CPS
Cambridge Public Schools

The Department of
Human Service Programs
Cambridge, Massachusetts

GEOTECHNICAL REPORT VOLUME 4b

JOHN M. TOBIN MONTESSORI SCHOOL

VASSAL LANE UPPER SCHOOL

DHSP PRESCHOOL & COMMUNITY AFTER SCHOOL

PERKINS EASTMAN

JUNE 26,2020


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Omnivore
Carnivore
Humans
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MEMORANDUM

Memorandum

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Date: *July 17, 2018*

Subject: *Geotechnical Field Exploration Program and Environmental Site Assessment*
Tobin School Assessment
Cambridge, Massachusetts

Introduction

This memorandum summarizes the results of CDM Smith's Phase 1 and Phase 2 geotechnical and environmental subsurface exploration and laboratory testing programs, groundwater sampling, and permeability testing conducted from July 2017 to March 2018 for the proposed new Tobin School campus located in Cambridge, Massachusetts. This memorandum includes available subsurface data collected for this project and supplements the previous conceptual geotechnical and environmental assessments included in the following documents: *Summary of Geotechnical Field Exploration Programs and Conceptual Geotechnical Engineering Considerations and Recommendations*, dated November 17, 2017 and *Environmental Site Assessment Summary*, dated October 26, 2017.

Purpose and Scope

The purpose of this memorandum is to summarize the data gathered during the Phase 1 and Phase 2 geotechnical and environmental field programs for the Tobin and Vassal Lane Upper School campus. This data is intended for use by the City of Cambridge (City) to develop a list of alternative options for design and construction of the new school campus. In particular, the scope of work included the following tasks:

- Review existing drawings and available subsurface information;
- Conduct a Phase 1 subsurface exploration program consisting of fifteen (15) test borings (CDM-1 through CDM-15) to depths ranging from 40 to 94 feet below ground surface (bgs) and obtain soil and rock samples for geotechnical and environmental laboratory testing;
- Install five (5) pairs of groundwater monitoring wells for a total of ten (10) wells. Each monitoring well pair included one (1) shallow groundwater monitoring well and one (1) deep groundwater monitoring well for groundwater elevation monitoring and groundwater sampling;
- Install and sample twenty-eight (28) landfill gas probes around the entire property line
- Screen for the presence of landfill gas at the ten (10) groundwater wells as well as existing on-site and off-site utility manholes.
- Conduct a Phase 1 test pit program consisting of two (2) test pits (TP-101 and TP-102) to depths ranging from 12 to 13.5 feet bgs to explore the physical composition of the fill materials;
- Conduct a Phase 2 subsurface exploration program consisting of twenty-two (22) test borings (CDM-101A through CDM-120) to depths ranging from 5 to 36 feet bgs to observe the limits of the waste material and obtain soil samples for geotechnical laboratory testing;
- Conduct a Phase 2 test pit program consisting of three (3) test pits (TP-201, TP-203, and TP 204) to depths ranging from 16 to 22 feet bgs to further explore the physical composition of the fill and waste materials;
- Conduct two rounds of groundwater sampling with environmental laboratory testing;
- Conduct in-situ instantaneous change in head (slug) testing in five (5) shallow monitoring wells and five (5) deep monitoring wells to estimate hydraulic conductivity of the subsurface soils and waste materials; and
- Prepare this memorandum presenting the data gathered from the Phase 1 and Phase 2 subsurface exploration programs.

Existing Site Conditions

The existing Tobin School campus is located at 197 Vassal Lane in Cambridge, Massachusetts. The site is located within a mixed residential and commercial area and is bounded by Vassal Lane to the south, Concord Avenue to the north, residences along Alpine Street to the east, and a gas station, commercial properties and the Cambridge Armory to the west. Fresh Pond water supply reservoir is located approximately 400 feet to the west of the site across Fresh Pond Parkway.

The project site is an approximately 9-acre City of Cambridge property. The existing Tobin School is located on the south side of the site and consists of a three-story concrete structure constructed in the early 1970's with an approximate footprint of 59,000 square feet. The school structure houses pre-K through 8th grade students currently attending the Tobin Montessori School and Vassal Lane Upper School.

The school has three accessible utility rooms (referred to as large crawl spaces on school blueprint plans) located on the first floor at the north, east and west ends of the building. According to available drawings, the existing school structure is supported on a combination of concrete piles and timber piles with the top of pile cap elevations range from approximately elevation (El). 14.0 to El. 29.3. North of the existing school is the Callanan playground and field complex, which extends to Concord Avenue. The site is relatively flat with grades typically ranging from approximately El. 20 to El. 23. A few localized high and low spots exist around landscaped areas, loading dock and patios.

Based on the site history, the area was once used for clay mining. After mining activities ceased, the clay pit was used as an uncontrolled waste pit (1930s through the 1950s) prior to development of the current school and recreational field. Available historical aerial photos and maps dated back to the late 1800's and early 1900's are included in **Attachment A**.

The site is located within an area of known impacts under the Massachusetts Contingency Plan (MCP). Due to the presence of the waste materials beneath the Tobin School property, a sub-slab depressurization and venting system was installed in the early 1990's at the school to prevent the migration of landfill gas and any volatile organic vapors from migrating into the school building indoor air. In addition, the Tobin School property currently has a Response Action Outcome (RAO) Statement with an activity and use limitation (AUL) which was filed by CDM Smith in 1999. The AUL allowed continued normal use of the school building and grounds, but restricted access to the soil and groundwater beneath the site at depths greater than three feet below ground surface. Thus, typical activities of education, recreation, and temporary maintenance were permitted, and it was required that the pavement, school building foundation, and top layer of soil be maintained as a barrier to the potentially contaminated soil beneath. Any activities that require disturbing the soil below three feet deep are not permitted without a soil management plan prepared by a Licensed Site Professional (LSP).

Elevations noted herein are in feet and referenced to Cambridge City Base (CCB).

Subsurface Exploration Programs

Previous Subsurface Exploration Programs

1966 and 1968 Subsurface Exploration Programs (by others)

Previous subsurface investigations were conducted at the Tobin School property by New England Test Boring Corporation during October to November 1966 and January 1968. The investigations included twenty-four (24) test borings to depths ranging from 25.5 to 97 feet bgs. The equipment type and methods used to conduct these test borings are unknown. Groundwater levels were

measured at the conclusion of drilling. Rock coring was performed at five (5) test boring locations, Borings #2, #17, #18, #19, and #20. Monitoring wells were installed at two (2) test boring locations, Borings #3 and #6. It is unknown if any laboratory testing was performed.

The approximate locations of the 1966 and 1968 test borings were scaled from available drawings and are shown on **Figure 1**. Test boring logs from the 1966 and 1968 subsurface exploration programs are included in **Attachment B**.

1997-1998 CDM Investigation Program

Between September 1997 and April 1998, a program of soil sampling and analysis was conducted by CDM to characterize the fill beneath the school grounds and playing fields. Based on the results of the soil sampling and analysis program, two contaminated soil hot spots were identified: (1) a polyaromatic hydrocarbon (PAH) hot spot and (2) a lead hot spot. The PAH hot spot was located within the southeastern quadrant of the playing fields and covered an area of approximately 3,200 square feet. The lead hot spot was located near Concord Avenue between the tot lot and the Armory property boundary and covered an area of approximately 100 square feet. These hot spots were removed and confirmatory samples were collected.

Three groundwater monitoring wells were located within the boundaries of the former clay pit and were sampled three times between August 1997 and June 1998. Among the wells, the depth to groundwater ranged from 3.7 feet to 7.5 feet bgs. Groundwater lead concentrations were found to exceed the MCP GW-3 Groundwater Standard.

The approximate locations of the 1997 and 1998 test borings are presented in a plan included in **Attachment B.**

2000 and 2001 Subsurface Exploration Programs (by others)

Previous subsurface investigations were conducted at the adjacent National Guard Armory property by Clean Harbors Environmental Services, Inc. of Weymouth, MA. The subsurface exploration program included seven (7) direct-push method Geoprobe borings, B-1, B-4, B-6, and CHI-4 through CHI-7 in March 2000 and eleven (11) test borings, B-13 through B-18, and CHI-8 through CHI-12, drilled in February 2001. The direct-push method Geoprobe borings were advanced with 2-inch sleeves to depths ranging from 12.0 and 20.0 feet bgs and the test borings were drilled 4-1/4-inch inside diameter hollow stem augers to depths ranging from 8.0 to 22.0 feet bgs. Soil samples were collected during borehole advancement and were screened using a photoionization detector (PID) for volatile organic compounds (VOCs). Soil samples were collected at select intervals at all Geoprobe and test boring locations for volatile petroleum hydrocarbons (VPH), extractable petroleum hydrocarbons (EPH), polyaromatic hydrocarbons (PAHs) and lead.

Groundwater levels were measured at each test boring and geoprobe boring location. In addition, groundwater monitoring wells were installed at nine (9) locations, CHI-4 through CHI-12, for collection of groundwater samples for environmental characterization.

The approximate locations of the 2000 and 2001 test borings were scaled from available drawings and are shown on **Figure 1**. Geoprobe and test boring logs from the 2000 and 2001 subsurface exploration program are included in **Attachment B**.

Recent Subsurface Exploration Programs

A two-phase subsurface exploration program was conducted at the site to further investigate the subsurface soil, rock and groundwater conditions at the site, identify the extent of waste materials and collect samples for geotechnical and environmental laboratory testing. The as-drilled test boring locations for Phase 1 were located in the field by survey, Phase 2 locations were located in the field by taping and line of sight from existing site features and are shown on **Figure 1.**

2017 Phase 1 Subsurface Exploration Program

The Phase 1 subsurface exploration program included fifteen (15) test borings, CDM-1 through CDM-15. The test borings were drilled by New England Boring Contractors of Derry, NH between July 17 and August 9, 2017 using either an ATV-mounted drill rig or a truck-mounted drill rig.

Test borings were advanced using a 4-inch inside diameter (I.D.) steel casing and drive and wash drilling techniques. The depths of the test borings ranged between 40 and 94 feet bgs.

Continuous split spoon sampling was typically conducted in soils located the upper 30 feet or until naturally deposited soils had been encountered, and then at standard, 5-foot intervals below, in accordance with ASTM D1586 (using a 2-inch outside-diameter (O.D.) sampler, driven 24 inches by blows from a 140-pound hammer falling freely for 30-inches). Split spoon samplers were also occasionally driven with a 300-pound hammer falling freely for 30-inches as noted on the test boring logs. The number of blows required to drive the sampler each 6-inch increment was recorded and the Standard Penetration Test (SPT) resistance (N-Value) was determined as the sum of the blows over the middle 12 inches of penetration. Split spoon refusal was encountered at test boring locations CDM-1, CDM-2, CDM-7, CDM-8, CDM-14, and CDM-15 and is defined as less than 6 inches of penetration for 100 blows from a 140-pound hammer. When a refusal condition was encountered, the number of blows at the corresponding depth of penetration was recorded over the length of penetration.

Upon split spoon sampler retrieval, soils were examined for visual evidence (i.e., staining, discoloration) and olfactory indications (i.e., odors) of contamination. Soil samples collected from test borings were screened using a PID to determine the presence of VOCs. A CDM Smith representative visually classified the soil samples recovered in accordance with the Burmister classification system. Representative soil samples from each split spoon were collected, logged and stored in jars for subsequent review and geotechnical laboratory testing. Environmental samples were also collected at select intervals at all test boring locations and were stored in corresponding jars and vials and were relinquished to Alpha Analytical in Westborough, Massachusetts for laboratory testing. Further details related to the environmental sampling and testing are provided in the Environmental Data Summary below.

Undisturbed tube sampling was conducted at selected locations in fine-grained (cohesive) soils using standard Shelby tube sampler and in general accordance with ASTM D-1587. Shelby tube samples were trimmed at both ends of the tube and were sealed with plastic caps, tape and wax for subsequent review and laboratory testing.

Rock coring was conducted with an NX core barrel in accordance with ASTM D2113 at five (5) test boring locations. Rock core samples were described and logged in the field by a CDM Smith representative. The rock core description included percent recovery, Rock Quality Designation (RQD), orientation and frequency of fractures, observed fracture infilling or coatings, the weathering state of the core, and other characteristics of note. The RQD was determined for each core run by dividing the total length of the rock core segments longer than 4 inches over the total length of the core run. The time to advance each foot of rock core was also recorded during the rock coring process. All geotechnical soil samples and rock cores were transported to the CDM Smith Geotechnical Laboratory in Somerville, MA for review and geotechnical laboratory testing.

When possible, groundwater levels at the test boring locations were estimated from the condition of the samples obtained (observed soil moisture, staining, etc.) and/or by the observed water levels within the borehole at the time of drilling. However, with the drive and wash drilling method, groundwater level readings taken during drilling are not generally considered reliable due to the introduction of the drilling fluids into the borehole.

All test borings were backfilled with cement grout to the ground surface upon completion. All excess drill cuttings and drilling fluids were placed into 55-gallon drums and subsequently removed from the site at the completion of the drilling program.

Daily temperatures ranged from 61°F to 83°F, with an average of 73°F, during the course of the field program.

Test boring logs and rock core logs, prepared by CDM Smith, are included as **Attachment C.** Photographs of rock cores are included in **Attachment D.**

2018 Phase 2 Subsurface Exploration Program

The Phase 2 subsurface exploration program included twenty-two (22) test borings, CDM-101A, CDM-101B, CDM-102A, and CDM-102B through CDM-120. The test borings were drilled by New England Boring Contractors of Derry, NH between January 22 and February 2, 2018 using an ATV-mounted drill rig.

Test borings were advanced using a 4-inch inside diameter (I.D.) steel casing and drive and wash drilling techniques. The depths of the test borings ranged between 5 and 36 feet bgs.

Continuous split spoon sampling was conducted generally from ground surface until termination at all test boring locations, in accordance with ASTM D1586 (using a 2-inch outside-diameter (O.D.) sampler, driven 24 inches by blows from a 140-pound hammer falling freely for 30-inches). The number of blows required to drive the sampler each 6-inch increment was recorded and the SPT N-

Value was determined as the sum of the blows over the middle 12 inches of penetration. Split spoon refusal was encountered at test boring locations CDM-102A, CDM-112, and CDM-116 and is defined as less than 6 inches of penetration for 100 blows from a 140-pound hammer. When a refusal condition was encountered, the number of blows at the corresponding depth of penetration was recorded over the length of penetration.

Upon split spoon sampler retrieval, soils were examined for visual evidence (i.e., staining, discoloration) and olfactory indications (i.e., odors) of contamination. All soil samples collected from the test borings were screened using a PID to determine the presence of VOCs. A CDM Smith representative visually classified the soil samples recovered in accordance with the Burmister classification system. Representative soil samples from each split spoon were collected, logged and stored in jars for subsequent review and geotechnical laboratory testing. No additional environmental sampling was conducted during this second Phase of borings.

When possible, groundwater levels at the test boring locations were estimated from the condition of the samples obtained (observed soil moisture, staining, etc.) and/or by the observed water levels within the borehole at the time of drilling. However, with the drive and wash drilling method, groundwater level readings taken during drilling are not generally considered reliable due to the presence of the drilling fluids in the borehole.

All geotechnical soil samples were transported to the CDM Smith Geotechnical Laboratory in Somerville, MA for review and geotechnical laboratory testing.

All test borings were backfilled with cement grout or hydrated bentonite chips to the ground surface upon completion. All excess drill cuttings and drilling fluids were placed into 55-gallon drums and subsequently removed from site at the completion of the drilling program.

Daily temperatures ranged from 24°F to 44°F, with an average of 32°F, during the course of the program. Test boring logs, prepared by CDM Smith, are included as **Attachment E.**

2017 Phase 1 Groundwater Monitoring Well Installation

During Phase 1 of the subsurface exploration field program, a total of 5 groundwater monitoring well couplets (one shallow well and one deep well per location) were installed nearby five (5) test boring locations, CDM-3, CDM-4, CDM-7, CDM-9, CDM-14 to allow for collection of the following information:

- Groundwater quality within and downgradient of the waste/fill deposits.
- Groundwater elevation, groundwater flow direction, flow rates, vertical gradients.
- Landfill gas concentrations in the shallow sub-surface and within deeper waste/fill.

Each groundwater monitoring well couplet consisted of one (1) shallow groundwater monitoring well (designated as MW-S) and one (1) deep groundwater monitoring well (designated as MW-D)

located about 3 to 5 feet apart. The shallow monitoring wells were screened across the water table and generally across the granular fill/waste interface at about 2 to 18 feet bgs. The deeper wells were generally screened within the waste materials at depths ranging from 17 to 30 feet bgs. All monitoring wells are installed in separate boreholes offset from the original test boring locations.

The monitoring wells were constructed using 10 to 15-foot long, 2-inch diameter, schedule 40 polyvinyl chloride (PVC) pipe with 0.01-inch machine slots. The monitoring well riser pipe was constructed of 2-inch diameter, schedule 40 threaded PVC. The annulus around the well screen was backfilled with a filter pack to approximately 2 feet above the well screen. Above the filter pack, the wells annular space were backfilled with a 1-foot minimum bentonite clay seal and the remaining annular space around the PVC backfilled with cement grout. The surface was sealed with approximately 6 inches of concrete and a protective flush-mount road box was installed at each well location. The monitoring well installation/construction logs, prepared by CDM Smith, are included in **Attachment H.**

Recent Test Pit Programs

To further investigate and identify the limits, physical composition, and extent of subsurface fill and waste materials, a two-phase test pit program was conducted in December 2017 and February 2018. Test pit locations were located in the field by taping and line of sight from existing site features and are shown on **Figure 1.**

2017 Phase 1 Test Pit Program

The Phase 1 test pit program included two (2) test pits, TP-101 and TP-102. The test pits were excavated by Charter Contracting, LLC. of Boston, MA on December 28, 2017. Each test pit was excavated using a Takeuchi TB-290 mini-excavator to depths between 12 to 13.5 feet bgs. Each of the test pits were approximately 5 feet wide and 12 feet long. A CDM Smith field representative visually classified and logged excavated soil in general accordance with the Burmister classification system. A description of debris encountered during the excavation was recorded. The observed groundwater levels were measured within each test pit at the time of excavation.

During excavation, soils were examined for visual evidence (i.e., staining, discoloration) and olfactory indications (i.e., odors) of contamination. Representative soil samples collected from each test pit were screened using a PID to determine the presence of VOCs. Four (4) multi-gas monitors were placed approximately 20 feet at different directions from each test pit to screen for the presence of hazardous gas in ambient air that might be released during excavation. In addition, the PID was also used to determine the presence of VOCs in ambient air.

All excavated soils were segregated and placed on polyethylene sheeting. Each test pit was backfilled to the ground surface upon completion with soils being placed in the general order in which they were removed, capping the excavation with the excavated upper granular fill material and topsoil. The average daily temperature was 9°F during the test pit program. Phase 1 test pit logs, prepared by CDM Smith, are included as **Attachment F.**

2018 Phase 2 Test Pit Program

The Phase 2 test pit program included three (3) test pits, TP-201, TP-203, and TP-204. The test pits were excavated by Charter Contracting, LLC. of Boston, MA between February 20 and February 23, 2018. Each test pit was excavated using a Komatsu PC-228 excavator to depths between 16 and 22 feet bgs. The test pits varied from approximately 5 to 8 feet wide and 12 to 14 feet long.

A CDM Smith field representative visually classified and logged excavated soil in general accordance with the Burmister classification system. A description of debris encountered during the excavation was recorded. The observed groundwater levels were measured within each test pit at the time of excavation.

During excavation, soils were examined for visual evidence (i.e., staining, discoloration) and olfactory indications (i.e., odors) of contamination. Representative soil samples collected from each test pit were screened using a PID for VOCs to assess the possible presence of organic vapors. Four (4) multi-gas monitors were placed approximately 20 feet at different locations from each test pit to screen for the presence of hazardous gas in ambient air that may be released during excavation.

All excavated soils were segregated and placed on polyethylene sheeting. Each test pit was backfilled to the ground surface upon completion with soils being placed in the order in which they were removed, capping the excavation with the excavated upper granular fill and topsoil.

Average daily temperatures ranged from 56°F to 57°F during the test pit program. Phase 2 test pit logs, prepared by CDM Smith, are included as **Attachment G**.

Geotechnical Laboratory Testing

Geotechnical laboratory tests were completed on select soil samples obtained from Phase 1 and Phase 2 test borings to characterize the physical and engineering properties. All geotechnical laboratory test was performed at the CDM Smith Geotechnical Testing Laboratory in Somerville, Massachusetts.

2017 Phase 1 Geotechnical Laboratory Testing

Moisture content analyses were performed on sixty-five (65) soil samples in accordance with ASTM D2216. Gradation analyses were performed on twenty-three (23) soil samples in accordance with ASTM D-6913 and ASTM D-7928. Atterberg Limits were performed on forty-two (42) soil samples in accordance with ASTM D-4318. Organic content analyses were performed on two (2) soil samples in accordance with ASTM D-2974. Laboratory Mini Vane Shear analyses were performed on nine (9) soil samples in accordance with ASTM D-4648. Constant Rate of Strain (CRS) consolidation tests were performed on five (5) soil samples in accordance with ASTM D-4186. Isotropically Consolidated Undrained (CIU) triaxial compression tests were performed on three (3) soil samples in accordance with ASTM D-4767.

A summary of the geotechnical index test results is presented in **Table 1**. A summary of the consolidation test results is presented in **Table 2**. A summary of the triaxial compression test results is presented in **Table 3**. The geotechnical laboratory test results are included as **Attachment I**.

2018 Phase 2 Geotechnical Laboratory Testing

Moisture content analyses were performed on twenty-five (25) soil samples in accordance with ASTM D2216. Gradation analyses were performed on fifteen (15) soil samples in accordance with ASTM D-6913 and ASTM D-7928. Atterberg Limits were performed on six (6) soil samples in accordance with ASTM D-4318. Organic content analyses were performed on six (6) soil samples in accordance with ASTM D-2974.

A summary of the geotechnical index test results is presented in **Table 1**. The geotechnical laboratory test results are included as **Attachment J**.

In-Situ Permeability Slug Testing

As part of the Phase 2 geotechnical and environmental investigations, instantaneous change in head (slug) testing was performed at the five (5) shallow monitoring wells and five (5) deep monitoring wells to estimate the hydraulic conductivity of the shallow fill and deeper waste materials. Slug testing was performed and logged in the field by a CDM Smith representative on March 1, 2018.

At each groundwater monitoring well location, a 5 foot long weighted PVC cylinder (slug) was introduced to the well to displace the water as a data logger (pressure transducer) recorded the water level response. Initially, a falling head test was performed by quickly lowering the slug into the well to temporarily elevate the water level while the time for water level recovery to static condition was recorded. Subsequently, a rising head test was performed by quickly removing the slug from the well to temporarily lower the water level while the time for water level recovery to static condition was recorded. The rate at which the water level rises or falls is used to estimate the horizontal hydraulic conductivity. The water level response data measured by a pressure transducer was analyzed using a software package for aquifer test data plotting and evaluation (AQTESOLV ™), which applied the Bouwer and Rice (1976) and Springer-Gelhar (1991) methods to calculate horizontal hydraulic conductivity.

A summary of the hydraulic conductivity test results is presented in **Table 4**. The slug test logs and results are included as **Attachment K**.

Geotechnical Site Assessment

Subsurface Conditions

In general, subsurface conditions encountered during the recent test boring program conducted within the proposed project site are consistent with those encountered during previous subsurface investigations. The subsurface condition generally consisted of Pavement or Topsoil, Granular Fill, Waste Fill, Organic Soils, Clay & Silt, Glacial Till, Weathered Rock, and Bedrock.

Pavement

Pavement consisting of asphalt or concrete was encountered at the ground surface at five (5) Phase 1 test boring locations (CDM-7, CDM-8, CDM-9, CDM-10 and CDM-12), and ten (10) Phase 2 test boring locations (CDM-101A through CDM-103, CDM-108 through CDM-110, CDM-117, and CDM-120). Where encountered, the pavement layer ranged in thickness of approximately 4 to 6 inches.

Topsoil

Topsoil was encountered at the ground surface at eight (8) Phase 1 test boring locations (CDM-1 through CDM-6, CDM-13, and CDM-15), nine (9) Phase 2 test boring locations (CDM-104 through CDM-106, CDM-111 through CDM-113, CDM-115, CDM-116, CDM-118, and CDM-119), one previous test boring (Boring #15), and at all recent test pit locations. Where encountered, the topsoil layer ranged in thickness of approximately 3 to 12 inches at recent test boring and test pit locations and 1.5 feet in previous test boring locations. This layer typically consisted of light to dark brown, fine SAND and SILT, trace to no fine gravel.

Granular Fill

Granular Fill was encountered at all recent test boring and test pit locations, and at sixteen (16) previous test borings (Boring #2, Boring # 8 through Boring #12, Boring #14 and Boring #16, B-13 through B-15, B-17, CHI-8, CHI-9, CHI-11, CHI-12). Granular Fill was encountered at the ground surface or just below pavement or topsoil. The Granular Fill layer ranged between 1.2 and 11.5 feet thick at recent test boring locations and 2.5 to 7.0 feet thick at the previous test boring locations. This layer typically consisted of very loose to very dense, dark to light brown, gray, tan, or black, fine to coarse SAND with varying amounts of gravel and silt. SPT N-values ranges from 3 blows/foot (bl/ft) to 127 bl/ft, with an average of 38 bl/ft at recent test boring locations.

Waste Fill

Waste Fill was encountered at nine (9) of the Phase 1 test boring locations (CDM-1, CDM-3 through CDM-5, CDM-7 through CDM-9, CDM-11, and CDM-14), fifteen (15) of the Phase 2 test boring locations (CDM-101B, CDM-102A, CDM-103, CDM-104, CDM-106, CDM-108 through CDM-113, CDM-116, CDM-118 through CDM-120), thirty-two (22) of the previous test boring locations (Boring #1, Boring #2A, Boring #3 through Boring #7, Boring #9 through Boring #15A, and Boring #17 through Boring #24, B-13, B-14, B-15 through B-18, CHI-8 through CHI-12), seven (7) of the previous Geoprobe locations (B-1, B-4, B-6, CHI-4 through CHI-7), and at all of the recent test pit locations. **Figure 2** shows the approximate extent of the waste fill material based on the soil borings and test pits conducted to date.

Waste Fill was encountered just below the Granular Fill at all locations with the exception of the previous 2000 Geoprobe locations and at three (3) previous 2001 test boring locations (B-16, B-18, and CHI-10) where Waste Fill was encountered at the ground surface. This layer ranged between 2.3 and 30 feet thick at test boring locations, and 6 to 25 feet thick at previous test boring locations. This layer typically consisted of very loose to very dense, dark brown to brown, light gray to gray, or black, fine to coarse SAND, with varying amounts of gravel, silt, brick, concrete, coal, ash, cinders,

slag, metal, glass, wood, leaves, granite blocks, and other miscellaneous and deleterious material. A white substance was encountered at test boring CDM 101A, which was tested and found to be negative for asbestos. SPT N-values of this layer ranges from Weight of Hammer (WOH) to over 100 bl/ft, with an average of 20 bl/ft, at the recent test boring locations. Strong VOC and landfill gas odors were noted by CDM Smith personnel while advancing through the Waste Fill layer during test pit excavation. In addition, sheen was observed on the water table in the test pits excavated in the center of the recreational fields (TP-202 and TP-203).

Of note, a 4.5 ft x 2 ft x 0.5 ft granite block and concrete debris between 12-14 in x 2-4 in in size were encountered at 5 feet bgs in the Waste Fill layer during excavation at test pit TP-102. A 0.25 ft x 0.5 ft x 5 ft suspected metal car frame rail was encountered at 11 feet bgs during excavation at test pit TP-203.

Organic Soils

Organic Soils were encountered at one (1) Phase 1 test boring location (CDM-2), five (5) Phase 2 test boring locations (CDM-102B, CDM-105, CDM-108 through CDM-110), and at four (4) previous test boring location (Boring #13, CHI-8 through CHI-10). Organic Soils was typical encountered just below the Waste Fill and above the Clay and Silt stratum. This layer ranged between 0.3 and 1.7 feet thick at recent test boring locations and ranged between 0.5 and 5.2 feet thick at the previous test boring locations. This layer typically consisted of moist to wet, loose to medium dense or stiff, black, slightly Organic to Organic, fine to medium SAND and SILT or CLAY & SILT, trace fine sand. SPT N-value of this layer ranges from 8 bl/ft to 12 bl/ft at the recent test boring locations.

Clay and Silt

Clay and Silt, commonly referred to as Boston Blue Clay, was encountered at all Phase 1 test boring locations, twenty (20) Phase 2 test boring locations (CDM-101B, CDM-102B through CDM-120), thirty-two (32) of the previous test boring locations (Boring #1 through Boring #24, B-13, B-16, B-17, CHI-8 through CHI-12), two (2) of the previous Geoprobe locations (CHI-5, CHI-7), and at one (1) recent test pit location (TP-204). Clay and Silt was encountered below the Granular Fill, Waste Fill or Organic Soils. The Clay and Silt layer ranged between 10.7 and 75.3 feet thick at the recent test boring locations and between 6.5 and 61 feet thick at the previous test boring locations where fully penetrated. This layer typically consisted of very soft to hard, dark to light brown, or light gray to olive gray to greenish gray, CLAY & SILT with varying amounts of sand and gravel. Some miscellaneous fill materials, including glass, metals, woods, cinders and bricks were encountered in the upper 2 to 4 feet of the clay and silt layer at some test boring locations. Sand lenses consisting of fine sand to fine to coarse sand, little to trace silt or fine sand and silt were encountered at varies depths throughout the stratum and varied in thickness ranging from 0.25 to 6.0 feet. SPT N-values of this layer ranges from Weight of Rods (WOR) to 101 bl/ft, with an average of 19.7 bl/ft, at the recent test boring locations.

Glacial Till

Glacial Till was encountered at eleven (11) of the recent test boring locations (CDM-1 through CDM-10, and CDM-13) and at sixteen (16) of the previous test boring locations (Boring #1 through Boring #4, Boring #9 through Boring #14, Boring #15A, Boring #16, Boring #18, Boring #20, Boring #22, and Boring #24). Glacial Till was encountered below the Clay and Silt stratum. This layer ranged between 1.2 and 12.5 feet thick at recent test boring locations where fully penetrated, and between 0.5 and 9.0 feet thick at previous test boring locations where fully penetrated. This layer typically consisted of medium dense to very dense, light gray to greenish gray, fine to coarse SAND with varying amounts of gravel and silt. SPT N-values of this layer ranged from 22 bl/ft to more than 125 bl/ft, with an average of 66 bl/ft, at the recent test boring locations.

Weathered Rock

Weathered Rock was encountered at two (2) of the recent test boring locations (CDM-6 and CDM-14) and at one (1) previous test boring location (Boring #15A). Weathered Rock was encountered below the Clay and Silt or Glacial Till stratum. This layer ranged between greater than 2.5 and 3.0 feet thick in the recent test boring locations, and greater than 2.0 feet thick in the previous test boring location. This layer typically consisted of moist, gray, fine to coarse GRAVEL and fine to coarse SAND, some silt, with gravel inclusions resembling broken Argillite. SPT N-values of this layer ranged from 79 bl/ft to more than 100 bl/ft, with an average of 90 bl/ft, at the recent test boring locations.

Bedrock

Bedrock was encountered at ten (10) of the recent test boring locations (CDM-1 through CDM-4, CDM-7 through CDM-10, CDM-13, and CDM-15) and at five (5) of the previous test boring locations (Boring #2A, and Boring #17 through Boring #21). Bedrock coring was conducted at recent test boring locations CDM-1, CDM-2, CDM-4, CDM-9, and CDM-10, and previous test boring locations Boring #2A, Boring #17, Boring #18, Boring #19, and Boring #20. The top of bedrock at the remaining recent test borings was inferred by split spoon or roller bit refusal and observation of drill fluid return. The depth to top of bedrock at recent and previous test boring locations ranged from 29.6 to 92.5 feet bgs. Bedrock encountered at the recent test boring locations generally consisted of hard, extremely fractured to sound, moderately weathered to fresh, gray, ARGILLITE. The primary joint set was horizontal to moderately dipping, rough to smooth, fresh discolored, open to tight. RQD of the collected rock cores from recent test borings ranged from 0% to 81.4%, with an average of 30.9%.

A summary of the subsurface conditions encountered at all previous and recent test boring locations is presented in **Table 5.**

Groundwater Conditions

Groundwater levels were observed after completion of drilling in seven (7) of the Phase 1 test boring locations (CDM-1, CDM-2, CDM-7, CDM-9, CDM-10, CDM-12, and CDM-15), seventeen (17) of the Phase 2 test boring locations (CDM-102B through CDM-109, CDM-112 through CDM-120), and

at all previous test boring locations. The groundwater level recorded at the time of drilling at recent test borings ranges from approximately 4.5 to 12.0 feet bgs (approximately El. 11.3 to El. 16.9). Groundwater levels recorded at time of drilling at previous test boring locations ranges from 3.0 to 9.5 feet bgs (approximately El. 12.6 to El. 17.9).

Groundwater levels were observed after the completion of excavation at all recent test pit locations. Groundwater levels measured in the test pits generally ranged about 7.5 to 12.5 feet bgs (approximately El. 10.0 to El. 13.5). A summary of groundwater levels measured in each boring location and test pit are presented in **Table 5.**

Groundwater levels were also measured in August 2017, October 2017 and March 2018 at the ten groundwater monitoring wells installed. Groundwater levels measured in the monitoring wells generally ranged about 6.1 to 9.4 feet bgs (approximately El. 12.8 to El. 14.9). A summary of the groundwater levels measured in each monitoring well are presented in **Table 6.**

Variation in Subsurface Conditions

Interpretation of general subsurface conditions presented herein is based on soil, bedrock and groundwater conditions observed in the previous and recent test boring programs. However, subsurface conditions may vary between exploration locations.

Water levels measured during exploration activities should not necessarily be considered to represent stabilized groundwater levels. In addition, water levels are expected to fluctuate with season, temperature, climate, construction in the area, and other factors. Therefore, groundwater conditions at the time of construction may be different from those observed at the time of the explorations.

Geotechnical Implications for Design and Construction

Primary Geotechnical Considerations

The primary factors related to geotechnical engineering considerations of the design and construction of the proposed structure at the Tobin School project site include:

- There is a significant thickness of Waste Fill materials throughout the project site. Based on the subsurface investigations, the Waste Fill, where encountered, ranges from approximately 2 to 30 feet thick and extends to depths between approximately 5 and 32 ft below existing grade within the project area. Specifically, the depth to bottom of waste fill along the boundary between the existing school structure and recreational field extends to about 18 to 22 feet bgs; whereas the depth to bottom of waste fill along the property lines with the Cambridge Armory ranges from about 18 to 32 feet bgs.
- There is significant variability in the content and consistency of the Waste Fill layer, which also contains a high amount of deleterious materials and debris at some locations and is generally not considered suitable for foundation support.

- There is significant variation of thickness and stiffness of the Clay & Silt stratum. The thickness of the Clay & Silt stratum varies from approximately 7 to 76 feet at test boring locations where fully penetrated, with the thinner stratum located around the middle of the site and thicker stratum located along the south and west side of the site. The Clay & Silt layer is also generally softer at test borings conducted in the southern and western part of the site.

- There is significant variation in the elevation of top of bedrock across the site. Bedrock was encountered approximately 79 to 93 feet bgs along the south side of the site along Vassal Lane and sloped up to approximately 32 feet bgs in the middle of the site, and down again to approximately 47 to 75 feet bgs along the north side of the site along Concord Avenue.

- Relatively shallow groundwater was encountered at the site, at depths between approximately 4.5 and 12 feet bgs, which is generally well above the bottom of the waste fill layer.

Based on these factors, below are the primary geotechnical considerations related to the design and construction of the proposed structure at the Tobin School project site.

Structure Foundation

- Due to the thickness and compressibility of the Clay & Silt stratum located towards the southern and western side of the site, it is anticipated that if the new school structure is to be located on the southern side of the site (same as the existing school structure), the structure is more likely to be supported on a deep foundation system, similar to the existing school structure.

- If the proposed new school building is located on the center to northern part of the site over the existing recreational field where the Clay & Silt stratum is thinner and stiffer, and all of the existing waste fill were removed and replaced with compacted fill materials, it may be possible for the new school structure to be supported on shallow foundation system.

- If the proposed new school building is located over the existing recreational field, but some of the waste fill were to remain in place below the school structure, the new structure may either have to be supported on deep foundation system or ground modification of the remaining waste fill would be needed to stabilize and improve the engineering properties of the materials left in place for the new structure to bear on top. Other environmental mitigation measures would also be needed as part of this option. The new structure should not be supported on shallow foundations over untreated waste fill.

- The use of a shallow foundation system for the new structure would also depend on the level of structural loading and whether the new structure would have a basement or below grade parking, which can be evaluated upon further development on the proposed school structure.

Excavation and Excavation Support

- Based on the depths and thickness of Waste Fill encountered, excavation to remove all Waste Fill will create a deep excavation that is well below the groundwater level. The total volume of the Waste Fill is expected to be substantial. The excavation would also be over 30 feet deep and would require excavation support. Installation of excavation support through waste fill containing obstructions will likely require some level of pre-excavation to remove large obstructions prior to installation.

- Based on the depth and thickness of the Waste Fill between the existing school and recreational fill, if the existing school is to remain in place during construction, an excavation support system would be required to protect the existing school structure.

- Given the shallower bedrock encountered at the central-east part of the site, support for the excavation system may encounter or even be installed into bedrock. The excavation support system type selection and design would need to take into account shallow rock.

- The location and geometry of the proposed construction and excavation limits will have a significant impact on the type, complexity and cost of the excavation support system required for this project.

Ground Improvement for Waste Stabilization

- Ground improvement methods (i.e., deep soil mixing, jet grouting, etc.) may be used as a method of waste stabilization in lieu of waste removal, to improve the engineering properties of any waste left in place for foundation support of the new structure, as a groundwater cut-off where existing waste/contaminated groundwater at adjacent sites will not be removed (e.g., the Armory), and as a means of excavation support.

- Suitability of various ground improvement methods will depend on the composition of the waste to be treated, landfill gas potential, site access, costs, etc. The depth of waste (~32 ft bgs) is within the range of many improvement methods. The general composition of the waste which is primarily sand and gravel with various amounts of debris is generally treatable with several methods. However, obstructions can inhibit effective treatment and may require pre-excavation prior to treatment.

Construction Dewatering

- Due to the depth of the Waste Fill layer, excavation for full removal of waste will extend well below the water table. A dewatering system would be required for the removal. A significant treatment process is also anticipated as part of the dewatering system to treat the effluent prior to discharge.

- Given the relatively thin Clay & Silt layer encountered underlying the Waste Fill in some areas, the hydraulic conductivity of the Glacial Till layer may affect the amount of

groundwater flow into the excavation. To limit the flow, care would need to be taken to not over-excavate the less permeable Clay & Silt at the excavation subgrade level.

Environmental Site Assessment

The objective of the environmental site assessment investigations was to evaluate the nature and extent of contamination within subsurface fill and waste materials, shallow and deep groundwater, and subsurface landfill gas at the Tobin School property in support of the proposed excavation of existing fill and waste materials and construction of the new school and recreational fields. In addition, supplemental investigations were also conducted to evaluate whether the presence of waste materials underlying the school and recreational fields are currently impacting indoor air in the school and the surrounding utilities at the property. This information will be documented in a separate technical memorandum.

Soil Sampling

The Phase 1 (July-September 2017) and Phase 2 (January-February 2018) environmental field investigations were conducted to evaluate the overall extent of waste/fill materials and to determine the concentrations of contaminants in subsurface soils and fill and waste materials.

During the Phase 1 subsurface exploration program, environmental soil samples were collected at select intervals at all Phase 1 test boring locations (CDM-1 through CDM-15) and relinquished to Alpha Analytical in Westborough, Massachusetts for laboratory testing. No analytical soil samples were collected during the Phase 2 subsurface exploration program During the Phase 1 drilling program, laboratory analytical samples were collected at all fifteen soil boring locations in the shallow soil (0-8 feet bgs, fill/waste materials (8-30 feet bgs) and from the shallow clay directly beneath the waste materials. All soil samples were analyzed for the following parameters:

- VOCs (including 1,4-dioxane) using Environmental Protection Agency (EPA) Method 8260C,
- Semi-volatile organic compounds (SVOCs) using EPA Method 8270D,
- (MCP) 14 Metals using EPA Method 6010C/7471B,
- Polychlorinated biphenyls (PCBs) using EPA Method 8082A, and
- Massachusetts Department of Environmental Protection (MassDEP) Extractable Petroleum Hydrocarbon (EPH) Method carbon ranges.

Duplicate samples were collected for quality assurance/quality control purposes. Excess soil generated during drilling and drilling fluids were containerized into 55-gallon drums and temporarily stored on-site. Based on the results of soil samples submitted for analytical testing, the waste was profiled and transported off site by Clean Harbors, Inc. Phase 1 drums were transported off site between August and September 2017 and Phase 2 drums were transported off site in February 2018. The drum disposal manifest for both phases are included in **Attachment L**.

The subsurface soils at the Tobin School are categorized as S-1 (from 0-15 ft-BGS), S-1/S-2 (3-15 ft-BGS) and S-3 (>15 feet-bgs). Several metals were detected above their respective soil standards as shown in the soil analytical table (**Table 7**). Arsenic was detected in sample CDM-9 (14-16 feet bgs) at a concentration of 64.4 mg/kg exceeding the S-2 standard (20 mg/kg) and S-3 standard (50 mg/kg). Zinc was detected in sample CDM-7 (6-8 feet bgs) at a concentration of 18,500 mg/kg exceeding the S-1 standard (1,000 mg/kg) and S-2 standard (3,000 mg/kg). Zinc was detected in sample CDM-9 (14-16 feet bgs) at a concentration of 1,590 mg/kg exceeding the S-1 standard of 1,000 mg/kg. Zinc was also detected in sample CDM-14 (20-22 feet bgs) at a concentration of 18,500 mg/kg exceeding the S-3 standard of 5,000 mg/kg.

Lead was detected in sample CDM-1 (8-10 feet bgs) at a concentration of 417 mg/kg and was also detected in sample CDM-11 (2-4 feet bgs) at a concentration of 550 mg/kg, exceeding the S-1 standard of 200 mg/kg. Lead was detected in sample CDM-1 (24-28 feet bgs), CDM-7 (6-8 ft BGS), CDM-7 (16-18 feet bgs), CDM-8 (6-8 feet bgs), CDM-9 (14-16 feet bgs), CDM-13 (8-12 feet bgs) and CDM-14 (8-10 feet bgs) with concentrations ranging from 816 to 5200 mg/kg, exceeding the applicable S-2 and S-3 standard of 800 mg/kg. Due to the elevated concentrations of lead, toxicity characteristic leaching procedure (TCLP) analysis was completed at locations where the analysis criteria were triggered. At soil sample locations CDM-1 (24-28 feet bgs), CDM-7 (6-8 feet bgs), CDM-8 (8-10 feet bgs), CDM-9 (14-16 feet bgs), and CDM-11 (2-4 feet bgs), leachable lead was detected with concentrations ranging from 7.62 mg/L (CDM-11) to 138 mg/L (CDM-1), exceeding the TCLP Environmental Protection Agency (EPA) hazardous waste limit of 5 mg/L.

SVOCs were also measured above applicable soil standards in several samples. Benzo(a)pyrene was detected in sample CDM-1 (8-10 feet bgs) at a concentration of 2.5 mg/kg, exceeding the S-1 standard of 2 mg/kg. Benzo(a)pyrene was detected in sample CDM-4 (8-10 feet bgs), CDM-8 (8-10 feet bgs), CDM-9 (14-16 feet bgs) and CDM-14 (8-10 feet bgs) with concentrations ranging from 13 to 17 mg/kg, exceeding the applicable S-2 standard of 7 mg/kg. Benzo(a)anthracene was detected in sample CDM-4 (8-10 feet bgs) at a concentration of 28 mg/kg and was also detected in sample CDM-8 (8-10 feet bgs) at a concentration of 17 mg/kg, exceeding the S-1 standard of 7 mg/kg. Dibenzo(a,h)anthracene was detected in sample CDM-8 (8-10 feet bgs) at a concentration of 1.5 mg/kg and was also detected in sample CDM-9 (14-16 feet bgs) at a concentration of 1.7 mg/kg, exceeding the S-1 standard of 0.7 mg/kg. Ideno(1,2,3-cd)perylene was detected in sample CDM-4 (8-10 feet bgs) at a concentration of 8.5 mg/kg, exceeding the S-1 standard of 7.0 mg/kg. EPH compound C11-C22 aromatic was detected in sample CDM-7 (6-8 feet bgs) at a concentration of 1,060 mg/kg, exceeding the S-2/GW-1 standard of 1,000 mg/kg. EPH compound C19-C36 aliphatic was detected in sample CDM-7 (6-8 feet bgs) at a concentration of 3,060 mg/kg, exceeding the S-1 standard of 3,000 mg/kg.

Overall, fill and waste materials contain elevated concentrations of heavy metals (lead, zinc, arsenic), EPH compounds and SVOCs. Some samples exceeded the regulatory limit for TCLP lead indicating that without treatment, this material would be considered a hazardous waste. This material could be treated and disposed of as a non-hazardous waste. Other heavy metals, VOC,

SVOC and EPH compounds were detected, however, all detections were below applicable standards. PCB compounds were reported below the laboratory method detection limit at all sampling locations below applicable standards.

Groundwater Sampling

Groundwater sampling was conducted in August 2017 and March 2018 at the five well couplets (MW-3S/3D, MW-4S/4D, MW-7S/7D, MW-9S/9D, & MW-14S/14D) to determine the chemical quality of the groundwater at the site with respect to MassDEP groundwater standards and to evaluate potential discharge options associated with dewatering of the site during excavation/construction. Sampling and testing occurred in two phases to evaluate seasonal variability of concentrations. Groundwater sampling was performed by CDM Smith representatives between August 16 and August 17, 2018 for Phase 1 and on March 1, 2018 for Phase 2. A summary of the August 2017 and March 2018 groundwater analytical data is presented in **Table 8** and **Table 9**, respectively and the laboratory reports are included in **Attachment M.**

Groundwater sampling was conducted using low flow groundwater sampling procedures in accordance with U.S Environmental Protection Agency's (EPA) low flow guidance document (Revised September 19, 2017). The static depth to water and depth to the well bottom were recorded prior to sampling. An adjustable rate peristaltic pump was used to purge each well and collect the samples. While purging, field parameters including conductivity, specific conductance, pH, temperature, dissolved oxygen (DO), and oxidation-reduction potential (ORP) were measured and recorded. Analytical samples for were collected after field parameter stabilization and preserved in the field prior to relinquishment to Alpha Analytical in Westborough, Massachusetts for laboratory analysis.

Groundwater samples were analyzed for the following parameters:

- Volatile Organic Compounds (VOCs) (8260/5053);
- Semivolatile Organics (SVOCs) (8270D/SIM);
- Polychlorinated Biphenyls (PBCs) (8082);
- MCP Extractable Petroleum Hydrocarbons (EPHs), Carbon-ranges only (EPH-04-1.1);
- MCP 14 Total Metals (6010C/7471B) – Phase 1;
- MCP 14 Dissolved Metals (6010C/7471B) - Phase 2.

Groundwater at the site is categorized as GW-1 only in the far western portion of the site (area of MW-7S/7D) due to the Zone A surface water protection zone for the Fresh Pond Reservoir. Groundwater is categorized as GW-2 for any location within 30 feet of the school building where the water table depth is less than 15 feet bgs (MW-9S/9D and MW-14S/14D). Groundwater at the entire site is categorized as GW-3 due to the potential for discharge to the Fresh Pond Reservoir,

located to the west and downgradient of the Tobin School property. Due to the total metal exceedances at select well locations during Phase 1, samples were collected for dissolved metals during Phase 2. A well location plan identifying the surface water protection zones are presented on **Figure 3**. During the August 2017 monitoring round, total barium was detected at a concentration of 3,660 ug/L and 2,060 ug/L in the samples collected from MW-7S and MW-7D, respectively, exceeding the applicable GW-1 standard of 2,000 ug/L. In March 2018, dissolved barium was detected greater than the GW-1 standard in the sample collected from MW-7D (2,140 ug/L) and was below the GW-1 standard of 2,000 ug/L in the sample collected from MW-7S (526 ug/L). The total and dissolved barium concentrations at MW-7D are consistent (2,060 ug/L vs 2,140 ug/L, respectively) suggesting that the elevated barium concentrations are not related to the presence of suspended solids from the groundwater sample. The dissolved barium concentration at MW-7S is one-order of magnitude lower than the total barium concentration from August 2017 suggesting that suspended solids from the August 2017 groundwater sample may have contributed to elevated total barium concentration and GW-1 exceedance (August 2017). Dissolved barium was also detected at the remaining groundwater monitoring well sampling locations with concentrations ranging from 49 to 1,150 ug/L which is consistent or slightly lower that the August 2017 total barium results.

During the August 2017 monitoring round, total lead was detected greater than the GW-3 standard of 10 ug/L in samples collected from MW-3D (67 ug/L), MW-4D (31 ug/L), MW-9S (26 ug/L), MW-9D (11 ug/L) and MW-14S (65 ug/L). In March 2018, dissolved lead was detected greater than the GW-3 standard of 10 ug/L in the samples collected from MW-4D (77 ug/L) and MW-9S (54 ug/L). Lead was reported below the laboratory method detection limit of 10 ug/L at the remaining groundwater monitoring well sample locations which suggests that these previous detections and GW-3 exceedances appear to have been related to the presence of suspended solids in the groundwater sample. The dissolved lead concentrations and associated GW-3 exceedances at MW-4D and MW-7D are slightly lower than the total lead concentrations from the August 2017 monitoring round but do not appear to be related to the presence of suspended solids from the groundwater sample.

During the August 2017 monitoring round, total arsenic was detected at groundwater monitoring wells MW-3S, MW-4S/4D, MW-9S/9D and MW-14S with concentrations ranging 6-28 ug/L, all below the applicable GW-3 standard of 900 ug/L. During the March 2018 monitoring round, dissolved arsenic was detected in the groundwater samples collected from MW-3D (6.6 ug/L), MW-9D (40.2 ug/L) and MW-14S (5.5 ug/L), all below the applicable GW-3 standard of 900 ug/L. The March 2018 dissolved arsenic detections are consistent with August 2017 total arsenic concentrations at MW-3D, MW-9D and MW-14S. During the August 2017 monitoring, total zinc was detected in the groundwater samples collected from MW-3D (54 ug/L) and MW-14S (234 ug/L), below the applicable GW-3 standard of 900 ug/L. During the March 2018 round, dissolved zinc was reported below the laboratory method detection limit of 50 ug/L at MW-3D and MW-14S. Dissolved zinc was detected in the sample collected from MW-7S (60 ug/l) below the GW-1 standard of 5,000 ug/L and GW-3 standard of 900 ug/L. Dissolved zinc was also detected in the sample collected

from MW-9S at a concentration of 224 ug/L which is below the GW-3 standard. The presence of elevated concentrations of heavy metals in soil and groundwater such as barium and lead appears to be attributed to the interaction of buried waste material and groundwater at the site.

In both the August 2017 and March 2018 monitoring rounds, other VOCs and SVOC compounds were detected at all groundwater well locations, however, the concentrations were reported below applicable standards. In the sample collected from MW-9D during the March 2018 round, methyl-tert-butyl-ether and tertiary-amyl methyl ether were detected consistent with the August 2017 concentrations and well below applicable GW-2 and GW-3 standards. Benzene was detected in the sample collected from MW-14D (6.7 ug/l), however the concentration is well below GW-2 and GW-3 standards. Numerous SVOCs compounds, primarily PAHs, were detected at all groundwater monitoring wells but were below the applicable standards in both sampling rounds. During both the August 2017 and March 2018 round, 1,4-dioxane was detected in the sample collected from MW-9D (0.198 ug/L and 0.158 ug/L, respectively), however, the detected concentrations are well below the applicable GW-2 and GW-3 standard. PCBS were below the laboratory method detection limit in samples collected from all groundwater monitoring wells. In August 2017 and March 2018, select VOC, SVOC compounds were detected in groundwater samples collected from the two well couplets as noted above (MW-7S/7D and MW-9S/9D) located approximately within 30 feet of the building, however, none of the detections exceeded applicable GW-2 standards.

Hydrogeology Interpretation

Depth to water level measurements were recorded at the ten (10) groundwater monitoring wells in August 2017, October 2017 and in March 2018. Overall, water table depth from ground surface ranged from approximately 6 to 9 feet bgs. Water table and groundwater elevations were calculated using the field data and well location survey data (see **Table 6**). Based on the calculated groundwater elevations, groundwater flows to the west/southwest towards Fresh Pond Reservoir (City of Cambridge public water supply) and the average hydraulic gradient across the site is equal to 0.0003. As shown on **Table 4**, the estimated horizontal hydraulic conductivity values from the testing at the shallow wells screened across the waste/fill interface (shallow waste materials) ranged from 0.21 to 27.0 feet/day (7.24E-5 to 9.54E-3 cm/sec) and the estimated horizontal hydraulic conductivity values measured from the testing of the deeper wells screened to the bottom of the waste materials ranged from 2.35 to 18.6 feet per day (8.28E-4 to 6.56E-3 cm/sec). The range of hydraulic conductivity values appear to be consistent across the site with the exception of MW-14S which had lower values.

Using the recent hydraulic conductivity data, the geometric mean of the hydraulic conductivity values for the wells screened across the fill/waste interface is equal to 5.34 feet/day and the geometric mean of the hydraulic conductivity values for the wells screened to the bottom of the waste materials is equal to 8.60 feet/day. Based on the average hydraulic gradient, geometric mean of the shallow and deep well hydraulic conductivity values and porosity of the waste materials, the average linear groundwater velocity across the site is equal to 0.0040 ft/day (1.5 feet/year) within

the fill/waste materials. Despite the groundwater flow direction towards Fresh Pond Reservoir, the City of Cambridge Water Department keeps the surface water elevation higher than the adjacent ambient water table to prevent local groundwater discharge into the Reservoir, therefore, it is unlikely that impacted groundwater from the Tobin school property is discharging into the Reservoir.

Landfill Gas Monitoring

On August 16-17, 2017, CDM Smith installed/sampled a total of 28 landfill gas probe locations and screened the 10 newly installed groundwater wells for the presence of landfill gas (see **Figure 4**). For all landfill gas sampling locations, concentrations of methane (CH_4), carbon dioxide (CO_2), oxygen (O_2), Lower Explosive Limit (LEL) and atmospheric pressure were obtained using a Landtec GEM 2000 Gas Analyzer. VOC concentrations were obtained using a PID. Hydrogen sulfide (H_2S) concentrations were obtained using an Interscan Gas Analyzer. Landfill gas sampling locations were purged for 10 minutes with the Landtec Gas Analyzer prior to collection of final readings. Due to the elevated concentrations of methane observed at SGP-27, SGP-28 and groundwater monitoring wells MW-3S/3D and MW-4S/4D during the August 2017 sampling event (see **Table 10**), CDM Smith returned to the Tobin School on October 2, 2017 to screen on-site utilities adjacent the recreational fields (see **Figure 5**) and to complete sub-slab and indoor air sampling at the Tobin School.

Due to the history of the landfilling operations at the Tobin School property, landfill gas migration investigations were completed to determine the nature and extent of landfill gas in the shallow and deeper sub-surface and to confirm there was no gas migration off-site beyond the property boundary. A total of 28 landfill gas probes were installed in August 2017 with a majority of the gas probes installed around the perimeter of the site at the property boundary. Methane was not detected at any of the perimeter landfill gas probes except at SGP-27 which is located at the Armory property boundary, where the initial methane (as an indicator of landfill gas) concentration was detected at 2.9 % (58% LEL) and the final methane concentration was detected at 2.8% (56% LEL). This is not an unexpected finding since it is believed that the waste material extends underneath the Armory property. One landfill gas probe was installed in the center of the recreational fields (SGP-28) to evaluate shallow sub-surface landfill gas conditions in the center of the recreational field. At landfill gas probe, SGP-28, methane was initially detected at 63.8 % (1,276 % LEL) and the final concentration was detected at 50.2 % (1,004 % LEL). These LEL readings are considered very high and comparable to what may be observed at a municipal solid waste landfill. Carbon dioxide was detected at all landfill gas probes with concentrations ranging from 0.5 to 5.4%. Oxygen concentrations ranged from 0.9 to 20.3% at all landfill gas probe locations. VOC concentrations were non-detect (0.0 ppm) at all landfill gas probe locations except SGP-26 where the initial VOC concentration was detected at 111.7 ppmv and the final VOC concentration was detected at 58.8 ppmv. Hydrogen sulfide was not detected at any landfill gas probe location.

The ten (10) groundwater monitoring wells installed during Phase 1 were also screened for the presence of landfill gas during the August 2017 landfill gas sampling event. Methane was detected at groundwater monitoring wells MW-3S, MW-3D, MW-4S, MW-4D, MW-7S and MW-14D. Methane

was initially detected at MW-3S at a concentration of 13.5 % (270% LEL) and the final methane concentration was detected at 13.4 (268 % LEL). Methane was initially detected at MW-3D at a concentration of 1.9 % (38 % LEL) and the final methane concentration was detected at 0.8 % (16% LEL). Methane was initially detected at MW-4S at a concentration of 73 % (1,460% LEL) and the final methane concentration was detected at 71.6 % (1,432 % LEL). Methane was initially detected at MW-4D at a concentration of 0.6 % (12% LEL) and the final methane concentration was detected at 0.3 % (6% LEL). Methane was initially detected at MW-7S at a concentration of 2.4% (48 % LEL) and the final concentration was detected 2.3 % (46% LEL). Methane was initially detected at MW-14D at a concentration of 0.4% (8 % LEL) and the final methane concentration was detected at 0.3 % (6% LEL).

Due to the elevated landfill gas readings across the site, a supplemental gas investigation was completed by CDM Smith on October 2, 2017. During the October 2, 2017 sampling, CDM Smith re-screened the 10 groundwater monitoring wells for the presence of landfill gas. Results were similar to the August 2017 monitoring (see **Table 11** for August and October 2017 gas results). The most significant difference between the two rounds was that methane was detected at MW-9S with elevated concentrations in October 2017, whereas, it was not detected in August 2017. Methane was detected at MW-9S at an initial concentration of 22.8 % (456 % LEL) and the final methane concentration was detected at 23.9% (478 % LEL). Simultaneously on October 2, 2017, CDM Smith collected sub-slab and indoor air samples inside the Tobin School to confirm there was no indoor air quality problems inside the school. The conclusion of the Tobin School assessment was that the sub-slab monitoring results showed low levels of contaminants below MassDEP thresholds. The indoor air (within the crawl spaces) did show some commonly found constituents in indoor air, however, they do not appear to be attributed to the underlying waste material. A summary of the results of the Tobin School sub-slab and air sampling in October 2017 and the recent round completed in February 2018 will be included in a separate memorandum.

In addition to the screening of the groundwater monitoring wells for landfill gas, 30-minute grab soil vapor samples were collected from groundwater monitoring well MW-4S and MW-9S where the highest concentrations of methane were observed and were analyzed for VOCs, fixed gases (methane, carbon dioxide, carbon monoxide, nitrogen and oxygen), sulfide analysis and mercaptans. Overall, there were some VOC detections, however, none of the concentrations exceeded MassDEP sub-slab soil gas screening criteria (see **Table 12**). Fixed gas concentrations were consistent with concentrations observed when collecting field analyzed gas samples using the Landtec GEM 2000. Sulfide and mercaptan compounds including hydrogen sulfide, methyl mercaptans, dimethyl sulfate and carbon disulfide were detected in the soil vapor samples collected from MW-4S and 9S with concentrations ranging from 4.43 to 6.38 ug/m^3.

Due to the elevated methane concentrations within the subsurface of the recreational fields, deeper landfill gas probes were attempted along the eastern property line to confirm there was no gas migration beyond the eastern property line, however, due to subsurface conditions, continuous refusal was encountered at multiple locations and the gas probes could not be installed below 5 feet

bgs. Due to the clean corridor of no waste between the recreational fields and the eastern property line and no observed gas detections from the August 2017 gas sampling, it does not appear gas is migrating towards the eastern property line.

A total of twenty-six (26) utility locations on the Tobin School property and adjacent to the Tobin School property boundary (catch basins, manholes, electrical boxes) as shown on **Figure 5** were screened for the presence of landfill gas on October 2, 2017. The results of the screening are summarized in **Table 13**. Methane was only detected in the water meter pit manhole located directly north of recreational fields. Methane was detected in the water meter pit manhole initially at 296 % LEL of methane and at 16% LEL of methane after venting with the manhole cover off. Under the MCP, an LEL reading greater than 10% LEL in a utility is a 2-hour reporting condition. Since the LEL of methane results were greater than 10% LEL in the Water Meter Pit Manhole, the results were reported to MassDEP Bureau of Waste Site Cleanup (BWSC) by Kathleen Murphy (LSP), (CDM Smith). A release tracking number (RTN) was assigned by MassDEP (RTN 3-34521). As a mitigation measure, the City of Cambridge determined that the water vault was no longer in use and backfilled the manhole with flowable fill on October 18, 2017 and re-screened the manhole with a 4-gas meter which resulted with an LEL of reading of 0.0%.

CDM Smith completed confirmation methane screening of utilities adjacent to the abandoned water meter pit and on Concord Ave on November 30, 2017. During the supplemental screening event, methane was not detected at any of the utility locations. Since the water meter pit was abandoned and methane was not detected during the supplemental screening, CDM Smith submitted an Immediate Response Action (IRA) Completion Report to MassDEP on December 7, 2017 closing out RTN 3-34521 linking it to the overall RTN for the Tobin School property (3-01658).

During the Phase 1 and Phase 2 Test Pit programs, multi-gas monitors were placed approximately 20 feet at different directions from each test pit to monitor ambient air for oxygen, carbon monoxide, hydrogen sulfide and lower explosive limit (LEL). During both phases of test pits, there were no detections of any gases and oxygen concentration remained at approximately 20.9%. A PID was also used during test pitting to determine the presence of VOCs in ambient air, and values ranged from non-detectable to 8.2 parts per million (ppm).

Environmental Implications for Design and Construction

Removal and Disposal of Soil/Waste Materials

Based on the results of the soil/waste fill concentrations, the fill/waste material would need to go either to an out-of-state facility or to an in-state landfill. In order to obtain a clean closure with no deed restrictions, i.e., AUL, on the school property, the entire limits of the waste material would need to be removed. Complete removal of the waste material on the school property may not be possible given the depth of the waste at the property line with the abutting Armory facility and the potential to impact the existing Armory structure. In addition, removal of waste along the remaining property lines may impact abutting properties. Measures such as excavation support

may be considered to allow for removal of as much waste material as possible along the property boundaries.

Removal of the waste material will present considerable challenges including the depth of material requiring removal (up to 32 feet bgs), dewatering during removal, control of landfill gases during removal, proximity of nearby residents and occupied school (if the school is kept open during construction). If it is not feasible or cost effective to remove all of the waste material, mitigation measures will need to be considered regarding potential indoor air issues, e.g., sub-slab depressurization system or a barrier between waste material and buildings or overlying soil. These options for leaving some waste material in place would require an AUL and potential capping of waste with permanent active landfill gas controls as part of the closure of the site.

Dewatering, Groundwater Treatment and Discharge

The water table depth from ground surface ranged from approximately 6 to 9 feet bgs based on the August and October 2017 and March 2018 water level gauging data. The maximum depth of waste encountered within the footprint of the recreational fields is 32 feet bgs, therefore, dewatering for removal of the waste would require an extensive effort due to the shallow water table and depth of waste.

Based on the August 2017 and March 2018 groundwater sampling results, an active remediation system for groundwater collected as part of a dewatering program would be required prior to discharge to the local stormwater system or the local stormwater combined sewer system. If local stormwater discharge is feasible, then an EPA National Pollutant Discharge Elimination System (NPDES) Remediation General Permit would be required. If local stormwater/combined sewer overflow discharge is feasible, then a Massachusetts Water Resource Authority (MWRA) Construction Dewatering Permit would be required.

Landfill Gas Control

Elevated concentrations of landfill gas exist beneath the Tobin School property. Landfill gas concentrations were detected in excess of 1000% LEL of methane at some locations. Due to the elevated concentrations of landfill gas in the shallow and deeper sub-surface strata, active landfill gas controls would be required to ensure the safety of the contractors and nearby residents, minimize gas migration during excavation, and to suppress excessive landfill gas odors.

Based on the soil vapor sample results (sulfide and VOC detections) and observations during drilling and test pit excavations, there is potential for excessive odors migrating in the ambient air during construction/excavation. Landfill gas migration controls required to control landfill gas and odors could consist of an active gas trench system (under vacuum) installed into the shallow waste across the recreational fields. The active gas trench system could utilize a temporary gas flare to burn off the methane and to control landfill gas odors.

Potential Risks for Safety, Human Health, and the Environment

The greatest potential risk for safety, human health and the environmental is primarily due to the elevated concentrations of landfill gases beneath the Tobin School property. Due to the methane concentrations, there exists the potential for an explosion hazard due to the generation of any sparks given that the explosive range of methane exists from 5 to 15%. This hazard would need to be mitigated during the construction activities.

Due to nature of waste material, low oxygen conditions also exist in the sub-surface, therefore, excavation contractors could potentially be exposed to low oxygen conditions. Another concern with excavating waste is the potential for landfill gas/odors to migrate in the sub-surface to sensitive receptors such as residential homes on the eastern property line, utilities located on-site and directly adjacent to the site and towards the Tobin School which would potentially be operating during construction.

MCP Requirements

The site has an existing AUL and Permanent Solution which would need to be retracted and revised following completion of the construction of the school. Prior to any excavation activities, a Release Abatement Measure (RAM) Plan would need to be submitted to MassDEP summarizing proposed excavation work, soil management, engineering controls and safety measures to protect human health and the environment. As part of the soil management for off-site disposal, additional sampling will be required to meet the requirements of the disposal facilities.

Closing

These considerations and presented data has been prepared for the proposed Tobin School project located in Cambridge, Massachusetts as understood at this time and described in this memorandum. The presented data has been prepared in accordance with generally accepted engineering practices. No other warranty, express or implied, is made. In the event that changes in the design or location of the proposed development occur, the interpretation of data and considerations contained herein should not be considered valid unless verified in writing by CDM Smith.

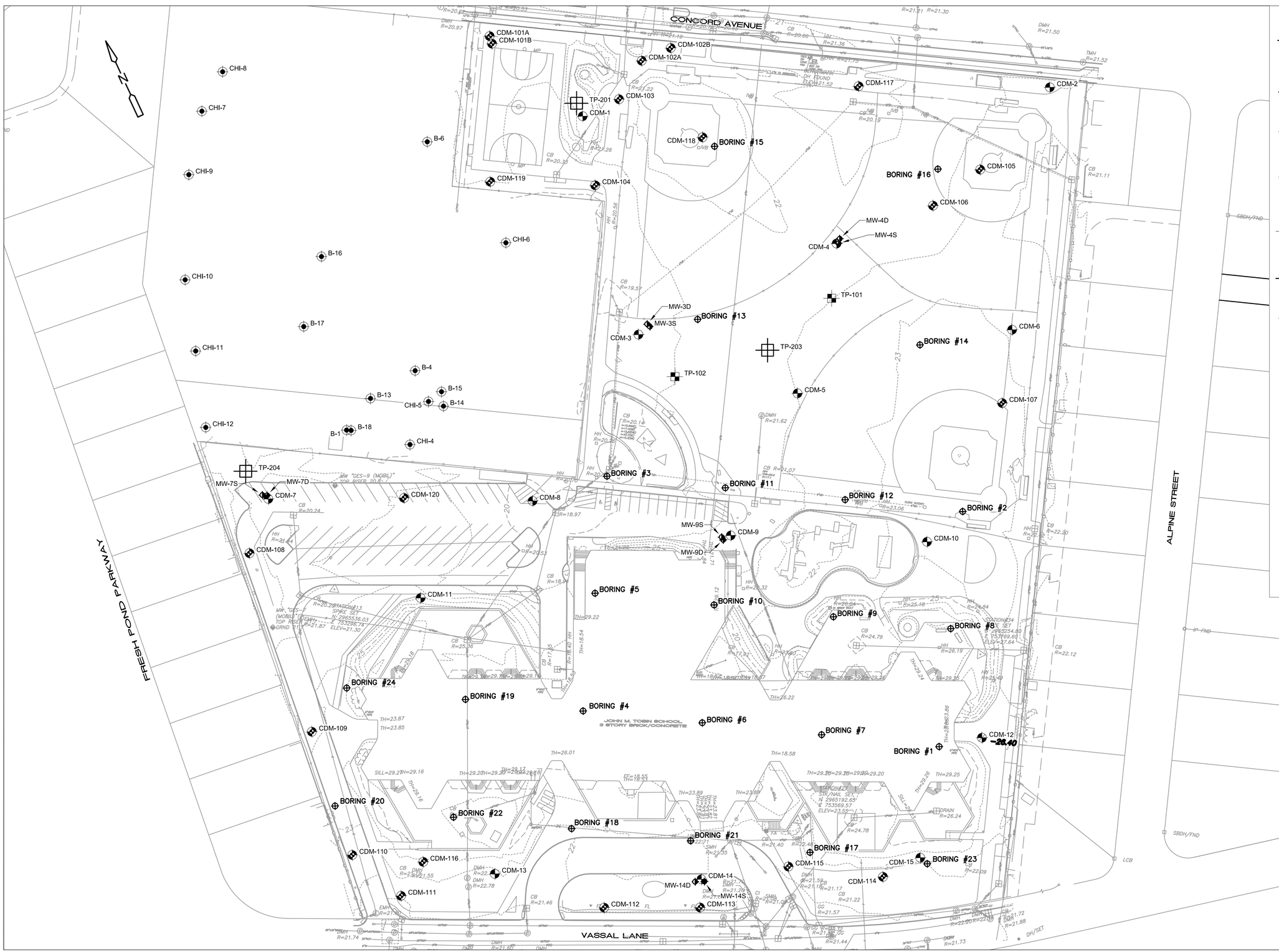
Attachments:

FIGURE 1 – Test Boring Location Plan
FIGURE 2 – Extent of Waste
FIGURE 3 – Surface Water Protection Zones
FIGURE 4 – Landfill Gas Probe and Well Monitoring Locations
FIGURE 5 – Landfill Gas Utility Screening Locations

TABLE 1 – Summary of Geotechnical Index Test Results
TABLE 2 – Summary of Consolidation Test Results

B2.0

ATTACHMENTS



LEGEND:

- **BORING #1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORINGS CONDUCTED BY NEW ENGLAND TEST BORING CORPORATION DATED OCTOBER–NOVEMBER 1966 AND JANUARY 1968.
- **CDM–1** — DESIGNATION AND APPROXIMATE LOCATION OF PHASE I TEST BORINGS CONDUCTED BY NEW ENGLAND BORING CONTRACTORS, INC. OF DERRY, NH BETWEEN JULY 17 AND AUGUST 9, 2017.
- **MW–3D** — DESIGNATION AND APPROXIMATE LOCATION OF MONITORING WELLS CONDUCTED BY NEW ENGLAND BORING CONTRACTORS, INC. OF DERRY, NH BETWEEN JULY 17 AND AUGUST 9, 2017.
- **CDM-101** — DESIGNATION AND APPROXIMATE LOCATION OF PHASE II TEST BORINGS CONDUCTED BY NEW ENGLAND BORING CONTRACTORS, INC. OF DERRY, NH BETWEEN JANUARY 22 AND FEBRUARY 2, 2018.
- **TP-101** — DESIGNATION AND APPROXIMATE LOCATION OF PHASE I TEST PIT CONDUCTED BY CHARTER CONTRACTING COMPANY, LLC. OF BOSTON, MA ON DECEMBER 28, 2017.
- **TP-201** — DESIGNATION AND APPROXIMATE LOCATION OF PHASE II TEST PIT CONDUCTED BY CHARTER CONTRACTING COMPANY, LLC. OF BOSTON, MA BETWEEN FEBRUARY 20 AND FEBRUARY 21, 2017.
- **B-1/CHI-1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORINGS CONDUCTED BY CLEAN HARBORS ENVIRONMENTAL SERVICES, INC. OF WEYMOUTH, MA DATED MARCH 2000 AND FEBRUARY 2001.

NOTES:

1. BASE PLAN PREPARED FROM A DRAWING ENTITLED "EXISTING CONDITIONS SURVEY", PREPARED BY SURVEYING AND MAPPING CONSULTANTS, SCALE 1"=20', DATED OCTOBER 2, 2017.
2. COORDINATES NOTED ARE IN FEET AND REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83).
3. ELEVATIONS AND CONTOUR LINES NOTED ARE IN FEET AND REFERENCED TO CAMBRIDGE CITY BASE (CCB) DATUM.
4. TEST BORINGS CDM–1 THROUGH CDM–15, TEST BORINGS CDM–101A THROUGH CDM–120, TEST PITS TP–101, TP–102, TP–201, TP–203, TP–204, AND MONITORING WELLS MW–3D THROUGH MW–14S WERE OBSERVED AND LOGGED ON A FULL–TIME BASIS BY A CDM SMITH GEOTECHNICAL ENGINEER OR GEOLOGIST.
5. TEST BORINGS BORING #1 THROUGH BORING #24 WERE LOCATED BASED ON A DRAWING TITLED "EXISTING CONDITIONS" FROM 1969.
6. TEST BORINGS B–1, B–4, B–6, B–13 THROUGH B–18, AND CHI–4 THROUGH CHI–12 WERE LOCATED BASED ON A DRAWING TITLED "MASSACHUSETTS ARMY NATIONAL GUARD ARMORY – SITE PLAN" FROM 2002.

CDM Smith

CITY OF CAMBRIDGE, MASSACHUSETTS
TOBIN SCHOOL
CAMBRIDGE, MASSACHUSETTS

FIGURE 1
TEST BORING LOCATION PLAN
APRIL 2018

Legend

- Geotechnical/Environmental Borings (Completed Jan-Feb 2018)
- Geotechnical/Environmental Boring Location (July-August 2017)
- Groundwater Monitoring Well Couplet Installation Location (July-August 2017)
- Approximate Boundary of Former Clay Pit/Edge of Waste (updated April 2018 for Tobin School Property Only)

Tobin School
197 Vassal Lane
Cambridge, MA

0 45 90 Feet

1 " = 90 '

Basemap: Google Earth Pro Imagery (April 2017)
Source: Google, MassGIS, and ESRI ArcGIS Online
Coordinate Sys: NAD83 Mass. State Plane Mainland (feet)

FIGURE 2
Horizontal Edge of Waste
April 2018

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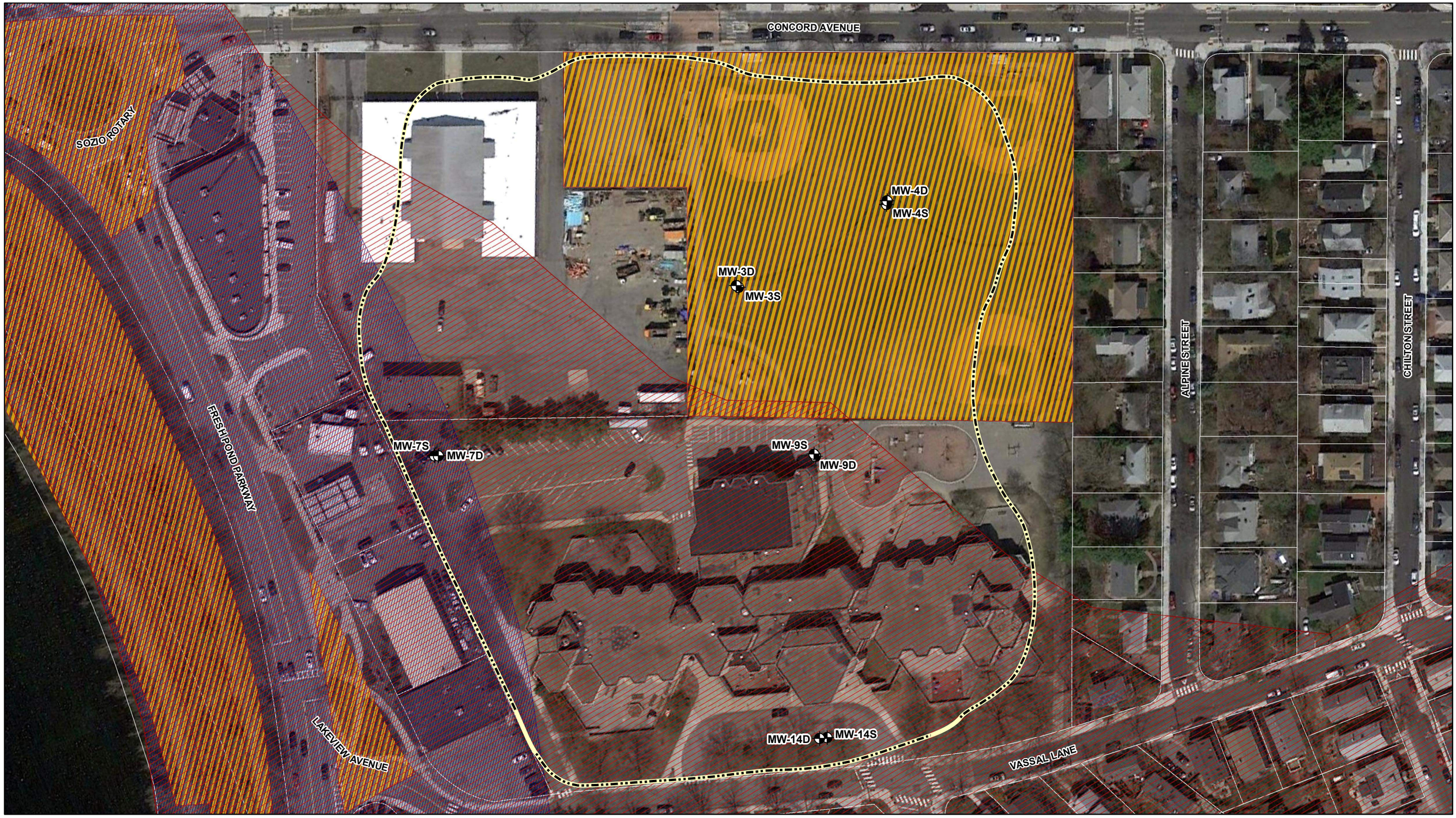

Legend

- Groundwater Monitoring Well Couplet Installation Location
- Approximate Boundary of Former Clay Pit/Edge of Waste (updated April 2018)

Surface Water Protection Areas

- Zone A
- Zone B
- Zone C
- Protected & Recreational Open Space

Tobin School
197 Vassal Lane
Cambridge, MA

0 45 90
Feet

Basemap: Google Earth Pro Imagery (April 2017)
Source: Google, MassGIS and ESRI ArcGIS Online
Coordinate Sys: NAD83 Mass. State Plane Mainland (feet)

FIGURE 3
Surface Water Protection Zones
Fresh Pond Reservoir

CDM Smith

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Legend

- Gas Probe Location
- Groundwater Monitoring Well Couplet Installation Location
- Approximate Boundary of Former Clay Pit/Edge of Waste (updated April 2018)

Tobin School
197 Vassal Lane
Cambridge, MA

0 45 90
Feet

Basemap: Google Earth Pro Imagery (April 2017)
Source: Google, MassGIS and ESRI ArcGIS Online
Coordinate Sys: NAD83 Mass. State Plane Mainland (feet)

FIGURE 4
Landfill Gas Probe Monitoring Locations
July-August 2017

CDM Smith

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Figure No: 5 - Utility Landfill Gas Monitoring Locations

CB-13
CB-14 (opposite side of the road)
CB-12
CB-11
CB-13
EM-4
WGM-4
WGM-2
WGM-3
WMPM-1: >10% LEL of Methane
CB-3
CB-7
CB-4
EM-1
EM-2
CB-2
DM-1
CB-5
EM-3
CB-1
CB-8
WGM-1
CB-9
EM-3
CB-6
CB-10

VASSAL LANE

ALPINE STREET

SEE SHEET 2 FOR NOTES, REFERENCES AND LEGEND

325 WOOD ROAD
SUITE 109
BRAINTREE MA 02184
(781)380-7766
FAX (781)380-7757
SMC SURVEYING AND MAPPING CONSULTANTS

EXISTING CONDITIONS SURVEY
JOHN M. TOBIN SCHOOL
VASSAL LANE
CAMBRIDGE, MA

PREPARED FOR: CDM SMITH

SCALE: 1"=30'

DATE: AUGUST 2, 2017

KEVIN HANLEY, PLS
MASSACHUSETTS REG. No. 31313

SMC DWG. NO. 2017136WS.DWG

Date:	AUGUST 2, 2017
Job No.:	201713600
Drawn By:	SKH
Checked By:	JBW/KH
Calc'd By:	JBW
Drawing No.:	2017136WS.dwg
Sheet:	2 OF 2

City of Cambridge
Tobin School
Cambridge, Massachusetts

Table 1
Summary of Geotechnical Index Test Results

Exploration No.	Sample No.	Sample Depth (ft)	Stratum	USCS Classification [1]	Grain Size Analysis [2]							Atterberg Limits [3]			Moisture Content (%) [4]	Mini-Vane Shear Test [5]		Organic Content (%) [6]
					Gravel (%)		Sand (%)			Fines (%)		LL (%)	PL (%)	PI (%)		Initial Shear Strength (psf)	Remolded Shear Strength (psf)	
					Coarse	Fine	Coarse	Medium	Fine	Silt	Clay							
Phase 1 - Subsurface Exploration Program (CDM Smith, Jul-Aug 2017)																		
CDM-1	S-3	4-6	Granular Fill	SM	4.6	24.9	8.9	19.8	20.8	21.0		--	--	--	9.1	--	--	--
CDM-1	S-7	12-14	Waste Fill	SM	0.0	38.2	17.4	18.1	13.3	13.0		--	--	--	23.8	--	--	--
CDM-1	S-20	44-46	Clay & Silt	CL	--	--	--	--	--	--		39	19	20	29.9	--	--	--
CDM-1	ST-1	46-48	Clay & Silt	CL	--	--	--	--	--	--		38	19	19	27.5	1450	478	--
CDM-1	S-23	59-61	Clay & Silt	CL	--	--	--	--	--	--		40	21	19	34.9	--	--	--
CDM-1	S-25	69-71	Glacial Till	SM	0.0	15.4	12.4	11.4	14.4	23.4	23.0	--	--	--	14.5	--	--	--
CDM-2	S-3B	4-6	Granular Fill	CL	--	--	--	--	--	--		40	21	19	23.0	--	--	--
CDM-2	S-4A	6-8	Granular Fill	SM	0.0	13.9	8.5	16.8	30.1	16.2	14.5	--	--	--	23.0	--	--	--
CDM-2	S-4B	6-8	Organic Soils	OL	--	--	--	--	--	--		--	--	--	90.0	--	--	17.7
CDM-2	S-5A	8-10	Organic Soils	OL	--	--	--	--	--	--		--	--	--	90.9	--	--	14.0
CDM-2	S-8	14-16	Clay & Silt	CL	--	--	--	--	--	--		41	20	21	25.9	--	--	--
CDM-2	S-15	34-36	Clay & Silt	CL	--	--	--	--	--	--		33	18	15	28.2	--	--	--
CDM-2	ST-1	41-43	Clay & Silt	CL	--	--	--	--	--	--		45	20	25	34.3	2869	1558	--
CDM-2	S-18	49-51	Glacial Till	GM	7.4	34.1	10.0	10.3	11.7	12.9	13.6	--	--	--	10.3	--	--	--
CDM-2	S-19	54-55	Glacial Till	CL-ML	--	--	--	--	--	--		16	12	4	10.8	--	--	--
CDM-3	S-15	35-37	Clay & Silt	CL	--	--	--	--	--	--		41	19	22	28.3	--	--	--
CDM-4	S-2	2-4	Granular Fill	SM	6.2	18.0	9.3	23.3	27.5	15.7		--	--	--	10.6	--	--	--
CDM-4	S-10	18-20	Waste Fill	SP	0.0	34.0	12.1	27.7	22.2	4.0		--	--	--	38.5	--	--	--
CDM-4	ST-1	36-38	Clay & Silt	CL	--	--	--	--	--	--		45	21	24	30.7	2306	1643	--
CDM-4	S-20	44-46	Clay & Silt	CL	--	--	--	--	--	--		45	21	24	36.0	--	--	--
CDM-4	ST-2	48-50	Clay & Silt	CL	--	--	--	--	--	--		30	19	11	25.8	1604	1381	--
CDM-5	S-2	2-4	Granular Fill	SM	0.0	7.2	8.0	34.0	36.8	14.0		--	--	--	8.6	--	--	--
CDM-5	S-4	6-8	Waste Fill	SM	8.4	27.1	10.4	23.6	16.6	13.9		--	--	--	32.5	--	--	--
CDM-5	ST-1	30-32	Clay & Silt	CH	--	--	--	--	--	--		52	21	31	45.0	401	247	--
CDM-5	S-17	44-46	Clay & Silt	CL	--	--	--	--	--	--		41	20	21	43.9	--	--	--
CDM-6	S-6	9-11	Clay & Silt	CL	--	--	--	--	--	--		39	20	19	25.2	--	--	--
CDM-6	S-12B	35-37	Clay & Silt	ML	0.0	0.0	0.0	0.4	29.8	65.4	4.4	--	--	--	22.3	--	--	--
CDM-7	S-2	2-4	Granular Fill	SM	0.0	25.6	7.7	29.9	23.0	13.8		--	--	--	15.2	--	--	--
CDM-7	S-15	39-41	Clay & Silt	CL	--	--	--	--	--	--		36	20	16	28.6	--	--	--
CDM-7	S-19	59-61	Clay & Silt	CL	--	--	--	--	--	--		33	18	15	31.6	--	--	--
CDM-7	S-21A	69-71	Clay & Silt	CL	0.0	0.0	0.0	0.3	20.4	56.3	23.0	--	--	--	32.2	--	--	--
CDM-7	S-21B	69-71	Clay & Silt	ML	--	--	--	--	--	--		37	21	16	33.3	--	--	--
CDM-7	S-23	79-81	Glacial Till	GM	22.4	27.9	11.9	16.0	8.8	13.0		--	--	--	8.2	--	--	--

City of Cambridge
Tobin School
Cambridge, Massachusetts

Table 1
Summary of Geotechnical Index Test Results

Exploration No.	Sample No.	Sample Depth (ft)	Stratum	USCS Classification [1]	Grain Size Analysis [2]							Atterberg Limits [3]			Moisture Content (%) [4]	Mini-Vane Shear Test [5]		Organic Content (%) [6]
					Gravel (%)		Sand (%)			Fines (%)		LL (%)	PL (%)	PI (%)		Initial Shear Strength (psf)	Remolded Shear Strength (psf)	
					Coarse	Fine	Coarse	Medium	Fine	Silt	Clay							
CDM-8	S-3	4-6	Granular Fill	SM	0.0	9.4	6.4	18.3	42.3	23.6		--	--	--	14.8	--	--	--
CDM-8	S-14	30-32	Clay & Silt	CL	--	--	--	--	--	--		49	24	25	35.3	--	--	--
CDM-8	ST-1	40-42	Clay & Silt	CL	--	--	--	--	--	--		30	18	12	26.2	1820	748	--
CDM-8	S-17	50-52	Glacial Till	SM	0.0	31.3	13.3	17.0	16.3	13.1	9.0	--	--	--	11.2	--	--	--
CDM-8	S-18	55-57	Glacial Till	CL-ML	--	--	--	--	--	--		20	16	4	9.4	--	--	--
CDM-9	S-2	2-4	Granular Fill	SP-SM	5.6	20.0	9.6	31.5	22.4	10.9		--	--	--	10.9	--	--	--
CDM-9	S-12	22-24	Clay & Silt	CL	--	--	--	--	--	--		34	18	16	28.4	--	--	--
CDM-9	S-14	26-28	Clay & Silt	CL	--	--	--	--	--	--		31	16	15	25.1	--	--	--
CDM-10	S-1	0.5-2	Granular Fill	SP-SM	0.0	19.9	10.7	35.5	23.8	10.1		--	--	--	5.1	--	--	--
CDM-10	S-4	6-8	Granular Fill	SM	0.0	15.1	24.2	26.8	7.8	13.7	12.4	--	--	--	16.8	--	--	--
CDM-10	S-6	10-12	Clay & Silt	CL	--	--	--	--	--	--		41	18	23	24.9	--	--	--
CDM-10	ST-1	20-22	Clay & Silt	CL	--	--	--	--	--	--		40	21	19	35.5	1234	370	--
CDM-11	S-10	18-20	Clay & Silt	CL	--	--	--	--	--	--		41	21	20	28.2	--	--	--
CDM-12	S-2	2-4	Granular Fill	SM	0.0	25.8	10.7	22.7	16.6	24.2		--	--	--	16.2	--	--	--
CDM-12	S-6	14-16	Clay & Silt	CL	--	--	--	--	--	--		42	21	21	27.8	--	--	--
CDM-12	S-13	48-50	Clay & Silt	CL-ML	0.0	0.0	0.0	0.3	22.4	55.4	21.9	21	16	5	28.8	--	--	--
CDM-13	S-2	2-4	Granular Fill	SM	0.0	25.7	8.4	20.1	23.1	22.7		--	--	--	6.7	--	--	--
CDM-13	S-17	44-46	Clay & Silt	CL	--	--	--	--	--	--		30	15	15	22.4	--	--	--
CDM-13	S-20	59-61	Clay & Silt	CL	--	--	--	--	--	--		41	20	21	38.7	--	--	--
CDM-13	S-22	69-71	Clay & Silt	CL	--	--	--	--	--	--		42	19	23	38.1	--	--	--
CDM-13	S-23	74-76	Clay & Silt	CL-ML	--	--	--	--	--	--		24	19	5	24.1	--	--	--
CDM-13	S-24	84-86	Clay & Silt	CL-ML	6.3	23.0	11.0	14.0	12.8	15.6	17.3	--	--	--	10.6	--	--	--
CDM-14	S-18	55-57	Clay & Silt	CL	--	--	--	--	--	--		38	17	21	37.8	--	--	--
CDM-14	S-19B	65-67	Clay & Silt	ML	--	--	--	--	--	--		NP	NP	NP	22.6	--	--	--
CDM-14	S-20	75-77	Clay & Silt	CL	--	--	--	--	--	--		28	17	11	22.5	--	--	--
CDM-15	S-3	6-8	Clay & Silt	CL	0.0	0.0	0.0	0.4	4.7	46.2	48.7	39	18	21	17.6	--	--	--
CDM-15	S-5	10-12	Clay & Silt	CL	--	--	--	--	--	--		49	21	28	29.6	--	--	--
CDM-15	ST-1	18-20	Clay & Silt	CL	--	--	--	--	--	--		38	22	16	28.6	2561	725	--
CDM-15	ST-2	31-33	Clay & Silt	CL	--	--	--	--	--	--		34	19	15	30.7	1311	1088	--
CDM-15	S-17	54-56	Clay & Silt	CL	--	--	--	--	--	--		49	20	29	43.2	--	--	--
CDM-15	S-19	69-71	Clay & Silt	CH	--	--	--	--	--	--		56	16	40	48.1	--	--	--
CDM-15	S-20B	74-76	Clay & Silt	ML	--	--	--	--	--	--		NV	NP	NP	28.8	--	--	--

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Table 1
Summary of Geotechnical Index Test Results

Exploration No.	Sample No.	Sample Depth (ft)	Stratum	USCS Classification [1]	Grain Size Analysis [2]							Atterberg Limits [3]			Moisture Content (%) [4]	Mini-Vane Shear Test [5]		Organic Content (%) [6]
					Gravel (%)		Sand (%)			Fines (%)		LL (%)	PL (%)	PI (%)		Initial Shear Strength (psf)	Remolded Shear Strength (psf)	
					Coarse	Fine	Coarse	Medium	Fine	Silt	Clay							
Phase 2 - Subsurface Exploration Program (CDM Smith, Jan-Feb 2018)																		
CDM-101B	S-4	7-9	Waste Fill	OL	--	--	--	--	--	--		--	--	--	82.4	--	--	17.0
CDM-102B	S-4B	7-9	Organic Soils	OL	--	--	--	--	--	--		--	--	--	74.2	--	--	18.8
CDM-103	S-8	15-17	Waste Fill	SM	0.0	40.8	19.9	14.5	10.3	9.9	4.6	--	--	--	45.4	--	--	--
CDM-103	S-11	21-23	Clay & Silt	ML	--	--	--	--	--	--		NV	NP	NP	25.1	--	--	--
CDM-104	S-7	12-14	Waste Fill	GW-GM	17.7	32.2	11.9	17.0	11.7	9.5		--	--	--	29.8	--	--	--
CDM-104	S-15	28-30	Waste Fill	GP-GM	1.6	52.1	16.8	13.8	6.0	9.7		--	--	--	28.2	--	--	--
CDM-104	S-17	32-34	Clay & Silt	CL	--	--	--	--	--	--		40	21	19	32.3	--	--	--
CDM-105	S-4B	6-8	Organic Soils	CL	--	--	--	--	--	--		--	--	--	22.9	--	--	2.4
CDM-106	S-6	10-12	Waste Fill	GP	14.0	54.6	21.4	5.5	2.7	1.8		--	--	--	22.1	--	--	--
CDM-106	S-9	16-18	Clay & Silt	CL	--	--	--	--	--	--		44	22	22	29.9	--	--	--
CDM-108	S-4B	7-9	Organic Soils	OL	--	--	--	--	--	--		--	--	--	71.1	--	--	17.5
CDM-109	S-2B	3-5	Waste Fill	SM	9.1	19.3	8.6	21.4	19.8	21.8		--	--	--	32.5	--	--	--
CDM-109	S-4A	7-9	Organic Soils	OL	--	--	--	--	--	--		--	--	--	48.9	--	--	10.6
CDM-109	S-4B	7-9	Clay & Silt	ML	0.0	0.0	0.0	5.5	41.8	45.7	7.0	NV	NP	NP	24.6	--	--	--
CDM-109	S-5B	9-11	Clay & Silt	SM	0.0	0.5	2.9	21.8	62.7	12.1		--	--	--	18.9	--	--	--
CDM-110	S-3	5-7	Waste Fill	SM	0.0	10.3	7.6	34.7	34.1	13.3		--	--	--	29.7	--	--	--
CDM-110	S-4A	7-9	Organic Soils	SM	--	--	--	--	--	--		--	--	--	24.4	--	--	9.4
CDM-112	S-3	4-6	Waste Fill	SM	0.0	17.5	11.1	23.7	22.5	25.2		--	--	--	10.1	--	--	--
CDM-115	S-4	6-8	Sand & Silt	SM	0.0	0.0	0.1	2.8	56.7	17.2	23.2	--	--	--	18.1	--	--	--
CDM-115	S-7	12-14	Clay & Silt	CL	0.0	0.0	0.5	2.4	16.5	29.8	50.8	27	15	12	28.0	--	--	--
CDM-118	S-4	6-8	Waste Fill	SM	20.3	6.7	6.8	28.9	23.6	13.7		--	--	--	16.4	--	--	--
CDM-118	S-10A	18-20	Waste Fill	SM	0.0	35.2	20.0	22.4	10.3	12.1		--	--	--	55.3	--	--	--
CDM-119	S-11	20-22	Waste Fill	SW-SM	0.0	27.8	17.6	31.3	14.2	9.1		--	--	--	54.1	--	--	--
CDM-119	S-18	34-36	Clay & Silt	CL	--	--	--	--	--	--		39	20	19	28.4	--	--	--
CDM-120	S-5	9-11	Waste Fill	SM	0.0	23.2	11.7	19.7	17.6	27.8		--	--	--	77.6	--	--	--

Notes:

1. USCS classifications were performed in accordance with ASTM D-2487.
2. Grain size analysis tests performed in accordance with ASTM D-7928 & D-6913 and ASTM D-1140
3. Atterberg limit tests performed in accordance with ASTM D-4318.
4. Moisture content analysis performed in accordance with ASTM D-2216.
5. Miniature Vane Shear Test performed in accordance with ASTM D-4648.
6. Organic content tests performed in accordance with ASTM D-2974.

