzed in accordance with 40 CFR §136 unless otherwise specified by the RGP, with a maximum 5-day turnaround time and results must be reviewed no more than 48 hours from receipt of the results of each sampling event. After the first week, samples may be analyzed with up to a ten (10)-day turnaround time and results must be reviewed no more than 72 hours from receipt of the results. If the treatment system is

operating as designed and achieving the effluent limitations outlined in the RGP, on-going sampling shall be conducted weekly for three (3) additional weeks beginning no earlier than 24 hours following initial sampling, and monthly as described below. Any adjustments/reductions in monitoring frequency must be approved by EPA in writing.

In accordance with Part 4.1 of the RGP, the operator must perform routine monthly monitoring for both influent and effluent beginning no more than 30 days following the completion of the sampling requirements for new discharges or discharges that have been interrupted. The routine monthly monitoring is to be conducted through the end of the scheduled discharge. The routine monthly monitoring must continue for five (5) consecutive months prior to submission of any request for modification of monitoring frequency.

Dewatering activity for the Site is classified as Category III-G: Sites with Known Contamination. Monitoring shall include analysis of influent and effluent samples dictated by the EPA.

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

The total monthly flow will be monitored by checking and documenting the flow through the flow meter to be installed on the system. Flow will be maintained below the "system design flow" by regularly monitoring flow and adjusting the amount of construction dewatering as needed. Monthly monitoring reports will be compiled and maintained at the site. Any exceedances will be documented and conveyed to the EPA within 24 hours of received concentrations.

System Maintenance

A number of methods will be used to minimize the potential for excursions during the term of this permit discharge. Scheduled regular maintenance and periodic cleaning of the treatment system will be conducted to verify proper operation and shall be conducted in accordance with Section 1.11 of the project earthwork specifications. Regular maintenance will include checking the condition of the treatment system equipment such as the settling tanks, bag filters, filtration media, hoses, pumps, and flow meters. Equipment will be monitored daily for potential issues and unscheduled maintenance requirements.

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

Miscellaneous Items

It is anticipated that the erosion control measures and the nature of the site will minimize potential runoff to or from the site. The project specifications also include requirements for

erosion control. Site security for the treatment system will be addressed within the overall site security plan.

No adverse effects on designated uses of surrounding surface water bodies is anticipated. The closest body of water is the Lower Mystic Lake located approximately 0.65-miles to the northeast of the project site. Dewatering effluent will be pumped into a settling tank. Water within the settling tank will pumped through bag filters, a GAC filter and ion resin exchange filter prior to discharge into the storm drains.

Management of Treatment System Materials

Dewatering effluent will be pumped directly into the treatment system from geothermal well installation and the excavation with use of hoses and localized sumps to minimize handling. The Contractor will establish staging areas for equipment or materials storage that may be possible sources of pollution away from any dewatering activities, to the extent practicable.

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