Abbreviations:

--	Test Not Performed	CL-ML	Lean, silty clay	GW-GM	Well-Graded Gravel with Silt
SM	Silty Sand	CH	Fat Clay	GP-GM	Poorly-Graded Gravel with Silt
SP	Poorly-Graded Sand	CL	Lean Clay	GP	Poorly-Graded Grave
SW-SM	Well-Graded Sand with Silt	ML	Silt	GM	Silty Gravel
SP-SM	Poorly-Graded Sand with Silt	NV	No Value		
OL	Organic Sand or Silt	NP	Non Plastic		

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Table 2
Summary of Consolidation Test Results

Exploration No.	Sample No.	Sample Depth (ft)	Stratum	Initial Dry Density, γ_d (pcf)	Moisture Content (%)		Void Ratio		Estimated Effective Vertical Stress, σ'_{vo} (psf)	Interpreted Pre-consolidation Pressure, σ'_p (psf)	OCR [1]	Compression Ratio	Recompression Ratio	Coefficient of Consolidation, Cv (ft^2/yr)	
					Initial, w_o	Final, w_f	Initial, e_o	Final, e_f				$C_{c\varepsilon}$ [2]	$C_{r\varepsilon}$ [3]	Min (Typical)	Max (Typical)
Subsurface Exploration Program (CDM Smith, Jul-Aug 2017)															
CDM-1	ST-1	47	Clay & Silt	96.0	27.5	24.4	0.76	0.61	3,168	5,000	1.58	0.110	0.018	--	--
CDM-4	ST-1	37	Clay & Silt	100.2	24.5	22.8	0.68	0.52	2,575	6,000	2.33	0.131	0.015	80	1040
CDM-4	ST-2	49	Clay & Silt	99.8	26.6	24.9	0.69	0.57	3,205	5,500	1.72	0.080	0.018	42	3323
CDM-8	ST-1	41	Clay & Silt	93.0	28.9	28.8	0.81	0.76	2,448	6,000	2.45	0.117	0.011	8	245
CDM-15	ST-2	32	Clay & Silt	95.9	27.5	23.8	0.76	0.59	2,160	3,500	1.62	0.107	0.017	3	100

Notes:

1. OCR = Overconsolidation Ratio, σ'_p / σ'_{vo}
2. $C_{c\varepsilon}$ = Virgin compression ratio
3. $C_{r\varepsilon}$ = Recompression ratio
4. Constant Rate of Strain (CRS) tests were performed in accordance with ASTM D4186.

Abbreviations:

ST indicates Shelby Tube sample

-- indicates data not recorded

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Table 3
Summary of Triaxial Compression Test Results

Exploration Number	Sample Number	Sample Depth (ft)	Stratum	Initial Conditions			Effective Confining Stress, σ_c'	Failure at R_{max} [2]		Failure at q_{max} [3]		E_i [4]	E_{50} [5]
				Initial Moisture Content	Initial Void Ratio	Initial Dry Unit Weight		p'	q	p'	q		
				(%)		(pcf)	(psf)	(psf)	(psf)	(psf)	(psf)	(psf)	(psf)
Subsurface Exploration Program (CDM Smith, Jul-Aug 2017)													
CDM-1	ST-1	47	Clay & Silt	29.9	0.820	94.3	3,168	2,932	1,688	3,204	1,793	422,754	526,867
CDM-8	ST-1	41	Clay & Silt	25.6	0.704	100.7	2,448	3,077	1,925	5,754	3,323	382,142	451,376
CDM-15	ST-2	32	Clay & Silt	28.9	0.781	96.4	2,160	2,554	1,565	3,234	1,833	371,336	491,744

Notes:

1. USCS classifications were performed in accordance with ASTM D-2487.
2. R_{max}, maximum principal stress ratio, σ_1' / σ_3'
3. q_{max}, maximum principal difference, $(\sigma_1' - \sigma_3') / 2$
4. Initial secant modulus, E_i, taken at 0.5% strain.
5. Young's secant modulus, E_{50}, taken at 50% of q at failure at R_{max}.
6. Isotropically Consolidated Undrained Triaxial compression tests were performed in accordance with ASTM D-4767.

Abbreviations:

p'	Mean Effective Stress
q	Undrained Shear Stress

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Table 4
Summary of Hydraulic Conductivity Test Results

Well Identification	Screened Interval		Hydraulic Conductivity (ft/day)		Hydraulic Conductivity (cm/sec)	
	Depth (bgs)	Strata	Falling	Rising	Falling	Rising
MW-3S	3-13	FILL/WASTE	13.60	27.05	4.80E-03	9.54E-03
MW-3D	14-24	WASTE	7.57	18.59	2.67E-03	6.56E-03
MW-4S	3-18	Fill/WASTE	6.27	6.53	2.21E-03	2.31E-03
MW-4D	20-30	WASTE	14.05	10.02	4.96E-03	3.53E-03
MW-7S	3-13	FILL/WASTE	8.78	22.85	3.10E-03	8.06E-03
MW-7D	7-17	WASTE	8.85	11.40	3.12E-03	4.02E-03
MW-9S	2-12	FILL/WASTE	2.50	8.38	8.82E-04	2.96E-03
MW-9D	12-22	WASTE	6.47	4.57	2.28E-03	1.61E-03
MW-14S	2-12	FILL/WASTE	0.21	1.45	7.24E-05	5.12E-04
MW-14D	12-22	WASTE	2.35	15.90	8.28E-04	5.61E-03

Notes:

1. All wells constructed using 2 " Schedule 40 PVC Riser and 2" (.01") Slot Schedule 40 PVC Screen
2. Slug Testing completed on 3/1/2018

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Table 5
Summary of Subsurface Exploration Programs

Exploration Number	Approximate Ground Surface Elevation (ft)[1]	Exploration Depth (ft)	Stratum Thickness (ft)									Depth to Top of Bedrock (ft)	Depth to Groundwater (ft)[2]	Approximate Groundwater Elevation (ft)
			Topsoil	Pavement	Granular Fill	Waste Fill	Organic Soils	Clay & Silt	Glacial Till	Weathered Rock	Bedrock			
Previous Subsurface Exploration Program (New England Test Boring Corporation, Oct-Nov 1966)														
Boring #1	22.6	66.5	--	--	--	6.5	--	52.5	>7.5	--	--	--	--	--
Boring #2	22.7	11.0	--	--	5.5	--	--	>5.5	--	--	--	--	--	--
Boring #2A	22.7	39.5	--	--	--	6.0	--	23.0	0.5	--	>10.0	29.6	--	--
Boring #3	21.1	46.3	--	--	--	25.0	--	13.5	>7.8	--	--	--	8.1	13.0
Boring #4	21.6	52.5	--	--	--	18.0	--	26.5	>8	--	--	--	5.8	15.8
Boring #5	21.6	33.0	--	--	--	19.0	--	>14.0	--	--	--	--	8.5	13.1
Boring #6	21.7	25.5	--	--	--	21.5	--	>4.0	--	--	--	--	5.5	16.2
Boring #7	21.8	41.0	--	--	--	21.0	--	>20.0	--	--	--	--	5.5	16.3
Boring #8	22.6	30.0	--	--	2.5	--	--	>27.5	--	--	--	--	7.5	15.1
Boring #9	21.8	41.5	--	--	5.5	15.5	--	19.5	>1.0	--	--	--	5.5	16.3
Boring #10	21.6	27.0	--	--	6.5	13.0	--	6.5	>1.0	--	--	--	5.5	16.1
Boring #11	21.3	33.0	--	--	6.0	15.0	--	10.0	>2.0	--	--	--	5.0	16.3
Boring #12	22.0	32.0	--	--	5.0	9.0	--	16.0	>2.0	--	--	--	6.6	15.4
Boring #13	21.4	50.0	--	--	--	25.0	1.5	17.5	>6.0	--	--	--	5.5	15.9
Boring #14	22.7	51.0	--	--	5.0	8.0	--	34.5	>3.5	--	--	--	9.0	13.7
Boring #15	21.2	10.0	--	--	--	10.0	--	--	--	--	--	--	6.0	15.2
Boring #15A	21.2	66.0	1.5	--	--	18.5	--	42.0	2.0	>2.0	NE	--	6.0	15.2
Boring #16	22.0	58.0	--	--	7.0	--	--	42.0	>9.0	--	--	--	6.5	15.5
Previous Subsurface Exploration Program (New England Test Boring Corporation, Jan 1968)														
Boring #17	21.9	87.0	--	--	--	16.0	--	61.0	--	--	>10.0	77.0	6.5	15.4
Boring #18	21.6	88.0	--	--	--	16.5	--	52.5	9.0	--	>10.0	78.0	6.8	14.8
Boring #19	21.3	49.0	--	--	--	14.5	--	24.5	--	--	>10.0	39.0	7.3	14.0
Boring #20	21.8	97.0	--	--	--	15.5	--	65.5	6.0	--	>10.0	87.0	7.8	14.0
Boring #21	21.7	66.0	--	--	--	14.0	--	>52.0	--	--	--	--	4.5	17.2
Boring #22	21.5	69.5	--	--	--	14.5	--	49.0	>6.0	--	--	--	5.8	15.7
Boring #23	22.3	75.5	--	--	--	18.5	--	>57.0	NE	--	--	--	8.5	13.8
Boring #24	22.1	73.5	--	--	--	13.0	--	52.5	>8.0	--	--	--	9.5	12.6
Previous Subsurface Exploration Program (Clean Harbors Environmental Services, Inc., Mar 2000)														
B-1	20.7	16.0	--	--	--	>16.0	--	--	--	--	--	--	--	--
B-4	20.6	16.0	--	--	--	>16.0	--	--	--	--	--	--	5.0	15.6
B-6	21	20.0	--	--	--	>20.0	--	--	--	--	--	--	5.0	16.0
CHI-4	20.3	16.0	--	--	--	>16.0	--	--	--	--	--	--	5.0	15.3
CHI-5	20.5	16.0	--	--	--	14.0	--	>2.0	--	--	--	--	5.0	15.5
CHI-6	20.4	16.0	--	--	--	>16.0	--	--	--	--	--	--	5.0	15.4
CHI-7	21.8	12.0	--	--	--	10.0	--	>2.0	--	--	--	--	5.0	16.8

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Table 5
Summary of Subsurface Exploration Programs

Exploration Number	Approximate Ground Surface Elevation (ft)[1]	Exploration Depth (ft)	Stratum Thickness (ft)									Depth to Top of Bedrock (ft)	Depth to Groundwater (ft)[2]	Approximate Groundwater Elevation (ft)
			Topsoil	Pavement	Granular Fill	Waste Fill	Organic Soils	Clay & Silt	Glacial Till	Weathered Rock	Bedrock			
Previous Subsurface Exploration Program (Clean Harbors Environmental Services, Inc., Feb 2001)														
B-13	20.4	22.0	--	--	10.0	8.0	--	>4.0	--	--	--	--	4.5	15.9
B-14	20.5	8.0	--	--	6.0	>2.0	--	--	--	--	--	--	3.0	17.5
B-15	20.5	8.0	--	--	>8.0		--	--	--	--	--	--	3.0	17.5
B-16	20.5	22.0	--	--	--	20.3	--	>1.8	--	--	--	--	4.8	15.8
B-17	20.5	22.0	--	--	3.0	17.1	--	>1.9	--	--	--	--	4.8	15.8
B-18	20.7	16.0	--	--	--	>16.0	--	--	--	--	--	--	3.8	17.0
CHI-8	21.6	17.0	--	--	5.0	3.0	0.5	>8.5	--	--	--	--	5.0	16.6
CHI-9	21.8	17.0	--	--	0.8	4.3	2.0	>10.0	--	--	--	--	4.8	17.1
CHI-10	21.4	17.0	--	--	--	10.0	5.2	>2.8	--	--	--	--	4.8	16.7
CHI-11	21.1	22.0	--	--	10.0	9.5	--	>2.5	--	--	--	--	7.0	14.1
CHI-12	22.6	17.0	--	--	3.0	7.0	--	>7.0	--	--	--	--	4.8	17.9
Phase 1 - Subsurface Exploration Program (CDM Smith, Jul-Aug 2017)														
CDM-1	21.5	83.0	0.3	--	7.7	22.4	--	32.1	12.2	--	>8.3	74.7	7.7	13.8
CDM-2	22.2	62.5	0.2	--	7.3	--	1.5	38.5	7.5	--	>7.5	55.0	5.3	16.9
CDM-3	20.7	55.0	0.8	--	1.2	26.0	--	20.5	3.5	--	>3.0	52.0	NR	--
CDM-4	21.4	63.5	0.8	--	5.2	24.0	--	23.0	5.5	--	>5.0	58.5	NR	--
CDM-5	22.0	50.0	0.7	--	3.3	24.0	--	19.0	>3.0	--	--	--	NR	--
CDM-6	22.9	50.0	0.5	--	2.5	--	--	40.5	4.0	>2.5	--	--	NR	--
CDM-7	20.8	81.5	--	0.4	5.6	10.2	--	58.3	7.0	--	0.0	81.5	4.5	16.3
CDM-8	19.4	59.1	--	0.5	7.5	10.0	--	29.0	11.0	--	>1.1	58.0	NR	--
CDM-9	21.3	40.0	--	0.5	3.5	14.0	--	10.7	2.8	--	>8.5	31.5	7.0	14.3
CDM-10	23.9	41.0	--	0.4	7.6	--	--	22.8	1.2	--	>9.0	32.0	8.5	15.4
CDM-11	22.9	52.0	--	--	3.0	5.2	--	>43.8	--	--	--	--	NR	--
CDM-12	23.6	50.0	--	0.5	11.5	--	--	38.0	--	--	--	--	7.0	16.6
CDM-13	22.8	94.0	0.3	--	5.7	8.0	--	66.0	12.5	--	>1.5	92.5	NR	--
CDM-14	22.3	85.5	--	--	2.0	18.0	--	62.5	--	>3.0	--	--	NR	--
CDM-15	23.3	80.5	0.3	--	3.7	--	--	75.3	--	--	>1.2	79.3	6.5	16.8
Phase 1 - Test Pit Program (CDM Smith, Dec 2017)														
TP-101	21.0	13.5	1.0	--	6.0	>6.5	--	--	--	--	--	--	11.0	10.0
TP-102	21.0	12.0	1.0	--	2.5	>8.5	--	--	--	--	--	--	9.5	11.5
Phase 2 - Test Pit Program (CDM Smith, Feb 2018)														
TP-201	23.5	22.0	1.0	--	3.0	>18.0	--	--	--	--	--	--	12.5	11.0
TP-203	21.0	18.0	0.5	--	5.5	>12.0	--	--	--	--	--	--	9.0	12.0
TP-204	21.0	16.0	0.5	--	5.5	9.0	--	>1.0	--	--	--	--	7.5	13.5

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Table 5
Summary of Subsurface Exploration Programs

Exploration Number	Approximate Ground Surface Elevation (ft)[1]	Exploration Depth (ft)	Stratum Thickness (ft)									Depth to Top of Bedrock (ft)	Depth to Groundwater (ft)[2]	Approximate Groundwater Elevation (ft)
			Topsoil	Pavement	Granular Fill	Waste Fill	Organic Soils	Clay & Silt	Glacial Till	Weathered Rock	Bedrock			
Phase 2 - Subsurface Exploration Program (CDM Smith, Jan-Feb 2018)														
CDM-101A	21.5	5.0	--	0.3	4.2	>0.5	--	--	--	--	--	--	NE	--
CDM-101B	21.5	15.0	--	0.3	2.7	7.7	--	>4.3	--	--	--	--	NR	--
CDM-102A	21.2	9.0	--	0.4	2.6	>4.8	--	--	--	--	--	--	NE	--
CDM-102B	21.2	15.0	--	0.4	8.1	--	0.5	>6.0	--	--	--	--	8.5	12.7
CDM-103	21.5	23.0	--	0.3	2.7	16.2	--	>3.8	--	--	--	--	6.5	15.0
CDM-104	20.2	34.0	0.5	--	7.2	24.1	--	>2.2	--	--	--	--	6.5	13.7
CDM-105 [3]	22.5	12.0	0.3	--	3.7	--	0.3	>7.8	--	--	--	--	7.0	15.5
CDM-106	21.3	18.0	0.5	--	2.5	11.3	--	>3.7	--	--	--	--	7.3	14.1
CDM-107	23.2	12.0	--	--	4.0	--	--	>8.0	--	--	--	--	6.5	16.7
CDM-108	21.2	15.0	--	0.4	2.3	6.1	0.3	>6.0	--	--	--	--	7.2	14.0
CDM-109	22.7	15.0	--	0.4	4.3	2.3	1.0	>7.0	--	--	--	--	8.1	14.6
CDM-110	22.5	13.0	--	0.4	2.1	4.5	1.7	>4.3	--	--	--	--	NR	--
CDM-111	21.8	12.0	0.5	--	2.8	3.7	--	>5.0	--	--	--	--	NE	--
CDM-112	21.8	18.0	0.5	--	1.5	10.8	--	>5.2	--	--	--	--	9.8	12.0
CDM-113	22.0	18.0	0.5	--	1.5	9.5	--	>6.5	--	--	--	--	6.8	15.2
CDM-114	22.5	20.0	--	--	6.0	--	--	>14.0	--	--	--	--	8.0	14.5
CDM-115	22.2	16.0	0.5	--	3.5	--	--	>12.0	--	--	--	--	8.8	13.4
CDM-116	24.0	14.0	0.5	--	3.5	5.8	--	>4.3	--	--	--	--	12.0	12.0
CDM-117	20.8	19.0	--	0.3	4.7	--	--	>14.0	--	--	--	--	9.5	11.3
CDM-118	22.3	24.0	0.5	--	2.8	16.2	--	>4.5	--	--	--	--	9.8	12.5
CDM-119	21.2	36.0	0.3	--	2.3	30.0	--	>3.3	--	--	--	--	8.5	12.7
CDM-120	21.2	21.0	--	0.3	2.7	15.6	--	>2.4	--	--	--	--	6.8	14.4

Notes:

1. Elevations are referenced to the Cambridge City Base (CCB). Elevations from previous borings from 1966 and 1968 are estimated based on a historical plan entitled "Existing Conditions", dated 01/20/1969. Elevations for borings from Phase 1 Subsurface Exploration Program were surveyed. Elevations for all other borings are estimated based on a site plan entitled "Exisitng Conditions Survey" by Surveying and Mapping Consultants, dated 10/02/2017.
2. Groundwater depths were measured inside borehole or test pit at completion of test borings or excavation and may not necessarily represent stabilized levels.
3. Clay & Silt encountered above and below Organic Soils. Layer thickness indicates total thickness of both upper and lower Clay & Silt.

Abbreviations:

-- indicates no value
> indicates strata not fully penetrated
NR indicates not recorded
NE indicates not encountered

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Table 6
Summary of Monitoring Well Readings

Exploration No. [1]	Approximate Ground Surface El. (ft)[2]	Screen Depth Interval (ft bgs)	Date of Reading	Groundwater Depth Below Ground Surface (ft)	Groundwater El. (ft)
Subsurface Exploration Program (CDM Smith, Jul-Aug 2017)					
CDM-3 (MW-S)	21.0	3 - 13	8/17/2017	6.6	14.4
			10/2/2017	7.0	14.0
			3/1/2018	6.1	14.9
CDM-3 (MW-D)	21.0	14 - 24	8/17/2017	6.8	14.2
			10/2/2017	7.2	13.8
			3/1/2018	6.3	14.7
CDM-4 (MW-S)	21.5	3 -18	8/17/2017	7.1	14.4
			10/2/2017	7.6	13.9
			3/1/2018	6.7	14.8
CDM-4 (MW-D)	21.3	20 -30	8/17/2017	7.0	14.3
			3/1/2018	6.6	14.7
CDM-7 (MW-S)	21.0	3 - 13	8/16/2017	6.7	14.3
			10/2/2017	7.2	13.8
			3/1/2018	6.3	14.7
CDM-7 (MW-D)	21.0	7 - 17	8/16/2017	6.7	14.3
			10/2/2017	7.2	13.8
			3/1/2018	6.5	14.5
CDM-9 (MW-S)	21.3	2 - 12	8/16/2017	6.7	14.6
			10/2/2017	7.4	13.9
			3/1/2018	6.5	14.9
CDM-9 (MW-D)	21.4	12 - 22	8/16/2017	6.9	14.5
			10/2/2017	7.5	14.0
			3/1/2018	6.5	14.9
CDM-14 (MW-S)	22.4	2 - 12	8/16/2017	8.1	14.3
			10/2/2017	8.5	13.9
			3/1/2018	7.6	14.8
CDM-14 (MW-D)	22.2	12 - 22	8/16/2017	9.0	13.3
			10/2/2017	9.4	12.8
			3/1/2018	8.6	13.7

Notes:

1. See Figure 1 for Monitoring Well locations.
2. Elevations are referenced to the Cambridge City Base (CCB).
3. MW-S is abbreviated for Monitoring Well-Shallow and represents the monitoring well with the shallower screen interval at the specified boring location.
4. MW-D is abbreviated for Monitoring Well-Deep and represents the monitoring well the deeper screen interval at the specified boring location.

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Table 7
Soil Sampling Results July-August 2017

											Sample ID	CDM-1 (8-10')		CDM-1 (24-28')		CDM-2 (0-4')		CDM-2 (2-4')		CDM-3 (0-1')		CDM-3 (1-2')		CDM-3 (8-10')		CDM-3 (8-12')		CDM-3 (22-24')		CDM-3 (24-26)		CDM-4 (8-10')		CDM-4 (22-24')		CDM-4 (32-34')	
											Sample Collection Date	8/4/2017		8/7/2017		8/1/2017		8/1/2017		7/27/2017		7/27/2017		7/27/2017		7/27/2017		7/27/2017		7/27/2017		8/2/2017		8/2/2017		8/2/2017	
											Laboratory Order Number	L1727138-05		L1727484-01		L1726673-01		L1726673-02		L1726151-01		L1726151-02		L1726151-03		L1726151-04		L1726151-05		L1726151-09		L1726673-03		L1726673-04		L1726673-05	
Parameter	Reporting Units	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-1	S-2/GW-2	S-2/GW-3	S-3/GW-1	S-3/GW-2	S-3/GW-3		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results	
Extractable Petroleum Hydrocarbons																																	
C11-C22 Aromatics	mg/kg											266		248		71.3		-	-	53.8		7.08	U	-	-	68		25.7		8.62	U	1280		215		11.6	
C11-C22 Aromatics, Adjusted	mg/kg	1000	1000	1000	1000	3000	3000	1000	5000	5000		198		227		53.7		-	-	40.5		7.08	U	-	-	63.7		25.7		8.62	U	978		214		11.6	
C19-C36 Aliphatics	mg/kg	3000	3000	3000	5000	5000	5000	5000	5000	5000		164		177		26.2		-	-	20.3		8.83		-	-	76.5		68.8		8.62	U	446		109		7.93	U
C9-C18 Aliphatics	mg/kg	1000	1000	1000	3000	3000	3000	5000	5000	5000		12		61.9		7.26	U	-	-	14		8.82		-	-	19.3		12.6	U	8.62	U	79.5	U	85.2		7.93	U
General Chemistry																																	
Solids, Total	%											84.3		58.4		89.7		89.7		82.6		92.7		73.1		73.1		74.6		76.3		82.9		77.2		79.4	
MCP Semivolatile Organics																																	
2-Methylnaphthalene	mg/kg	0.7	80	300	1	80	500	1	80	500		*0.92*	U	0.54		0.22	U	-	-	0.24	U	0.21	U	-	-	0.27	U	0.26	U	0.26	U	3.4		0.26	U	0.25	U
3-Methylphenol/4-Methylphenol	mg/kg											1.1	U	0.41		0.26	U	-	-	0.29	U	0.25	U	-	-	0.32	U	0.31	U	0.31	U	2.8	U	0.31	U	0.3	U
Acenaphthene	mg/kg	4	1000	1000	4	3000	3000	4	5000	5000		0.9		0.32		0.15		-	-	0.16	U	0.14	U	-	-	0.18	U	0.17	U	0.17	U	11		0.17	U	0.16	U
Acenaphthylene	mg/kg	1	600	10	1	600	10	1	600	10		0.62	U	0.22	U	0.14	U	-	-	0.16	U	0.14	U	-	-	0.18	U	0.17	U	0.17	U	2.3		0.17	U	0.16	U
Anthracene	mg/kg	1000	1000	1000	3000	3000	3000	5000	5000	5000		2.3		0.81		0.56		-	-	0.17		0.11	U	-	-	0.15		0.13	U	0.13	U	22		0.2		0.12	U
Benzo(a)anthracene	mg/kg	7	7	7	40	40	40	300	300	300		3.5		1.4		2		-	-	0.6		0.11	U	-	-	0.35		0.13	U	0.13	U	28		0.39		0.12	U
Benzo(a)pyrene	mg/kg	2	2	2	7	7	7	30	30	30		2.5		1.6		2		-	-	0.58		0.14	U	-	-	0.34		0.17	U	0.17	U	17		0.38		0.16	U
Benzo(b)fluoranthene	mg/kg	7	7	7	40	40	40	300	300	300		3.2		1.3		2.4		-	-	0.72		0.11	U	-	-	0.41		0.13	U	0.13	U	20		0.42		0.12	U
Benzo(ghi)perylene	mg/kg	1000	1000	1000	3000	3000	3000	5000	5000	5000		1.5		0.84		1.1		-	-	0.33		0.14	U	-	-	0.2		0.17	U	0.17	U	6.9		0.2		0.16	U
Benzo(k)fluoranthene	mg/kg	70	70	70	400	400	400	3000	3000	3000		1.1		0.38		0.81		-	-	0.27		0.11	U	-	-	0.14		0.13	U	0.13	U	8.1		0.16		0.12	U
Bis(2-ethylhexyl)phthalate	mg/kg	90	90	90	600	600	600	2000	2000	2000		0.77	U	0.28	U	0.58		-	-	0.2	U	0.18	U	-	-	0.23	U	0.22	U	0.22	U	2	U	0.21	U	0.21	U
Chrysene	mg/kg	70	70	70	400	400	400	3000	3000	3000		3		1.4		1.8		-	-	0.62		0.11	U	-	-	0.34		0.13	U	0.13	U	26		0.38		0.12	U
Dibenzo(a,h)anthracene	mg/kg	0.7	0.7	0.7	4	4	4	30	30	30		0.46	U	0.5		0.18	U	-	-	0.12	U	0.11	U	-	-	0.14	U	0.13	U	0.13	U	2	U	0.21	U	0.21	U
Dibenzofuran	mg/kg											0.78		0.4		0.18	U	-	-	0.2	U	0.18	U	-	-	0.23	U	0.22	U	0.22	U	2	U	0.21	U	0.21	U
Diethyl phthalate	mg/kg	10	200	300	10	200	300	10	200	300		0.77	U	0.28	U	0.28		-	-	0.2	U	0.18	U	-	-	0.23	U	0.22	U	0.22	U	2	U	0.13	U	0.12	U
Dimethyl phthalate	mg/kg	0.7	50	600	0.7	50	600	0.7	50	600		*0.77*	U	0.28	U	0.18	U	-	-	0.2	U	0.18	U	-	-	0.23	U	0.22	U	0.22	U	7.3		0.21	U	0.21	U
Fluoranthene	mg/kg	1000	1000	1000	3000	3000	3000	5000	5000	5000		7.8		2		4.2		-	-	1.2		0.11	U	-	-	0.79		0.22		0.13	U	57		0.86		0.12	U
Fluorene	mg/kg	1000	1000	1000	3000	3000	3000	5000	5000	5000		1.5		0.53		0.2		-	-	0.2	U	0.18	U	-	-	0.23	U	0.22	U	0.22	U	14		0.21	U	0.21	U
Indeno(1,2,3-cd)pyrene	mg/kg	7	7	7	40	40	40	300	300	300		1.8		0.68		1.2		-	-	0.37		0.14	U	-	-	0.22		0.17	U	0.17	U	8.5		0.19		0.16	U
Naphthalene	mg/kg	4	20	500	4	20	1000	4	20	3000		0.77	U	0.62		0.18	U	-	-	0.2	U	0.18	U	-	-	0.23	U	0.22	U	0.22	U	3.1		0.21	U	0.21	U
Phenanthrene	mg/kg	10	500	500	20	1000	1000	20	3000	3000		7.5		2.9		2		-	-	0.75		0.11	U	-	-	0.67		0.2		0.13	U	62		0.54		0.12	U
Pyrene	mg/kg	1000	1000	1000	3000	3000	3000	5000	5000	5000		6.5		1.7		3.8		-	-	1		0.11	U	-	-	0.74		0.18		0.13	U	51		0.73		0.12	U
MCP Total Metals																																	
Antimony, Total	mg/kg	20	20	20	30	30	30	30	30	30		2.26	U	3.38	U	2.18	U	-	-	2.3	U	2.13	U	-	-	2.7	U	2.63	U	2.5	U	2.37	U	2.48	U	2.46	U
Arsenic, Total	mg/kg	20	20	20	20	20	20	50	50	50		5.35		7.26		6.97		-	-	5.9		18.6		-	-	5.99		15		10.2		4.11		5.39		8.46	
Barium, Total	mg/kg	1000	1000	1000	3000	3000	3000	5000	5000	5000		85		292		32.9		-	-	45.1		15.7		-	-	67.4		271		78.6		32.4		48.2		67.9	
Beryllium, Total	mg/kg	90	90	90	200	200	200	200	200	200		0.236		0.338	U	0.257		-	-	0.318		0.213	U	-	-	0.427		0.394		0.744		0.237	U	0.248		0.674	
Cadmium, Total	mg/kg	70	70	70	100	100	100	100	100	100		1.06		2.02		0.435	U	-	-	0.461	U	0.426	U	-	-	0.541	U	0.525	U	0.709		1.4		0.604		0.581	
Chromium, Total	mg/kg	100	100	100	200	200	200	200	200	200		10.1		16		14		-	-	16.7		12.9		-	-	14.6		25.1		41.8		8.5		22.6		32.7	
Lead, Total	mg/kg	200	200	200	600	600	600	600	600	600		417		**5200**		111		-	-	76		6.07		-	-	71.7		524		11.7		86.4		52.3		19.7	
Mercury, Total	mg/kg	20	20	20	30	30	30	30	30	30		0.414		1.54		0.207		-	-	0.201		0.068	U	-	-	0.389		0.243		0.084	U	0.124		0.081	U	0.081	U
Nickel, Total	mg/kg	600	600	600	1000	1000	1000	1000	1000	1000		8.98		7.78		9.75		-	-	10.5		15.4		-	-	11.4		16.6		27		26.6		26.8		23.9	
Selenium, Total	mg/kg	400	400	400	700	700	700	700	700	700		2.26	U	3.38	U	2.18	U	-	-	2.3	U	2.13	U	-	-	2.7	U	2.63	U	2.5	U	2.37	U	2.48	U	2.46	U
Silver, Total	mg/kg	100	100	100	200	200	200	200	200	200		0.453	U	0.676	U	0.435	U	-	-	0.461	U	0.426	U	-	-	0.541	U	0.525	U	0.499	U	0.474	U	0.495	U	0.492	U
Vanadium, Total	mg/kg	400	400	400	700	700	700	700	700	700		17		15		16.9		-	-	21.3		8.65		-	-	19.6		24.4		46.8		158		19.2		40.5	
Zinc, Total	mg/kg	1000	1000	1000	3000	3000	3000	5000	5000	5000		205		1000		90.6		-	-	77.4		19.4		-	-	281		515		62		268		104		61.1	
TCLP Metals by EPA 1311																																	
*Lead, TCLP	mg/L											0.992		138		0.5	U	-	-	-	-	-	-	-	-	-	-	0.5	U	-	-	-	-	-	-	-	-
MCP Volatile Organics by 8260/5035																																	
Acetone	mg/kg	6	50	400	6	50	400	6	50	400		1.7	U	0.16	U	-	-	0.048	U	0.11	U	0.063	U	5.1	U	-	-	0.065	U	0.071	U	3.9	U	5.2	U	0.087	U
Benzene	mg/kg	2	40	40	2	200	200	2	400	1000		0.047	U	0.0045	U	-	-	0.0013	U	0.003	U	0.0017	U	0.14	U	-	-	0.0018	U	0.002	U	0.11	U	0.15	U	0.0024	U
Chloroform	mg/kg	0.4	0.2	500	0.4	0.2	1000	0.4	0.2	1000		0.071	U	0.0068	U	-	-	0.002	U	0.0045	U	0.0026	U	*0.21*	U	-	-	0.0027	U	0.003	U	0.16	U	*0.22*	U	0.0036	U
Isopropylbenzene	mg/kg											0.047	U	0.0045	U	-	-	0.0013	U	0.003	U	0.0017	U	0.14	U	-	-	0.0018	U	0.002	U	0.11	U	0.15	U	0.0024	U
Methyl ethyl ketone	mg/kg	4	50	400	4	50	400	4	50	400		0.47	U	0.045	U	-	-	0.013	U	0.03	U	0.017	U	1.4	U	-	-	0.018	U	0.02	U	1.1	U	1.5	U	0.024	U
Methyl tert butyl ether	mg/kg	0.1	100	100	0.1	100	500	0.1	100	500		0.095	U	0.009	U	-	-	0.0026	U	0.006	U	0.0035	U	*0.28*	U	-	-	0.0036	U	0.004	U	*0.22*	U	*0.29*	U	0.0048	U
n-Butylbenzene	mg/kg											0.047	U	0.0045	U	-	-	0.0013	U	0.003	U	0.0017	U	0.14	U	-	-	0.0018	U	0.002	U	0.11	U	0.15	U	0.0024	U
n-Propylbenzene	mg/kg											0.047	U	0.0045	U	-	-	0.0013	U	0.003	U	0.0017	U	0.14	U	-	-	0.0018	U	0.002	U	0.11	U	0.15	U	0.0024	U
Naphthalene	mg/kg	4	20	500	4	20	1000	4	20	3000		0.52		0.021		-	-	0.0053	U	0.012	U	0.007	U	0.57	U	-	-	0.0072	U	0.0079	U	1.6		0.58	U	0.0097	U
p-Isopropyltoluene	mg/kg											0.047	U	0.0045	U	-	-	0.0013	U	0.003	U	0.0017	U	0.14	U	-	-	0.01		0.002	U	0.11	U	0.15	U	0.0024	U
sec-Butylbenzene	mg/kg											0.047	U	0.0045	U	-	-	0.0013	U	0.003	U	0.0017	U	0.14	U	-	-	0.0018	U	0.002	U	0.11	U	0.15	U	0.0024	U
Tetrachloroethene	mg/kg	1	10	30	1	10	200	1	10	1000		0.047	U	0.0045	U	-	-	0.0013	U	0.003	U	0.0017	U	0.14	U	-	-	0.0018	U	0.002	U	0.11	U	0.15	U	0.0024	U
MCP Volatile Organics by 5035 High																																	
Naphthalene	mg/kg	4	20	500	4	20	1000	4	20	3000		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

Underlined values exceed S-1 Soil Standards (only applicable for samples from 0-15' BGS.

Shaded Values: Exceed S-2 Standards

Bold Values Exceed S-3 Soil Standards

Italicized Value : Reporting limits greater than applicable MassDEP standards

mg/kg - micrograms per kilogram

U: Not detected to the limit indicated

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

* - Lead Toxity Leaching Characteristic Leaching Procedure EPA Hazardous Waste Limit = 5.0 mg/L.

City of Cambridge
Tobin School
Cambridge, Massachusetts

Table 7
Soil Sampling Results July-August 2017

CDM-5 (9-11')		CDM-5 (9-13')		CDM-5 (24-26')		CDM-5 (24-28')		CDM-6 (0-2')		CDM-6 (20-22')		CDM-7 (6-8')		CDM-7 (16-18')		CDM-8 (8-10')		CDM-8 (16-18')		CDM-8 (22-24')		CDM-9 (10-12')		CDM-9 (14-16')		CDM-9 (14-16')		CDM-9 (20-22')		CDM-10 (2-4')	
8/4/2017		8/4/2017		8/4/2017		8/4/2017		7/26/2017		7/26/2017		7/17/2017		7/17/2017		7/18/2017		7/18/2017		7/18/2017		7/27/2017		7/27/2017		7/27/2017		7/27/2017		7/31/2017	
L1727138-01		L1727138-02		L1727138-03		L1727138-04		L1725718-04		L1725718-05		L1724532-01		L1724532-02		L1724532-05		L1724532-06		L1724532-07		L1726151-06		L1726151-07		L1726151-07 R1		L1726151-08		L1726486-01	
Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results	
-	-	2140		-	-	61.3		17.1		8.46	U	1060		-	-	1050		294		8.25	U	67.9		854		-	-	9.38		25.7	
-	-	2080		-	-	59.8		16		8.46	U	1060		-	-	774		226		8.25	U	50.7		727		-	-	9.38		25.7	
-	-	1590		-	-	96.3		7.37	U	8.46	U	3070		-	-	414		299		8.25	U	67.2		1630		-	-	19.4		28.2	
-	-	431		-	-	13.5		7.37	U	8.46	U	92.1		-	-	80		33.5		8.25	U	7.65	U	299		-	-	8.66	U	7.42	U
70.8		70.8		80.7		80.7		89.3		75.4		84.1		75		67.7		70.5		79.1		86.9		34.7		-	-	73.4		87.3	
-	-	0.3		-	-	0.28		0.22	U	0.26	U	*2.4*	U	-	-	*2.9*	U	0.8		0.25	U	0.28		1.1		-	-	0.26	U	0.22	U
-	-	0.47		-	-	0.29	U	0.26	U	0.31	U	2.8	U	-	-	3.5	U	0.34	U	0.3	U	0.27	U	0.67	U	-	-	0.32	U	0.27	U
-	-	0.57		-	-	0.97		0.15	U	0.17	U	1.6	U	-	-	5		1.6		0.17	U	0.58		3.3		-	-	0.18	U	0.15	U
-	-	0.19	U	-	-	0.37		0.15	U	0.17	U	*1.6*	U	-	-	*1.9*	U	0.2		0.17	U	0.15	U	0.72		-	-	0.18	U	0.15	U
-	-	1.6		-	-	1.5		0.15		0.13	U	1.2	U	-	-	17		2.8		0.13	U	1.4		7.3		-	-	0.13	U	0.11	U
-	-	1.8		-	-	1.8		0.33		0.13	U	1.2	U	-	-	17		4.3		0.13	U	1.4		13		-	-	0.13	U	0.11	
-	-	1.1		-	-	1.4		0.36		0.17	U	1.6	U	-	-	14		2.9		0.17	U	1.2		13		-	-	0.18	U	0.15	U
-	-	1.5		-	-	1.7		0.43		0.13	U	1.2	U	-	-	19		3.8		0.13	U	1.4		15		-	-	0.13	U	0.13	
-	-	0.58		-	-	0.61		0.31		0.17	U	1.6	U	-	-	5.6		1.9		0.17	U	0.66		7		-	-	0.18	U	0.15	U
-	-	0.5		-	-	0.61		0.12		0.13	U	1.2	U	-	-	6.6		1.3		0.13	U	0.5		5.3		-	-	0.13	U	0.11	U
-	-	0.23	U	-	-	0.2	U	0.18		0.22	U	2	U	-	-	2.4	U	0.23	U	0.21	U	0.19	U	0.46	U	-	-	0.22	U	0.19	U
-	-	2		-	-	1.6		0.33		0.13	U	1.2	U	-	-	15		3.7		0.13	U	1.2		13		-	-	0.13	U	0.11	U
-	-	0.2		-	-	0.2		0.11	U	0.13	U	*1.2*	U	-	-	1.5		0.57		0.13	U	0.16	U	1.7		-	-	0.13	U	0.11	U
-	-	0.41		-	-	0.73		0.18	U	0.22	U	2	U	-	-	3.8		1.1		0.21	U	0.56	U	2.1		-	-	0.22	U	0.19	U
-	-	0.23	U	-	-	0.2	U	0.18	U	0.22	U	2	U	-	-	2.4	U	0.23	U	0.21	U	0.19		0.46	U	-	-	0.22	U	0.19	U
-	-	0.23	U	-	-	0.2	U	0.18	U	0.22	U	*2*	U	-	-	*2.4*	U	0.23	U	0.21	U	0.19		0.46	U	-	-	0.22	U	0.19	U
-	-	3.9		-	-	3.8		0.76		0.13	U	1.2	U	-	-	40		8		0.13	U	3.7		35	E	34		0.24		0.17	
-	-	1.2		-	-	1.7		0.18	U	0.22	U	2	U	-	-	7.5		1.7		0.21	U	0.9		4.3		-	-	0.22	U	0.19	U
-	-	0.7		-	-	0.73		0.31		0.17	U	1.6	U	-	-	6.4		2.1		0.17	U	0.72		7.8		-	-	0.18	U	0.15	U
-	-	0.55		-	-	0.2	U	0.18	U	0.22	U	2	U	-	-	2.4	U	3.2		0.21	U	0.34		1.8		-	-	0.22	U	0.19	U
-	-	4.8		-	-	5.9		0.57		0.13	U	1.2	U	-	-	47		8.1		0.13	U	4.3		33	E	34		0.23		0.11	U
-	-	3.4		-	-	3.1		0.64		0.13	U	1.2	U	-	-	31		6.3		0.13	U	3		31	E	31		0.2		0.16	
-	-	2.76	U	-	-	24.3	U	2.16	U	2.6	U	7.3		4.84		13.5		4.84		2.53	U	3.26		15.8		-	-	2.6	U	2.19	U
-	-	6.54		-	-	8.55		8.75		7.96		8.51		12.5		8.55		8.46		9.7		10.4		**64.4**		-	-	7.47		5.13	
-	-	85.5		-	-	270		27.9		76.4		502		226		531		523		78.5		89.6		548		-	-	96.2		19.2	
-	-	0.282		-	-	2.43	U	0.216	U	0.74		0.232	U	0.257	U	0.354		0.286		0.698		0.222	U	0.651		-	-	0.734		0.298	
-	-	1.45		-	-	8.99		0.432	U	0.724		8.06		0.514	U	0.59	U	0.562	U	0.506	U	0.444	U	1.12	U	-	-	0.52	U	0.438	U
-	-	18.7		-	-	25.4		12.6		52.2		19.8		39		35.8		36.2		38.3		27.6		45.9		-	-	39.1		15.4	
-	-	199		-	-	200		32.9		9.23		**3950**		**888**		**915**		596		8.8		97.3		**1620**		-	-	24.7		30.6	
-	-	0.384		-	-	0.152		0.07	U	0.087	U	0.122		0.098		1.55		16.7		0.083	U	0.072	U	1.07		-	-	0.085	U	0.075	
-	-	15.7		-	-	22.2		9.97		32.7		32.3		38.7		14.2		19.8		26		30.4		30.6		-	-	25.5		8.74	
-	-	2.76	U	-	-	24.3	U	2.16	U	2.6	U	4.72		2.69		2.95	U	2.81	U	2.53	U	2.22	U	5.62	U	-	-	2.6	U	2.19	U
-	-	0.552	U	-	-	4.86	U	0.432	U	0.521	U	2.35		0.514	U	0.696		0.562	U	0.506	U	0.444	U	11.3		-	-	0.52	U	0.438	U
-	-	33.7		-	-	16.9		11.4		48.9		17.4		9.66		17.8		17.2		45		15.6		23.8		-	-	45.3		12.1	
-	-	571		-	-	636		43.4		59.7		**18500**		815		749		545		59.1		181		1590		-	-	66.1		37.1	
-	-	4.99		-	-	0.5	U	-	-	-	-	8.48		0.5	U	14.5		1.03		-	-	-	-	17.1		-	-	-	-	-	-
3.3	U	-	-	2.1	U	-	-	0.067	U	0.057	U	0.051	U	*6.9*	U	*8.5*	U	0.065	U	0.062	U	0.049	U	0.54		-	-	0.15		0.053	U
0.11		-	-	0.14		-	-	0.0019	U	0.0016	U	0.0014	U	0.29		0.24	U	0.0018	U	0.0017	U	0.0014	U	0.0053	U	-	-	0.0016	U	0.0015	U
0.14	U	-	-	0.086	U	-	-	0.0028	U	0.0024	U	0.0021	U	*0.29*	U	*0.36*	U	0.0049		0.0026	U	0.002	U	0.008	U	-	-	0.0024	U	0.0022	U
0.091	U	-	-	0.058	U	-	-	0.0019	U	0.0016	U	0.0014	U	0.19	U	0.24	U	0.0018	U	0.0017	U	0.0014	U	0.017		-	-	0.0016	U	0.0015	U
0.91	U	-	-	0.58	U	-	-	0.019	U	0.016	U	0.014	U	1.9	U	2.4	U	0.018	U	0.017	U	0.014	U	0.053	U	-	-	0.016	U	0.015	U
0.18	U	-	-	*0.12*	U	-	-	0.0037	U	0.0032	U	0.0028	U	*0.38*	U	*0.47*	U	0.0036	U	0.0034	U	0.0027	U	0.011	U	-	-	0.034		0.0029	U
0.26		-	-	0.058	U	-	-	0.0019	U	0.0016	U	0.0014	U	0.19	U	0.24	U	0.0018	U	0.0017	U	0.0014	U	0.1		-	-	0.0016	U	0.0015	U
0.091	U	-	-	0.058	U	-	-	0.0019	U	0.0016	U	0.0014	U	0.19	U	0.24	U	0.0018	U	0.0017	U	0.0014	U	0.018		-	-	0.0016	U	0.0015	U
0.59		-	-	0.23	U	-	-	0.0075	U	0.0063	U	0.0057	U	15		0.95	U	0.027		0.0068	U	0.0055	U	0.043		-	-	0.0065	U	0.0059	U
0.091	U	-	-	0.79		-	-	0.0019	U	0.0016	U	0.0014	U	0.19	U	0.24	U	0.009		0.0017	U	0.0014	U	0.0053	U	-	-	0.0016	U	0.0015	U
0.15		-	-	0.058	U	-	-	0.0019	U	0.0016	U	0.0014	U	0.19	U	0.24	U	0.0018	U	0.0017	U	0.0014	U	0.086		-	-	0.0016	U	0.0015	U
0.091	U	-	-	0.058	U	-	-	0.0019	U	0.0016	U	0.0014	U	0.19	U	0.24	U	0.0018	U	0.0025		0.0014	U	0.0053	U	-	-	0.0016	U	0.0015	U
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

City of Cambridge
Tobin School
Cambridge, Massachusetts

Table 7
Soil Sampling Results July-August 2017

CDM-11 (2-4')		CDM-11 (8-10')		CDM-12 (6-8')		CDM-12 (14-16')		CDM-13 (4-6')		CDM-13 (8-12')		CDM-13 (16-18')		CDM-14 (4-6')		CDM-14 (6-8')		CDM-14 (8-10')		CDM-14 (8-10')		CDM-14 (20-22')		CDM-15 (0-2')		CDM-15 (12-14')		TRIP BLANK	
7/17/2017		7/17/2017		8/9/2017		8/9/2017		7/25/2017		7/25/2017		7/25/2017		7/19/2017		7/19/2017		7/19/2017		7/19/2017		7/20/2017		7/20/2017		7/20/2017		7/13/2017	
L1724532-03		L1724532-04		L1727972-01		L1727972-02		L1725718-01		L1725718-02		L1725718-03		L1724979-01		L1724979-02		L1724979-03		L1724979-03 R1		L1724979-06		L1724979-04		L1724979-05		L1724532-08	
Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results	
69.2		8.16	U	8.55	U	8.21	U	36.3		100		8.05	U	72.6		182		709		-	-	9.8		34.5		9.19	U	-	-
69.2		8.16	U	8.55	U	8.21	U	29.6		92.7		8.05	U	44.2		110		502		-	-	9.8		29.2		9.19	U	-	-
177		8.16	U	8.55	U	8.21	U	8.1		69.8		8.05	U	20		52.2		132		-	-	8.58	U	6.66	U	9.19	U	-	-
27.3		8.16	U	8.55	U	8.21	U	7.78	U	12.4		8.05	U	7.49	U	7.59	U	19.1	U	-	-	8.58	U	6.66	U	9.19	U	-	-
87.6		80.1		76		80		83.3		72.8		78.5		87.9		85.3		67.9		-	-	75.2		94.7		71.1		-	-
1.1	U	0.24	U	0.26	U	0.25	U	0.24	U	0.27	U	0.25	U	0.44		0.71		0.53		-	-	0.26	U	0.21	U	0.27	U	-	-
1.3	U	0.29	U	0.31	U	0.3	U	0.28	U	0.33	U	0.3	U	0.27	U	0.28	U	0.35	U	-	-	0.32	U	0.25	U	0.33	U	-	-
0.74	U	0.16	U	0.17	U	0.16	U	0.16	U	0.18	U	0.17	U	0.55		0.86		0.78		-	-	0.18	U	0.14	U	0.18	U	-	-
0.74	U	0.16	U	0.17	U	0.16	U	0.16	U	0.18	U	0.17	U	0.15	U	0.22		0.75		-	-	0.18	U	0.14	U	0.18	U	-	-
0.56	U	0.12	U	0.13	U	0.12	U	0.17		0.33		0.13	U	1.2		2		6.2		-	-	0.13	U	0.15		0.14	U	-	-
0.56	U	0.12	U	0.13	U	0.12	U	0.37		0.69		0.13	U	1.5		2.6		17	E	16		0.13	U	0.52		0.14	U	-	-
0.74	U	0.16	U	0.17	U	0.16	U	0.37		0.62		0.17	U	1.4		2.3		16	E	15		0.18	U	0.5		0.18	U	-	-
0.56	U	0.12	U	0.13	U	0.12	U	0.43		0.84		0.13	U	1.5		2.7		23	E	21		0.13	U	0.63		0.14	U	-	-
0.74	U	0.16	U	0.17	U	0.16	U	0.21		0.34		0.17	U	0.89		1.4		12	E	9.5		0.18	U	0.35		0.18	U	-	-
0.56	U	0.12	U	0.13	U	0.12	U	0.16		0.27		0.13	U	0.64		0.91		5.7		-	-	0.13	U	0.23		0.14	U	-	-
0.93	U	0.2	U	0.22	U	0.2	U	0.2	U	0.23	U	0.21	U	0.19	U	0.19	U	0.24	U	-	-	0.22	U	0.17	U	0.23	U	-	-
0.56	U	0.12	U	0.13	U	0.12	U	0.34		0.72		0.13	U	1.5		2.4		17	E	16		0.13	U	0.52		0.14	U	-	-
0.56	U	0.12	U	0.13	U	0.12	U	0.12	U	0.14	U	0.13	U	0.21		0.32		3		-	-	0.13	U	0.1	U	0.14	U	-	-
0.93	U	0.2	U	0.22	U	0.2	U	0.2	U	0.23	U	0.21	U	0.61		0.91		0.9		-	-	0.22	U	0.17	U	0.23	U	-	-
0.93	U	0.2	U	0.22	U	0.2	U	0.2	U	0.23	U	0.21	U	0.19	U	0.19	U	0.24	U	-	-	0.22	U	0.17	U	0.23	U	-	-
0.93	U	0.2	U	0.22	U	0.2	U	0.2	U	0.23	U	0.21	U	0.19	U	0.19	U	0.24	U	-	-	0.22	U	0.17	U	0.23	U	-	-
0.56	U	0.12	U	0.13	U	0.12	U	0.78		1.6		0.13	U	3.9		6		24	E	36		0.13	U	1		0.14	U	-	-
0.93	U	0.2	U	0.22	U	0.2	U	0.2	U	0.24		0.21	U	0.8		1.2		1.5		-	-	0.22	U	0.17	U	0.23	U	-	-
0.74	U	0.16	U	0.17	U	0.16	U	0.24		0.39		0.17	U	0.94		1.5		13	E	10		0.18	U	0.38		0.18	U	-	-
0.93	U	0.2	U	0.22	U	0.2	U	0.2	U	0.23	U	0.21	U	0.97		1.6		1.3		-	-	0.22	U	0.17	U	0.23	U	-	-
0.56	U	0.12	U	0.13	U	0.12	U	0.55		1.3		0.13	U	4.3		6.4		10	E	10		0.13	U	0.63		0.14	U	-	-
0.56	U	0.12	U	0.13	U	0.12	U	0.67		1.3		0.13	U	3.3		5.2		24	E	30		0.13	U	0.93		0.14	U	-	-
2.2	U	2.42	U	2.5	U	2.4	U	2.3	U	2.71	U	2.46	U	2.17	U	2.3	U	2.9	U	-	-	2.55	U	2.1	U	2.74	U	-	-
6.96		6.7		6.7		8.92		6.39		8.42		7.96		7.2		7.32		6.95		-	-	17.9		4.2		8.49		-	-
150		186		53.5		75.3		54.9		119		66.5		58.6		104		116		-	-	77.4		37.4		71.3		-	-
0.22	U	0.275		0.48		0.644		0.469		0.271	U	0.599		0.23		0.23	U	0.29	U	-	-	0.28		0.214		0.445		-	-
0.44	U	0.483	U	0.5	U	0.514		0.584		0.694		0.624		1.04		0.726		0.766		-	-	39.5		0.504		0.763		-	-
9.71		41.8		25		33.7		23.8		9.09		35.7		15.8		21.1		10.9		-	-	30.2		13.6		32.6		-	-
550		519		7.87		8.34		39.8		**816**		8.55		443		188		**1410**		-	-	193		38		9.38		-	-
0.954		0.082		0.085	U	0.078	U	0.078	U	0.165		0.081	U	0.248		0.37		1.14		-	-	0.084		0.076		0.091	U	-	-
7.15		28.4		18.3		22.5		16.6		8.42		26.1		23.9		12		8.48		-	-	22		10		23.4		-	-
4.26		2.42	U	2.5	U	2.4	U	2.3	U	2.71	U	2.46	U	2.17	U	2.3	U	2.9	U	-	-	2.55	U	2.1	U	2.74	U	-	-
0.44	U	0.483	U	0.5	U	0.481	U	0.46	U	0.542	U	0.491	U	0.434	U	0.46	U	0.581	U	-	-	0.51	U	0.42	U	0.549	U	-	-
19.6		16.7		30.3		37.6		30.8		12.6		43.2		21.1		18.2		15.4		-	-	35.5		20.1		38.4		-	-
322		648		37.9		52		72.7		283		57.2		458		144		996		-	-	**8460**		54		48.7		-	-
7.62		0.5	U	-	-	-	-	-	-	0.5	U	-	-	0.664		0.5	U	2.06		-	-	0.5	U	-	-	-	-	-	-
0.098	U	0.075	U	0.12	U	0.11	U	0.048		0.12		0.043	U	0.35		0.13		0.39		-	-	0.052	U	0.043	U	0.14	U	0.23	
0.0027	U	0.0021	U	0.0033	U	0.003	U	0.00092	U	0.0016	U	0.0012	U	0.0024	U	0.0029	U	0.0074	U	-	-	0.0014	U	0.0012	U	0.0039	U	0.001	U
0.0041	U	0.0031	U	0.0049	U	0.0045	U	0.0014	U	0.0024	U	0.0018	U	0.0036	U	0.0044	U	0.011	U	-	-	0.0022	U	0.0018	U	0.0059	U	0.0015	U
0.0027	U	0.0021	U	0.0033	U	0.003	U	0.00092	U	0.0016	U	0.0012	U	0.0024	U	0.0029	U	0.0074	U	-	-	0.0014	U	0.0012	U	0.0039	U	0.001	U
0.027	U	0.021	U	0.033	U	0.03	U	0.0092	U	0.021		0.012	U	0.085		0.029	U	0.11		-	-	0.014	U	0.012	U	0.039	U	0.01	U
0.0054	U	0.0042	U	0.0066	U	0.006	U	0.0018	U	0.0033	U	0.0024	U	0.0047	U	0.0059	U	0.015	U	-	-	0.0029	U	0.0024	U	0.0078	U	0.002	U
0.0027	U	0.0021	U	0.0033	U	0.003	U	0.00092	U	0.0016	U	0.0012	U	0.0024	U	0.0029	U	0.0074	U	-	-	0.0014	U	0.0012	U	0.0039	U	0.001	U
0.0027	U	0.0021	U	0.0033	U	0.003	U	0.00092	U	0.0016	U	0.0012	U	0.0024	U	0.0029	U	0.0074	U	-	-	0.0014	U	0.0012	U	0.0039	U	0.001	U
0.011	U	0.0083	U	0.013	U	0.012	U	0.0037	U	0.0065	U	0.0048	U	0.12		1.2	E	0.033		-	-	0.0058	U	0.0048	U	0.016	U	0.004	U
0.0027	U	0.0021	U	0.0033	U	0.003	U	0.00092	U	0.0016	U	0.0012	U	0.0024	U	0.0029	U	0.0074	U	-	-	0.0014	U	0.0012	U	0.0039	U	0.001	U
0.0027	U	0.0021	U	0.0033	U	0.003	U	0.00092	U	0.0016	U	0.0012	U	0.0024	U	0.0029	U	0.0074	U	-	-	0.0014	U	0.0012	U	0.0039	U	0.001	U
0.0037		0.0022		0.0033	U	0.003	U	0.00092	U	0.0016	U	0.0012	U	0.0024	U	0.0029	U	0.0074	U	-	-	0.0014	U	0.0012	U	0.0039	U	0.001	U
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6		-	-	-	-	-	-	-	-	0.2	U

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Table 8
Groundwater Sampling Results August 2017

				Sample ID	MW-3S	MW-3D	MW-4S	MW-4D	DUP-1 (MW-4D)	MW-7S	MW-7D	MW-9S	MW-9D	MW-14S	MW-14D
				Sample Collection Date	16-AUG-17	17-AUG-17	17-AUG-17	17-AUG-17	17-AUG-17	16-AUG-17	16-AUG-17	16-AUG-17	16-AUG-17	16-AUG-17	16-AUG-17
				Laboratory Order Number	L1728873-01	L1728873-04	L1728873-06	L1728873-05	L1728873-07	L1728684-01	L1728684-02	L1728873-02	L1728873-01	L1728684-03	L1728684-04
Parameter	**Reporting Units**	**GW-1**	**GW-2**	**GW-3**											
EPH															
C11-C22 Aromatics	ug/l	NA	NA	NA	< 100	< 100	173	140	109	127	< 100	< 100	< 100	NA	< 100
C11-C22 Aromatics, Adjusted	ug/l	200	50000	5000	< 100	< 100	149	140	109	105	< 100	< 100	< 100	NA	< 100
C19-C36 Aliphatics	ug/l	14000	NA	50000	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100
C9-C18 Aliphatics	ug/l	700	5000	50000	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	NA	< 100
GC Volatiles by MAVPH															
Acetone	ug/l	6300	50000	50000	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	21	< 5
Methyl tert-butyl ether	ug/l	70	50000	50000	< 2	< 2	< 2	< 2	< 2	< 2	2.7	< 2	400	< 2	< 2
Naphthalene	ug/l	140	700	20000	< 2	< 2	4.5	9.4	9.9	26	< 2	< 2	< 4	< 2	< 2
Tertiary-Amyl Methyl Ether	ug/l	NA	NA	NA	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	25	< 2	< 2
Tetrachloroethene	ug/l	5	50	30000	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	4.4	< 1	< 1
MCP Semivolatile Organics															
3-Methylphenol/4-Methylphenol	ug/l				< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	19	< 5
Dibenzofuran	ug/l				< 2	< 2	< 2	< 2	< 2	2.6	< 2	< 2	< 2	< 2	< 2
MCP Semivolatile Organics by SIM															
Acenaphthene	ug/l	20	NA	10000	3.8	0.42	11	4.5	4.8	5.7	1.6	1.0	0.57	2.0	3.0
Acenaphthylene	ug/l	30	10000	40	0.10	< 0.1	0.20	0.34	0.34	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.13
Anthracene	ug/l	60	NA	30	0.78	< 0.1	1.5	0.94	1.1	2	0.23	0.21	< 0.1	0.78	0.55
Benzo[a]anthracene	ug/l	1	NA	1000	< 0.1	< 0.1	< 0.1	0.12	0.18	0.11	< 0.1	< 0.1	< 0.1	0.32	0.33
Benzo[a]pyrene	ug/l	0.2	NA	500	< 0.1	< 0.1	< 0.1	< 0.1	0.12	< 0.1	< 0.1	< 0.1	< 0.1	0.25	0.28
Benzo[b]fluoranthene	ug/l	1	NA	400	< 0.1	< 0.1	< 0.1	0.10	0.16	< 0.1	< 0.1	< 0.1	< 0.1	0.32	0.40
Benzo[g,h,i]perylene	ug/l	50	NA	20	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.16	0.27
Benzo[k]fluoranthene	ug/l	1	NA	100	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.13	0.16
Chrysene	ug/l	2	NA	70	< 0.1	< 0.1	< 0.1	0.14	0.21	0.13	< 0.1	< 0.1	< 0.1	0.36	0.37
Dibenz(a,h)anthracene	ug/l	0.5	NA	40	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	ug/l	90	NA	200	1.0	< 0.1	0.84	0.93	1.1	1.8	0.27	0.32	0.15	1.3	0.91
Fluorene	ug/l	30	NA	40	3.2	0.15	6.6	3.3	3.4	4.1	0.80	0.64	0.17	2.6	1.4
Indeno[1,2,3-cd]pyrene	ug/l	0.5	NA	100	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.18	0.26
Naphthalene	ug/l	140	700	20000	1.3	0.14	2.8	5.8	6.1	10	0.39	0.69	0.13	0.96	0.26
Phenanthrene	ug/l	40	NA	10000	3.4	0.34	9.3	5.4	6.0	9.9	1.1	0.42	0.50	4.2	1.9
Pyrene	ug/l	60	NA	20	0.75	< 0.1	0.56	0.63	0.75	1.3	0.21	0.22	0.11	0.90	0.66
MCP 1,4 Dioxane by 8270D-SIM															
1,4-Dioxane	ug/l	0.3	6000	50000	< 0.142	< 0.142	< 0.147	< 0.142	< 0.144	< 0.147	< 0.144	< 0.147	0.198	< 0.144	< 0.144
Metals by 6010 (Total)															
Arsenic	ug/l	10	NA	900	< 5	8	9	6	6	< 5	< 5	6	28	11	< 5
Barium	ug/l	2000	NA	50000	170	303	716	608	600	3660	2060	114	70	492	795
Lead	ug/l	15	NA	10	< 10	**67**	< 10	**31**	**29**	< 10	**14**	**26**	**11**	**65**	< 10
Zinc	ug/l	5000	NA	900	< 50	54	< 50	< 50	< 50	< 50	< 50	< 50	< 50	234	< 50

Notes:
All wells compared to GW-1 and GW-3
Wells MW-9S/9D and MW-14S/14D are also compared to GW-2
Shaded Values: Exceed GW-1 Standards
Underlined Values: Exceed GW-2 Standards
Bolded Value: Exceeds GW-3 Standards
< #: Not detected to the limit indicated
Italicized Value : Reporting limits greater than applicable MassDEP standards
ug/l - micrograms/liter
NA - Not Applicable
GW1 - Concentrations based on the use of groundwater as drinking water, either currently or in the foreseeable future.
GW2 - Concentrations based on the potential for volatile material to migrate into indoor air.
GW3 - Concentrations based on the potential environmental effects resulting from contaminated groundwater discharging to surface water.

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Table 9
Groundwater Sampling Results March 2018

				Sample ID	MW-3S	MW-3D	MW-4S	MW-4D	MW-7S	MW-7D	MW-9S	MW-9D	MW-14S	MW-14D
				Sample Collection Date	01-MAR-18	01-MAR-18	01-MAR-18	01-MAR-18	01-MAR-18	01-MAR-18	01-MAR-18	01-MAR-18	01-MAR-18	01-MAR-18
				Laboratory Order Number	L1807193-01	L1807193-02	L1807193-03	L1807193-04	L1807193-06	L1807193-05	L1807193-08	L1807193-07	L1807264-02	L1807264-01
Parameter	**Reporting Units**	**GW-1**	**GW-2**	**GW-3**										
MCP Volatile Organics														
Acetone	ug/l	6300	50000	50000	<5	<5	<5	<5	<5	<5	<5	<5	<5	6.7
Methyl tert-butyl ether	ug/l	70	50000	50000	<2	<2	<2	<2	2.2	3.3	<2	400	<2	<2
Naphthalene	ug/l	140	700	20000	<2	<2	<2	<2	4.7	<2	<2	<2	<2	<2
Tertiary-Amyl Methyl Ether	ug/l	NA	NA	NA	<2	<2	<2	<2	<2	<2	<2	22	<2	<2
MCP Semivolatile Organics														
Phenol	ug/l	1000	50000	2000	<5	<5	<5	<5	<5	<5	<5	<5	<5	8.9
MCP Semivolatile Organics by SIM														
2-Methylnaphthalene	ug/l	10	2000	20000	0.11	<0.1	0.26	0.69	0.4	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	ug/l	20	NA	10000	1.3	0.41	5.2	2.8	2.2	0.38	<0.1	0.4	1.1	2.2
Acenaphthylene	ug/l	30	10000	40	<0.1	0.1	0.12	0.29	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	ug/l	60	NA	30	0.2	<0.1	0.63	1.1	0.49	<0.1	<0.1	<0.1	0.26	0.36
Benzo(a)anthracene	ug/l	1	NA	1000	0.12	<0.1	0.23	0.97	<0.1	<0.1	<0.1	<0.1	<0.1	0.18
Benzo(a)pyrene	ug/l	0.2	NA	500	0.12	<0.1	0.22	0.97	<0.1	<0.1	<0.1	<0.1	<0.1	0.17
Benzo(b)fluoranthene	ug/l	1	NA	400	0.16	<0.1	0.31	1.30	<0.1	<0.1	<0.1	<0.1	<0.1	0.24
Benzo(ghi)perylene	ug/l	50	NA	20	<0.1	0.13	0.16	0.76	<0.1	<0.1	<0.1	<0.1	<0.1	0.13
Benzo(k)fluoranthene	ug/l	1	NA	100	<0.1	<0.1	0.1	0.45	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	ug/l	2	NA	70	0.11	<0.1	0.21	0.96	<0.1	<0.1	<0.1	<0.1	<0.1	0.18
Fluoranthene	ug/l	90	NA	200	0.5	0.12	0.76	2.9	0.54	<0.1	<0.1	<0.1	0.39	0.68
Fluorene	ug/l	30	NA	40	0.94	<0.1	3.5	2.6	1.7	0.22	<0.1	<0.1	1.8	1.2
Indeno(1,2,3-cd)pyrene	ug/l	0.5	NA	100	<0.1	<0.1	0.15	0.68	<0.1	<0.1	<0.1	<0.1	<0.1	0.12
Naphthalene	ug/l	140	700	20000	<2	<2	<2	<2	4.7	<2	<2	<2	0.24	0.26
Phenanthrene	ug/l	40	NA	10000	0.4	0.16	3.2	5.5	2.2	0.24	<0.1	0.14	1.4	1.1
Pyrene	ug/l	60	NA	20	0.49	0.11	0.6	2.2	0.46	<0.1	<0.1	<0.1	0.25	0.49
MCP 1,4 Dioxane by 8270D-SIM														
1,4-Dioxane	ug/l	0.3	6000	50000	<0.15	<0.142	<0.142	<0.144	<0.144	<0.15	<0.147	0.158	<0.147	<0.147
MCP Dissolved Metals														
Arsenic, Dissolved	ug/l	10	NA	900	<5	6.6	<5	<5	<5	<5	<5	40.2	5.5	<5
Barium, Dissolved	ug/l	2000	NA	50000	49	262	646	729	526	2140	113	134	833	1150
Lead, Dissolved	ug/l	15	NA	10	<10	<10	<10	**77**	<10	<10	**54**	<10	<10	<10
Zinc, Dissolved	ug/l	5000	NA	900	<50	<50	<50	<50	60	<50	224	<50	<50	<50

Notes:

All wells compared to GW-1 and GW-3

Wells MW-9S/9D and MW-14S/14D are also compared to GW-2

Shaded Values: Exceed GW-1 Standards

Underlined Values: Exceed GW-2 Standards

Bolded Value: Exceeds GW-3 Standards

< #: Not detected to the limit indicated

Italicized Value : Reporting limits greater than applicable MassDEP standards

ug/l - micrograms/liter

NA - Not Applicable

GW1 - Concentrations based on the use of groundwater as drinking water, either currently or in the foreseeable future.

GW2 - Concentrations based on the potential for volatile material to migrate into indoor air.

GW3 - Concentrations based on the potential environmental effects resulting from contaminated groundwater discharging to surface water.

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Table 10
Soil Gas Probe and Groundwater Well Landfill Gas Monitoring Results - August 16-17, 2017

Sample Location	Sample Date	Methane (% vol.)		LEL (% vol.)		Carbon Dioxide (% vol.)		Oxygen (% vol.)		PID Reading (ppm_v)		Hydrogen Sulfide (ppm_v)		Atmospheric Pressure (in Hg)	
		Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
Landfill Gas Probes															
SGP-1	8/16/2017	0.0	0.0	0.0	0.0	1.2	0.9	19.8	20.3	0.0	0.0	0.0	0.0	29.84	29.84
SGP-2	8/16/2017	0.0	0.0	0.0	0.0	3.5	3.3	17.6	18.0	0.0	0.0	0.0	0.0	29.78	29.78
SGP-3	8/16/2017	0.0	0.0	0.0	0.0	2.2	2.3	19.1	19.2	0.0	0.0	0.0	0.0	29.77	29.77
SGP-4	8/16/2017	0.0	0.0	0.0	0.0	2.5	2.6	18.9	19.0	0.0	0.0	0.0	0.0	29.77	29.77
SGP-5	8/16/2017	0.0	0.0	0.0	0.0	4.7	4.8	16.3	16.2	0.0	0.0	0.0	0.0	29.78	29.78
SGP-6	8/16/2017	0.0	0.0	0.0	0.0	2.9	3.2	18.6	18.4	0.0	0.0	0.0	0.0	29.76	29.76
SGP-7	8/16/2017	0.0	0.0	0.0	0.0	5.9	6.0	15.1	14.9	0.0	0.0	0.0	0.0	29.76	29.76
SGP-8	8/16/2017	0.0	0.0	0.0	0.0	3.8	3.6	17.4	17.0	0.0	0.0	0.0	0.0	29.76	29.76
SGP-9	8/17/2017	0.0	0.0	0.0	0.0	3.7	3.9	18.6	18.1	0.0	0.0	0.0	0.0	30.00	30.00
SGP-10	8/17/2017	0.0	0.0	0.0	0.0	1.3	1.7	19.6	19.2	0.0	0.0	0.0	0.0	30.00	30.00
SGP-11	8/17/2017	0.0	0.0	0.0	0.0	2.6	4.1	18.8	17.9	0.0	0.0	0.0	0.0	30.15	30.15
SGP-12	8/17/2017	0.0	0.0	0.0	0.0	3.0	2.7	18.6	18.8	0.0	0.0	0.0	0.0	30.15	30.15
SGP-13	8/17/2017	0.0	0.0	0.0	0.0	2.7	3.6	18.6	18.1	0.0	0.0	0.0	0.0	30.15	30.15
SGP-14	8/17/2017	0.0	0.0	0.0	0.0	2.6	2.8	18.1	18.5	0.0	0.0	0.0	0.0	30.15	30.15
SGP-15	8/17/2017	0.0	0.0	0.0	0.0	1.7	1.6	19.6	19.7	0.0	0.0	0.0	0.0	30.15	30.15
SGP-16	8/17/2017	0.0	0.0	0.0	0.0	2.0	2.0	19.4	19.4	0.0	0.0	0.0	0.0	30.13	30.13
SGP-17	8/17/2017	0.0	0.0	0.0	0.0	1.7	1.3	19.3	19.6	0.0	0.0	0.0	0.0	30.13	30.13
SGP-18	8/17/2017	0.0	0.0	0.0	0.0	0.5	0.8	19.2	19.5	0.0	0.0	0.0	0.0	30.13	30.13
SGP-19	8/17/2017	0.0	0.0	0.0	0.0	1.2	1.4	19.4	19.3	0.0	0.0	0.0	0.0	30.13	30.13
SGP-20	8/17/2017	0.0	0.0	0.0	0.0	0.7	0.9	19.8	19.7	0.0	0.0	0.0	0.0	30.13	30.13
SGP-21	8/17/2017	0.0	0.0	0.0	0.0	2.2	2.3	18.4	18.3	0.0	0.0	0.0	0.0	30.13	30.13
SGP-22	8/17/2017	0.0	0.0	0.0	0.0	0.6	0.5	19.5	19.9	0.0	0.0	0.0	0.0	30.13	30.13
SGP-23	8/17/2017	0.0	0.0	0.0	0.0	3.3	1.4	17.4	19.1	0.0	0.0	0.0	0.0	29.91	29.91
SGP-24	8/17/2017	2.9	2.8	58	56	0.8	0.7	19.1	19.1	0.0	0.0	0.0	0.0	29.91	29.91
SGP-25	8/17/2017	0.0	0.0	0.0	0.0	1.8	1.8	19.3	19.4	0.0	0.0	0.0	0.0	29.84	29.84
SGP-26	8/17/2017	0.0	0.0	0.0	0.0	1.2	0.5	19.2	19.8	117.7	58.8	0.0	0.0	29.84	29.84
SGP-27	8/17/2017	0.0	0.0	0.0	0.0	2.1	2.3	17.9	17.7	0.0	0.0	0.0	0.0	29.84	29.84
SGP-28	8/17/2017	63.8	50.2	1276	1004	5.4	4.9	0.9	4.0	0.2	0.2	0.0	0.0	29.78	29.78
Monitoring Wells															
MW-3S	8/16/2017	13.5	13.4	270	268	8.4	8.4	0.3	0.3	0.0	0.0	0.0	0.0	29.73	29.73
MW-3D	8/16/2017	1.9	0.8	38	16	1.8	0.7	17.4	19.6	0.0	0.0	0.0	0.0	29.73	29.73
MW-4S	8/16/2017	73.0	71.6	1460	1432	4.3	4.1	2.1	2.2	0.0	0.0	0.0	0.0	29.74	29.74
MW-4D	8/16/2017	0.6	0.3	12	6	0.0	0.0	20.3	20.4	0.0	0.0	0.0	0.0	29.76	29.76
MW-7S	8/16/2017	2.4	2.3	48	46	6.5	7.0	0.4	0.0	3.7	4.0	0.0	0.0	29.84	29.84
MW-7D	8/16/2017	0.0	0.0	0.0	0.0	1.5	0.2	16.7	20.0	0.0	0.0	0.0	0.0	29.84	29.84
MW-9S	8/16/2017	0.0	0.0	0.0	0.0	1.1	0.4	12.1	17.6	0.0	0.0	0.0	0.0	29.77	29.77
MW-9D	8/16/2017	0.0	0.0	0.0	0.0	0.4	0.3	19.3	20.5	0.2	0.0	0.3	0.0	29.77	29.77
MW-14S	8/16/2017	0.0	0.0	0.0	0.0	2.1	2.4	19.0	18.6	0.0	0.0	0.0	0.0	29.78	29.78
MW-14D	8/16/2017	0.4	0.3	8	6	0.0	0.0	19.8	19.9	0.0	0.0	0.0	0.0	29.78	29.78

Notes:
1. PID= Photoionization Detector, which measures concentrations of volatile organic compounds
2. LEL = Lower explosive limit

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Cambridge, Massachusetts

Table 11
Groundwater Well Landfill Gas Monitoring Results - August and October 2017

Sample Location	Sample Date	PID Reading (ppm_v)		Hydrogen Sulfide (ppm_v)		Methane (% vol.)		Carbon Dioxide (% vol.)		Oxygen (% vol.)		LEL (% vol.)		Atmospheric Pressure (in Hg)	
		Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
Groundwater Monitoring Wells															
MW-3S	8/16/2017	0.0	0.0	0.0	0.0	13.5	13.4	8.4	8.4	0.3	0.3	270	268	29.73	29.73
	10/2/2017	4.1	3.0	0.0	0.0	5.8	6.7	7.8	8.3	2.9	1.7	116	134	30.46	30.46
MW-3D	8/16/2017	0.0	0.0	0.0	0.0	1.9	0.8	1.8	0.7	17.4	19.6	38	16	29.73	29.73
	10/2/2017	2.9	2.8	0.0	0.0	10.7	6.5	0.8	0.6	17.6	18.8	214	130	30.46	30.46
MW-4S	8/16/2017	0.0	0.0	0.0	0.0	73.0	71.6	4.3	4.1	2.1	2.2	1460	1432	29.74	29.74
	10/2/2017	0.4	0.3	0.0	0.0	72.9	78.0	6.0	6.0	1.8	0.5	1458	1560	30.46	30.46
MW-4D	8/16/2017	0.0	0.0	0.0	0.0	0.6	0.3	0.0	0.0	20.3	20.4	12	6	29.76	29.76
	*10/2/2017	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-7S	8/16/2017	3.7	4.0	0.0	0.0	2.4	2.3	6.5	7.0	0.4	0.0	48	46	29.84	29.84
	10/2/2017	2.0	2.3	0.0	0.0	0.9	1.0	7.1	7.2	0.6	0.1	18	20	30.46	30.46
MW-7D	8/16/2017	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.2	16.7	20.0	0	0	29.84	29.84
	10/2/2017	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.8	17.9	19.4	0	0	30.46	30.46
MW-9S	8/16/2017	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.4	12.1	17.6	0	0	29.77	29.77
	10/2/2017	0.3	0.4	0.0	0.0	22.8	23.9	4.7	4.7	2.6	1.2	456	478	30.46	30.46
MW-9D	8/16/2017	0.2	0.0	0.3	0.0	0.0	0.0	0.4	0.3	19.3	20.5	0	0	29.77	29.77
	10/2/2017	0.9	0.4	0.0	0.0	0.0	0.0	0.2	0.1	20.7	20.8	0	0	30.46	30.46
MW-14S	8/16/2017	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.4	19.0	18.6	0	0	29.78	29.78
	10/2/2017	0.0	0.0	0.0	0.0	0.0	0.0	3.0	8.9	17.2	9.3	0	0	30.46	30.46
MW-14D	8/16/2017	0.0	0.0	0.0	0.0	0.4	0.3	0.0	0.0	19.8	19.9	8	6	29.78	29.78
	10/2/2017	0.2	0.4	0.0	0.0	0.0	0.0	0.2	0.2	20.7	20.7	0	0	30.46	30.46

Notes:
1. PID= Photoionization Detector, which measures concentrations of volatile organic compounds
2. LEL = Lower Explosive Limit
* Not Sampled - Roadbox Under Shallow Water

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Table 12
Soil Vapor Sampling Results (VOCs, Sulfides, Mercaptans) - October 2, 2017

	Sample ID		MW-9S SOIL VAPOR		MW-4S SOIL VAPOR	
	Sample Collection Date		10/2/2017		10/2/2017	
	Laboratory Order Number		L1735464-14		L1735464-15	
Parameter	**MA-VIG-RSSGV**	**Reporting Units**	**Results**		**Results**	
MCP Volatile Organics in Air by SIM						
Vinyl chloride	19	ug/m3	2.56	U	5.11	U
Bromomethane	42	ug/m3	3.88	U	7.77	U
Acetone	6400	ug/m3	11.9	U	23.8	U
1,1-Dichloroethene	56	ug/m3	3.96	U	7.93	U
Methylene chloride	770	ug/m3	8.69	U	17.4	U
trans-1,2-Dichloroethene	56	ug/m3	3.96	U	7.93	U
1,1-Dichloroethane	56	ug/m3	4.05	U	8.09	U
Methyl tert butyl ether	2700	ug/m3	3.61	U	7.21	U
2-Butanone	850	ug/m3	7.37	U	14.7	U
cis-1,2-Dichloroethene	56	ug/m3	3.96	U	7.93	U
Chloroform	130	ug/m3	29.5		9.77	U
1,2-Dichloroethane	6.3	ug/m3	4.05	U	*8.09*	U
1,1,1-Trichloroethane	210	ug/m3	5.46	U	10.9	U
Benzene	160	ug/m3	4.03		6.39	U
Carbon tetrachloride	38	ug/m3	6.29	U	12.6	U
1,2-Dichloropropane	8.6	ug/m3	4.62	U	*9.24*	U
Bromodichloromethane	9.2	ug/m3	6.7	U	*13.4*	U
1,4-Dioxane	33	ug/m3	3.6	U	7.21	U
Trichloroethene	28	ug/m3	5.37	U	10.7	U
cis-1,3-Dichloropropene	41	ug/m3	4.54	U	9.08	U
4-Methyl-2-pentanone	150	ug/m3	10.2	U	20.5	U
trans-1,3-Dichloropropene	41	ug/m3	4.54	U	9.08	U
1,1,2-Trichloroethane	10	ug/m3	5.46	U	*10.9*	U
Toluene	3800	ug/m3	20.6		17.3	
Dibromochloromethane	6.8	ug/m3	*8.52*	U	*17*	U
1,2-Dibromoethane	0.54	ug/m3	*7.69*	U	*15.4*	U
Tetrachloroethene	98	ug/m3	18.7		13.6	U
Chlorobenzene	160	ug/m3	4.61	U	9.21	U
Ethylbenzene	520	ug/m3	4.34	U	8.69	U
p/m-Xylene		ug/m3	13.6		17.4	U
Bromoform	150	ug/m3	10.3	U	20.7	U
Styrene	95	ug/m3	4.26	U	8.52	U
1,1,2,2-Tetrachloroethane	2.8	ug/m3	*6.87*	U	*13.7*	U
o-Xylene		ug/m3	5.65		8.69	U
1,3-Dichlorobenzene	42	ug/m3	6.01	U	12	U
1,4-Dichlorobenzene	35	ug/m3	6.01	U	12	U
1,2-Dichlorobenzene	50	ug/m3	6.01	U	12	U
1,2,4-Trichlorobenzene	28	ug/m3	7.42	U	14.8	U
Naphthalene	42	ug/m3	5.24	U	10.5	U
Hexachlorobutadiene	7.4	ug/m3	*10.7*	U	*21.3*	U
Mercaptans & Sulfides in Air						
Hydrogen Sulfide	NA	ug/m3	2.79	U	4.43	
Carbonyl sulfide	NA	ug/m3	4.91	U	4.91	U
Methyl mercaptan	NA	ug/m3	3.94	U	6.38	
Ethyl mercaptan	NA	ug/m3	1.27	U	1.27	U
Dimethyl sulfide	NA	ug/m3	1.27	U	5.24	
Carbon disulfide	NA	ug/m3	4.73		5.79	
Isopropyl Mercaptan	NA	ug/m3	1.56	U	1.56	U
tert-Butyl Mercaptan	NA	ug/m3	1.84	U	1.84	U
N-Propyl Mercaptan	NA	ug/m3	1.56	U	1.56	U
Ethyl Methyl Sulfide	NA	ug/m3	1.56	U	1.56	U
Thiophene	NA	ug/m3	1.72	U	1.72	U
Isobutyl Mercaptan	NA	ug/m3	1.84	U	1.84	U
Diethyl Sulfide	NA	ug/m3	1.84	U	1.84	U
n-Butyl Mercaptan	NA	ug/m3	7.38	U	7.38	U
Dimethyl Disulfide	NA	ug/m3	1.93	U	1.93	U
3-Methylthiophene	NA	ug/m3	2.01	U	2.01	U
Tetrahydrothiophene	NA	ug/m3	1.8	U	1.8	U
2-Ethylthiophene	NA	ug/m3	2.29	U	2.29	U
2,5-Dimethylthiophene	NA	ug/m3	2.29	U	2.29	U
Diethyl disulfide	NA	ug/m3	2.5	U	2.5	U

Notes:

*MA-VIG-RSSGV: Vapor Intrusion Guidance: Residential Sub-slab Soil Gas Screening Values (2016) Criteria per MassDEP Vapor Intrusion Guidance, Policy #WSC-16-435, October 14, 2016.

All units are ug/m3

U = compound was not detected above stated laboratory method detection limit

Italized Values = < Reporting Limits are greater than applicable standards

NA - Not Applicable

City of Cambridge
Tobin School
Cambridge, Massachusetts

Table 13
Utility Landfill Gas Monitoring Results - October 2, 2017

Sample Location	Sample Date	Methane (% vol.)	Carbon Dioxide (% vol.)	Oxygen (% vol.)	LEL (% vol.)	Atmospheric Pressure (in Hg)
		Initial	Initial	Initial	Initial	Initial
Utility Screening Locations						
WGM-1	10/2/2017	0.0	0.2	20.7	0	30.46
CB-1	10/2/2017	0.0	0.0	20.9	0	30.46
DM-1	10/2/2017	0.0	0.2	20.6	0	30.46
CB-2	10/2/2017	0.0	0.0	20.9	0	30.47
CB-3	10/2/2017	0.0	0.0	20.9	0	30.47
WMPM-1	10/2/2017	14.8	9.2	2.6	296	30.47
*WMPM-1	10/2/2017	0.8	0.5	19.9	16	30.47
CB-4	10/2/2017	0.0	0.0	20.9	0	30.47
EM-1	10/2/2017	0.0	1.1	19.8	0	30.47
EM-2	10/2/2017	0.0	1.1	19.8	0	30.47
CB-5	10/2/2017	0.0	0.0	20.9	0	30.47
EM-3	10/2/2017	0.0	0.2	20.7	0	30.47
EM-4	10/2/2017	0.0	0.0	20.9	0	30.47
CB-6	10/2/2017	0.0	0.0	20.9	0	30.47
CB-7	10/2/2017	0.0	0.0	20.9	0	30.47
CB-8	10/2/2017	0.0	0.0	20.9	0	30.47
CB-9	10/2/2017	0.0	0.0	20.9	0	30.47
CB-10	10/2/2017	0.0	0.0	20.9	0	30.47
CB-11	10/2/2017	0.0	0.0	20.8	0	30.50
CB-12	10/2/2017	0.0	0.0	20.9	0	30.50
DM-2	10/2/2017	0.0	0.1	20.8	0	30.50
WGM-2	10/2/2017	0.0	1.3	19.3	0	30.50
WGM-3	10/2/2017	0.0	0.9	19.4	0	30.50
WGM-4	10/2/2017	0.0	0.0	20.9	0	--
CB-13	10/2/2017	0.0	0.0	20.9	0	--
EM-4	10/2/2017	0.0	0.0	20.9	0	--
CB-14	10/2/2017	0.0	0.0	20.9	0	--

Notes:

1. PID= Photoionization Detector, which measures concentrations of volatile organic compounds
2. LEL = Lower Explosive Limit
3. NS = Not Sampled

Shaded Values Exceed MassDEP Limit of 10% LEL of Methane Within a Utility

* = Water Meter Pit Manhole Results With Manhole Cover Removed

-- = Not Measured

WGM - Water Gate Manhole

CB- Catch Basin

DM - Drain Manhole

EM - Electrical Manhole

WMPM - Water Meter Pit Manhole

ATTACHMENT A

HISTORICAL AERIAL PHOTOS, TOPOGRAPHIC MAPS, AND SANBORN MAPS

INQUIRY #: 5118835.12

YEAR: 2012

= 500'

N

EDR

INQUIRY #: 5118835.12

YEAR: 2010

= 500'

N

EDR

INQUIRY #: 5118835.12

YEAR: 2008

= 500'

N

EDR

INQUIRY #: 5118835.12

YEAR: 2006

= 500'

N

EDR

INQUIRY #: 5118835.12

YEAR: 1995

= 500'

N

EDR

INQUIRY #: 5118835.12

YEAR: 1986

= 500'

N

EDR

INQUIRY #: 5118835.12

YEAR: 1980

= 500'

N

EDR

INQUIRY #: 5118835.12

YEAR: 1978

= 500'

N

EDR

INQUIRY #: 5118835.12

YEAR: 1970

= 500'

N

EDR

INQUIRY #: 5118835.12

YEAR: 1969

= 500'

N

EDR

INQUIRY #: 5118835.12

YEAR: 1962

= 500'

N

EDR

INQUIRY #: 5118835.12

YEAR: 1955

= 500'

N

EDR

INQUIRY #: 5118835.12

YEAR: 1952

= 500'

N

EDR

INQUIRY #: 5118835.12

YEAR: 1938

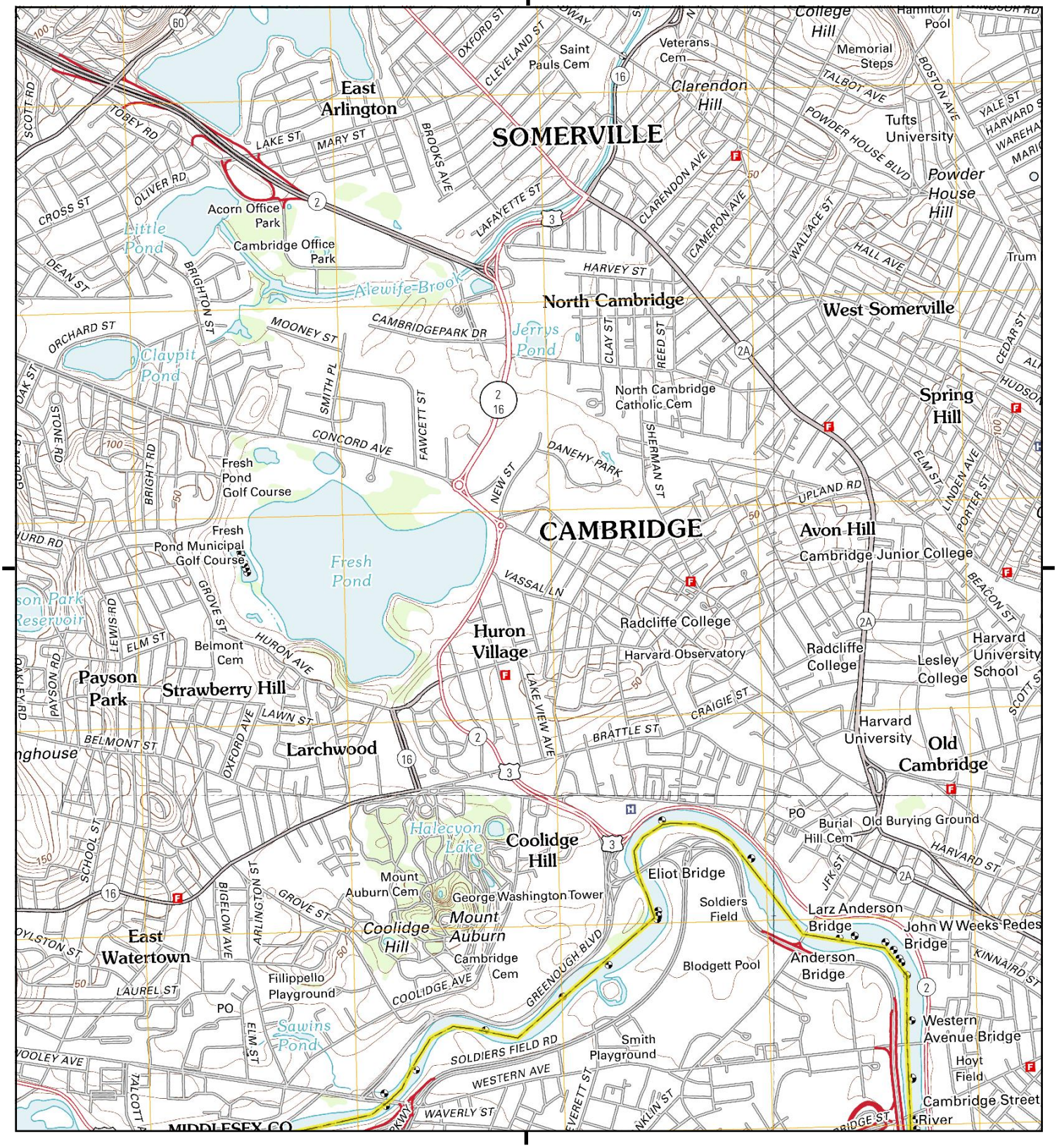
= 500'

N

EDR

Historical Topo Map

2012



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

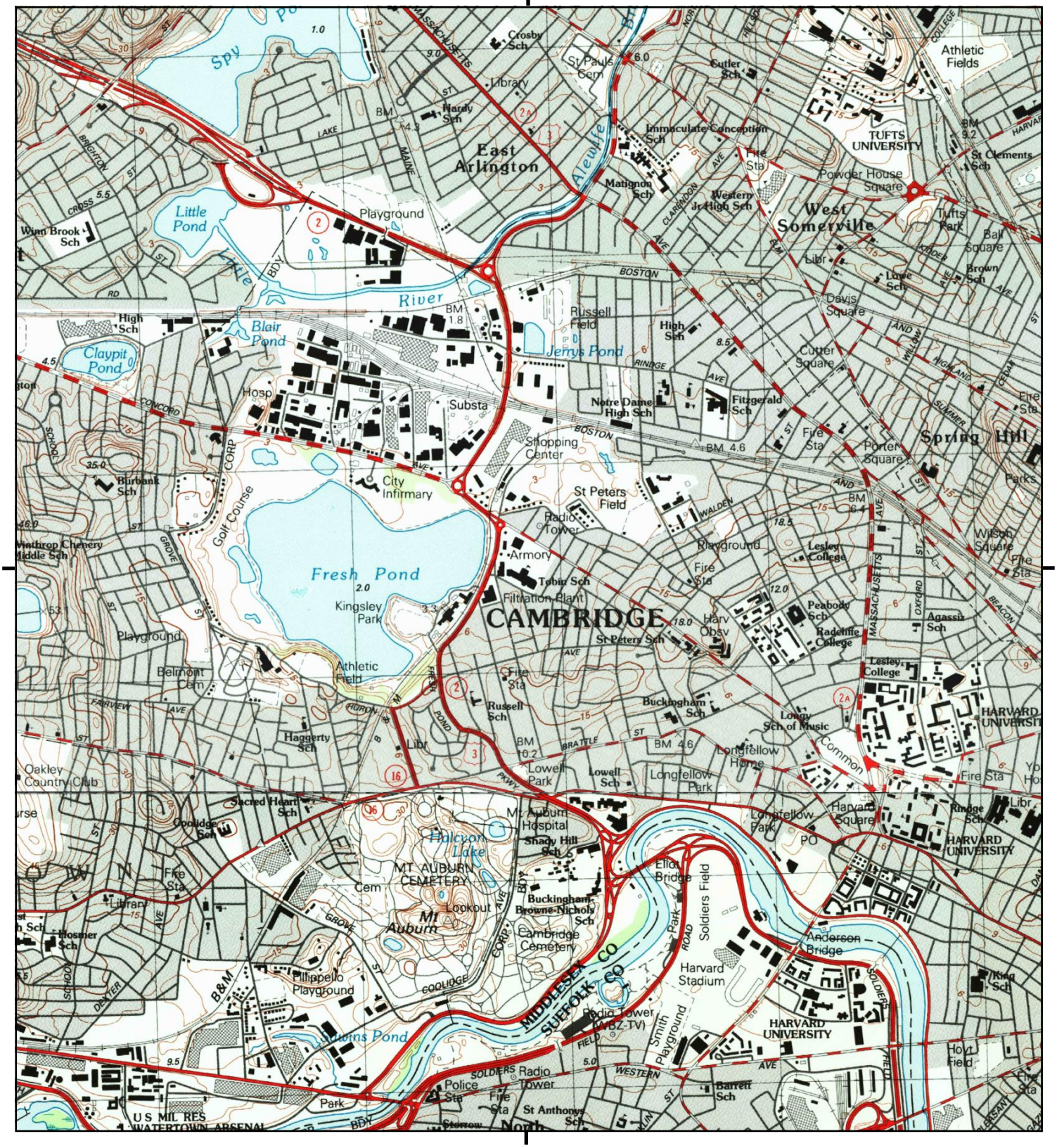
TP, Lexington, 2012, 7.5-minute
NE, Boston North, 2012, 7.5-minute
SE, Boston South, 2012, 7.5-minute
SW, Newton, 2012, 7.5-minute

SITE NAME: Tobin School
ADDRESS: 197 Vassal Lane
Cambridge, MA 02138
CLIENT: CDM Smith Inc.

N

Historical Topo Map

1985, 1987



This report includes information from the following map sheet(s).

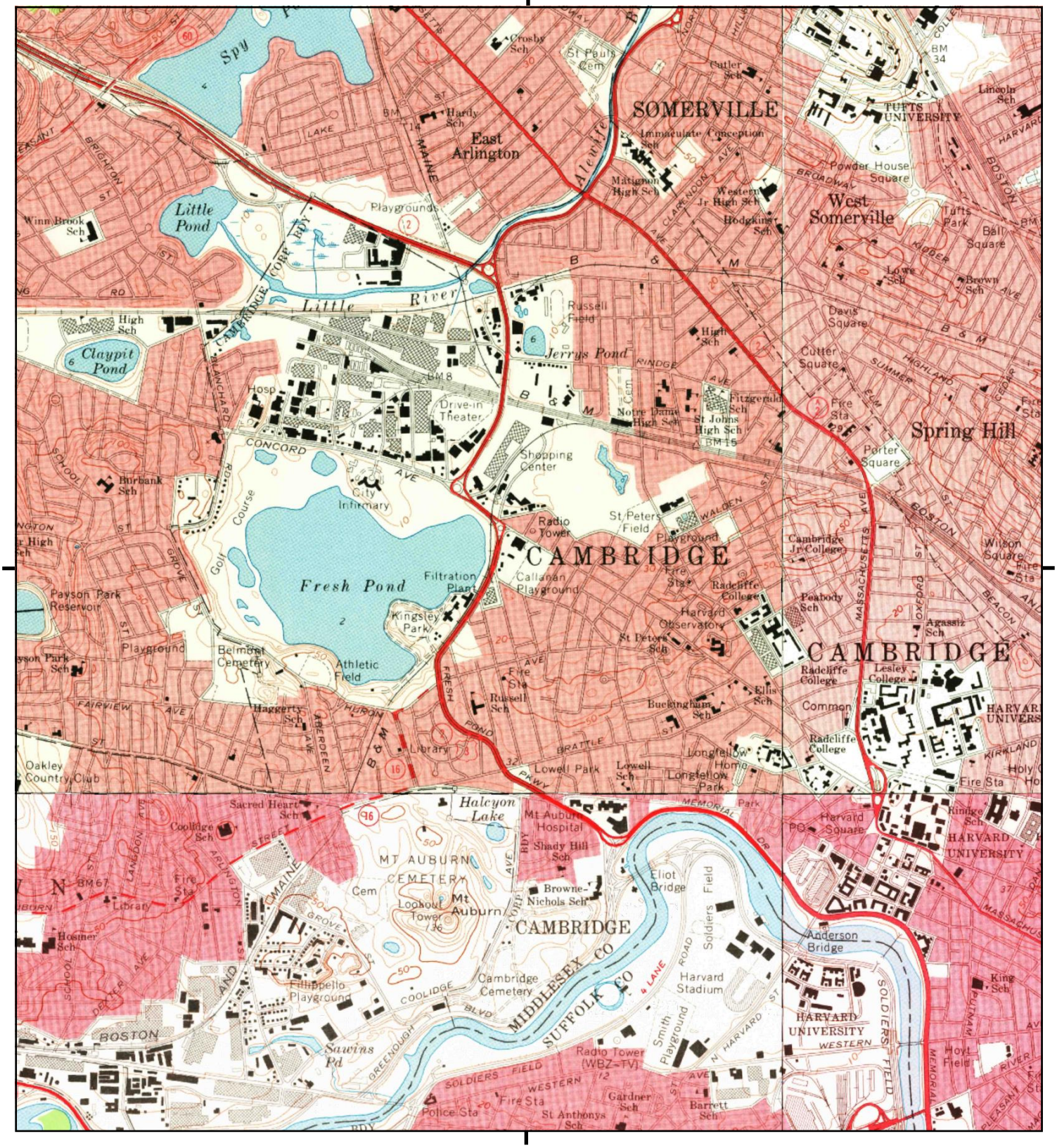
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Boston North, 1985, 7.5-minute
S, Boston South, 1987, 7.5-minute

SITE NAME: Tobin School
ADDRESS: 197 Vassal Lane
Cambridge, MA 02138
CLIENT: CDM Smith Inc.

N



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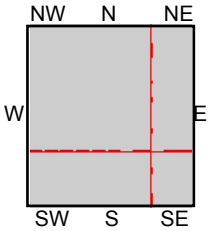
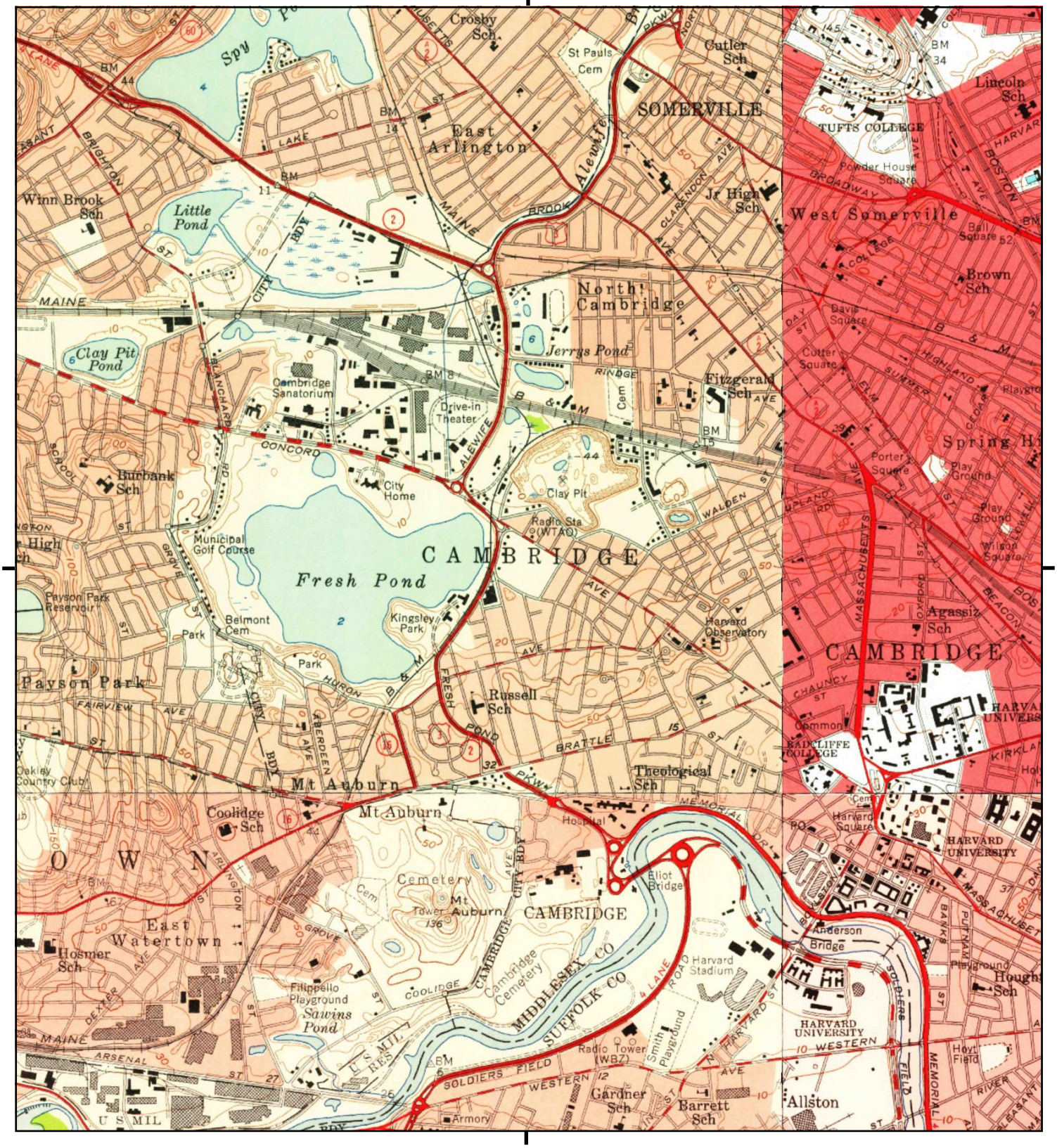
0 Miles 0.25 0.5 1 1.5



TP, Lexington, 1971, 7.5-minute
NE, Boston North, 1971, 7.5-minute
SE, Boston South, 1970, 7.5-minute
SW, Newton, 1970, 7.5-minute

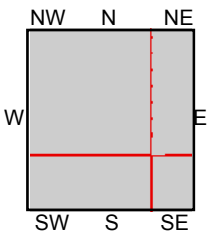
SITE NAME: Tobin School
ADDRESS: 197 Vassal Lane
Cambridge, MA 02138
CLIENT: CDM Smith Inc.

N



This report includes information from the following map sheet(s).

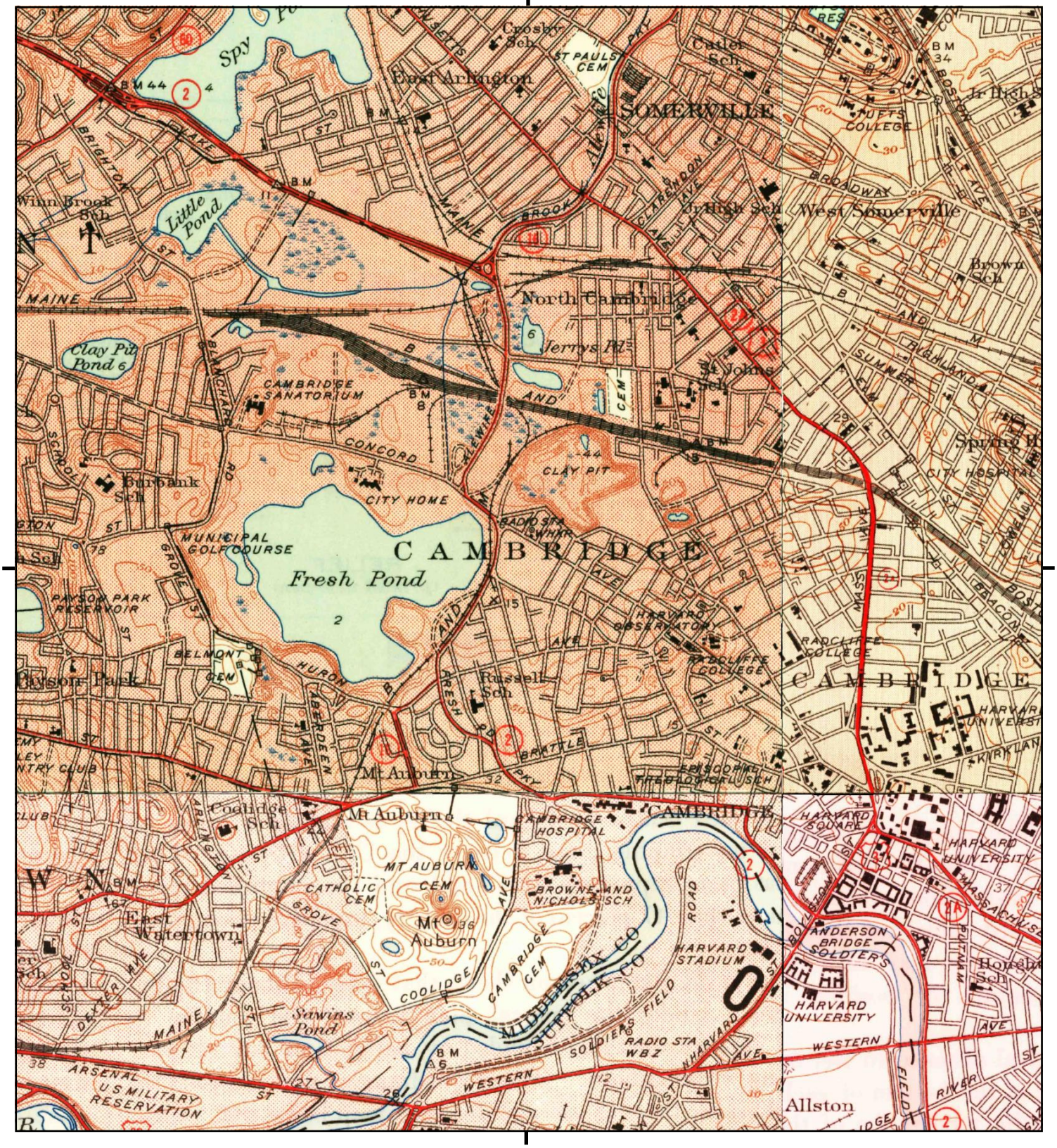
0 Miles 0.25 0.5 1 1.5



TP, Lexington, 1956, 7.5-minute
NE, Boston North, 1956, 7.5-minute
SE, Boston South, 1956, 7.5-minute
SW, Newton, 1956, 7.5-minute

SITE NAME: Tobin School
ADDRESS: 197 Vassal Lane
Cambridge, MA 02138
CLIENT: CDM Smith Inc.

N



This report includes information from the following map sheet(s).

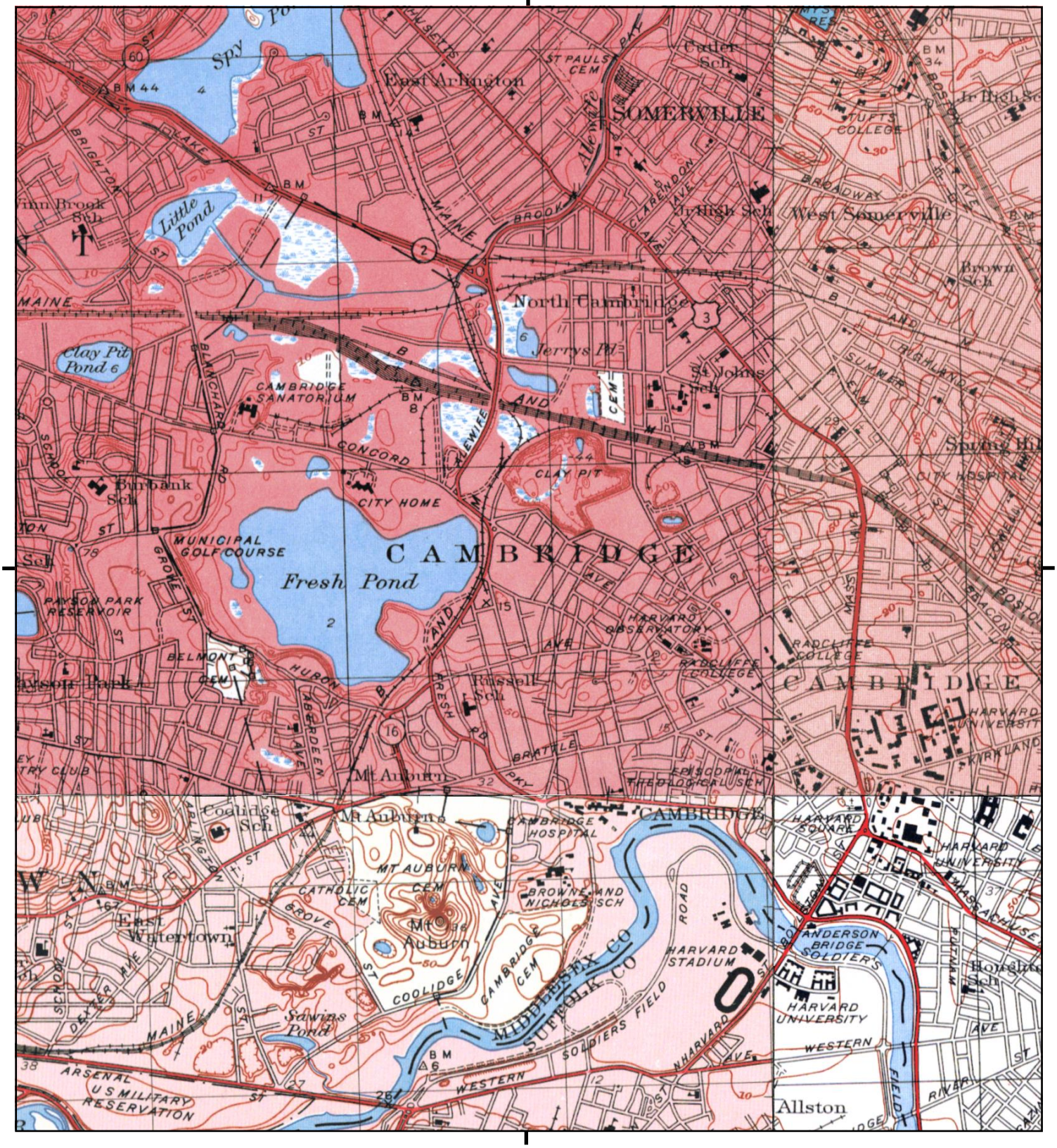
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lexington, 1949, 7.5-minute
NE, Boston North, 1949, 7.5-minute
SE, Boston South, 1949, 7.5-minute
SW, Newton, 1949, 7.5-minute

SITE NAME: Tobin School
ADDRESS: 197 Vassal Lane
Cambridge, MA 02138
CLIENT: CDM Smith Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

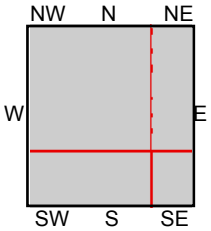
TP, LEXINGTON, 1947, 7.5-minute
NE, BOSTON NORTH, 1947, 7.5-minute
SE, BOSTON SOUTH, 1946, 7.5-minute
SW, NEWTON, 1946, 7.5-minute

SITE NAME: Tobin School
ADDRESS: 197 Vassal Lane
Cambridge, MA 02138
CLIENT: CDM Smith Inc.

N

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5



TP, Lexington, 1944, 7.5-minute
NE, Boston North, 1943, 7.5-minute
SE, Boston South, 1944, 7.5-minute
SW, Newton, 1944, 7.5-minute

SITE NAME: Tobin School
ADDRESS: 197 Vassal Lane
Cambridge, MA 02138
CLIENT: CDM Smith Inc.

N

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Boston, 1903, 15-minute

SITE NAME: Tobin School
ADDRESS: 197 Vassal Lane
Cambridge, MA 02138
CLIENT: CDM Smith Inc.

N

This report includes information from the following map sheet(s).

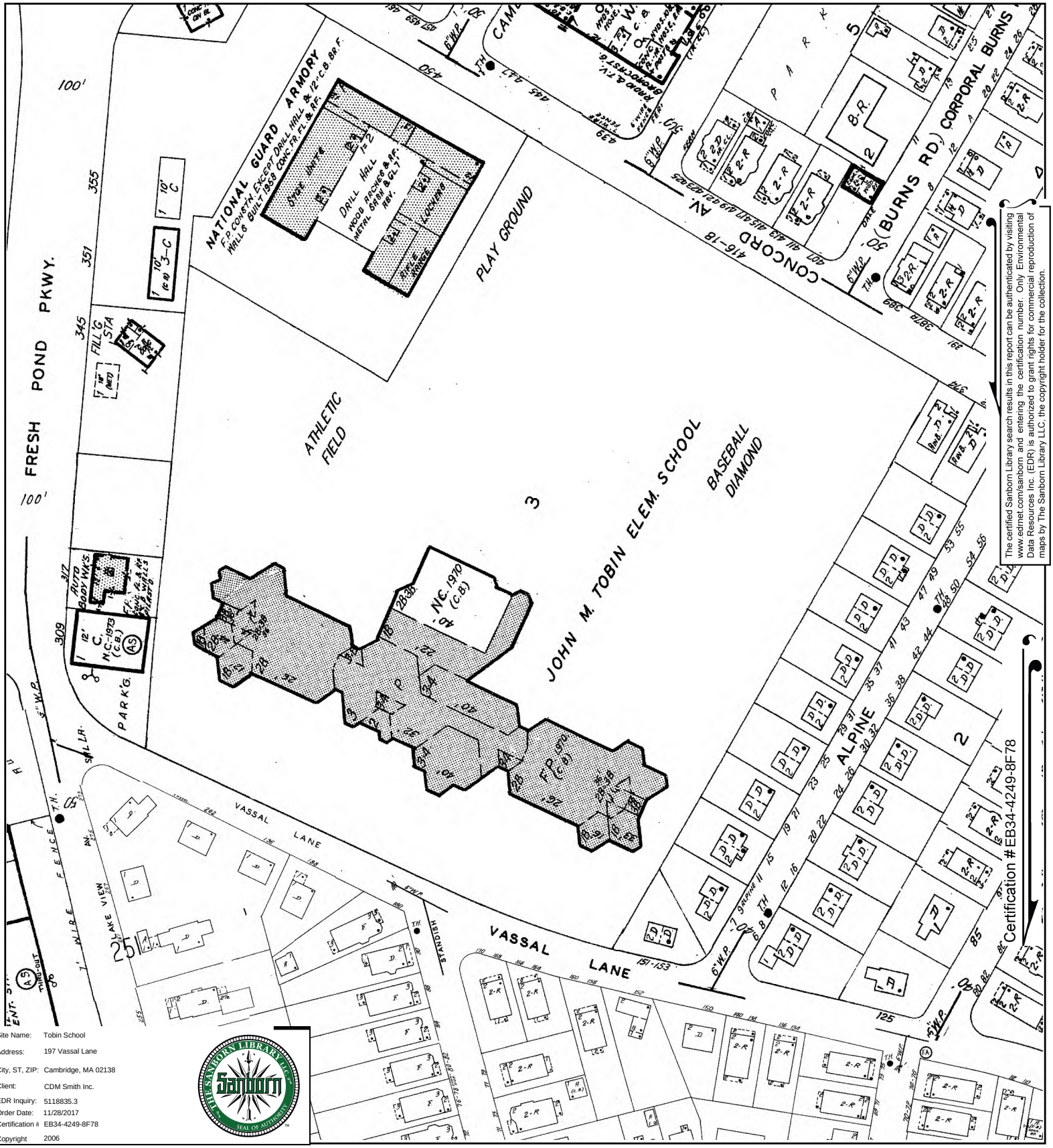
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Boston, 1893, 15-minute

SITE NAME: Tobin School
ADDRESS: 197 Vassal Lane
Cambridge, MA 02138
CLIENT: CDM Smith Inc.

N



Site Name:	Tobin School
Address:	197 Vassal Lane
City, ST, ZIP:	Cambridge, MA 02138
Client:	CDM Smith Inc.
EDR Inquiry:	5118835.3
Order Date:	11/28/2017
Certification #:	EB34-4249-8F78
Copyright	2006

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

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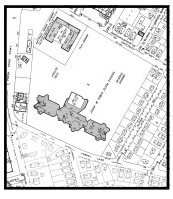

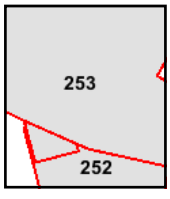

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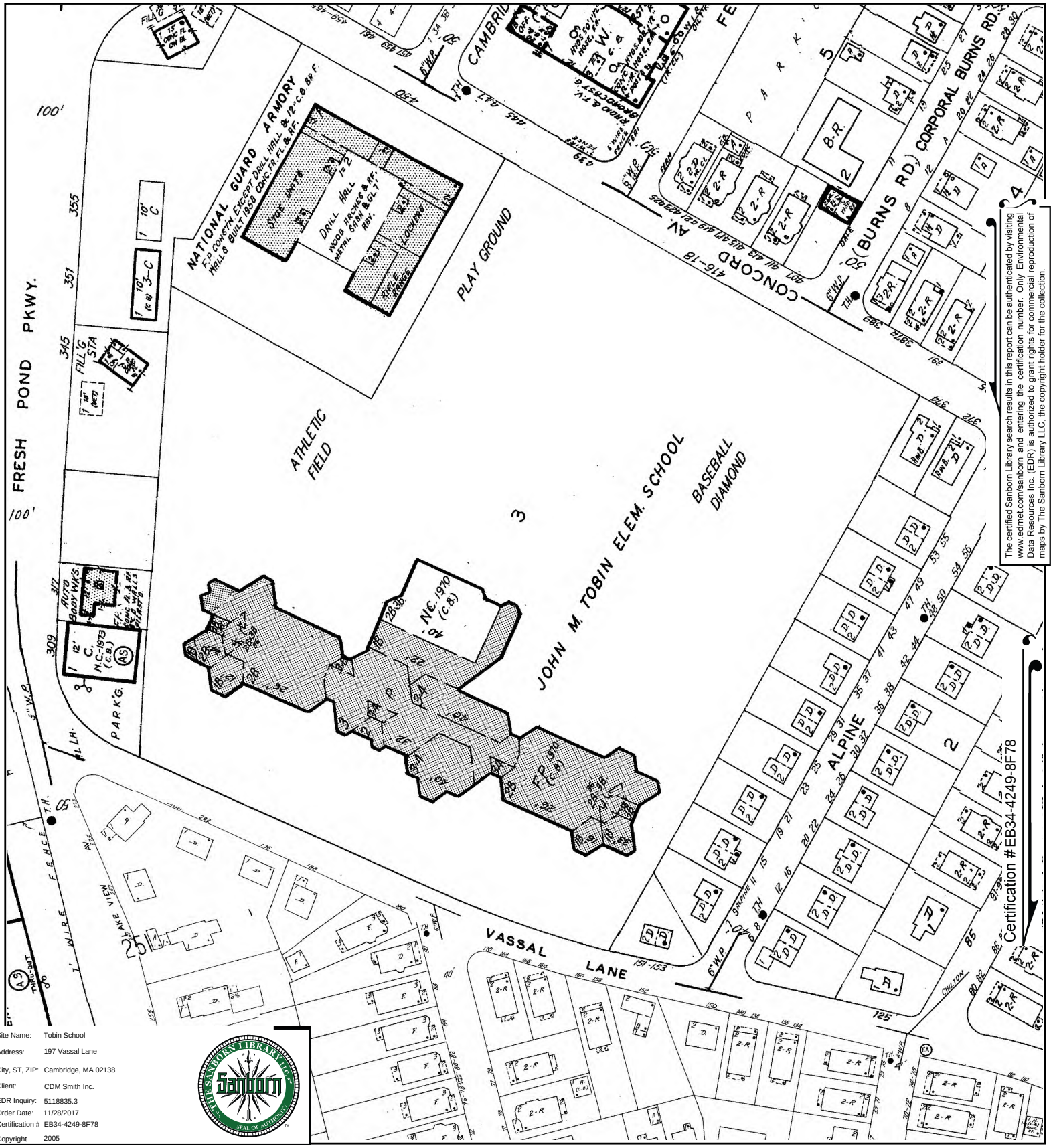
N



Site Name:	Tobin School
Address:	197 Vassal Lane
City, ST, ZIP:	Cambridge, MA 02138
Client:	CDM Smith Inc.
EDR Inquiry:	5118835.3
Order Date:	11/28/2017
Certification #:	EB34-4249-8F78
Copyright	2005

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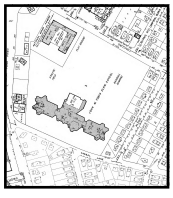

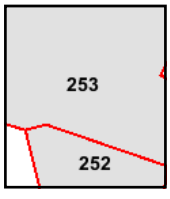

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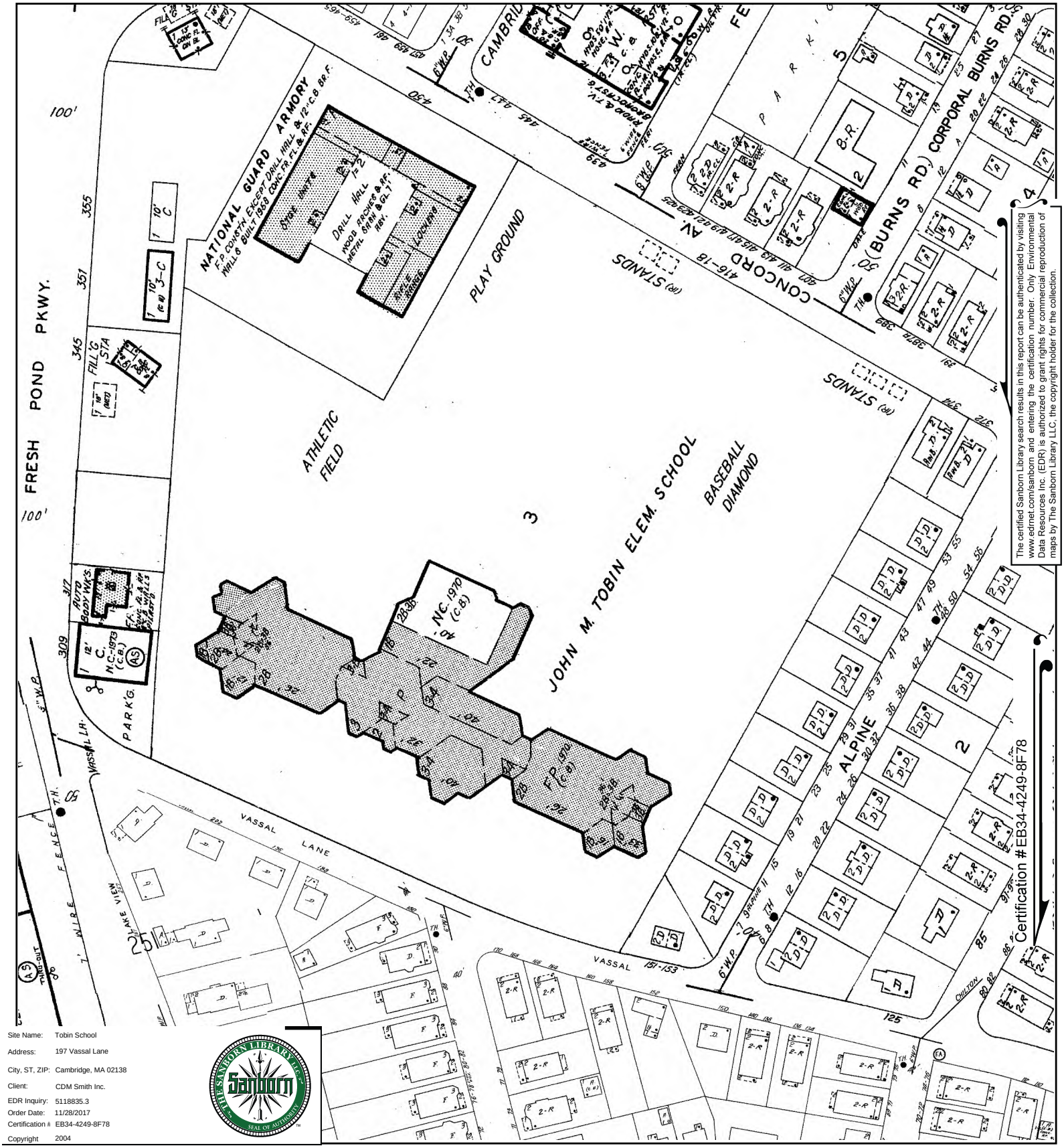
N



Site Name:	Tobin School
Address:	197 Vassal Lane
City, ST, ZIP:	Cambridge, MA 02138
Client:	CDM Smith Inc.
EDR Inquiry:	5118835.3
Order Date:	11/28/2017
Certification #:	EB34-4249-8F78
Copyright	2004

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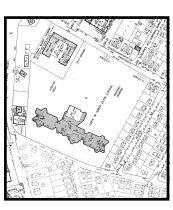

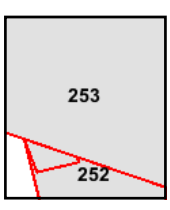

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0 Feet 150 300 600

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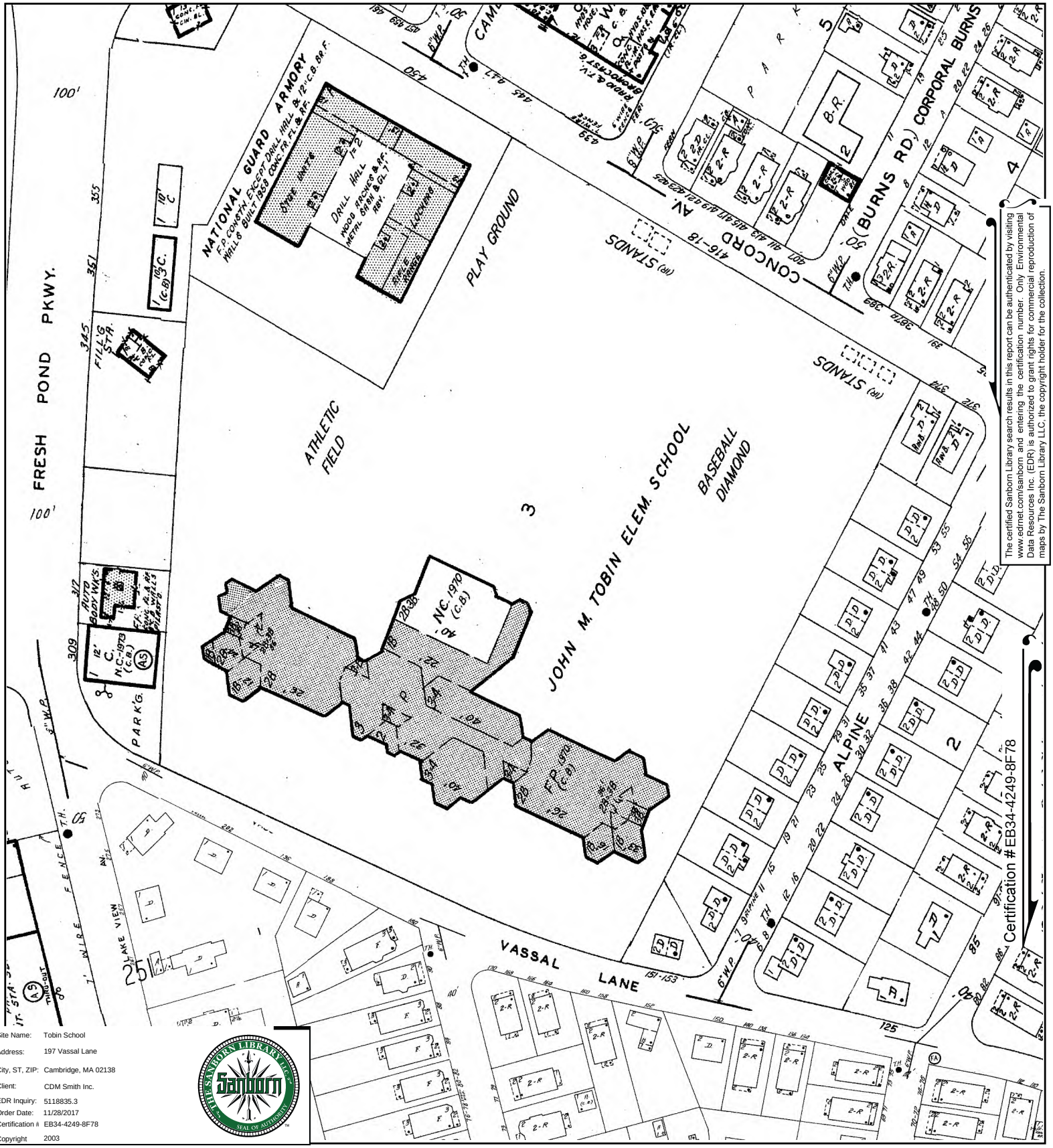

Site Name:	Tobin School
Address:	197 Vassal Lane
City, ST, ZIP:	Cambridge, MA 02138
Client:	CDM Smith Inc.
EDR Inquiry:	5118835.3
Order Date:	11/28/2017
Certification #:	EB34-4249-8F78
Copyright	2003

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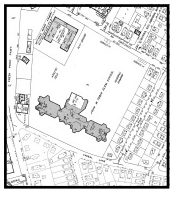

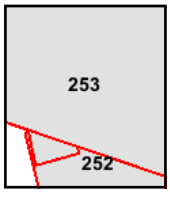

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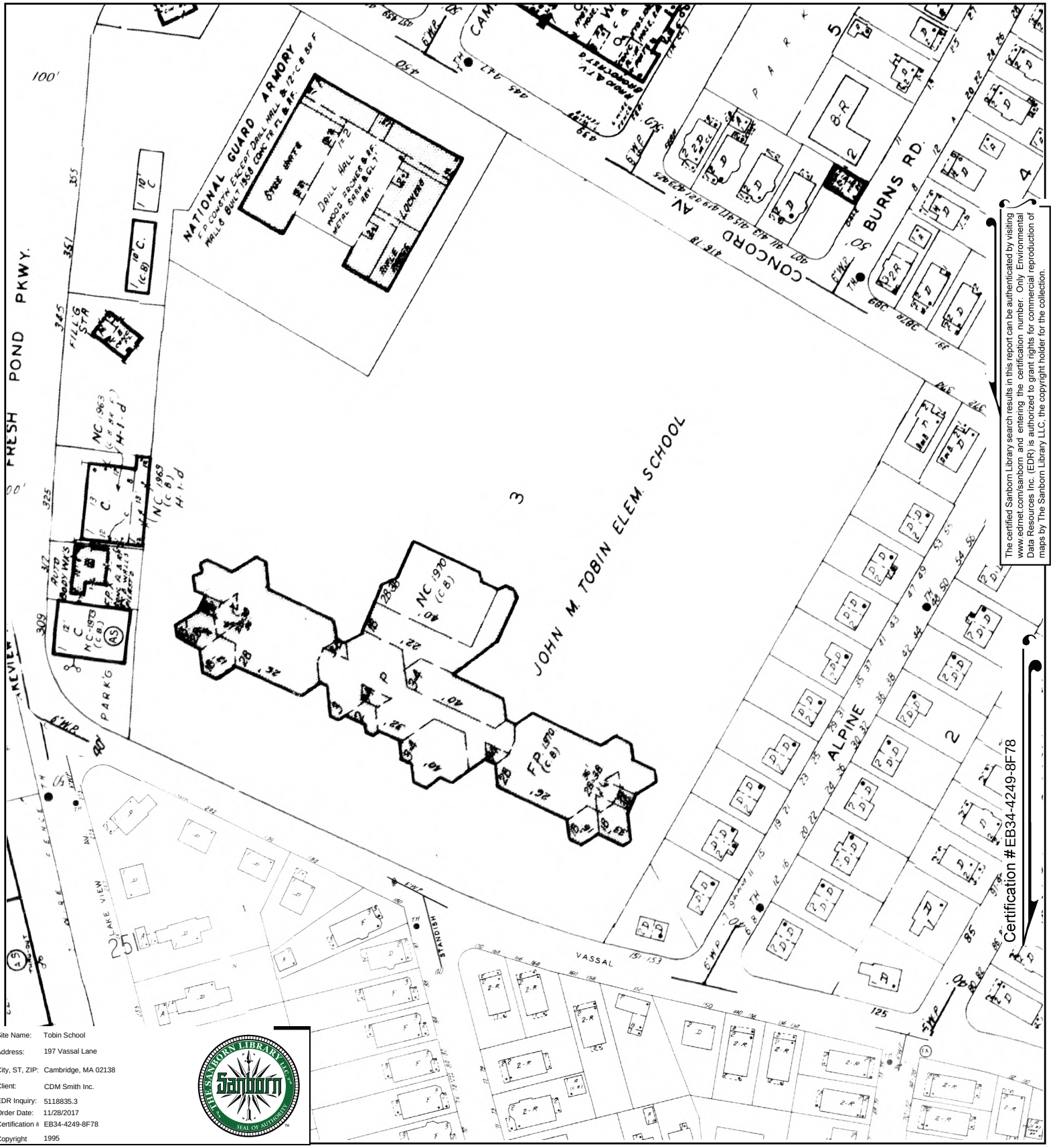

Site Name:	Tobin School
Address:	197 Vassal Lane
City, ST, ZIP:	Cambridge, MA 02138
Client:	CDM Smith Inc.
EDR Inquiry:	5118835.3
Order Date:	11/28/2017
Certification #	EB34-4249-8F78
Copyright	1995

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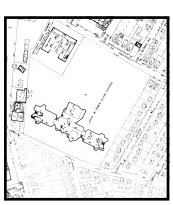

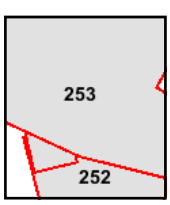

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0 Feet 150 300 600

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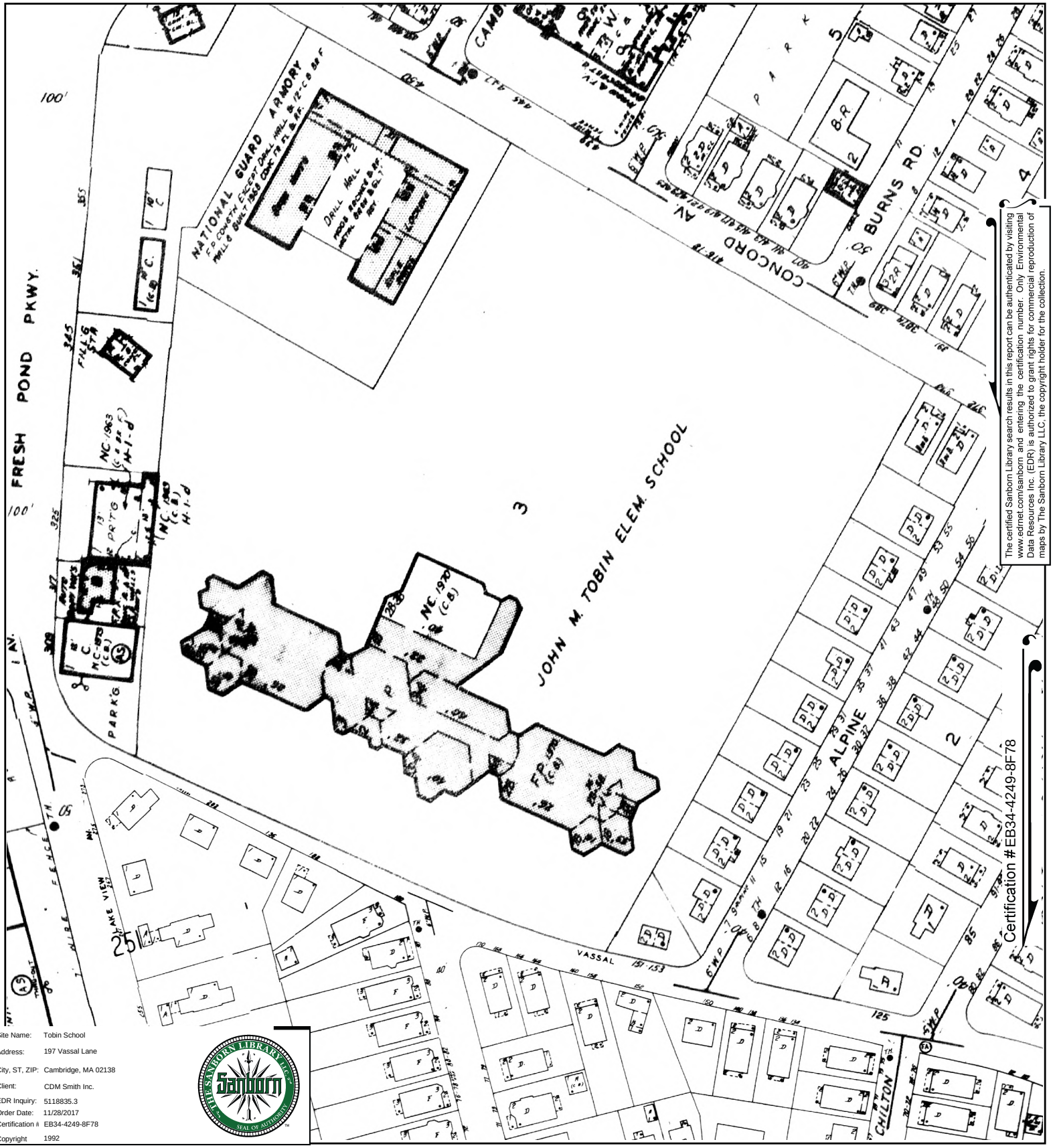

Site Name:	Tobin School
Address:	197 Vassal Lane
City, ST, ZIP:	Cambridge, MA 02138
Client:	CDM Smith Inc.
EDR Inquiry:	5118835.3
Order Date:	11/28/2017
Certification #:	EB34-4249-8F78
Copyright	1992

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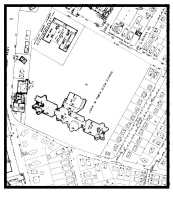

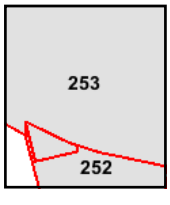

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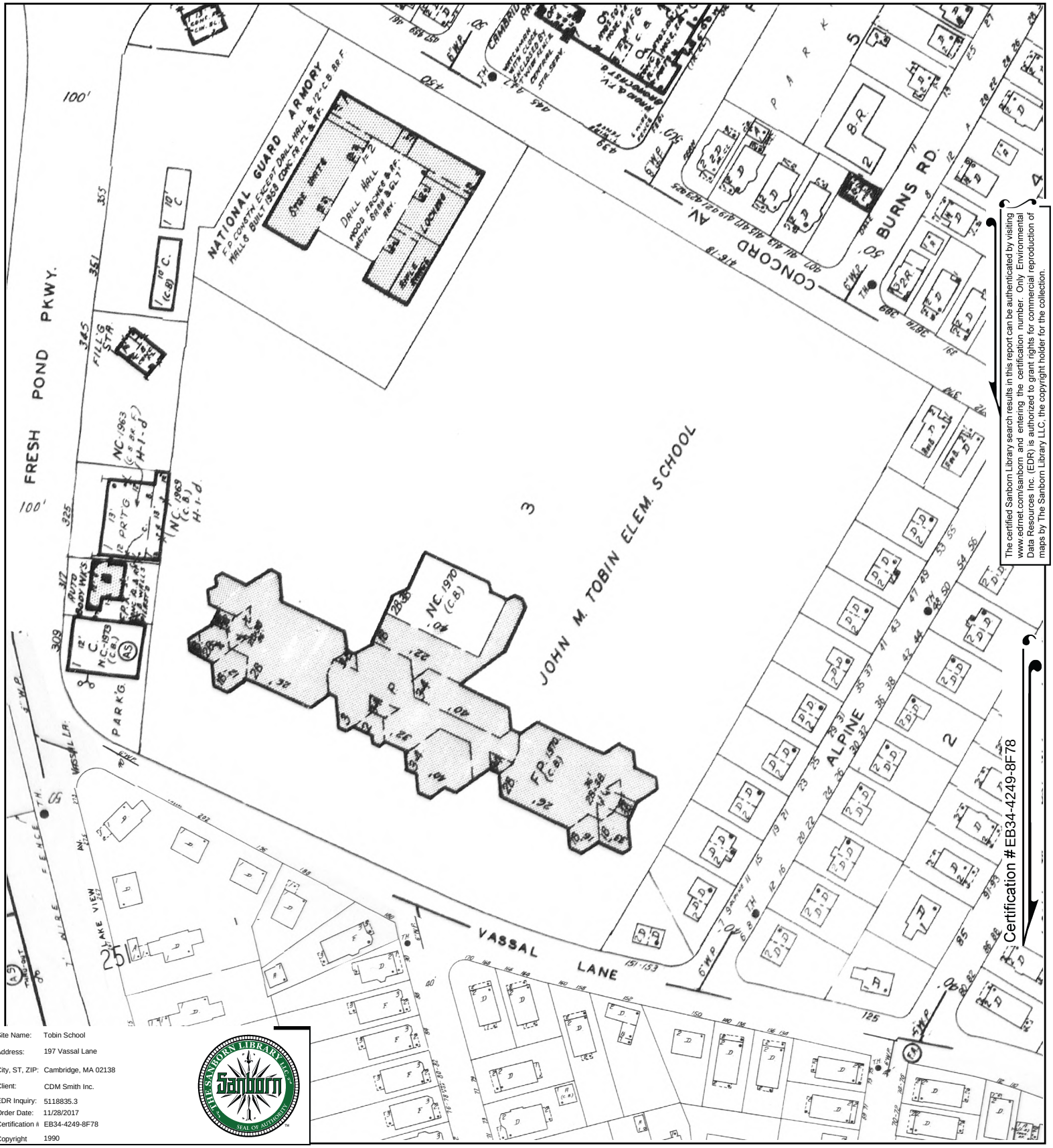

Site Name:	Tobin School
Address:	197 Vassal Lane
City, ST, ZIP:	Cambridge, MA 02138
Client:	CDM Smith Inc.
EDR Inquiry:	5118835.3
Order Date:	11/28/2017
Certification #:	EB34-4249-8F78
Copyright	1990

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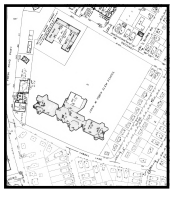

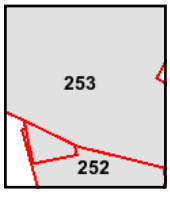

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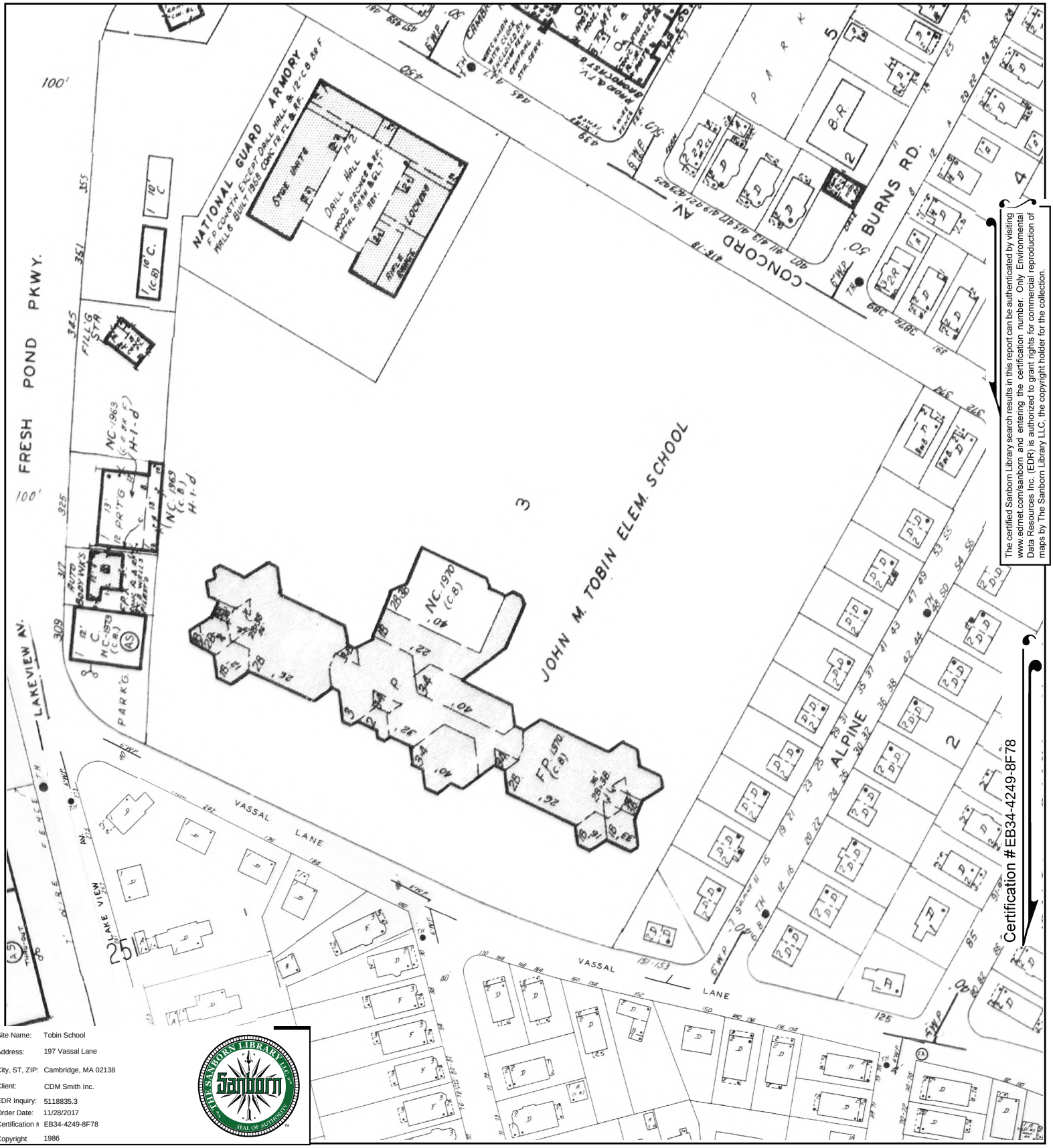

Site Name:	Tobin School
Address:	197 Vassal Lane
City, ST, ZIP:	Cambridge, MA 02138
Client:	CDM Smith Inc.
EDR Inquiry:	5118835.3
Order Date:	11/28/2017
Certification #:	EB34-4249-8F78
Copyright	1986

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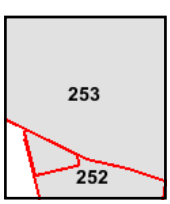

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0 Feet 150 300 600

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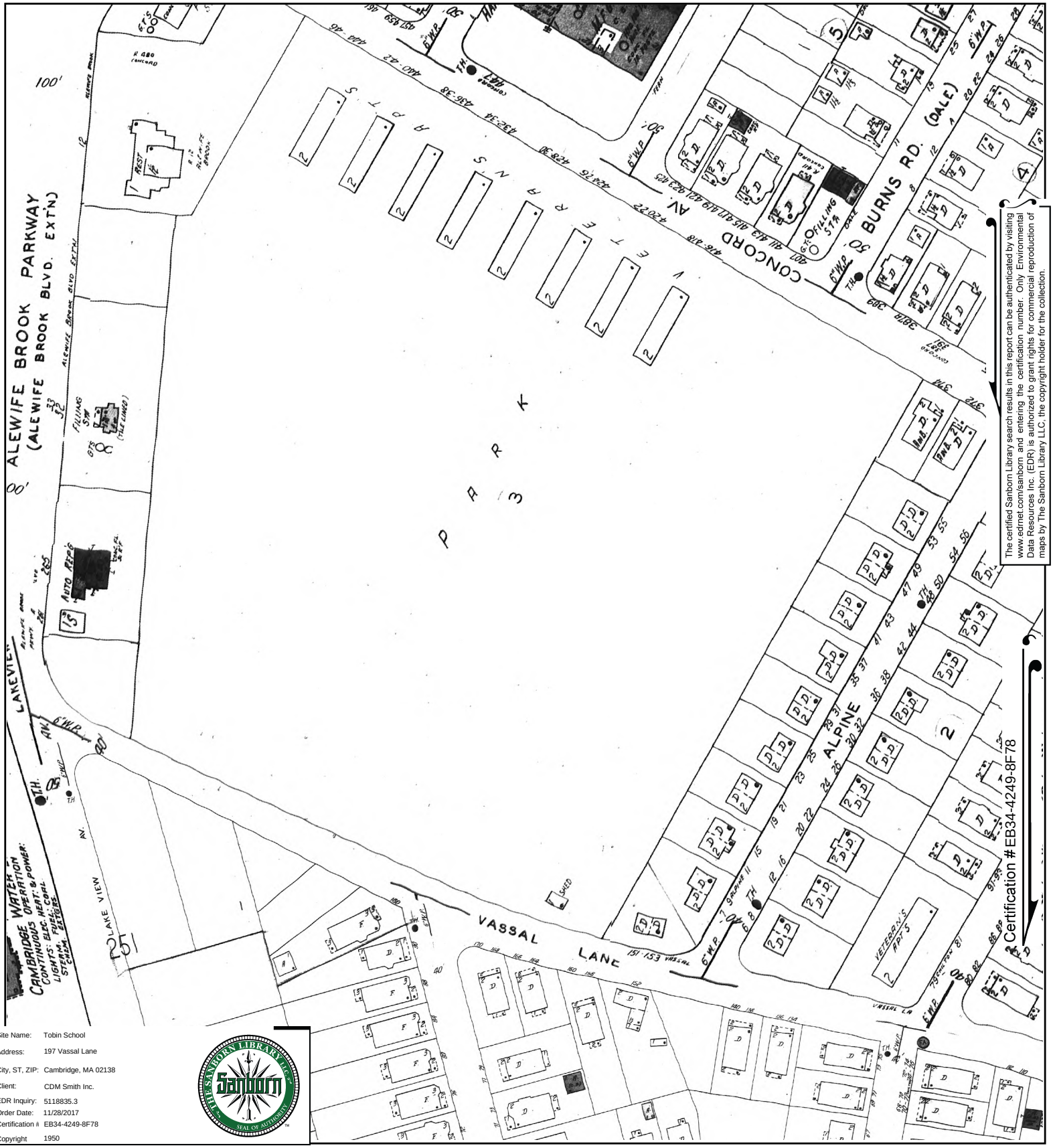

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City, ST, ZIP:	Cambridge, MA 02138
Client:	CDM Smith Inc.
EDR Inquiry:	5118835.3
Order Date:	11/28/2017
Certification #:	EB34-4249-8F78
Copyright	1950

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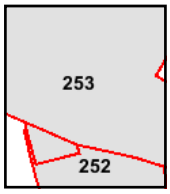

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0 Feet 150 300 600

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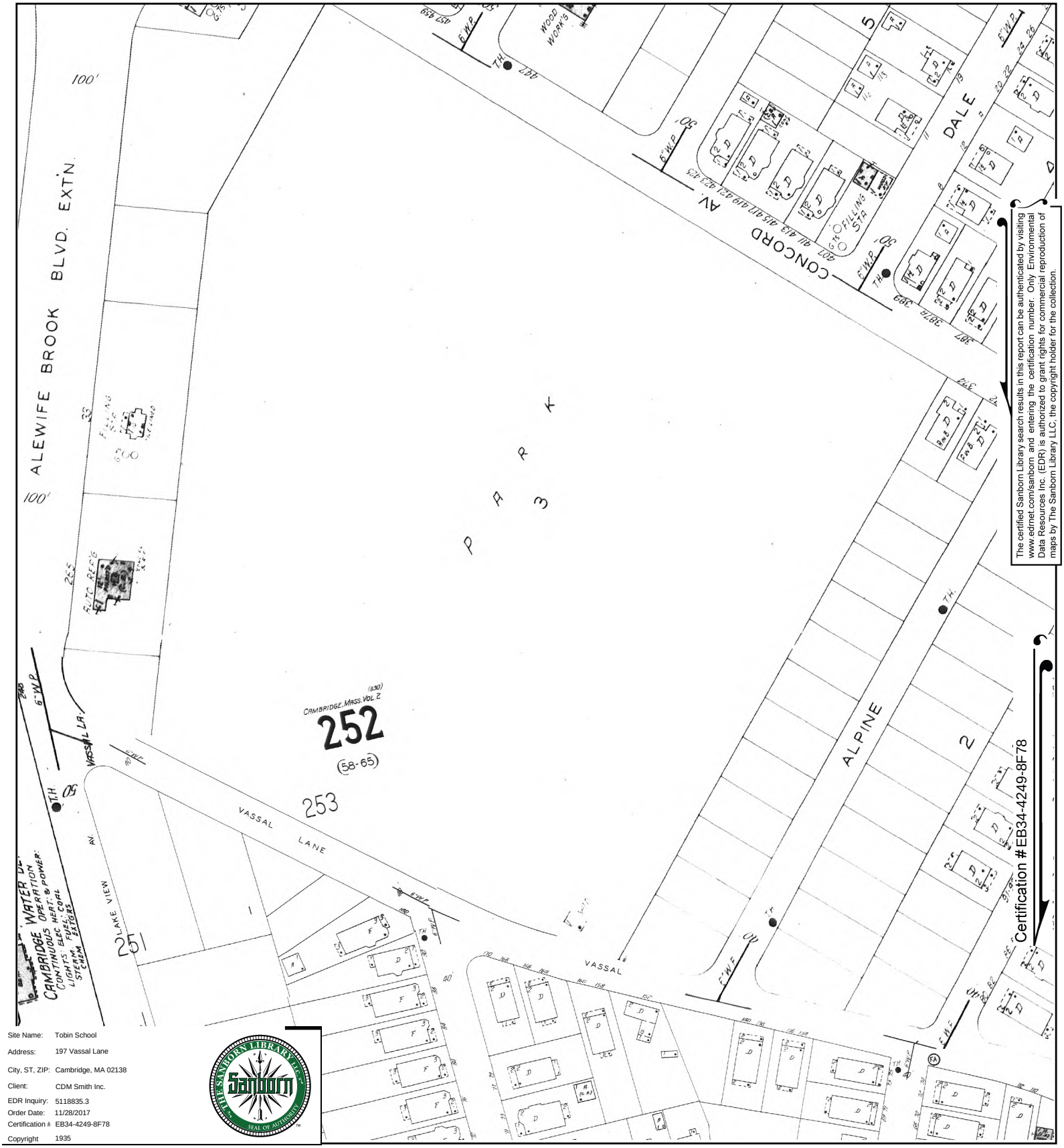

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Client:	CDM Smith Inc.
EDR Inquiry:	5118835.3
Order Date:	11/28/2017
Certification #	EB34-4249-8F78
Copyright	1935

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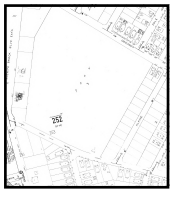

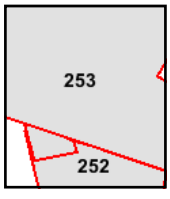

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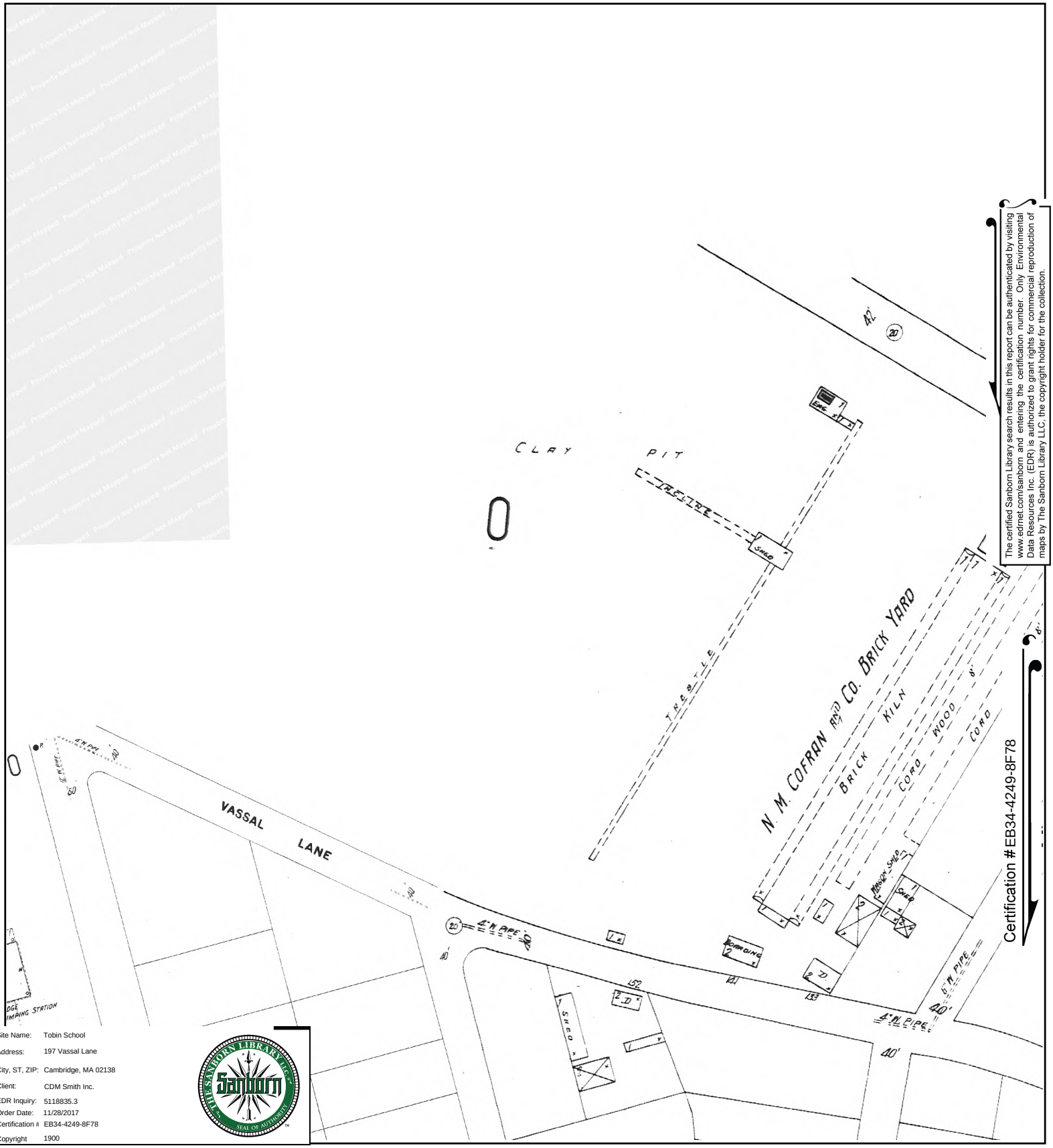

Certification #EB34-4249-8F78

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Order Date:	11/28/2017
Certification #	EB34-4249-8F78
Copyright	1900

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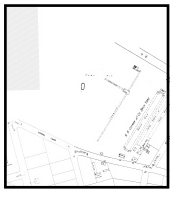

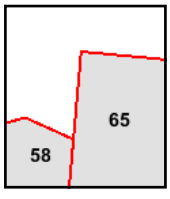

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0 Feet 150 300 600

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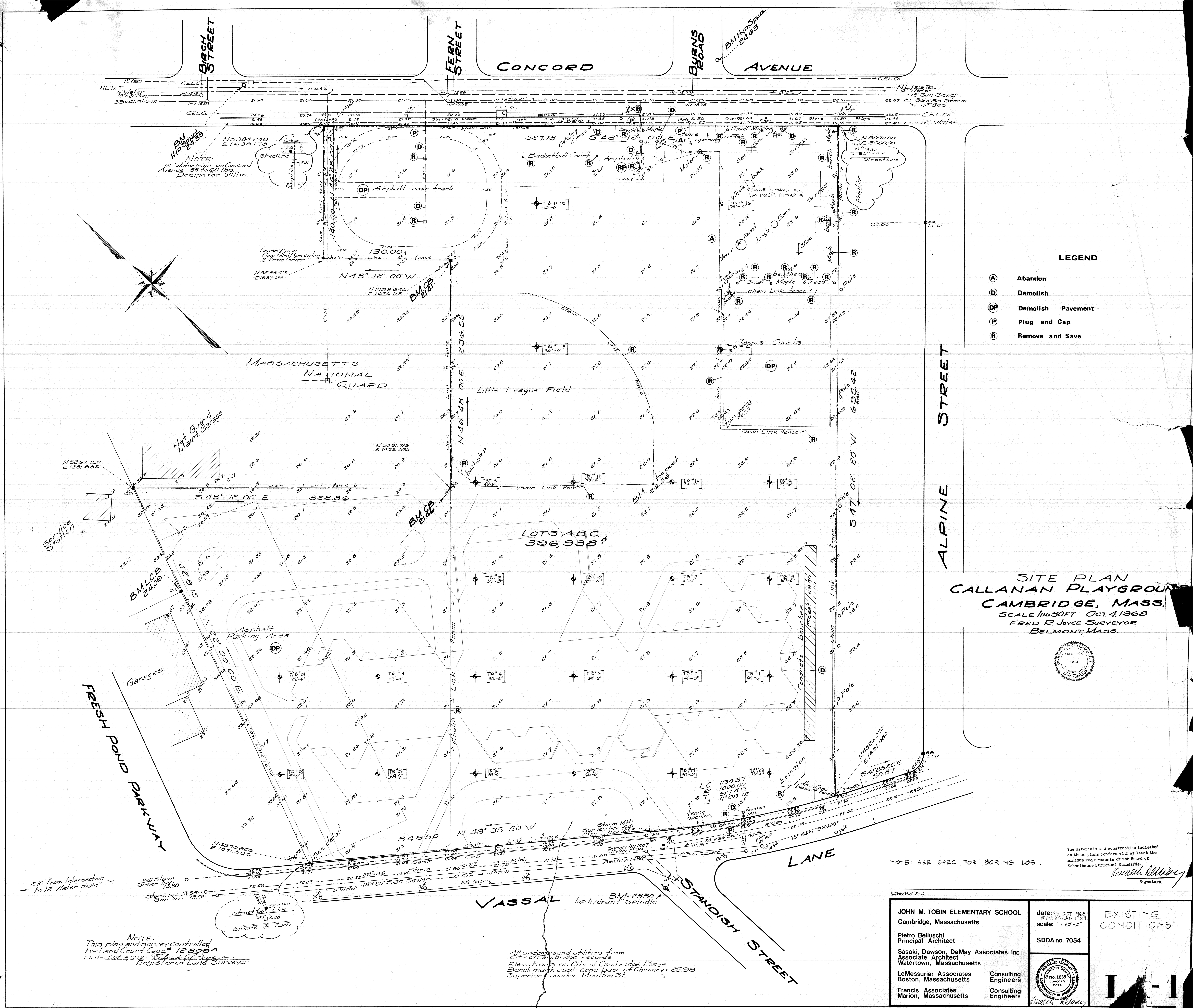
ATTACHMENT B
PREVIOUS TEST BORING LOGS


SITE PLAN
CALLANAN PLAYGROUND
CAMBRIDGE, MASS.
SCALE 1IN.=30FT. OCT. 4, 1968
FRED R. JOYCE SURVEYOR
BELMONT, MASS.
FREDERICK R. JOYCE REGISTERED LAND SURVEYOR COMMONWEALTH OF MASSACHUSETTS
LEGEND
A Abandon
D Demolish
DP Demolish Pavement
P Plug and Cap
R Remove and Save
CONCORD AVENUE
BIRCH STREET
FERN STREET
BURNS ROAD
ALPINE STREET
FRESH POND PARKWAY
VASSAL LANE
STANDISH STREET
MASSACHUSETTS NATIONAL GUARD
Nat. Guard Maint. Garage
Service Station
Garages
Little League Field
Basketball Court
Asphalt race track
Tennis Courts
Asphalt Parking Area
LOTS A.B.C. 396,938 ☐
REMOVE & SAVE ALL PLAY EQUIP. THIS AREA
NOTE: 12" Water main on Concord Avenue 55 to 60 lbs. Design for 50 lbs.
NOTE: This plan and survey controlled by Land Court Case # 12809A
Date: Oct 4, 1968
Registered Land Surveyor
All underground utilities from City of Cambridge records
Elevations on City of Cambridge Base.
Bench mark used: Conc. base of Chimney = 25.98
Superior Laundry, Moulton St.
270' from Intersection to 12" Water main
NOTE: SEE SPEC. FOR BORING LOG.
The materials and construction indicated on these plans conform with at least the minimum requirements of the Board of Schoolhouse Structual Standards.
Signature
REVISION:
JOHN M. TOBIN ELEMENTARY SCHOOL
Cambridge, Massachusetts
Pietro Belluschi
Principal Architect
Sasaki, Dawson, DeMay Associates Inc.
Associate Architect
Watertown, Massachusetts
LeMessurier Associates
Boston, Massachusetts
Consulting Engineers
Francis Associates
Marion, Massachusetts
Consulting Engineers
date: 25 OCT 1968
REV: 20 JAN 1969
scale: 1" = 30'-0"
SDDA no. 7054
REGISTERED ARCHITECT KENNETH DeMAY No. 1835 CONCORD, MASS. COMMONWEALTH OF MASSACHUSETTS
EXISTING CONDITIONS
I-1

NEW ENGLAND TEST BORING CO.

TEST BORING REPORT

BOSTON, MASSACHUSETTS

To City of Cambridge, Massachusetts Date 10/14/66 Job No. 3555

Location Proposed John M. Tobin School, Cambridge, Mass. Scale 1" = 8 ft.

Figures in right hand column indicate number of blows required to drive 2 inch sampling spoon [illegible] using 140-lb. weight falling 30 inches.

6"

BORING # 1

Elev.

0'0"

loose brown loam, ashes, fine sand, gravel, fill (no sample) — 6'6"

DENSE VERY FINE LEACHED YELLOW SAND, INORGANIC SILT AND CLAY (moist) 8, 11, 14 — 14'0"

MEDIUM TO STIFF SILTY, LEACHED YELLOW CLAY (some plastic.) 5, 6, 8 — 17'0"

MEDIUM GRAY CLAY 3, 4, 4 — 38'6"

SOFT GRAY CLAY (very plastic; moist) 1, 1, 2 — 44'6"

MED-DENSE VERY FINE GRAY SAND, INORGANIC SILT & CLAY, trace of fine gravel (moist) 4, 16, 37 — 57'0"

MEDIUM GRAY CLAY, some very fine sand (plastic) 5, 5, 8 — 59'0"

DENSE, MEDIUM TO FINE SILTY GRAY SAND & COARSE GRAVEL, some coarse sand, trace of clay 32, 6" — 66'6"

No water enc'd.
Refusal

Shelby Tubes Taken-Recovery

22'0" - 24'0" 24" Rec.
32'0" - 34'0" 22" Rec.
42'0" - 44'0" 24" Rec.

BORING # 2

Elev.

0'0"

loam, ashes, fine sand, gravel, fill — — 5'6"

VERY STIFF TO HARD SILTY, LEACHED YELLOW CLAY, trace of very fine sand & gravel (no plasticity) 10, 14, 18 — 11'0"

No water enc'd.
Refusal

BORING # 2A

Elev.

0'0"

loam, ashes, fine sand, gravel, fill — — 6'0"

STIFF TO VERY STIFF SILTY, LEACHED, YELLOW CLAY, trace of very fine sand & gravel (moist) (slightly plastic) 6, 9, 11 — 16'6"

MEDIUM SILTY GRAY CLAY, trace of very fine sand (moderately plastic; moist) 4, 4, 5 — 29'0"

29'6" HARD, MED. TO COARSE SILTY GRAY SAND, GRAVEL, CLAY 120/2"

ROCK

Cored 10'0"
Recovered 7'6"

39'6" HARD, VERY-FINE-GRAINED (APHANITIC DK-GRAY BASALT(?), some "healed" joints & fractures; calcite stringers are extensive.

No water enc'd.

Shelby Tubes Taken-Recovery

18'6" - 20'6" 23" Rec.

BORING # 3

Elev.

0'0"

LOOSE DARK-GRAY-BROWN ASHES, LOAM AND MISC. FILL (moist) 7, 4, 3 — W.L.

LOOSE DARK-YELL-GRAY ASHES AND MISC. DUMP FILL (wet) 12, 4, 3 — 15'0" — 21'0"

MED. TO STIFF SILTY GRAY CLAY, some misc. fill 7/9/6 — 25'0"

STIFF SILTY GRAY CLAY, some very fine sand (moist) (slight plasticity) 11, 9, 8 — 31'6"

MED-DENSE, V.FINE GRAY SAND & INORG. SILT, some clay 12, 9, 9 — 34'0"

MEDIUM, SILTY GRAY CLAY, some (very fine sand (some plasticity) 6, 8, 6 — 38'6"

DENSE, MEDIUM TO FINE SILTY GRAY SAND & GRAVEL, some coarse sand & clay 8, 10, 19 — 45'0" — 46'3"

V. DENSE TO HARD, MED. TO COARSE SILTY GRAY SAND & GRAVEL, some f. sand & clay 50/6", 150/3"

Water Level -8'1"
Refusal

(Installed one well-point and 1¼" pipe to 45'0" for water observation well.)

Water levels indicated are those observed at the completion of each boring and do not necessarily represent permanent ground water levels.

NEW ENGLAND TEST BORING CORP.

Telephone [redacted] TEST BORING REPORT BOSTON, MASSACHUSETTS

To City of Cambridge, Massachusetts Date 10/13/66 Job No. 3553

Location Proposed John M. Tobin School, Cambridge, Mass. Scale 1" = 4 ft.

Figures in right hand column indicate number of blows required to drive 2 inch sampling spoon 1 ft. using 140-lb. weight falling 30 inches.

BORING # 4

Elev.

0'0"

W.L. loose dark-brown loam, fine sand, ashes & misc. fill (wet) (lost sample) — 1, 1, 1

18'0" MEDIUM-STIFF SILTY GRAY CLAY, trace v.f. sand (some plasticity) — 8, 9, 11

23'0" MEDIUM GRAY CLAY, trace of v.f. sand (moderately plastic; moist) — 4, 4, 5

36'6" MEDIUM TO STIFF SILTY GRAY CLAY, trace of very fine sand (some plasticity) — 4, 5, 7, 8

44'6" DENSE V.FINE TO FINE GRAY SAND & INORGANIC SILT, trace clay (wet) — 14, 11, 14

48'0" V.DENSE, FINE TO MEDIUM SILTY GRAY SAND, GRAVEL & CLAY, trace of boulders (glacial till (wet)) — 11, 18, 14

52'6" Water Level -5'9"

Scale: 1" = 8'

Shelby Tube Samples Taken

21'0" - 23'0" 6" Rec.

26'0" - 28'0" 24" Rec.

BORING # 5

Elev.

0'0" LOOSE MEDIUM TO FINE YELLOW SAND, GRAVEL & CINDER FILL (dry) — 7

5'6" LOOSE FINE DARK-BROWN SAND, GRAVEL & CINDERS, FILL (moist) — 4

W.L.

14'0" VERY LOOSE GRAY CINDERS, WOOD, FILL (wet) — 3

19'0" SOFT SILTY GRAY CLAY (moderately plastic) — 4

23'0" MEDIUM GRAY CLAY, some strata of very fine sand (some to moderately plastic; moist) — 10

29'0" MEDIUM SILTY GRAY CLAY, some strata of very fine sand (moderately plastic) — 7

35'0" Water Level -8'6"

"Refusal"

BORING # 6

Elev.

0'0" LOOSE TO MEDIUM, DARK-BROWN LOAM, FINE SAND, GRAVEL & CINDERS, FILL (dry) — 5, 5, 4

W.L.

7'0" LOOSE DARK-YELL-GRAY CINDERS, BRICKS, FINE SAND & MISC. FILL (wet) — 3, 2, 3

12'0" LOOSE GRAY CINDER FILL (wet) — 2, 1, 1

17'0" LOOSE GRAY ASHES & CINDERS, FILL (wet) — 1, 1, 1

21'6" SOFT GRAY CLAY, some strata of very fine sand — 1, 2, 3

23'6" Drove 2.0" O.D. Shelby Tube to 25'6"; Recovered 1'3" — --

25'6" Water Level -5'6"

(Installed one well-point and 1¼" pipe to 13'0" for water observation well.)

Water levels indicated are those observed at the completion of each boring and do not necessarily represent permanent ground water levels.

NEW ENGLAND TEST BORING CO.

TEST BORING REPORT

BOSTON, MASSACHUSETTS

City of Cambridge, Massachusetts Date 10/13/66 Job No. 3553

Proposed John M. Tobin School, Cambridge, Mass. Scale 1" = 4 ft.

Figures in right hand column indicate number of blows required to drive 2 inch sampling spoon 1 foot using 140-lb. weight falling 30 inches.

BORING # 7

Elev.

0'0"

MED. DENSE BROWN LOAM, FINE SAND, GRAVEL, BRICKS & MISC. FILL (dry) — 7, 2, 9

W.L. 4'0"

LOOSE GRAY-YELLOW CINDERS, ASHES, FINE SAND, GRAVEL & MISC. FILL (wet) — 3, 3, 2, 1, 1

21'0"

MEDIUM-SOFT GRAY CLAY, some strata of very fine sand (moderate to very plastic; wet) — 3, 4, 3, 5, 4, 5

33'0"

SOFT GRAY CLAY, some veins of very fine sand (very plastic; wet) — 2, 3, 3, 2, 2, 3

41'0"

Water Level -5'6"

BORING # 8

Elev.

0'0"

LOOSE YELL-BROWN LOAM, FINE SAND, GRAVEL, BLDRS., FILL — 9

2'6"

HARD, SILTY, LEACHED YELLOW CLAY, some fine yellow sand (dry) — 22

W.L. 8'6"

VERY STIFF TO HARD SILTY, LEACH. YELLOW CLAY (moist) (no plasticity) — 15

16'6"

MED. TO STIFF SILTY, LEACHED YELLOW CLAY (sl. plastic) — 10

19'0"

MEDIUM GRAY CLAY (moderate plasticity) — 7

25'6"

SOFT SILTY GRAY CLAY (very plastic; wet) — 4

30'0"

Water Level -7'6"

BORING # 9

Elev.

0'0"

LOOSE YELL-BROWN LOAM, FINE SAND, GRAVEL, BOULDERS, FILL — 8, 11, 12

5'6"

W.L.

VERY LOOSE, DARK-BROWN CINDERS, FINE SAND, ASH AND MISC. FILL (dry) — 2, 2, 2

11'0"

VERY LOOSE DARK-BROWN CINDERS, WOOD, FINE SAND AND MISC. FILL (wet) — 1, 2, 2, 1

16'0"

LOOSE GRAY-YELL. ASHES, CINDERS, FINE SAND AND MISC. FILL (wet) — 1, 1, 2, 2

21'0"

MED-SOFT SILTY GRAY CLAY, some veins of very fine sand (moderately plastic; moist) — 3, 4, 4, 4

26'0"

SOFT GRAY CLAY, some veins of very fine sand (moderately to very plastic; wet) — 3, 3, 3, 3, 3, 3, 3, 3

40'6"

DENSE, FINE TO MED. SILTY GRAY SAND, some gravel, coarse sand & clay — 11, 10

41'6"

Water Level -5'6"

Water levels indicated are those observed at the completion of each boring and do not necessarily represent permanent ground water levels.

3

NEW ENGLAND TEST BORING CORP.

Telephone [redacted] **TEST BORING REPORT** BOSTON, MASSACHUSETTS

To City of Cambridge, Massachusetts Date 10/13/66 Job No. 3553

Location Proposed John M. Tobin School, Cambridge, Mass. Scale 1" = 4 ft.

Figures in right hand column indicate number of blows required to drive 2 inch sampling spoon [illegible] 6" using 140-lb. weight falling 30 inches.

BORING # 10

Elev.

0'0"	LOOSE, YELLOW-BROWN LOAM, FINE SAND & GRAVEL, FILL (dry)	1, 6, 6
W.L.		
6'6"	LOOSE DARK-GRAY-YELLOW CINDERS, WOOD, GLASS, FINE SAND & MISC. FILL (moist)	2, 3, 3
11'0"	LOOSE GRAY ASHES, AND CINDER FILL (wet)	2, 2, 2
		2, 2, 2
19'6"	MEDIUM LEACHED, YELL-GRAY CLAY, some veins of very fine sand (some plasticity; moist)	5, 5, 6
26'0"	MED-DENSE, FINE SILTY GRAY SAND, GRAVEL & CLAY (some plasticity)	12, 12*
27'0"	Water Level -5'6" *Refusal*	

BORING # 11

Elev.

0'0"	LOOSE TO MEDIUM, GRAY-YELL. LOAM, MEDIUM TO FINE SAND, GRAVEL, FILL (dry)	5, 6, 8
W.L.		
6'0"	LOOSE FINE DARK-BROWN SAND, LOAM, GRAVEL, CINDERS & MISC. FILL (moist)	3, 3, 3
11'0"	LOOSE GRAY CINDERS, FINE SAND, WOOD, GLASS, RED BRICKS AND MISC. FILL (wet)	2, 2, 1
16'0"	LOOSE GRAY CINDER FILL (wet)	2, 1, 1
21'0"	MEDIUM SANDY, SILTY GRAY CLAY, some veins of very fine sand (some plasticity)	4, 4, 5
26'0"	MEDIUM SILTY GRAY CLAY, some veins of very fine sand (some plasticity)	4, 4, 7
31'0"	MED-DENSE, FINE TO MED. SILTY GRAY SAND, GRAVEL AND CLAY; some shale fragments (wet	8, 9, 11, 14
	Water Level -5'0"	

BORING # 12

Elev.

0'0"	LOOSE YELL. LOAM, FINE TO MEDIUM SAND, GRAVEL, FILL (dry)	7
5'0"		
W.L.	LOOSE TO MEDIUM, FINE DK-GRAY-YELLOW SAND, GRAVEL & CINDER FILL (moist)	10
11'0"	VERY LOOSE DARK-GRAY CINDERS, FINE SAND AND RUBBER FILL	3, 3, 2
14'0"	MEDIUM SILTY GRAY CLAY (some plasticity)	4, 4, 5
21'0"	MED-DENSE, MEDIUM SILTY GRAY CLAY & VERY FINE GRAY SAND (wet)	2, 11, 8
26'0"	SOFT SILTY GRAY CLAY, some very fine sand (moderately plastic)	2, 1, 2
30'0"	DENSE, FINE TO MED. GRAY SAND & GRAVEL, some coarse sand & clay (wet)	10, 9/19
32'0"	Water Level -6'6"	

Water levels indicated are those observed at the completion of each boring, and do not necessarily represent permanent ground water levels.

NEW ENGLAND TEST BORING CORP.

Telephone [redacted] **TEST BORING REPORT** BOSTON, MASSACHUSETTS

To City of Cambridge, Massachusetts Date 11/21/66 Job No. 3553

Location Proposed John M. Tobin School, Cambridge, Mass. Scale 1" = 8 ft.

Figures in right hand column indicate number of blows required to drive 2 inch sampling spoon [redacted] using 140-lb. weight falling 30 inches. 6"

BORING # 13

Elev.

0'0" soft brown loam & gravel, fill — 4'0"

W.L. LOOSE TO MEDIUM, SAND, GRAVEL, SILT & MISC. FILL (wet) 6 5 5 4 7 — 15'0"

Pushed fragments of wood through very loose sandy, gravelly fill. 6 7 2 2 2 1 — 25'0"

ORGANIC SILT & FILL 6/6/6/8 — 26'6"

MED. GRAY CLAY, trace fine sand 6/5/6/8 — 50'0"

SOFT GRAY CLAY, trace v.f. sand (very plastic) 2 2 3 3 3 — 37'0"

SOFT TO VERY SOFT GRAY CLAY (very plastic; wet) 2 2 1 1 3 — 44'0"

DENSE VERY FINE GRAY SAND AND INORGANIC SILT, some veins of f. sand 13 15 32/50 — 50'0"

Water Level -5'6"
"Refusal"

BORING # 14

Elev.

0'0" sand, gravel, boulders, red bricks, wood and misc. fill, some soft clay (moist) — 8'0"

VERY SOFT GRAY SANDY ORGANIC SILT, some gravel 1 1 1 — 13'0"

LOOSE TO MED., YELL-GRAY ORGANIC SILT, SAND AND CLAY (wet) 5/6/5 — 18'0"

SOFT GRAY CLAY, trace of very fine sand (wet) (moderately plastic) 2 3 4 — 25'0"

MEDIUM TO SOFT GRAY CLAY (moist) (moderately plastic) 4 4 3 — 33'0"

SOFT TO MEDIUM GRAY CLAY (moderately plastic; wet) 3 3 5 4 4 6 — 47'6"

LOOSE, FINE TO MEDIUM SILTY GRAY SAND & GRAVEL, some coarse sand & clay (wet) 11 14 26 40 — 51'0"

Water Level -9'0"

Water levels indicated are those observed at the completion of each boring and do not necessarily represent permanent ground water levels.

NEW ENGLAND TEST BORING CORP.

TEST BORING REPORT

BOSTON, MASSACHUSETTS

To City of Cambridge, Massachusetts Date 11/21/66 Job No. 3553

Location Proposed John M. Tobin School, Cambridge, Mass. Scale 1"= 8 ft.

Figures in right hand column indicate number of blows required to drive 2 inch sampling spoon 1 foot using 140-lb. weight falling 30 inches.

BORING # 15

Elev.

0'0"

loose gray sand, gravel & misc. ashes, fill — (moist-wet)

W.L.

10'0"

Water Level -6'0"

Refusal--Wood Obstruction

BORING # 15A

Elev.

0'0"

1'6" loose sandy loam —

LOOSE MISC. GRAY ASHES, WOOD, RED BRICKS, FILL 7 (wet)

W.L.

10'0"

VERY LOOSE GRAY ASHES AND MISC. FILL 2 (very wet)

20'0"

MEDIUM TO SOFT GRAY CLAY, trace of v.f. sand 5 (wet; very plastic)

49'0"

MEDIUM SILTY GRAY CLAY, some veins of fine gray sand 12 (some to moderately plastic; moist)

62'0"

V.DENSE, F.TO MED. SAND, GRAVEL, CLAY, TILL 75

64'0"

WEATHERED GRAY SHALE 120

66'0"

Water Level -6'0"

Refusal

(Boring # 15A made 5'0" Southeast of Boring # 15)

BORING # 16

Elev.

0'0"

sand, gravel, boulders, clay & misc. fill —

W.L.

7'0"

V.STIFF TO HARD SILTY YELL. CLAY, trace v.f. sand 35

10'0"

V.STIFF SILTY YELLOW CLAY, trace of v.f. sand 18

14'6"

MEDIUM TO SOFT SILTY GRAY CLAY, trace of very fine sand 7 (wet)

22'0"

SOFT GRAY CLAY, trace of very fine gray sand 5 (wet; moderately to very plastic)

36'0"

MEDIUM TO SOFT GRAY CLAY, some very fine sand 6 (moderately plastic)

43'0"

SOFT GRAY CLAY, trace of very fine sand 4 (very plastic; wet)

49'0"

MED. DENSE, VERY FINE GRAY SAND & INORGANIC SILT, trace of clay 11 (moist)

56'0"

58'0" DENSE, V.COARSE TO COARSE SILTY GRAY SAND & GRAVEL, some medium sand 34

Water Level -6'6"

Refusal

Water levels indicated are those observed at the completion of each boring and do not necessarily represent permanent ground water levels.

NEW ENGLAND TEST BORING CORP.

Telephone 567-7[illegible] TEST BORING REPORT BOSTON, MASSACHUSETTS

To City of Cambridge, Massachusetts Date 1/17/68 Job No. 3851

Location John M. Tobin School, Fresh Pond Ave. & Vassal Lane, Cambridge Scale 1" = 4 ft.

Figures in right hand column indicate number of blows required to drive 2 inch sampling spoon 1 foot, using 140-lb. weight falling 30 inches.

BORING # 17

0'0" Elev.

W.L. 6'6"

cinders, red bricks, fine sand and gravel, fill --

(no samples)

16'0"

soft gray clay, trace fine sand --

(no samples)

77'0"

Rock

Cored 10'0"

DARK-GRAY BASALT; some vertical veins of calcite; fractured but not too weathered

Water Level -6'6"

BORING # 18

0'0" Elev.

W.L. 6'9"

cinders, red bricks, fine sand and gravel, fill --

(no samples)

16'6"

soft gray clay, trace fine sand --

(no samples)

69'0" MED-DENSE, V.FINE TO FINE GRAY SAND, INORG. SILT & CLAY 17

72'6" DENSE, FINE TO V.F. SILTY GRAY SAND, some gravel & clay 35

76'0" V.DENSE TO HARD, V.FINE TO FINE SILTY GRAY SAND, some c.gravel & clay 80

78'0"

Rock

Cored 10'0"

DARK-GRAY BASALT some vertidal veins of calcite

88'0"

Water Level -6'9"

BORING # 19

0'0" Elev.

W.L. 7'3"

cinders, red bricks, fine sand and gravel, fill --

(no samples)

14'6"

soft gray clay, trace fine sand --

(no samples)

39'0"

Rock

Cored 10'0"

DARK-GRAY BASALT some vertical veins of calcite; fractured but not very weathered

49'0"

Water Level -7'3"

Scale: 1" = 8'

Water levels indicated are those observed at the completion of each boring and do not necessarily represent permanent ground water levels.

Telephone

NEW ENGLAND TEST BORING CORP.
TEST BORING REPORT

BOSTON, MASSACHUSETTS

To City of Cambridge, Massachusetts Date 1/17/68 Job No. 3851

Location John M. Tobin School, Fresh Pond Ave. & Vassal Lane, Cambridge Scale 1" = 4 ft.

Figures in right hand column indicate number of blows required to drive 2 inch sampling spoon 1 foot, using 140-lb. weight falling 30 inches.

BORING # 20

0'0" Elev.

cinders, red bricks, sand, gravel & misc. fill --

W.L. 7'9"

(no samples)

15'6" ---

soft gray clay, trace fine sand --

81'0" (no samples)

Continued

Continued

81'0"

MED-DENSE, FINE GRAY SAND, GRAVEL, INORGANIC SILT AND CLAY (wet) 23

84'0"

V. DENSE, MEDIUM TO COARSE GRAY SAND & GRAVEL, some fine sand, inorganic silt & clay (wet) 67

87'0"

Rock Cored 10'0"

DARK-GRAY BASALT; some vertical veins of calcite; fractured but not highly weathered

97'0"

Water Level -7'9"

BORING # 21

0'0" Elev.

W.L. 4'6"

sand, gravel, cinders, bldrs. & misc. fill --

(no samples)

14'0"

fine sand, inorg. silt and clay --

(no samples)

22'0"

soft gray clay, some veins of fine sand --

(no samples)

66'0"

Water Level -4'6"

"Refusal"

Water levels indicated are those observed at the completion of each boring, and do not necessarily represent permanent ground water levels.

NEW ENGLAND TEST BORING COR

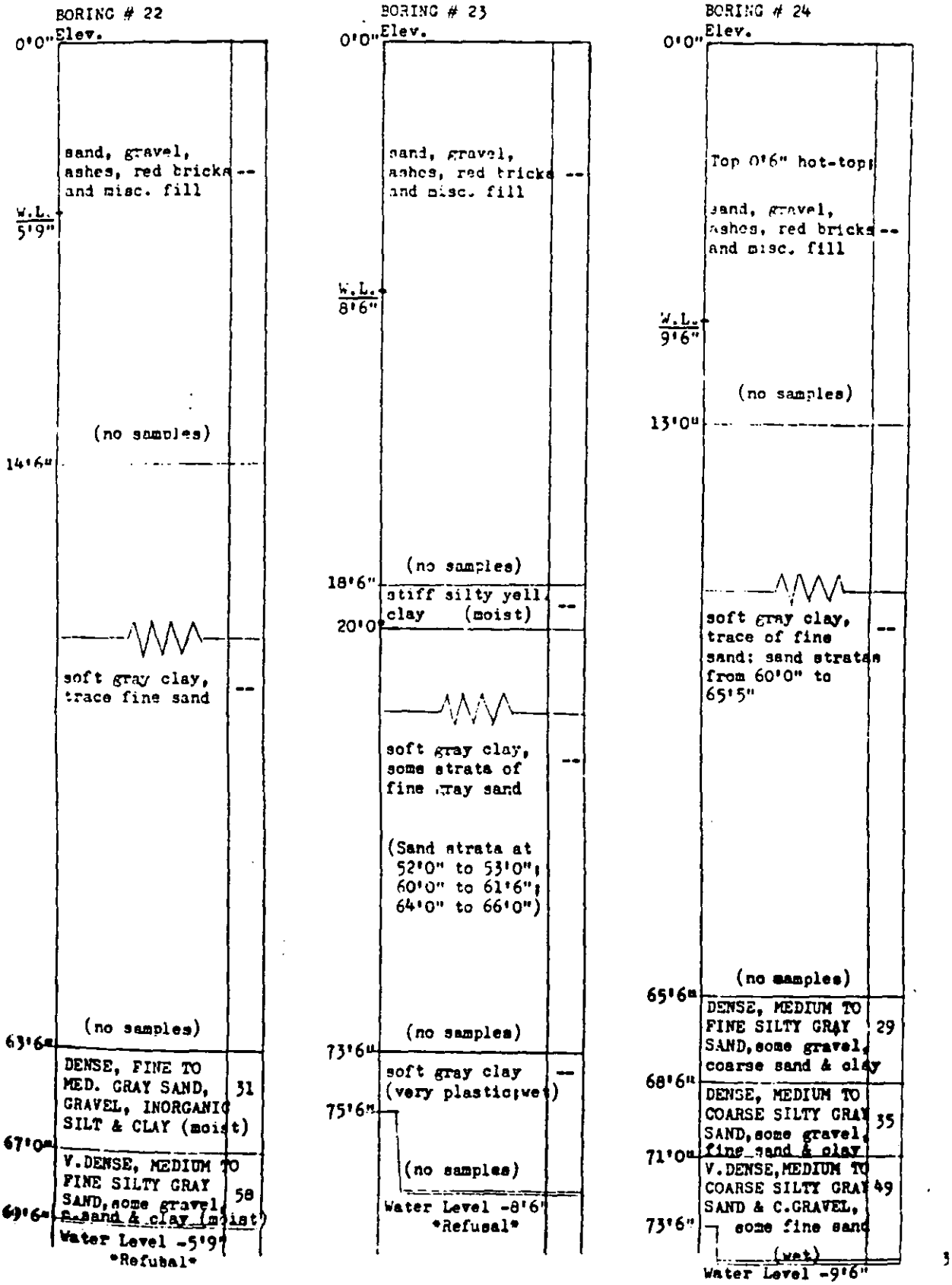
TEST BORING REPORT

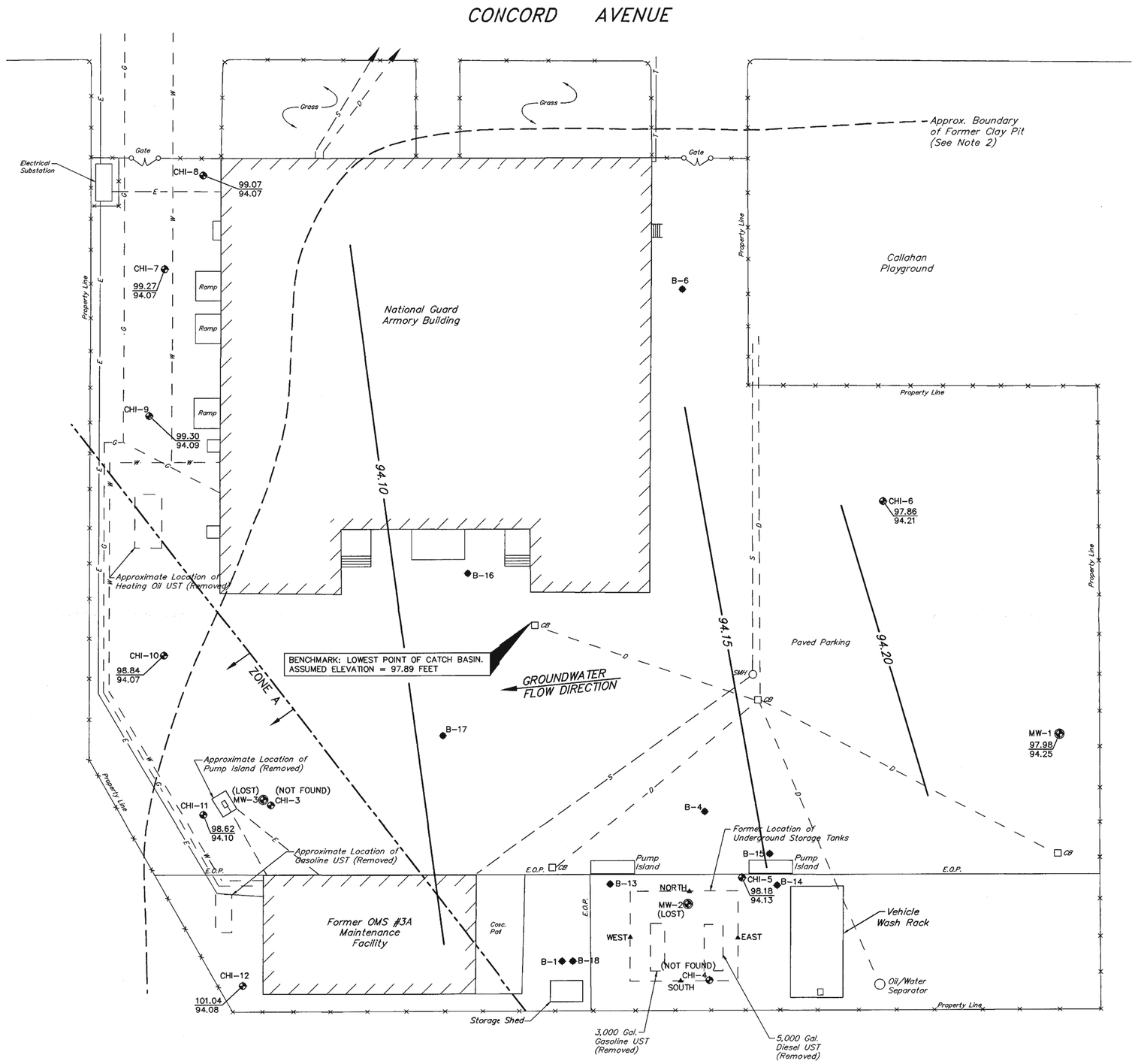
BOSTON, MASSACHUSETTS

To City of Cambridge, Massachusetts Date 1/18/68 Job No. 3851

Location John M. Tobin School, Fresh Pond Ave. & Vassal Lane, Cambridge Scale 1" = 4 ft.

Figures in right hand column indicate number of blows required to drive 2 inch sampling spoon 1 foot, using 140-lb. weight falling 30 inches.





LEGEND

MW-1	MONITORING WELL INSTALLED BY NEET (SEPTEMBER 17, 1996)
CHI-5	MONITORING WELL INSTALLED BY CHES
98.18 / 94.13	REFERENCE ELEVATION (TOP OF PVC)(FEET) / GROUNDWATER ELEVATION (FEET)
B-1	SOIL BORING INSTALLED BY CHES
WEST	SOIL SAMPLE (TAKEN BY YEE CONSULTING GROUP, INC. ON JUNE 22, 1995)
D	BURIED DRAIN LINE
G	BURIED GAS LINE
S	BURIED SEWER LINE
W	BURIED WATER LINE
T	TELEPHONE LINE
E.O.P.	EDGE OF PAVEMENT
CB	CATCH BASIN
DMH	DRAIN MANHOLE
SMH	SEWER MANHOLE
	CHAIN LINK FENCE
94.20	GROUNDWATER CONTOUR

NOTES:

1. BASE PLAN DEVELOPED FROM "FIGURE 2 – SITE PLAN 450 CONCORD AVE. CAMBRIDGE, MA" BY NEW ENGLAND ENVIRONMENTAL TECHNOLOGIES CORPORATION, 310 MAIN STREET, GROVELAND, MASS. 01834.
2. OBTAINED FROM "PHASE I INITIAL SITE INVESTIGATION REPORT FOR TOBIN ELEMENTARY SCHOOL", PREPARED BY CAMP, DRESSER & McKEE, INC., FIGURE 4–2, DATED JULY 1997.
3. GROUNDWATER ELEVATIONS MEASURED BY CHES ON MAY 3, 2001.
4. SOIL BORINGS B–1, B–4 AND B–6, AND MONITORING WELLS CHI–3 THROUGH CHI–7 WERE INSTALLED BY CHES ON MARCH 29, 2000.
5. ZONE A BOUNDARY DETERMINED FROM CITY OF CAMBRIDGE ASSESSOR'S MAP #753964.

FIGURE 2

ISSUE	DESCRIPTION	DRWN.	CHKD.	APPR.	DATE
C	REVISED BASE PLAN	K.M.C.	C.J.M.	D.A.S.	3/28/02
B	ADDED SOIL BORINGS	K.M.C.	C.J.M.	D.A.S.	2/6/01
A	PHASE II SCOPE OF WORK	K.M.C.	K.A.G.	D.A.S.	2/28/00

CleanHarbors
ENVIRONMENTAL SERVICES, INC.
ENVIRONMENTAL CONSTRUCTION & TECHNICAL SERVICES DIVISION
392 Libbey Industrial Parkway
Weymouth, Massachusetts 02189
Telephone (781) 849-1800

TITLE
MASSACHUSETTS ARMY NATIONAL GUARD
CAMBRIDGE ARMORY
450 CONCORD AVENUE
CAMBRIDGE, MASSACHUSETTS

SITE PLAN

PROJECT NO. EN202281
SCALE 1"=20'(APPROX.)
DRAWING NO. 2281–C–01

CleanHarbors
Environmental Services, Inc.
Remedial Technologies Division
1501 WASHINGTON STREET
BRAINTREE, MASSACHUSETTS 02185-9048
(781) 849-1800

Boring No: B-1

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue - Cambridge, MA
CHES Job #: EN-202281 **Inspector:** K. Gilson
Contractor: Environmental Drilling, Inc. **Driller:** S. LaMarche
Drilling Method: Geoprobe **Casing/Auger Size:** 2"
Start Date: 3/29/00 **Ground Elevation:** NA
Finish Date: 3/29/00 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
	S-1	0-4	48/36		3.4	FILL	Brown and black, medium to coarse SAND, some fine Gravel, dry, concrete, brick, glass and metal fragments. No odor.		
2.5									
	S-2	4-8	48/24		2.9		Brown and black, medium to coarse SAND, some fine Gravel, dry, concrete, brick, glass and metal fragments. No odor.		
5									
7.5									
	S-3	8-12	48/30		2.9		Brown and black, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass and metal fragments. No odor.		
10									
12.5	S-4	12-16	48/18		3.7		Brown and black, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass and metal fragments. Slight odor, possibly organic.		
15									
							Bottom of Boring at 16 feet		

SAMPLE TYPES	PERCENTAGE BY WEIGHT
SS - split spoon	and = 35-50%
ST - shelby tube	some = 20-35%
AF - auger flight	little = 10-20%
RC - rock core	trace = 1-10%

GRANULAR SOILS Blow Cts	Density	COHESIVE SOILS Blow Cts	Density
< 4	very loose	< 2	very soft
5 - 10	loose	2 - 4	soft
11 - 30	medium	4 - 8	medium stiff
31 - 50	dense	8 - 15	stiff
> 50	very dense	15 - 30	very stiff

NOTES:
(1) Photoionization Detector (ppm = parts per million)
(2) The Burmister System is used for field classification of soils.

Disk Reference:

CleanHarbors
Environmental Services, Inc.
Remedial Technologies Division
1501 WASHINGTON STREET
BRAINTREE, MASSACHUSETTS 02185-9048
(781) 849-1800

Boring No: B-4

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue - Cambridge, MA
CHES Job #: EN-202281 **Inspector:** K. Gilson
Contractor: Environmental Drilling, Inc. **Driller:** S. LaMarche
Drilling Method: Geoprobe **Casing/Auger Size:** 2"
Start Date: 3/29/00 **Ground Elevation:** NA
Finish Date: 3/29/00 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
	S-1	0-4	48/36		0.1	FILL	Brown, gray and black, medium to coarse SAND, some fine Gravel, dry, concrete, brick, glass and metal fragments. No odor.		
2.5									
	S-2	4-8	48/12		0.8	▼	Brown, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass and metal fragments. No odor.		
5									
7.5									
	S-3	8-12	48/2				No soil recovery. Sleeve consisted of brick and rock fragments only.		
10									
12.5	S-4	12-16	48/24		ND		Brown, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass. shell and metal fragments. Slight odor, possibly organic.		
15									
							Bottom of Boring at 16 feet		

SAMPLE TYPES
SS - split spoon
ST - shelby tube
AF - auger flight
RC - rock core

PERCENTAGE BY WEIGHT	
and	35-50%
some	20-35%
little	10-20%
trace	1-10%

GRANULAR SOILS Blow Cts	Density
< 4	very loose
5 - 10	loose
11 - 30	medium
31 - 50	dense
> 50	very dense

COHESIVE SOILS Blow Cts	Density
< 2	very soft
2 - 4	soft
4 - 8	medium stiff
8 - 15	stiff
15 - 30	very stiff

NOTES:
(1) Photoionization Detector { ppm = parts per million}
(2) The Burmister System is used for field classification of soils.

Disk Reference:

CleanHarbors
Environmental Services, Inc.
Remedial Technologies Division
1501 WASHINGTON STREET
BRAINTREE, MASSACHUSETTS 02185-9048
(781) 849-1800

Boring No: B-6

Page: 1 of 1

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue - Cambridge, MA
CHES Job #: EN-202281 **Inspector:** K. Gilson
Contractor: Environmental Drilling, Inc. **Driller:** S. LaMarche
Drilling Method: Geoprobe **Casing/Auger Size:** 2"
Start Date: 3/29/00 **Ground Elevation:** NA
Finish Date: 3/29/00 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
	S-1	0-4	48/36		0.5	FILL	Brown, medium to coarse SAND, some fine Gravel, dry, concrete, brick, glass, wood and metal fragments. No odor.		
2.5									
	S-2	4-8	48/30		5.3	▼	Brown and black, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass, wood, rubber and metal fragments. No odor.		
5									
7.5									
	S-3	8-12	48/7		0.2		Brown and black, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass, wood, rubber and metal fragments. No odor.		
10									
12.5	S-4	12-16	48/0				No recovery.		
15									
	S-5	16-20	48/30		0.1		Brown and black, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass, wood, rubber and metal fragments. No odor.		
							Bottom of Boring at 20 feet		

SAMPLE TYPES
SS - split spoon
ST - shelby tube
AF - auger flight
RC - rock core

PERCENTAGE BY WEIGHT	
and	35-50%
some	20-35%
little	10-20%
trace	1-10%

GRANULAR SOILS Blow Cts	Density
< 4	very loose
5 - 10	loose
11 - 30	medium
31 - 50	dense
> 50	very dense

COHESIVE SOILS Blow Cts	Density
< 2	very soft
2 - 4	soft
4 - 8	medium stiff
8 - 15	stiff
15 - 30	very stiff

NOTES:
(1) Photoionization Detector (ppm = parts per million)
(2) The Burmister System is used for field classification of soils.

Disk Reference:

Boring No: CHI-4

Page: 1 of 1

Clean Harbors
Environmental Services, Inc.
Remedial Technologies Division
1501 WASHINGTON STREET
BRAINTREE, MASSACHUSETTS 02185-9048
(781) 849-1800

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue - Cambridge, MA
CHES Job #: EN-202281 **Inspector:** K. Gilson
Contractor: Environmental Drilling, Inc. **Driller:** S. LaMarche
Drilling Method: Geoprobe **Casing/Auger Size:** 2"
Start Date: 3/29/00 **Ground Elevation:** NA
Finish Date: 3/29/00 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
	S-1	0-4	48/36		2.0	FILL	Brown and black, medium to coarse SAND, some fine Gravel, dry, concrete, brick, glass, wood and metal fragments. No odor.		
2.5									
	S-2	4-8	48/24		1.7	▼	Brown and black, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass and metal fragments. Slight odor and sheen.	3	
5									
7.5									
	S-3	8-12	48/36		0.8		Brown, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass, wood and metal fragments. No odor.	4	
10									
12.5	S-4	12-16	48/3		2.8		Rock fragments.		
15								5	
							Bottom of Boring at 16 feet		

SAMPLE TYPES
SS - split spoon
ST - shelby tube
AF - auger flight
RC - rock core

PERCENTAGE BY WEIGHT	
and	35-50%
some	20-35%
little	10-20%
trace	1-10%

GRANULAR SOILS Blow Cts	Density
< 4	very loose
5 - 10	loose
11 - 30	medium
31 - 50	dense
> 50	very dense

COHESIVE SOILS Blow Cts	Density
< 2	very soft
2 - 4	soft
4 - 8	medium stiff
8 - 15	stiff
15 - 30	very stiff

NOTES:
(1) Photoionization Detector (ppm = parts per million)
(2) The Burmister System is used for field classification of soils.
(3) Groundwater encountered at approximataly 5 feet.
(4) Refusal encountered at 9 feet. Hole was moved 2 feet north.
(5) Installed 1" diameter PVC monitoring well 16 feet with 15 feet of slotted screen and 2 feet of solid riser pipe.

Disk Reference:

Boring No: CHI-5

Page: 1 of 1

Environmental Services, Inc.
Remedial Technologies Division
1501 WASHINGTON STREET
BRAINTREE, MASSACHUSETTS 02185-9048
(781) 849-1800

Project Name: MA Army National Guard	
Project Location: 450 Concord Avenue - Cambridge, MA	
CHES Job #: EN-202281	**Inspector:** K. Gilson
Contractor: Environmental Drilling, Inc.	**Driller:** S. LaMarche
Drilling Method: Geoprobe	**Casing/Auger Size:** 2"
Start Date: 3/29/00	**Ground Elevation:** NA
Finish Date: 3/29/00	**Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
	S-1	0-4	48/36		2.3	FILL	Brown, medium to coarse SAND, some fine Gravel, dry, concrete, brick, glass and metal fragments. No odor.		
2.5									
	S-2	4-8	48/12		1.5	▼	Brown and grayish black, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass and metal fragments. No odor.	3	
5									
7.5									
	S-3	8-12	48/8		69.2		Brown and black, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass, copper wire and metal fragments. Petroleum odor and sheen.		
10									
12.5	S-4	12-16	48/24		10.3	CLAY	Gray, silty CLAY, wet. Slight odor.	4	
15							Bottom of Boring at 16 feet		

SAMPLE TYPES
SS - split spoon
ST - shelby tube
AF - auger flight
RC - rock core

PERCENTAGE BY WEIGHT	
and	= 35-50%
some	= 20-35%
little	= 10-20%
trace	= 1-10%

GRANULAR SOILS Blow Cts	Density
< 4	very loose
5 - 10	loose
11 - 30	medium
31 - 50	dense
> 50	very dense

COHESIVE SOILS Blow Cts	Density
< 2	very soft
2 - 4	soft
4 - 8	medium stiff
8 - 15	stiff
15 - 30	very stiff

NOTES:

(1) Photoionization Detector (ppm = parts per million)
(2) The Burmister System is used for field classification of soils.
(3) Groundwater encountered at approximataly 5 feet.
(4) Installed 1" diameter PVC monitoring well 16 feet with 15 feet of slotted screen and 2 feet of solid riser pipe.

Disk Reference:

CleanHarbors

Environmental Services, Inc.
Remedial Technologies Division
1501 WASHINGTON STREET
BRAINTREE, MASSACHUSETTS 02185-9048
(781) 849-1800

Boring No: CHI-6

Page: 1 of 1

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue - Cambridge, MA
CHES Job #: EN-202281 **Inspector:** K. Gilson
Contractor: Environmental Drilling, Inc. **Driller:** S. LaMarche
Drilling Method: Geoprobe **Casing/Auger Size:** 2"
Start Date: 3/29/00 **Ground Elevation:** NA
Finish Date: 3/29/00 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
	S-1	0-4	48/42		0.1	FILL	Brown and black, medium to coarse SAND, some fine Gravel, dry, concrete, brick, glass and metal fragments, some mottling. No odor.		
2.5									
	S-2	4-8	48/36		ND	▼	Brown and grayish black, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass and metal fragments. No odor.	3	
5									
7.5									
	S-3	8-12	48/24		1.3		Brown and black, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass, copper wire and metal fragments. No odor.		
10									
12.5	S-4	12-16	48/24		10.8		Brown and black, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass, copper wire, wood and metal fragments. No odor.	4	
15							Bottom of Boring at 16 feet		

SAMPLE TYPES
SS - split spoon
ST - shelby tube
AF - auger flight
RC - rock core

PERCENTAGE BY WEIGHT	
and	= 35-50%
some	= 20-35%
little	= 10-20%
trace	= 1-10%

GRANULAR SOILS Blow Cts	Density
< 4	very loose
5 - 10	loose
11 - 30	medium
31 - 50	dense
> 50	very dense

COHESIVE SOILS Blow Cts	Density
< 2	very soft
2 - 4	soft
4 - 8	medium stiff
8 - 15	stiff
15 - 30	very stiff

NOTES:
(1) Photoionization Detector (ppm = parts per million)
(2) The Burmister System is used for field classification of soils.
(3) Groundwater encountered at approximataly 5 feet.
(4) Installed 1" diameter PVC monitoring well 16 feet with 15 feet of slotted screen and 1 foot of solid riser pipe.

Disk Reference:

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Environmental Services, Inc.
Remedial Technologies Division
1501 WASHINGTON STREET
BRAINTREE, MASSACHUSETTS 02185-9048
(781) 849-1800

Boring No: CHI-7

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue - Cambridge, MA
CHES Job #: EN-202281 **Inspector:** K. Gilson
Contractor: Environmental Drilling, Inc. **Driller:** S. LaMarche
Drilling Method: Geoprobe **Casing/Auger Size:** 2"
Start Date: 3/29/00 **Ground Elevation:** NA
Finish Date: 3/29/00 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
	S-1	0-4	48/36		1.9	FILL	Brown, medium to coarse SAND, some fine Gravel, dry, concrete, brick, glass and metal fragments. No odor.		
2.5									
	S-2	4-8	48/12		3.2	▼	Brown, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass and metal fragments. Petroleum odor and sheen.	3	
5									
7.5									
	S-3	8-10	24/18		2.9		Brown and black, medium to coarse SAND, some fine Gravel, wet, concrete, brick, glass, copper wire and metal fragments. Heavy petroleum odor and sheen.		
10									
	S-4	10-12	24/18		1.2	SILT/ SAND	Gray, silty fine SAND, wet. Heavy petroleum odor.	4	
12.5									
15							Bottom of Boring at 12 feet		

SAMPLE TYPES
SS - split spoon
ST - shelby tube
AF - auger flight
RC - rock core

PERCENTAGE BY WEIGHT	
and	= 35-50%
some	= 20-35%
little	= 10-20%
trace	= 1-10%

GRANULAR SOILS Blow Cts	Density
< 4	very loose
5 - 10	loose
11 - 30	medium
31 - 50	dense
> 50	very dense

COHESIVE SOILS Blow Cts	Density
< 2	very soft
2 - 4	soft
4 - 8	medium stiff
8 - 15	stiff
15 - 30	very stiff

NOTES:

(1) Photoionization Detector (ppm = parts per million)
(2) The Burmister System is used for field classification of soils.
(3) Groundwater encountered at approximataly 5 feet.
(4) Installed 1" diameter PVC monitoring well 16 feet with 15 feet of slotted screen. Due to potential blow-in of hole, no bottom sample was obtained.

Disk Reference:

Boring No: CHI-8

Page: 1 of 1

Environmental Services, Inc.
Remedial Technologies Division
392 LIBBEY INDUSTRIAL PARKWAY
WEYMOUTH, MASSACHUSETTS 02189
(781) 849-1800

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue, Cambridge, MA
CHES Job #: EN202281 **Inspector:** J. McCreery
Contractor: Environmental Drilling, Inc. **Driller:** S. Preston
Drilling Method: Hollow-Stem Auger **Casing/Auger Size:** 4 1/4-inch
Start Date: 2/27/01 **Ground Elevation:** NA
Finish Date: 2/27/01 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
0	S-1	1-3	24/8	17-17-10-15	0.0	FILL	Dry, olive fine SAND with some silt. 1/4-inch lamination of black cindery material. Fractured cobble in core tip. No odor.		
5	S-2	5-7	24/10	4-6-4-4	0.6	▼	Wet, olive fine SAND with some silt, over black organic SILT and coarse SAND. Includes glass, fibrous wood. No odor.		
10	S-3	10-12	24/9	14-17-8-8	1.9	CLAY	Moist, greenish gray CLAY. No odor.		
15	S-4	15-17	24/24	5-5-5-5	0.0		Moist, greenish gray CLAY. No odor.		
20							Bottom of boring at 17.0 feet		

SAMPLE TYPES
SS - split spoon
ST - shelby tube
AF - auger flight
RC - rock core

PERCENTAGE BY WEIGHT	
and	= 35-50%
some	= 20-35%
little	= 10-20%
trace	= 1-10%

GRANULAR SOILS Blow Cts	Density
< 4	very loose
5 - 10	loose
11 - 30	medium
31 - 50	dense
> 50	very dense

COHESIVE SOILS Blow Cts	Density
< 2	very soft
2 - 4	soft
4 - 8	medium stiff
8 - 15	stiff
15 - 30	very stiff

NOTES:
(1) Photovac 2020 photoionization detector used
{ ppm = parts per million}
(2) The Burmister System is used for field classification of soils.

Disk Reference:

CleanHarbors
Environmental Services, Inc.
Remedial Technologies Division
392 LIBBEY INDUSTRIAL PARKWAY
WEYMOUTH, MASSACHUSETTS 02189
(781) 849-1800

Boring No: CHI-9

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue, Cambridge, MA
CHES Job #: EN202281 **Inspector:** J. McCreery
Contractor: Environmental Drilling, Inc. **Driller:** S. Preston
Drilling Method: Hollow-Stem Auger **Casing/Auger Size:** 4 1/4-inch
Start Date: 2/27/01 **Ground Elevation:** NA
Finish Date: 2/27/01 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
0	S-1	1-3	24/19	15-16-21-17	1.3	FILL	Dry, dark brown fine SAND and SILT. Black cinder layer at 9" with pieces of brick and coal. No odor.		
5	S-2	5-7	24/1	3-3-4-7	0.7		Wet, black organic SILT and coarse SAND with fibrous wood material. No odor.		
	S-3	8-10	24/24	4-8-14-11	0.0	CLAY	Moist, greenish gray CLAY with some yellow staining. No odor.		
10	S-4	10-12	24/17	9-15-14-14	0.9		Moist, greenish gray CLAY with some yellow staining, with 1" layer of black organic silt, coarse sand and glass. No odor.		
15	S-5	15-17	24/24	5-4-5-6	0.0		Moist, greenish gray CLAY. No odor.		
20							Bottom of boring at 17.0 feet		

SAMPLE TYPES	PERCENTAGE BY WEIGHT
SS - split spoon	and = 35-50%
ST - shelby tube	some = 20-35%
AF - auger flight	little = 10-20%
RC - rock core	trace = 1-10%

GRANULAR SOILS Blow Cts	Density	COHESIVE SOILS Blow Cts	Density
< 4	very loose	< 2	very soft
5 - 10	loose	2 - 4	soft
11 - 30	medium	4 - 8	medium stiff
31 - 50	dense	8 - 15	stiff
> 50	very dense	15 - 30	very stiff

NOTES:
(1) Photovac 2020 photoionization detector used
(ppm = parts per million)
(2) The Burmister System is used for field classification of soils.

Disk Reference:

Boring No: CHI-10

Page: 1 of 1

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Remedial Technologies Division
392 LIBBEY INDUSTRIAL PARKWAY
WEYMOUTH, MASSACHUSETTS 02189
(781) 849-1800

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue, Cambridge, MA
CHES Job #: EN202281 **Inspector:** J. McCreery
Contractor: Environmental Drilling, Inc. **Driller:** S. Preston
Drilling Method: Hollow-Stem Auger **Casing/Auger Size:** 4 1/4-inch
Start Date: 2/27/01 **Ground Elevation:** NA
Finish Date: 2/27/01 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
0	S-1	1-3	24/6	6-7-10-12	0.0		Moist, olive fine SAND and fine GRAVEL with some silt; over powdered brick material. Piece of brick in core tip. No odor.	3	
5	S-2	5-7	24/6	17-12-12-11	4.7	FILL	Wet, olive medium to coarse SAND and SILT; over 2" of wood fiber. Wood in core tip. No odor.		
	S-3	8-10	24/0	10-5-7-11	---		No recovery.		
10	S-4	10-12	24/3	12-11-9-11	0.0		Wet, black organic SILT and coarse SAND, with some fine roots. No odor.		
15	S-5	15-17	24/24	6-4-5-5	0.0	CLAY	2" wet, black organic SILT and coarse SAND, with some fine roots, over moist, greenish gray CLAY. No odor.		
20							Bottom of boring at 17.0 feet		

SAMPLE TYPES
SS - split spoon
ST - shelby tube
AF - auger flight
RC - rock core

PERCENTAGE BY WEIGHT	
and	= 35-50%
some	= 20-35%
little	= 10-20%
trace	= 1-10%

GRANULAR SOILS Blow Cts	Density
< 4	very loose
5 - 10	loose
11 - 30	medium
31 - 50	dense
> 50	very dense

COHESIVE SOILS Blow Cts	Density
< 2	very soft
2 - 4	soft
4 - 8	medium stiff
8 - 15	stiff
15 - 30	very stiff

NOTES:
(1) Photovac 2020 photoionization detector used
{ ppm = parts per million}
(2) The Burmister System is used for field classification of soils.
(3) Fine strands of wire on auger teeth (assumed from landfill).

Disk Reference:

CleanHarbors
Environmental Services, Inc.
Remedial Technologies Division
392 LIBBEY INDUSTRIAL PARKWAY
WEYMOUTH, MASSACHUSETTS 02189
(781) 849-1800

Boring No: CHI-11

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue, Cambridge, MA
CHES Job #: EN202281 **Inspector:** J. McCreery
Contractor: Environmental Drilling, Inc. **Driller:** S. Preston
Drilling Method: Hollow-Stem Auger **Casing/Auger Size:** 4 1/4-inch
Start Date: 2/27/01 **Ground Elevation:** NA
Finish Date: 2/27/01 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
0									
	AF-1	2-3			14.7		Dry, light olive medium to coarse SAND with trace silt. No odor.		
5	S-1	5-7	24/8	27-16-8-8	61.8		Dry, light brown medium to coarse SAND with trace silt. Slight petroleum odor.		
	S-2	8-10	24/2	19-11-15-8	0.0	FILL	Wet, olive medium to coarse SAND with some silt and rock fragments. No odor.		
10	S-3	10-12	16/0	19-25-72 (4")	4.5		Wet, black medium to coarse SAND with some silt and wood fragments. Slight petroleum odor and sheen on sample.		
15	S-4	15-17	24/12	17-7-5-6	6.3		Wet, black medium to coarse SAND with some silt, wood and glass. No odor.		
20	S-5	20-22	24/24	5-6-4-7	0.0	CLAY	Moist, greenish gray CLAY. No odor.		
							Bottom of boring at 22.0 feet		

SAMPLE TYPES
SS - split spoon
ST - shelby tube
AF - auger flight
RC - rock core

PERCENTAGE BY WEIGHT	
and	= 35-50%
some	= 20-35%
little	= 10-20%
trace	= 1-10%

GRANULAR SOILS Blow Cts	Density
< 4	very loose
5 - 10	loose
11 - 30	medium
31 - 50	dense
> 50	very dense

COHESIVE SOILS Blow Cts	Density
< 2	very soft
2 - 4	soft
4 - 8	medium stiff
8 - 15	stiff
15 - 30	very stiff

NOTES:
(1) Photovac 2020 photoionization detector used
{ ppm = parts per million}
(2) The Burmister System is used for field classification of soils.

Disk Reference:

CleanHarbors
Environmental Services, Inc.
Remedial Technologies Division
392 LIBBEY INDUSTRIAL PARKWAY
WEYMOUTH, MASSACHUSETTS 02189
(781) 849-1600

Boring No: CHI-12

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue, Cambridge, MA
CHES Job #: EN202281 **Inspector:** J. McCreery
Contractor: Environmental Drilling, Inc. **Driller:** S. Preston
Drilling Method: Hollow-Stem Auger **Casing/Auger Size:** 4 1/4-inch
Start Date: 2/28/01 **Ground Elevation:** NA
Finish Date: 2/28/01 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
0									
	AF-1	2-3			3.6		Dry, olive medium to coarse SAND with some silt and fine gravel. No odor.		
5	S-1	5-7	24/8	3-6-4-16	4.0	FILL	Moist, olive medium to coarse SAND with some silt and fine gravel, over black organic silt with white platey ash and glass fragments. No odor.		
	S-2	8-10	24/11	3-3-7-10	4.8		Wet, black organic SILT with white platey ash and wood fiber; over olive fine to medium SAND with some silt. Slight petroleum odor.		
10	S-3	10-12	24/13	7-10-9-10	0.0	CLAY	Moist, greenish gray CLAY with few sand laminations and iron staining. No odor.		
15	S-4	15-17	24/24	6-9-8-10	0.0		Moist, greenish gray CLAY with black mottles. No odor.		
							Bottom of boring at 17.0 feet		
20									

SAMPLE TYPES	PERCENTAGE BY WEIGHT
SS - split spoon	and = 35-50%
ST - shelby tube	some = 20-35%
AF - auger flight	little = 10-20%
RC - rock core	trace = 1-10%

GRANULAR SOILS Blow Cts	Density	COHESIVE SOILS Blow Cts	Density
< 4	very loose	< 2	very soft
5 - 10	loose	2 - 4	soft
11 - 30	medium	4 - 8	medium stiff
31 - 50	dense	8 - 15	stiff
> 50	very dense	15 - 30	very stiff

NOTES:
(1) Photovac 2020 photoionization detector used
{ ppm = parts per million}
(2) The Burmister System is used for field classification of soils.

Disk Reference:

Clean Harbors
Environmental Services, Inc.
Remedial Technologies Division
392 LIBBEY INDUSTRIAL PARKWAY
WEYMOUTH, MASSACHUSETTS 02189
(781) 849-1800

Boring No: B-13

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue, Cambridge, MA
CHES Job #: EN202281 **Inspector:** J. McCreery
Contractor: Environmental Drilling, Inc. **Driller:** S. Preston
Drilling Method: Hollow-Stem Auger **Casing/Auger Size:** 4 1/4-inch
Start Date: 2/28/01 **Ground Elevation:** NA
Finish Date: 2/28/01 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
0									
	AF-1	2-3			0.4		Dry, olive, medium to coarse SAND with trace silt. No odor.		
5	S-1	5-7	24/1	2-1-2-3	0.0	FILL	Rock fragments with some olive silt. No odor.		
10	S-2	10-12	24/5	3-2-2-2	0.0		Wet, olive fine SAND and SILT with white platey ash, over rock fragments. No odor.		
15	S-3	15-17	24/7	2-2-2-3	0.0		Wet, olive SILT and white platey ash. Slight petroleum odor.		
20	S-4	20-22	24/13	11-12-9-7	0.0	CLAY	Moist, greenish gray CLAY. No odor.		
							Bottom of boring at 22.0 feet		

SAMPLE TYPES	PERCENTAGE BY WEIGHT
SS - split spoon	and = 35-50%
ST - shelby tube	some = 20-35%
AF - auger flight	little = 10-20%
RC - rock core	trace = 1-10%

GRANULAR SOILS Blow Cts	Density	COHESIVE SOILS Blow Cts	Density
< 4	very loose	< 2	very soft
5 - 10	loose	2 - 4	soft
11 - 30	medium	4 - 8	medium stiff
31 - 50	dense	8 - 15	stiff
> 50	very dense	15 - 30	very stiff

NOTES:
(1) Photovac 2020 photoionization detector used
{ ppm = parts per million}
(2) The Burmister System is used for field classification of soils

Disk Reference:

CleanHarbors
Environmental Services, Inc.
Remedial Technologies Division
392 LIBBEY INDUSTRIAL PARKWAY
WEYMOUTH, MASSACHUSETTS 02189
(781) 849-1800

Boring No: B-14

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue, Cambridge, MA
CHES Job #: EN202281 **Inspector:** J. McCreery
Contractor: Environmental Drilling, Inc. **Driller:** S. Preston
Drilling Method: Hollow-Stem Auger **Casing/Auger Size:** 4 1/4-inch
Start Date: 2/28/01 **Ground Elevation:** NA
Finish Date: 2/28/01 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
0	S-1	4-6	24/4	3-2-2-15	0.0	▼	Wet, olive medium to coarse SAND with some silt and fine gravel with few roots. No odor.		
5	S-2	6-8	24/1	3-3-8-5	2.0	FILL	Wet, black fine SAND and white platey ash. No odor.		
							Bottom of boring at 8.0 feet		
10									
15									
20									

SAMPLE TYPES
SS - split spoon
ST - shelby tube
AF - auger flight
RC - rock core

PERCENTAGE BY WEIGHT	
and	= 35-50%
some	= 20-35%
little	= 10-20%
trace	= 1-10%

GRANULAR SOILS Blow Cts	Density
< 4	very loose
5 - 10	loose
11 - 30	medium
31 - 50	dense
> 50	very dense

COHESIVE SOILS Blow Cts	Density
< 2	very soft
2 - 4	soft
4 - 8	medium stiff
8 - 15	stiff
15 - 30	very stiff

NOTES:
(1) Photovac 2020 photoionization detector used
{ ppm = parts per million}
(2) The Burmister System is used for field classification of soils.

Disk Reference:

CleanHarbors
Environmental Services, Inc.
Remedial Technologies Division
392 LIBBEY INDUSTRIAL PARKWAY
WEYMOUTH, MASSACHUSETTS 02189
(781) 849-1800

Boring No: B-15

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue, Cambridge, MA
CHES Job #: EN202281 **Inspector:** J. McCreery
Contractor: Environmental Drilling, Inc. **Driller:** S. Preston
Drilling Method: Hollow-Stem Auger **Casing/Auger Size:** 4 1/4-inch
Start Date: 2/28/01 **Ground Elevation:** NA
Finish Date: 2/28/01 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
0									
	AF-1	2-3			2.7		Dry, olive medium to coarse SAND and rock fragments. No odor.		
5	S-1	4-6	24/1	5-4-3-3					
	S-2	6-8	24/1	2-1-2-4	21.1	FILL	Wet, black medium to coarse SAND and rock fragments. Slight sheen and slight petroleum odor at 6-8 feet.		
10							Bottom of boring at 8.0 feet		
15									
20									

SAMPLE TYPES	PERCENTAGE BY WEIGHT
SS - split spoon	and = 35-50%
ST - shelby tube	some = 20-35%
AF - auger flight	little = 10-20%
RC - rock core	trace = 1-10%

GRANULAR SOILS Blow Cts	Density	COHESIVE SOILS Blow Cts	Density
< 4	very loose	< 2	very soft
5 - 10	loose	2 - 4	soft
11 - 30	medium	4 - 8	medium stiff
31 - 50	dense	8 - 15	stiff
> 50	very dense	15 - 30	very stiff

NOTES:
(1) Photovac 2020 photoionization detector used
{ ppm = parts per million}
(2) The Burmister System is used for field classification of soils.

Disk Reference:

Clean Harbors
Environmental Services, Inc.
Remedial Technologies Division
392 LIBBEY INDUSTRIAL PARKWAY
WEYMOUTH, MASSACHUSETTS 02189
(781) 849-1800

Boring No: B-16

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue, Cambridge, MA
CHES Job #: EN202281 **Inspector:** J. McCreery
Contractor: Environmental Drilling, Inc. **Driller:** S. Preston
Drilling Method: Hollow-Stem Auger **Casing/Auger Size:** 4 1/4-Inch
Start Date: 2/28/01 **Ground Elevation:** NA
Finish Date: 2/28/01 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
0									
	AF-1	2-3			0.0		Dry, olive medium to coarse SAND with some silt, fine gravel and cinder material. No odor.		
5	S-1	5-7	24/7	7-7-10-30	0.1	▼	Wet, 2" olive yellow medium to coarse SAND with some silt; over black organic SILT and coarse SAND with cobble and metal fragment. Slight petroleum odor.		
10	S-2	10-12	24/8	10-19-14-9	0.0	FILL	Wet, 6" coarse SAND and white platey ash; over coarse SAND and fine GRAVEL with wood branch and roots. Slight petroleum odor.		
15	S-3	15-17	24/9	8-5-5-4	0.0		Wet, gray SILT with some fine gravel and white platey ash, wood fiber, porcelain fragment and cinder material. No odor.		
20	S-4	20-22	24/10	7-7-7-7	0.0	CLAY	Wet, 3" gray platey ash with pieces of coal; over greenish gray CLAY. No odor.		
							Bottom of boring at 22.0 feet		

SAMPLE TYPES
SS - split spoon
ST - shelby tube
AF - auger flight
RC - rock core

PERCENTAGE BY WEIGHT	
and	= 35-50%
some	= 20-35%
little	= 10-20%
trace	= 1-10%

GRANULAR SOILS Blow Cts	Density
< 4	very loose
5 - 10	loose
11 - 30	medium
31 - 50	dense
> 50	very dense

COHESIVE SOILS Blow Cts	Density
< 2	very soft
2 - 4	soft
4 - 8	medium stiff
8 - 15	stiff
15 - 30	very stiff

NOTES:
(1) Photovac 2020 photoionization detector used
{ ppm = parts per million}
(2) The Burmister System is used for field classification of soils.

Disk Reference:

CleanHarbors

Environmental Services, Inc.
Remedial Technologies Division
392 LIBBEY INDUSTRIAL PARKWAY
WEYMOUTH, MASSACHUSETTS 02189
(781) 849-1800

Boring No: B-17

Page: 1 of 1

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue, Cambridge, MA
CHES Job #: EN202281 **Inspector:** J. McCreery
Contractor: Environmental Drilling, Inc. **Driller:** S. Preston
Drilling Method: Hollow-Stem Auger **Casing/Auger Size:** 4 1/4-inch
Start Date: 2/28/01 **Ground Elevation:** NA
Finish Date: 2/28/01 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
0									
	AF-1	2-3			2.4		Dry, olive gray medium to fine SAND with some silt. Moderate petroleum odor.		
5	S-1	5-7	24/6	12-4-3-3	1.1	▼	Wet, olive gray medium to coarse SAND with some silt and cinder. No odor.		
10	S-2	10-12	24/1	3-2-2-4	0.0	FILL	Wet, olive gray medium to coarse SAND and rock fragments. No odor.		
15	S-3	15-17	24/9	38-19-5-5	4.2		Wet, fine to medium SAND and gray platey ash with glass and metal fragments and roots. No odor.		
20	S-4	20-22	24/16	4-4-5-10	13.3	CLAY	Wet, 1" fine to medium SAND and gray platey ash with metal, coal and rubber fragments; over moist, greenish gray CLAY. No odor.		
							Bottom of boring at 22.0 feet		

SAMPLE TYPES	PERCENTAGE BY WEIGHT
SS - split spoon	and = 35-50%
ST - shelby tube	some = 20-35%
AF - auger flight	little = 10-20%
RC - rock core	trace = 1-10%

GRANULAR SOILS Blow Cts	Density	COHESIVE SOILS Blow Cts	Density
< 4	very loose	< 2	very soft
5 - 10	loose	2 - 4	soft
11 - 30	medium	4 - 8	medium stiff
31 - 50	dense	8 - 15	stiff
> 50	very dense	15 - 30	very stiff

NOTES:
(1) Photovac 2020 photolonization detector used
{ ppm = parts per million}
(2) The Burmister System is used for field classification of soils.

Disk Reference:

Clean Harbors
Environmental Services, Inc.
Remedial Technologies Division
392 LIBBEY INDUSTRIAL PARKWAY
WEYMOUTH, MASSACHUSETTS 02189
(781) 849-1800

Boring No: B-18

Project Name: MA Army National Guard
Project Location: 450 Concord Avenue, Cambridge, MA
CHES Job #: EN202281 **Inspector:** J. McCreery
Contractor: Environmental Drilling, Inc. **Driller:** S. Preston
Drilling Method: Hollow-Stem Auger **Casing/Auger Size:** 4 1/4-inch
Start Date: 2/28/01 **Ground Elevation:** NA
Finish Date: 2/28/01 **Well Elevation:** NA

Depth (feet)	SAMPLE Type & No.	Sample Interval (feet)	pen/rec (inches)	Blow Count (per 6 inches)	Field Screening [1] (ppm)	Strata Change	FIELD CLASSIFICATION [2]	Notes	Well Screen
0									
5	S-1	4-6	14/2	7-3-44(2")	0.0	▼	Wet, gray medium to coarse SAND with brick and rock fragments. No odor.		
	S-2	6-8	8/2	5-70(2")	0.0		Wet, gray medium to coarse SANDwith brick and rock fragments. No odor.		
	S-3	7-9	24/3	6-2-2-2	0.1		Wet, gray medium to coarse SAND with coal fragments. White flakey ash, and piece of burned coal (source of whiteflakey ash). No odor.		
10						FILL			
	S-4	12-14	24/5	2-3-3-3	0.0		Wet, olive SILT with white flakey ash, brik and glass fragments. No odor.		
15	S-5	14-16	24/6	3-3-8-9	0.0		Wet, olive SILT with white flakey ash, brik and glass fragments. No odor.		
							Bottom of boring at 16.0 feet		
20									

SAMPLE TYPES
SS - split spoon
ST - shelby tube
AF - auger flight
RC - rock core

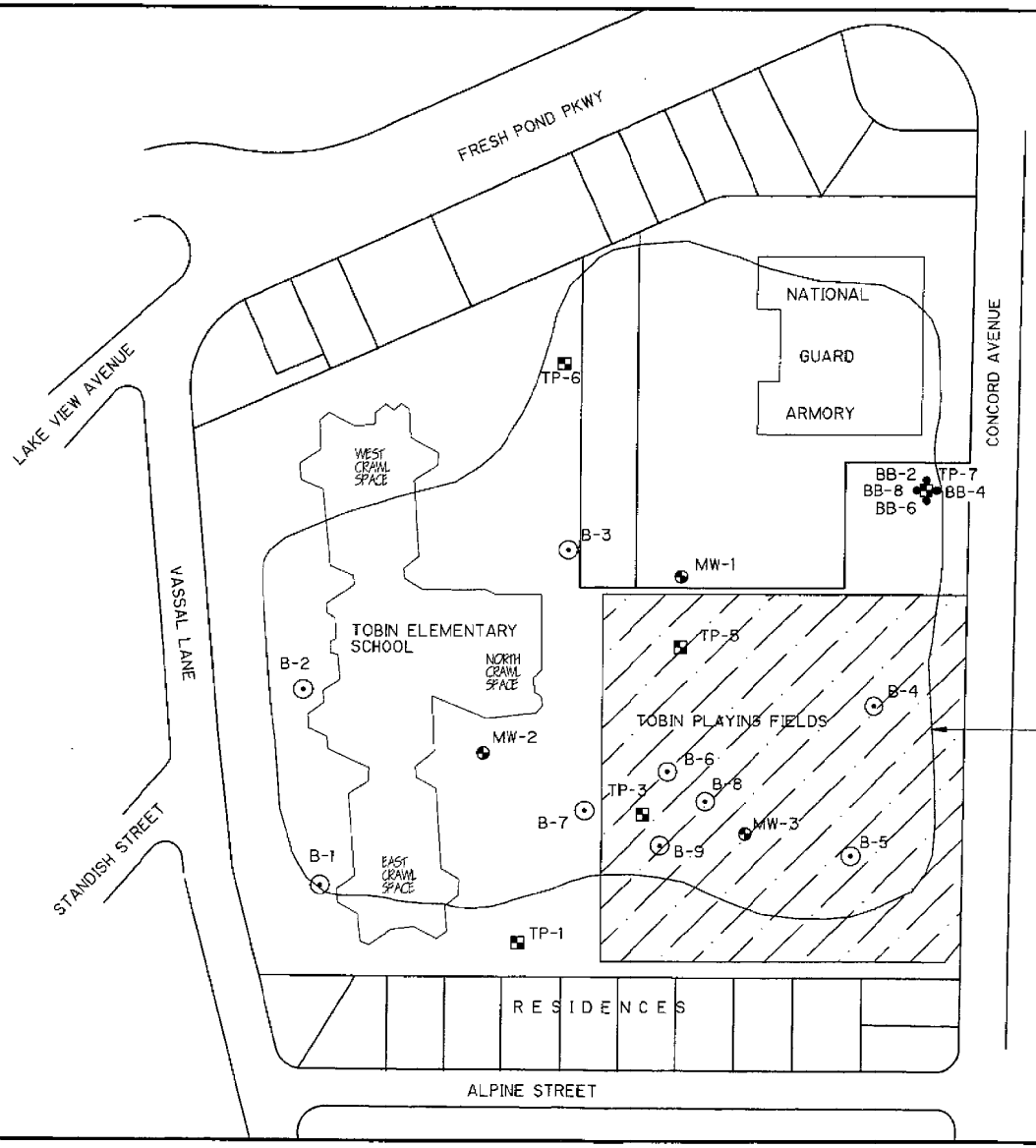
PERCENTAGE BY WEIGHT	
and	35-50%
some	20-35%
little	10-20%
trace	1-10%

GRANULAR SOILS Blow Cts	Density
< 4	very loose
5 - 10	loose
11 - 30	medium
31 - 50	dense
> 50	very dense

COHESIVE SOILS Blow Cts	Density
< 2	very soft
2 - 4	soft
4 - 8	medium stiff
8 - 15	stiff
15 - 30	very stiff

NOTES:
(1) Photovac 2020 photoionization detector used
(ppm = parts per million)
(2) The Burmister System is used for field classification of soils.

Disk Reference:



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LEGEND:

- MW-1 GROUNDWATER MONITORING WELL
- TP-1 SOIL TEST PIT 9/3/97
- B-1 SOIL BORING 4/20/98
- BB-2 SOIL BORING 6/12/98

APPROXIMATE BOUNDARY OF FORMER CLAY PIT

1" = 120'

60 0 120

CDM
environmental engineers, scientists, planners, & management consultants

TOBIN ELEMENTARY SCHOOL

FIGURE 2-1
SITE MAP WITH SAMPLE LOCATIONS

Q:\0139\2136\SPLMNTL\FIG-5.DWG

ATTACHMENT C

PHASE 1 - TEST BORING LOGS

Boring Number: CDM-1

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / P. Schofield
Surface Elevation (ft.): 21.5
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NX
Total Depth (ft.): 83
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
7.7	8/8/2017	1245

Bore Hole Location: See boring location plan
Drilling Date: Start: 8/4/2017 **End:** 8/8/2017
Abandonment Method: Backfilled with cement grout
General Remarks:
Logged By: D. Abt

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
21.5 / 0	SS	S-1	24	3 5 4 5	7	9	0.0		Topsoil	4" Topsoil Dry, loose, brown, fine to coarse SAND, trace fine gravel, trace silt	
	SS	S-2	24	5 9 27 20	10	36	0.0		Granular Fill	Dry, dense, brown to light brown, fine to coarse SAND, some fine to coarse gravel, trace silt	
16.5 / 5	SS	S-3	24	20 35 31 22	14	66	0.2		Granular Fill	Dry, very dense, brown, fine to coarse SAND, some fine to coarse gravel, some silt	FeO staining.
▼	SS	S-4	24	94 72 22 9	15	94	0.4		Granular Fill	Top 6": Moist, white to brown, fine to coarse GRAVEL and fine to coarse SAND, trace silt Bot. 9": Dry, very dense, brown, fine to coarse SAND and fine to coarse GRAVEL, trace silt	
11.5 / 10	SS	S-5	24	17 67 19 15	14	86	5.2		Waste Fill	Top 3": BRICK Bot. 11": Wet, brown, fine to coarse SAND, some fine to coarse gravel, little silt	Analytical Sample taken from 8-10 ft bgs.
	SS	S-6	24	26 18 9 6	5	27	2.4		Waste Fill	Wet, medium dense, dark brown, fine to coarse GRAVEL and fine to coarse SAND, little silt, trace brick	
	SS	S-7	24	21 13 4 2	12	17	0.9		Waste Fill	Wet, medium dense, dark brown, fine to coarse SAND and fine to coarse GRAVEL, little silt	
6.5 / 15	SS	S-8	24	9 3 2 2	1	5	0.5		Waste Fill	No Soil Recovery. Trace amount of brick in spoon.	
	SS	S-9	24	5 2 3 5	0	5	0.3		Waste Fill	No Recovery	
1.5	SS	S-10	24	4 59 13 3	8	72	1.3		Waste Fill	Wet, very dense, brown to black, fine to coarse SAND and fine to coarse GRAVEL, little silt, trace brick	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):
V. Loose: 0-4 Loose: 4-10 M. Dense: 10-30 Dense: 30-50 V. Dense: >50

Fine Grained (Clay):
V. Soft: <2 Soft: 2-4 M. Stiff: 4-8 Stiff: 8-15 V. Stiff: 15-30 Hard: >30

Burmister Classification

and 35-50%
some 20-35%
little 10-20%
trace <10%
moisture, density, color

Reviewed by: V. Chan | **Date: 10/30/2017** | **Boring Number: CDM-1**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-1

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
1.5 / 20	SS	S-11	24	5 2 3 6	4	5	0.5		Waste Fill	Wet, loose, brown to black, fine to coarse SAND and fine to coarse GRAVEL, some silt, trace glass	
	SS	S-12	24	5 8 4 2	0	12	0.9			No Recovery	Sample S-12 organic vapor reading from trace amount of drill wash in spoon tip. Analytical Sample taken from 24-28 ft bgs.
-3.5 / 25	SS	S-13	24	6 6 4 3	5	10	4.7			Wet, medium dense, brown to black, fine to coarse SAND, some fine to coarse gravel, little silt, trace coal and wood	
	SS	S-14	24	3 3 2 2	4	5	4.5			Wet, loose, brown, fine to coarse SAND, some fine gravel, little silt, trace wood and ash	
	SS	S-15	24	14 10 8 8	0	18	0.0			No Recovery	
-8.5 / 30	SS	S-16	24	9 3 3 4	8	6	0.9		Clay & Silt	Top 5": Wet, loose, brown to gray, fine to coarse GRAVEL and fine to coarse SAND, some silt Bot. 3": Moist, medium stiff, greenish gray, CLAY & SILT, trace fine sand	
	SS	S-17	24	4 7 10 10	21	17	0.2			Moist, very stiff, greenish gray, CLAY & SILT, trace fine sand	
-13.5 / 35	SS	S-18	24	6 7 11 13	5	18	0.1			Moist, very stiff, greenish gray, CLAY & SILT, trace fine sand	
-18.5 / 40	SS	S-19	24	4 6 6 6	18	12	0.1			Moist, stiff, greenish gray, CLAY & SILT, trace fine sand	
-23.5 / 45	SS	S-20	24	2 4 6 7	18	10	0.0			Moist, stiff, greenish gray, CLAY & SILT, trace fine sand	
	ST	ST-1	24	P U	24	PUSH	--			Moist, stiff, greenish gray, CLAY & SILT	

Boring Number: CDM-1

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
	ST	ST-1	24	S H	24	PUSH	--		Clay & Silt	Moist, very soft, greenish gray, CLAY & SILT, trace fine sand	
-28.5 / 50	SS	S-21	24	2 WOH 1 4	24	1	0.0				
-33.5 / 55	SS	S-22	24	3 3 4 5	24	7	0.0			Moist, medium stiff, greenish gray, CLAY & SILT, trace fine sand	
-38.5 / 60	SS	S-23	24	WOR WOR WOH WOH	24	0	0.0			Moist, very soft, greenish gray, CLAY & SILT, trace fine sand	
-43.5 / 65	SS	S-24	24	16 25 29 26	20	54	0.0		Glacial Till	Moist, very dense, gray, fine SAND, some silt	
-48.5 / 70	SS	S-25	24	14 17 19 37	9	36	0.0			Moist, dense, gray, fine to coarse SAND and Clayey SILT, little fine gravel	Gravel inclusions resemble broken Argillite.

Boring Number: CDM-1

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-53.5 / 75	SS	S-26	8	100 100/2"	4	>100	0.0			Moist, very dense, gray, fine to coarse SAND and SILT, some fine to coarse gravel	Gravel inclusions resemble broken Argillite.
-58.5 / 80	NX	C-1	60		28	--	--		Bedrock	Conducted rock coring from 78 ft to 83 ft bgs. See rock core log for description.	
-63.5 / 85										Boring terminated at 83 ft bgs.	
-68.5 / 90											
-73.5 / 95											
-78.5 / 100											

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-2

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / P. Schofield
Surface Elevation (ft.): 22.2
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NX
Total Depth (ft.): 62.5
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
5.3	8/4/2017	0800

Bore Hole Location: See boring location plan
Abandonment Method: Backfilled with cement grout
Drilling Date: Start: 8/1/2017 **End:** 8/4/2017
Logged By: E. Benson
General Remarks:

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
22.2 / 0	SS	S-1	24	5 6 8 9	8	14	0.0		Topsoil	3" Topsoil	Analytical Sample taken from 0-4 ft bgs.
										Dry, medium dense, brown, fine to coarse SAND, some silt, little fine gravel	
	SS	S-2	24	4 7 9 12	3	16	0.9		Granular Fill	Dry, medium dense, brown, fine to coarse SAND, some silt, little fine to coarse gravel	
17.2 ▼	SS	S-3	24	13 8 9 14	5	17	0.0			Top 3": Moist, dark brown, fine to coarse SAND, some silt, some fine gravel, trace brick	
	SS	S-4	24	9 8 4 5	19	12	0.0			Bot 12": Moist, light brown to olive gray, CLAY & SILT, some fine sand	
	SS	S-5	24	5 3 6 9	6	9	0.0		Organic Soils	Top 15": Moist, light brown to olive gray, fine to coarse SAND, some clayey silt, little fine gravel, little brick	
12.2 / 10	SS	S-6	24	10 21 25 28	24	46	0.4			Mid 1": Moist, black, Organic fine SAND and SILT	
	SS	S-7	24	8 14 18 25	24	32	0.0			Bot. 3": Moist, greenish gray, SILT & CLAY, little fine sand	
7.2 / 15	SS	S-8	24	7 13 18 16	20	31	0.0		Clay & Silt	Top 3": Moist, black, Organic fine SAND and SILT	
	SS	S-9	24	3 7 12 13	24	19	0.0			Bot. 3": Moist, greenish gray, fine SAND and SILT	
2.2	SS	S-10	24	4 6 7 8	24	13	0.0			Moist, hard, light brown to olive gray, SILT & CLAY, trace fine sand	
										Moist, hard, greenish gray, SILT & CLAY, trace fine sand	
										Moist, hard, greenish gray, Silty CLAY, trace fine sand	
										Moist, very stiff, greenish gray, CLAY & SILT, trace fine sand	
										Moist, stiff, greenish gray, CLAY & SILT, trace fine sand	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: V. Chan | **Date: 10/30/2017** | **Boring Number: CDM-2**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-2

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
2.2 / 20	SS	S-11	24	3 5 4 6	24	9	0.0		Clay & Silt	Moist, stiff, greenish gray, SILT & CLAY, little fine sand	
	SS	S-12	24	2 2 4 4	24	6	0.0			Moist, medium stiff, greenish gray, CLAY & SILT, trace fine sand	
-2.8 / 25	SS	S-13	24	1 3 5 8	24	8	0.0			Moist, stiff, greenish gray, CLAY & SILT	
-7.8 / 30	SS	S-14	24	4 5 7 9	24	12	0.0			Moist, stiff, greenish gray, SILT & CLAY, little fine sand	
-12.8 / 35	SS	S-15	24	4 7 18 11	24	25	0.0			Moist, very stiff, greenish gray, CLAY & SILT, little fine sand	
-17.8 / 40	SS	S-16	24	3 6 6 9	24	12	0.0			Moist, stiff, greenish gray, CLAY & SILT, trace fine sand	
	ST	ST-1	24	P U S H	20	PUSH	--			Moist, very stiff, greenish gray, Silty CLAY	Shelby tube pushed easily until refusal at 20 in.
-22.8 / 45	SS	S-17	24	3 5 5 8	24	10	0.0			Moist, stiff, greenish gray, SILT & CLAY, trace fine sand	

Boring Number: CDM-2

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-27.8 / 50	SS	S-18	24	10, 15, 46, 32	12	61	0.0		Glacial Till	Moist, very dense, gray, fine to coarse GRAVEL, some fine to coarse sand, some clayey silt	
-32.8 / 55	SS	S-19	11	81, 100/5"	7	>100	0.0		Glacial Till	Moist, very dense, gray, fine to coarse SAND and Clayey SILT, some fine to coarse gravel	Rig chatter at 55 ft bgs.
	NX	C-1	18		18	--	--		Bedrock	Conducted rock coring from 57 ft to 62.5 ft bgs. See rock core log for description.	
-37.8 / 60	NX	C-2	30		20	--	--		Bedrock		
	NX	C-3	12		12	--	--		Bedrock		
-42.8 / 65										Boring terminated at 62.5 ft bgs.	
-47.8 / 70											

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-3

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / O. Cone
Surface Elevation (ft.): 20.7
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 55
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):
Bore Hole Location: See boring location plan

Depth	Date	Time
Not Recorded		

Drilling Date: Start: 7/27/2017 **End:** 7/27/2017
General Remarks: Two monitoring wells installed adjacent to borehole.
Abandonment Method: Backfilled with cement grout
Logged By: N. Castonguay

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
20.7 0	SS	S-1	24	6 10 15 30	18	25	1.7		G.FTopsoil	Top 9": Dry to moist, light brown, fine SAND and SILT, trace fine gravel Bot. 9": Moist, light brown to yellow to orange, fine to coarse SAND	
	SS	S-2	24	12 16 20 16	12	36	2.2		Waste Fill	Dry, dense, dark brown, fine SAND and SILT, trace wood, brick and metal	
15.7 5	SS	S-3	24	8 10 9 11	12	19	47.7			Wet, medium dense, light brown to gray, fine to coarse SAND, some silt, little fine to coarse gravel, trace wood, brick and metal	
	SS	S-4	24	15 49 33 15	5	82	2.2			Moist, very dense, light brown to gray, fine to coarse SAND, some fine to coarse gravel, trace wood, brick and metal	
10.7 10	SS	S-5	24	12 8 5 3	3	13	94.0			Moist, medium dense, dark brown, fine to coarse SAND and SILT	Analytical Sample taken from 8-10 ft bgs.
	SS	S-6	24	15 5 6 8	8	11	21.0			Moist, medium dense, dark brown to gray, fine to coarse SAND and SILT, trace ash, cinder, coal and glass	
	SS	S-7	24	6 6 6 8	6	12	9.8			Moist, medium dense, dark brown to gray, fine to coarse SAND and SILT, trace ash, cinder, glass and wood	
5.7 15	SS	S-8	24	11 15 14 21	5	29	11.0			Moist, medium dense, dark brown, fine to coarse SAND and SILT, trace ash, brick and wood	
	SS	S-9	24	12 12 9 11	4	21	3.6			Moist, medium dense, dark brown, fine to coarse SAND and SILT, trace brick, glass, metal, and wood	
0.7	SS	S-10	24	37 20 16 25	0	36	0.0			No Recovery	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: V. Chan | **Date: 10/30/2017** | **Boring Number: CDM-3**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-3

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
0.7 / 20	SS	S-11	24	22 11 12 13	13	23	2.2		Waste Fill	Top 3": Moist, medium dense, dark brown to black, fine to coarse SAND and SILT, trace ash, coal, metal, and glass Bot. 10": Moist, very stiff, greenish gray, SILT & CLAY	Volatile organic odor from sample.
	SS	S-12	24	7 15 23 18	7	38	5.6			Moist, hard, dark brown, SILT & CLAY, trace ash, cinders, coal, glass, metal and wood	Analytical Sample taken from 22-26 ft bgs.
-4.3 / 25	SS	S-13	24	6 6 7 11	14	13	0.5			Moist, stiff, greenish gray, CLAY & SILT, trace glass and wood	
-9.3 / 30	SS	S-14	24	7 8 8 11	24	16	0.0		Clay & Silt	Moist, very stiff, greenish gray, CLAY & SILT, little fine sand	
-14.3 / 35	SS	S-15	24	8 10 12 13	24	22	0.0			Moist, very stiff, greenish gray, Silty CLAY	
-19.3 / 40	SS	S-16	24	10 14 12 17	24	26	0.0			Moist, very stiff, greenish gray, CLAY & SILT	
-24.3 / 45	SS	S-17	24	4 10 10 16	24	20	0.0			Moist, very stiff, greenish gray, CLAY & SILT	

Boring Number: CDM-3

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-29.3 / 50	SS	S-18	24	55 43 50 88	6	93	0.0		Glacial Till		Recovery consisted of clay wash.
									Bedrock	Hard drilling began and driller annotated bedrock at 52 ft bgs.	Driller advanced hole with roller bit from 52 ft to 55 ft bgs. Rock cuttings observed in drill wash.
-34.3 / 55										Boring terminated at 55 ft bgs.	
-39.3 / 60											
-44.3 / 65											
-49.3 / 70											

Boring Number: CDM-4

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / B. Cross
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NX
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 8/2/2017 **End:** 8/4/2017
General Remarks: Two monitoring wells installed adjacent to borehole.

Surface Elevation (ft.): 21.4
Total Depth (ft.): 62.5
Depth to Initial Water Level (ft):

Depth	Date	Time
Not Recorded		

Abandonment Method: Backfilled with cement grout
Logged By: N. Castonguay

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
21.4 / 0	SS	S-1	24	3 6 10 10	18	16	1.8		Topsoil	Top 9": Moist, medium dense, light brown, fine SAND and SILT, trace organics (Topsoil)	
	SS	S-2	24	20 15 11 17	18	26	3.6		Granular Fill	Dry to moist, medium dense, yellow to orange, fine to coarse SAND Dry, medium dense, dark brown, fine to coarse SAND, little fine to coarse gravel, little silt, little brick	
16.4 / 5	SS	S-3	24	8 7 9 7	10	16	0.5		Granular Fill	Moist, medium dense, light gray, fine to coarse SAND and SILT	
	SS	S-4	24	8 12 7 3	12	19	1.8		Waste Fill	Moist, medium dense, light brown to gray, fine to coarse SAND and SILT, some ash, coal, and brick	
	SS	S-5	24	13 28 18 11	9	46	6.8		Waste Fill	Moist, dense, light gray to black, fine to coarse SAND and SILT, trace metal, glass, wood, brick, ash, and cinder	
11.4 / 10	SS	S-6	24	9 9 3 4	0	12	0.0		Waste Fill	No Recovery	
	SS	S-7	24	4 2 2 5	6	4	1.3		Waste Fill	Moist, very loose, dark brown, fine to coarse SAND and SILT, trace metal, glass, wood, brick, ash, and cinder	Analytical Sample taken from 12-14 ft bgs.
6.4 / 15	SS	S-8	24	3 2 1 1	4	3	20.5		Waste Fill	Moist, very loose, light gray, fine to coarse SAND and SILT, trace ash, cinder, metal, brick, and coal	
	SS	S-9	24	1 2 2 6	3	4	1.5		Waste Fill	Moist, very loose, dark gray, fine to coarse SAND and SILT, trace wood, metal, and ash	
1.4	SS	S-10	24	6 4 3 2	8	7	6.8		Waste Fill	Moist, loose, black, fine to coarse SAND, some fine to coarse gravel, trace silt, trace ash, cinder, wood, brick, and coal	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):
V. Loose: 0-4
Loose: 4-10
M. Dense: 10-30
Dense: 30-50
V. Dense: >50

Fine Grained (Clay):
V. Soft: <2
Soft: 2-4
M. Stiff: 4-8
Stiff: 8-15
V. Stiff: 15-30
Hard: >30

Burmister Classification

and 35-50%
some 20-35%
little 10-20%
trace <10%
moisture, density, color

Reviewed by: V. Chan | **Date: 10/30/2017** | **Boring Number: CDM-4**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-4

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
1.4 / 20	SS	S-11	24	1 2 3 1	12	5	8.0		Waste Fill	Wet, loose, black, fine to coarse SAND and SILT, trace coal, ash, wood, and glass	
	SS	S-12	24	4 4 6 8	16	10	57.1			Wet, loose, fine to coarse SAND and SILT, trace ash, coal, metal, wood, and glass	Analytical Sample taken from 22-24 ft bgs.
-3.6 / 25	SS	S-13	24	16 12 5 7	9	17	23.1			Wet, medium dense, black, fine to coarse SAND and SILT, trace ash, brick, and glass	
	SS	S-14	24	6 7 6 8	17	13	17.2			Moist, medium dense, black, fine to coarse SAND, little silt, trace wood, coal, ash, brick and organic materials	
	SS	S-15	24	10 19 36 29	5	55	3.7			Moist, very dense, black, fine SAND and SILT, trace brick, metal, and wood	
-8.6 / 30	SS	S-16	24	18 8 4 6	6	12	5.5		Clay & Silt	Moist, stiff, black, SILT & CLAY, trace brick and metal	
	SS	S-17	24	5 5 6 6	12	11	0.5			Moist, stiff, greenish gray, SILT & CLAY	Trace wood and brick in spoon tip.
-13.6 / 35	SS	S-18	24	2 4 5 7	14	9	0.0			Moist, stiff, greenish gray, SILT & CLAY	
	ST	ST-1	24	P U S H	24	PUSH	--			Moist, very stiff, greenish gray, Silty CLAY	
	SS	S-19	24	2 8 5 5	24	13	0.0			Moist, stiff, greenish gray, Silty CLAY	
-18.6 / 40											
-23.6 / 45	SS	S-20	24	8 2 2 3	24	4	0.0			Moist, soft, greenish gray, Silty CLAY	

CDM Smith

Boring Number: CDM-4

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-28.6 / 50	ST	ST-2	24	PUSH	24	PUSH	--		Clay & Silt	Moist, greenish gray, stiff, CLAY & SILT	
	SS	S-21	24	3 8 16 10	24	24	0.0			Top 18": Moist, very stiff, greenish gray, CLAY & SILT, little fine sand Bot. 4": Moist, very stiff, greenish gray, CLAY & SILT, some fine sand, little fine gravel	
-33.6 / 55	SS	S-22	24	81 52 47 18	10	99	0.0		Glacial Till	Moist, very dense, light gray, fine SAND and SILT, little fine gravel	
-38.6 / 60	NX	C-1					--		Bedrock	Conducted rock coring from 58.5 ft to 63.5 ft bgs. See rock core log for description.	
-43.6 / 65										Boring terminated at 63.5 ft bgs.	
-48.6 / 70											

Boring Number: CDM-5

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / B. Cross
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 8/4/2017 **End:** 8/7/2017
General Remarks:

Surface Elevation (ft.): 22.0
Total Depth (ft.): 50
Depth to Initial Water Level (ft):

Depth	Date	Time
Not Recorded		

Abandonment Method: Backfilled with cement grout
Logged By: N. Castonguay

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
22.0 0	SS	S-1	24	1 6 8 21	17	14	0.0		Topsoil	Top 8": Dry, medium dense, dark brown, fine SAND and SILT Bot. 9": Moist, medium dense, brown, fine to coarse SAND, little fine gravel, trace silt	
	SS	S-2	24	26 22 14 18	12	36	0.1		G.F.	Dry to moist, dense, light brown to gray, fine to coarse SAND, little silt, trace fine gravel, trace coal	
17.0 5	SS	S-3	24	24 22 18 15	12	40	0.1		Waste Fill	Moist, dense, gray, fine to coarse SAND, some fine to coarse gravel, trace brick and coal	
	SS	S-4	24	15 12 5 6	12	17	0.4			Moist, medium dense, gray, fine to coarse SAND and fine to coarse GRAVEL, little silt trace ash, brick, glass, and slag	
12.0 10	SS	S-5	24	7 2 2 4	4	4	31.2			Moist, very loose, light gray to black, fine to coarse SAND, trace ash, brick, glass, and wood	Analytical Sample taken from 9-11 ft bgs.
	SS	S-6	24	2 2 7 5	5	9	29.6			Moist, loose, light gray to black, fine to coarse SAND, trace ash, brick, glass, and wood	
7.0 15	SS	S-7	24	13 3 4 5	0	7	--			No Recovery	
	SS	S-8	24	10 27 28 25	3	55	20.6			Moist, very dense, dark gray, fine to coarse SAND, trace ash, brick, cinder, glass, metal, and wood	
2.0	SS	S-9	24	28 18 3 4	0	21	--			No Recovery	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: V. Chan | **Date: 10/30/2017** | **Boring Number: CDM-5**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-5

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
2.0 / 20	SS	S-10	24	4 3 2 2	0	5	--		Waste Fill	No Recovery	
	SS	S-11	24	5 8 38 11	0	46	--			No Recovery	
-3.0 / 25	SS	S-12	24	12 12 8 9	3	20	17.5			Moist, medium dense, dark gray, fine to coarse SAND and SILT, trace ash, glass, rubber, and sludge	Analytical Sample taken from 24-26 ft bgs.
	SS	S-13	24	5 6 7 6	2	13	6.8			Moist, medium dense, dark gray, fine to coarse SAND and SILT, trace ash, glass, rubber, and sludge	
	SS	S-14	24	8 10 10 9	6	20	0.1		Clay & Silt	Moist, stiff, greenish gray, Clayey SILT	
-8.0 / 30	ST	ST-1	24	P U S H	24	PUSH	0.0			Moist, soft, greenish gray, Silty CLAY	
	SS	S-15	24	8 9 10 13	21	19	0.0			Moist, stiff, greenish gray, CLAY & SILT	
-13.0 / 35											
-18.0 / 40	SS	S-16	24	6 6 5 6	24	11	0.0			Moist, medium stiff, greenish gray, CLAY & SILT, little fine sand	
-23.0 / 45	SS	S-17	24	33 24 30 39	8	54	0.0			Moist, very stiff, greenish gray, Silty CLAY	

Boring Number: CDM-5

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-28.0 50	SS	S-18	24	32 25 51 30	8	76	0.0		Glacial Till	Moist, very dense, gray, fine to coarse GRAVEL, little fine to coarse sand	Rig chatter at 48 ft bgs. Gravel inclusions in sample resembled broken Argillite.
										Boring terminated at 50 ft bgs.	
-33.0 55											
-38.0 60											
-43.0 65											
-48.0 70											

Boring Number: CDM-6

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / O. Cone
Surface Elevation (ft.): 22.9
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 50
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):
Bore Hole Location: See boring location plan
Depth **Date** **Time**
Drilling Date: Start: 7/26/2017 **End:** 7/28/2017
Not Recorded
General Remarks:
Abandonment Method: Backfilled with cement grout
Logged By: N. Castonguay

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
22.9 0	SS	S-1	24	4 12 20 31	13	32	0.0		G.F. Topsoil	6" Topsoil Wet, dense, dark brown, fine to coarse SAND, trace silt	Analytical Sample taken from ground surface to 2 ft bgs.
	SS	S-2	3	75/3"	3	>75	0.0			Wet, very dense, light brown, fine to coarse SAND, trace silt	Cobble fragment in spoon tip.
17.9 5	SS	S-3	24	11 7 7 12	14	14	0.0		Clay & Silt	Dry, stiff, yellow to orange, SILT & CLAY	
	SS	S-4	24	8 25 31 50	18	56	0.0			Moist, hard, greenish gray to yellow to orange, SILT & CLAY	
	SS	S-5	24	5 9 13 15	10	22*	0.0			Moist, very stiff, greenish gray to yellow to orange, SILT & CLAY	*Safety hammer broke, used 300 lb hammer for sample.
12.9 10	SS	S-6	24	8 12 15 19	24	27*	0.0			Moist, very stiff, light brown to greenish gray, CLAY & SILT	*Safety hammer broke, used 300 lb hammer for sample.
	SS	S-7	24	19 15 13 9	24	28*	0.0			Moist, very stiff, light brown to greenish gray, SILT & CLAY	*Safety hammer broke, used 300 lb hammer for sample.
7.9 15	SS	S-8	24	9 11 13 12	6	24	0.0			Moist, very stiff, greenish gray to light brown, SILT & CLAY	Safety hammer replaced.
2.9											

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):
V. Loose: 0-4
Loose: 4-10
M. Dense: 10-30
Dense: 30-50
V. Dense: >50

Fine Grained (Clay):
V. Soft: <2
Soft: 2-4
M. Stiff: 4-8
Stiff: 8-15
V. Stiff: 15-30
Hard: >30

Burmister Classification

and 35-50%
some 20-35%
little 10-20%
trace <10%
moisture, density, color

Reviewed by: V. Chan **Date: 10/30/2017** **Boring Number: CDM-6**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-6

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. / Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
2.9 / 20	SS	S-9	24	4 4 4 3	10	8	0.0		Clay & Silt	Moist, medium stiff, greenish gray, CLAY & SILT	
-2.1 / 25	SS	S-10	24	4 5 9 8	19	14	0.0			Moist, stiff, greenish gray, CLAY & SILT	
-7.1 / 30	SS	S-11	24	4 6 6 6	10	12	0.0			Moist, stiff, greenish gray, CLAY & SILT	
-12.1 / 35	SS	S-12	24	3 5 10 8	24	15	0.0			Top 18": Moist, stiff, greenish gray, CLAY & SILT Bot. 6": Moist, stiff, greenish gray, Clayey SILT, some fine sand	
-17.1 / 40	SS	S-13	24	3 4 5 5	24	9	0.0			Moist, stiff, greenish gray, CLAY & SILT	
-22.1 / 45	SS	S-14	24	58 70 55 87	12	125	0.0		Glacial Till	Moist, very dense, greenish gray, fine SAND and SILT, some fine to coarse gravel	

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-6

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
	SS	S-15	24	38 39 40 45	10	79	0.0		Weathered Rock	Moist, very dense, gray, fine to coarse GRAVEL	Sample was comprised entirely of broken Argillite fragments.
-27.1 50										Boring terminated at 50 ft bgs.	
-32.1 55											
-37.1 60											
-42.1 65											
-47.1 70											

Boring Number: CDM-7

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / P. Schofield
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 7/17/2017 **End:** 7/18/2017
General Remarks: Two monitoring wells installed adjacent to borehole.

Surface Elevation (ft.): 20.8
Total Depth (ft.): 81.5
Depth to Initial Water Level (ft):

Depth	Date	Time
4.5	7/18/2017	0800

Abandonment Method: Backfilled with cement grout
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
20.8 / 0									Pavement	5" Asphalt	
	SS	S-1	18	8 11 6	11	19	5.8		Granular Fill	Moist, medium dense, brown to light brown, fine to coarse SAND, little fine gravel, trace silt	
	SS	S-2	24	6 13 15 15	16	28	5.6			Moist, medium dense, dark brown to black, fine to coarse SAND, some fine gravel little silt	
▼ 15.8 / 5	SS	S-3	24	6 4 3 3	8	7	3.9			Moist, loose, brown to light brown, fine to coarse SAND, little silt, little fine gravel	
	SS	S-4	24	6 5 3 2	7	8	7.9		Waste Fill	Moist, loose, dark brown to black, fine to coarse SAND, little fine gravel, little silt, trace wood	Analytical Sample taken from 6-8 ft bgs.
	SS	S-5	24	12 13 9 8	2	22	0.0			Moist, medium dense, dark brown to black, fine to coarse SAND, little silt, trace fine gravel	
10.8 / 10	SS	S-6	24	7 5 4 2	6	9	6.0			Wet, loose, black, fine to coarse SAND, some silt, little fine gravel, trace wood and brick	
	SS	S-7	24	7 3 1 2	0	4	--			No Recovery	3-in spoon used, no recovery.
5.8 / 15	SS	S-8	24	5 3 2 2	1	5	5.2			Wet, loose, black, fine to coarse SAND, some silt, trace fine gravel, trace wood	
	SS	S-9	24	3 4 3 5	6	7	2.5		Clay & Silt	Top 3": Wet, loose, black, fine to coarse SAND, little fine gravel, trace silt, trace wood and brick Bot. 3": Moist, medium stiff, greenish gray, CLAY & SILT, trace fine sand	Analytical Sample taken from 16-16.3 ft bgs.
0.8	SS	S-10	24	3 2 3 2	17	5	3.7			Moist, medium stiff, greenish gray, CLAY & SILT	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):
V. Loose: 0-4
Loose: 4-10
M. Dense: 10-30
Dense: 30-50
V. Dense: >50

Fine Grained (Clay):
V. Soft: <2
Soft: 2-4
M. Stiff: 4-8
Stiff: 8-15
V. Stiff: 15-30
Hard: >30

Burmister Classification

and 35-50%
some 20-35%
little 10-20%
trace <10%
moisture, density, color

Reviewed by: V. Chan | **Date: 10/30/2017** | **Boring Number: CDM-7**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-7

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
0.8 / 20	SS	S-11	24	2 4 3 3	15	7	0.1		Clay & Silt	Moist, medium stiff, greenish gray, CLAY & SILT, trace fine sand	
-4.2 / 25	SS	S-12	24	2 7 8 4	13	15	0.2			Moist, stiff, greenish gray, CLAY & SILT, trace fine to medium sand, trace fine gravel	
-9.2 / 30	SS	S-13	24	WOH WOH 3 2	24	3	0.1			Moist, soft, greenish gray, CLAY & SILT, trace fine sand	
-14.2 / 35	SS	S-14	24	WOH WOH WOH 3	24	0	0.0			Moist, very soft, greenish gray, CLAY & SILT, trace fine sand	
-19.2 / 40	SS	S-15	24	WOH WOH WOH WOH	24	0	0.0			Moist, very soft, greenish gray, CLAY & SILT, trace fine sand	
-24.2 / 45	SS	S-16	24	WOH WOH WOH WOH	24	0	0.0			Moist, very soft, greenish gray, CLAY & SILT, trace fine sand	

Boring Number: CDM-7

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-29.2 / 50	SS	S-17	24	WOH WOH 4 5	6	4	0.0		Clay & Silt	Moist, soft, greenish gray, CLAY & SILT, trace fine sand	
-34.2 / 55	SS	S-18	24	WOH WOH WOH WOH	24	0	0.0			Moist, very soft, greenish gray, CLAY & SILT	
-39.2 / 60	SS	S-19	24	WOH 2 2 3	24	4	0.0			Moist, soft, greenish gray, CLAY & SILT, trace fine sand	
-44.2 / 65	SS	S-20	24	4 3 2 5	24	5	0.0			Moist, medium stiff, greenish gray, CLAY & SILT, little fine sand	
-49.2 / 70	SS	S-21	24	3 3 2 4	22	5	0.0			Top 6": Moist, medium stiff, greenish gray, CLAY & SILT, some fine sand Bot. 16": Moist, medium stiff, greenish gray, CLAY & SILT, trace fine sand	

Boring Number: CDM-7

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-54.2 / 75	SS	S-22	24	3 12 54 70	11	66	0.0		Glacial Till	Top 6": Moist, hard, greenish gray, CLAY & SILT, trace fine sand Bot. 5": Moist, very dense, gray to greenish gray, fine to coarse GRAVEL and fine to coarse SAND, some silt	
-59.2 / 80	SS	S-23	24	17 13 9 7	3	22	0.0			Moist, medium dense, gray, fine to coarse GRAVEL and fine to coarse SAND, little silt	Rig chatter and hard driling at 81 ft bgs. Rock cuttings observed in drill wash.
	SS	S-24	0	50/0"	0	--	--			No Recovery Boring terminated at 81.5 ft bgs	Split spoon seated to 81.5 ft bgs. Observed 2 in of drill wash in split spoon. Rock fragment in spoon tip. Bedrock at 81.5 ft bgs.
-64.2 / 85											
-69.2 / 90											
-74.2 / 95											
-79.2 / 100											

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-8

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / T. Roe
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 7/18/2017 **End:** 7/19/2017
General Remarks:

Surface Elevation (ft.): 19.4
Total Depth (ft.): 59.1
Depth to Initial Water Level (ft):

Depth	Date	Time
Not Recorded		

Abandonment Method: Backfilled with cement grout
Logged By: N. Castonguay

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
19.4 0										6" Asphalt	
	SS	S-1	18	5 3 2	9	8	0.3		Pavement	Dry, loose, tan to brown, fine to coarse SAND, some silt, trace fine gravel	
	SS	S-2	24	3 3 3 5	9	6	0.3		Granular Fill	Dry to moist, loose, light gray, fine to coarse SAND, some silt, little fine gravel	
14.4 5	SS	S-3	24	WOH 2 2 3	13	4	0.3		Granular Fill	Moist, very loose, gray, fine to coarse SAND, some SILT, trace fine gravel	
	SS	S-4	24	3 2 1 1	3	3	1.8		Granular Fill	Moist, very loose, brown to light gray, fine to coarse SAND and Clayey SILT, trace fine gravel	
	SS	S-5	24	1 2 1 1	6	3	4.0		Waste Fill	Moist, very loose, brown, fine to coarse SAND and SILT, trace ash	Analytical Sample taken from 8-10 ft bgs.
9.4 10	SS	S-6	24	5 4 2 3	5	6	0.8		Waste Fill	Moist, loose, dark brown to black, fine to coarse SAND and SILT, trace glass, wood, and cinders	
	SS	S-7	24	2 2 WOH 8	4	2	1.0		Waste Fill	Moist, very loose, dark brown to black, fine to coarse SAND and SILT, trace cinders, glass, and wood	
4.4 15	SS	S-8	24	4 6 3 2	0	9	--		Waste Fill	No Recovery	
	SS	S-9	24	17 6 2 8	6	8	5.0		Waste Fill	Moist, loose, brown to black, fine to coarse SAND and SILT, trace ash, coal, brick, glass, metal, and wood	Analytical Sample taken from 16-18 ft bgs.
-0.6	SS	S-10	24	6 6 5 4	5	11	0.3		Clay & Silt	Moist, stiff, light gray, CLAY & SILT, trace cinder, glass, metal, and wood	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: V. Chan | **Date: 10/30/2017** | **Boring Number: CDM-8**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-8

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-0.6 / 20	SS	S-11	24	2 3 4 5	19	7	0.1		Clay & Silt	Moist, medium stiff, light green, CLAY & SILT, trace metal	
	SS	S-12	24	5 6 7 6	24	13	0.0			Moist, medium stiff, greenish gray, CLAY & SILT	Analytical Sample taken from 22-24 ft bgs.
-5.6 / 25	SS	S-13	24	1 3 3 4	24	6	0.0			Moist, medium stiff, light gray, CLAY & SILT	
-10.6 / 30	SS	S-14	24	WOH 2 2 2	24	4	0.0			Moist, soft, greenish gray, Silty CLAY	
-15.6 / 35	SS	S-15	24	WOH WOH 3 3	8	3	0.0			Moist, soft, greenish gray, CLAY & SILT	
-20.6 / 40	ST	ST-1	24	P U S H	24	PUSH	--			Moist, stiff, greenish gray, CLAY & SILT	
	SS	S-16	24	1 WOH 3 5	24	3	0.0			Top 18": Moist, soft, greenish gray, CLAY & SILT	
-25.6 / 45										Bot. 6": Moist, soft, greenish gray, fine SAND and SILT	

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-8

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-30.6 / 50	SS	S-17	24	11 21 33 34	10	54	0.0		Glacial Till	Moist, very dense, light gray, fine to coarse SAND, some fine gravel, some silt	Gravel inclusions resemble rounded Granite and angular Argillite fragments.
-35.6 / 55	SS	S-18	24	29 31 28 50/5"	13	59	0.0			Moist, very dense, light gray, fine SAND and Clayey SILT, some fine gravel	Gravel inclusions resembled broken Argillite.
-40.6 / 60	SS	S-19	0.5	50/0.5"	0.5	>50	0.0		Bedrock	Low Recovery Boring terminated at 59.1 ft bgs.	Rig chatter and hard drilling at 58 ft bgs. Rock fragment in spoon tip.
-45.6 / 65											
-50.6 / 70											

Boring Number: CDM-9

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / P. Schofield/ B. Cro**Surface Elevation (ft.):** 21.3
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NX
Total Depth (ft.): 40
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
7.0	7/28/2017	1230

Bore Hole Location: See boring location plan
Drilling Date: Start: 7/27/2017 **End:** 7/28/2017
General Remarks: Additional monitoring well installed adjacent to borehole. Rock core taken at adjacent monitoring well location.
Abandonment Method: Backfilled with cement grout
Logged By: E. Benson/N. Castonguay

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
21.3 0										6" Asphalt	
	SS	S-1	18	14 14 30	7	44	0.0		G.F. Pavement	Moist, dense, brown to dark brown, fine to coarse SAND, some fine to coarse gravel, trace silt	
	SS	S-2	24	25 42 43 33	13	85	0.0		G.F. Pavement	Moist, very dense, brown to dark brown, fine to coarse SAND, some fine to coarse gravel, little silt	
16.3 5	SS	S-3	24	12 13 7 6	4	20	0.3		Waste Fill	Moist, medium dense, brown to black, fine to coarse SAND and fine to coarse GRAVEL, little silt, little brick and wood	
▼	SS	S-4	24	8 15 42 46	4	57	0.2		Waste Fill	Wet, very dense, brown to gray, fine to coarse SAND, some silt, little fine to coarse gravel	
	SS	S-5	24	9 9 9 9	2	18	0.5		Waste Fill	Moist, medium dense, black, fine GRAVEL, some fine to coarse sand, trace silt, trace brick	Attempted 3-in spoon, no recovery.
11.3 10	SS	S-6	24	7 14 13 24	2	27	0.7		Waste Fill	Moist, medium dense, black, fine to coarse GRAVEL and fine to coarse SAND, little silt, little brick and wood	Attempted 3-in spoon, 2 in of recovery. Analytical Sample taken from 10-12 ft bgs
	SS	S-7	24	17 4 4 4	NR	8	1.7		Waste Fill	Wet, loose, black, fine to coarse GRAVEL and fine to coarse SAND, some brick, glass, wood and metal, little silt	Attempted 3-in spoon, 3 in of recovery.
6.3 15	SS	S-8	24	16 7 9 7	NR	16	35.9		Waste Fill	Wet, medium dense, black, fine to coarse SAND, some fine gravel, some silt, some brick, glass, metal, and ash	Attempted 3-in spoon, 5 in of recovery. Analytical Sample taken from 14-16 ft bgs.
	SS	S-9	24	3 6 12 13	NR	18	22.9		Waste Fill	Wet, medium dense, black, fine to coarse SAND, some silt, trace fine gravel, trace brick and ash	Attempted 3-in spoon, 2 in of recovery.
1.3	SS	S-10	24	20 15 23 26	12	38	7.4		Clay & Silt	Moist, hard, greenish gray, Clayey SILT, some fine to coarse sand, trace brick, wood and ash	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: V. Chan | **Date: 10/30/2017** | **Boring Number: CDM-9**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-9

Client: City of Cambridge
Project Location: Cambridge, MA
Project Name: Tobin School
Project Number: 0139-220813

Elev. / Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
1.3 / 20	SS	S-11	24	7, 10, 22, 29	24	32	1.2		Clay & Silt	Moist, hard, greenish gray, Clayey SILT, little fine to coarse sand, trace brick and wood	Analytical Sample taken from 20-22 ft bgs.
	SS	S-12	24	15, 21, 11, 9	20	32	0.1			Moist, hard, greenish gray, CLAY & SILT, some fine sand	
-3.7 / 25	SS	S-13	24	8, 14, 25, 18	2	39	0.0			Moist, hard, greenish gray, CLAY & SILT, trace fine sand	
	SS	S-14	24	12, 12, 14, 14	24	26	0.0			Moist, very stiff, greenish gray, CLAY & SILT, little fine sand, trace fine gravel	
	SS	S-15	24	11, 24, 36, 71	12	60	0.0			Top 8": Moist, hard, greenish gray, SILT & CLAY, trace fine sand, trace fine gravel	
-8.7 / 30									Glacial Till	Bot. 4": Moist, very dense, greenish gray to gray, fine to coarse SAND and fine to coarse GRAVEL, some silt	Gravel inclusions resemble broken Argillite. Rig chatter from 30-31.5 ft bgs.
									Bedrock	Hard drilling at 31.5 ft bgs. Rollerbit refusal at 32 ft bgs.	Rock cuttings observed in drill wash. Attempted to drive casing to 32 ft bgs but broke last 5-ft section in hole. Borehole was terminated and monitoring well installed.
-13.7 / 35	NX	C-1	60		60	-	-			Conducted rock coring from 35 ft to 40 ft bgs at offset location. See rock core log for description.	
-18.7 / 40										Boring terminated at 40 ft bgs.	
-23.7 / 45											

Boring Number: CDM-10

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / P. Schofield
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NX
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 7/31/2017 **End:** 8/1/2017
General Remarks:

Surface Elevation (ft.): 23.9
Total Depth (ft.): 41
Depth to Initial Water Level (ft):

Depth	Date	Time
8.5	8/1/2017	1115

Abandonment Method: Backfilled with cement grout
Logged By: E. Benson/N. Castonguay

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
23.9 0										5" Asphalt	
	SS	S-1	18	25 39 33	10	64	0.4		Pavement	Moist, very dense, light brown, fine to coarse SAND, little fine gravel, little silt	
	SS	S-2	6	57 50/0" -- --	5	>50	0.6		Granular Fill	Moist, very dense, brown to dark brown, fine to coarse SAND, little fine gravel, little silt	Analytical Sample taken from 2-4 ft bgs.
18.9 5	SS	S-3	24	21 28 21 12	2	49	0.1			Moist, dense, gray, Clayey SILT, some fine to coarse sand, some brick	Attempted 3-in spoon.
	SS	S-4	24	11 14 14 11	7	28	0.1			Moist, medium dense, gray, fine to coarse SAND, some silt, little fine gravel, little brick	
▼ 13.9 10	SS	S-5	24	26 15 21 29	14	36	0.0		Clay & Silt	Moist, hard, olive gray to greenish gray, SILT & CLAY, trace fine sand, trace brick	Analytical Sample taken from 8-10 ft bgs.
	SS	S-6	24	42 19 24 39	24	43	0.0			Moist, hard, light brown to olive gray, Silty CLAY, little fine to coarse gravel, little fine sand	
	SS	S-7	24	30 43 58 40	24	101	0.0			Moist, hard, light brown to olive gray, SILT & CLAY, trace fine sand, trace organic material	
8.9 15	SS	S-8	24	9 18 25 30	18	43	0.0			Moist, hard, olive gray, SILT & CLAY, trace fine sand, trace fine to coarse gravel	
	SS	S-9	24	26 29 27 22	24	56	0.0			Moist, hard, olive gray, SILT & CLAY, little fine sand, trace fine gravel	
3.9	SS	S-10	24	3 5 4 5	24	9	0.0			Moist, stiff, greenish gray, SILT & CLAY, little fine sand	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):
V. Loose: 0-4
Loose: 4-10
M. Dense: 10-30
Dense: 30-50
V. Dense: >50

Fine Grained (Clay):
V. Soft: <2
Soft: 2-4
M. Stiff: 4-8
Stiff: 8-15
V. Stiff: 15-30
Hard: >30

Burmister Classification

and 35-50%
some 20-35%
little 10-20%
trace <10%
moisture, density, color

Reviewed by: V. Chan | **Date: 10/30/2017** | **Boring Number: CDM-10**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-10

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
3.9 / 20	ST	ST-1	24	PUSH	24	PUSH	--		Clay & Silt	Moist, stiff, greenish gray, CLAY & SILT	
	SS	S-11	24	7 19 6 23	24	25	0.0			Top 5": Moist, very stiff, greenish gray, CLAY & SILT, trace fine sand Mid. 7": Moist, very stiff, greenish gray, fine SAND, some silt Bot. 12": Moist, very stiff, greenish gray, CLAY & SILT, trace fine sand	
-1.1 / 25											
-6.1 / 30	SS	S-12	24	4 3 5 10	24	8	0.0			Top 21": Moist, medium stiff, greenish gray, CLAY & SILT, trace fine sand, trace fine gravel	
									Glacial Till	Bot. 3": Moist, loose, gray, fine to coarse SAND and SILT, little fine to coarse gravel	Gravel inclusions resemble broken Argillite. Rig chatter at 31 ft bgs.
	NX	C-1	24		18	--	--		Bedrock	Hard drilling at 32 ft bgs. Rollerbit refusal at 32.5 ft bgs.	
-11.1 / 35	NX	C-2	12		9	--	--			Conducted rock coring from 32.5 ft to 41 ft bgs. See rock core log for description.	
	NX	C-3	12		12	--	--				
	NX	C-4	54		47	--	--				
-16.1 / 40										Boring terminated at 41 ft bgs.	
-21.1 / 45											

Boring Number: CDM-11

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / T. Roe
Surface Elevation (ft.): 22.9
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 52
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):
Bore Hole Location: See boring location plan

Depth	Date	Time
Not Recorded		

Drilling Date: Start: 7/17/2017 **End:** 7/18/2017
General Remarks:
Abandonment Method: Backfilled with cement grout
Logged By: N. Castonguay

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
22.9 / 0	SS	S-1	24	3 7 10 16	11	17	0.0		Granular Fill	Dry, medium dense, light brown to tan, fine to coarse SAND, little fine to coarse gravel	
	SS	S-2	24	12 11 10 10	15	21	0.0		Granular Fill	Top 12": Dry, medium dense, tan to light gray, fine to coarse SAND, trace fine gravel	Analytical Sample taken from 2-4 ft bgs.
									Waste Fill	Bot. 3": Dry, medium dense, tan to light gray, fine to coarse SAND, trace wood	
17.9 / 5	SS	S-3	24	8 2 2 1	5	4	0.0		Waste Fill	Dry, very loose, light brown, fine to coarse SAND, little wood, trace plastic	
	SS	S-4	24	2 2 1 2	4	3	0.0		Waste Fill	Moist, very loose, dark gray, fine to medium SAND, little fine gravel, trace metal	
	SS	S-5	24	2 1 2 2	13	3	0.0		Waste Fill / Clay & Silt	Top 3": Moist, very loose, dark gray, fine to coarse SAND, some silt, little wood, trace fine gravel	Analytical Sample taken from 8-10 ft bgs.
12.9 / 10	SS	S-6	24	2 5 5 7	16	10	0.0		Clay & Silt	Bot. 10": Moist, very soft, gray, CLAY & SILT Moist, stiff, yellow to orange, CLAY & SILT, little metal	
	SS	S-7	24	7 6 7 7	18	13	0.0		Clay & Silt	Moist, stiff, greenish gray, CLAY & SILT, little metal	
7.9 / 15	SS	S-8	24	3 3 5 5	20	8	0.0		Clay & Silt	Moist, medium stiff, greenish gray, CLAY & SILT	
	SS	S-9	24	5 5 3 4	18	8	0.0		Clay & Silt	Moist, medium stiff, greenish gray, CLAY & SILT	
2.9	SS	S-10	24	WOH 1 3 5	20	4	0.0		Clay & Silt	Moist, soft, greenish gray, CLAY & SILT	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: V. Chan | **Date: 10/30/2017** | **Boring Number: CDM-11**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-11

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. / Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
2.9 / 20	SS	S-11	24	WOH WOH 2 3	18	2	0.0		Clay & Silt	Moist, soft, greenish gray, CLAY & SILT, trace fine gravel	
-2.1 / 25	SS	S-12	24	1 2 4 4	11	6	0.0			Moist, soft, greenish gray, CLAY & SILT	
-7.1 / 30	SS	S-13	24	1 2 2 3	24	4	0.0			Moist, soft, greenish gray, CLAY & SILT	
-12.1 / 35	SS	S-14	24	WOH WOH WOH 1	24	0	0.0			Moist, very soft, greenish gray, CLAY & SILT	
-17.1 / 40	SS	S-15	24	WOH WOH WOH 3	24	0	0.0			Top 20": Moist, very soft, greenish gray, CLAY & SILT Bot. 4": Moist, very soft, greenish gray, CLAY & SILT, little fine sand	
-22.1 / 45	SS	S-16	24	1 1 2 9	24	3	0.0			Top 18": Moist, soft, greenish gray, CLAY & SILT, little fine sand Bot. 6": Moist, soft, greenish gray, fine	

Boring Number: CDM-11

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
									Clay & Silt	SAND	
-27.1 / 50	SS	S-17	24	WOH WOH 2 5	24	2	0.0			Top 19": Moist, very soft, greenish gray, CLAY & SILT Bot. 5" Moist, very loose, greenish gray, fine SAND, some silt	
-32.1 / 55										Boring terminated at 52 ft bgs.	
-37.1 / 60											
-42.1 / 65											
-47.1 / 70											

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-12

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / P. Schofield
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 8/9/2017 **End:** 8/9/2017
General Remarks:

Surface Elevation (ft.): 23.6
Total Depth (ft.): 50
Depth to Initial Water Level (ft):

Depth	Date	Time
7.0	8/9/2017	1430

Abandonment Method: Backfilled with cement grout
Logged By: D. Abt

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
23.6 / 0									Pavement	6" Concrete	
	SS	S-1	18	9, 13, 25	11	22	0.6		Granular Fill	Top 6": Dry, dense, dark brown to black, fine to coarse SAND and fine to coarse GRAVEL, some silt Bot. 5": Dry, brown, fine to coarse SAND, some fine to coarse gravel, trace silt	
	SS	S-2	19	22, 37, 90, 50/1"	5	127	1.0			Moist, very dense, brown, fine to coarse SAND, some fine gravel, some silt	
18.6 / 5	SS	S-3	2	50/2"	0	>50	--			No Recovery	
▼	SS	S-4	24	8, 12, 18, 28	8	30	6.4			Top 5": Wet, hard, brown to gray, SILT and fine to coarse GRAVEL, some fine to coarse sand Bot. 3": Wet, hard, brown to gray, SILT, trace fine sand, trace fine gravel	
	SS	S-5	24	22, 24, 33, 34	5	57	0.5			Moist, very dense, brown, fine to coarse SAND and fine to coarse GRAVEL, some silt	
13.6 / 10									Clay & Silt		
8.6 / 15	SS	S-6	24	26, 14, 23, 25	23	37	0.1			Moist, hard, brown to gray, Silty CLAY, trace fine sand, trace fine gravel	
3.6	SS	S-7	24	4, 7	24	18	0.1			Moist, very stiff, greenish gray, Silty CLAY, trace fine sand	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: V. Chan | **Date: 10/30/2017** | **Boring Number: CDM-12**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-12

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
3.6 / 20	SS	S-7	24	11 16	24	18	0.1		Clay & Silt		
-1.4 / 25	SS	S-8	24	13 6 9 10	24	15	0.1			Moist, very stiff, greenish gray, Silty CLAY, trace fine sand, trace fine to coarse gravel	
-6.4 / 30	SS	S-9	24	4 6 9 10	24	15	0.1			Moist, stiff, greenish gray, Silty CLAY, trace fine sand	
-11.4 / 35	SS	S-10	24	2 2 3 7	24	5	0.1			Moist, medium stiff, greenish gray, CLAY & SILT, trace fine sand	
-16.4 / 40	SS	S-11	24	2 3 5 8	24	8	0.1			Moist, medium stiff, greenish gray, CLAY & SILT, trace fine sand	
-21.4 / 45	SS	S-12	24	WOH 4 6 8	24	10	0.0			Moist, stiff, greenish gray, CLAY & SILT, trace fine sand	
	ST	ST-1	24	P U	0	PUSH	--			Moist, stiff, greenish gray, CLAY & SILT	

Boring Number: CDM-12

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
	ST	ST-1	24	S H	0	PUSH	--		Clay & Silt	Moist, very stiff, gray, Clayey SILT, some fine sand	
	SS	S-13	24	7 9 9 12	24	18	0.0				
-26.4 / 50										Boring terminated at 50 ft bgs.	
-31.4 / 55											
-36.4 / 60											
-41.4 / 65											
-46.4 / 70											

Boring Number: CDM-13

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / P. Schofield
Surface Elevation (ft.): 22.8
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 94
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):
Bore Hole Location: See boring location plan

Depth	Date	Time
Not Recorded		

Drilling Date: Start: 7/25/2017 **End:** 7/26/2017
General Remarks:
Abandonment Method: Backfilled with cement grout
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
22.8 / 0										3" Topsoil	
	SS	S-1	24	3, 10, 26, 46	14	36	0.0		Topsoil	Dry, dense, light brown to brown, fine to coarse SAND, little fine to coarse gravel, trace silt	
	SS	S-2	24	25, 26, 26, 29	16	52	0.1		Granular Fill	Dry, very dense, brown to dark brown, fine to coarse SAND, some fine gravel, some silt	
17.8 / 5	SS	S-3	24	27, 21, 11, 11	10	32	0.4		Granular Fill	Moist, dense, light brown to gray, fine to medium SAND, some silt, some fine to coarse gravel	Analytical Sample taken from 4-6 ft bgs.
	SS	S-4	24	9, 16, 19, 14	4	35	0.4		Waste Fill	Moist, dense, light brown to dark brown, fine to coarse SAND, some fine gravel, some silt, little brick and ash	
	SS	S-5	24	5, 6, 2, 2	4	8	3.4		Waste Fill	Wet, loose, black, fine to coarse SAND and fine GRAVEL, some silt, trace ash and brick	Analytical Sample taken from 8-12 ft bgs.
12.8 / 10	SS	S-6	24	4, 2, 5, 4	3	7	4.2		Waste Fill	Wet, loose, black, fine to coarse SAND, some fine to coarse gravel, some silt, trace ash and wood	
	SS	S-7	24	4, 2, 2, 3	1	4	0.6		Waste Fill	Wet, loose, black, fine to coarse SAND and fine GRAVEL, little silt	
7.8 / 15	SS	S-8	24	5, 10, 7, 7	11	17	1.8		Clay & Silt	Moist, medium dense, greenish gray to brown, fine SAND and SILT, trace wood	
	SS	S-9	24	10, 9, 13, 14	12	22	0.1		Clay & Silt	Moist, very stiff, greenish gray, SILT & CLAY, some fine sand, little wood	Analytical Sample taken from 16-18 ft bgs.
2.8	SS	S-10	24	5, 10, 15, 19	16	25	0.1		Clay & Silt	Moist, very stiff, greenish gray, CLAY & SILT, trace fine sand	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: V. Chan | **Date: 10/30/2017** | **Boring Number: CDM-13**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-13

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
2.8 / 20	SS	S-11	24	12 19 18 17	24	37	0.1		Clay & Silt	Moist, hard, greenish gray, CLAY & SILT, trace fine sand, trace fine gravel	
	SS	S-12	24	4 7 11 12	14	18	0.1			Moist, very stiff, greenish gray, CLAY & SILT, trace fine sand	
-2.2 / 25	SS	S-13	24	13 13 12 14	16	25	0.1			Moist, very stiff, greenish gray, CLAY & SILT	
-7.2 / 30	SS	S-14	24	3 5 8 7	18	13	0.1			Moist, stiff, greenish gray, CLAY & SILT	
-12.2 / 35	SS	S-15	24	3 3 5 6	24	8	0.1			Moist, medium stiff, greenish gray, CLAY & SILT, little fine sand	
-17.2 / 40	SS	S-16	24	WOH WOH 2 4	24	2	0.0			Moist, very soft, greenish gray, CLAY & SILT, trace fine sand	
-22.2 / 45	SS	S-17	24	7 4 1 5	18	5	0.0			Moist, medium stiff, greenish gray, CLAY & SILT, trace fine gravel, trace fine to coarse sand	

CDM Smith

Boring Number: CDM-13

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-27.2 / 50	SS	S-18	24	WOH WOH 2 5	24	2	0.0		Clay & Silt	Moist, very soft, greenish gray, CLAY & SILT, trace fine gravel	
-32.2 / 55	SS	S-19	24	WOH WOH 3 2	24	3	0.1			Moist, soft, greenish gray, CLAY & SILT	
-37.2 / 60	SS	S-20	24	WOR WOR WOR WOR	24	0	0.0			Moist, very soft, greenish gray, Silty CLAY	
-42.2 / 65	SS	S-21	24	9 4 4 8	11	8	0.0			Moist, medium stiff, greenish gray, Silty CLAY, trace fine gravel	
-47.2 / 70	SS	S-22	24	WOR WOH WOH 9	24	0	0.0			Moist, very soft, greenish gray, Silty CLAY	

Boring Number: CDM-13

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-52.2 / 75	SS	S-23	24	14 11 5 8	7	16	0.0		Clay & Silt	Moist, very stiff, greenish gray, Clayey SILT, some fine sand	
-57.2 / 80									Glacial Till	Moist, very stiff, greenish gray, fine to coarse SAND, some clayey silt, some fine to coarse gravel	
-62.2 / 85	SS	S-24	24	5 11 17 17	14	28	0.0				
-67.2 / 90										Hard drilling at 91 ft bgs.	Heavy rig chatter at 91 ft bgs. Rock cuttings observed in drill wash.
									Bedrock	Driller noted competent rock started at 92.5 ft bgs	
-72.2 / 95										Boring terminated at 94 ft bgs.	
-77.2 / 100											

Boring Number: CDM-14

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / T. Roe
Surface Elevation (ft.): 22.3
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 85.5
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):
Bore Hole Location: See boring location plan

Depth	Date	Time
Not Recorded		

Drilling Date: Start: 7/19/2017 **End:** 7/21/2017
General Remarks: Two monitoring wells installed adjacent to borehole.
Abandonment Method: Backfilled with cement grout
Logged By: N. Castonguay/E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
22.3 0	SS	S-1	24	3 4 6 16	10	10	0.3		Granular Fill	Top 6": Dry, loose, brown, fine SAND and SILT, little fine gravel Bot. 4": Dry, loose, tan, fine SAND and SILT, trace fine gravel	
	SS	S-2	24	12 10 9 11	9	19	4.6		Waste Fill	Dry, medium dense, black, fine to coarse SAND and SILT, trace fine gravel	
17.3 5	SS	S-3	24	6 11 5 3	7	16	5.9			Dry to moist, medium dense, dark brown, fine to coarse SAND and SILT	
	SS	S-4	24	3 2 1 2	14	3	1.0			Moist, very loose, brown to light gray, fine to coarse SAND, trace ash, brick, cinders, and coal	
	SS	S-5	24	3 4 1 2	10	5	3.5			Moist, loose, dark brown to black, fine to coarse SAND, trace ash, brick, cinders, and coal	Analytical Sample taken from 8-10 ft bgs.
12.3 10	SS	S-6	24	WOH WOR WOH 1	2	0	2.0			Moist, very loose, dark brown, fine to coarse SAND and SILT, trace glass, metal, and wood	
	SS	S-7	24	WOH WOH WOH 1	1	0	0.7			Moist, very loose, dark brown, fine to coarse SAND and SILT, trace glass, metal, wood	
7.3 15	SS	S-8	24	WOH 3 2 4	4	5	0.7			Moist, loose, dark brown, fine to coarse SAND and SILT, trace glass, sludge, metal, and wood	
	SS	S-9	24	5 5 6 7	2	11	0.9			Moist, medium dense, dark brown, fine to coarse SAND, trace ash, glass, metal, and wood	
2.3	SS	S-10	24	6 6 6 7	4	12	0.6			Moist, medium dense, dark brown, fine to coarse SAND, trace brick, glass, metal, sludge, and wood	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: V. Chan | **Date: 10/30/2017** | **Boring Number: CDM-14**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-14

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
2.3 / 20	SS	S-11	24	WOH 9 3 4	9	12	0.6		Clay & Silt	Moist, stiff, gray, CLAY & SILT, trace glass, metal, and wood	Analytical Sample taken from 20-22 ft bgs.
	SS	S-12	24	4 4 3 4	24	7	0.3			Top 16": Moist, medium stiff, greenish gray, CLAY & SILT, trace glass, metal, and wood Bot. 8": Moist, medium stiff, greenish gray, CLAY & SILT, trace metal	
-2.7 / 25	SS	S-13	24	4 5 5 5	5	10	0.0			Moist, stiff, greenish gray, CLAY & SILT	
-7.7 / 30	SS	S-14	24	3 3 4 5	0	7	--			No Recovery	
	SS	S-15	24	WOH WOH WOH WOH	24	0	0.0			Moist, very soft, greenish gray, CLAY & SILT	
-12.7 / 35											
-17.7 / 40	SS	S-16	24	1 2 1 1	24	3	0.0			Moist, soft, greenish gray, CLAY & SILT	
-22.7 / 45	SS	S-17	24	5 6 5 6	6	11	0.0			Moist, stiff, greenish gray, CLAY & SILT	

Boring Number: CDM-14

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-27.7 50									Clay & Silt		
-32.7 55	SS	S-18	24	4 4 4 5	3	8	0.0			Moist, medium stiff, greenish gray, Silty CLAY	
-37.7 60											
-42.7 65	SS	S-19	24	1 3 5 7	24	8	0.0			Top 6": Moist, medium stiff, greenish gray, CLAY & SILT Mid. 12": Moist, medium stiff, greenish gray, SILT, little fine sand Bot. 6": Moist, medium stiff, greenish gray, fine SAND and SILT	
-47.7 70											

Boring Number: CDM-14

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-52.7 75	SS	S-20	24	WOH WOH WOH 2	24	0	0.0		Clay & Silt	Moist, very soft, greenish gray, CLAY & SILT	
-57.7 80											
-62.7 85	SS	S-21	6	52 100/0"	4	>100	0.0		Weathered Rock	Moist, gray, fine to coarse GRAVEL and fine to coarse SAND, some silt Boring terminated at 85.5 ft bgs.	Rig chatter from 82.5 ft - 83 ft bgs. Rock cuttings observed in drill wash at 83 ft bgs. Gravel inclusions resemble broken Argillite. Rock fragment in spoon tip.
-67.7 90											
-72.7 95											
-77.7 100											

Boring Number: CDM-15

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / P. Schofield
Surface Elevation (ft.): 23.3
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 80.5
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
6.5	7/24/2017	1400

Bore Hole Location: See boring location plan
Drilling Date: Start: 7/20/2017 **End:** 7/24/2017
Abandonment Method: Backfilled with cement grout
General Remarks: Casing refusal at 2.75 ft bgs at initial borehole. Hand excavated and encountered cobblestones. Offset borehole 4 ft north.
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
23.3 0	SS	S-1	20	2 5 10 52/2"	14	15	0.0		Granular Fill Topsoil	4" Topsoil Dry, medium dense, light brown, fine SAND and SILT, trace fine gravel Encountered casing refusal at 2 ft bgs. Used roller bit to drill through cobblestone obstruction from 2 ft to 3 ft bgs. Drove casing to 4 ft bgs.	Analytical Sample taken from 0-2 ft bgs.
18.3 5	SS	S-2	24	8 9 7 10	16	16	0.1		Clay & Silt	Moist, very stiff, brown to light gray, Clayey SILT, trace fine sand, trace tree root	
▼	SS	S-3	24	9 12 15 17	24	27	0.0			Moist, very stiff, light brown to light gray, CLAY & SILT, trace fine sand	
	SS	S-4	24	6 12 16 23	21	28	0.0			Moist, very stiff, light brown to light gray, Silty CLAY, trace fine sand	
13.3 10	SS	S-5	24	15 19 18 18	24	37	0.0			Moist, hard, light brown to light gray, Silty CLAY, trace fine sand	
	SS	S-6	24	4 5 12 8	24	17	0.0			Moist, very stiff, light brown, CLAY & SILT	Analytical Sample taken from 12-14 ft bgs.
8.3 15	SS	S-7	24	2 4 5 6	23	9	0.0			Moist, stiff, light brown to greenish gray, CLAY & SILT, trace fine sand	
	SS	S-8	24	5 8 7 7	24	15	0.0			Moist, stiff, greenish gray, CLAY & SILT	
3.3	ST	ST-1	24	P U S H	24	PUSH	--			Moist, very stiff, greenish gray, CLAY & SILT	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: V. Chan | **Date: 10/30/2017** | **Boring Number: CDM-15**

BL TOBIN SCHOOL 11102017.GPJ - 3/29/18

Boring Number: CDM-15

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
3.3 / 20	SS	S-9	24	2 3 3 5	24	6	0.0		Clay & Silt	Moist, medium stiff, greenish gray, CLAY & SILT	
	SS	S-10	24	6 6 6 6	24	12	0.1			Moist, stiff, greenish gray, CLAY & SILT	
-1.7 / 25	SS	S-11	24	WOH WOH 2 3	24	2	0.0			Moist, very soft, greenish gray, CLAY & SILT	
-6.7 / 30	SS	S-12	24	1 WOH WOH 1	24	0	0.1			Moist, very soft, greenish gray, CLAY & SILT, little fine sand	
	ST	ST-2	24	P U S H	24	PUSH	--			Moist, stiff, greenish gray, CLAY & SILT	
-11.7 / 35	SS	S-13	24	WOH WOH WOH WOH	24	0	0.0			Moist, very soft, greenish gray, CLAY & SILT	
-16.7 / 40	SS	S-14	24	WOR WOH WOH WOH	24	0	0.1			Moist, very soft, greenish gray, CLAY & SILT	
-21.7 / 45	SS	S-15	24	WOR WOH WOH WOH	24	0	0.1			Moist, very soft, greenish gray, CLAY & SILT	

CDM Smith

Boring Number: CDM-15

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-26.7 / 50	SS	S-16	24	WOR WOR WOH WOH	24	0	0.1		Clay & Silt	Moist, very soft, greenish gray, CLAY & SILT, trace fine sand	
-31.7 / 55	SS	S-17	24	WOR WOR WOR WOR	24	0	0.2			Moist, very soft, greenish gray, Silty CLAY, trace fine sand	
-36.7 / 60											
-41.7 / 65	SS	S-18	24	WOR WOR WOH 4	24	0	0.2			Moist, very soft, greenish gray, Silty CLAY	
-46.7 / 70	SS	S-19	24	WOH WOH 1 4	24	1	0.1			Moist, very soft, greenish gray, CLAY	

Boring Number: CDM-15

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
-51.7 75	SS	S-20	24	4 1 2 7	24	3	0.1		Clay & Silt	Top 18": Moist, soft, greenish gray, SILT, trace fine sand Bot. 6": Moist, soft, greenish gray, SILT & CLAY, some fine sand	
-56.7 80	SS	S-21	15	15 32 100/3"	8	>132	0.1		Bedrock	Top 4": Moist, very dense, greenish gray, fine SAND and SILT Bot 4": Fractured Argillite Boring terminated at 80.5 ft bgs.	Attempted to roller bit into rock beyond 80.5 ft bgs. Losing water into formation with no wash return.
-61.7 85											
-66.7 90											
-71.7 95											
-76.7 100											

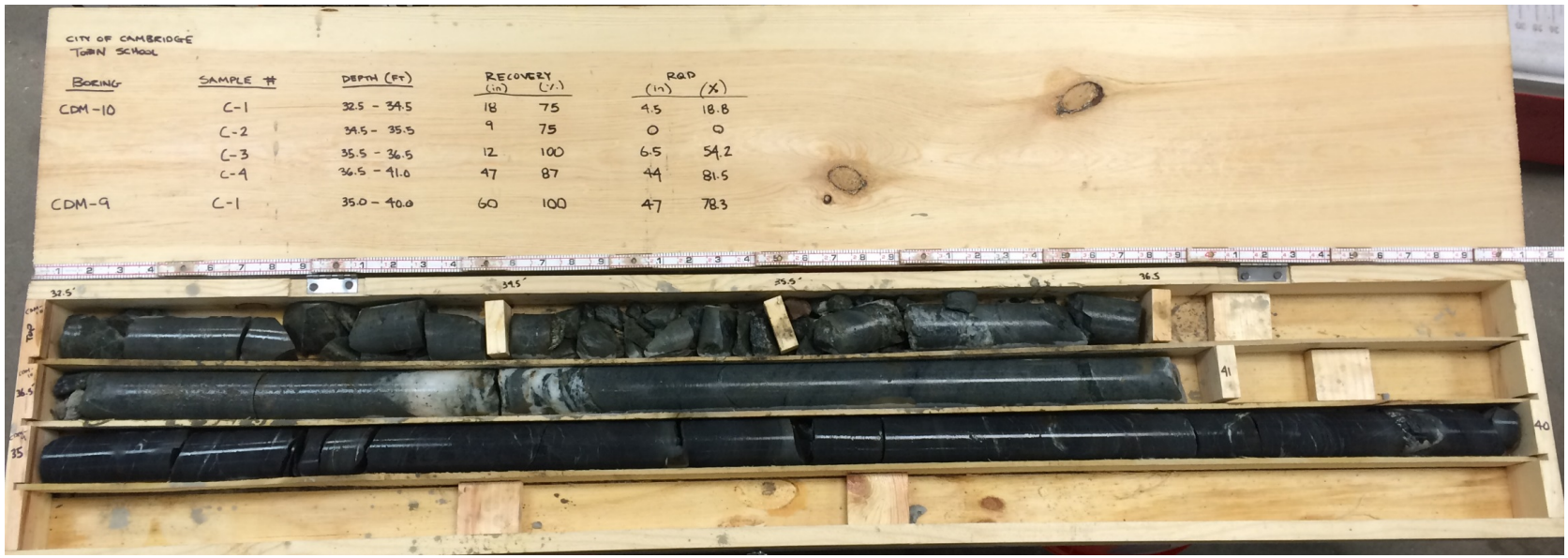
ATTACHMENT D

PHASE 1 - ROCK CORE PHOTOGRAPHS

Core Box 1

CDM-2: C-1 (57'-58.5'); C-2 (59'-61.5'); C-3 (61.5'-62.5')
CDM-1: C-1 (78'-83')

Core Box 2



CDM-10: C-1 (32.5'-34.5'); C-2 (34.5'-35.5'); C-3 (35.5'-36.5')
CDM-10: C-4 (36.5'-41')
CDM-9: C-1 (35'-40')

Core Box 3

CDM-4: C-1 (58.5'-63.5')

ATTACHMENT E

PHASE 2 – TEST BORING LOGS

Boring Number: CDM-101A

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Surface Elevation (ft.): 21.5
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 5
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
NE		

Bore Hole Location: See boring location plan
Drilling Date: Start: 1/24/2018 **End:** 1/24/2018
General Remarks: Drilling ceased pending results of analytical sampling. Borehole capped with cement grout. Offset borehole to CDM-101B.
Abandonment Method: Backfilled with cement grout
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
21.5 / 0									Pvmnt.	4" Asphalt	
										Moist, gray, fine to coarse SAND and fine to coarse GRAVEL, trace silt	
	SS	S-1	24	33 39 20 12	12	59	--		Granular Fill	Moist, very dense, gray, fine to coarse GRAVEL and fine to coarse SAND, trace silt	
	SS	S-2	24	12 11 16 10	14	27	--			Top 6": Moist, medium dense, gray, fine to coarse GRAVEL and fine to coarse SAND, trace silt	
16.5 / 5									Waste Fill	Mid. 2": Moist, medium dense, black, fine to coarse SAND and fine to coarse GRAVEL	Analytical Sample taken from 4.5-5.0 ft bgs.
										Bot. 6": White substance (non-asbestos containing)	
										Boring terminated at 5 ft bgs.	
11.5 / 10											
6.5 / 15											
1.5											

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-101A**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-101B

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Surface Elevation (ft.): 21.5
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 15
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):
Bore Hole Location: See boring location plan

Depth	Date	Time
Not Recorded		

Drilling Date: Start: 2/1/2018 **End:** 2/1/2018
Abandonment Method: Backfilled with bentonite chips
General Remarks: G.F. - Granular Fill
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
21.5 / 0										4" Asphalt	
	SS	S-1	24	38 28 21 21	13	49	0.1		G.F. Pvmnt.	Moist, dense, brown, fine to coarse SAND and fine to coarse GRAVEL, trace silt	
	SS	S-2	24	25 16 11 10	6	27	0.3		Waste Fill	Moist, medium dense, dark brown to black, fine to coarse SAND, some silt, little fine to coarse gravel, trace bricks and glass	
16.5 / 5	SS	S-3	24	9 9 4 5	5	13	0.4			Moist, medium dense, dark brown to black, fine to coarse SAND, some silt, little ash, trace fine gravel	
	SS	S-4	24	5 7 4 6	12	11	1.4			Moist, stiff, black, Organic SILT, some ash, little fine to coarse sand, trace bricks	
11.5 / 10	SS	S-5	24	5 3 3 8	10	6	0.9/ 0.1			Top 6": Moist, loose, black to greenish gray, fine to coarse SAND and SILT, some wood, trace bricks	
	SS	S-6	24	8 10 10 9	12	20	<0.1		Clay & Silt	Bot. 4": Moist, medium stiff, greenish gray, CLAY & SILT, trace fine sand Moist, very stiff, greenish gray to olive gray, CLAY & SILT, trace fine sand	
	SS	S-7	24	5 6 5 6	20	11	<0.1			Moist, stiff, greenish gray to olive gray, CLAY & SILT, trace fine sand	
6.5 / 15										Boring terminated at 15 ft bgs	
1.5											

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):
V. Loose: 0-4 Loose: 4-10 M. Dense: 10-30 Dense: 30-50 V. Dense: >50

Fine Grained (Clay):
V. Soft: <2 Soft: 2-4 M. Stiff: 4-8 Stiff: 8-15 V. Stiff: 15-30 Hard: >30

Burmister Classification

and 35-50%
some 20-35%
little 10-20%
trace <10%
moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-101B**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-102A

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Surface Elevation (ft.): 21.2
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 9
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
NE		

Bore Hole Location: See boring location plan
Drilling Date: Start: 1/25/2018 **End:** 1/25/2018
General Remarks: Casing refusal at 6 ft bgs. Roller bit refusal at 9 ft bgs. Offset borehole to CDM-102B. G.F. - Granular Fill
Abandonment Method: Cement grout with asphalt patch
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
21.2 / 0										5" Asphalt	
	SS	S-1	24	26 22 20 10	13	42	<0.1		G.F. Pvmnt.	Moist, light brown, fine to coarse SAND and fine to coarse GRAVEL, trace silt Moist, dense, light brown to dark brown, fine to coarse SAND, some fine to coarse gravel, little silt	
	SS	S-2	24	6 9 5 7	6	14	0.2		Waste Fill	Moist, medium dense, dark brown to black, fine to coarse SAND, some silt, some fine to coarse gravel, little asphalt	
16.2 / 5	SS	S-3	24	17 35 92 94	0	127	<0.1			Moist, very dense, WOOD, little fine to coarse sand, little fine to coarse gravel, trace silt	No recovery in 2" split spoon; resampled with 3" split spoon with 6" recovery
	SS	S-4	9	85 100/3"	0	>100	--			Moist, very dense, WOOD	No recovery in 2" split spoon; resampled with 3" split spoon with 3" recovery
11.2 / 10										Boring terminated at 9 ft bgs.	Blow counts may not be representative of soil strata due to wood encountered in S-3 and S-4. Possible tree stump.
6.2 / 15											
1.2											

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-102A**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-102B

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 1/26/2018 **End:** 1/26/2018
General Remarks:

Surface Elevation (ft.): 21.2
Total Depth (ft.): 15
Depth to Initial Water Level (ft):

Depth	Date	Time
8.5	1/26/2018	0926

Abandonment Method: Backfilled with bentonite chips
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
21.2 / 0									Pvmnt.	5" Asphalt	
	SS	S-1	24	9 12 10 16	4	22	<0.1		Granular Fill	Moist, medium dense, black to dark brown, fine to coarse SAND, some silt, little fine to coarse gravel	
	SS	S-2	24	9 12 17 12	6	29	<0.1		Granular Fill	Moist, medium dense, light brown to dark brown, fine to coarse SAND and fine to coarse GRAVEL, little silt	
16.2 / 5	SS	S-3	24	12 10 12 11	0	22	--		Granular Fill	No Recovery	No recovery in 2" split spoon; resampled with 3" split spoon with no recovery. Resembles reworked natural material.
▼	SS	S-4	24	9 9 11 16	14	20	<0.1		Granular Fill / Organic Soils	Top 8": Moist, very stiff, tan to greenish gray, CLAY & SILT, some fine to coarse sand, some fine to coarse gravel	
									Organic Soils	Bot 6": Wet, black, Organic fine SAND and SILT	
11.2 / 10	SS	S-5	24	16 23 27 38	24	50	<0.1		Organic Soils / Clay & Silt	Wet, hard, greenish gray, CLAY & SILT, trace fine sand	
	SS	S-6	24	7 10 11 13	24	21	<0.1		Clay & Silt	Wet, very stiff, greenish gray, CLAY & SILT, trace fine sand	
	SS	S-7	24	13 13 10 13	18	23	<0.1		Clay & Silt	Wet, very stiff, greenish gray, CLAY & SILT, trace fine sand	
6.2 / 15										Boring terminated at 15 ft bgs.	
1.2											

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-102B**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-103

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Surface Elevation (ft.): 21.5
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 23
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
6.5	1/25/2018	1415

Bore Hole Location: See boring location plan
Drilling Date: Start: 1/25/2018 **End:** 1/25/2018
General Remarks: Approximately 50 gallons of grout was used without clean grout return. Remainder of hole was plugged with hydrated bentonite chips. G.F. - Granular Fill
Abandonment Method: Backfilled with cement grout, bentonite chips, and asphalt patch
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
21.5 0									G.F. Pvmnt.	4" Asphalt	
	SS	S-1	24	51 29 37 40	12	66	0.1		G.F. Pvmnt.	Moist, gray, fine to coarse SAND, some fine to coarse gravel, trace silt Moist, very dense, gray, fine to coarse SAND, some fine gravel, little silt	
	SS	S-2	24	22 17 17 15	11	34	<0.1		Waste Fill	Top 3": Moist, gray to greenish gray, fine to coarse SAND, some fine gravel, some silt, trace brick Mid. 6": Moist greenish gray, CLAY & SILT, little fine to coarse sand, little fine gravel Bot. 2": Moist, black, fine to coarse SAND, some silt, little fine gravel	
16.5 5 ▼	SS	S-3	24	33 17 15 13	8	32	<0.1		Waste Fill	Wet, dense, black, fine to coarse SAND and BRICK, some fine to coarse gravel, little silt	
	SS	S-4	24	4 3 2 3	4	5	<0.1		Waste Fill	Wet, loose, black, fine to coarse SAND, little fine to coarse gravel, little silt, little brick, ash, glass, and wood	
11.5 10	SS	S-5	24	6 3 2 3	5	5	0.3		Waste Fill	Wet, loose, black, fine to coarse SAND, some silt, little fine to coarse gravel, little brick, metal and wood	
	SS	S-6	24	3 3 2 3	7	5	0.4		Waste Fill	Wet, loose, black, fine to coarse SAND, some silt, little brick, ash, glass, and metal, trace fine to coarse gravel	
	SS	S-7	24	3 4 5 5	5	9	0.8		Waste Fill	Wet, loose, black, fine to coarse SAND, some silt, little brick, ash, glass, and metal, little fine to coarse gravel	13-15 ft bgs: Hydrocarbon odor
6.5 15	SS	S-8	24	4 3 2 5	7	5	0.5		Waste Fill	Wet, loose, black, fine to coarse SAND and fine GRAVEL, little tile, ash and metal, little silt	
	SS	S-9	24	5 1 4 6	6	5	0.6		Waste Fill	Wet, loose, black, fine to coarse SAND, some fine to coarse gravel, little silt, trace brick, ash, tile, and glass	17-19 ft bgs: Hydrocarbon odor
1.5	SS	S-10	24	10 11	24	26	0.1/ 0.1		Waste Fill	Wet, very stiff, greenish gray, CLAY & SILT,	Top 2" is similar to above.

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-103**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-103

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
1.5 / 20	SS	S-10	24	15 15	24	26	0.1/ 0.1		Clay & Silt	trace fine sand Wet, hard, greenish gray, SILT, little fine sand	Top 2" is similar to above.
	SS	S-11	24	16 19 25 22	24	44	<0.1				
-3.5 / 25										Boring terminated at 23 ft bgs.	
-8.5 / 30											
-13.5 / 35											
-18.5 / 40											
-23.5 / 45											

Boring Number: CDM-104

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Surface Elevation (ft.): 20.2
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 34
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
6.5	1/24/2018	1256

Bore Hole Location: See boring location plan
Drilling Date: Start: 1/24/2018 **End:** 1/24/2018
General Remarks: Approximately 100 gallons of grout was used without clean grout return. Remainder of hole was plugged with hydrated bentonite chips.
Abandonment Method: Backfilled with cement grout and bentonite chips
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
20.2 0	SS	S-1	24	9 8 22 26	14	30	<0.1		Topsoil	6" Topsoil Moist, dense, light brown, fine to coarse SAND and fine to coarse GRAVEL, trace silt	
	SS	S-2	24	22 17 16 17	16	33	<0.1		Granular Fill	Moist, dense, dark brown to greenish gray, fine to coarse SAND, some fine to coarse gravel, some silt	
15.2 5	SS	S-3	24	21 16 20 12	18	36	<0.1/ <0.1		Granular Fill	Top 12": Moist, dense, greenish gray, fine to coarse SAND, some fine to coarse gravel, some to trace silt Bot. 6": Moist, greenish gray, fine to medium SAND, some fine gravel, little silt	
▼	SS	S-4	24	12 12 8 4	12	20	<0.1/ 0.2		Granular Fill	Top 8": Moist, medium dense, greenish gray, fine to coarse SAND, some fine gravel, little silt	
	SS	S-5	24	1 WOH 1 WOH	3	1	0.1		Waste Fill	Bot. 4": Wet, black, medium dense, fine to coarse SAND, some silt, some ash, little fine to coarse gravel Wet, very loose, black, fine to coarse SAND, some silt, little fine to coarse gravel, little brick, ash, and metal	
10.2 10	SS	S-6	24	4 13 15 8	6	28	0.2		Waste Fill	Wet, medium dense, black, fine to coarse GRAVEL and fine to coarse SAND, some silt, little brick, metal, wood, and tile	
	SS	S-7	24	7 11 10 7	6	21	0.2		Waste Fill	Wet, medium dense, black, fine to coarse GRAVEL and fine to coarse SAND, some wood, little ash and metal, trace silt	
5.2 15	SS	S-8	24	20 6 7 8	5	13	0.7		Waste Fill	Wet, medium dense, black to tan, fine to coarse SAND, some silt, little fine to coarse gravel, little wood, glass, and brick	
	SS	S-9	24	7 3 8 13	6	11	1.4		Waste Fill	Wet, medium dense, DEBRIS consisting of wood, glass, paper, and brick , some fine to coarse sand, some silt	
0.2	SS	S-10	24	6 4 3 4	0	7	--		Waste Fill	No Recovery	No recovery in 2" split spoon; resampled with 3" split spoon with

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-104**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-104

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
0.2 / 20	SS	S-11	24	6 4 13 9	0	17	0.2		Waste Fill	Wet, medium dense, black, fine SAND, some silt, little fine to coarse gravel, little bricks, ash, metal, glass, and wood	no recovery. No recovery in 2" split spoon; resample with 3" split spoon with 3" recovery.
	SS	S-12	24	6 4 5 7	6	9	0.2			Wet, loose, black, fine SAND, some silt, little fine to coarse gravel, little bricks, ash, metal, glass, and wood	
-4.8 / 25	SS	S-13	24	15 9 6 5	0	15	--			No Recovery	No recovery in 2" split spoon; resampled with 3" split spoon with no recovery. Metal fragment in shoe.
	SS	S-14	24	5 8 6 5	4	14	0.6			Wet, medium dense, black, fine to coarse GRAVEL, some fine to coarse sand, some metal, wood, tile, and brick, little silt	
	SS	S-15	24	2 1 4 6	3	5	0.3			Wet, loose, black, fine GRAVEL and fine to coarse SAND, some metal, glass, brick, tile, and wood, trace silt	
-9.8 / 30	SS	S-16	24	5 2 7 9	5	9	0.2/ 0.1			Top 5": Wet, loose, black, fine to coarse SAND, some fine gravel, some metal, glass, brick, tile, and wood, little silt	
	SS	S-17	24	4 10 12 13	24	22	<0.1		Clay & Silt	Bottom 2": Wet, greenish gray, CLAY & SILT Wet, very stiff, greenish gray, CLAY & SILT	
-14.8 / 35										Boring terminated at 34 ft bgs.	
-19.8 / 40											
-24.8 / 45											

Boring Number: CDM-105

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 1/23/2018 **End:** 1/23/2018
General Remarks: G.F. - Granular Fill; O.S. - Organic Soils

Surface Elevation (ft.): 22.5
Total Depth (ft.): 12
Depth to Initial Water Level (ft):

Depth	Date	Time
7.0	1/23/2018	-

Abandonment Method: Backfilled with bentonite chips
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
22.5 / 0	SS	S-1	24	9, 8, 14, 22	20	22	<0.1		Topsoil	4" Topsoil Moist, medium dense, fine to coarse SAND, some fine gravel, trace silt	
	SS	S-2	24	56, 50, 30, 17	12	80	<0.1		G.F.	Moist, very dense, tan to dark brown, fine to coarse SAND, some fine to coarse gravel, trace silt	
17.5 / 5	SS	S-3	24	10, 30, 51, 27	20	81	<0.1		O.S. Clay & Silt	Moist, hard, greenish gray to olive gray, CLAY & SILT, trace fine sand	
▼	SS	S-4	24	41, 46, 48, 44	16	94	<0.1		O.S. Clay & Silt	Top 4" & Bot. 9": Moist, hard, greenish gray, CLAY & SILT, trace fine to coarse gravel, trace fine sand Mid 3": Wet, black, slightly Organic CLAY & SILT, trace fine sand	
	SS	S-5	24	26, 32, 34, 35	18	66	<0.1		Clay & Silt	Moist, hard, greenish gray and tan, CLAY & SILT, trace fine sand	
12.5 / 10	SS	S-6	24	18, 12, 11, 13	14	23	<0.1		Clay & Silt	Moist, very stiff, greenish gray and tan, CLAY & SILT, trace fine sand	
7.5 / 15										Boring terminated at 12 ft bgs.	
2.5											

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-105**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-106

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Surface Elevation (ft.): 21.3
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 18
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
7.25	1/23/2018	-

Bore Hole Location: See boring location plan
Drilling Date: Start: 1/23/2018 **End:** 1/23/2018
General Remarks: Approximately 50 gallons of grout was used for backfill. G.F. - Granular Fill
Abandonment Method: Backfilled with cement grout
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
21.3 / 0	SS	S-1	24	13, 14, 15, 30	11	29	<0.1		G.F. Topsoil	6" Topsoil Moist, medium dense, tan, fine to coarse SAND, some coarse gravel, trace silt	
	SS	S-2	24	28, 40, 52, 55	12	92	0.1/ >0.6			Top 6": Moist, very dense, tan to greenish gray, fine to coarse SAND, some fine gravel, some silt Bot. 6": Moist, black, fine to coarse SAND, some silt, trace fine gravel, trace ash	3.5-8 ft bgs: Strong hydrocarbon odor
16.3 / 5	SS	S-3	24	102, 31, 24, 12	10	55	0.4		Waste Fill	Wet, very dense, black, fine to coarse SAND, some fine to coarse gravel, little silt, trace brick and ash	
▼	SS	S-4	24	8, 5, 4, 3	6	9	1.1			Wet, loose, black, fine to coarse SAND, some fine to coarse gravel, little silt, little ash, trace metal and brick	
	SS	S-5	24	2, 2, 1, 2	2	3	0.3			Wet, very loose, black, fine to coarse SAND, some silt, little fine gravel, trace ash and brick	
11.3 / 10	SS	S-6	24	3, 2, 2, 3	0	4	0.8			Wet, loose, fine to coarse GRAVEL, some fine to coarse sand, little tile, trace ash, brick, metal, and glass, trace silt	No recovery in 2" split spoon in sample S-6 and S-7; reinserted 3" split spoon with 3" recovery for each sample
	SS	S-7	24	2, 4, 4, 6	0	8	1.6			Wet, loose, fine to coarse GRAVEL, some fine to coarse sand, trace ash, brick, metal, and glass, trace silt	
6.3 / 15	SS	S-8	24	5, 8, 13, 17	24	21	0.2/ <0.1		Clay & Silt	Top 4": Wet, black to dark gray, CLAY & SILT, little fine to coarse sand, little ash Bot. 20": Wet, very stiff, greenish gray, CLAY & SILT, trace fine sand, trace fine gravel	
	SS	S-9	24	11, 12, 12, 15	16	24	<0.1			Wet, very stiff, greenish gray, Silty CLAY, trace fine sand	
1.3										Boring terminated at 18 ft bgs.	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):
V. Loose: 0-4 Loose: 4-10 M. Dense: 10-30 Dense: 30-50 V. Dense: >50

Fine Grained (Clay):
V. Soft: <2 Soft: 2-4 M. Stiff: 4-8 Stiff: 8-15 V. Stiff: 15-30 Hard: >30

Burmister Classification

and 35-50%
some 20-35%
little 10-20%
trace <10%
moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-106**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-107

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Surface Elevation (ft.): 23.2
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 12
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
6.5	1/22/2018	1400

Bore Hole Location: See boring location plan
Drilling Date: Start: 1/22/2018 **End:** 1/22/2018
Abandonment Method: Backfilled with bentonite chips
General Remarks:
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
23.2 0	SS	S-1	24	14 16 25 27	14	41	<0.1		Granular Fill	Moist, dense, tan, fine to coarse SAND, some fine gravel, trace silt	
	SS	S-2	24	27 30 35 23	12	65	0.1			Moist, very dense, tan, fine to coarse SAND, some fine gravel, trace silt	
18.2 5	SS	S-3	24	11 8 13 15	0	21	<0.1		Clay & Silt	Wet, very stiff, greenish gray to tan, CLAY & SILT, trace fine sand	No recovery in 2" split spoon in S-3; reinserted 3" split spoon with 12" recovery. 1" recovery in S-4; reinserted 3" split spoon with 16" recovery.
▼	SS	S-4	24	23 15 23 25	1	38	<0.1			Wet, hard, greenish gray, CLAY & SILT, trace fine sand	
	SS	S-5	24	17 34 40 36	24	74	<0.1			Wet, hard, greenish gray to olive gray, CLAY & SILT	
13.2 10	SS	S-6	24	21 16 11 8	24	27	<0.1			Wet, very stiff, greenish gray to olive gray, CLAY & SILT	
8.2 15										Boring terminated at 12 ft bgs.	
3.2											

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-107**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-108

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 1/30/2018 **End:** 1/30/2018
General Remarks: G.F. - Granular Fill

Surface Elevation (ft.): 21.2
Total Depth (ft.): 15
Depth to Initial Water Level (ft):

Depth	Date	Time
7.2	1/30/2018	1335

Abandonment Method: Backfilled with bentonite chips and asphalt patch
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
21.2 0									G.F. Pvmnt.	5" Asphalt	
	SS	S-1	24	24 21 11 6	14	32	<0.1/ <0.1			Top 10": Moist, dense, brown, fine to coarse SAND, some fine to coarse gravel, trace silt	
	SS	S-2	24	6 6 5 4	5	11	<0.1		Waste Fill	Bot. 4": Moist, brown to black, fine to coarse SAND, some ash, asphalt, glass, and tile, some to little silt Moist, medium dense, brown to black, fine to coarse SAND, some fine to coarse gravel, some silt, little ash and asphalt	3-7 ft bgs: soil oxidation staining
16.2 5	SS	S-3	24	4 4 5 7	6	9	0.3			Moist, loose, brown, fine to coarse SAND, some silt, little ash and asphalt, trace fine to coarse gravel	
▼	SS	S-4	24	7 7 8 15	6	15	0.2/ 0.1			Top 3": Moist, medium dense, brown, fine to coarse SAND, some silt, little ash and asphalt, trace fine to coarse gravel	
	SS	S-5	24	11 10 13 15	16	23	<0.1/ <0.1		Org. Soils	Bot. 3": Moist, black, Organic fine to medium SAND and SILT Top 6": Moist, medium dense, greenish gray, fine to coarse SAND, little silt	9-13 ft bgs: soil oxidation staining
11.2 10	SS	S-6	24	14 15 17 16	10	32	<0.1		Clay & Silt	Bot. 10": Moist, olive gray to greenish gray, SILT & CLAY, trace fine sand Moist, hard, olive gray to greenish gray, SILT & CLAY, trace fine sand	
	SS	S-7	24	7 8 10 8	10	18	<0.1			Moist, very stiff, greenish gray, CLAY & SILT, trace fine sand	
6.2 15										Boring terminated at 15 ft bgs.	
1.2											

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-108**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-109

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 1/30/2018 **End:** 1/30/2018
General Remarks: O.S. - Organic Soils

Surface Elevation (ft.): 22.7
Total Depth (ft.): 15
Depth to Initial Water Level (ft):

Depth	Date	Time
8.1	1/30/2018	1010

Abandonment Method: Backfilled with bentonite chips and asphalt patch
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
22.7 / 0									Pvmnt.	5" Asphalt	
	SS	S-1	24	21, 29, 32, 64	16	61	<0.1/ <0.1		Granular Fill	Top 6": Moist, very dense, brown, fine SAND, some fine to coarse gravel, little silt Bot. 10": Moist, dark brown, fine to coarse SAND and fine to coarse GRAVEL, little silt, trace brick	
	SS	S-2	24	31, 19, 15, 9	12	34	<0.1/ 0.1		Granular Fill	Top 8": Moist, dense, brown, fine to coarse SAND and fine to coarse GRAVEL, trace silt, trace brick	
17.7 / 5	SS	S-3	24	14, 8, 8, 7	7	16	<0.1		Waste Fill	Bot. 4": Moist, brown to black, fine to coarse SAND, some fine to coarse gravel, some silt, little glass, ash, and wood	
▼	SS	S-4	24	3, 2, 3, 7	20	5	<0.1/ <0.1		O.S.	Moist, medium dense, black, fine to coarse SAND, some silt, trace brick and wood, trace fine gravel	
									Clay & Silt	Top 8": Moist, black, Organic fine to medium SAND and SILT, trace roots	
12.7 / 10	SS	S-5	24	15, 17, 15, 10	12	32	<0.1/ <0.1		Clay & Silt	Bot. 12": Moist, olive gray, SILT and fine to medium SAND Top 4": Moist, dense, olive gray to light brown, fine to coarse SAND, little silt	
	SS	S-6	24	15, 9, 10, 12	14	19	<0.1		Clay & Silt	Bot. 8": Moist, greenish gray, fine to medium SAND, little silt Moist, very stiff, greenish gray to olive gray, SILT & CLAY, trace fine sand, trace roots	11-13 ft bgs: slight soil oxidation staining
	SS	S-7	24	24, 14, 16, 22	12	30	<0.1		Clay & Silt	Moist, very stiff, greenish gray to olive gray, SILT & CLAY, trace fine sand	
7.7 / 15										Boring terminated at 15 ft bgs.	
2.7											

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-109**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-110

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Surface Elevation (ft.): 22.5
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 13
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):
Bore Hole Location: See boring location plan

Depth	Date	Time
Not Recorded		

Drilling Date: Start: 1/29/2018 **End:** 1/29/2018
General Remarks: G.F. - Granular Fill
Abandonment Method: Backfilled with bentonite chips and asphalt patch at surface
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
22.5 / 0									G.F. Pvmnt.	5" Asphalt	
	SS	S-1	10	52 100/4"	6	>100	--		G.F. Pvmnt.	Moist, very dense, brown, fine to coarse SAND and fine to coarse GRAVEL, trace silt	
	SS	S-2	24	8 27 17 15	16	44	0.1/ <0.1		Waste Fill	Top 3": Moist, dense, light brown, fine to coarse SAND, some silt, little fine to coarse gravel, little ash Bot. 13": Moist, brown to black, fine to coarse SAND, little fine to coarse gravel, little silt	3.9-7 ft bgs: soil oxidation staining on sand and gravel
17.5 / 5	SS	S-3	24	15 14 9 8	10	23	<0.1		Waste Fill	Moist, medium dense, brown to black, fine to coarse SAND, little silt, little fine gravel, trace wood	
	SS	S-4	24	7 6 7 7	8	13	0.3/ <0.1		Organic Soils	Top 4": Moist, medium dense, black, Organic fine to medium SAND, some silt	
12.5 / 10	SS	S-5	24	9 14 15 17	16	29	<0.1		Clay & Silt	Bot. 4": Moist, medium dense, greenish gray, SILT & CLAY, trace fine sand Moist, very stiff, greenish gray, SILT & CLAY, trace fine sand	
	SS	S-6	24	7 7 9 9	20	16	<0.1		Clay & Silt	Moist, very stiff, greenish gray, SILT & CLAY, trace fine sand	
7.5 / 15										Boring terminated at 13 ft bgs.	
2.5											

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-110**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-111

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 2/2/2018 **End:** 2/2/2018
General Remarks: G.F. - Granular Fill

Surface Elevation (ft.): 21.8
Total Depth (ft.): 12
Depth to Initial Water Level (ft):

Depth	Date	Time
NE		

Abandonment Method: Backfilled with bentonite chips
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
21.8 / 0	SS	S-1	24	30 34 27 28	20	61	<0.1		G.F. Topsoil	6" Topsoil Dry, very dense, brown, fine to coarse SAND, little fine gravel, trace silt	
	SS	S-2	24	37 36 23 15	11	59	<0.1			Top 3": Dry, very dense, brown, fine to coarse SAND, little fine gravel, trace silt	
16.8 / 5	SS	S-3	24	13 9 12 10	10	21	0.1		Waste Fill	Bot. 8": Moist, dark brown to greenish gray, fine to coarse SAND, some fine to coarse gravel, some silt, little ash, trace brick Dry, medium dense, dark brown, fine to coarse SAND, some silt, little fine gravel, trace brick	
	SS	S-4	24	8 8 9 10	14	17	0.2/ <0.1			Top 12": Moist, dark brown, fine to coarse SAND, some silt, some fine to coarse gravel	
	SS	S-5	24	8 12 10 14	6	22	<0.1		Clay & Silt	Bot. 2": Moist, very stiff, dark gray to greenish gray, SILT & CLAY, little fine to medium sand, trace roots Moist, very stiff, greenish gray, SILT & CLAY, trace fine sand	8-12 ft bgs: soil oxidation staining
11.8 / 10	SS	S-6	24	18 17 18 21	18	35	<0.1			Moist, hard, greenish gray, SILT & CLAY, trace fine sand	
6.8 / 15										Boring terminated at 12 ft bgs.	
1.8											

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-111**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-112

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Surface Elevation (ft.): 21.8
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 18
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
9.8	1/26/2018	1415

Bore Hole Location: See boring location plan
Drilling Date: Start: 1/26/2018 **End:** 1/26/2018
General Remarks: Casing refusal at 8 ft bgs. Drilled with roller bit to 10 ft bgs and advanced casing to 12 ft bgs. T.S. - Topsoil; G.F. - Granular Fill
Abandonment Method: Backfilled with bentonite chips
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
21.8 / 0	SS	S-1	24	49, 35, 21, 25	24	56	<0.1		T.S. / G.F.	6" Topsoil Moist, very dense, fine to coarse SAND, little fine gravel, trace silt	
	SS	S-2	24	42, 33, 8, 10	14	41	<0.1		Waste Fill	Dry, dense, light brown to gray, fine to coarse SAND, some fine to coarse gravel, trace silt, trace glass and tile	
16.8 / 5	SS	S-3	24	7, 5, 7, 9	5	12	<0.1			Dry, medium dense, light brown to gray, fine to coarse SAND, some silt, little fine gravel, trace glass and wood	
	SS	S-4	24	14, 7, 7, 8	18	14	<0.1/ <0.1			Top 6": Dry, light brown, fine to coarse SAND, some fine to coarse gravel, trace silt, trace glass and brick Bot. 12": Moist, brown to greenish gray, CLAY & SILT, trace fine gravel, trace fine to coarse sand, trace brick	
	SS	S-5	3	100/3"	2	>100	<0.1			Dry, very dense, light brown to gray, fine to coarse SAND, some fine to coarse gravel, trace silt	
▼ 11.8 / 10	SS	S-6	1	100/1"	0	>100	--			No Recovery	10 ft bgs: gravel lodged in sampler
	SS	S-7	24	6, 5, 8, 16	16	13	<0.1			Top 3": Wood Bot. 12": Wet, stiff, greenish gray, CLAY & SILT, trace fine sand	Blow counts may not be representative of soil conditions due to wood encountered during sampling. Boring located adjacent to two trees.
6.8 / 15	SS	S-8	24	11, 15, 13, 14	24	28	<0.1		Clay & Silt	Wet, very stiff, greenish gray, CLAY & SILT, trace fine sand	
	SS	S-9	24	7, 14, 14, 15	24	28	<0.1			Wet, very stiff, greenish gray, CLAY & SILT, trace fine sand	
1.8										Boring terminated at 18 ft bgs.	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):
V. Loose: 0-4 Loose: 4-10 M. Dense: 10-30 Dense: 30-50 V. Dense: >50

Fine Grained (Clay):
V. Soft: <2 Soft: 2-4 M. Stiff: 4-8 Stiff: 8-15 V. Stiff: 15-30 Hard: >30

Burmister Classification

and 35-50%
some 20-35%
little 10-20%
trace <10%
moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-112**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-113

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Surface Elevation (ft.): 22.0
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 18
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
6.8	1/29/2018	0904

Bore Hole Location: See boring location plan
Drilling Date: Start: 1/29/2018 **End:** 1/29/2018
Abandonment Method: Backfilled with bentonite chips
General Remarks: T.S. - Topsoil; G.F. - Granular Fill
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
22.0 / 0									T.S.	6" Topsoil	
	SS	S-1	24	9, 13, 6, 6	14	19	<0.1		G.F.	Moist, medium dense, light brown, fine to coarse SAND, some fine gravel, trace silt	
	SS	S-2	24	3, 6, 12, 18	7	18	<0.1		Waste Fill	Dry, medium dense, light brown to gray, fine to coarse SAND, little fine to coarse gravel, little silt, trace brick	
17.0 / 5	SS	S-3	24	11, 6, 5, 9	6	11	<0.1			Dry, medium dense, light brown to gray, fine to coarse SAND, little fine to coarse gravel, little silt, trace brick	
▼	SS	S-4	24	52, 62, 36, 11	18	98	<0.1/ 0.1			Top 6": Moist, very dense, light brown to gray, fine to coarse SAND, little fine to coarse gravel, little silt, trace brick Bot. 12": Moist, dark brown to black, fine to coarse SAND, some fine to coarse gravel, little silt, little ash	
	SS	S-5	24	5, 3, 2, 2	3	5	<0.1			Moist, loose, dark brown to gray, fine to coarse SAND, little fine to coarse gravel, little silt	
12.0 / 10	SS	S-6	24	7, 3, 3, 4	10	6	0.2/ <0.1			Top 4": Wet, loose, dark brown, fine to coarse SAND, some fine to coarse gravel, little silt, trace metal and wood	
	SS	S-7	24	2, 3, 4, 5	12	7	<0.1		Clay & Silt	Bot. 6": Wet, greenish gray to olive gray, CLAY & SILT, trace fine sand Wet, medium stiff, greenish gray, CLAY & SILT, trace fine sand, trace fine gravel	
7.0 / 15	SS	S-8	24	7, 11, 15, 16	10	26	<0.1			Wet, very stiff, greenish gray, CLAY & SILT	
	SS	S-9	24	6, 7, 10, 14	16	17	<0.1			Wet, very stiff, greenish gray, CLAY & SILT	
2.0										Boring terminated at 18 ft bgs.	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):
V. Loose: 0-4
Loose: 4-10
M. Dense: 10-30
Dense: 30-50
V. Dense: >50

Fine Grained (Clay):
V. Soft: <2
Soft: 2-4
M. Stiff: 4-8
Stiff: 8-15
V. Stiff: 15-30
Hard: >30

Burmister Classification

and 35-50%
some 20-35%
little 10-20%
trace <10%
moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-113**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-114

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 1/22/2018 **End:** 1/22/2018
General Remarks:

Surface Elevation (ft.): 22.5
Total Depth (ft.): 20
Depth to Initial Water Level (ft):

Depth	Date	Time
8.0	1/22/2018	1103

Abandonment Method: Backfilled with bentonite chips
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
22.5 0	SS	S-1	24	14 32 24 25	18	56	<0.1		Granular Fill	Moist, very dense, tan, fine to coarse SAND, some fine to coarse gravel, little silt	
	SS	S-2	24	30 26 28 29	8	54	<0.1			Dry, very dense, dark brown to black, fine to coarse SAND, little fine gravel, little silt	
17.5 5	SS	S-3	24	8 5 3 5	4	8	0.2			Wet, loose, tan to red, fine to coarse SAND and fine to coarse GRAVEL, little silt, trace brick	
▼	SS	S-4	24	7 6 7 7	5	13	0.1		Clay & Silt	Moist, stiff, greenish gray, CLAY & SILT, trace fine sand	
12.5 10	SS	S-5	24	2 1 WOH 1	6	1	0.2			Wet, very soft, tan, CLAY & SILT, trace fine to medium sand	
	SS	S-6	24	2 1 5 7	7	6	0.1			Wet, medium stiff, tan, CLAY & SILT, trace fine sand	
	SS	S-7	24	4 4 3 WOH	5	7	<0.1			Wet, medium stiff, greenish gray, CLAY & SILT	
7.5 15	SS	S-8	24	3 3 3 4	2	6	<0.1			Wet, medium stiff, greenish gray, CLAY & SILT	14-16 ft bgs: advanced 3" split spoon following SPT to collect additional soil for classification purposes.
	SS	S-9	24	WOH 3 4 6	4	7	<0.1			Wet, medium stiff, greenish gray, CLAY & SILT	
2.5	SS	S-10	24	4 6 8 6	14	14	<0.1			Wet, stiff, greenish gray, CLAY & SILT	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-114**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-114

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
2.5 20										Boring terminated at 20 ft bgs.	
-2.5 25											
-7.5 30											
-12.5 35											
-17.5 40											
-22.5 45											

Boring Number: CDM-115

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 2/2/2018 **End:** 2/2/2018
General Remarks:

Surface Elevation (ft.): 22.2
Total Depth (ft.): 16
Depth to Initial Water Level (ft):

Depth	Date	Time
8.8	2/2/2018	-

Abandonment Method: Backfilled with bentonite chips
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
22.2 / 0									Granular Fill Topsoil	6" Topsoil	
	SS	S-1	24	13, 25, 22, 62	18	47	<0.1			Moist, dense, brown, fine to coarse SAND, some fine to coarse gravel, trace silt	
	SS	S-2	24	102, 26, 29, 29	13	55	<0.1			Dry, very dense, brown to olive gray, fine to coarse SAND and SILT, little fine to coarse gravel, little ash	
17.2 / 5	SS	S-3	24	19, 19, 19, 20	11	38	<0.1		Clay & Silt	Moist, dense, tan to olive gray, fine SAND and SILT	
	SS	S-4	24	11, 10, 9, 8	16	19	<0.1			Moist, medium dense, tan, fine SAND and SILT	
▼ 12.2 / 10	SS	S-5	24	6, 4, 3, 3	20	7	<0.1			Moist, loose, tan to olive gray, fine SAND and SILT	
	SS	S-6	24	3, 4, 3, 3	18	7	<0.1			Wet, medium stiff, tan to olive gray, CLAY & SILT, little fine to medium sand	
	SS	S-7	24	3, 3, 6, 7	10	9	<0.1			Wet, stiff, tan to olive gray, CLAY & SILT, little fine to medium sand	
7.2 / 15	SS	S-8	24	7, 6, 6, 6	16	12	<0.1/ <0.1			Top 10": Wet, stiff, tan to olive gray, SILT & CLAY, little fine sand Bot. 6": Wet, greenish gray, SILT & CLAY, little fine to medium sand	
2.2										Boring terminated at 16 ft bgs.	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-115**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-116

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 1/29/2018 **End:** 1/29/2018
General Remarks:

Surface Elevation (ft.): 24.0
Total Depth (ft.): 14
Depth to Initial Water Level (ft):

Depth	Date	Time
12.0	1/29/2018	1415

Abandonment Method: Backfilled with bentonite chips
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
24.0 / 0	SS	S-1	24	9, 13, 11, 17	12	24	<0.1		Granular Fill Topsoil	6" Topsoil Moist, medium dense, tan, fine to coarse SAND, some fine to coarse gravel, trace silt	
	SS	S-2	24	26, 30, 70, 39	18	100	<0.1/ <0.1			Top 6": Moist, very dense, tan, fine to coarse SAND, some fine to coarse gravel, trace silt Bot. 12": Moist, very dense, dark gray, fine to coarse GRAVEL and fine to coarse SAND, little silt	
19.0 / 5	SS	S-3	24	32, 42, 29, 21	12	71	0.2		Waste Fill	Moist, very dense, greenish gray to black, fine to coarse SAND, some fine to coarse gravel, some silt, trace tile, glass, and metal	4-7 ft bgs: Slight hydrocarbon odor
	SS	S-4	12	8, 6	8	>56	0.1			Moist, very dense, black, fine to coarse SAND, some silt, little fine to coarse gravel, little ash, metal, and wood	
				50/0"							
	SS	S-5	24	7, 4, 5, 4	14	9	0.1/ <0.1			Top 11": Moist, loose, black, fine to medium SAND, some wood, little silt, little fine gravel	
14.0 / 10	SS	S-6	24	6, 8, 11, 13	18	19	<0.1		Clay & Silt	Bot. 3": Moist, greenish gray, SILT & CLAY, trace fine sand Moist, very stiff, greenish gray to olive gray, SILT & CLAY	10-14 ft bgs: Soil oxidation staining
▼	SS	S-7	24	15, 19, 20, 20	12	39	<0.1			Moist, hard, olive gray, SILT & CLAY	
9.0 / 15										Boring terminated at 14 ft bgs.	
4.0											

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-116**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-117

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Bore Hole Location: See boring location plan
Drilling Date: Start: 1/23/2018 **End:** 1/23/2018
General Remarks: Cement grout patch at surface.

Surface Elevation (ft.): 20.8
Total Depth (ft.): 19
Depth to Initial Water Level (ft):

Depth	Date	Time
9.5	1/23/2018	0909

Abandonment Method: Backfilled with bentonite chips
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
20.8 / 0									Pvmnt.	4" Asphalt	
	SS	S-1	24	11 16 17 11	14	33	<0.1/ 0.1		Granular Fill	Moist, tan, fine to coarse SAND and fine to coarse GRAVEL, trace silt Top 8": Moist, dense, tan, fine to coarse SAND and fine to coarse GRAVEL, trace silt Bot. 6": Moist, black, fine to coarse SAND, some silt, little fine gravel	
15.8 / 5	SS	S-2	24	8 7 8 9	16	15	0.2			Moist, medium dense, black to dark gray, fine to medium SAND, some silt, trace fine gravel, trace root/organic material	3-5 ft bgs: Organic odor
	SS	S-3	24	3 4 8 8	12	12	<0.1		Clay & Silt	Moist, stiff, greenish gray to tan, CLAY & SILT, trace fine gravel, trace fine sand	
	SS	S-4	24	8 8 17 14	8	25	<0.1			Wet, very stiff, greenish gray to tan, CLAY & SILT, trace fine to coarse gravel, trace fine sand	
▼ 10.8 / 10	SS	S-5	24	12 11 16 15	16	27	<0.1			Wet, very stiff, greenish gray to tan, CLAY & SILT, trace fine sand	
	SS	S-6	24	7 13 23 37	18	36	<0.1			Wet, hard, greenish gray to olive gray, CLAY & SILT, trace fine sand	
5.8 / 15	SS	S-7	24	21 32 30 35	22	62	<0.1			Wet, hard, greenish gray, CLAY & SILT	
	SS	S-8	24	11 12 16 18	3	28	<0.1			Wet, very stiff, greenish gray, CLAY & SILT	
	SS	S-9	24	14 14 10 12	24	24	<0.1			Wet, very stiff, greenish gray, CLAY & SILT	
0.8										Boring terminated at 19 ft bgs.	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-117**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-118

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Surface Elevation (ft.): 22.3
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 24
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
9.8	1/31/2018	1010

Bore Hole Location: See boring location plan
Drilling Date: Start: 1/31/2018 **End:** 1/31/2018
General Remarks: Approximately 50 gallons of grout was used without clean grout return. Remainder of hole was plugged with hydrated bentonite chips. T.S. - Topsoil
Abandonment Method: Backfilled with cement grout and bentonite chips
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
22.3 / 0	SS	S-1	24	4, 10, 14, 19	18	24	<0.1		T.S. / Granular Fill	6" Topsoil Moist, medium dense, light brown, fine to coarse SAND, some fine to coarse gravel, trace silt	
	SS	S-2	24	29, 28, 34, 20	14	62	<0.1/ 0.3		Granular Fill	Top 6": Moist, very dense, light brown, fine to coarse SAND, some fine to coarse gravel, trace silt	
17.3 / 5	SS	S-3	24	14, 14, 14, 11	12	28	0.8		Waste Fill	Bot. 8": Moist, black to greenish gray, fine to coarse SAND, some fine to coarse gravel, some silt, trace brick Moist, medium dense, black to greenish gray, fine to coarse SAND, some fine to coarse gravel, some silt, little ash, trace brick	
	SS	S-4	24	5, 6, 10, 10	14	16	0.4			Moist, medium dense, black to greenish gray, fine to coarse SAND, some fine to coarse gravel, little silt, trace ash, brick, wood, and metal	6-10 ft bgs: hydrocarbon odor
▼ 12.3	SS	S-5	24	9, 10, 3, 4	6	13	0.6			Moist, medium dense, black, fine to coarse SAND, some silt, trace fine gravel, trace metal and wood	
10	SS	S-6	24	4, 3, 3, 2	0	6	0.5			Wet, loose, black, fine to coarse SAND, some silt, trace fine gravel, trace ash, glass, and brick	No recovery in 2" split spoon; reinserted 3" split spoon with 2" recovery.
	SS	S-7	24	3, 5, 10, 8	3	15	3.7			Wet, medium dense, black, fine to coarse SAND, some silt, trace fine gravel, trace ash, glass, and brick	
7.3 / 15	SS	S-8	24	6, 3, 2, 2	4	5	1.1			Wet, loose, black, fine to coarse SAND, some silt, little ash, wood, and metal, trace fine gravel	
	SS	S-9	24	2, 1, 1, 2	0	2	--			No Recovery	No recovery in 2" split spoon; reinserted 3" split spoon with no recovery.
	SS	S-10	24	6, 13, 20, 7	14	33	1.4/ 0.1			Top 8": Wet, dense, black, fine to coarse SAND and fine GRAVEL, little ash, brick, and metal, little silt	
2.3										Bot. 6": Wet, hard, greenish gray, CLAY &	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):
V. Loose: 0-4
Loose: 4-10
M. Dense: 10-30
Dense: 30-50
V. Dense: >50

Fine Grained (Clay):
V. Soft: <2
Soft: 2-4
M. Stiff: 4-8
Stiff: 8-15
V. Stiff: 15-30
Hard: >30

Burmister Classification

and 35-50%
some 20-35%
little 10-20%
trace <10%
moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-118**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-118

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
2.3 / 20	SS	S-11	24	5 11 10 12	16	21	<0.1		Clay & Silt	SILT Wet, very stiff, greenish gray, CLAY & SILT	
	SS	S-12	24	6 6 8 9	20	14	<0.1			Wet, stiff, greenish gray, CLAY & SILT	
-2.7 / 25										Boring terminated at 24 ft bgs.	
-7.7 / 30											
-12.7 / 35											
-17.7 / 40											
-22.7 / 45											

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-119

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Surface Elevation (ft.): 21.2
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 36
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
8.5	1/31/2018	1400

Bore Hole Location: See boring location plan
Drilling Date: Start: 1/31/2018 **End:** 2/1/2018
General Remarks: Approximately 50 gallons of grout was used without clean grout return. Remainder of hole was plugged with hydrated bentonite chips. T.S. - Topsoil; G.F. - Granular Fill
Abandonment Method: Backfilled with cement grout and bentonite chips
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
21.2 0	SS	S-1	24	4 6 13 23	12	19	<0.1		T.S. G. F.	4" Topsoil Moist, medium dense, brown, fine to coarse SAND, some fine to coarse gravel, trace silt	
	SS	S-2	24	38 27 23 26	20	50	<0.1/ <0.1			Top 4": Moist, brown, fine to coarse SAND, some fine to coarse gravel, trace silt Bot. 16": Moist, dense, tan to greenish gray, fine to coarse SAND, some silt, little fine to coarse gravel, trace brick	
16.2 5	SS	S-3	24	24 32 15 8	7	47	1.1			Top 2": Same as above Bot. 5": Moist, medium dense, black, fine to coarse SAND, some silt, some brick, some fine to coarse gravel	
	SS	S-4	24	6 4 16 43	10	20	5.7			Moist, medium dense, black, fine to coarse SAND, some silt, little debris, trace fine to coarse gravel	6-14 ft bgs: Hydrocarbon odor In sample S-4, debris consisted of brick, ash, metal, glass, and wood.
▼ 11.2 10	SS	S-5	24	18 15 7 5	8	22	2.8			Moist, medium dense, black, fine to coarse SAND, some silt, some fine to coarse gravel, trace brick	
	SS	S-6	24	8 4 3 3	12	7	1.2		Waste Fill	Wet, loose, black, fine to coarse SAND, some silt, some ash, wood, tile, glass, paper and metal, little fine to coarse gravel	
	SS	S-7	24	5 3 3 4	4	6	1.3			Wet, loose, black, fine to coarse SAND, some silt, some ash, wood, tile, glass, paper and metal, little fine to coarse gravel	
6.2 15	SS	S-8	24	12 5 5 5	3	10	3.5			Wet, medium dense, black, fine to coarse SAND, some silt, little fine to coarse gravel, trace brick and metal	
	SS	S-9	24	4 2 3 2	4	5	22.3			Wet, loose, black, fine to coarse SAND, some silt, little fine to coarse gravel, trace nails, glass and wood	
1.2	SS	S-10	24	4 5 2 3	2	7	9.0			Wet, loose, black, fine to coarse SAND, some silt, little fine gravel, trace ash, wood, and brick	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):

V. Loose:	0-4	Dense:	30-50
Loose:	4-10	V. Dense:	>50
M. Dense:	10-30		

Fine Grained (Clay):

V. Soft:	<2	Stiff:	8-15
Soft:	2-4	V. Stiff:	15-30
M. Stiff:	4-8	Hard:	>30

Burmister Classification

and	35-50%
some	20-35%
little	10-20%
trace	<10%

moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-119**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-119

Client: City of Cambridge
Project Location: Cambridge, MA
Project Name: Tobin School
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
1.2 / 20	SS	S-11	24	2 4 5 3	4	9	4.4		Waste Fill	Wet, loose, black, fine to coarse SAND, some fine gravel, little ash, metal and brick, trace silt	
	SS	S-12	24	3 3 3 4	4	6	2.3			Wet, loose, black, fine to coarse SAND and fine to coarse GRAVEL, little silt, little metal, brick and tile	
-3.8 / 25	SS	S-13	24	9 5 3 4	3	8	1.2			Wet, loose, black, fine to coarse SAND, some fine to coarse gravel, some silt, little ash, metal, brick and tile	
	SS	S-14	24	4 4 4 13	6	8	--			Wet, loose, black, fine to coarse SAND, some fine to coarse gravel, some silt, little ash, wood, metal, brick and tile	
	SS	S-15	24	5 4 7 8	10	11	1.4			Wet, medium dense, black, fine to coarse SAND, some silt, little fine to coarse gravel, little ash, tile, glass and wood	
-8.8 / 30	SS	S-16	24	4 2 3 4	5	5	0.8			Wet, loose, black, fine to coarse SAND, some fine to coarse gravel, little silt, little tile, glass and brick	
	SS	S-17	24	8 11 14 12	20	25	-- / <0.1			Top 4": Wet, black, fine to coarse SAND, some fine to coarse gravel, little silt, little tile, glass and brick	
									Clay & Silt	Bot. 16": Wet, very stiff, greenish gray, CLAY & SILT	
-13.8 / 35	SS	S-18	24	6 8 11 12	24	19	<0.1			Wet, very stiff, greenish gray, CLAY & SILT	
-18.8 / 40										Boring terminated at 36 ft bgs.	
-23.8 / 45											

Boring Number: CDM-120

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Drilling Contractor/Driller: New England Boring Contractors, Inc. / M. Soucy
Surface Elevation (ft.): 21.2
Drilling Method/Casing/Core Barrel Size: Drive and Wash / 4 in / NA
Total Depth (ft.): 21
Hammer Weight/Drop Height/ Spoon Size: 140 lb / 30 in / 2 in O.D.
Depth to Initial Water Level (ft):

Depth	Date	Time
6.8	2/1/2018	1345

Bore Hole Location: See boring location plan
Drilling Date: Start: 2/1/2018 **End:** 2/1/2018
General Remarks: Approximately 30 gallons of grout was used without clean grout return. Remainder of hole was plugged with hydrated bentonite chips. G.F. - Granular Fill
Abandonment Method: Backfilled with cement grout, bentonite chips, and asphalt patch
Logged By: E. Benson

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
21.2 0									G. F. Pvmnt.	4" Asphalt	
	SS	S-1	24	8 15 21 29	14	36	0.3/ 1.5		G. F. Pvmnt.	Top 6": Moist, dense, brown, fine to coarse SAND and fine to coarse GRAVEL, trace silt Bot. 8": Moist, black, fine to coarse SAND, some silt, some fine to coarse gravel, trace brick	
	SS	S-2	24	45 44 32 34	16	76	1.3		Waste Fill	Moist, very dense, black to greenish gray, fine to coarse SAND, some silt, some fine to coarse gravel, trace ash and brick	
16.2 5	SS	S-3	24	17 13 9 6	7	22	0.9/ <0.1		Waste Fill	Top 5": Moist, very dense, black to greenish gray, fine to coarse SAND, some silt, some fine to coarse gravel, trace ash and brick Bot 2": Moist, medium dense, greenish gray, fine to medium SAND, some silt, trace brick	
▼	SS	S-4	24	9 8 8 6	2	16	1.7		Waste Fill	Moist, medium dense, black, fine to medium SAND and SILT, trace ash	Gravel fragment in spoon tip.
11.2 10	SS	S-5	24	7 3 6 8	8	9	1.1		Waste Fill	Wet, loose, black, fine to coarse SAND, some silt, some fine gravel, some ash and wood, trace metal	
	SS	S-6	24	10 7 9 16	7	16	0.9		Waste Fill	Wet, medium dense, black, fine to coarse SAND, some silt, little ash, wood, metal, tile, and brick, trace fine gravel	
	SS	S-7	24	19 8 3 3	6	11	0.8		Waste Fill	Wet, medium dense, black, fine to coarse SAND, some silt, little ash, wood, metal, tile, glass, and brick, trace fine gravel	
6.2 15	SS	S-8	24	WOH WOH 2 5	3	2	1.6		Waste Fill	Wet, very loose, black, fine to coarse SAND, some silt, little ash, wood, metal, glass, and brick	
	SS	S-9	24	5 7 10 10	7	17	0.1		Waste Fill	Top 2": Wet, medium dense, black, fine to coarse SAND, some silt, little ash, metal, and brick	
									Clay & Silt	Bot. 5": Wet, greenish gray, CLAY & SILT	
1.2	SS	S-10	24	6 8	10	17	<0.1		Clay & Silt	Wet, very stiff, greenish gray, CLAY & SILT, trace coarse sand	

Sample Types

AS - Auger/Grab Sample
CS - California Sampler
BQ - 1.5" Rock Core
NX - 2" Rock Core
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
GP - Geoprobe

Consistency vs Blowcount/Foot

Granular (Sand):
V. Loose: 0-4
Loose: 4-10
M. Dense: 10-30
Dense: 30-50
V. Dense: >50

Fine Grained (Clay):
V. Soft: <2
Soft: 2-4
M. Stiff: 4-8
Stiff: 8-15
V. Stiff: 15-30
Hard: >30

Burmister Classification

and 35-50%
some 20-35%
little 10-20%
trace <10%
moisture, density, color

Reviewed by: **Date:** **Boring Number: CDM-120**

BL TOBIN SCHOOL 11102017.GPJ - 3/28/18

Boring Number: CDM-120

Client: City of Cambridge
Project Name: Tobin School
Project Location: Cambridge, MA
Project Number: 0139-220813

Elev. Depth (ft)	Sample Type	Sample Number	Sample Length (in)	Blows per 6 inches	Sample Recovery (in)	N-Value	Organic Vapor Reading (ppm)	Graphic Log	Strata	Material Description	Remarks
1.2 20	SS	S-10	24	9 9	10	17	<0.1				
										Boring terminated at 21 ft bgs.	
-3.8 25											
-8.8 30											
-13.8 35											
-18.8 40											
-23.8 45											

ATTACHMENT F
PHASE 1 – TEST PIT LOGS

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-101
Project Name:	Tobin School	Equipment:	Takeuchi TB290	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	11.0 ft bgs	Date:	12/28/2017
Project Number:	0139-220813	Ground Surface EL:	~ 21.0 (CCB)	Page:	1 of 2

DEPTH (feet)	SOIL DESCRIPTION	STRATA CHANGE	EXCAV. EFFORT
	- Grass at ground surface	**Topsoil**	
1	0 - 1' : Dry, dark brown to black, fine to coarse SAND, some silt, trace fine gravel		**E**
	1 - 2' : Dry to moist, tan, fine to coarse SAND, little fine gravel, trace silt		
2	- PID: 0.1 ppm @ 1' bgs		
	2' - 4' : Moist, greenish gray to dark brown, fine to coarse SAND, some silt, little fine		
3	to coarse gravel	**Granular Fill**	**E**
4			
	4' - 7' : Moist, dark brown, fine to coarse SAND, some silt, little fine to coarse gravel		
5	- PID: 0.4 ppm @ 4' bgs		
6			
	- PID: 0.9 ppm @ 6' bgs		
7			
	7' - 13.5' : Moist to wet, dark brown to black, fine to coarse SAND, some silt, little fine		
8	to coarse gravel, little metal, glass, brick, wood and ash debris		
	- Waste debris varied from 6" to 12" in size		
9	- PID: 2.1 ppm @ 8' bgs		
	- Slight VOC odor		
10			
		Waste Fill	**E**
▽ 11			
	- Groundwater at 11.0' bgs.		
12			
13			
14	- Test pit terminated at 13.5' bgs		

T.P. DIMENSIONS	
Width (ft):	5
Length (ft):	12
Depth (ft):	13.5
Vol (ft^3):	810

TEST PIT PLAN

- See Boring Location Plan

Weather Conditions

- Clear, 6° to 12° F

EQUIPMENT USED

5 Ventis Four Gas Monitors
1 Landtec Gem 2000 Landfill Gas Monitor
1 Photoionization Detector

BOULDER COUNT

6 in-12 in:	< 10% of matrix
12 in-18 in:	
18 in-24 in:	
24 in-30 in:	

DESCRIPTION

and : 35 to 50 %
some : 20 to 35 %
little : 10 to 20 %
trace : 1 to 10 %
moisture, color

EXCAVATION EFFORT

E : Easy
M : Moderate
D : Difficult

Remarks: - Gas Monitors placed approx. 20 feet from excavation and on person. Did not detect CO, H2S, or LEL. Oxygen reading 20.9%

75 State Street
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Boston, MA 02109
(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-101
Project Name:	Tobin School	Equipment:	Takeuchi TB290	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	11.0 ft bgs	Date:	12/28/2017
Project Number:	0139-220813	Ground Surface EL:	~ 21.0 (CCB)	Page:	2 of 2

-Exposed north sidewall with groundwater at approximately 11' bgs

-Stockpile of waste fill material after completion of excavation.

Remarks:

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-102
Project Name:	Tobin School	Equipment:	Takeuchi TB290	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	9.5 ft bgs	Date:	12/28/2017
Project Number:	0139-220813	Ground Surface EL:	~ 21.0 (CCB)	Page:	1 of 3

DEPTH (feet)	SOIL DESCRIPTION	STRATA CHANGE	EXCAV. EFFORT
	- Grass at ground surface	**Topsoil**	
1	0 - 1' : Moist, dark brown to brown, fine to medium SAND, some silt, trace fine gravel		**E**
	1' - 2.5' : Moist, tan, fine to coarse SAND, little fine to coarse gravel, trace silt		
2	- PID: 0.2 ppm @ 2' bgs		
3	2.5' - 3.5': Moist, greenish gray, SILT & CLAY, little fine sand (reworked natural material)	**Granular Fill**	**E**
4	3.5' - 6' : Moist, black to dark brown, fine to coarse SAND, some silt, some fine to		
	coarse gravel, little concrete, trace brick		
5	- 4.5' x 2' x 0.5' granite block @ 5' bgs		
	- concrete debris between 12-14" x 2-4" in size		
6			
	6' - 9' : Moist, black to dark brown, fine to coarse SAND, some silt, some fine to		
7	coarse gravel, little concrete, trace brick and ash		
	- PID: 0.2 ppm @ 6' bgs		
8	- Slight organic odor		
9	9' - 12' : Wet, black, fine to coarse SAND, some silt, some fine to coarse gravel, little	**Waste Fill**	**E**
▽	concrete, trace brick		
10	- Groundwater at 9.5' bgs.		
	- PID: 0.2 ppm @ 10' bgs		
11	- Slight organic odor		
12			
	- Test pit terminated at 12' bgs		
13			
14			
15			

T.P. DIMENSIONS	
Width (ft):	5
Length (ft):	12
Depth (ft):	12
Vol (ft^3):	720

TEST PIT PLAN

- See Boring Location Plan

Weather Conditions

- Clear, 6° to 12° F

BOULDER COUNT

6 in-12 in:	< 10% of matrix
12 in-18 in:	
18 in-24 in:	
24 in-30 in:	

DESCRIPTION

and : 35 to 50 %
some : 20 to 35 %
little : 10 to 20 %
trace : 1 to 10 %
moisture, color

EQUIPMENT USED

5 Ventis Four Gas Monitors
1 Landtec Gem 2000 Landfill Gas Monitor
1 Photoionization Detector

EXCAVATION EFFORT

E : Easy
M : Moderate
D : Difficult

Remarks: - Gas Monitors placed approx. 20 feet from excavation and on person. Did not detect CO, H2S, or LEL. Oxygen reading 20.9%

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-102
Project Name:	Tobin School	Equipment:	Takeuchi TB290	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	9.5 ft bgs	Date:	12/28/2017
Project Number:	0139-220813	Ground Surface EL:	~ 21.0 (CCB)	Page:	2 of 3

-Exposed north sidewall with groundwater at approximately 9.5' bgs

-Stockpile of waste fill material showing granite block from approximately 5' bgs

Remarks:

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-102
Project Name:	Tobin School	Equipment:	Takeuchi TB290	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	9.5 ft bgs	Date:	12/28/2017
Project Number:	0139-220813	Ground Surface EL:	~ 21.0 (CCB)	Page:	3 of 3

-Stockpile of waste fill material after completion of excavation.

-Stockpile of waste fill material after completion of excavation.

Remarks:

ATTACHMENT G
PHASE 2 – TEST PIT LOGS

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-201
Project Name:	Tobin School	Equipment:	Komatsu PC-228	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	12.5 ft bgs	Date:	2/21/2018
Project Number:	0139-220813	Ground Surface EL:	~ 23.5 (CCB)	Page:	1 of 4

DEPTH (feet)	SOIL DESCRIPTION	STRATA CHANGE	EXCAV. EFFORT
1	- Grass at ground surface 0 - 1' : Topsoil	**Topsoil**	**E**
2	1' - 4' : Moist, brown, fine to coarse SAND, some fine to coarse gravel, trace silt - PID: 0.0 ppm @ 3' bgs	**Granular Fill**	**E**
3			
4			
5	4' - 6' : Moist, brown to dark brown to gray, fine to coarse SAND, some fine to coarse gravel, little silt, trace brick and asphalt	**Waste Fill**	**E**
6			
7	6' - 8' : Moist, dark brown to gray, fine to coarse SAND, some fine to coarse gravel, some silt, little ash, brick, and metal - PID: 0.0 ppm @ 6' bgs		
8			
9	8' - 12' : Moist, black, fine to coarse SAND, some silt, some ash, brick, metal, wood, and glass, little fine to coarse gravel		
10	- PID: 0.2 ppm @ 10' bgs		
11			
12			
▽ 13	12' - 15' : Wet, black, fine to coarse SAND and DEBRIS, some silt, little fine to coarse gravel - Debris consists of ash, brick, metal, wood and glass		
14	- Groundwater at 12.5' bgs.		
15	15' - 18' : Wet, black, fine to coarse SAND and DEBRIS, some silt, little fine to coarse gravel - Debris consists of ash, brick, metal, wood and glass		

T.P. DIMENSIONS	
Width (ft):	5
Length (ft):	12
Depth (ft):	22
Vol (ft^3):	1320

TEST PIT PLAN

- See Boring Location Plan

Weather Conditions

- Clear, 65° to 70° F

EQUIPMENT USED

5 Ventis Four Gas Monitors
1 Landtec Gem 2000 Landfill Gas Monitor
1 Photoionization Detector

BOULDER COUNT

6 in-12 in:	< 10% of matrix
12 in-18 in:	
18 in-24 in:	
24 in-30 in:	

DESCRIPTION

and : 35 to 50 %
some : 20 to 35 %
little : 10 to 20 %
trace : 1 to 10 %
moisture, color

EXCAVATION EFFORT

E : Easy
M : Moderate
D : Difficult

Remarks: - Gas Monitors placed approx. 20 feet from excavation and on person. Did not detect CO, H2S, or LEL. Oxygen reading 20.9%

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-201
Project Name:	Tobin School	Equipment:	Komatsu PC-228	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	12.5 ft bgs	Date:	2/21/2018
Project Number:	0139-220813	Ground Surface EL:	~ 23.5 (CCB)	Page:	2 of 4

DEPTH (feet)	SOIL DESCRIPTION	STRATA CHANGE	EXCAV. EFFORT
15	15' - 18' : Wet, black, fine to coarse SAND and DEBRIS, some silt, little fine to coarse gravel - Debris consists of ash, brick, metal, wood and glass - PID: 0.2 ppm @ 10' bgs	**Waste Fill**	**E**
18	18' - 22' : Wet, black, fine to coarse SAND and DEBRIS, some silt, little fine to coarse gravel - Debris consists of ash, brick, metal, wood and glass - Operator noted that minimal hydraulic effort was needed to push bucket from 15' to 22' bgs.		
22	- Test pit terminated at 22' bgs		

T.P. DIMENSIONS	
Width (ft):	5
Length (ft):	12
Depth (ft):	22
Vol (ft^3):	1320

TEST PIT PLAN

- See Boring Location Plan

Weather Conditions

- Clear, 65° to 70° F

EQUIPMENT USED

5 Ventis Four Gas Monitors
1 Landtec Gem 2000 Landfill Gas Monitor
1 Photoionization Detector

BOULDER COUNT

6 in-12 in:	< 10% of matrix
12 in-18 in:	
18 in-24 in:	
24 in-30 in:	

DESCRIPTION

and : 35 to 50 %
some : 20 to 35 %
little : 10 to 20 %
trace : 1 to 10 %
moisture, color

EXCAVATION EFFORT

E : Easy
M : Moderate
D : Difficult

Remarks: - Approximately 3' to 4' of perched groundwater did not dissipate immediately while backfilling. Excavation capped with 8' x 12' Duramat overnight to allow groundwater to dissipate. Completed backfilling on 2/22/18.

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Suite 701
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(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-201
Project Name:	Tobin School	Equipment:	Komatsu PC-228	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	12.5 ft bgs	Date:	2/21/2018
Project Number:	0139-220813	Ground Surface EL:	~ 23.5 (CCB)	Page:	3 of 4

-Exposed west sidewall with groundwater at approximately 12.5' bgs

-Bucket of waste fill material from approximately 13' bgs

Remarks:

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(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-201
Project Name:	Tobin School	Equipment:	Komatsu PC-228	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	12.5 ft bgs	Date:	2/21/2018
Project Number:	0139-220813	Ground Surface EL:	~ 23.5 (CCB)	Page:	4 of 4

-Bucket of waste fill material from approximately 15' bgs

-Bucket of waste fill material from approximately 15+' bgs

Remarks:

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-203
Project Name:	Tobin School	Equipment:	Komatsu PC-228	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	9 ft bgs	Date:	2/21/2018
Project Number:	0139-220813	Ground Surface EL:	~ 21 (CCB)	Page:	1 of 4

DEPTH (feet)	SOIL DESCRIPTION	STRATA CHANGE	EXCAV. EFFORT
	- Grass at ground surface	**Topsoil**	**E**
1	0 - 0.5' : Topsoil		
	0.5' - 1.5' : Moist, light brown, fine to coarse SAND, some fine to coarse gravel,		
2	trace silt		
	- PID: 0.0 ppm @ 1' bgs		
3	1.5' - 3.5' : Moist, light brown to gray, fine to coarse SAND and fine to coarse GRAVEL,	**Granular Fill**	**E**
	little silt, trace brick		
4	- PID: 0.0 ppm @ 4' bgs		
	3.5' - 6' : Moist, brown to greenish gray, fine to coarse SAND, some fine to coarse		
5	gravel, some silt (reworked natural material)		
6	- PID: 0.0 ppm @ 6' bgs		
	6' - 10' : Moist, dark brown, fine to coarse SAND, some fine to coarse gravel,		
7	some silt, trace brick		
8			
▽ 9		**Waste Fill**	**E**
	- Groundwater at 9' bgs.		
10	- PID: 0.2 ppm @ 10' bgs		
	10' - 18' : Wet, black, fine to coarse SAND and DEBRIS, some silt, little fine to		
11	coarse gravel		
	- Debris consists of ash, brick, metal, wood, granite, rubber, and glass		
12	- 1.0' x 0.5' x 3.0' granite block @ 11' bgs		
	- 0.25' x 0.5' x 5' metal car frame rail @ 11' bgs		
13	- 1.0' x 3.0' x 3.0' granite block @ 12' bgs		
	- PID: 2.2 ppm @ 13' bgs		
14	- VOC odor and sheen on soil from 11'-15' bgs		
	- PID: 8.6 ppm @ 14' bgs		
15	- PID: 0.6 ppm @ 15' bgs		
	- Strong VOC odor beyond 15' bgs		

T.P. DIMENSIONS

Width (ft):	7
Length (ft):	14
Depth (ft):	18
Vol (ft^3):	1764

TEST PIT PLAN

- See Boring Location Plan

Weather Conditions

- Clear, 65° to 70° F

BOULDER COUNT

6 in-12 in:	< 10% of matrix
12 in-18 in:	
18 in-24 in:	
24 in-30 in:	

DESCRIPTION

and : 35 to 50 %
some : 20 to 35 %
little : 10 to 20 %
trace : 1 to 10 %
moisture, color

EQUIPMENT USED

5 Ventis Four Gas Monitors
1 Landtec Gem 2000 Landfill Gas Monitor
1 Photoionization Detector

EXCAVATION EFFORT

E : Easy
M : Moderate
D : Difficult

Remarks: - Gas Monitors placed approx. 20 feet from excavation and on person. Did not detect CO, H2S, or LEL. Oxygen reading 20.9%

75 State Street
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Boston, MA 02109
(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-203
Project Name:	Tobin School	Equipment:	Komatsu PC-228	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	9 ft bgs	Date:	2/21/2018
Project Number:	0139-220813	Ground Surface EL:	~ 21 (CCB)	Page:	2 of 4

DEPTH (feet)	SOIL DESCRIPTION	STRATA CHANGE	EXCAV. EFFORT
15	10' - 18' : Wet, black, fine to coarse SAND and DEBRIS, some silt, little fine to coarse gravel	**Waste Fill**	**E**
16	- PID: 0.6 ppm @ 15' bgs		
	- Material excavated beyond 12' bgs behaved as a fluid with little cohesion.		
17	- Strong VOC odor beyond 15' bgs		
	- North sidewall caved in at 15' bgs.		
18			
	- Test pit terminated at 18' bgs		
19	- Operator noted that minimal hydraulic effort was needed to push bucket from 15' to 18' bgs. Material was very loose.		
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			

-Exposed south sidewall with groundwater at approximately 9.0' bgs

T.P. DIMENSIONS	
Width (ft):	7
Length (ft):	14
Depth (ft):	18
Vol (ft^3):	1764

TEST PIT PLAN

- See Boring Location Plan

Weather Conditions

- Clear, 65° to 70° F

EQUIPMENT USED

5 Ventis Four Gas Monitors
1 Landtec Gem 2000 Landfill Gas Monitor
1 Photoionization Detector

BOULDER COUNT

6 in-12 in:	< 10% of matrix
12 in-18 in:	
18 in-24 in:	
24 in-30 in:	

DESCRIPTION

and : 35 to 50 %
some : 20 to 35 %
little : 10 to 20 %
trace : 1 to 10 %
moisture, color

EXCAVATION EFFORT

E : Easy
M : Moderate
D : Difficult

Remarks: - Approximately 3' to 4' of perched groundwater did not dissipate immediately while backfilling. An additional 3' pit was excavated adjacent to dissipate water but was unsuccessful. Two 8' x 12' Duramats capped excavations. Completed backfilling on 3/1/18.

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(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-203
Project Name:	Tobin School	Equipment:	Komatsu PC-228	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	9 ft bgs	Date:	2/21/2018
Project Number:	0139-220813	Ground Surface EL:	~ 21 (CCB)	Page:	3 of 4

-Bucket of waste fill material from approximately 10' bgs.

-Stockpile of waste fill material showing metal car frame removed at approximately 11' bgs.

Remarks:

75 State Street
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(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-203
Project Name:	Tobin School	Equipment:	Komatsu PC-228	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	9 ft bgs	Date:	2/21/2018
Project Number:	0139-220813	Ground Surface EL:	~ 21 (CCB)	Page:	4 of 4

-Bucket of waste fill material from approximately 12' bgs.

-Bucket of waste fill material from approximately 15' bgs.

Remarks:

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-204
Project Name:	Tobin School	Equipment:	Komatsu PC-228	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	7.5 ft bgs	Date:	2/20/2018
Project Number:	0139-220813	Ground Surface EL:	~ 21 (CCB)	Page:	1 of 4

DEPTH (feet)	SOIL DESCRIPTION	STRATA CHANGE	EXCAV. EFFORT
	- Grass at ground surface	**Topsoil**	**E**
1	0 - 0.5' : Topsoil		
	0.5' - 2' : Moist, dark brown, fine to coarse SAND, some fine to coarse gravel,		
2	some silt, trace root material		
	- PID: 0.0 ppm @ 2' bgs		
3	2' - 6' : Moist, brown to tan, fine to coarse SAND, some fine to coarse gravel,	**Granular Fill**	**E**
	little silt, trace brick and asphalt		
4	- PID: 0.0 ppm @ 4' bgs		
5			
6			
	6' - 8' : Moist, brown, fine to coarse SAND, some silt, little fine to coarse gravel,		
7	little ash, clay pipe, brick, wood, and metal; PID: 0.2 ppm @ 6.5' bgs		
▽	- Groundwater at 7.5' bgs.		
8	- 0.2' x 0.5' x 4' metal debris and 1/4" x 2' x 3' sheet metal @ 8' bgs		
	- PID: 0.8 ppm @ 8.5' bgs		
9	- Two 0.5' x 1' x 3.5' granite blocks @ 9' bgs	**Waste Fill**	**E**
	8' - 11' : Wet, black, fine to coarse SAND, some fine to coarse gravel, some silt,		
10	some wood, ash, metal, granite, brick, and glass		
	- VOC odor and sheen on soil from 8'-14' bgs		
11	11' - 14' : Wet, black, fine to coarse SAND, some debris, little silt, little fine to		
	coarse gravel		
12	- Debris consists of ash, brick, metal, wood, granite, and glass		
	- 1.0' x 3.0' x 3.0' granite block @ 11' bgs		
13	- 0.5' x 1.0' x 3.0' granite block @ 11.5' bgs		
	- PID: 2.4 ppm @ 13' bgs		
14	- 1.0' x 2.0' x 2.0' granite block and 1/4" x 1.0' x 3.0' sheet metal @ 13' bgs		
	- VOC odor and sheen on soil from 11'-15' bgs		
15	- PID: 5.2 ppm @ 14' bgs		
	- PID: 0.2 ppm @ 15' bgs		

T.P. DIMENSIONS

Width (ft):	8
Length (ft):	12
Depth (ft):	16
Vol (ft^3):	1536

TEST PIT PLAN

- See Boring Location Plan

Weather Conditions

- Clear, 60° to 65° F

BOULDER COUNT

6 in-12 in:	< 10% of matrix
12 in-18 in:	
18 in-24 in:	
24 in-30 in:	

DESCRIPTION

and : 35 to 50 %
some : 20 to 35 %
little : 10 to 20 %
trace : 1 to 10 %
moisture, color

EQUIPMENT USED

5 Ventis Four Gas Monitors
1 Landtec Gem 2000 Landfill Gas Monitor
1 Photoionization Detector

EXCAVATION EFFORT

E : Easy
M : Moderate
D : Difficult

Remarks: - Gas Monitors placed approx. 20 feet from excavation and on person. Did not detect CO, H2S, or LEL. Oxygen reading 20.9%

75 State Street
Suite 701
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(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-204
Project Name:	Tobin School	Equipment:	Komatsu PC-228	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	7.5 ft bgs	Date:	2/20/2018
Project Number:	0139-220813	Ground Surface EL:	~ 21 (CCB)	Page:	2 of 4

DEPTH (feet)	SOIL DESCRIPTION	STRATA CHANGE	EXCAV. EFFORT
15	- PID: 0.2 ppm @ 15' bgs	**Waste Fill**	**E**
	15' - 16' : Wet, greenish gray, CLAY & SILT, trace fine sand	**Clay & Silt**	**E**
16	- PID: 0.0 ppm @ 16' bgs		
	- Test pit terminated at 16' bgs		
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27	-Exposed west sidewall with groundwater at approximately 7.5' bgs		
28			
29			

T.P. DIMENSIONS	
Width (ft):	8
Length (ft):	12
Depth (ft):	16
Vol (ft^3):	1536

TEST PIT PLAN

- See Boring Location Plan

Weather Conditions

- Clear, 60° to 65° F

EQUIPMENT USED

5 Ventis Four Gas Monitors
1 Landtec Gem 2000 Landfill Gas Monitor
1 Photoionization Detector

BOULDER COUNT

6 in-12 in:	< 10% of matrix
12 in-18 in:	
18 in-24 in:	
24 in-30 in:	

DESCRIPTION

and : 35 to 50 %
some : 20 to 35 %
little : 10 to 20 %
trace : 1 to 10 %
moisture, color

EXCAVATION EFFORT

E : Easy
M : Moderate
D : Difficult

Remarks: - Approximately 3' to 4' of perched groundwater did not dissipate immediately while backfilling. Excavation capped with two 8' x 12' Duramats overnight to allow groundwater to dissipate. Completed backfilling on 2/23/18.

75 State Street
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Boston, MA 02109
(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-204
Project Name:	Tobin School	Equipment:	Komatsu PC-228	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	7.5 ft bgs	Date:	2/20/2018
Project Number:	0139-220813	Ground Surface EL:	~ 21 (CCB)	Page:	3 of 4

-Bucket of waste fill material from approximately 8' bgs.

-Bucket of waste fill material from approximately 9' bgs.

Remarks:

75 State Street
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Boston, MA 02109
(617) 452-6000

Test Pit Log

Client:	City of Cambridge	Contractor:	Charter Environmental	Test Pit No.	TP-204
Project Name:	Tobin School	Equipment:	Komatsu PC-228	Logged By:	E. Benson
Project Location:	197 Vassal Ln, Cambridge, MA	Depth to Water:	7.5 ft bgs	Date:	2/20/2018
Project Number:	0139-220813	Ground Surface EL:	~ 21 (CCB)	Page:	4 of 4

-Bucket of waste fill material from approximately 13' bgs.

-Stockpile of waste fill material after completion of excavation.

Remarks:

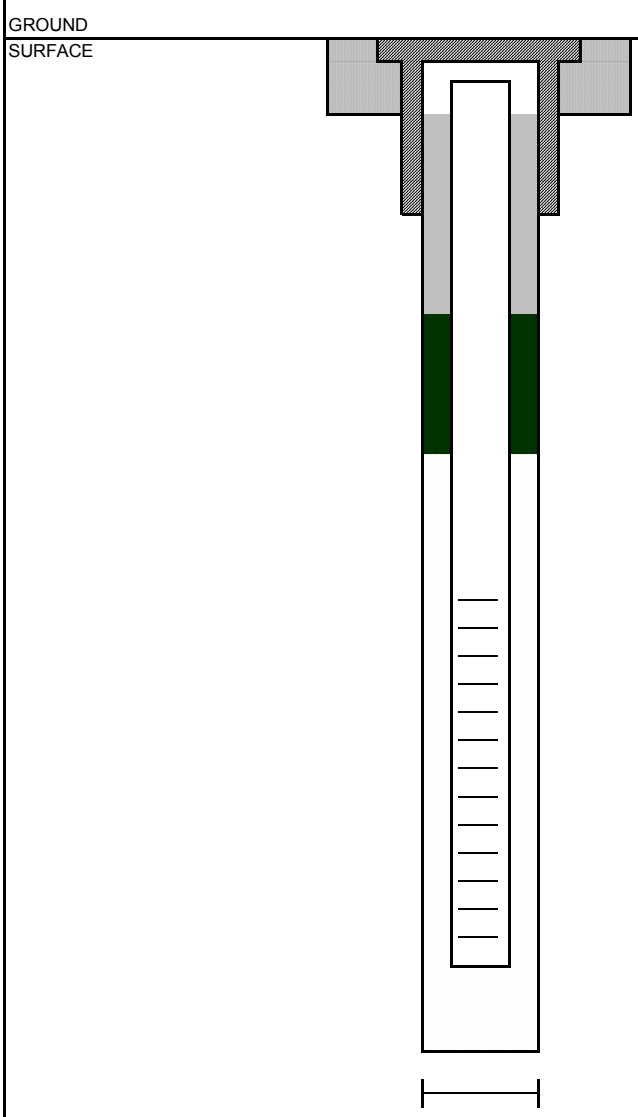
ATTACHMENT H
PHASE 1 – MONITORING WELL LOGS

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Monitoring Well Installation Log

Client:	City of Cambridge, MA	Contractor:	New England Boring Contractor	Boring/Well No.:	CDM-3 MW-D
Project Name:	Tobin School	Driller:	O. Cone	Date Installed:	7/28/2017
Project Location	Cambridge, MA	Ground EL:	21.0 ft	Logged By:	N. Castonguay
Project Number:	0139-220813	Riser EL:	20.5 ft	Page:	1 of 1



ROADWAY BOX

SURFACE SEAL: 6" Roadbox
(Thickness & Type)

BACKFILL MATERIAL: Grout
(Type)

TOP OF SEAL: 1' bgs

SEAL CONSTRUCTION: Bentonite Chips 11'
(Thickness & Type)

TOP OF SANDPACK: 12' bgs

RISER CONSTRUCTION 2" PVC
(Type, Diameter Material)

TOP OF SCREEN 14' bgs El. 7.0

SANDPACK TYPE #2 Sand

SCREEN MATERIAL: 2" PVC 10 Slot
(Type, Slot, Diameter Material)

BOTTOM OF SCREEN: 24' bgs El. -3.0

BOTTOM OF BOREHOLE: 25' bgs

BOREHOLE DIAMETER: 4 1/4"

NOTE: All depths are in feet below ground surface, unless noted otherwise.

Remarks:

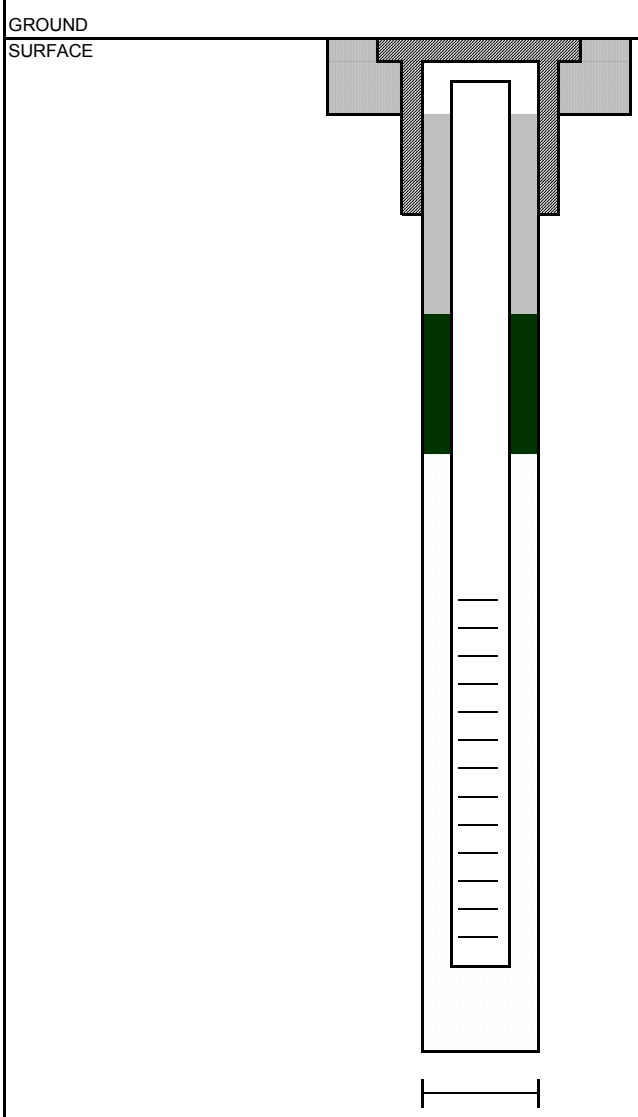
Updated On: 04/09/01

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Monitoring Well Installation Log

Client:	City of Cambridge, MA	Contractor:	New England Boring Contractor	Boring/Well No.:	CDM-3 MW-S
Project Name:	Tobin School	Driller:	O. Cone	Date Installed:	8/1/2017
Project Location	Cambridge, MA	Ground EL:	21 ft	Logged By:	N. Castonguay
Project Number:	0139-220813	Riser EL:	20.7 ft	Page:	1 of 1



ROADWAY BOX

SURFACE SEAL: 6" Roadbox
(Thickness & Type)

BACKFILL MATERIAL: Grout
(Type)

TOP OF SEAL: 1' bgs

SEAL CONSTRUCTION: Bentonite Chips 1'
(Thickness & Type)

TOP OF SANDPACK: 2' bgs

RISER CONSTRUCTION 2" PVC
(Type, Diameter Material)

TOP OF SCREEN 3' bgs El. 18.0

SANDPACK TYPE #2 Sand

SCREEN MATERIAL: 2" PVC 10 Slot
(Type, Slot, Diameter Material)

BOTTOM OF SCREEN: 13' bgs El. 8.0

BOTTOM OF BOREHOLE: 14' bgs

BOREHOLE DIAMETER: 4 1/4"

NOTE: All depths are in feet below ground surface, unless noted otherwise.

Remarks:

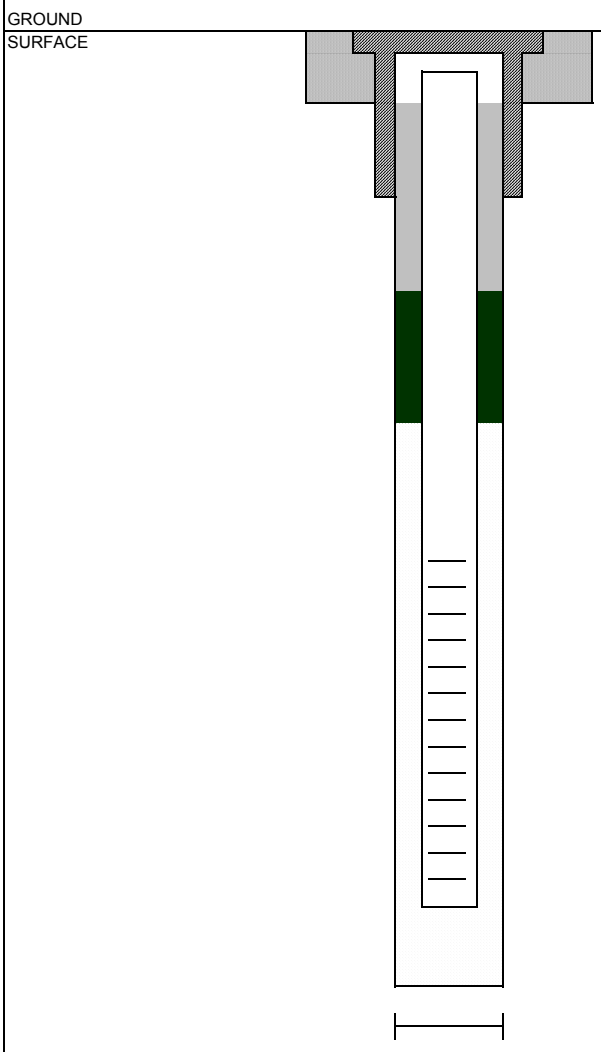
Updated On: 04/09/01

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Monitoring Well Installation Log

Client:	City of Cambridge, MA	Contractor:	New England Boring Contracto	Boring/Well No.:	CDM-4 MW-D
Project Name:	Tobin School	Driller:	P. Schofield	Date Installed:	8/7/2017
Project Location	Cambridge, MA	Ground EL:	21.3 ft	Logged By:	N. Castonguay
Project Number	0139-220813	Riser EL:	20.9 ft	Page:	1 of 1



ROADWAY BOX

SURFACE SEAL: 6" Roadbox
(Thickness & Type)

BACKFILL MATERIAL: Grout
(Type)

TOP OF SEAL: 15' bgs

SEAL CONSTRUCTION: Bentonite Chips 3'
(Thickness & Type)

TOP OF SANDPACK: 18' bgs

RISER CONSTRUCTION: 2" PVC
(Type, Diameter Material)

TOP OF SCREEN: 20' bgs El. 1.3

SANDPACK TYPE: #2 Sand

SCREEN MATERIAL: 2" PVC 10 Slot
(Type, Slot, Diameter Material)

BOTTOM OF SCREEN: 30' bgs El. -8.7

BOTTOM OF BOREHOLE: 31' bgs

BOREHOLE DIAMETER: 4 1/4"

NOTE: All depths are in feet below ground surface, unless noted otherwise.

Remarks:

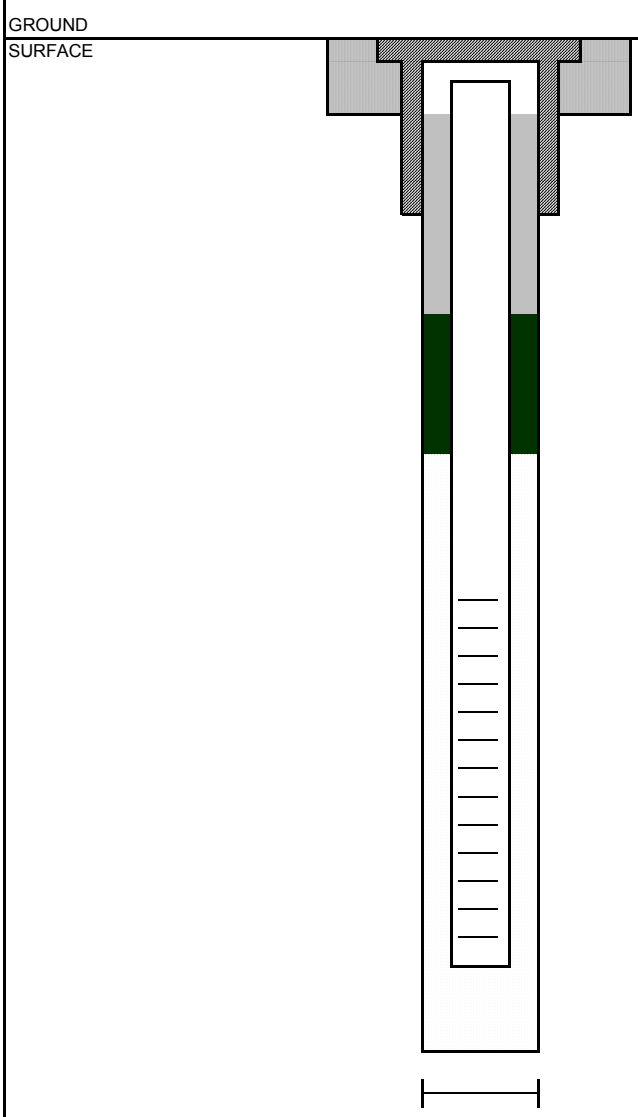
Updated On: 04/09/01

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Monitoring Well Installation Log

Client:	City of Cambridge, MA	Contractor:	New England Boring Contractor	Boring/Well No.:	CDM-4 MW-S
Project Name:	Tobin School	Driller:	P. Schofield	Date Installed:	8/8/2017
Project Location	Cambridge, MA	Ground EL:	21.5 ft	Logged By:	N. Castonguay
Project Number:	0139-220813	Riser EL:	21.1 ft	Page:	1 of 1



ROADWAY BOX

SURFACE SEAL: 6" Roadbox
(Thickness & Type)

BACKFILL MATERIAL: Grout
(Type)

TOP OF SEAL: 1' bgs

SEAL CONSTRUCTION: Bentonite Chips 1'
(Thickness & Type)

TOP OF SANDPACK: 2' bgs

RISER CONSTRUCTION 2" PVC
(Type, Diameter Material)

TOP OF SCREEN 3' bgs El. 18.5

SANDPACK TYPE #2 Sand

SCREEN MATERIAL: 2" PVC 10 Slot
(Type, Slot, Diameter Material)

BOTTOM OF SCREEN: 18' bgs El. 3.5

BOTTOM OF BOREHOLE: 19' bgs

BOREHOLE DIAMETER: 4 1/4"

NOTE: All depths are in feet below ground surface, unless noted otherwise.

Remarks:

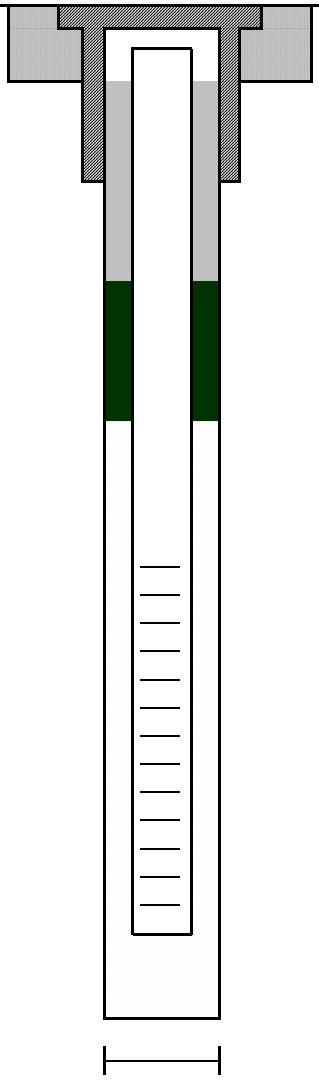
Updated On: 04/09/01

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Monitoring Well Installation Log

Client:	City of Cambridge, MA	Contractor:	New England Boring Contractor	Boring/Well No.:	CDM-7 MW-D
Project Name:	Tobin School	Driller:	P. Schofield	Date Installed:	7/19/2017
Project Location	Cambridge, MA	Ground EL:	21.0 ft	Logged By:	N. Castonguay
Project Number:	0139-220813	Riser EL:	20.6 ft	Page:	1 of 1



ROADWAY BOX

SURFACE SEAL: 6" Roadbox
(Thickness & Type)

BACKFILL MATERIAL: Grout
(Type)

TOP OF SEAL: 3' bgs

SEAL CONSTRUCTION: Bentonite Chips 2'
(Thickness & Type)

TOP OF SANDPACK: 5' bgs

RISER CONSTRUCTION 2" PVC
(Type, Diameter Material)

TOP OF SCREEN 7' bgs El. 14.0

SANDPACK TYPE #2 Sand

SCREEN MATERIAL: 2" PVC 10 Slot
(Type, Slot, Diameter Material)

BOTTOM OF SCREEN: 17' bgs El. 4.0

BOTTOM OF BOREHOLE: 17.5' bgs

BOREHOLE DIAMETER: 4 1/4" I.D., 8" O.D.

NOTE: All depths are in feet below ground surface, unless noted otherwise.

Remarks: Hollow-stem auger used.

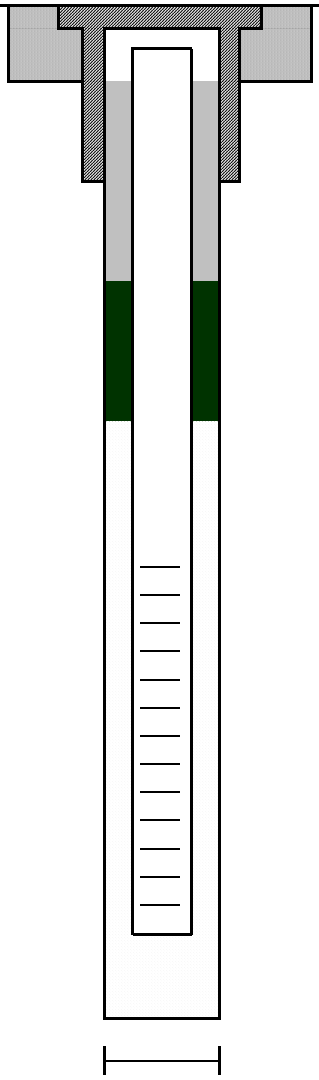
Updated On: 04/09/01

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Monitoring Well Installation Log

Client:	City of Cambridge, MA	Contractor:	New England Boring Contractor	Boring/Well No.:	CDM-7 MW-S
Project Name:	Tobin School	Driller:	P. Schofield	Date Installed:	7/19/2017
Project Location	Cambridge, MA	Ground EL:	21.0 ft	Logged By:	N. Castonguay
Project Number:	0139-220813	Riser EL:	20.7 ft	Page:	1 of 1



ROADWAY BOX

SURFACE SEAL: 5" Concrete
(Thickness & Type)

BACKFILL MATERIAL: 1/2 Gravel ~ 6"
(Type)

TOP OF SEAL: 1.0' bgs

SEAL CONSTRUCTION: Bentonite Chips 1.5'
(Thickness & Type)

TOP OF SANDPACK: 2.5' bgs

RISER CONSTRUCTION 2" PVC
(Type, Diameter Material)

TOP OF SCREEN 3' bgs El. 18.0

SANDPACK TYPE #2 Sand

SCREEN MATERIAL: 2" PVC 10 Slot
(Type, Slot, Diameter Material)

BOTTOM OF SCREEN: 13' bgs El. 8.0

BOTTOM OF BOREHOLE: 13.5' bgs

BOREHOLE DIAMETER: 4 1/4" I.D., 8" O.D.

NOTE: All depths are in feet below ground surface, unless noted otherwise.

Remarks: Hollow-stem auger used.

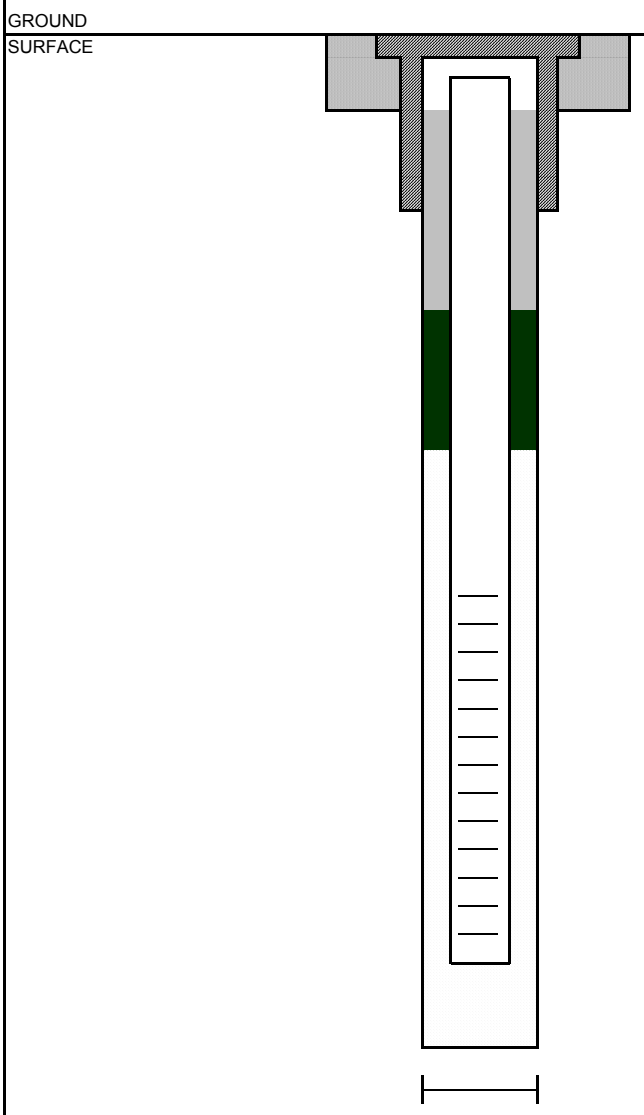
Updated On: 04/09/01

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Monitoring Well Installation Log

Client:	City of Cambridge, MA	Contractor:	New England Boring Contractor	Boring/Well No.:	CDM-9 MW-D
Project Name:	Tobin School	Driller:	P. Schofield	Date Installed:	7/28/2017
Project Location	Cambridge, MA	Ground EL:	21.4 ft	Logged By:	N. Castonguay
Project Number:	0139-220813	Riser EL:	21.0 ft	Page:	1 of 1



ROADWAY BOX

SURFACE SEAL: 6" Roadbox
(Thickness & Type)

BACKFILL MATERIAL: Grout
(Type)

TOP OF SEAL: 0.5' bgs

SEAL CONSTRUCTION: Bentonite Chips 1'
(Thickness & Type)

TOP OF SANDPACK: 9.5' bgs

RISER CONSTRUCTION 2" PVC
(Type, Diameter Material)

TOP OF SCREEN 12' bgs El. 9.4

SANDPACK TYPE #2 Sand

SCREEN MATERIAL: 2" PVC 10 Slot
(Type, Slot, Diameter Material)

BOTTOM OF SCREEN: 22' bgs El. -0.6

BOTTOM OF BOREHOLE: 23' bgs

BOREHOLE DIAMETER: 4 1/4"

NOTE: All depths are in feet below ground surface, unless noted otherwise.

Remarks:

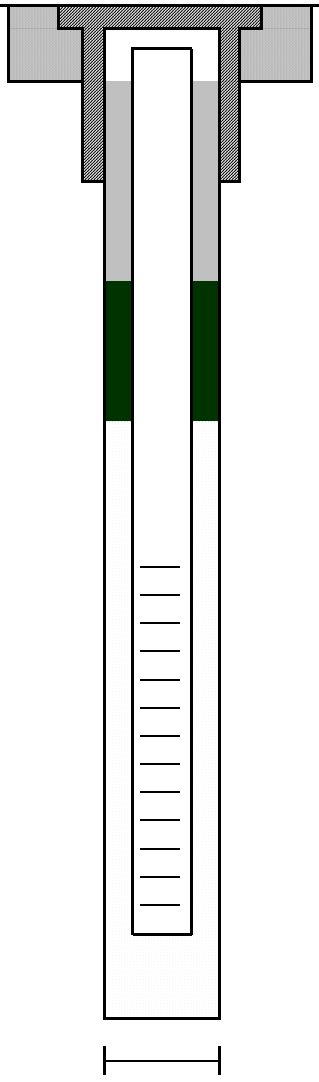
Updated On: 04/09/01

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Monitoring Well Installation Log

Client:	City of Cambridge, MA	Contractor:	New England Boring Contractor	Boring/Well No.:	CDM-9 MW-S
Project Name:	Tobin School	Driller:	P. Schofield	Date Installed:	8/1/2017
Project Location	Cambridge, MA	Ground EL:	21.3 ft	Logged By:	N. Castonguay
Project Number:	0139-220813	Riser EL:	21.0 ft	Page:	1 of 1



ROADWAY BOX

SURFACE SEAL: 6" Roadbox
(Thickness & Type)

BACKFILL MATERIAL: Grout
(Type)

TOP OF SEAL: 0.5' bgs

SEAL CONSTRUCTION: Bentonite Chips 1'
(Thickness & Type)

TOP OF SANDPACK: 1.5' bgs

RISER CONSTRUCTION 2" PVC
(Type, Diameter Material)

TOP OF SCREEN 2' bgs El. 19.3

SANDPACK TYPE #2 Sand

SCREEN MATERIAL: 2" PVC 10 Slot
(Type, Slot, Diameter Material)

BOTTOM OF SCREEN: 12' bgs El. 8.3

BOTTOM OF BOREHOLE: 13' bgs

BOREHOLE DIAMETER: 4 1/4"

NOTE: All depths are in feet below ground surface, unless noted otherwise.

Remarks:

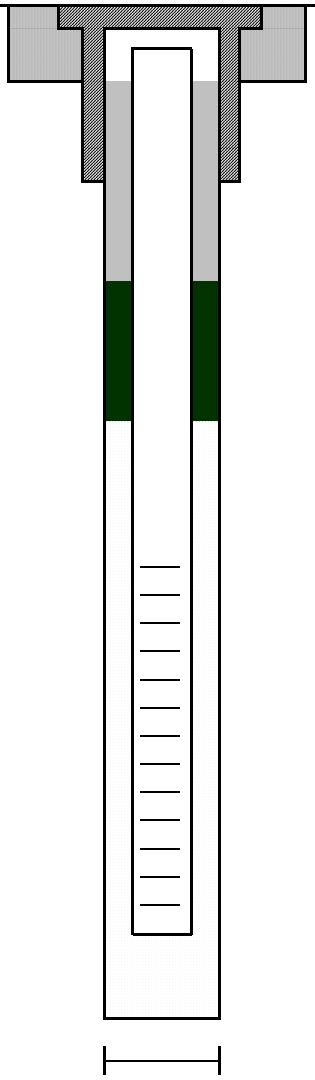
Updated On: 04/09/01

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Monitoring Well Installation Log

Client:	City of Cambridge, MA	Contractor:	New England Boring Contracto	Boring/Well No.:	CDM-14 MW-D
Project Name:	Tobin School	Driller:	O. Cone	Date Installed:	7/25/2017
Project Location	Cambridge, MA	Ground EL:	22.2 ft	Logged By:	N. Castonguay
Project Number:	0139-220813	Riser EL:	21.0 ft	Page:	1 of 1



ROADWAY BOX

SURFACE SEAL: 6" Roadbox
(Thickness & Type)

BACKFILL MATERIAL: Grout
(Type)

TOP OF SEAL: 1' bgs

SEAL CONSTRUCTION: Bentonite Chips 2'
(Thickness & Type)

TOP OF SANDPACK: 10' bgs

RISER CONSTRUCTION 2" PVC
(Type, Diameter Material)

TOP OF SCREEN 12' bgs El. 10.2

SANDPACK TYPE #2 Sand

SCREEN MATERIAL: 2" PVC 10 Slot
(Type, Slot, Diameter Material)

BOTTOM OF SCREEN: 22' bgs El. 0.2

BOTTOM OF BOREHOLE: 23' bgs

BOREHOLE DIAMETER: 4 1/4"

NOTE: All depths are in feet below ground surface, unless noted otherwise.

Remarks:

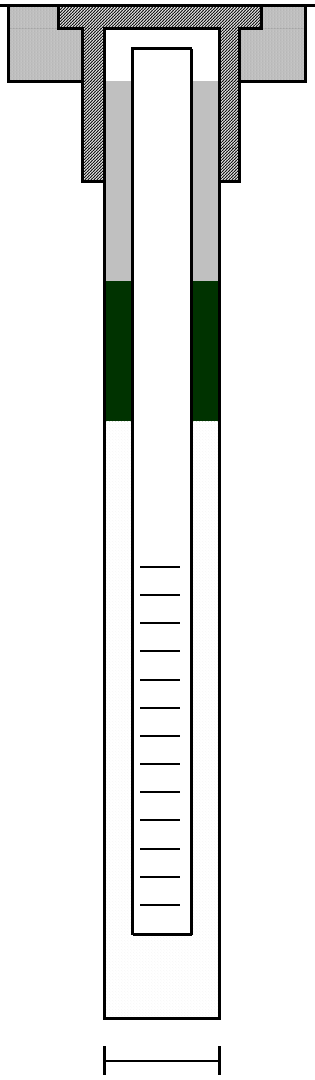
Updated On: 04/09/01

CDM Smith

75 State Street
Suite 701
Boston, MA 02109
(617) 452-6000

Monitoring Well Installation Log

Client:	City of Cambridge, MA	Contractor:	New England Boring Contracto	Boring/Well No.:	CDM-14 MW-S
Project Name:	Tobin School	Driller:	O. Cone	Date Installed:	7/25/2017
Project Location	Cambridge, MA	Ground EL:	22.4 ft	Logged By:	N. Castonguay
Project Number:	0139-220813	Riser EL:	22.1 ft	Page:	1 of 1



ROADWAY BOX

SURFACE SEAL: 6" Roadbox
(Thickness & Type)

BACKFILL MATERIAL: Grout
(Type)

TOP OF SEAL: 1' bgs

SEAL CONSTRUCTION: Bentonite Chips 0.5'
(Thickness & Type)

TOP OF SANDPACK: 1.5' bgs

RISER CONSTRUCTION 2" PVC
(Type, Diameter Material)

TOP OF SCREEN 2' bgs El. 20.4

SANDPACK TYPE #2 Sand

SCREEN MATERIAL: 2" PVC 10 Slot
(Type, Slot, Diameter Material)

BOTTOM OF SCREEN: 12' bgs El. 10.4

BOTTOM OF BOREHOLE: 13' bgs

BOREHOLE DIAMETER: 4 1/4"

NOTE: All depths are in feet below ground surface, unless noted otherwise.

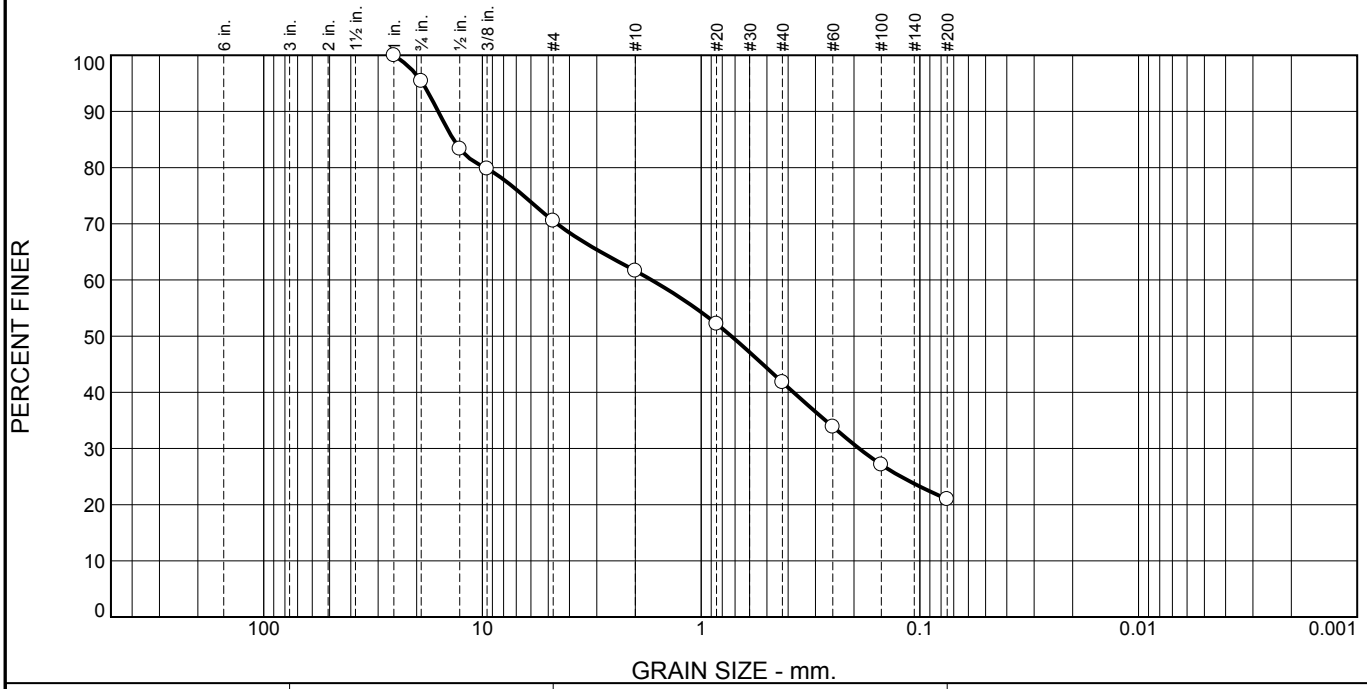
Remarks:

Updated On: 04/09/01

ATTACHMENT I

PHASE 1 - GEOTECHNICAL LABORATORY TEST RESULTS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.6	24.9	8.9	19.8	20.8	21.0	

Test Results (ASTM C136 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
.75"	95.4		
.5"	83.4		
.375"	79.8		
#4	70.5		
#10	61.6		
#20	52.2		
#40	41.8		
#60	33.9		
#100	27.1		
#200	21.0		

* (no specification provided)

Material Description

Dark gray Silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 15.9258 D_{85}= 13.5761 D_{60}= 1.6867
D_{50}= 0.7278 D_{30}= 0.1893 D_{15}=
D_{10}= C_u= C_c=

Remarks

As received MC = 9.1%

Date Received: 8/13/2017 **Date Tested:** 8/22/17

Tested By: RZ

Checked By: MP

Title: Laboratory Manager

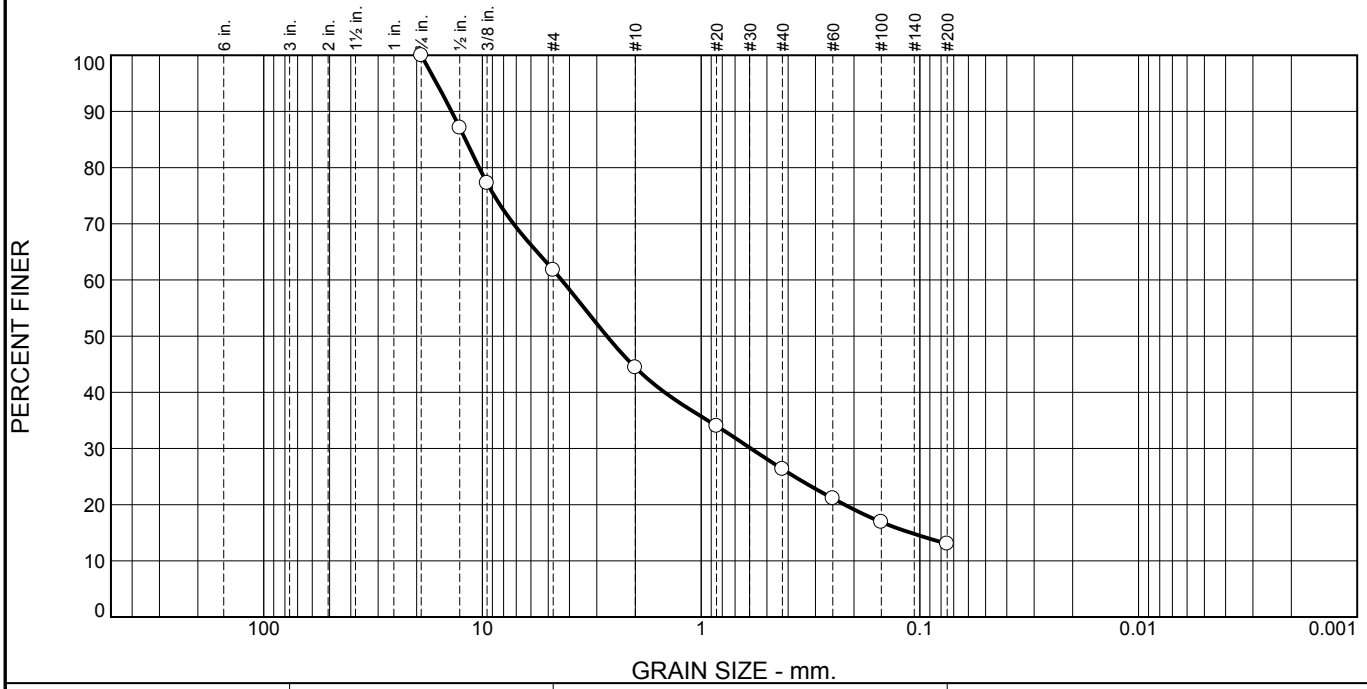
Source of Sample: CDM-1 **Depth:** 4-6'
Sample Number: S-3 **Date Sampled:** 8/4/2017

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	38.2	17.4	18.1	13.3	13.0	

Test Results (ASTM C136 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75"	100.0		
.5"	87.1		
.375"	77.2		
#4	61.8		
#10	44.4		
#20	34.0		
#40	26.3		
#60	21.1		
#100	16.9		
#200	13.0		

* (no specification provided)

Material Description

Dark brown-black silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 13.8416 D_{85}= 11.9578 D_{60}= 4.3473
D_{50}= 2.6963 D_{30}= 0.5920 D_{15}= 0.1101
D_{10}= C_u= C_c=

Remarks

As received MC = 23.8%

Date Received: 8/13/2017 **Date Tested:** 8/22/17

Tested By: RZ

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-1 **Depth:** 12-14' **Date Sampled:** 8/4/2017

Sample Number: S-7

CDM Smith

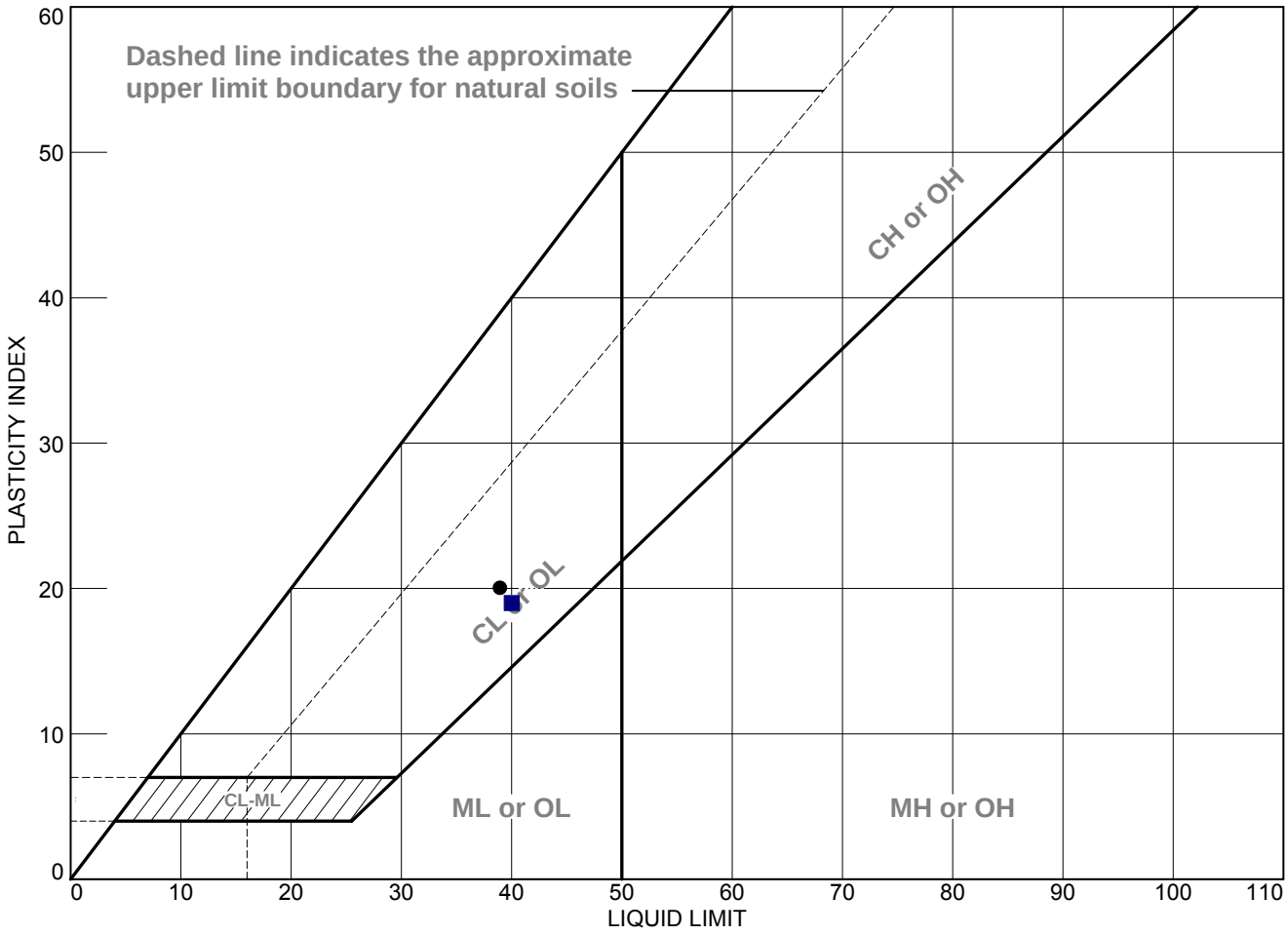
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-1	S-20	44-46'	29.9	19	39	20	CL
■	CDM-1	S-23	59-61'	34.9	21	40	19	CL

CDM Smith

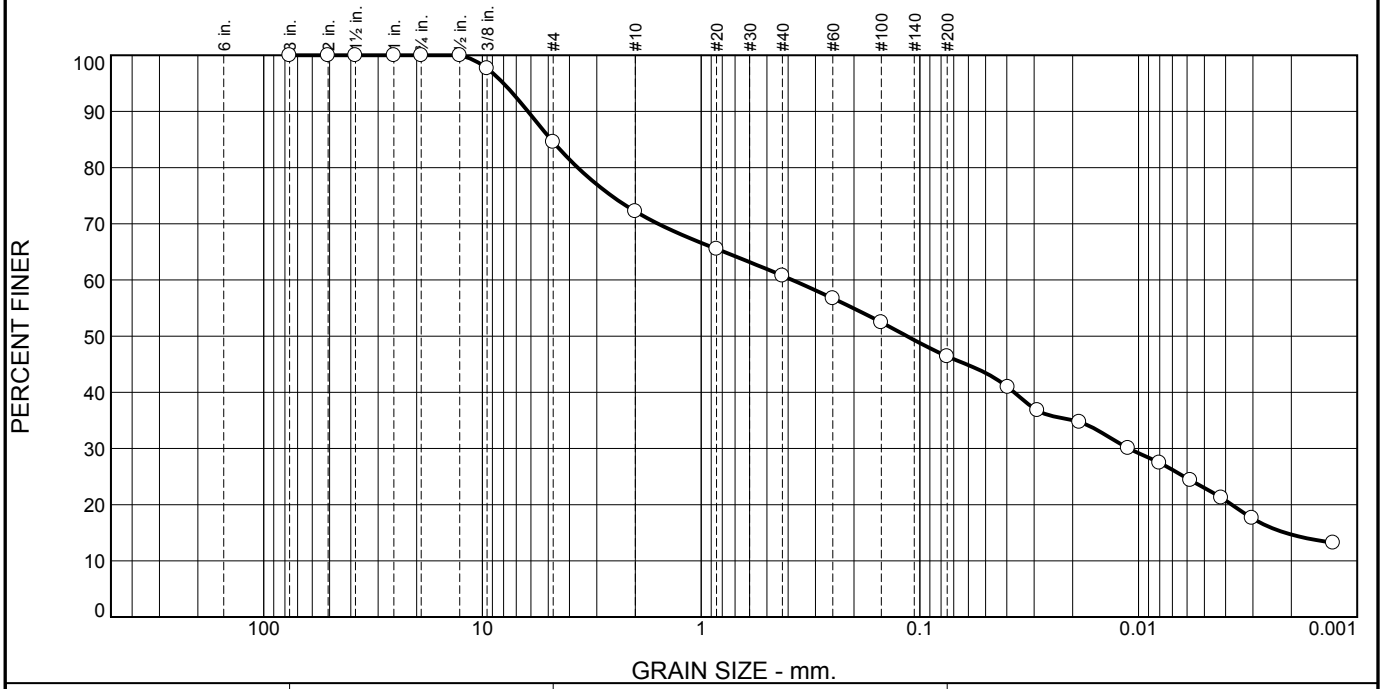
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: ○ GW □ RZ **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	15.4	12.4	11.4	14.4	23.4	23.0

Test Results (ASTM D7928 & D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
2"	100.0		
1.5"	100.0		
1"	100.0		
.75"	100.0		
.5"	100.0		
.375"	97.7		
#4	84.6		
#10	72.2		
#20	65.5		
#40	60.8		
#60	56.7		
#100	52.5		
#200	46.4		
0.0396 mm.	40.9		
0.0290 mm.	36.8		
0.0186 mm.	34.7		
0.0112 mm.	30.1		
0.0080 mm.	27.5		
0.0058 mm.	24.4		
0.0042 mm.	21.2		
0.0030 mm.	17.6		
0.0013 mm.	13.2		

* (no specification provided)

Material Description

Gray silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 6.1932 D_{85}= 4.8552 D_{60}= 0.3829
D_{50}= 0.1145 D_{30}= 0.0111 D_{15}= 0.0021
D_{10}= C_u= C_c=

Remarks

As received MC = 14.5%

Date Received: **Date Tested:** 8/22/2017

Tested By: MP

Checked By: MP

Title: Laboratory Manager

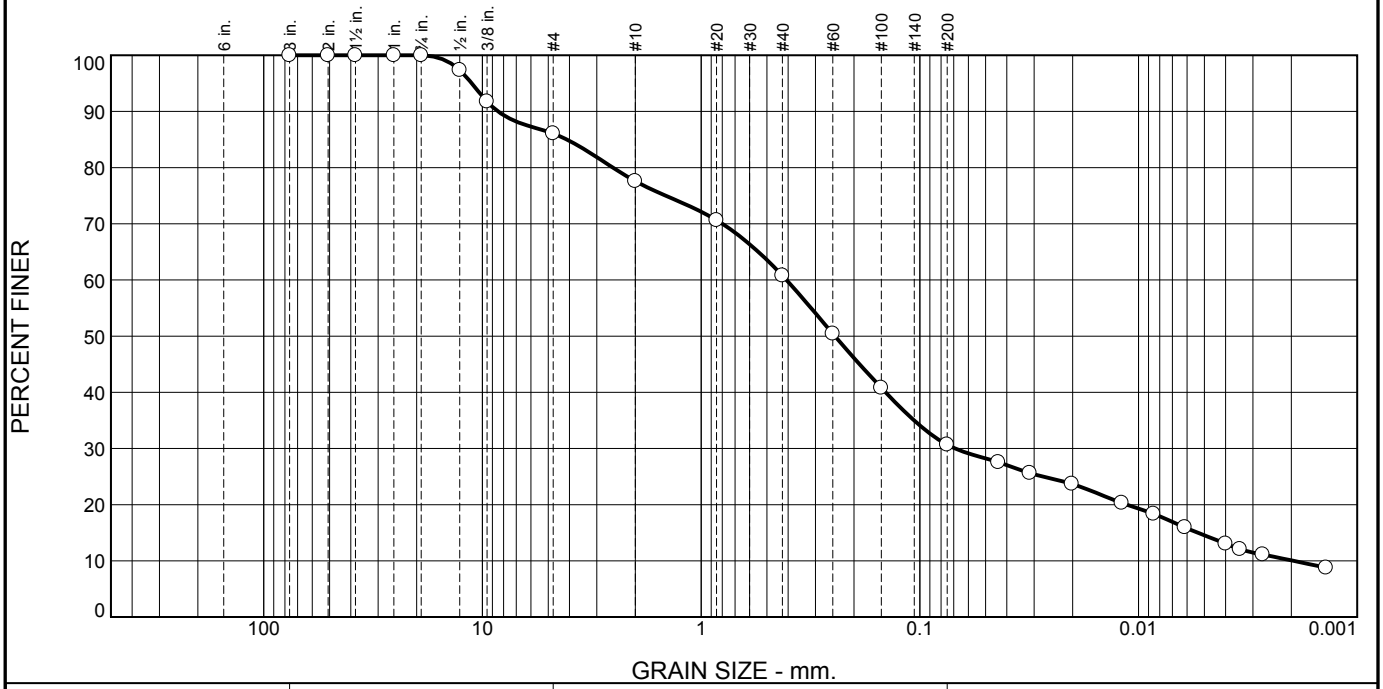
Source of Sample: CDM-1 **Depth:** 69-71'
Sample Number: S-25 **Date Sampled:** 8/7/2017

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	13.9	8.5	16.8	30.1	16.2	14.5

Test Results (ASTM D7928 & D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
2"	100.0		
1.5"	100.0		
1"	100.0		
.75"	100.0		
.5"	97.4		
.375"	91.8		
#4	86.1		
#10	77.6		
#20	70.6		
#40	60.8		
#60	50.4		
#100	40.8		
#200	30.7		
0.0438 mm.	27.6		
0.0314 mm.	25.6		
0.0202 mm.	23.7		
0.0119 mm.	20.3		
0.0085 mm.	18.4		
0.0061 mm.	16.0		
0.0040 mm.	13.1		
0.0034 mm.	12.1		
0.0027 mm.	11.1		
0.0014 mm.	8.8		

* (no specification provided)

Material Description

Brown silty sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 8.4786 D_{85}= 4.1129 D_{60}= 0.4073
D_{50}= 0.2445 D_{30}= 0.0690 D_{15}= 0.0054
D_{10}= 0.0020 C_u= 208.63 C_c= 5.98

Remarks

As received MC = 23.0%

Date Received: 8/1/2017 **Date Tested:** 8/24/2017

Tested By: MP

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-2 **Depth:** 6-8' **Date Sampled:** 8/1/2017

Sample Number: S-4A

CDM Smith

Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

CDM Smith

Geotechnical Engineering Laboratory

Standard Test Method for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils(ASTM D2974)

Client:	City of Cambridge		
Project Name:	Tobin School	Tested By:	MP
Project Location:	Cambridge, MA	Test Date:	8/22/2017
Project Number:	00139-220813		
Boring Number:	CDM-2	Procedure:	C
Sample Number:	S-4B	Temperature:	440° C
Sample Depth (ft):	6-8		
Sample Date:	8/1/2017		

AS RECEIVED MOISTURE CONTENT	
Tin Mass (g)	126.65
Wet Mass of Sample & Tin (g)	132.35
Dry Mass of Sample & Tin (g)	129.65
Mass of Water (g)	2.70
Mass of Dry Soil (g)	3.00
Moisture Content (%)	**90.0**

ASH CONTENT	
Porcelain Dish Mass (g)	126.65
Porcelain Dish + Oven Dried Soil (g)	129.65
Mass of Oven Dried Soil (g)	3.00
Mass of Dish & Burned Soil (g)	129.12
Mass of Burned Soil (g)	2.47
Mass of Organic Material (g)	0.53
Ash Content (%)	82.3
Organic Content (%)	**17.7**

CDM Smith

Geotechnical Engineering Laboratory

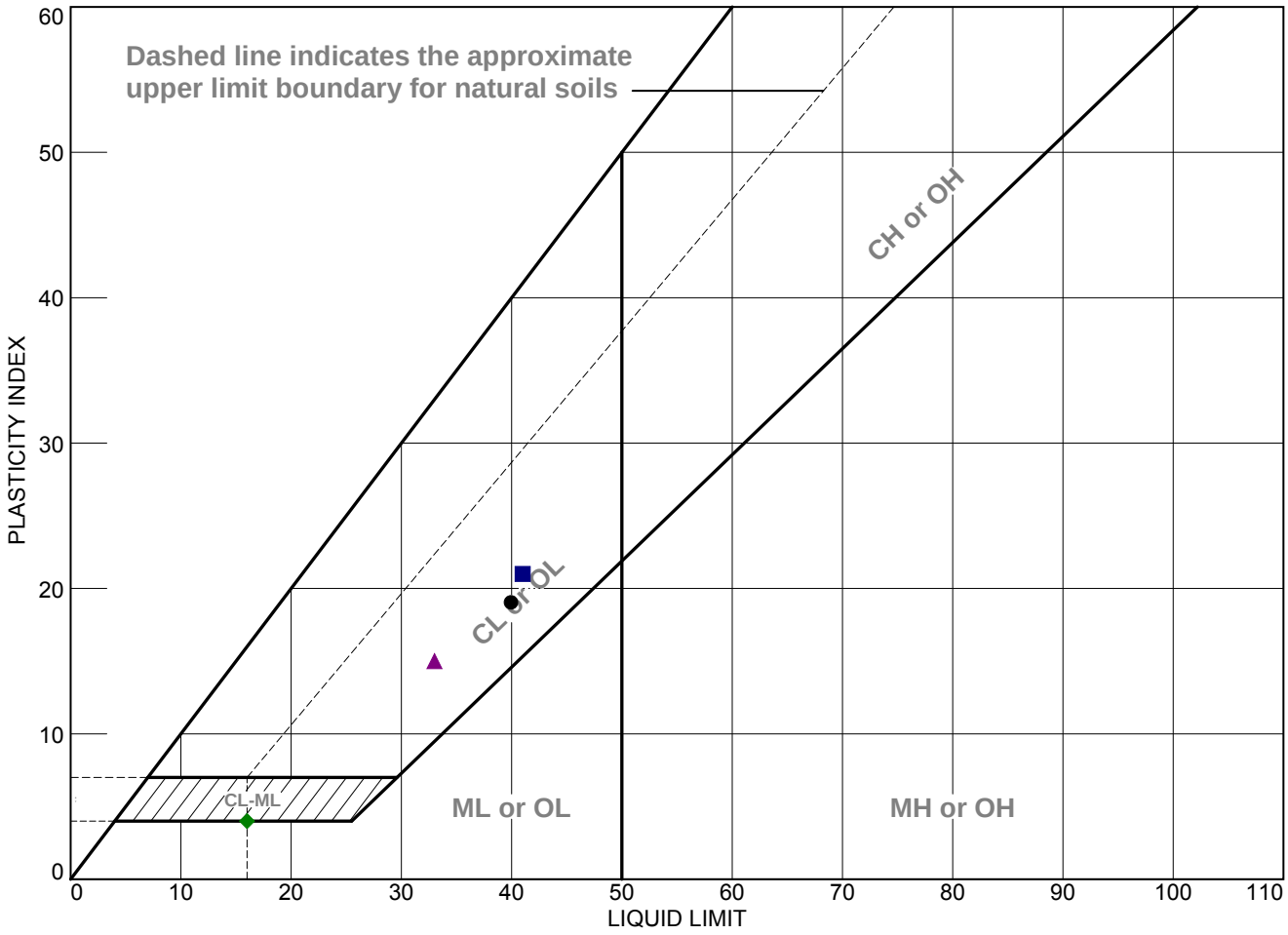
Standard Test Method for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils(ASTM D2974)

Client:	City of Cambridge		
Project Name:	Tobin School	Tested By:	MP
Project Location:	Cambridge, MA	Test Date:	8/22/2017
Project Number:	00139-220813		
Boring Number:	CDM-2	Procedure:	C
Sample Number:	S-5A	Temperature:	440° C
Sample Depth (ft):	8-10		
Sample Date:	8/1/2017		

AS RECEIVED MOISTURE CONTENT	
Tin Mass (g)	90.33
Wet Mass of Sample & Tin (g)	139.48
Dry Mass of Sample & Tin (g)	116.08
Mass of Water (g)	23.40
Mass of Dry Soil (g)	25.75
Moisture Content (%)	**90.9**

ASH CONTENT	
Porcelain Dish Mass (g)	90.33
Porcelain Dish + Oven Dried Soil (g)	116.08
Mass of Oven Dried Soil (g)	25.75
Mass of Dish & Burned Soil (g)	112.47
Mass of Burned Soil (g)	22.14
Mass of Organic Material (g)	3.61
Ash Content (%)	86.0
Organic Content (%)	**14.0**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-2	S-3B	4-6'	23.0	21	40	19	CL
■	CDM-2	S-8	14-16'	25.9	20	41	21	CL
▲	CDM-2	S-15	34-36'	28.2	18	33	15	CL
◆	CDM-2	S-19	49-51'	10.8	12	16	4	CL-ML

CDM Smith

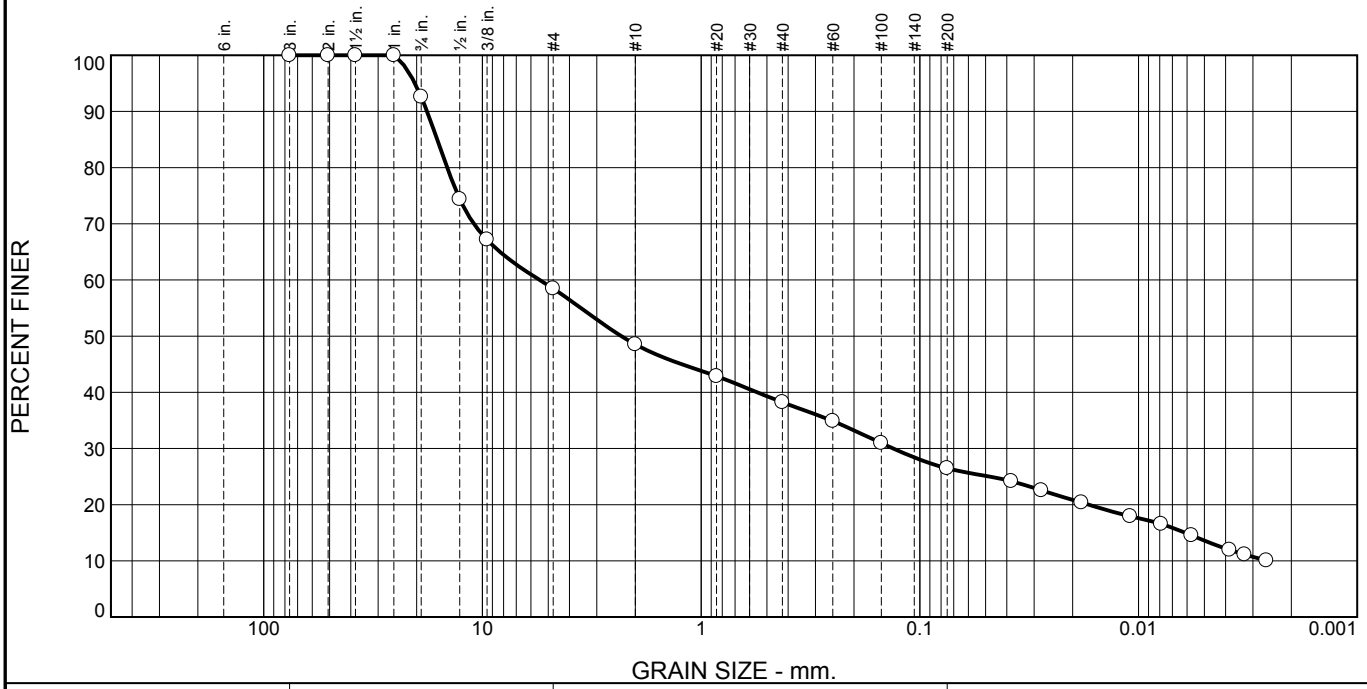
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: ○ RZ □ GW △ GW ◇ RZ **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	7.4	34.1	10.0	10.3	11.7	12.9	13.6

Test Results (ASTM D7928 & D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
2"	100.0		
1.5"	100.0		
1"	100.0		
.75"	92.6		
.5"	74.4		
.375"	67.2		
#4	58.5		
#10	48.5		
#20	42.9		
#40	38.2		
#60	34.9		
#100	31.0		
#200	26.5		
0.0382 mm.	24.2		
0.0278 mm.	22.5		
0.0182 mm.	20.4		
0.0109 mm.	17.9		
0.0079 mm.	16.6		
0.0057 mm.	14.5		
0.0038 mm.	12.0		
0.0033 mm.	11.1		
0.0026 mm.	10.1		

* (no specification provided)

Material Description

Gray silty gravel with sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 17.9072 D_{85}= 16.0938 D_{60}= 5.4692
D_{50}= 2.3151 D_{30}= 0.1324 D_{15}= 0.0061
D_{10}= C_u= C_c=

Remarks

As received MC = 10.3%

Date Received: 8/1/2017 **Date Tested:** 8/24/2017

Tested By: MP

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-2 **Depth:** 49-51' **Date Sampled:** 8/2/2017

Sample Number: S-18

CDM Smith

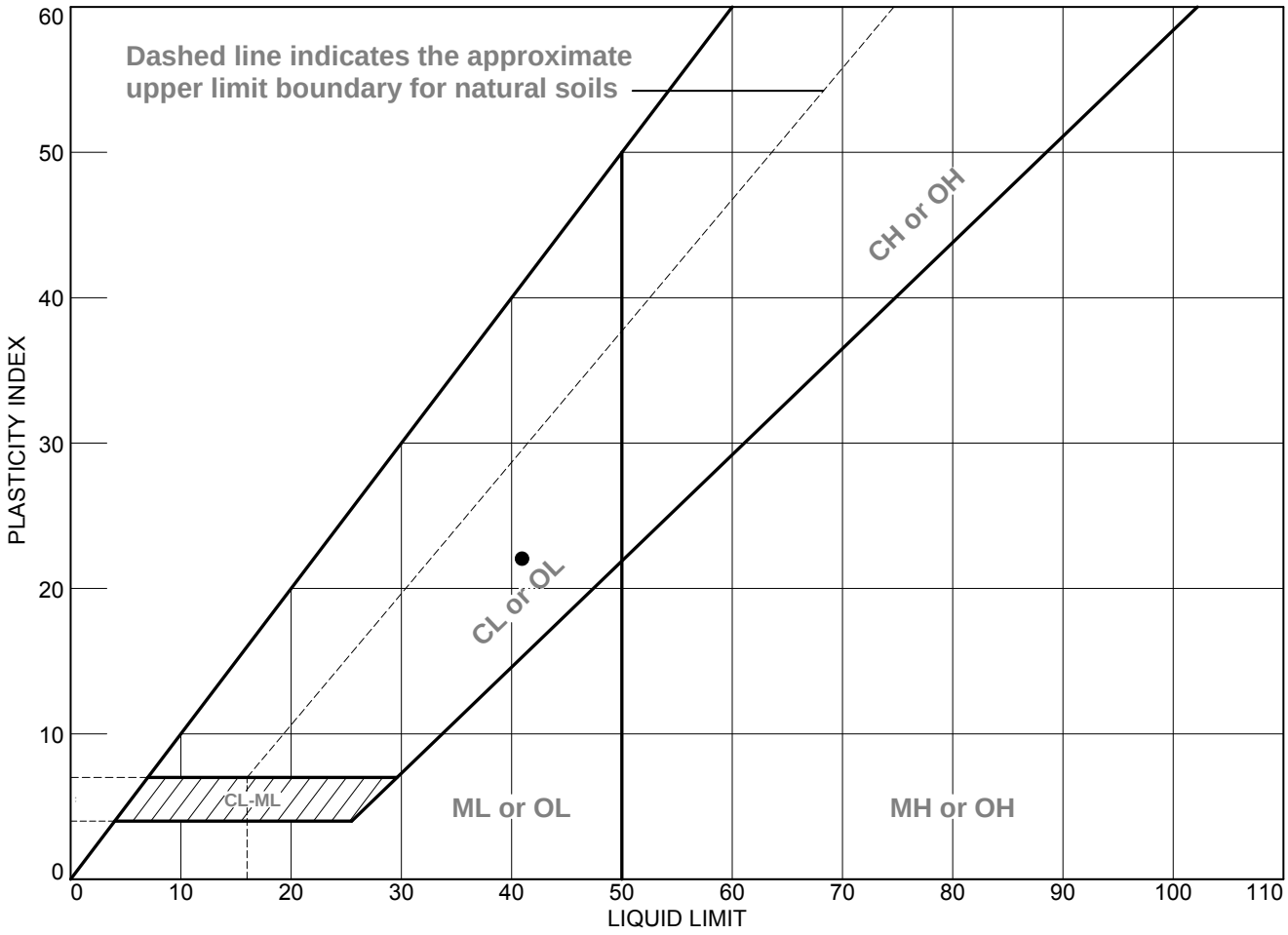
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-3	S-15	35-37'	28.3	19	41	22	CL

CDM Smith

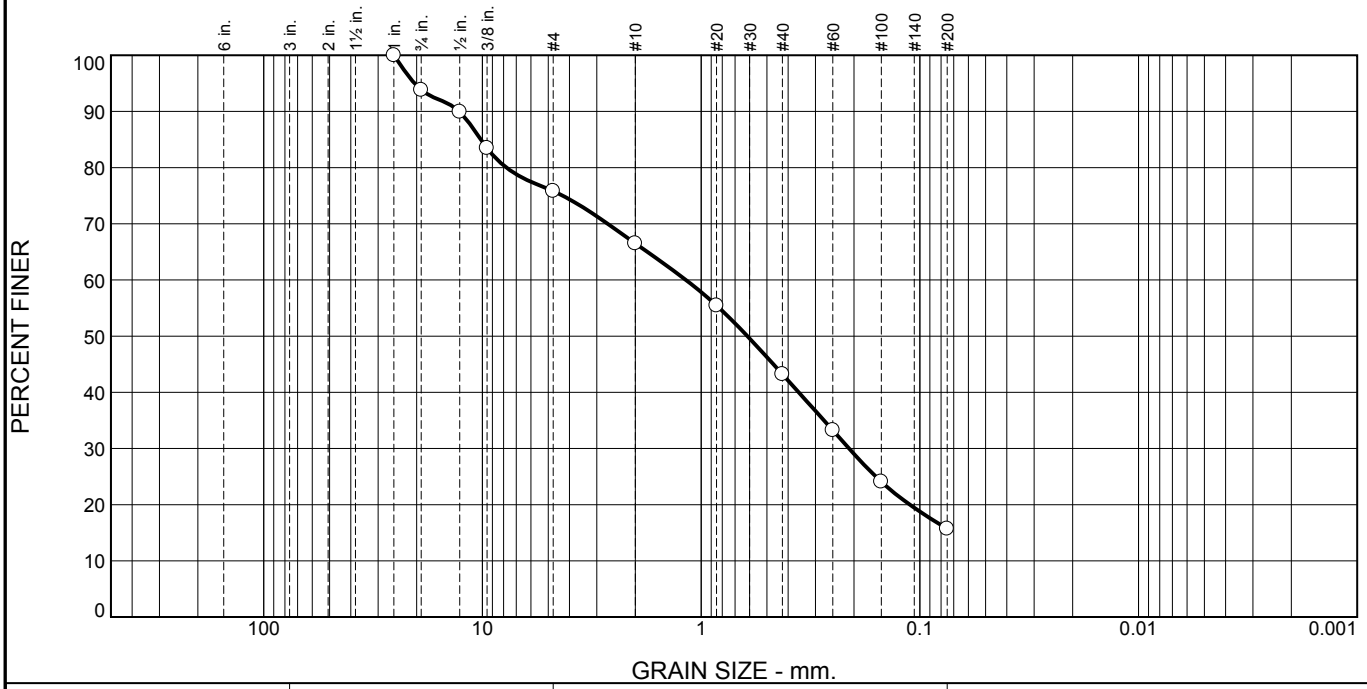
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: GW **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.2	18.0	9.3	23.3	27.5	15.7	

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
.75"	93.8		
.5"	89.9		
.375"	83.5		
#4	75.8		
#10	66.5		
#20	55.4		
#40	43.2		
#60	33.2		
#100	24.1		
#200	15.7		

* (no specification provided)

Material Description

Dark gray silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 12.7575 D_{85}= 10.1808 D_{60}= 1.1736
D_{50}= 0.6142 D_{30}= 0.2107 D_{15}=
D_{10}= C_u= C_c=

Remarks

As received MC = 10.6%

Date Received: 8/21/17 **Date Tested:** 8/30/17

Tested By: RZ

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-4 **Depth:** 2-4' **Date Sampled:** 8/2/17

Sample Number: S-2

CDM Smith

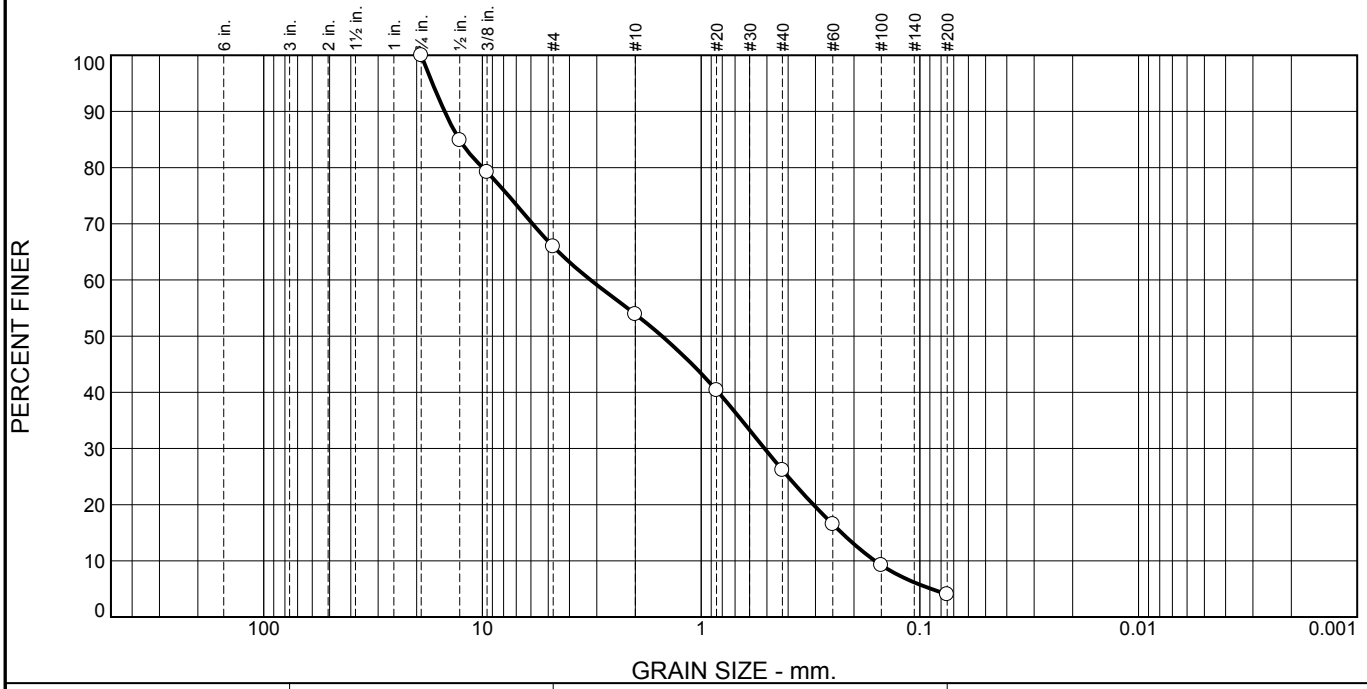
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	34.0	12.1	27.7	22.2	4.0	

Test Results (ASTM C136 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75"	100.0		
.5"	84.9		
.375"	79.2		
#4	66.0		
#10	53.9		
#20	40.4		
#40	26.2		
#60	16.5		
#100	9.2		
#200	4.0		

* (no specification provided)

Material Description

Dark brown poorly graded sand with gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 14.8978 D_{85}= 12.7583 D_{60}= 3.2039
D_{50}= 1.5100 D_{30}= 0.5129 D_{15}= 0.2278
D_{10}= 0.1603 C_u= 19.99 C_c= 0.51

Remarks

As received MC = 38.5%

Date Received: **Date Tested:** 8/22/17

Tested By: RZ

Checked By: MP

Title: Laboratory Manager

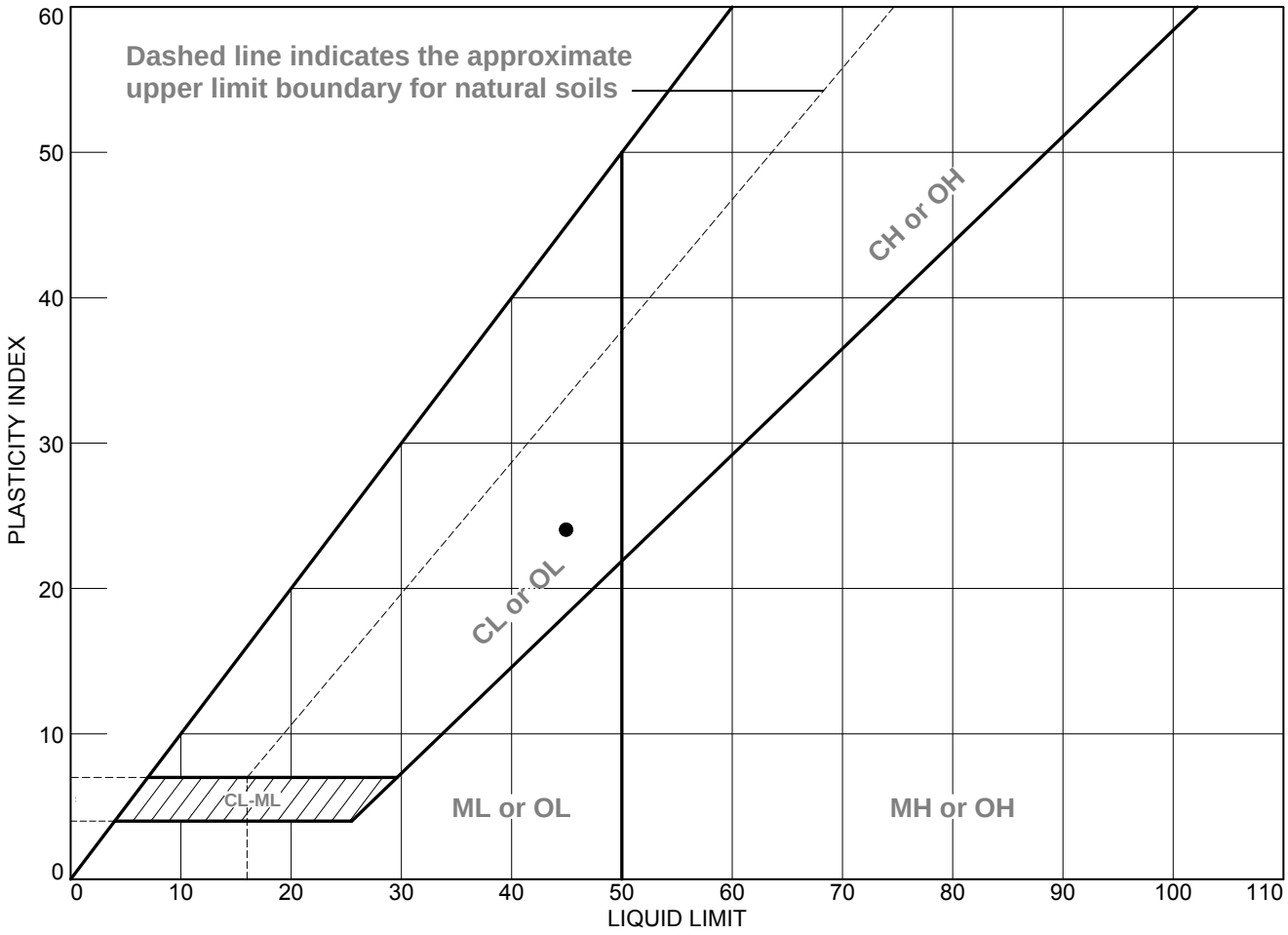
Source of Sample: CDM-4 **Depth:** 18-20' **Date Sampled:** 8/2/2017
Sample Number: S-10

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-4	S-20	44-46'	36.0	21	45	24	CL

CDM Smith

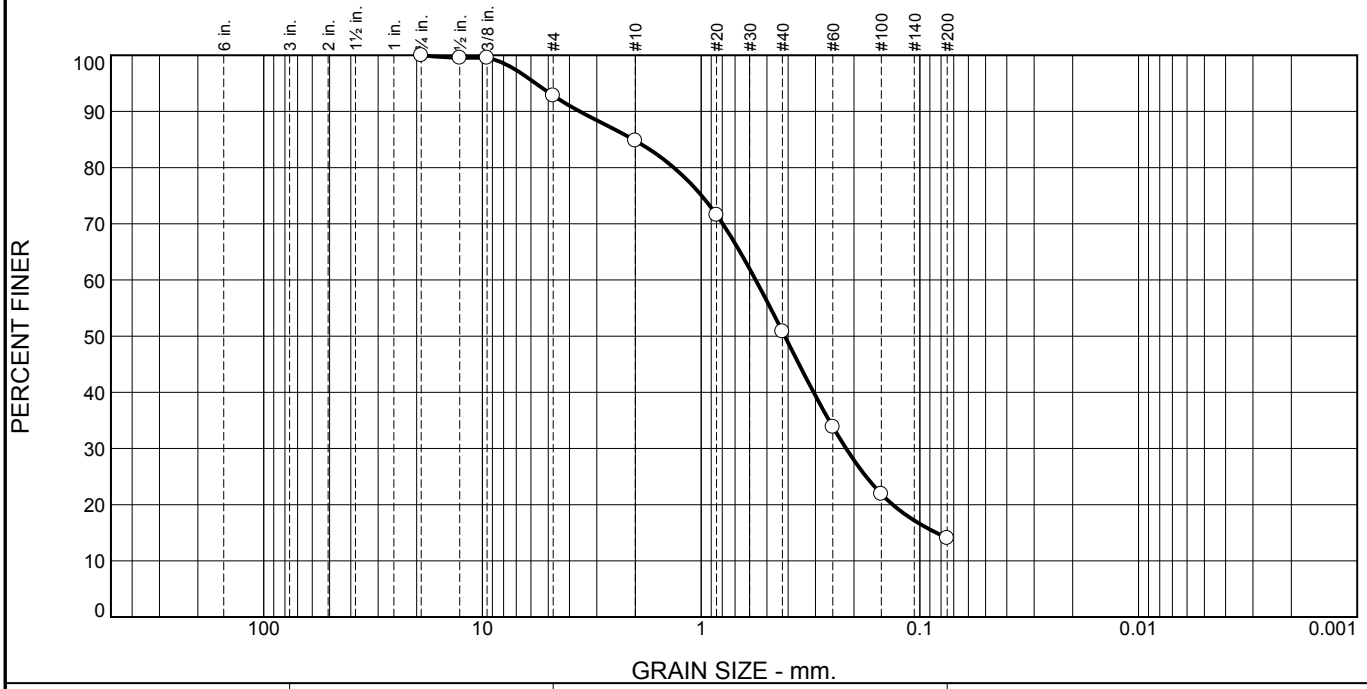
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: GW **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.2	8.0	34.0	36.8	14.0	

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75"	100.0		
.5"	99.5		
.375"	99.5		
#4	92.8		
#10	84.8		
#20	71.6		
#40	50.8		
#60	33.8		
#100	21.9		
#200	14.0		

* (no specification provided)

Material Description

Gray silty sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 3.5878 D_{85}= 2.0409 D_{60}= 0.5628
D_{50}= 0.4145 D_{30}= 0.2173 D_{15}= 0.0840
D_{10}= C_u= C_c=

Remarks

As received MC = 8.6%

Date Received: 8/18/17 **Date Tested:** 8/18/17

Tested By: RZ

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-5 **Depth:** 2-4' **Date Sampled:** 8/4/17

Sample Number: S-2

CDM Smith

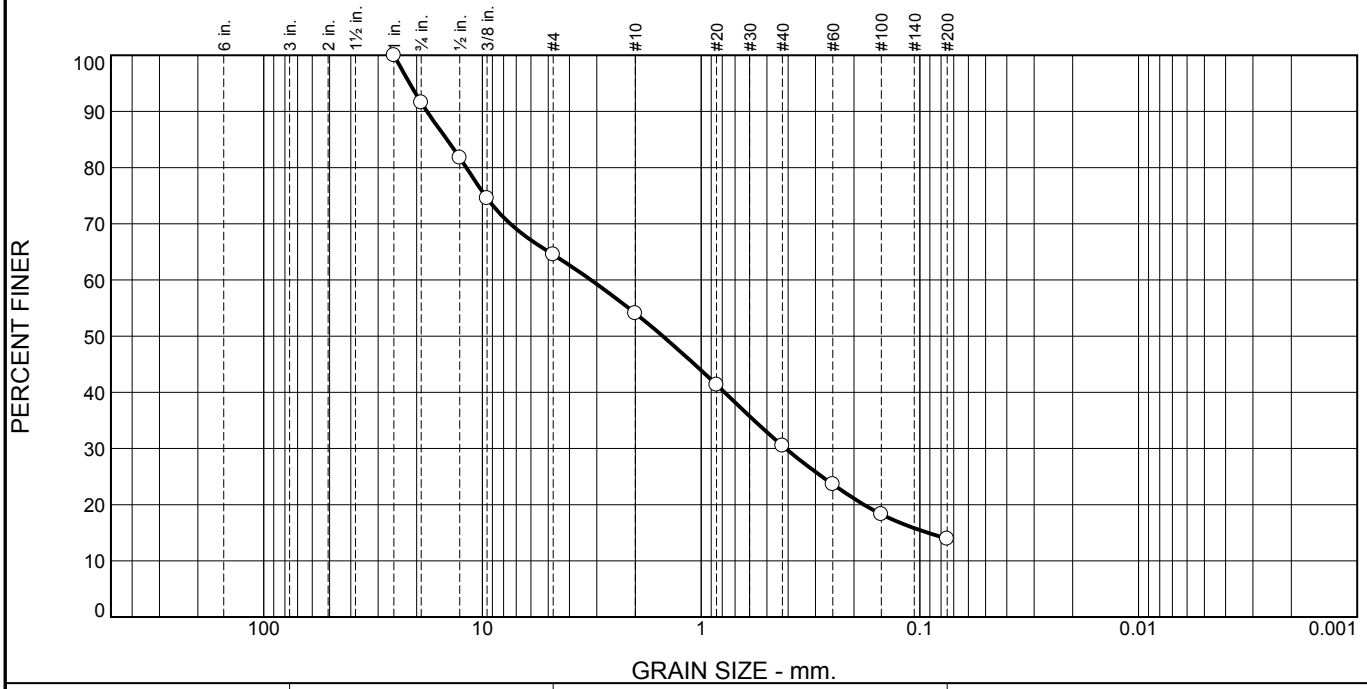
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	8.4	27.1	10.4	23.6	16.6	13.9	

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
.75"	91.6		
.5"	81.8		
.375"	74.5		
#4	64.5		
#10	54.1		
#20	41.3		
#40	30.5		
#60	23.6		
#100	18.3		
#200	13.9		

* (no specification provided)

Material Description

Brown & black silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 17.9249 D_{85}= 14.5299 D_{60}= 3.1896
D_{50}= 1.4974 D_{30}= 0.4107 D_{15}= 0.0918
D_{10}= C_u= C_c=

Remarks

As received MC = 32.5%
Sample appears to be fill (slag & brick)

Date Received: 8/21/17 **Date Tested:** 8/30/17

Tested By: RZ

Checked By: MP

Title: Laboratory Manager

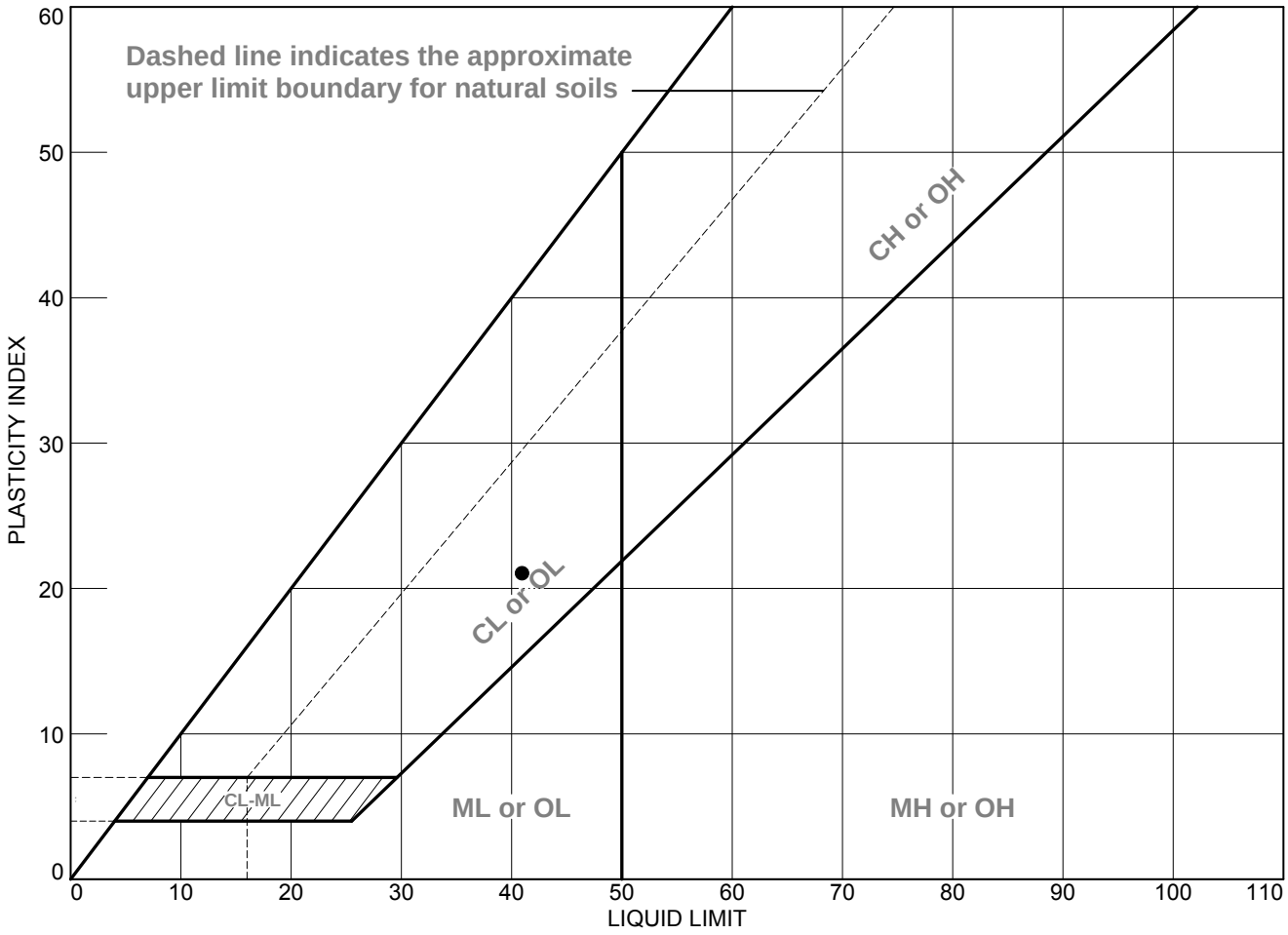
Source of Sample: CDM-5 **Depth:** 6-8'
Sample Number: S-4 **Date Sampled:** 8/4/17

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-5	S-17	44-46'	43.9	20	41	21	CL

CDM Smith

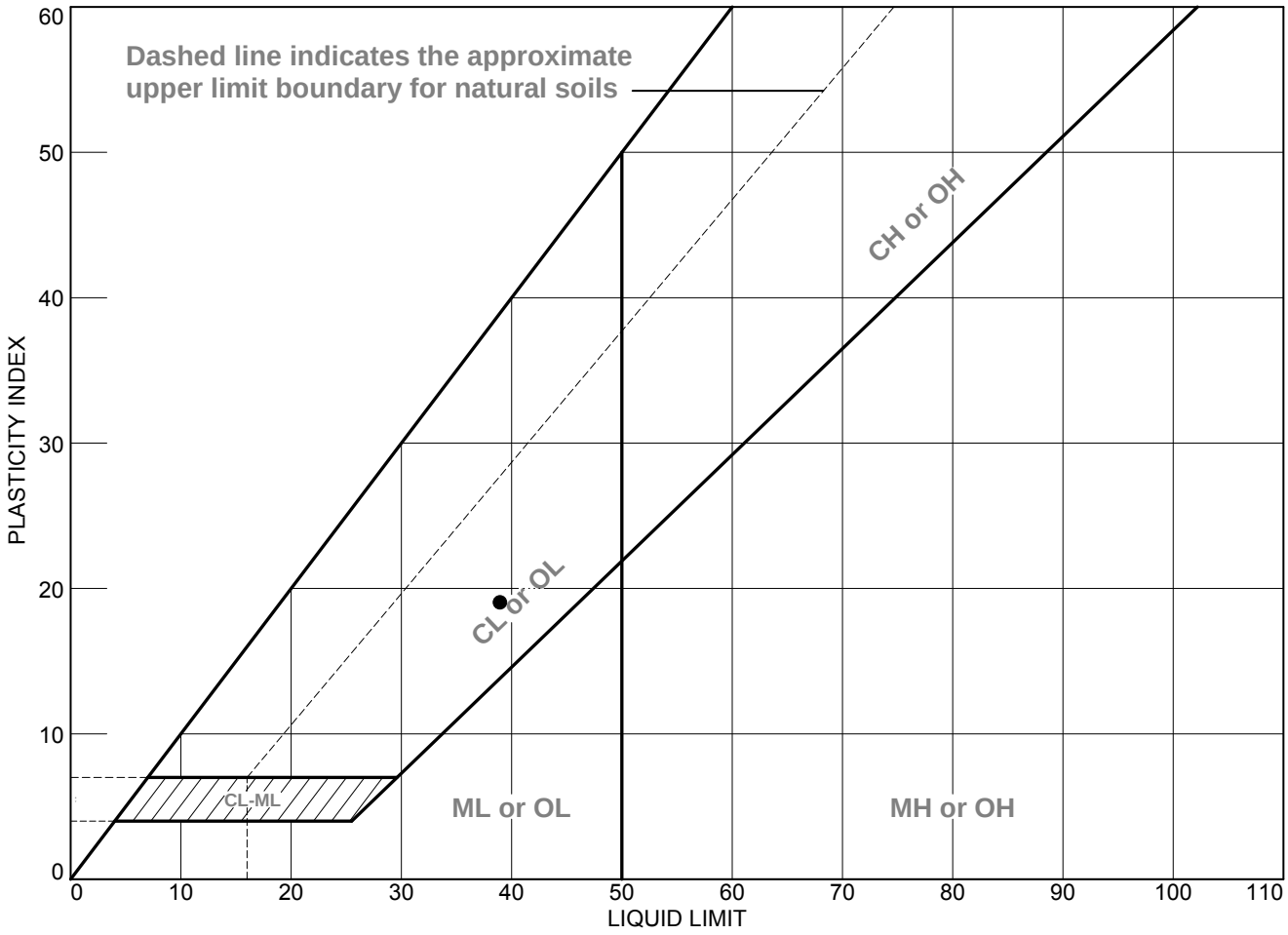
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: RZ **Checked By:** GW

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-6	S-6	9-11'	25.2	20	39	19	CL

CDM Smith

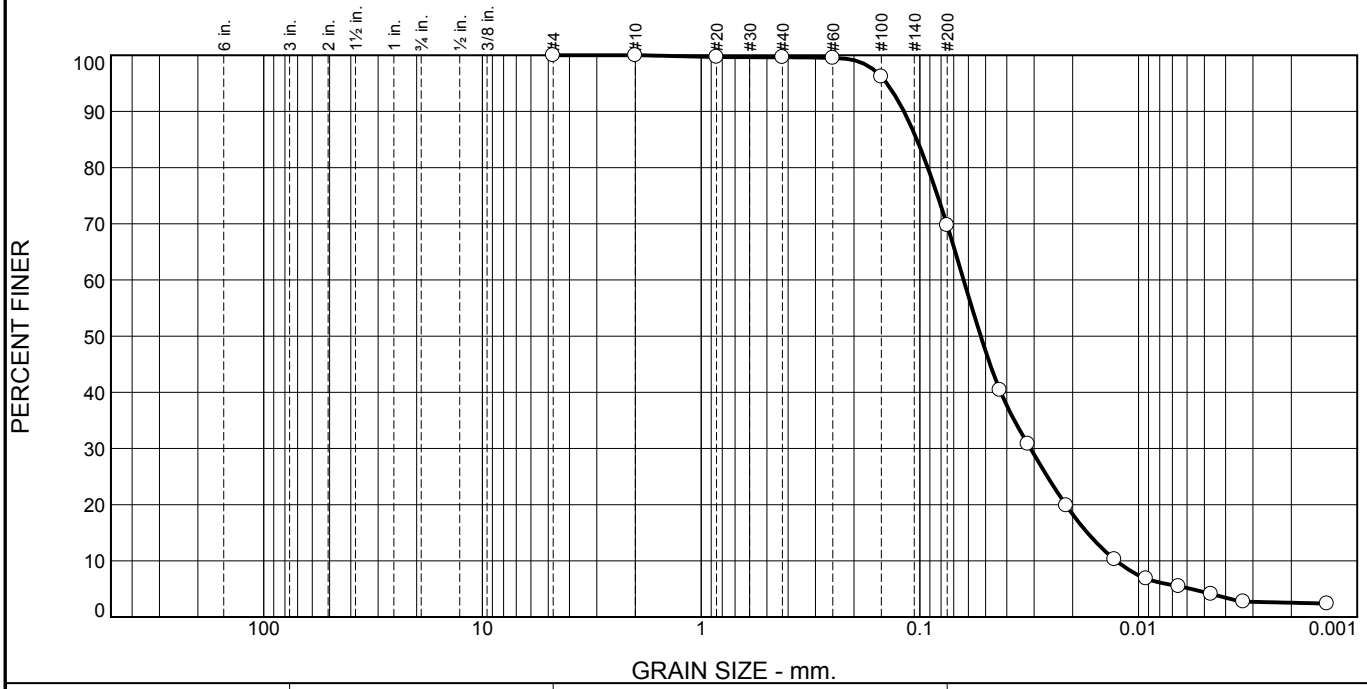
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: GW **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	29.8	65.4	4.4

Test Results (ASTM D7928 & D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	100.0		
#20	99.7		
#40	99.6		
#60	99.5		
#100	96.2		
#200	69.8		
0.0431 mm.	40.4		
0.0321 mm.	30.8		
0.0214 mm.	19.9		
0.0129 mm.	10.3		
0.0092 mm.	6.8		
0.0066 mm.	5.5		
0.0047 mm.	4.1		
0.0033 mm.	2.7		
0.0014 mm.	2.4		

* (no specification provided)

Material Description

Gray sandy silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= ML **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 0.1182 D_{85}= 0.1032 D_{60}= 0.0630
D_{50}= 0.0527 D_{30}= 0.0312 D_{15}= 0.0171
D_{10}= 0.0126 C_u= 4.99 C_c= 1.22

Remarks

As received MC = 22.3%

Date Received: 8/1/2017 **Date Tested:** 8/22/2017

Tested By: MP

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-6 **Depth:** 35-37' **Date Sampled:** 7/26/2017

Sample Number: S-12b

CDM Smith

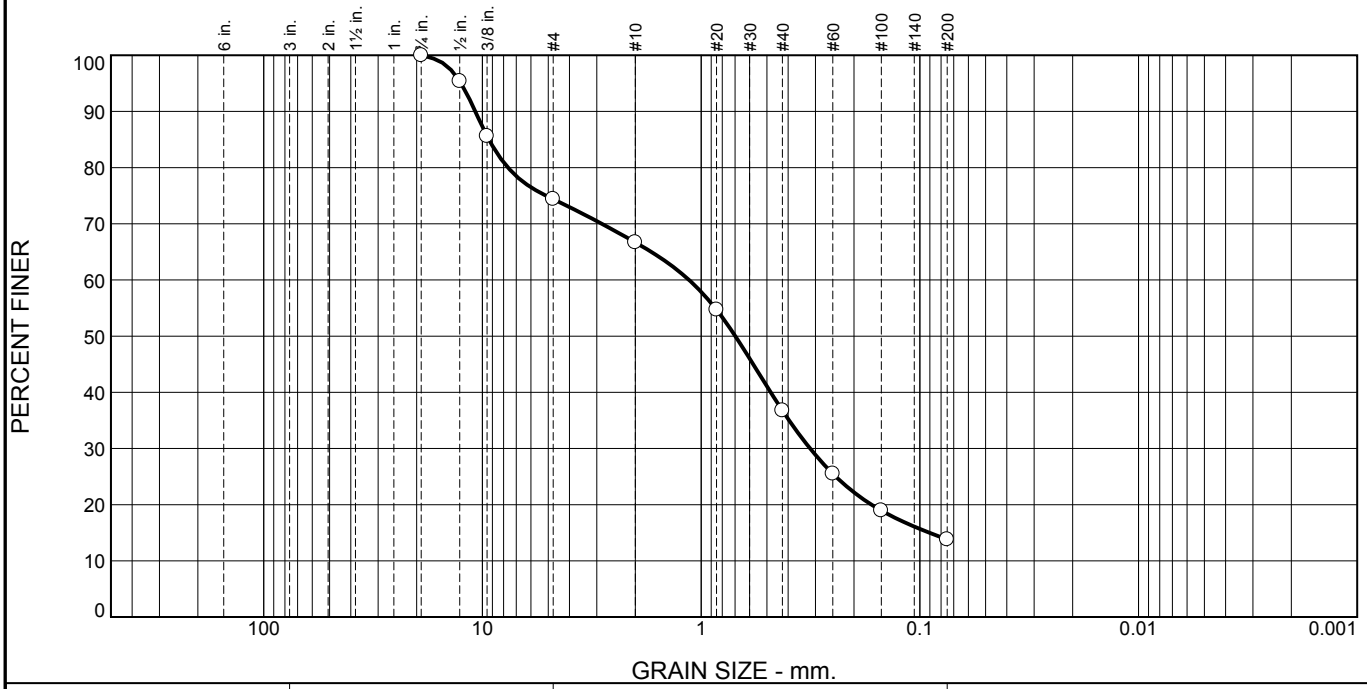
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	25.6	7.7	29.9	23.0	13.8	

Test Results (ASTM C136 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75"	100.0		
.5"	95.4		
.375"	85.6		
#4	74.4		
#10	66.7		
#20	54.7		
#40	36.8		
#60	25.5		
#100	19.0		
#200	13.8		

* (no specification provided)

Material Description

Dark gray silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 10.7845 D_{85}= 9.3448 D_{60}= 1.1356
D_{50}= 0.6976 D_{30}= 0.3175 D_{15}= 0.0903
D_{10}= C_u= C_c=

Remarks

As recieved MC = 15.2%

Date Received: 8/1/2017 **Date Tested:** 8/22/17

Tested By: RZ

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-7 **Depth:** 2-4'
Sample Number: S-2

Date Sampled: 7/17/2017

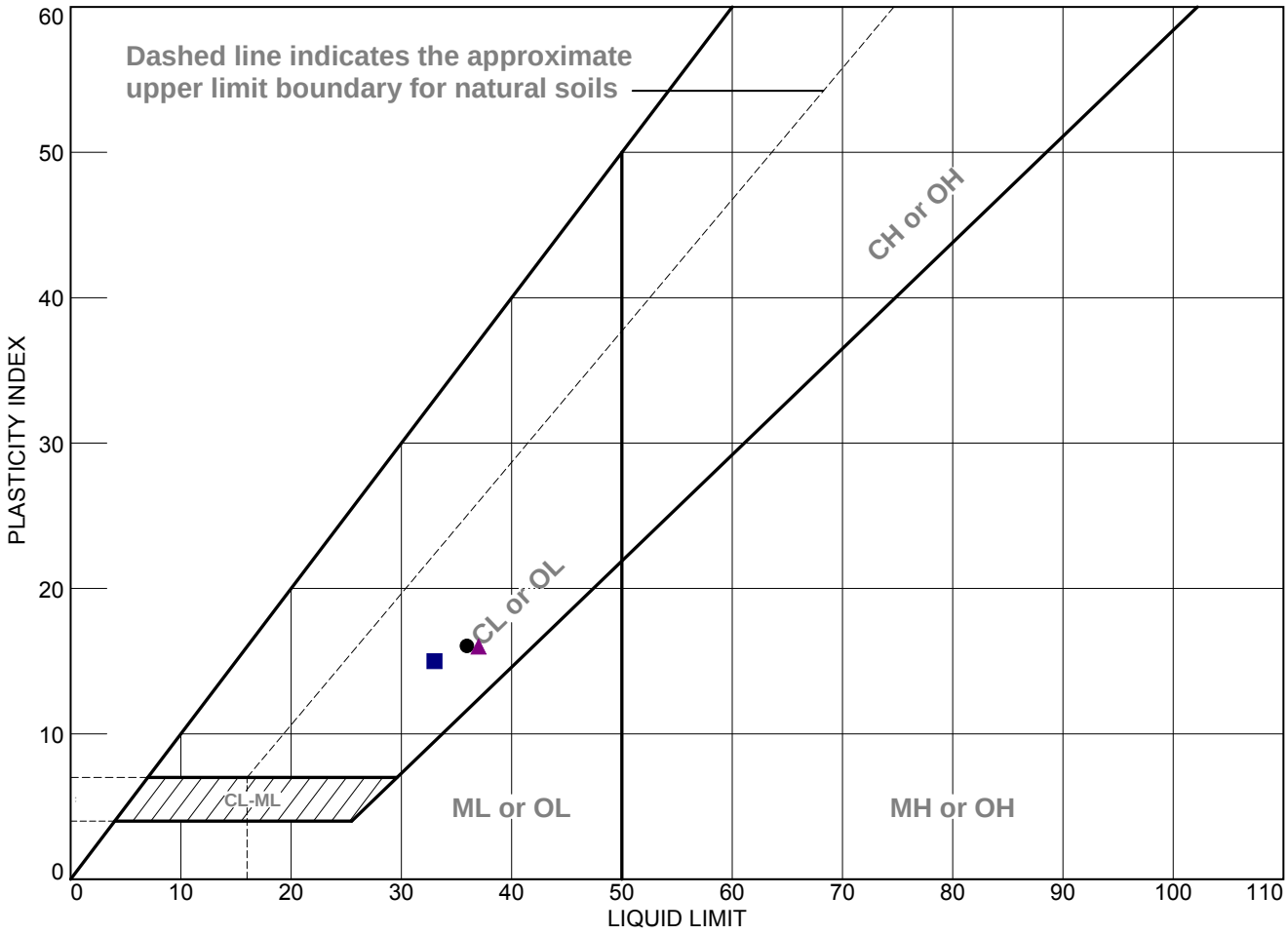
CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-7	S-15	39-41'	28.6	20	36	16	
■	CDM-7	S-19	59-61'	31.6	18	33	15	
▲	CDM-7	S-21b	69-71'	33.3	21	37	16	

CDM Smith

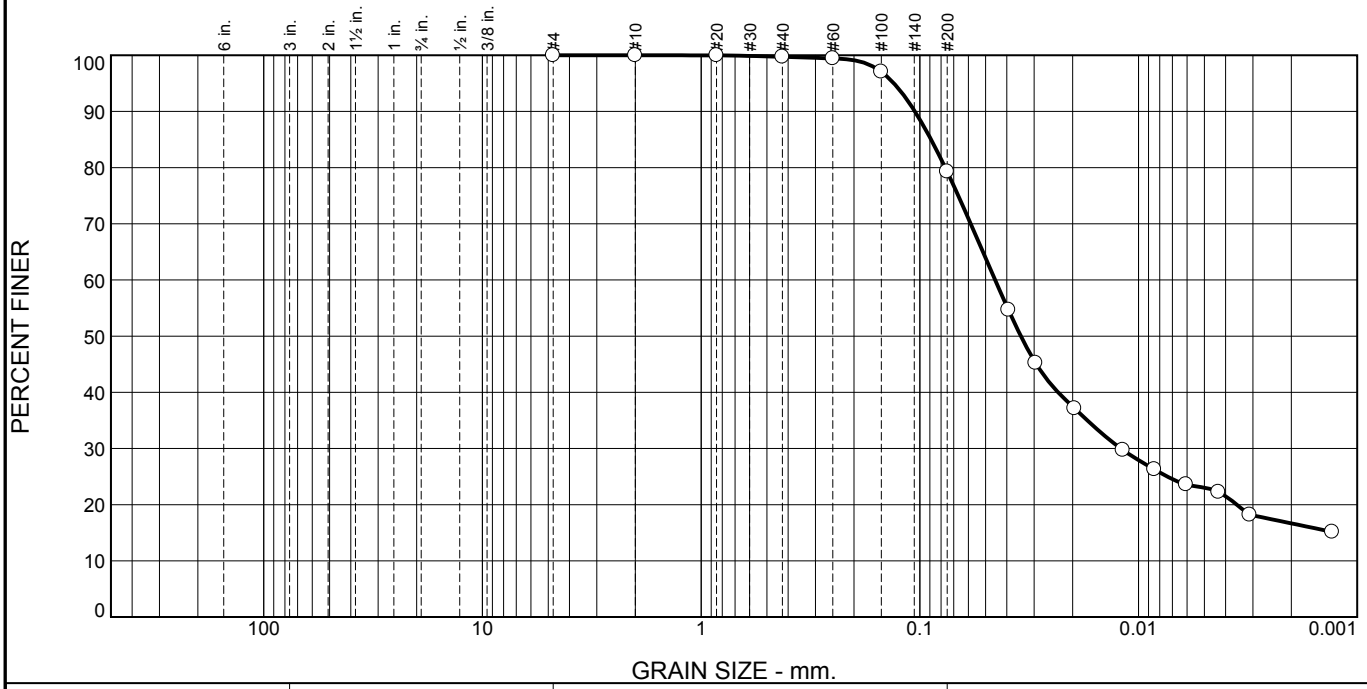
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: ○ GW □ RZ △ RZ **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	20.4	56.3	23.0

Test Results (ASTM D7928 & D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.7		
#60	99.4		
#100	97.1		
#200	79.3		
0.0393 mm.	54.7		
0.0296 mm.	45.2		
0.0196 mm.	37.1		
0.0118 mm.	29.7		
0.0085 mm.	26.3		
0.0061 mm.	23.6		
0.0043 mm.	22.3		
0.0031 mm.	18.2		
0.0013 mm.	15.2		

* (no specification provided)

Material Description

Gray silt with sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= ML **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 0.1054 D_{85}= 0.0888 D_{60}= 0.0453
D_{50}= 0.0345 D_{30}= 0.0121 D_{15}=
D_{10}= C_u= C_c=

Remarks

As received MC = 32.2%

Date Received: 8/1/2017 **Date Tested:** 8/22/2017

Tested By: MP

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-7 **Depth:** 69-71' **Date Sampled:** 7/18/2017

Sample Number: S-21a

CDM Smith

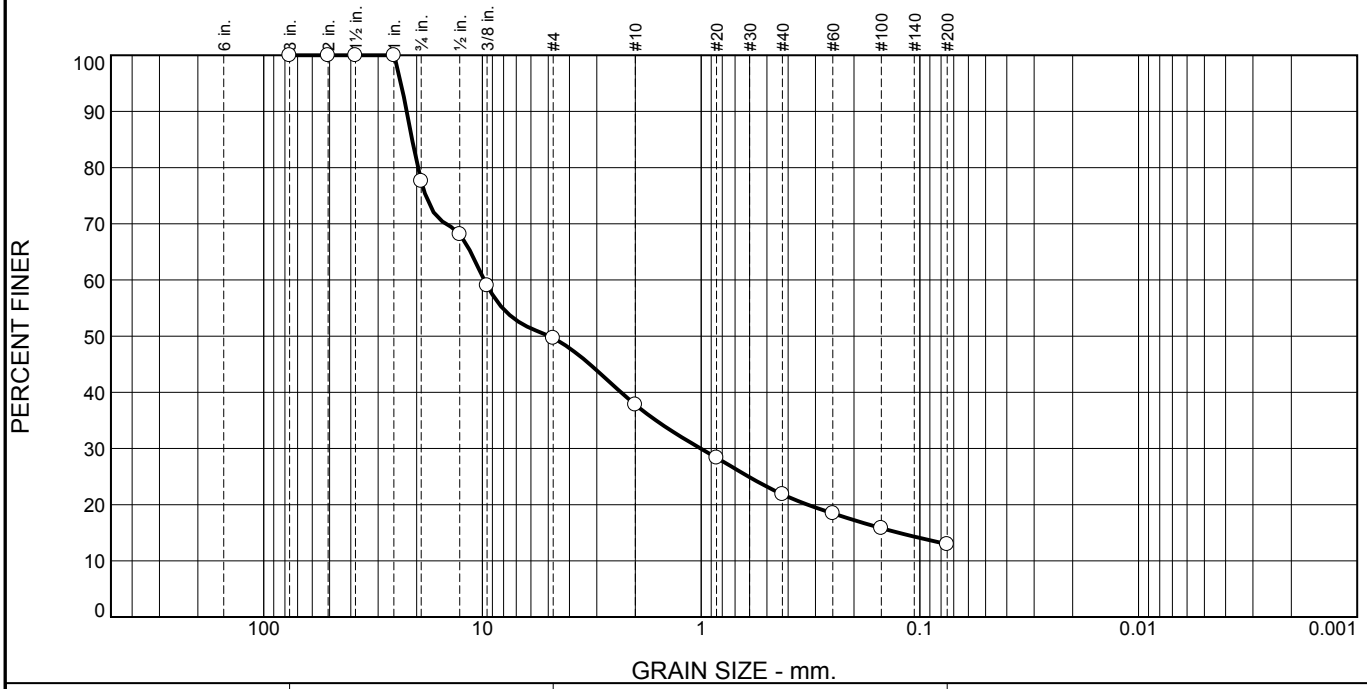
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	22.4	27.9	11.9	16.0	8.8	13.0	

Test Results (ASTM C136 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
2"	100.0		
1.5"	100.0		
1"	100.0		
.75"	77.6		
.5"	68.1		
.375"	59.0		
#4	49.7		
#10	37.8		
#20	28.4		
#40	21.8		
#60	18.5		
#100	15.8		
#200	13.0		

* (no specification provided)

Material Description

Gray silty gravel with sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 22.1975 D_{85}= 20.9668 D_{60}= 9.8193
D_{50}= 4.9487 D_{30}= 1.0046 D_{15}= 0.1249
D_{10}= C_u= C_c=

Remarks

As received MC = 8.2%

Date Received: 8/1/2017 **Date Tested:** 8/22/2017

Tested By: RZ

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-7 **Depth:** 79-81' **Date Sampled:** 7/18/2017

Sample Number: S-23

CDM Smith

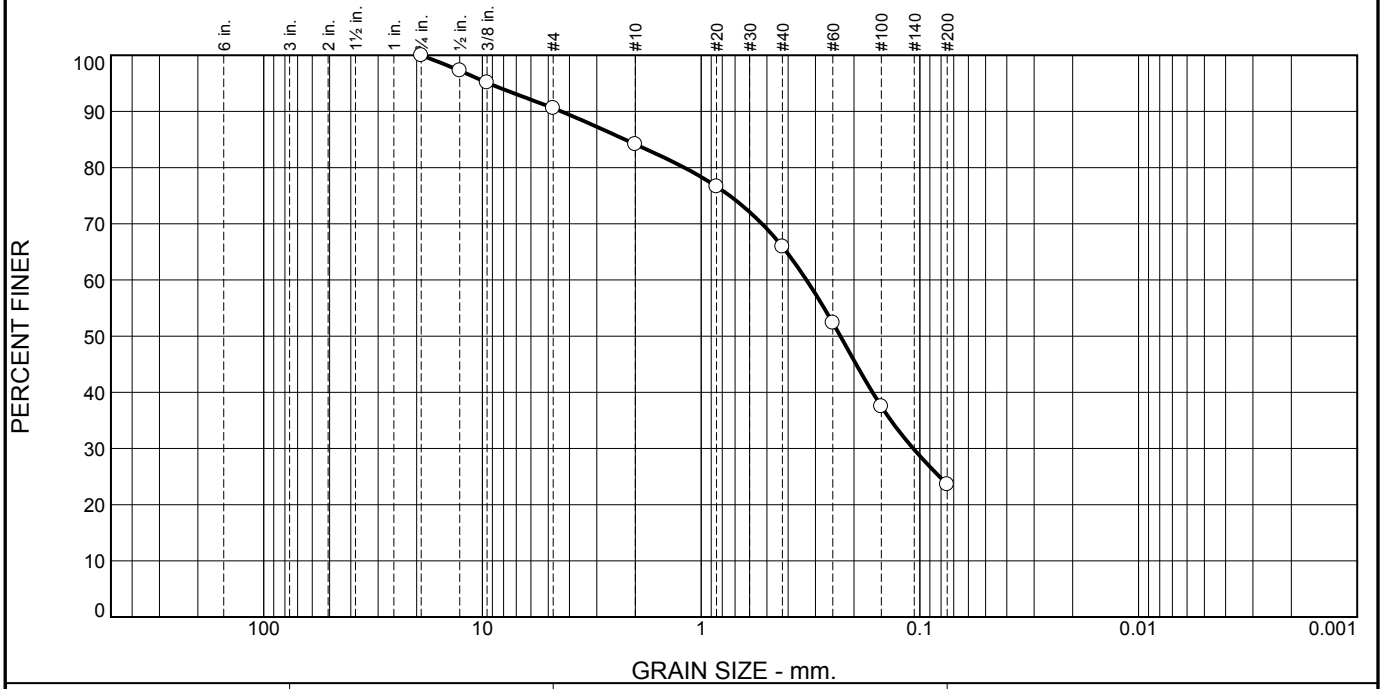
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	9.4	6.4	18.3	42.3	23.6	

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75"	100.0		
.5"	97.3		
.375"	95.1		
#4	90.6		
#10	84.2		
#20	76.6		
#40	65.9		
#60	52.4		
#100	37.5		
#200	23.6		

* (no specification provided)

Material Description

Gray silty sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 4.3595 D_{85}= 2.2316 D_{60}= 0.3298
D_{50}= 0.2308 D_{30}= 0.1072 D_{15}=
D_{10}= C_u= C_c=

Remarks

As received MC = 14.8%

Date Received: 8/21/17 **Date Tested:** 8/31/17

Tested By: RZ

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-8 **Depth:** 4-6' **Date Sampled:** 7/18/17

Sample Number: S-3

CDM Smith

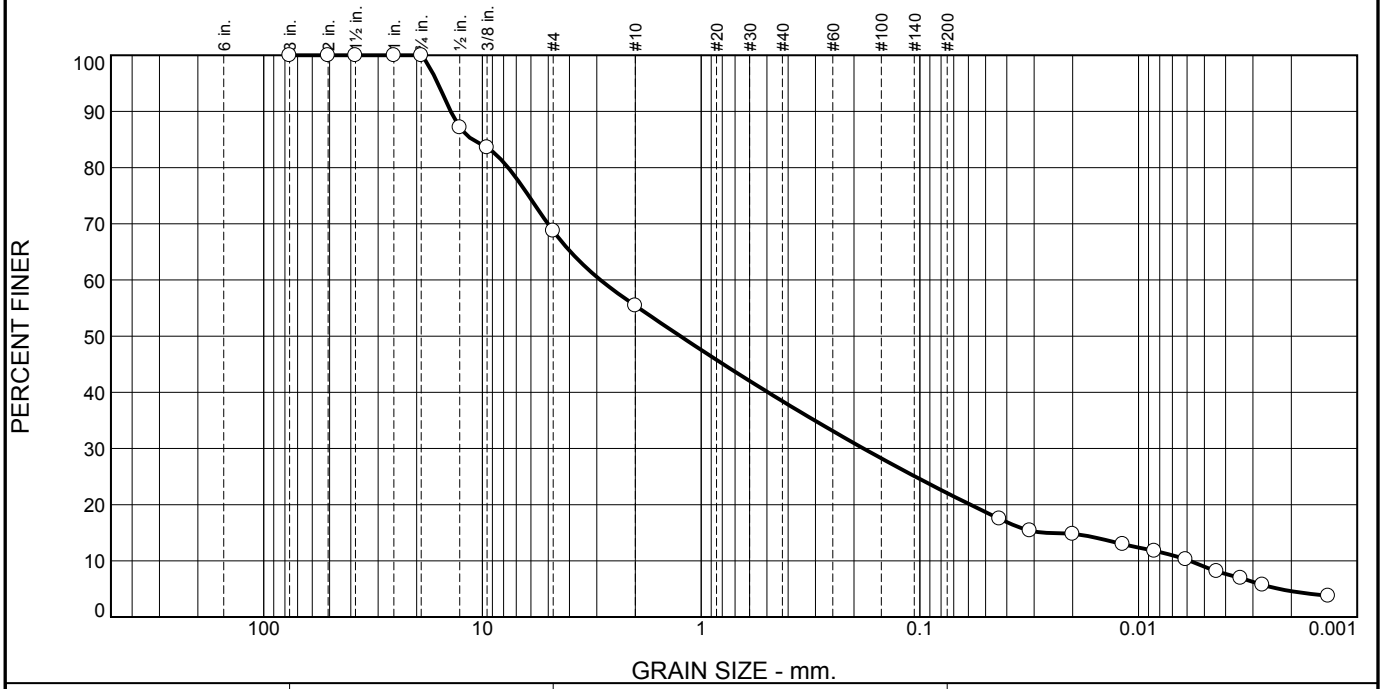
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	31.3	13.3	17.0	16.3	13.1	9.0

Test Results (ASTM D7928 & D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.0433 mm.	17.5		
0.0314 mm.	15.4		
0.0200 mm.	14.8		
0.0118 mm.	13.0		
0.0085 mm.	11.8		
0.0061 mm.	10.3		
0.0044 mm.	8.2		
0.0034 mm.	6.9		
0.0027 mm.	5.7		
0.0014 mm.	3.8		

* (no specification provided)

Material Description

Gray silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 13.9625 D_{85}= 11.1171 D_{60}= 2.8871
D_{50}= 1.2444 D_{30}= 0.1809 D_{15}= 0.0265
D_{10}= 0.0058 C_u= 494.84 C_c= 1.94

Remarks

As received MC = 11.2%

Date Received: 8/1/2017 **Date Tested:** 8/24/2017

Tested By: MP/GW

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-8 **Depth:** 50-52' **Date Sampled:** 7/19/2017

Sample Number: S-17

CDM Smith

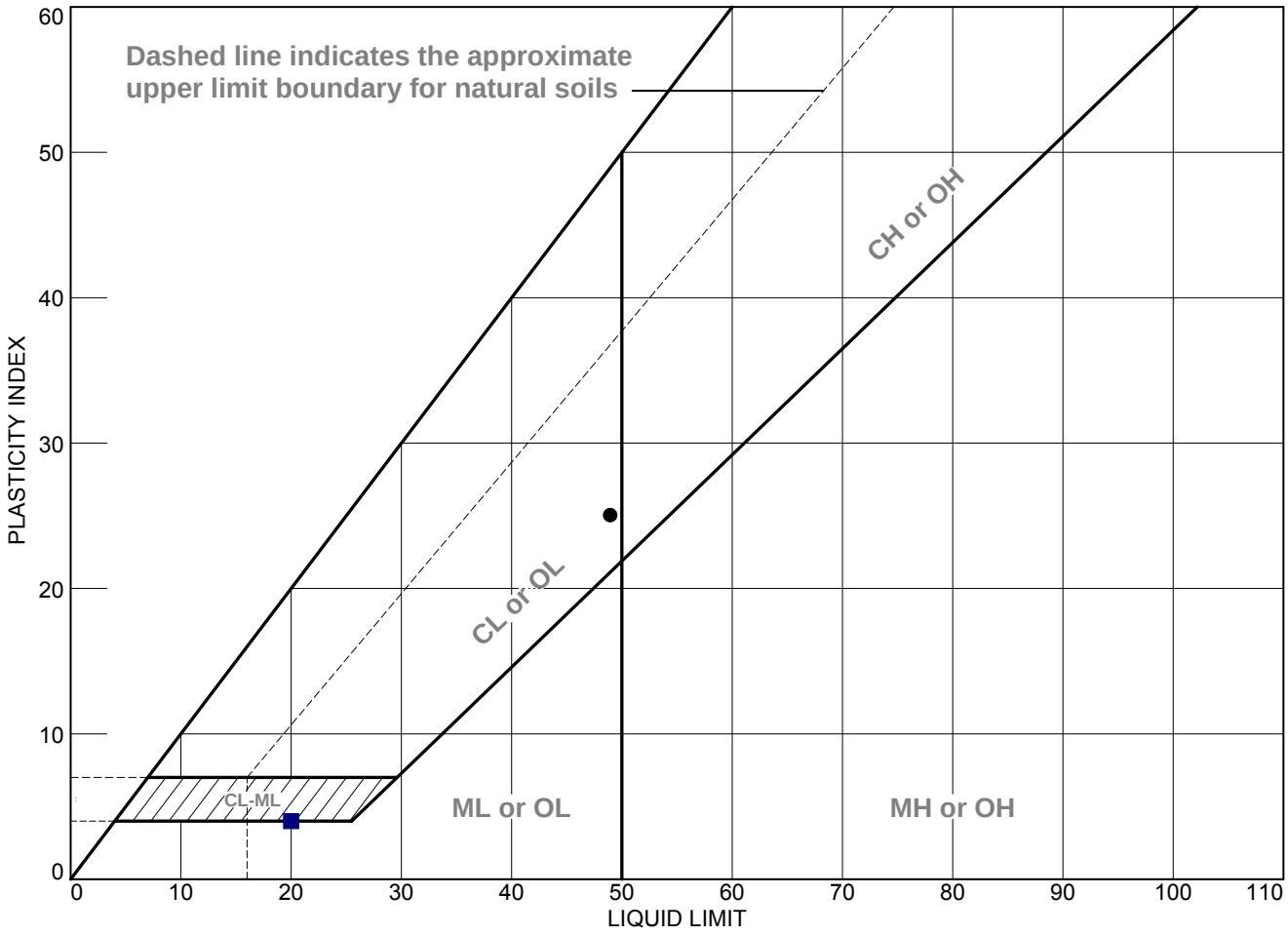
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-8	S-14	30-32'	35.3	24	49	25	CL
■	CDM-8	S-18	55-57'	9.4	16	20	4	CL-ML

CDM Smith

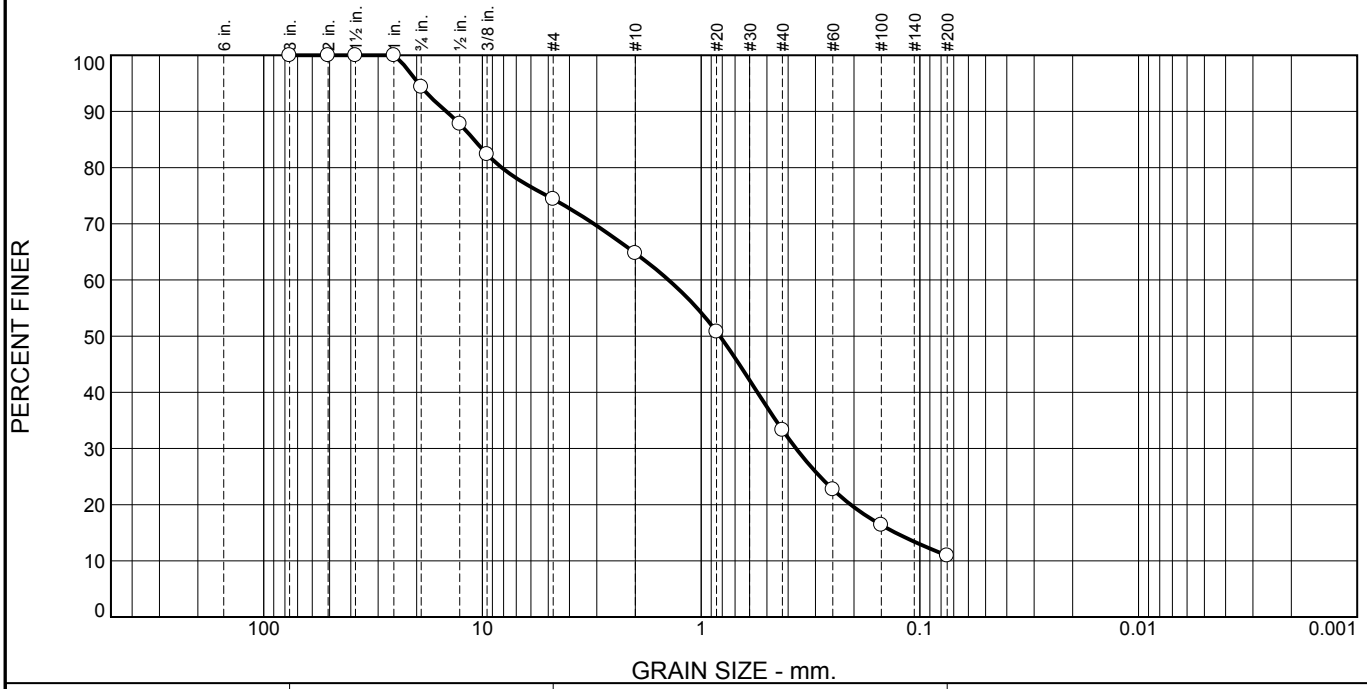
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: ○ GW □ RZ **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.6	20.0	9.6	31.5	22.4	10.9	

Test Results (ASTM C136 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
2"	100.0		
1.5"	100.0		
1"	100.0		
.75"	94.4		
.5"	87.8		
.375"	82.4		
#4	74.4		
#10	64.8		
#20	50.8		
#40	33.3		
#60	22.7		
#100	16.4		
#200	10.9		

* (no specification provided)

Material Description

Brown-gray poorly graded sand with silt and gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP-SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 14.6216 D_{85}= 10.9477 D_{60}= 1.4085
D_{50}= 0.8210 D_{30}= 0.3679 D_{15}= 0.1289
D_{10}= C_u= C_c=

Remarks

As received MC = 10.9%

Date Received: 8/1/2017 **Date Tested:** 8/22/2017

Tested By: RZ

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-9 **Depth:** 2-4' **Date Sampled:** 7/27/2017

Sample Number: S-2

CDM Smith

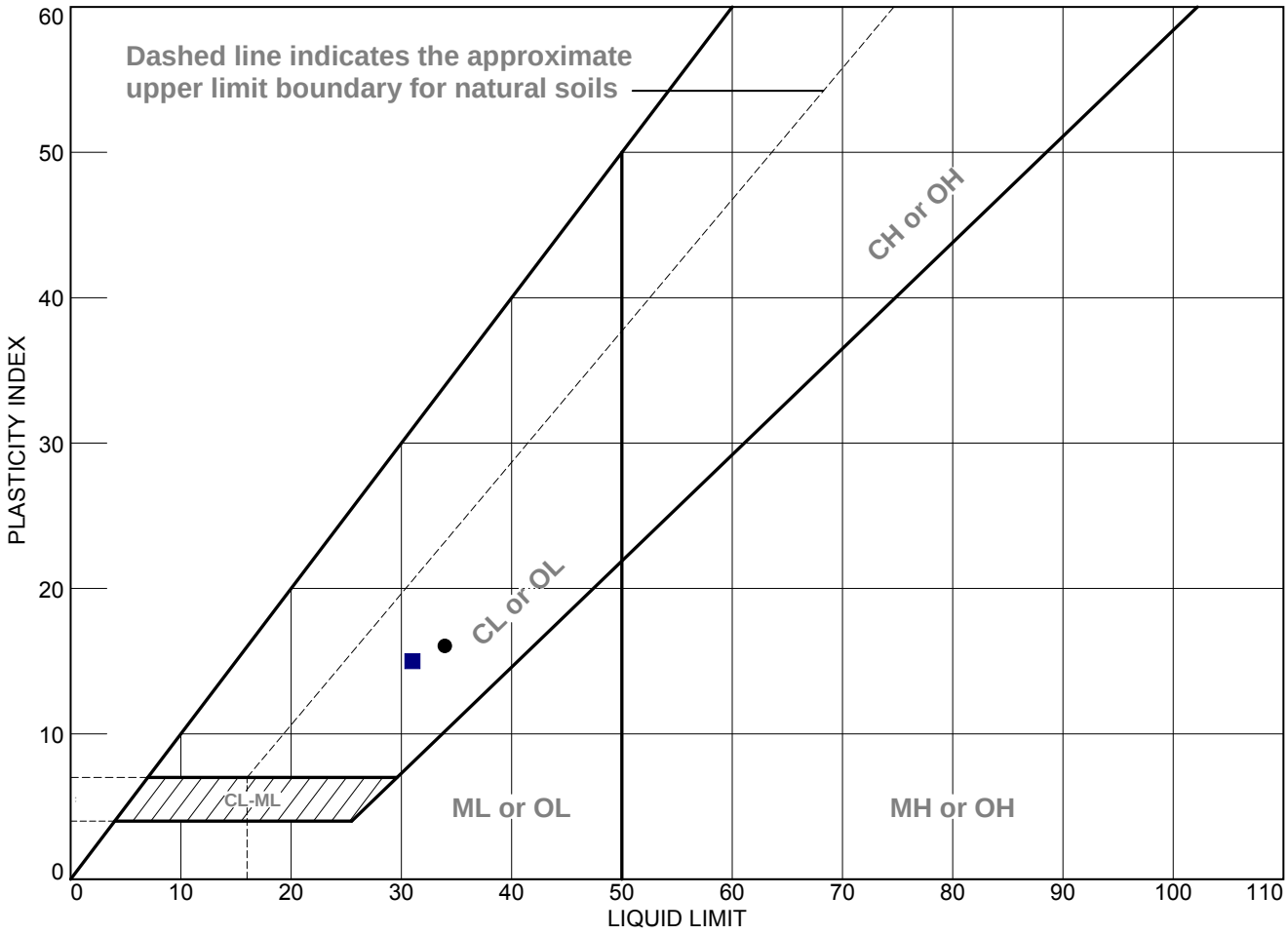
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-9	S-12	22-24'	28.4	18	34	16	CL
■	CDM-9	S-14	26-28'	25.1	16	31	15	CL

CDM Smith

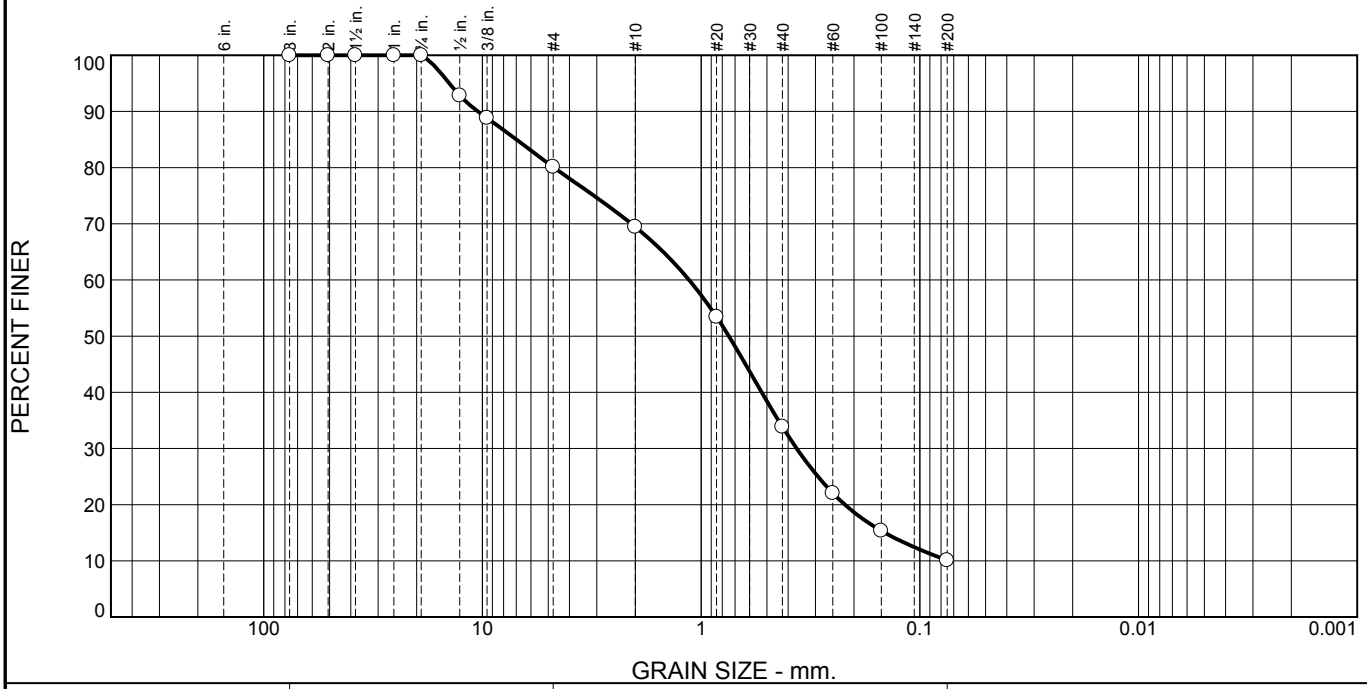
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: ○ RZ □ GW **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	19.9	10.7	35.5	23.8	10.1	

Test Results (ASTM C136 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
2"	100.0		
1.5"	100.0		
1"	100.0		
.75"	100.0		
.5"	92.8		
.375"	88.8		
#4	80.1		
#10	69.4		
#20	53.4		
#40	33.9		
#60	22.0		
#100	15.4		
#200	10.1		

* (no specification provided)

Material Description

Brown poorly graded sand with silt and gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP-SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 10.4869 D_{85}= 6.9981 D_{60}= 1.1348
D_{50}= 0.7472 D_{30}= 0.3656 D_{15}= 0.1445
D_{10}= C_u= C_c=

Remarks

As received MC = 5.1%

Date Received: 8/1/2017 **Date Tested:** 8/22/2017

Tested By: RZ

Checked By: MP

Title: Laboratory Manager

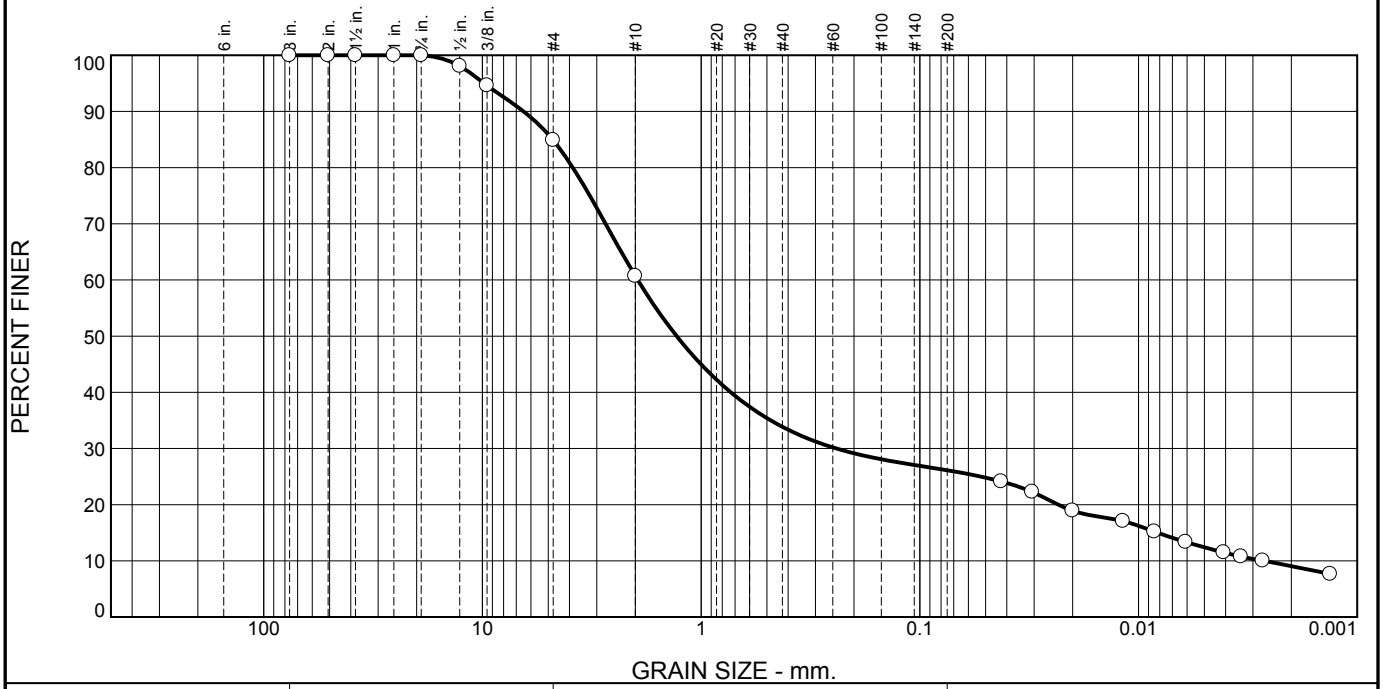
Source of Sample: CDM-10 **Depth:** 0.5-2' **Date Sampled:** 7/31/2017
Sample Number: S-1

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	15.1	24.2	26.8	7.8	13.7	12.4

Test Results (ASTM D7928 & D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.0425 mm.	24.1		
0.0306 mm.	22.3		
0.0200 mm.	18.9		
0.0118 mm.	17.1		
0.0085 mm.	15.2		
0.0061 mm.	13.4		
0.0041 mm.	11.5		
0.0034 mm.	10.8		
0.0027 mm.	10.0		
0.0013 mm.	7.7		

* (no specification provided)

Material Description

Brown-gray silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 6.4884 D_{85}= 4.7733 D_{60}= 1.9494
D_{50}= 1.2937 D_{30}= 0.2408 D_{15}= 0.0082
D_{10}= 0.0027 C_u= 726.81 C_c= 11.09

Remarks

As received MC = 16.8%

Date Received: 8/1/2017 **Date Tested:** 8/24/2017

Tested By: MP/GW

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-10 **Depth:** 6-8' **Date Sampled:** 7/31/2017

Sample Number: S-4

CDM Smith

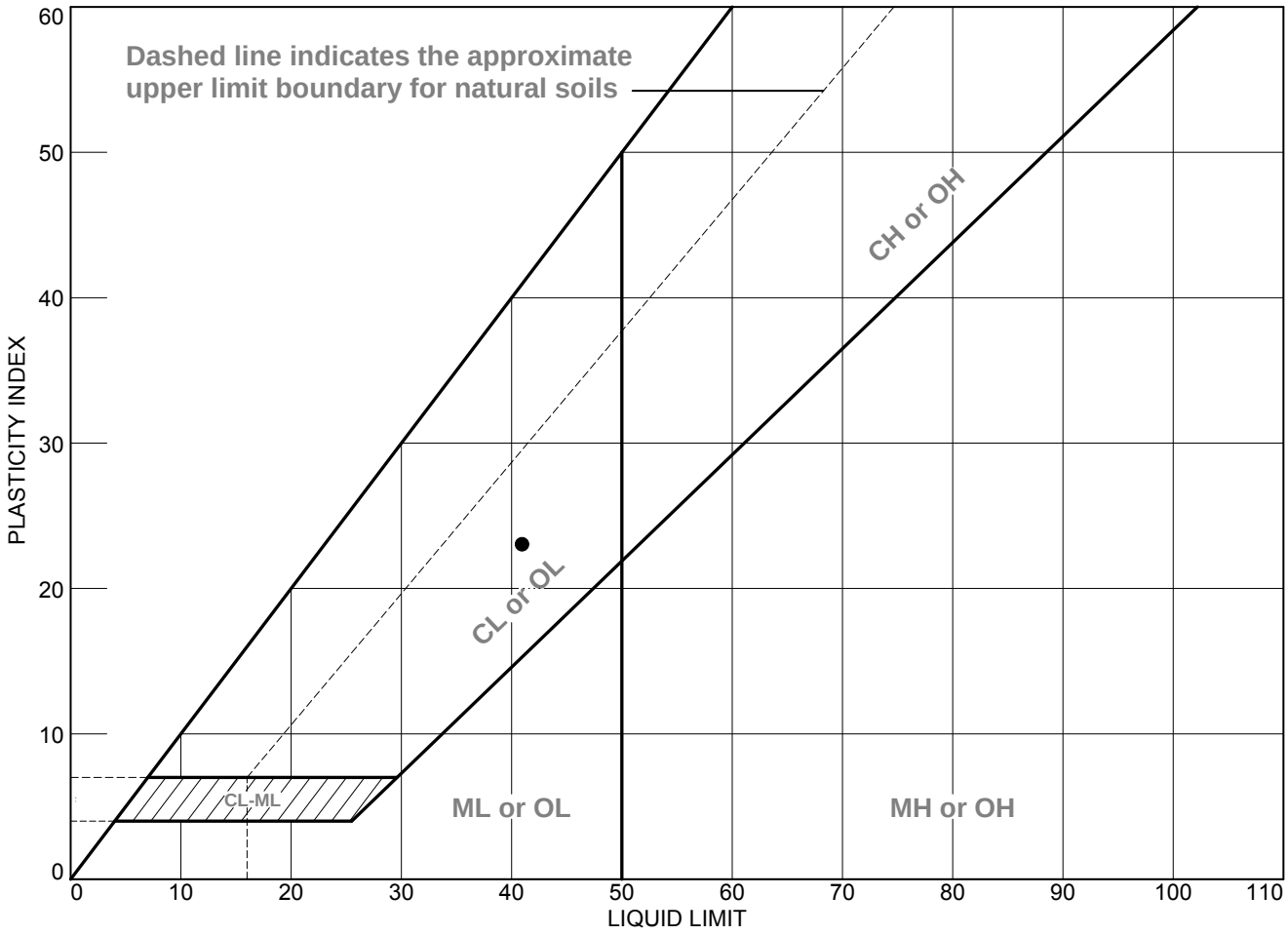
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-10	S-6	10-12'	24.9	18	41	23	CL

CDM Smith

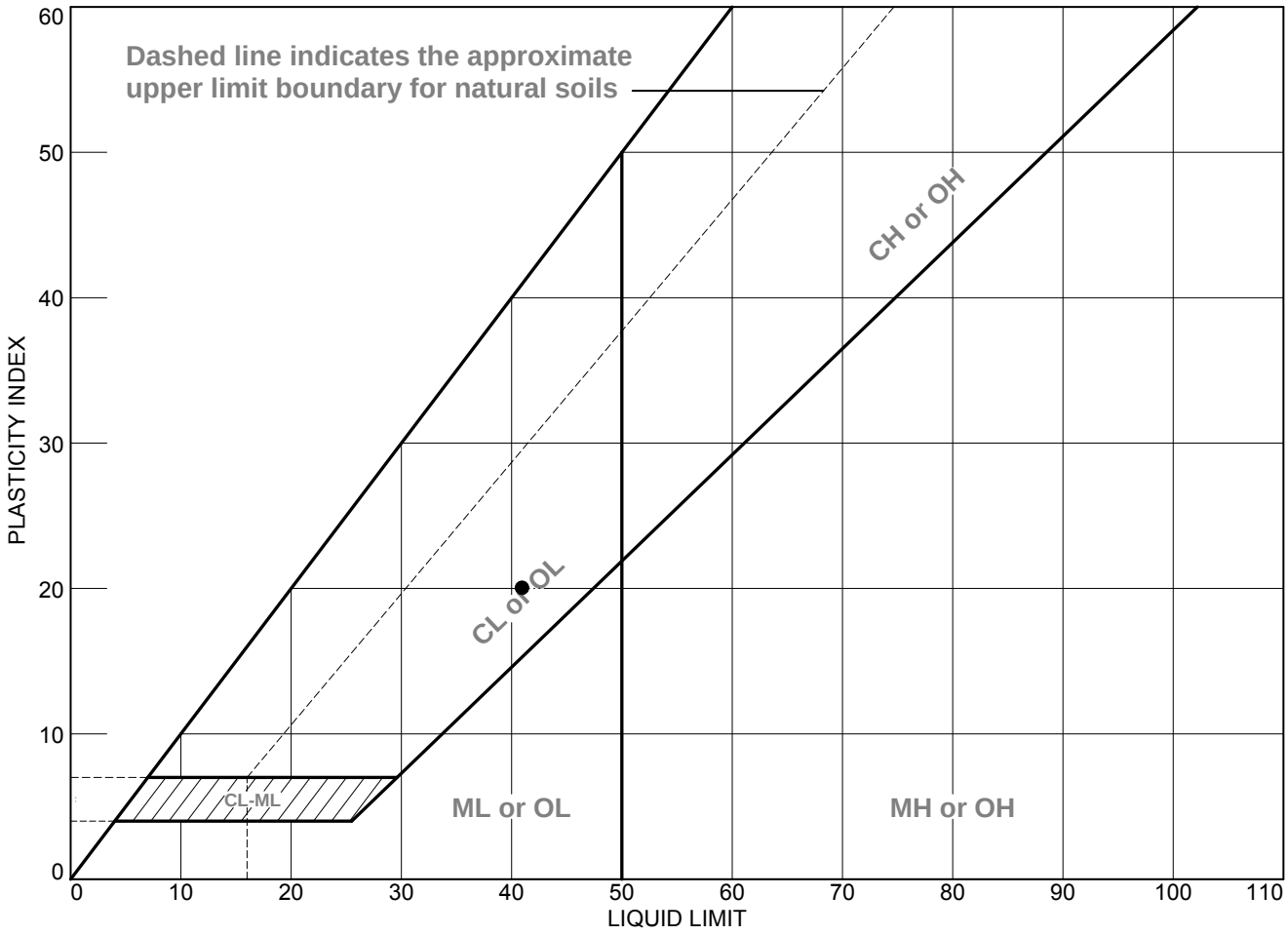
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: RZ **Checked By:** MP

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-11	S-10	18-20'	28.2	21	41	20	CL

CDM Smith

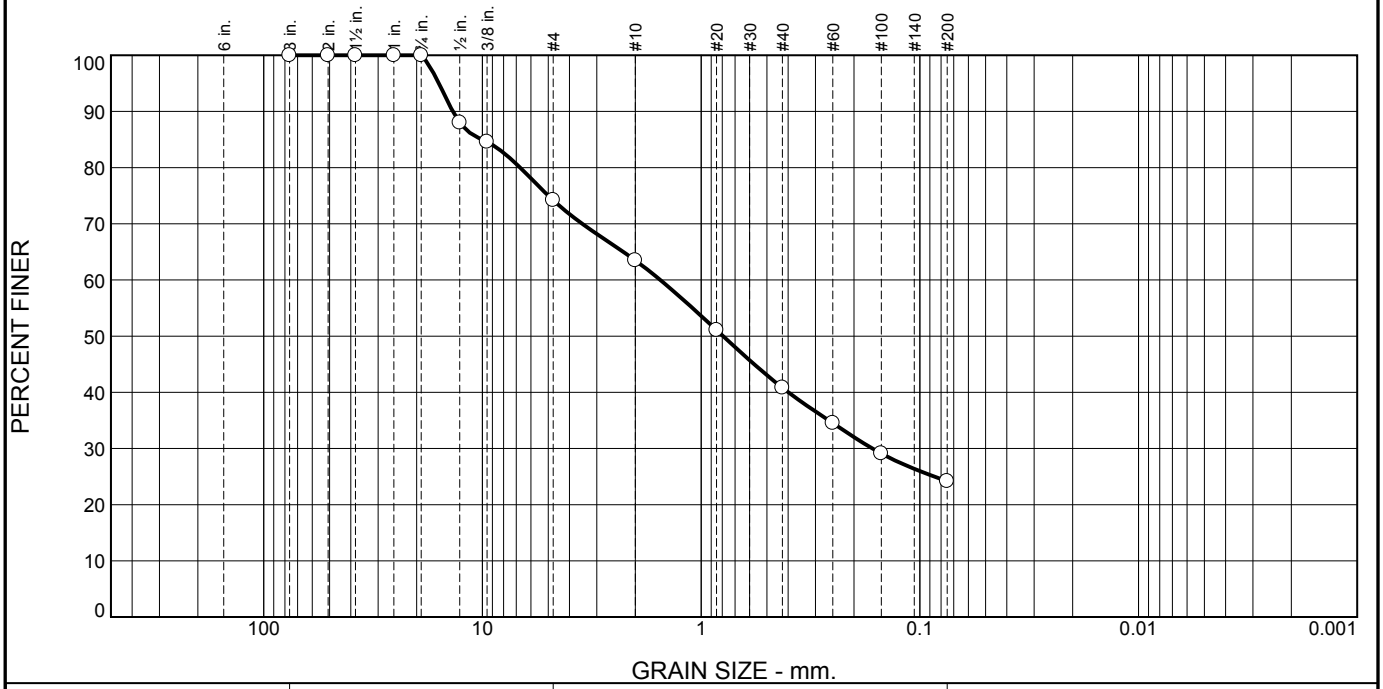
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: GW **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	25.8	10.7	22.7	16.6	24.2	

Test Results (ASTM C136 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
2"	100.0		
1.5"	100.0		
1"	100.0		
.75"	100.0		
.5"	88.0		
.375"	84.6		
#4	74.2		
#10	63.5		
#20	51.1		
#40	40.8		
#60	34.5		
#100	29.1		
#200	24.2		

* (no specification provided)

Material Description

Gray silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 13.6626 D_{85}= 10.0220 D_{60}= 1.5383
D_{50}= 0.7933 D_{30}= 0.1647 D_{15}=
D_{10}= C_u= C_c=

Remarks

As received MC = 16.2%

Date Received: 8/13/2017 **Date Tested:** 8/22/2017

Tested By: RZ

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-12 **Depth:** 2-4' **Date Sampled:** 8/9/2017

Sample Number: S-2

CDM Smith

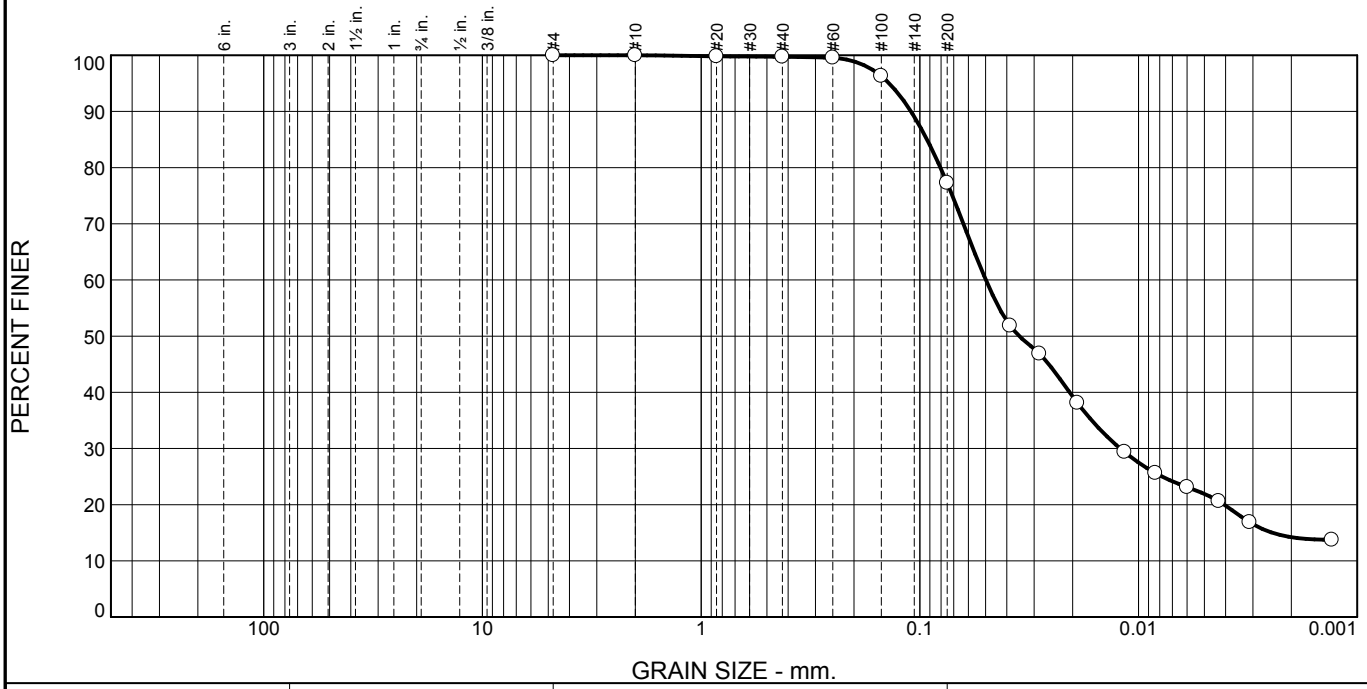
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	22.4	55.4	21.9

Test Results (ASTM D7928 & D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	100.0		
#20	99.8		
#40	99.7		
#60	99.6		
#100	96.3		
#200	77.3		
0.0387 mm.	51.9		
0.0284 mm.	46.9		
0.0190 mm.	38.1		
0.0116 mm.	29.4		
0.0084 mm.	25.6		
0.0060 mm.	23.1		
0.0043 mm.	20.6		
0.0031 mm.	16.9		
0.0013 mm.	13.7		

* (no specification provided)

Material Description

Gray silty clay with sand

Atterberg Limits (ASTM D 4318)

PL= 16 **LL=** 21 **PI=** 5

Classification

USCS (D 2487)= CL-ML **AASHTO (M 145)=** A-4(1)

Coefficients

D_{90}= 0.1098 D_{85}= 0.0927 D_{60}= 0.0499
D_{50}= 0.0351 D_{30}= 0.0121 D_{15}= 0.0024
D_{10}= C_u= C_c=

Remarks

As received MC = 28.8%

Date Received: 8/13/2017 **Date Tested:** 8/22/2017

Tested By: MP/GW

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-12 **Depth:** 48-50' **Date Sampled:** 8/9/2017

Sample Number: S-13b

CDM Smith

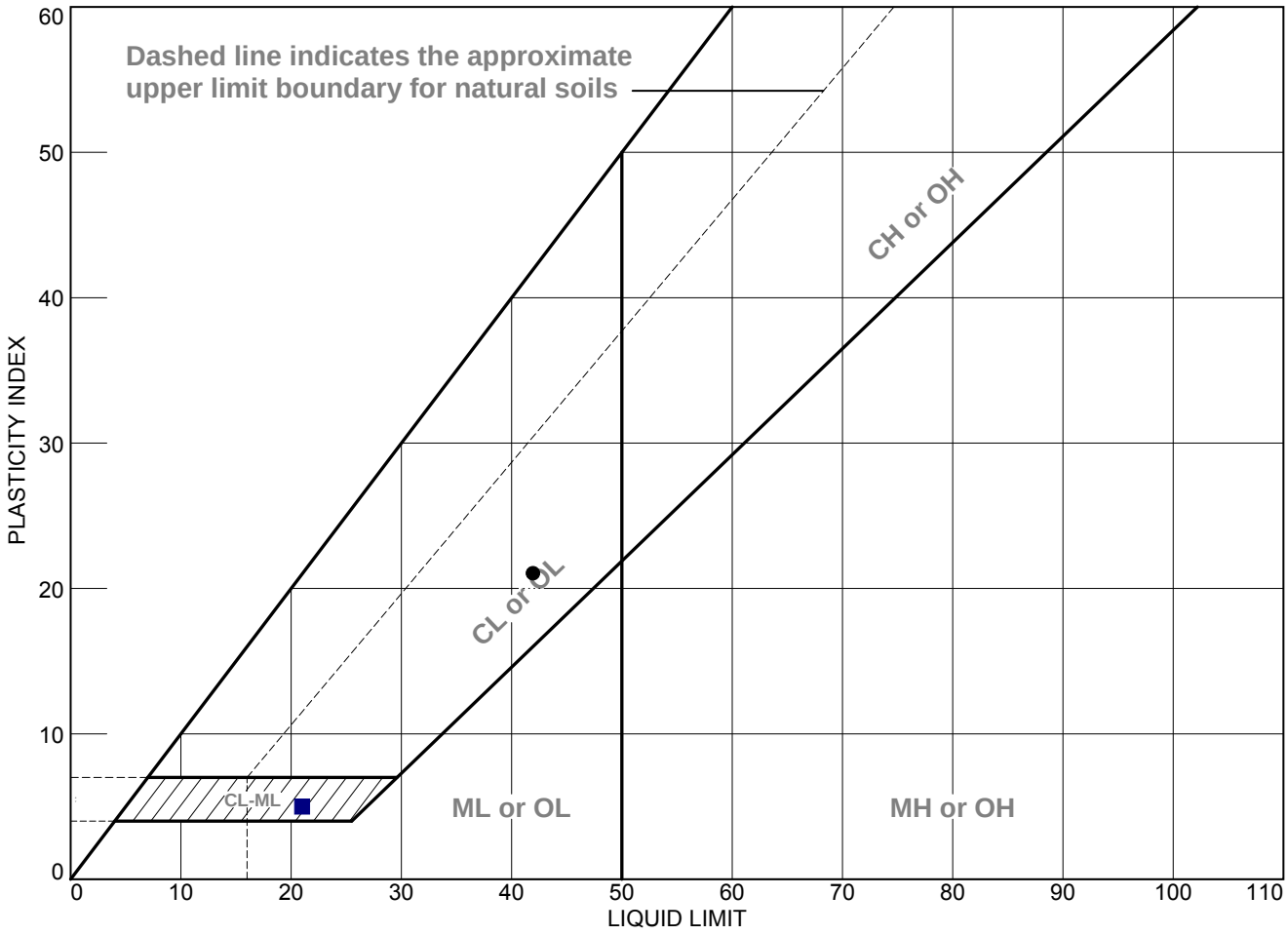
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-12	S-6	14-16'	27.8	21	42	21	CL
■	CDM-12	S-13b	48-50'	28.8	16	21	5	CL-ML

CDM Smith

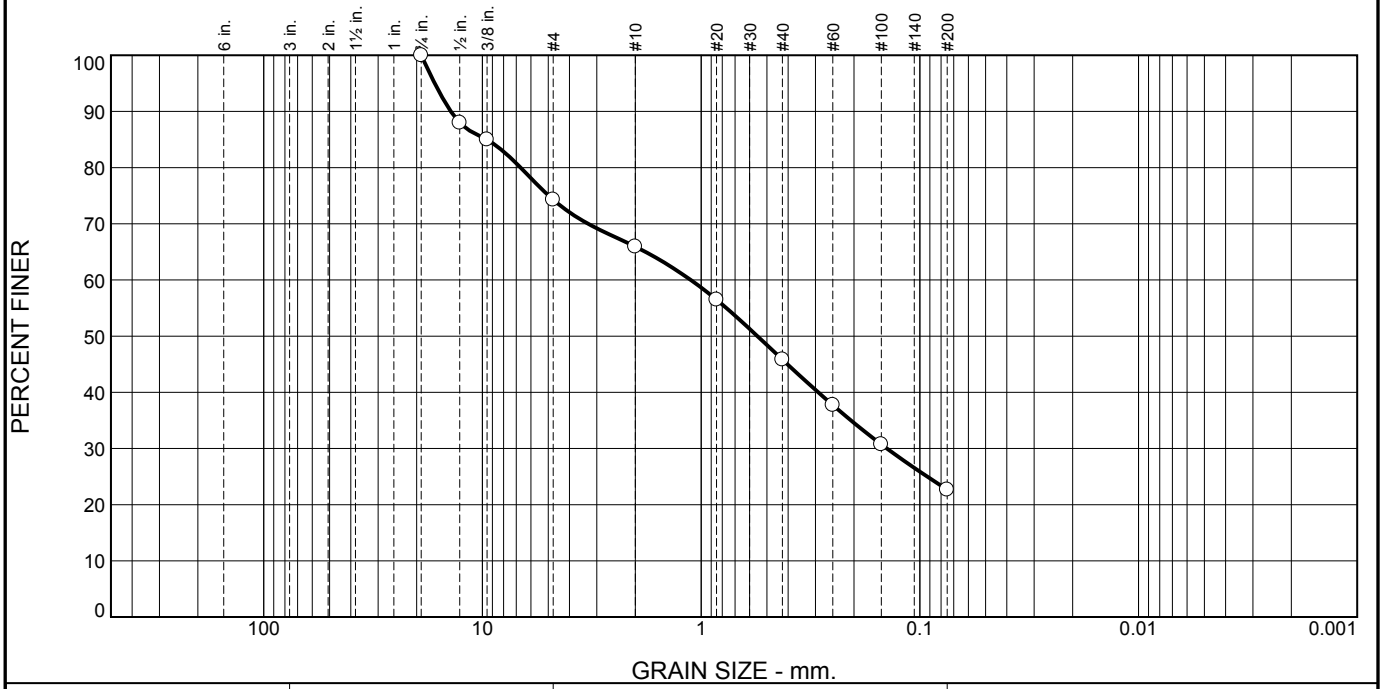
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: ○ GW □ RZ **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	25.7	8.4	20.1	23.1	22.7	

Test Results (ASTM C136 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75"	100.0		
.5"	88.0		
.375"	85.0		
#4	74.3		
#10	65.9		
#20	56.5		
#40	45.8		
#60	37.7		
#100	30.7		
#200	22.7		

* (no specification provided)

Material Description

Brown silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 13.9575 D_{85}= 9.5472 D_{60}= 1.1151
D_{50}= 0.5526 D_{30}= 0.1415 D_{15}=
D_{10}= C_u= C_c=

Remarks

As received MC = 6.7%

Date Received: 8/1/2017 **Date Tested:** 8/22/2017

Tested By: RZ

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-13 **Depth:** 2-4' **Date Sampled:** 7/25/2017

Sample Number: S-2

CDM Smith

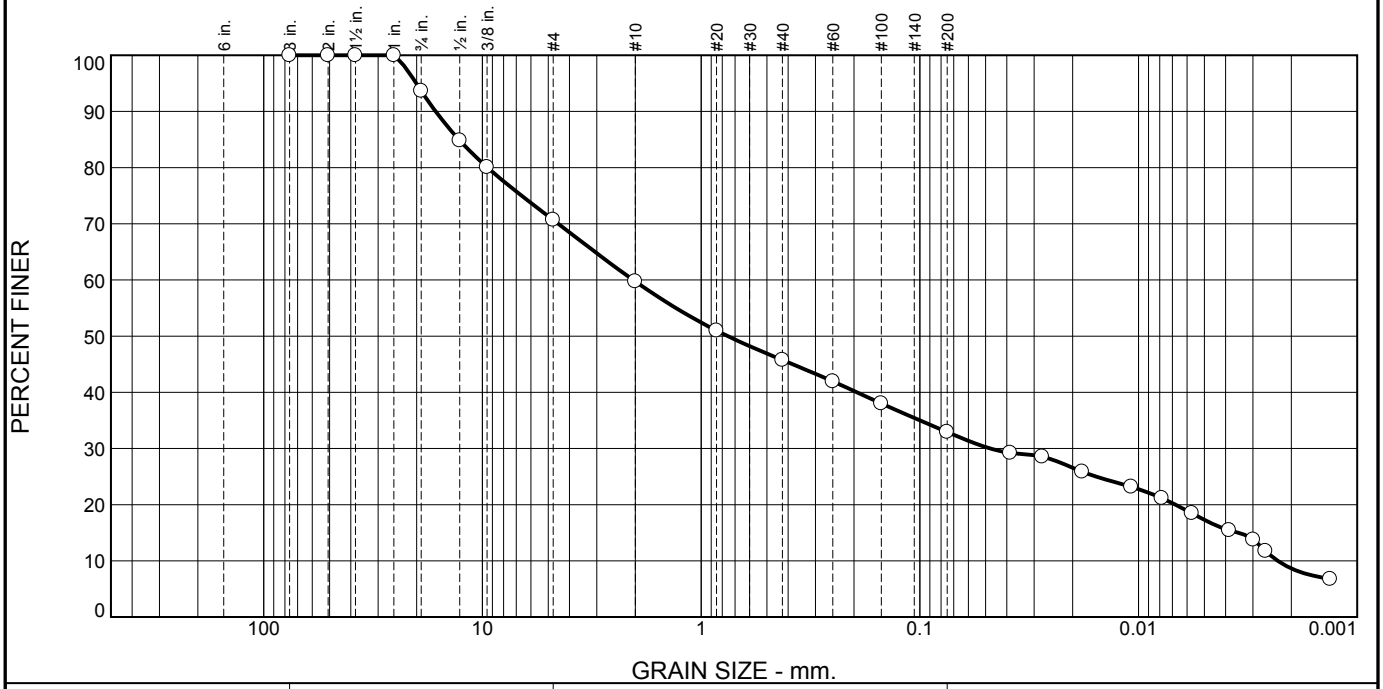
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.3	23.0	11.0	14.0	12.8	15.6	17.3

Test Results (ASTM D7928 & D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0		
2"	100.0		
1.5"	100.0		
1"	100.0		
.75"	93.7		
.5"	84.8		
.375"	80.1		
#4	70.7		
#10	59.7		
#20	51.0		
#40	45.7		
#60	41.9		
#100	38.0		
#200	32.9		
0.0386 mm.	29.2		
0.0276 mm.	28.5		
0.0181 mm.	25.9		
0.0108 mm.	23.2		
0.0078 mm.	21.2		
0.0057 mm.	18.5		
0.0038 mm.	15.4		
0.0030 mm.	13.8		
0.0026 mm.	11.8		
0.0013 mm.	6.8		

* (no specification provided)

Material Description

Gray silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 16.3600 D_{85}= 12.8272 D_{60}= 2.0442
D_{50}= 0.7552 D_{30}= 0.0476 D_{15}= 0.0035
D_{10}= 0.0023 C_u= 885.33 C_c= 0.48

Remarks

As received MC = 10.6%

Date Received: 8/1/2017 **Date Tested:** 8/24/2017

Tested By: MP/GW

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-13 **Depth:** 84-86' **Date Sampled:** 7/26/2017

Sample Number: S-24

CDM Smith

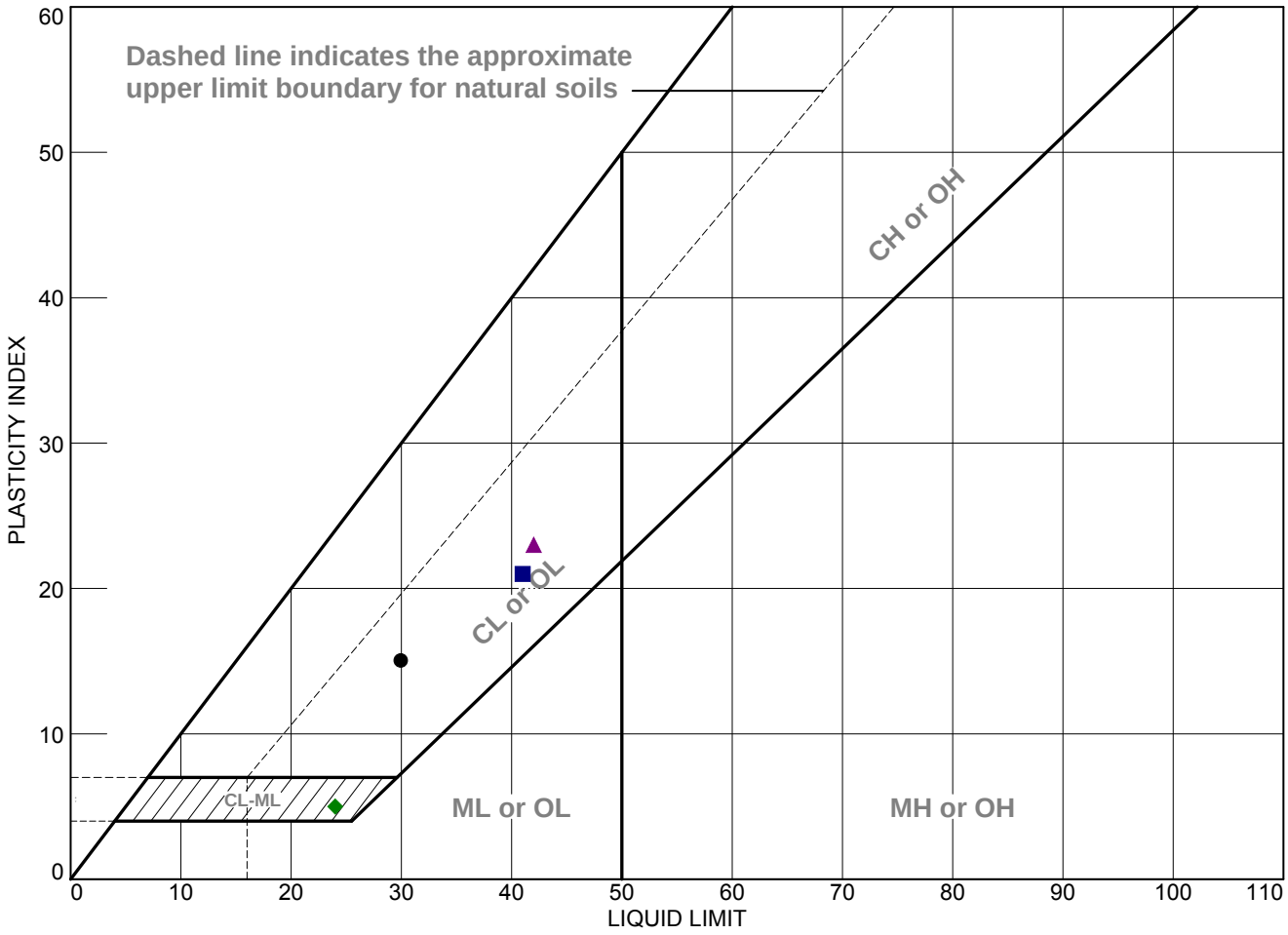
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-13	S-17	44-46'	22.4	15	30	15	CL
■	CDM-13	S-20	59-61'	38.7	20	41	21	CL
▲	CDM-13	S-22	69-71'	38.1	19	42	23	CL
◆	CDM-13	S-23	74-76'	24.1	19	24	5	CL-ML

CDM Smith

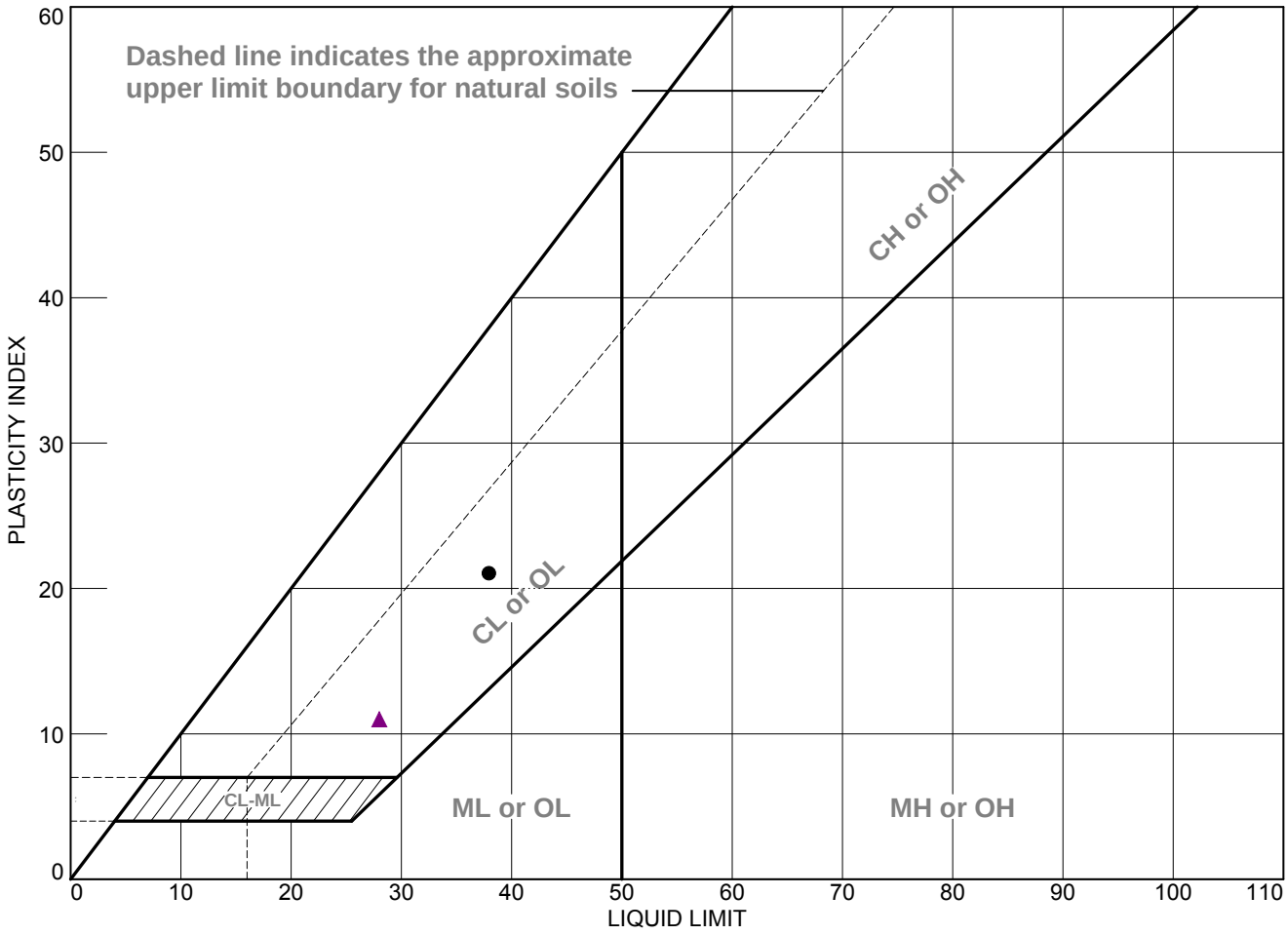
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: RZ **Checked By:** MP

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-14	S-18	55-57'	37.8	17	38	21	CL
■	CDM-14	S-19B	65-67'	22.6	NP	NV	NP	ML
▲	CDM-14	S-20	75-77'	22.5	17	28	11	CL

CDM Smith

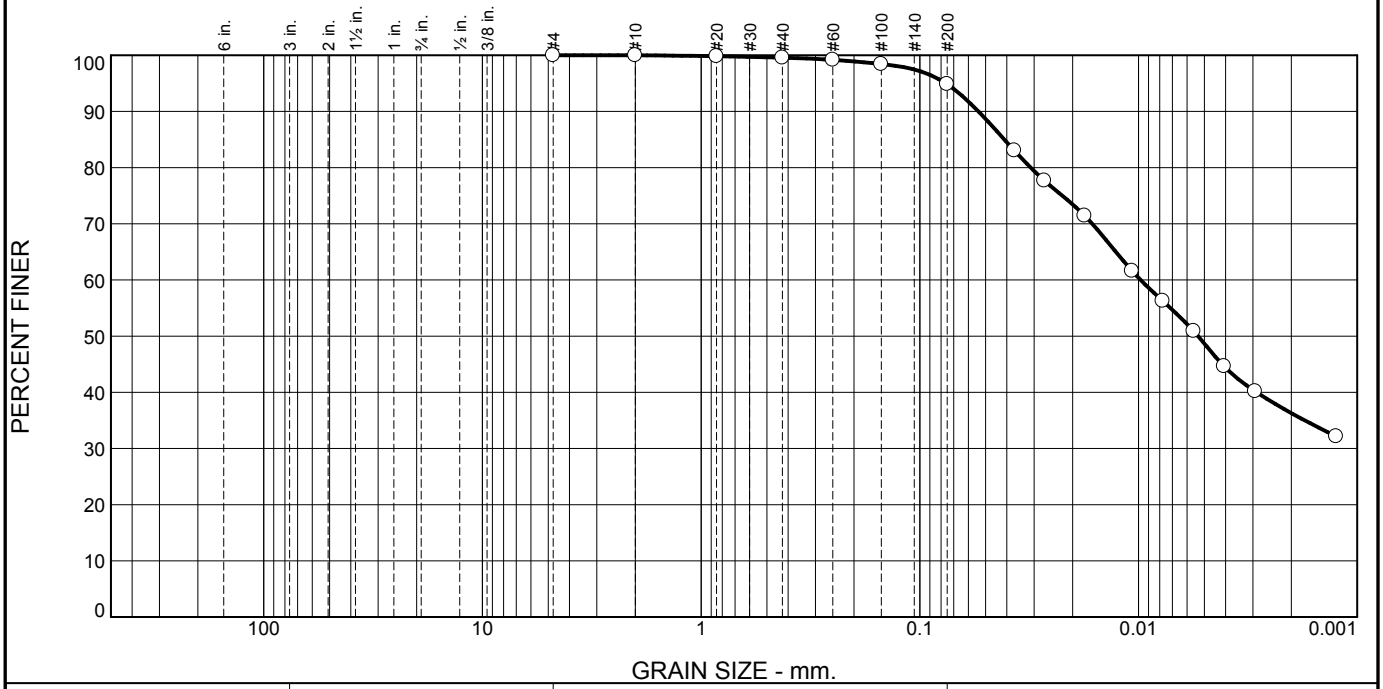
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: GW **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	4.7	46.2	48.7

Test Results (ASTM D7928 & D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	100.0		
#20	99.8		
#40	99.6		
#60	99.2		
#100	98.4		
#200	94.9		
0.0370 mm.	83.0		
0.0270 mm.	77.7		
0.0176 mm.	71.4		
0.0107 mm.	61.6		
0.0077 mm.	56.3		
0.0056 mm.	50.9		
0.0041 mm.	44.6		
0.0029 mm.	40.2		
0.0012 mm.	32.1		

* (no specification provided)

Material Description

Gray-brown lean clay

Atterberg Limits (ASTM D 4318)

PL= 18 **LL=** 39 **PI=** 21

Classification

USCS (D 2487)= CL **AASHTO (M 145)=** A-6(20)

Coefficients

D_{90}= 0.0539 D_{85}= 0.0411 D_{60}= 0.0098
D_{50}= 0.0053 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

As received MC = 17.6%

Date Received: 8/1/2017 **Date Tested:** 8/22/2017

Tested By: MP/GW

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-15B **Depth:** 6-8' **Date Sampled:** 7/20/2017

Sample Number: S-3

CDM Smith

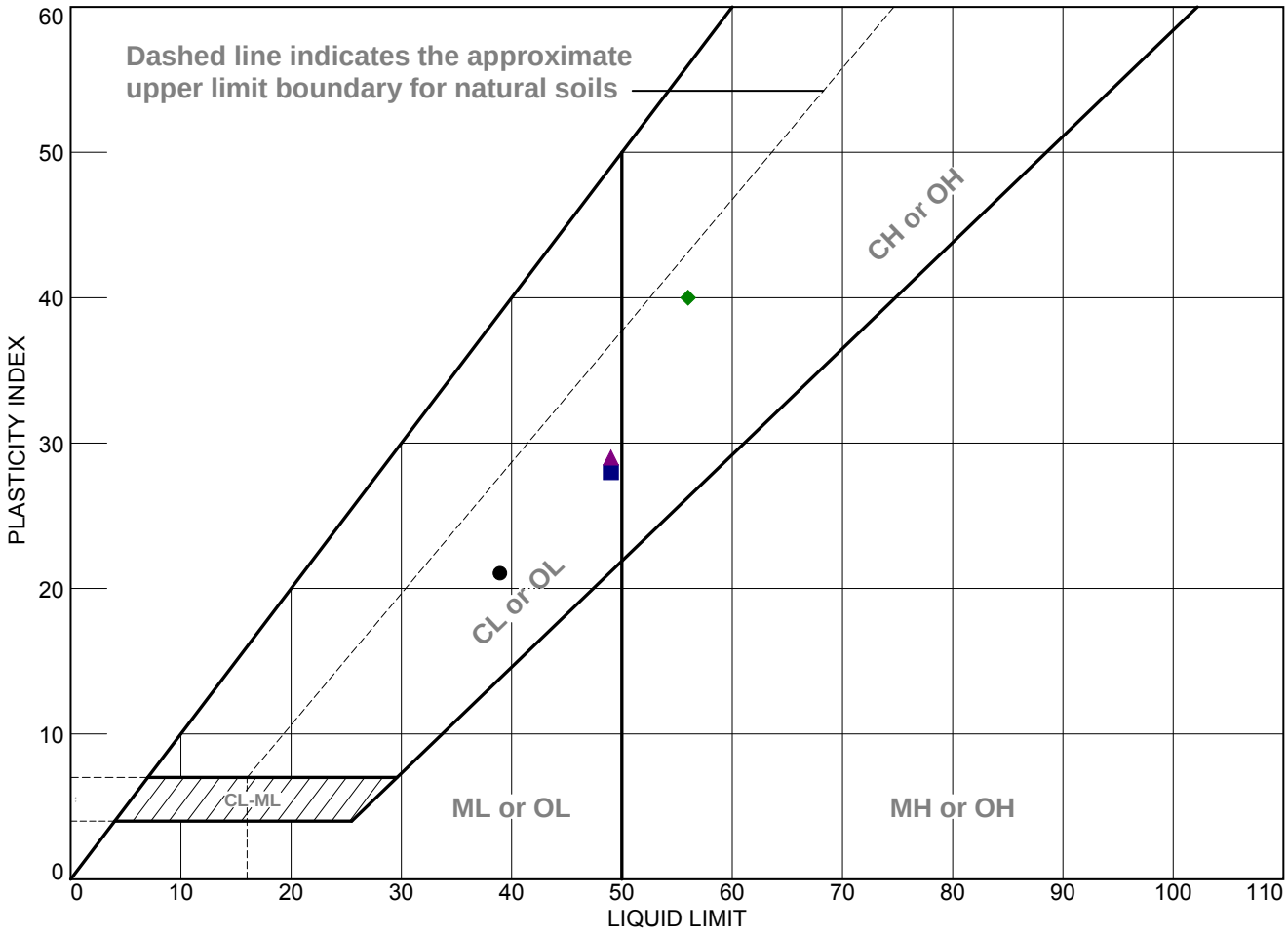
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-15B	S-3	6-8'	17.6	18	39	21	CL
■	CDM-15B	S-5	10-12'	29.6	21	49	28	CL
▲	CDM-15B	S-17	54-56'	43.2	20	49	29	CL
◆	CDM-15B	S-19	69-71'	48.1	16	56	40	CH
▼	CDM-15B	S-20B	74-76'	28.8	NP	NV	NP	ML

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: ○ RZ □ RZ △ RZ ◇ RZ ▽ MP **Checked By:** MP

Geotechnical Engineering Laboratory

ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL TEST SUMMARY - ASTM D4767

Client:	City of Cambridge	**Test Date:**	8/21/2017	**LL :**	38
Project:	Tobin School	**Exploration No:**	CDM-1	**PL :**	19
Location:	Cambridge, MA	**Sample No:**	ST-1	**PI :**	19
Project No:	00139-220813	**Depth (ft):**	46 - 48	**USCS:**	CL

Initial

Moisture Content (%):	29.9%
Dry Unit Weight (pcf):	94.3
Diameter (in):	2.862
Height (in):	5.715
Void Ratio (-):	0.820
Saturation (%):	100.5
Moisture Content (Trim.%):	29.9%
Cross Sectional Area (in^2):	6.433

Final

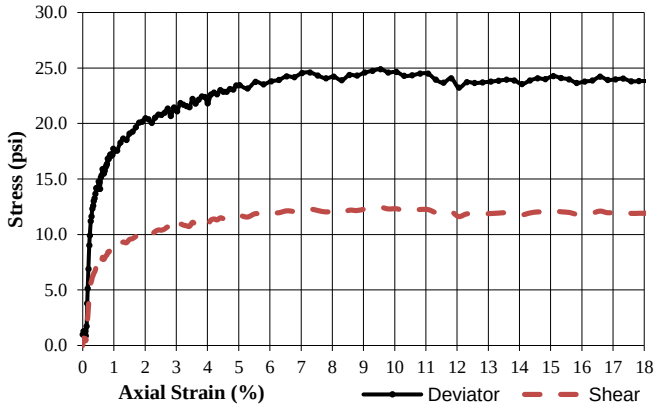
Moisture Content (%):	26.8%
Dry Unit Weight (pcf):	99.6
Height (in):	4.655
Void Ratio (-):	0.722
Saturation (%):	101.9
Cross Sectional Area (in^2):	8.172

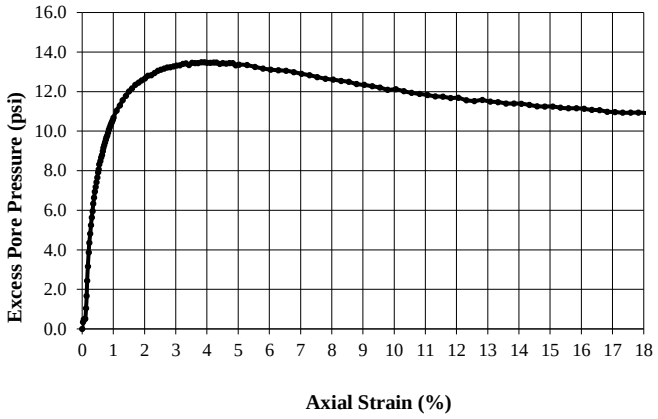
End of Consolidation Data

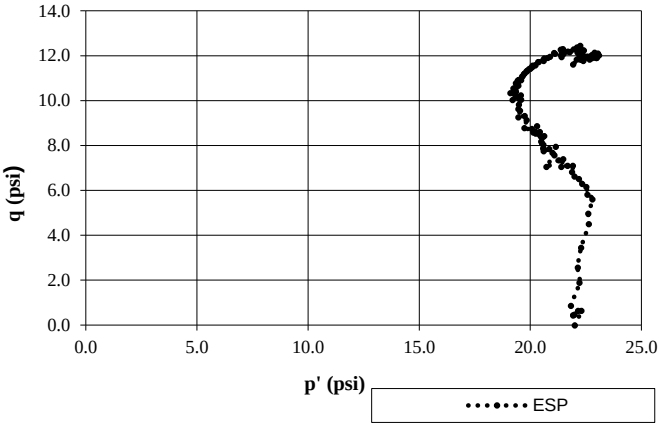
A_c Evaluated using Method	B
Sample Saturated using Metho	B
Moisture Content (%):	26.8%
Dry Unit Weight (pcf):	99.6
Height (in):	5.665
Void Ratio (-):	0.722
Saturation (%):	101.9
Cross Sectional Area (in^2):	6.143
Pore Pressure Parameter B (-):	1.00
Final Back Pressure (psi):	50
Consolidation Pressure (psi):	22.0

Shear Data

Shear Strain Rate (%/hr):	0.74
Max. Deviator Stress(*) (psi):	24.9
Strain at Failure (%):	9.5
Minor Eff. Pr. Stress(*) (psi):	9.8
Major Eff. Pr. Stress(*) (psi):	34.7
Undrained Strength Ratio (-):	0.57







Notes:

(*) Failure criterion: max. deviator stress or max deviator stress at strain = 15%, whichever is obtained first. No correction for membrane or filter paper applied

Remarks:

CDM Smith Geotechnical Engineering Laboratory

CRS CONSOLIDATION TEST SUMMARY - ASTM D4186

Client: City of Cambridge
Project: Tobin School
Location: Cambridge, MA
Project No: 00139-220813

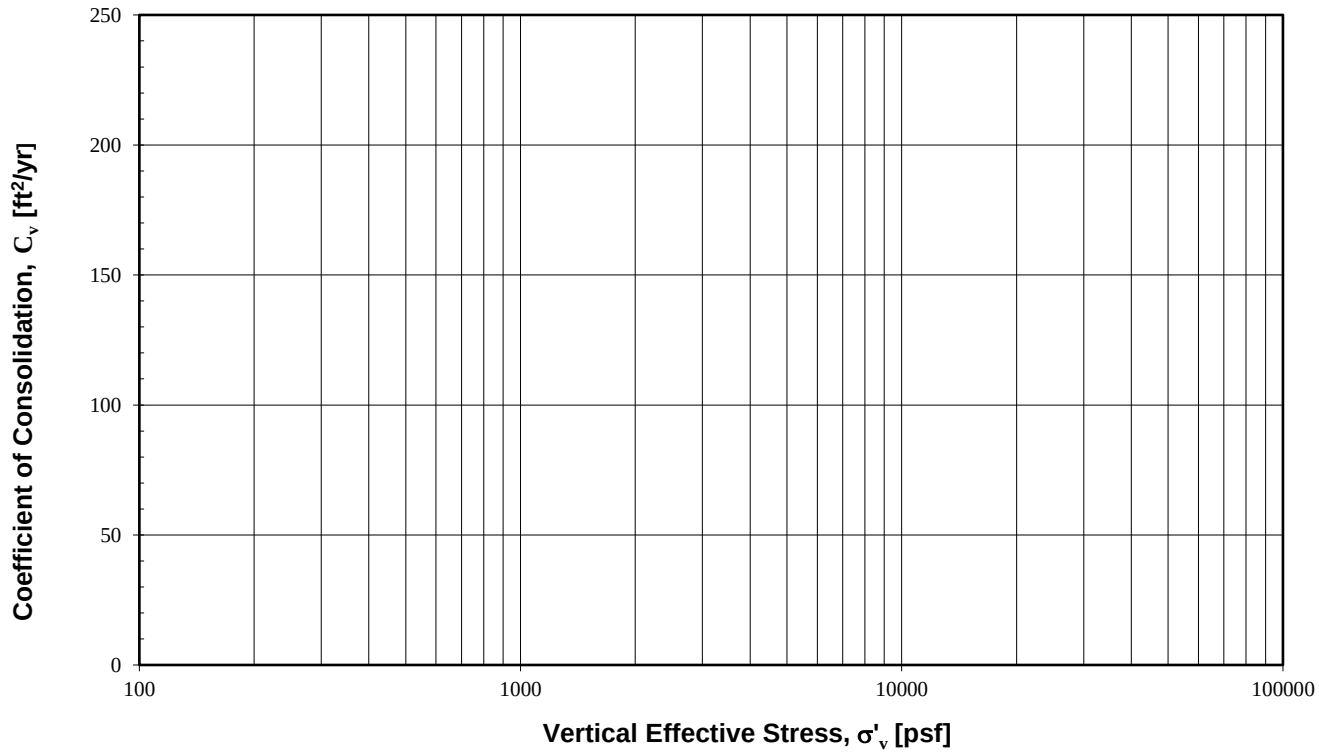
Test Date: 8/25/2017
Exploration No: CDM-1
Sample No: ST-1
Depth (ft): 46-48
Sample Description: Lean clay

	Initial	Final
Wet Mass (g)	157.77	151.38
Dry Mass (g)	123.72	123.72
Moisture Content (%):	27.5	24.4
Moist Unit Weight (pcf):	122.4	130.3
Dry Unit Weight (pcf):	96.0	104.7
Diameter (in):	2.50	2.50
Height (in)(*):	0.99	0.90
Specific Gravity[2]	2.7	2.7
Void Ratio (-)(*):	0.755	0.608
Saturation (%):	98.5	108.2

Atterberg Limits:

LL : 63
PL : 29
PI : 34

Consolidation Strain Rate (%/hr): 1.0
Final Back Pressure (psi): 40
Seating Pressure (psi): 2

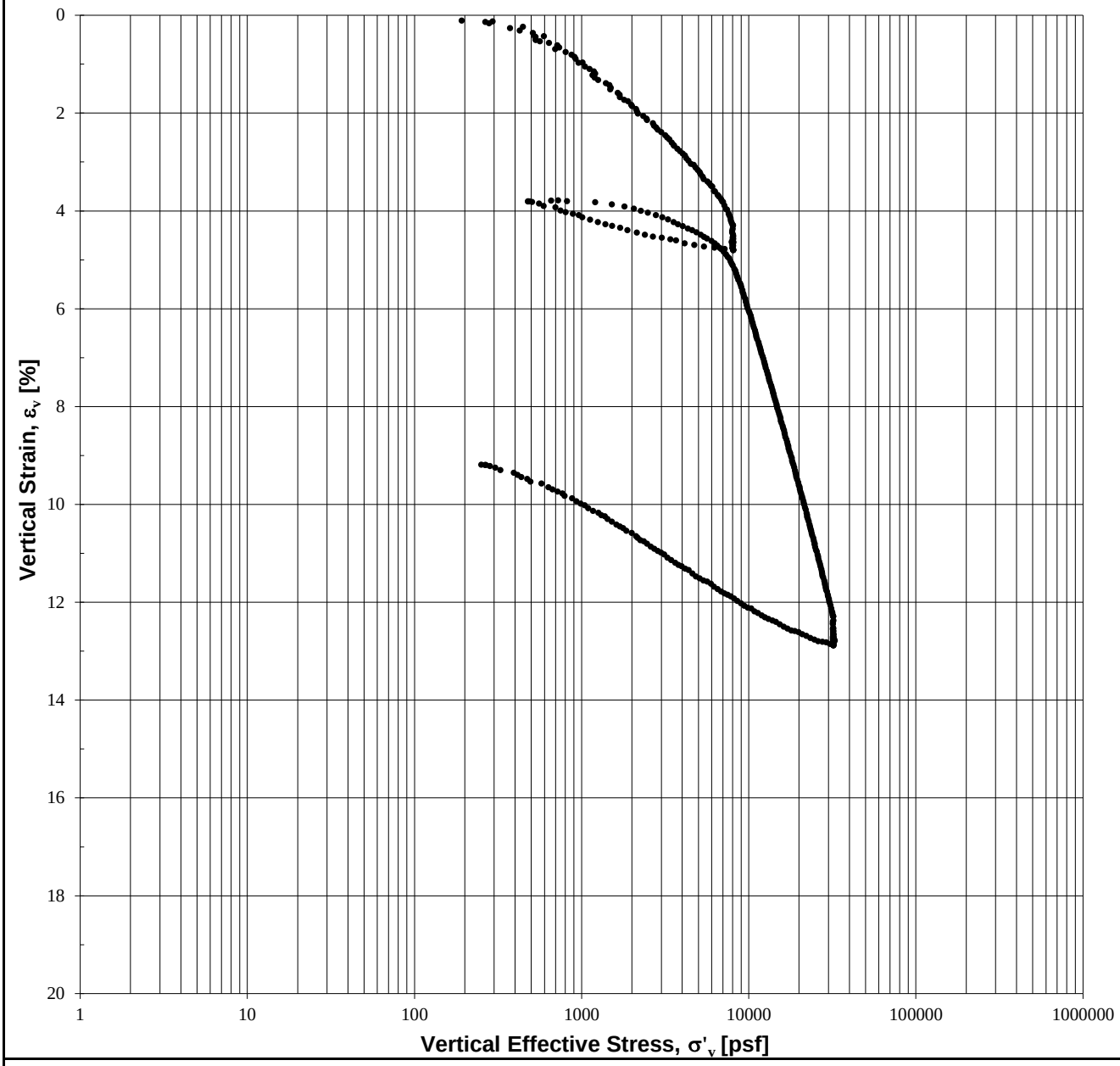


Notes:

1. Consolidation test performed in accordance with ASTM D4186.
2. Value of Specific gravity Gs is assumed

(*) Reported final data are taken at final deformation

Test Remarks:



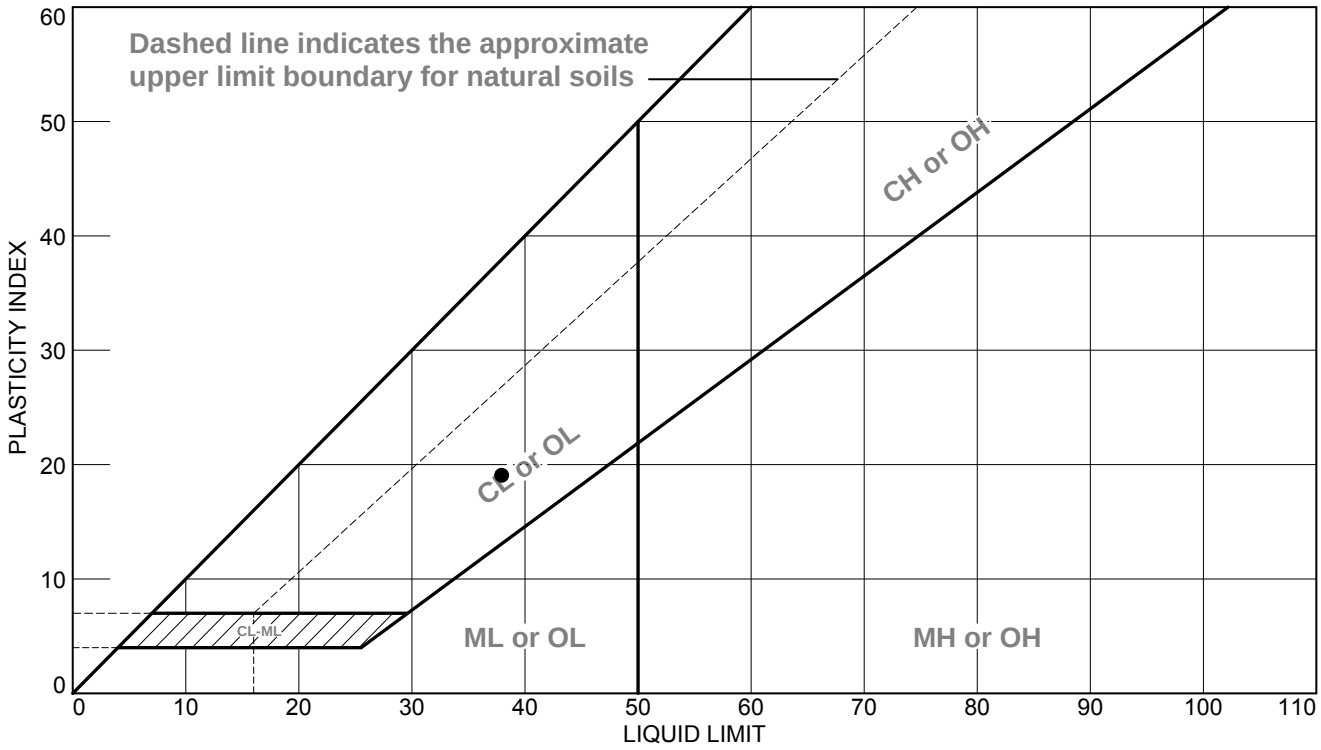
Exploration No:	CDM-1	**Preconsolidation Pressure (psf):**	5,000
Sample No:	ST-1	**Estimated In Situ Pressure (psf):**	2,200
Depth (ft):	46-48	**OCR:**	2.27
Sample Description:	Lean clay	**Compression Ratio, CR:**	0.110
		Recompression Ratio, RR:	0.018

CDM Smith
Geotechnical Engineering Laboratory

Client: City of Cambridge
Project: Tobin School
Location: Cambridge, MA
Project No: 00139-220813

CONSTANT RATE OF STRAIN CONSOLIDATION TEST
ASTM D4186

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-1	ST-1	46-48'	27.4	19	38	19	CL

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: RZ **Checked By:** MP

CDM Smith

Geotechnical Engineering Laboratory

Standard Test Method for Laboratory Miniature Vane Shear Test for Saturated Fine-Grained Clayey Soil (ASTM D4648)

Client:	City of Cambridge	Tested By:	AS
Project Name:	Tobin School	Test Date:	8/18/2017
Project Location:	Cambridge, MA		
Project Number:	139-220813		
Sample Number:	CDM-1		
Sample Location:	ST-1		
Sample Depth (ft):	46-48'		
Sample Date:	8/7/2017		
Lab ID:	45308287		

Moisture Content: 28.8%
Rotation Rate: 10° per minute
Vane Test Depth (ft): 46.5

Initial Shear Strength

Vane Dimensions: 3/4"H x 1/2"D
Spring #: 4

Maximum Degrees of Deflection: 94

Shear Strength (psf): 1450.11

Remolded Shear Strength

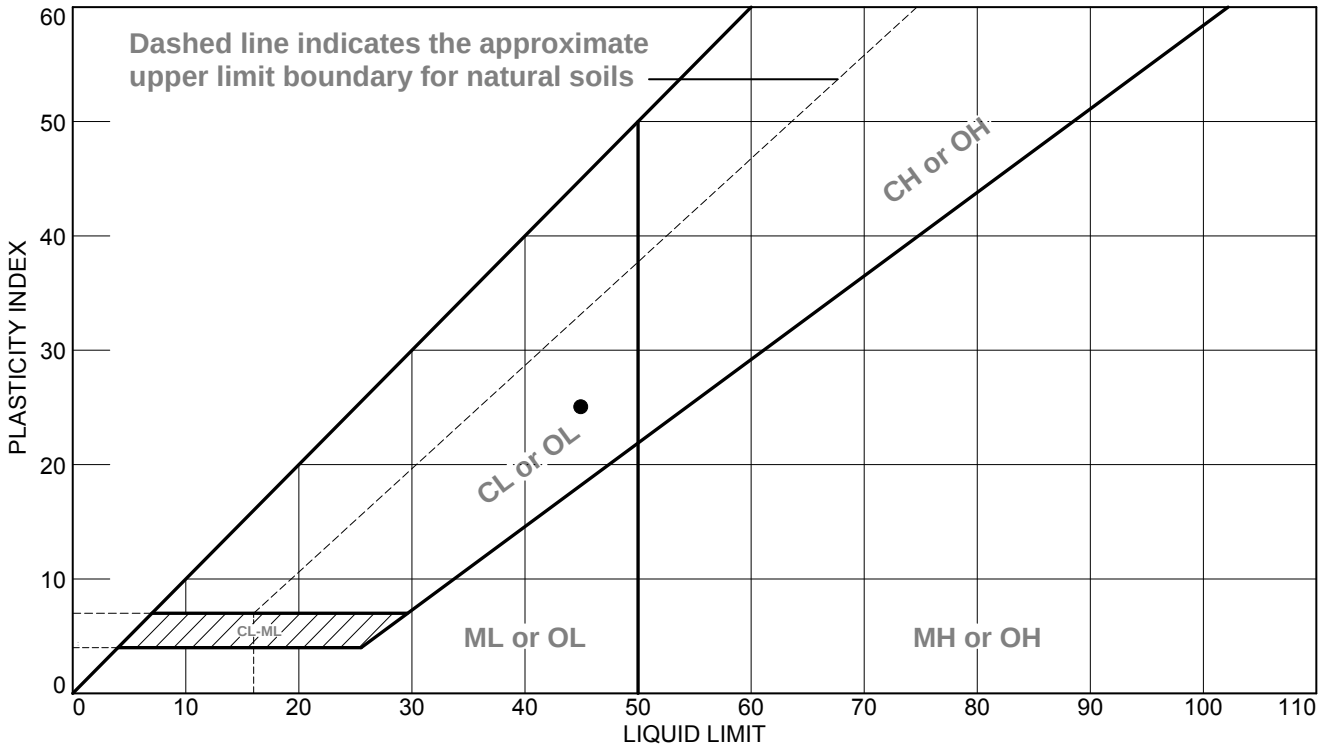
Vane Dimensions: 3/4"H x 1/2"D Vane Revolutions for Remold 6
Spring #: 4

Maximum Degrees of Deflection: 31

Shear Strength (psf): 478.23

Calibration Curves Attached
Lab Vane Apparatus: Wykehem Farrance, Model #23541

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-2	ST-1	41-43'	34.3	20	45	25	CL

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: RZ **Checked By:** MP

CDM Smith

Geotechnical Engineering Laboratory

Standard Test Method for Laboratory Miniature Vane Shear Test for Saturated Fine-Grained Clayey Soil (ASTM D4648)

Client:	City of Cambridge	Tested By:	AS
Project Name:	Tobin School	Test Date:	8/18/2017
Project Location:	Cambridge, MA		
Project Number:	139-220813		
Sample Number:	CDM-2		
Sample Location:	ST-1		
Sample Depth (ft):	41-43'		
Sample Date:	8/2/2017		
Lab ID:	453082088		

Moisture Content: 33.1%
Rotation Rate: 10° per minute
Vane Test Depth (ft): 41.5

Initial Shear Strength

Vane Dimensions: 3/4"H x 1/2"D
Spring #: 4

Maximum Degrees of Deflection: 186

Shear Strength (psf): 2869.36

Remolded Shear Strength

Vane Dimensions: 3/4"H x 1/2"D Vane Revolutions for Remold: 6
Spring #: 4

Maximum Degrees of Deflection: 101

Shear Strength (psf): 1558.09

Calibration Curves Attached
Lab Vane Apparatus: Wykehem Farrance, Model #23541

CDM Smith Geotechnical Engineering Laboratory

CRS CONSOLIDATION TEST SUMMARY - ASTM D4186

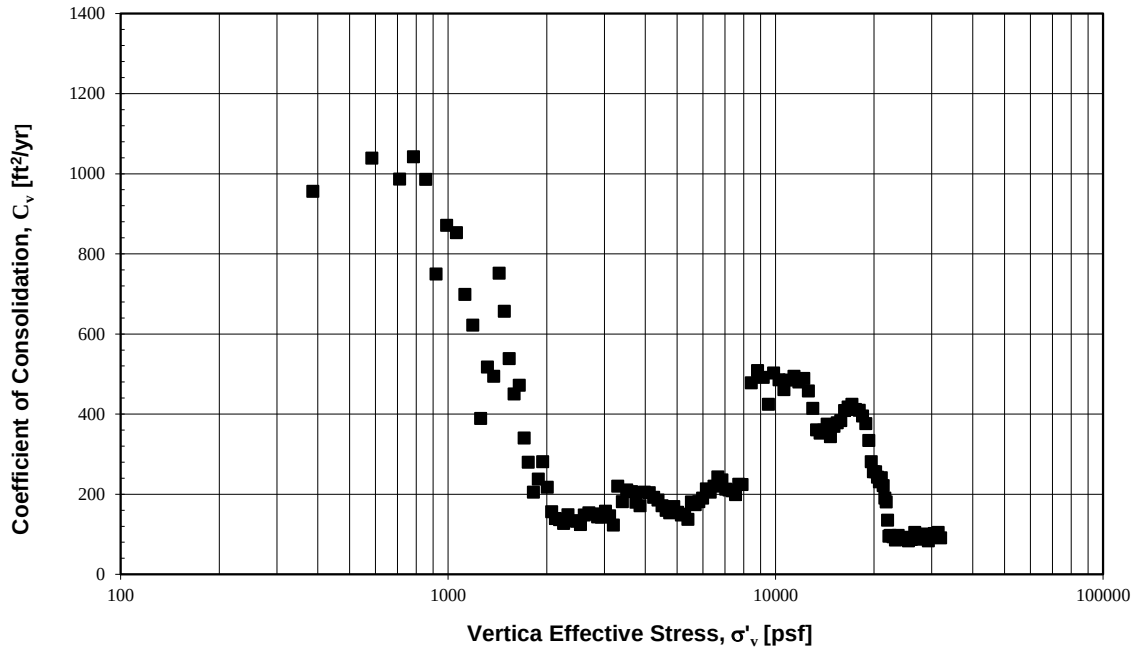
Client:	City of Cambridge	**Test Date:**	9/8/2017
Project:	Tobin School	**Exploration No:**	CDM-4
Location:	Cambridge, MA	**Sample No:**	ST-1
Project No:	00139-220813	**Depth (ft):**	36-38
		Sample Description:	Lean clay

	Initial	Final
Wet Mass (g)	160.79	156.26
Dry Mass (g)	129.16	127.28
Moisture Content (%):	24.5	22.8
Moist Unit Weight (pcf):	124.8	136.3
Dry Unit Weight (pcf):	100.2	111.0
Diameter (in):	2.50	2.50
Height (in)(*):	0.99	0.89
Specific Gravity[2]	2.7	2.7
Void Ratio (-)(*):	0.681	0.518
Saturation (%):	97.1	118.8

Atterberg Limits:

LL :	45
PL :	21
PI :	24

Consolidation Strain Rate (%/hr):	1.0
Final Back Pressure (psi):	40
Seating Pressure (psi):	2

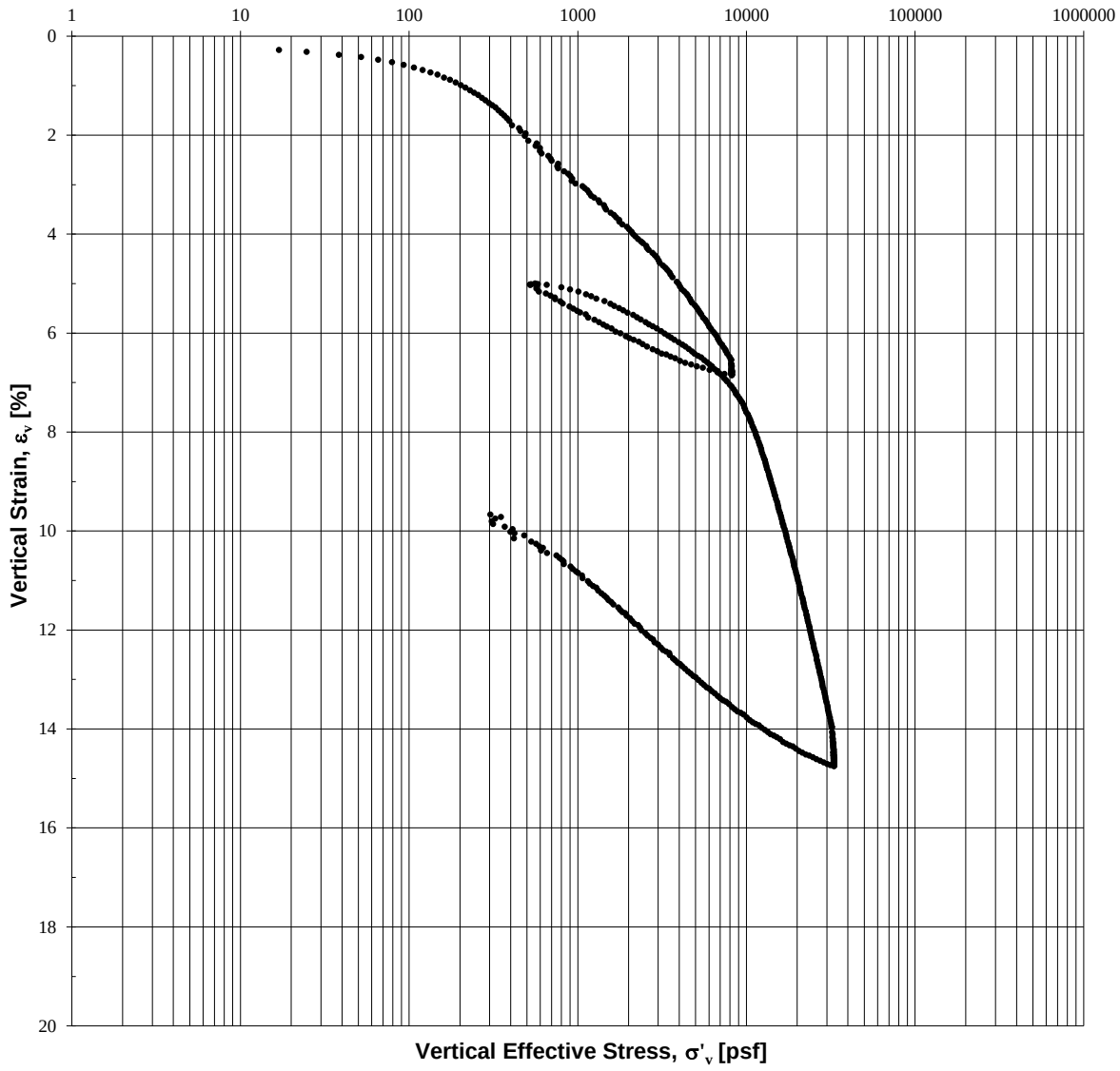


Notes:

1. Consolidation test performed in accordance with ASTM D4186.
2. Value of Specific gravity Gs is assumed

(*) Reported final data are taken at final deformation

Test Remarks:



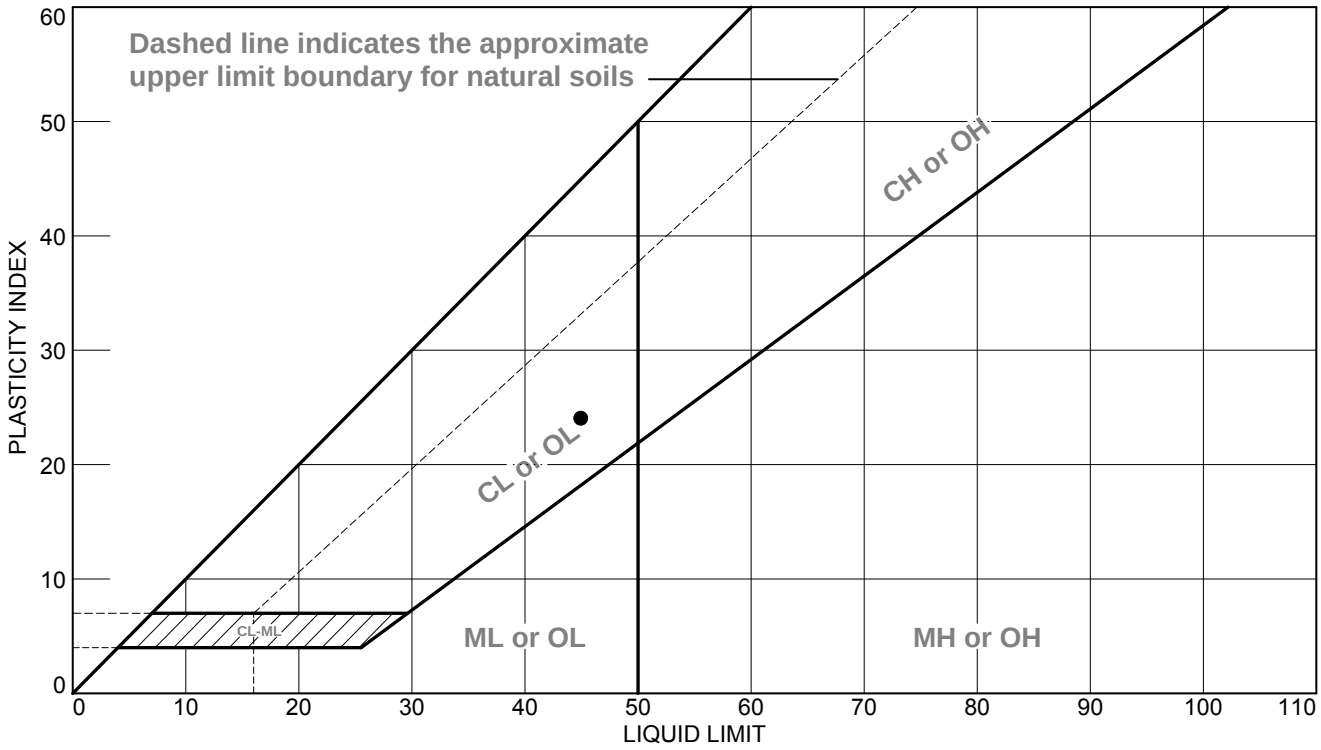
Exploration No:	CDM-4	**Preconsolidation Pressure (psf):**	6,000
Sample No:	ST-1	**Estimated In Situ Pressure (psf):**	2,100
Depth (ft):	36-38	**OCR:**	2.86
Sample Description:	Lean clay	**Compression Ratio, CR:**	0.131
		Recompression Ratio, RR:	0.015

CDM Smith
Geotechnical Engineering Laboratory

Client: City of Cambridge
Project: Tobin School
Location: Cambridge, MA
Project No: 00139-220813

CONSTANT RATE OF STRAIN CONSOLIDATION TEST
ASTM D4186

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-4	ST-1	36-38'	30.7	21	45	24	CL

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: RZ **Checked By:** MP

CDM Smith

Geotechnical Engineering Laboratory

Standard Test Method for Laboratory Miniature Vane Shear Test for Saturated Fine-Grained Clayey Soil (ASTM D4648)

Client:	City of Cambridge	Tested By:	AS
Project Name:	Tobin School	Test Date:	8/18/2017
Project Location:	Cambridge, MA		
Project Number:	139-220813		
Sample Number:	CDM-4		
Sample Location:	ST-1		
Sample Depth (ft):	36-38'		
Sample Date:	8/2/2017		
Lab ID:	453082089		

Moisture Content: 29.1%
Rotation Rate: 10° per minute
Vane Test Depth (ft): 36.5

Initial Shear Strength

Vane Dimensions: 3/4"H x 1/2"D
Spring #: 4

Maximum Degrees of Deflection: 149.5

Shear Strength (psf): 2306.29

Remolded Shear Strength

Vane Dimensions: 3/4"H x 1/2"D Vane Revolutions for Remold 6
Spring #: 4

Maximum Degrees of Deflection: 106.5

Shear Strength (psf): 1642.94

Calibration Curves Attached
Lab Vane Apparatus: Wykehem Farrance, Model #23541

CDM Smith Geotechnical Engineering Laboratory

CRS CONSOLIDATION TEST SUMMARY - ASTM D4186

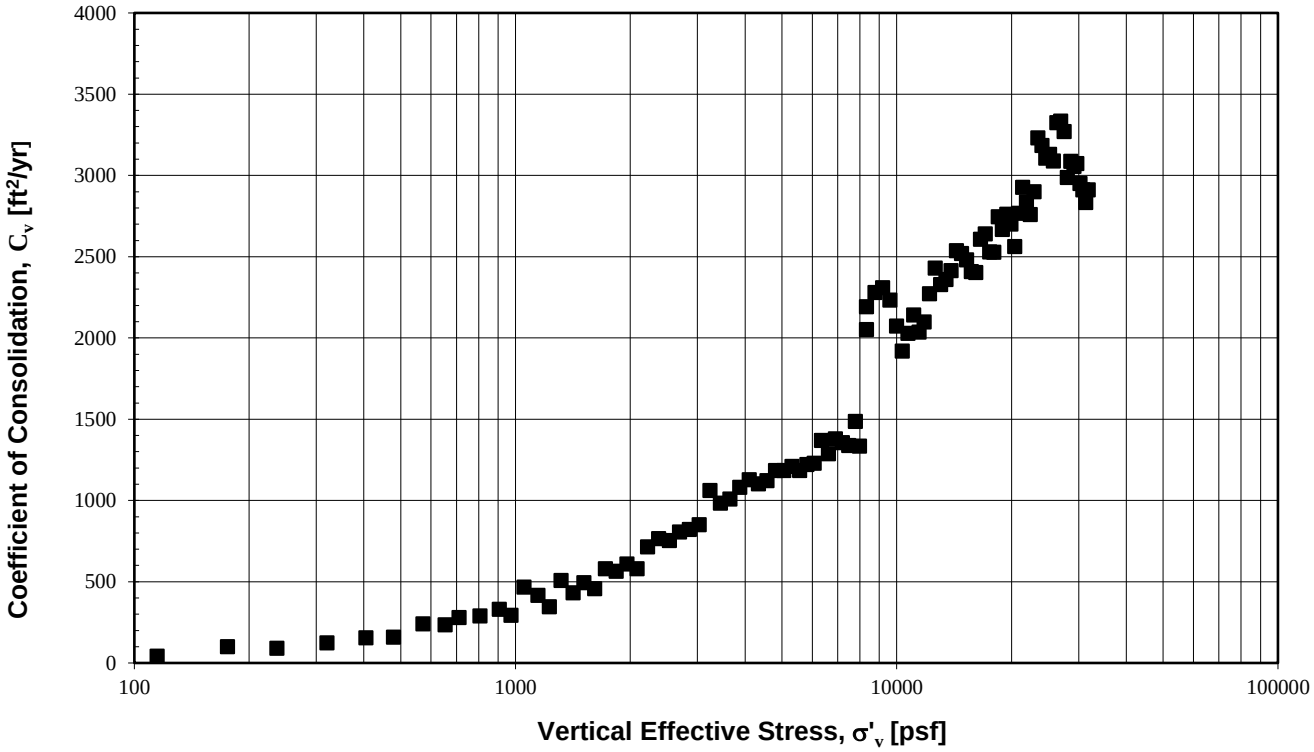
Client:	City of Cambridge	**Test Date:**	8/31/2017
Project:	Tobin School	**Exploration No:**	CDM-4
Location:	Cambridge, MA	**Sample No:**	ST-2
Project No:	00139-220813	**Depth (ft):**	48-50
		Sample Description:	Lean clay

	Initial	Final
Wet Mass (g)	162.80	157.62
Dry Mass (g)	128.58	128.58
Moisture Content (%):	26.6	24.9
Moist Unit Weight (pcf):	126.3	133.9
Dry Unit Weight (pcf):	99.8	107.2
Diameter (in):	2.50	2.50
Height (in)(*):	0.99	0.91
Specific Gravity[2]	2.7	2.7
Void Ratio (-)(*):	0.688	0.572
Saturation (%):	104.4	117.5

Atterberg Limits:

LL :	30
PL :	19
PI :	11

Consolidation Strain Rate (%/hr):	1.0
Final Back Pressure (psi):	40
Seating Pressure (psi):	2

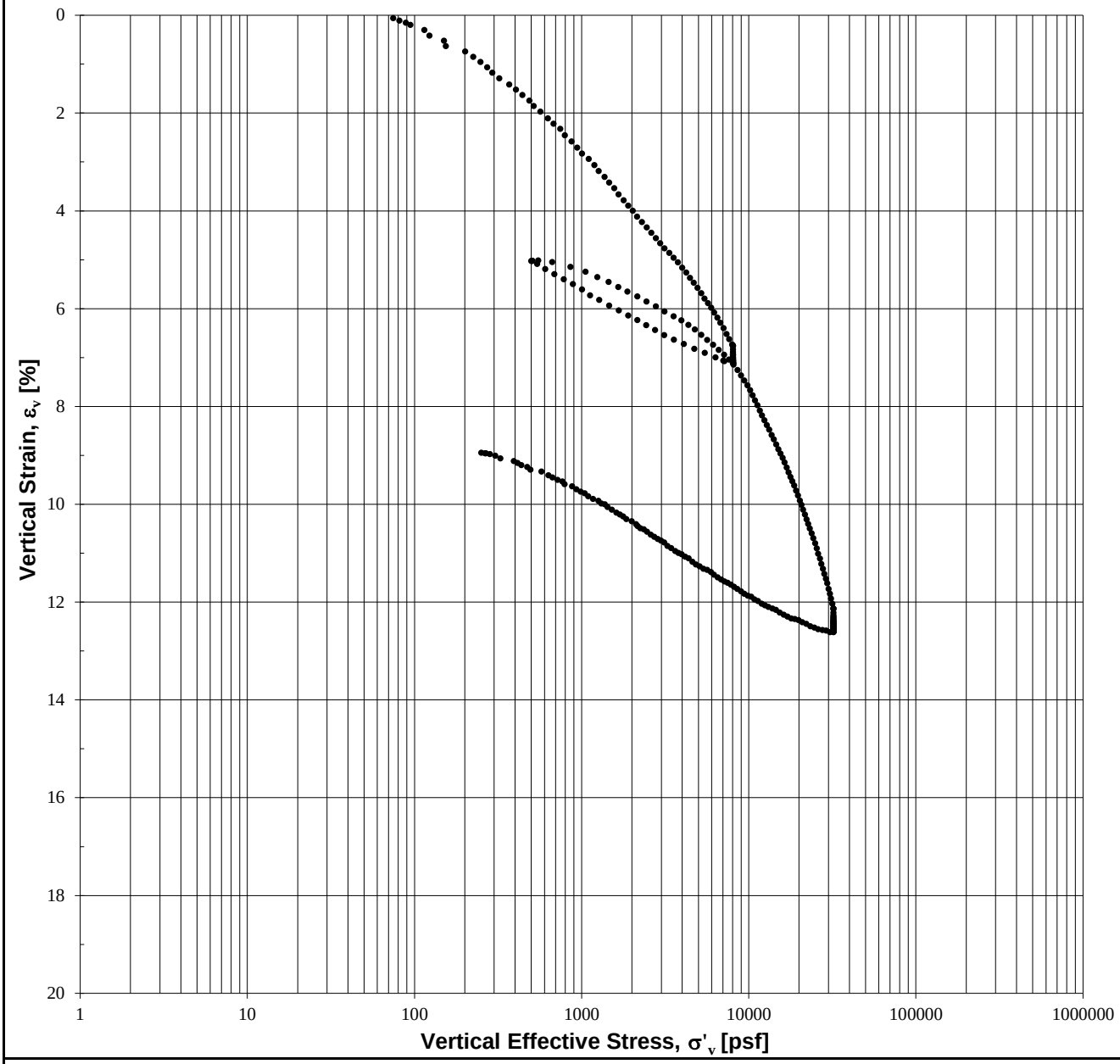


Notes:

1. Consolidation test performed in accordance with ASTM D4186.
2. Value of Specific gravity Gs is assumed

(*) Reported final data are taken at final deformation

Test Remarks:



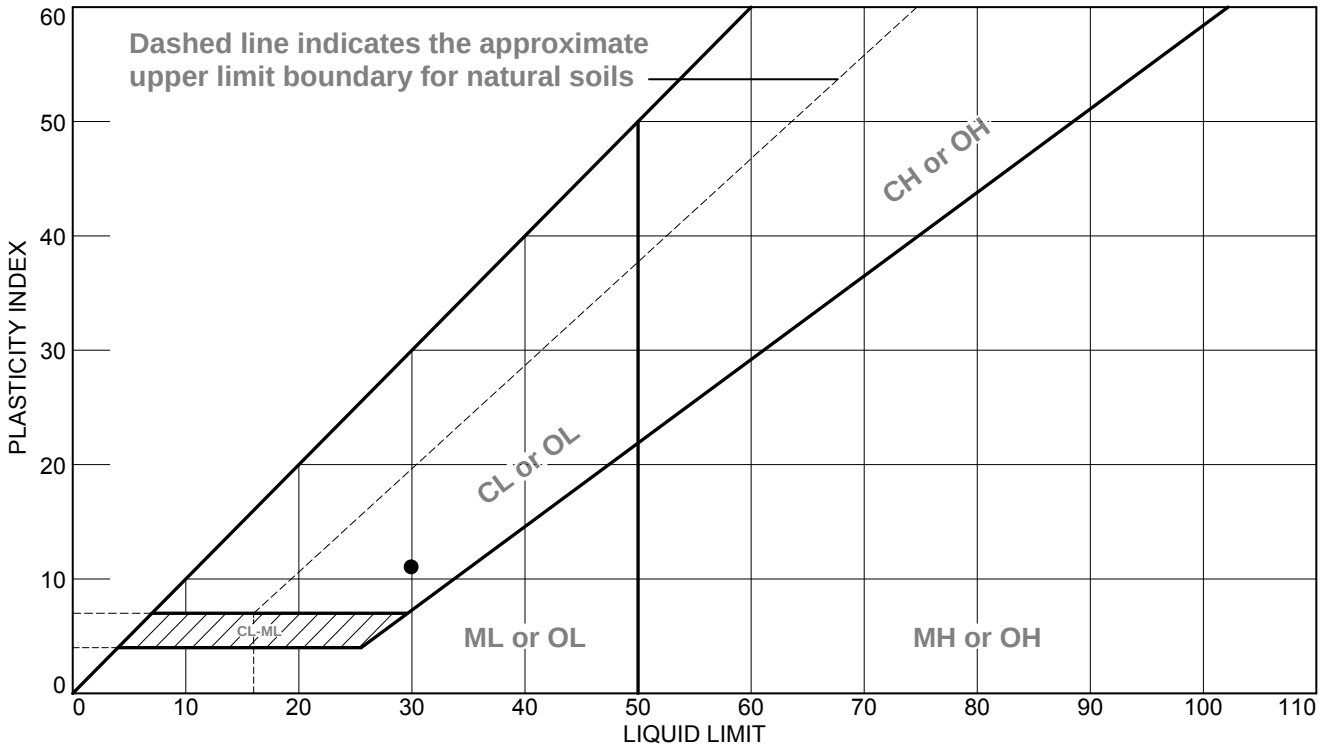
Exploration No:	CDM-4	**Preconsolidation Pressure (psf):**	5,500
Sample No:	ST-2	**Estimated In Situ Pressure (psf):**	3,300
Depth (ft):	48-50	**OCR:**	1.67
Sample Description:	Lean clay	**Compression Ratio, CR:**	0.080
		Recompression Ratio, RR:	0.018

CDM Smith
Geotechnical Engineering Laboratory

Client: City of Cambridge
Project: Tobin School
Location: Cambridge, MA
Project No: 00139-220813

CONSTANT RATE OF STRAIN CONSOLIDATION TEST
ASTM D4186

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-4	ST-2	48-50'	25.8	19	30	11	CL

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: RZ **Checked By:** MP

CDM Smith

Geotechnical Engineering Laboratory

Standard Test Method for Laboratory Miniature Vane Shear Test for Saturated Fine-Grained Clayey Soil (ASTM D4648)

Client:	City of Cambridge	Tested By:	AS
Project Name:	Tobin School	Test Date:	8/18/2017
Project Location:	Cambridge, MA		
Project Number:	139-220813		
Sample Number:	CDM-4		
Sample Location:	ST-2		
Sample Depth (ft):	48-50'		
Sample Date:	8/3/2017		
Lab ID:	453082090		

Moisture Content: 29.7%
Rotation Rate: 10° per minute
Vane Test Depth (ft): 49.5

Initial Shear Strength

Vane Dimensions: 3/4"H x 1/2"D
Spring #: 4

Maximum Degrees of Deflection: 104

Shear Strength (psf): 1604.37

Remolded Shear Strength

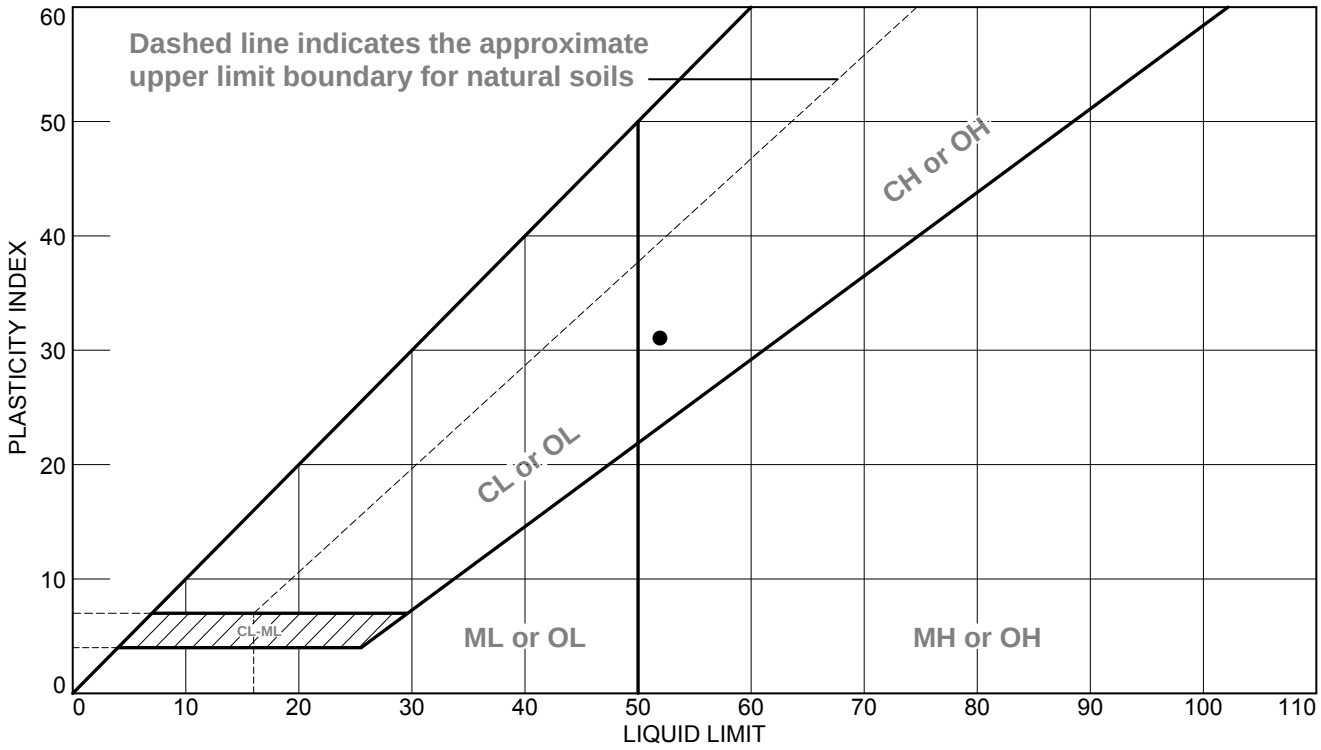
Vane Dimensions: 3/4"H x 1/2"D Vane Revolutions for Remold 6
Spring #: 4

Maximum Degrees of Deflection: 89.5

Shear Strength (psf): 1380.69

Calibration Curves Attached
Lab Vane Apparatus: Wykehem Farrance, Model #23541

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-5	ST-1	30-32'	45.0	21	52	31	CH

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: RZ **Checked By:** MP

CDM Smith

Geotechnical Engineering Laboratory

Standard Test Method for Laboratory Miniature Vane Shear Test for Saturated Fine-Grained Clayey Soil (ASTM D4648)

Client:	City of Cambridge	Tested By:	AS
Project Name:	Tobin School	Test Date:	8/18/2017
Project Location:	Cambridge, MA		
Project Number:	139-220813		
Sample Number:	CDM-5		
Sample Location:	ST-1		
Sample Depth (ft):	30-32'		
Sample Date:	8/7/2017		
Lab ID:	453082091		

Moisture Content: 38.1%
Rotation Rate: 10° per minute
Vane Test Depth (ft): 31

Initial Shear Strength

Vane Dimensions: 3/4"H x 1/2"D
Spring #: 4

Maximum Degrees of Deflection: 26

Shear Strength (psf): 401.09

Remolded Shear Strength

Vane Dimensions: 3/4"H x 1/2"D Vane Revolutions for Remold 6
Spring #: 4

Maximum Degrees of Deflection: 16

Shear Strength (psf): 246.83

Calibration Curves Attached
Lab Vane Apparatus: Wykehem Farrance, Model #23541

Geotechnical Engineering Laboratory

ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL TEST SUMMARY - ASTM D4767

Client:	City of Cambridge	**Test Date:**	8/22/2017	**LL :**	30
Project:	Tobin School	**Exploration No:**	CDM-8	**PL :**	18
Location:	Cambridge, MA	**Sample No:**	ST-1	**PI :**	12
Project No:	00139-220813	**Depth (ft):**	40 - 42	**USCS:**	CL

Initial

Moisture Content (%):	25.6%
Dry Unit Weight (pcf):	100.7
Diameter (in):	2.880
Height (in):	5.580
Void Ratio (-):	0.704
Saturation (%):	100.1
Moisture Content (Trim.%):	25.6%
Cross Sectional Area (in^2):	6.514

Final

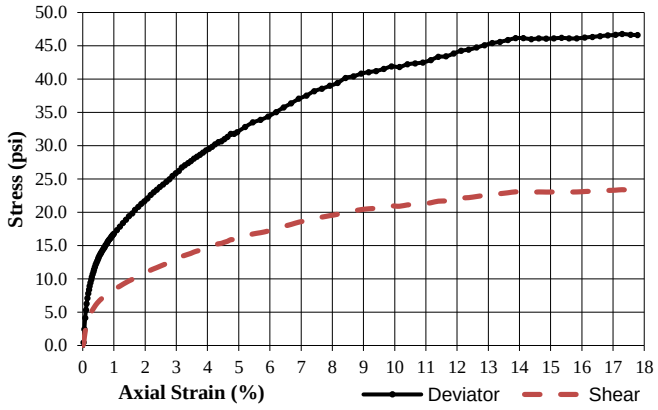
Moisture Content (%):	23.8%
Dry Unit Weight (pcf):	104.3
Height (in):	4.555
Void Ratio (-):	0.645
Saturation (%):	101.4
Cross Sectional Area (in^2):	7.710

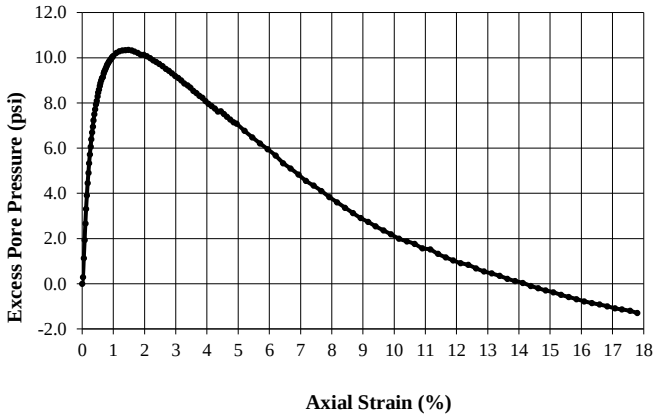
End of Consolidation Data

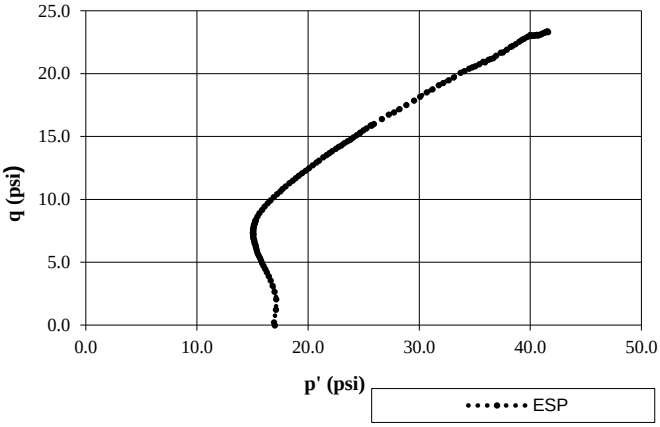
A_c Evaluated using Method	B
Sample Saturated using Metho	B
Moisture Content (%):	23.8%
Dry Unit Weight (pcf):	104.3
Height (in):	5.540
Void Ratio (-):	0.645
Saturation (%):	101.4
Cross Sectional Area (in^2):	6.339
Pore Pressure Parameter B (-):	1.00
Final Back Pressure (psi):	40
Consolidation Pressure (psi):	17.0

Shear Data

Shear Strain Rate (%/hr):	0.73
Max. Deviator Stress(*) (psi):	46.1
Strain at Failure (%):	13.9
Minor Eff. Pr. Stress(*) (psi):	16.9
Major Eff. Pr. Stress(*) (psi):	63.0
Undrained Strength Ratio (-):	1.36







Notes:

(*) Failure criterion: max. deviator stress or max deviator stress at strain = 15%, whichever is obtained first. No correction for membrane or filter paper applied

Remarks:

CDM Smith Geotechnical Engineering Laboratory

CRS CONSOLIDATION TEST SUMMARY - ASTM D4186

Client: City of Cambridge
Project: Tobin School
Location: Cambridge, MA
Project No: 00139-220813

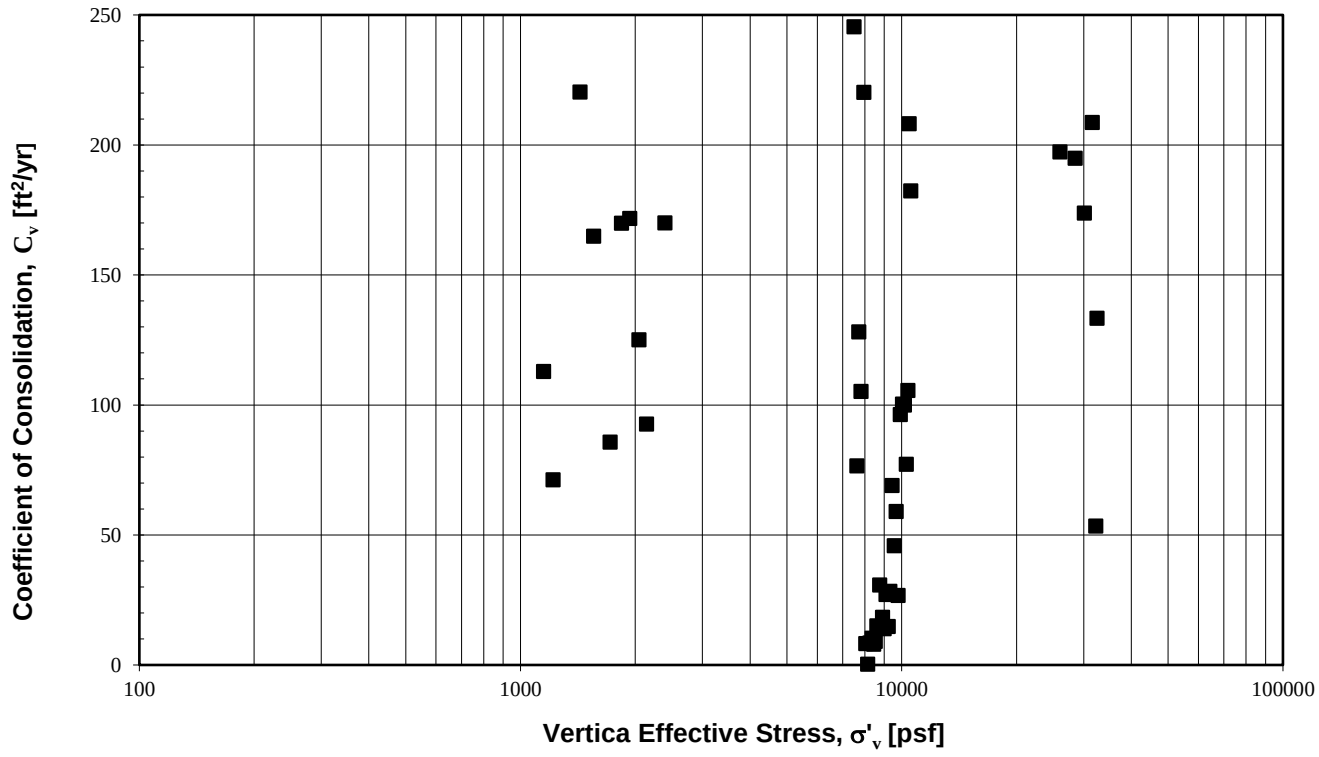
Test Date: 8/25/2017
Exploration No: CDM-8
Sample No: ST-1
Depth (ft): 40-42
Sample Description: Lean clay

	Initial	Final
Wet Mass (g)	154.38	150.42
Dry Mass (g)	119.80	119.80
Moisture Content (%):	28.9	28.8
Moist Unit Weight (pcf):	119.8	123.4
Dry Unit Weight (pcf):	93.0	95.8
Diameter (in):	2.50	2.50
Height (in)(*):	0.99	0.95
Specific Gravity[2]	2.7	2.7
Void Ratio (-)(*):	0.812	0.759
Saturation (%):	96.0	102.6

Atterberg Limits:

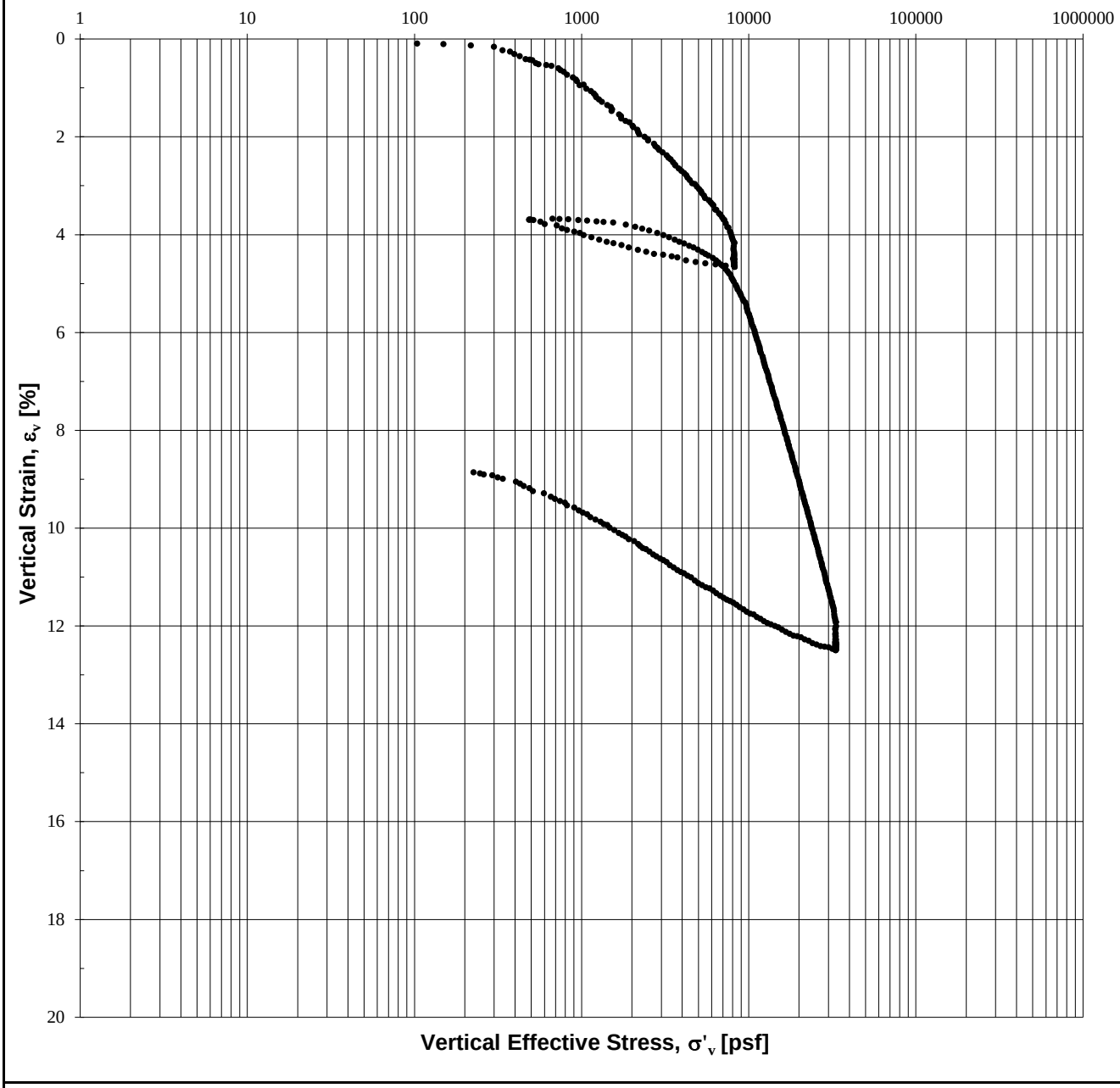
LL :	30
PL :	18
PI :	12

Consolidation Strain Rate (%/hr):	1.0
Final Back Pressure (psi):	40
Seating Pressure (psi):	2



Notes:
1. Consolidation test performed in accordance with ASTM D4186.
2. Value of Specific gravity Gs is assumed
(*) Reported final data are taken at final deformation

Test Remarks:



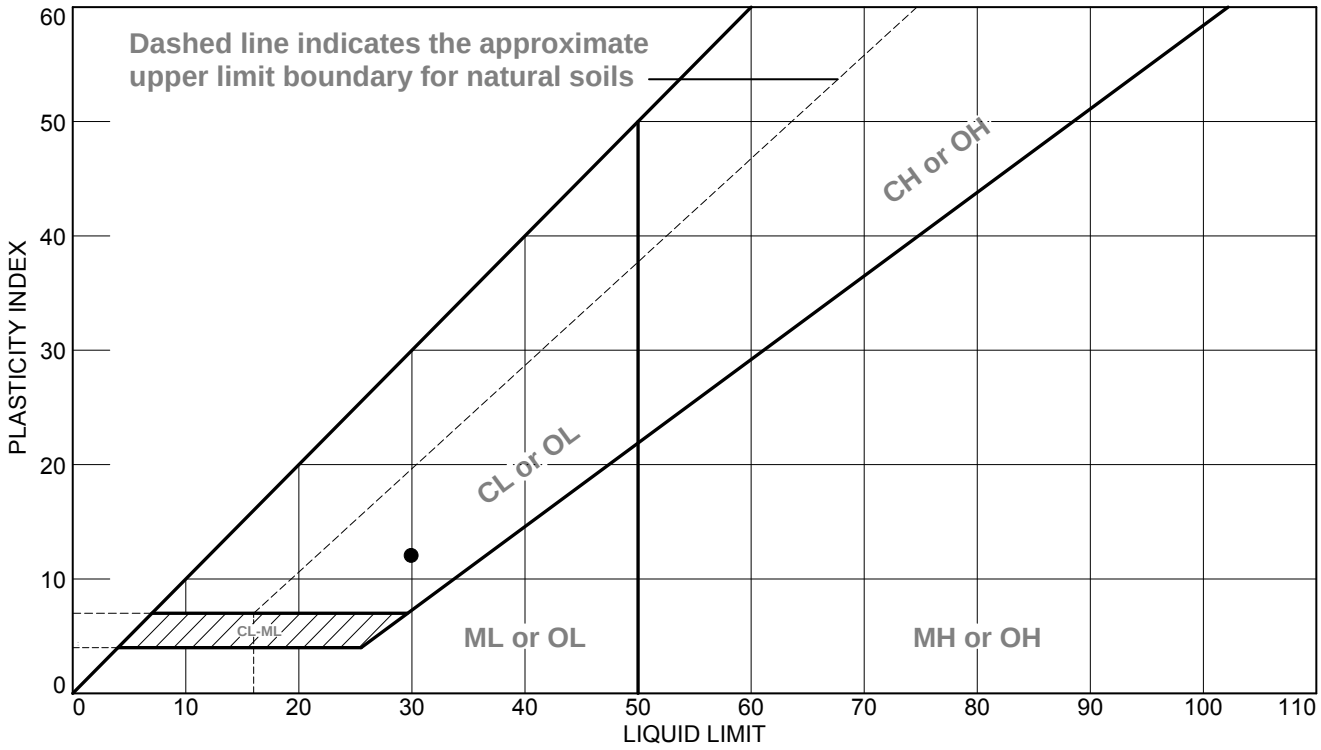
Exploration No:	CDM-8	**Preconsolidation Pressure (psf):**	6,000
Sample No:	ST-1	**Estimated In Situ Pressure (psf):**	1,700
Depth (ft):	40-42	**OCR:**	3.53
Sample Description:	Lean clay	**Compression Ratio, CR:**	0.117
		Recompression Ratio, RR:	0.011

CDM Smith
Geotechnical Engineering Laboratory

Client: City of Cambridge
Project: Tobin School
Location: Cambridge, MA
Project No: 00139-220813

CONSTANT RATE OF STRAIN CONSOLIDATION TEST
ASTM D4186

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-8	ST-1	40-42'	26.2	18	30	12	CL

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: GW **Checked By:** MP

CDM Smith

Geotechnical Engineering Laboratory

Standard Test Method for Laboratory Miniature Vane Shear Test for Saturated Fine-Grained Clayey Soil (ASTM D4648)

Client:	City of Cambridge	Tested By:	AS
Project Name:	Tobin School	Test Date:	8/18/2017
Project Location:	Cambridge, MA		
Project Number:	139-220813		
Sample Number:	CDM-8		
Sample Location:	ST-1		
Sample Depth (ft):	40-42'		
Sample Date:	7/19/2017		
Lab ID:	453082092		

Moisture Content: 39.4%
Rotation Rate: 10° per minute
Vane Test Depth (ft): 41.5

Initial Shear Strength

Vane Dimensions: 3/4"H x 1/2"D
Spring #: 4

Maximum Degrees of Deflection: 118

Shear Strength (psf): 1820.35

Remolded Shear Strength

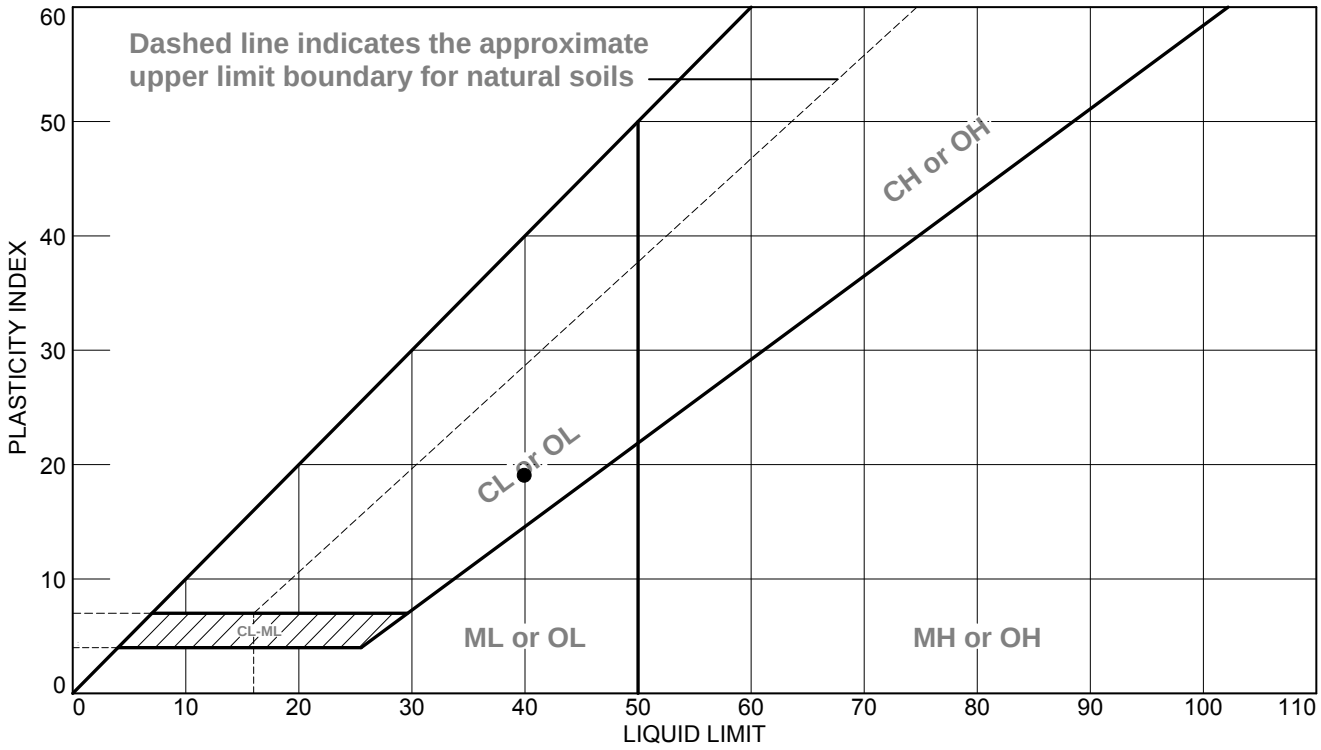
Vane Dimensions: 3/4"H x 1/2"D Vane Revolutions for Remold 6
Spring #: 4

Maximum Degrees of Deflection: 48.5

Shear Strength (psf): 748.19

Calibration Curves Attached
Lab Vane Apparatus: Wykehem Farrance, Model #23541

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-10	ST-1	20-22'	35.5	21	40	19	CL

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: RZ **Checked By:** MP

CDM Smith

Geotechnical Engineering Laboratory

Standard Test Method for Laboratory Miniature Vane Shear Test for Saturated Fine-Grained Clayey Soil (ASTM D4648)

Client:	City of Cambridge	Tested By:	AS
Project Name:	Tobin School	Test Date:	8/18/2017
Project Location:	Cambridge, MA		
Project Number:	139-220813		
Sample Number:	CDM-10		
Sample Location:	ST-1		
Sample Depth (ft):	20-22'		
Sample Date:	7/31/2017		
Lab ID:	453082093		

Moisture Content: 33.4%
Rotation Rate: 10° per minute
Vane Test Depth (ft): 20.5

Initial Shear Strength

Vane Dimensions: 3/4"H x 1/2"D
Spring #: 4

Maximum Degrees of Deflection: 80

Shear Strength (psf): 1234.13

Remolded Shear Strength

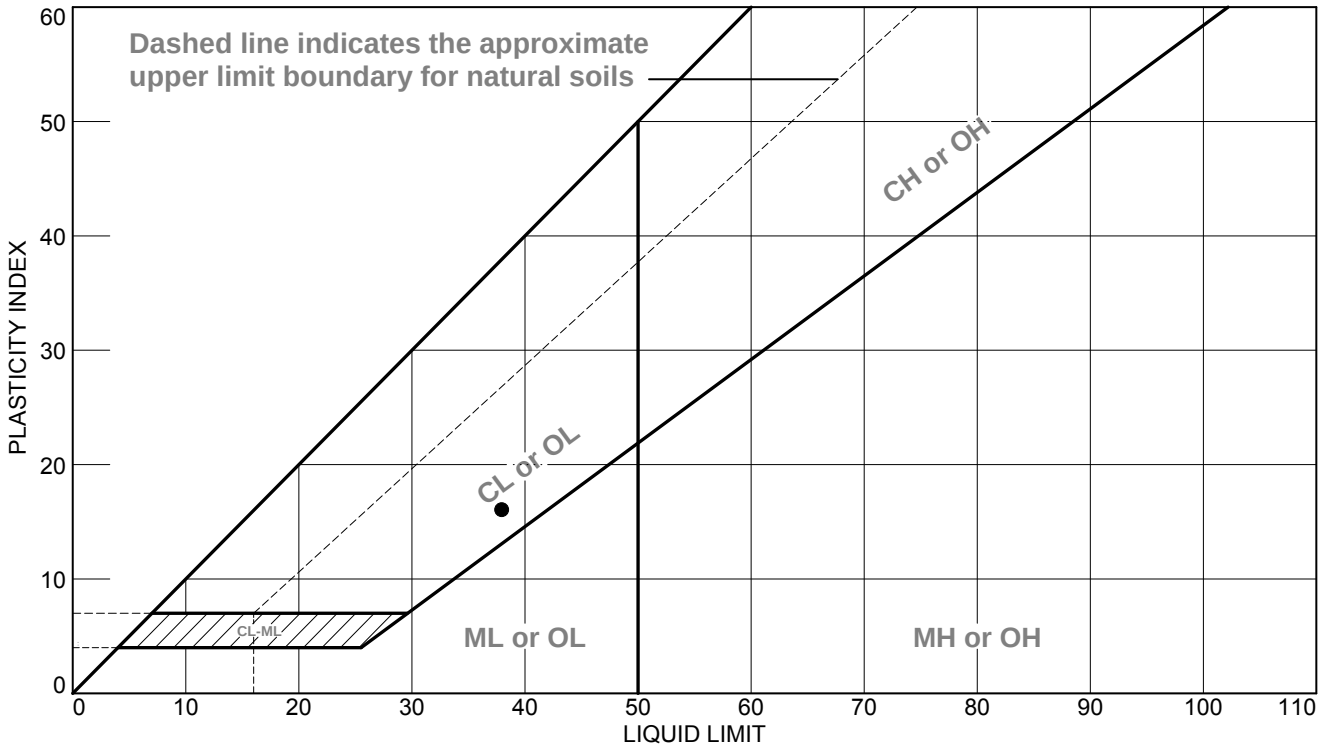
Vane Dimensions: 3/4"H x 1/2"D Vane Revolutions for Remold: 6
Spring #: 4

Maximum Degrees of Deflection: 24

Shear Strength (psf): 370.24

Calibration Curves Attached
Lab Vane Apparatus: Wykehem Farrance, Model #23541

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-15	ST-1	18-20'	28.6	22	38	16	CL

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: GW **Checked By:** MP

CDM Smith

Geotechnical Engineering Laboratory

Standard Test Method for Laboratory Miniature Vane Shear Test for Saturated Fine-Grained Clayey Soil (ASTM D4648)

Client:	City of Cambridge	Tested By:	AS
Project Name:	Tobin School	Test Date:	8/18/2017
Project Location:	Cambridge, MA		
Project Number:	139-220813		
Sample Number:	CDM-15		
Sample Location:	ST-1		
Sample Depth (ft):	18-20'		
Sample Date:	7/20/2017		
Lab ID:	453082094		

Moisture Content: 28.6%
Rotation Rate: 10° per minute
Vane Test Depth (ft): 19

Initial Shear Strength

Vane Dimensions: 3/4"H x 1/2"D
Spring #: 4

Maximum Degrees of Deflection: 166

Shear Strength (psf): 2560.83

Remolded Shear Strength

Vane Dimensions: 3/4"H x 1/2"D Vane Revolutions for Remold 6
Spring #: 4

Maximum Degrees of Deflection: 47

Shear Strength (psf): 725.05

Calibration Curves Attached
Lab Vane Apparatus: Wykehem Farrance, Model #23541

Geotechnical Engineering Laboratory

ISOTROPICALLY CONSOLIDATED UNDRAINED TRIAXIAL TEST SUMMARY - ASTM D4767

Client:	City of Cambridge	**Test Date:**	8/23/2017	**LL :**	34
Project:	Tobin School	**Exploration No:**	CDM-15	**PL :**	19
Location:	Cambridge, MA	**Sample No:**	ST-2	**PI :**	15
Project No:	00139-220813	**Depth (ft):**	31 - 33	**USCS:**	CL

Initial

Moisture Content (%):	28.9%
Dry Unit Weight (pcf):	96.4
Diameter (in):	2.870
Height (in):	5.705
Void Ratio (-):	0.781
Saturation (%):	101.8
Moisture Content (Trim.%):	28.9%
Cross Sectional Area (in^2):	6.469

Final

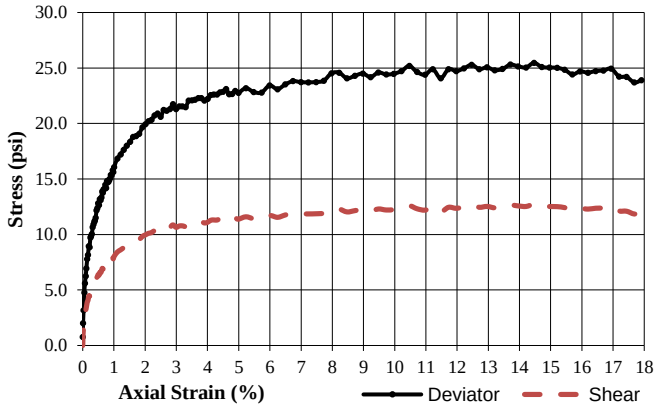
Moisture Content (%):	27.7%
Dry Unit Weight (pcf):	99.2
Height (in):	4.667
Void Ratio (-):	0.730
Saturation (%):	104.4
Cross Sectional Area (in^2):	7.690

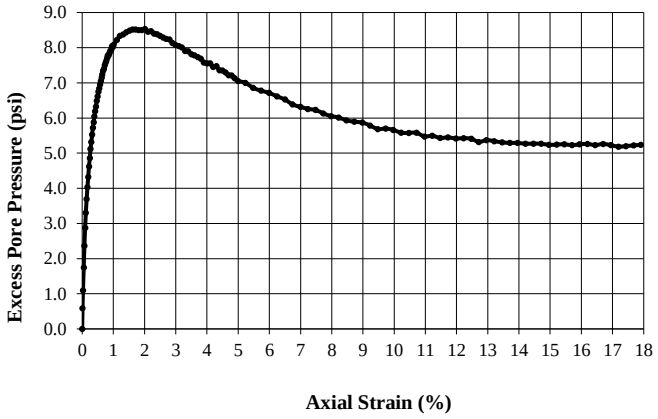
End of Consolidation Data

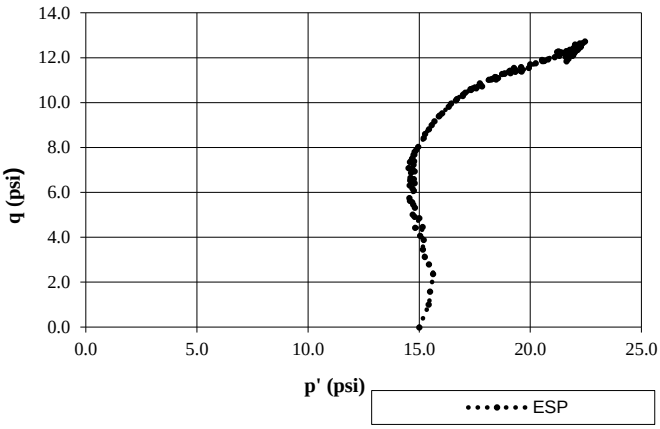
A_c Evaluated using Method	B
Sample Saturated using Metho	B
Moisture Content (%):	27.7%
Dry Unit Weight (pcf):	99.2
Height (in):	5.685
Void Ratio (-):	0.730
Saturation (%):	104.4
Cross Sectional Area (in^2):	6.313
Pore Pressure Parameter B (-):	1.00
Final Back Pressure (psi):	40
Consolidation Pressure (psi):	15.0

Shear Data

Shear Strain Rate (%/hr):	0.75
Max. Deviator Stress(*) (psi):	25.5
Strain at Failure (%):	14.5
Minor Eff. Pr. Stress(*) (psi):	9.7
Major Eff. Pr. Stress(*) (psi):	35.2
Undrained Strength Ratio (-):	0.85







Notes:

(*) Failure criterion: max. deviator stress or max deviator stress at strain = 15%, whichever is obtained first. No correction for membrane or filter paper applied

Remarks:

CDM Smith Geotechnical Engineering Laboratory

CRS CONSOLIDATION TEST SUMMARY - ASTM D4186

Client: City of Cambridge
Project: Tobin School
Location: Cambridge, MA
Project No: 00139-220813

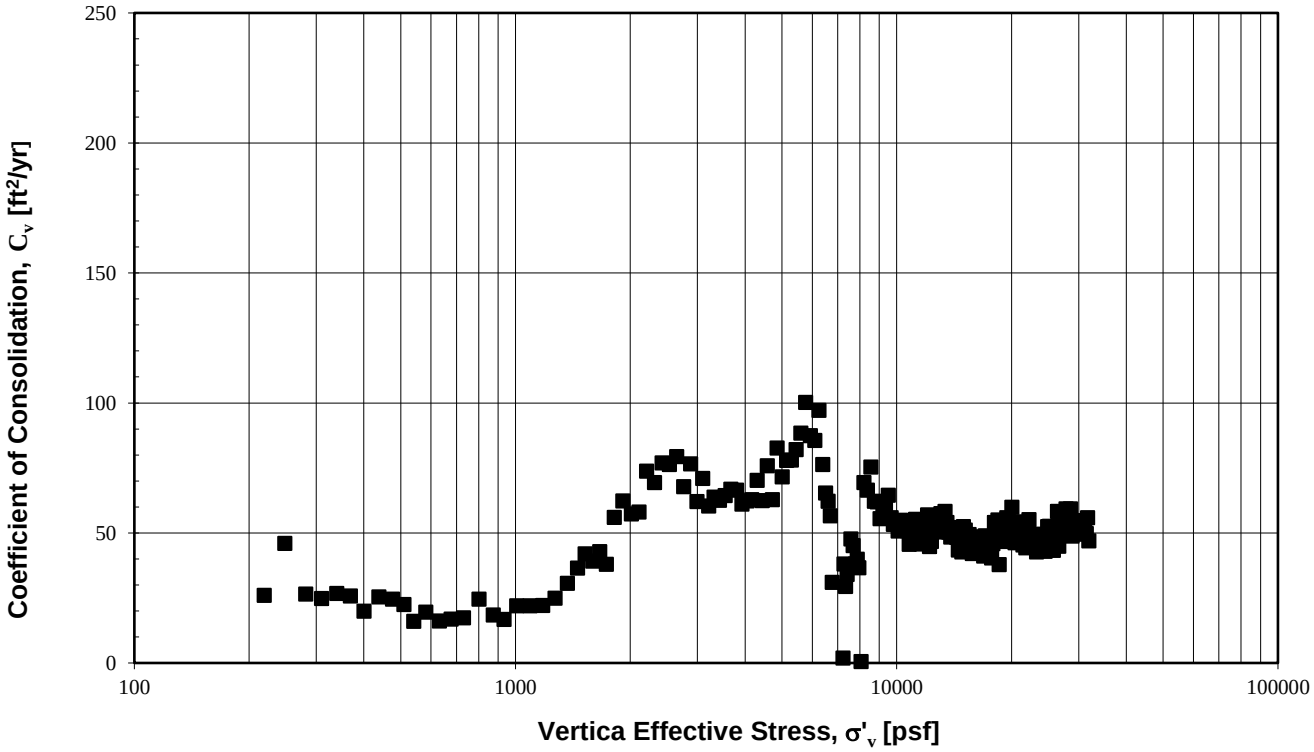
Test Date: 8/25/2017
Exploration No: CDM-15
Sample No: ST-2
Depth (ft): 31-33
Sample Description: Lean clay

	Initial	Final
Wet Mass (g)	157.56	151.40
Dry Mass (g)	123.58	123.58
Moisture Content (%):	27.5	23.8
Moist Unit Weight (pcf):	122.3	131.2
Dry Unit Weight (pcf):	95.9	106.0
Diameter (in):	2.50	2.50
Height (in)(*):	0.993	0.895
Specific Gravity[2]	2.7	2.7
Void Ratio (-)(*):	0.757	0.589
Saturation (%):	98.1	109.0

Atterberg Limits:

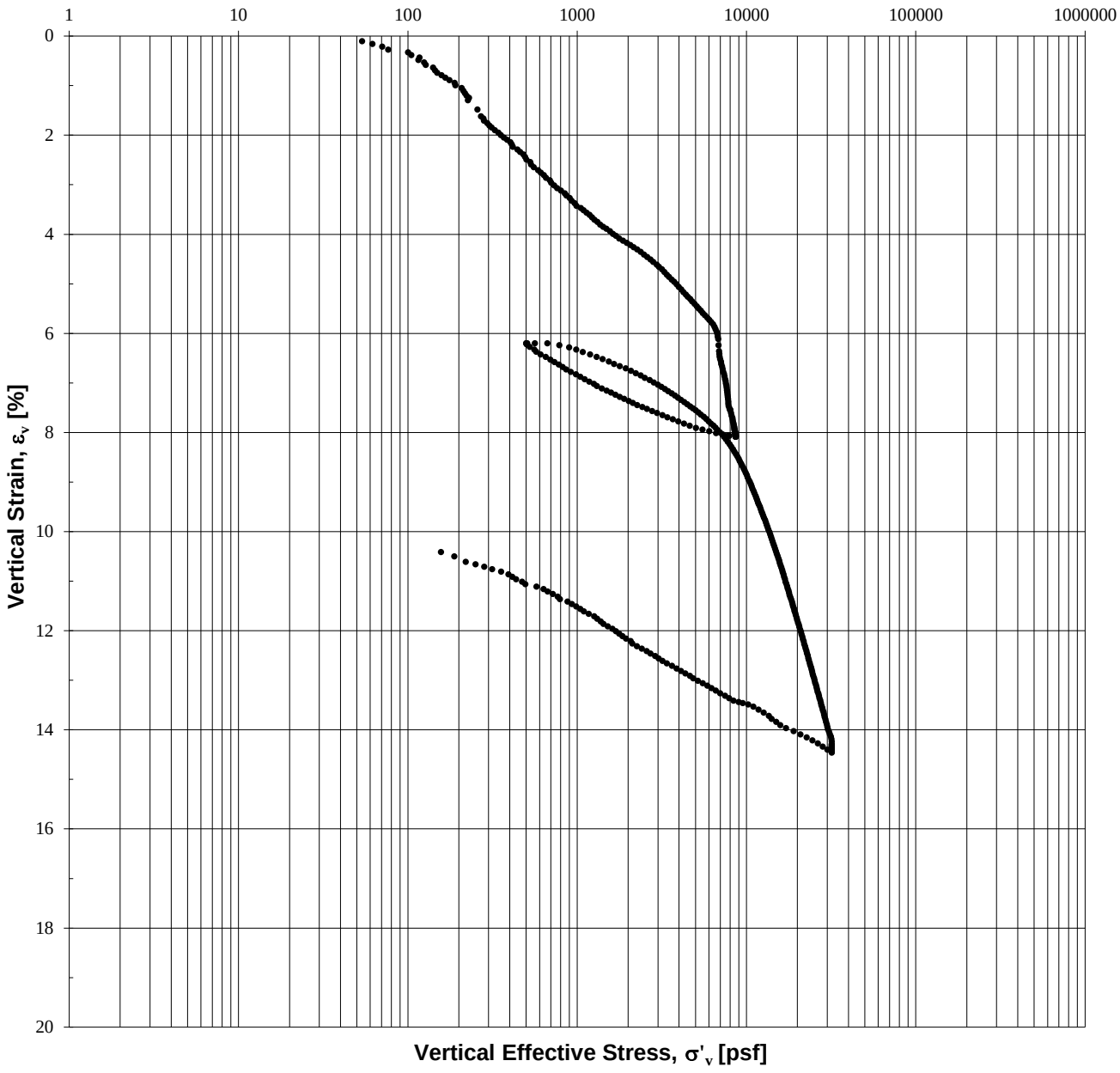
LL :	34
PL :	19
PI :	15

Consolidation Strain Rate (%/hr):	1.0
Final Back Pressure (psi):	40
Seating Pressure (psi):	2



Notes:
1. Consolidation test performed in accordance with ASTM D4186.
2. Value of Specific gravity Gs is assumed
(*) Reported final data are taken at final deformation

Test Remarks:



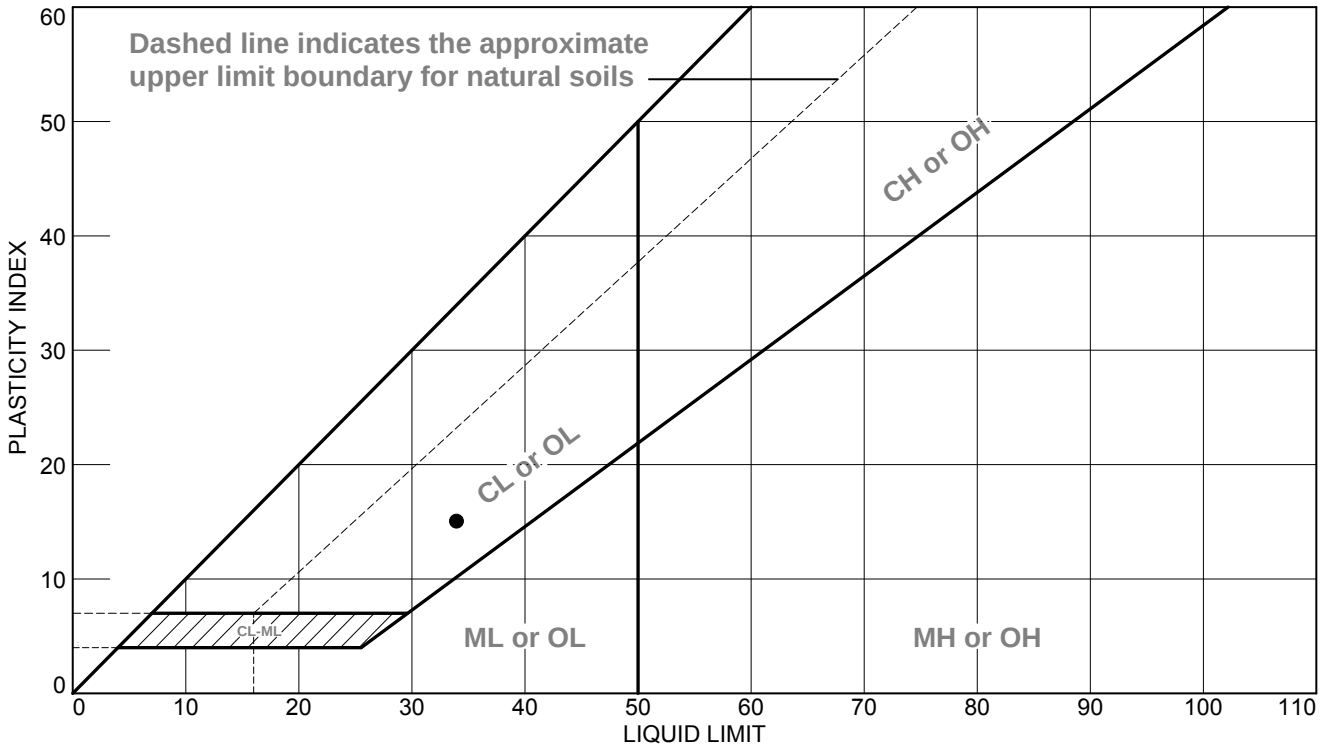
Exploration No:	CDM-15	**Preconsolidation Pressure (psf):**	3,500
Sample No:	ST-2	**Estimated In Situ Pressure (psf):**	1,200
Depth (ft):	31-33	**OCR:**	2.92
Sample Description:	Lean clay	**Compression Ratio, CR:**	0.107
		Recompression Ratio, RR:	0.017

CDM Smith
Geotechnical Engineering Laboratory

Client: City of Cambridge
Project: Tobin School
Location: Cambridge, MA
Project No: 00139-220813

CONSTANT RATE OF STRAIN CONSOLIDATION TEST
ASTM D4186

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-15	ST-2	31-33'	30.7	19	34	15	CL

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: RZ **Checked By:** MP

CDM Smith

Geotechnical Engineering Laboratory

Standard Test Method for Laboratory Miniature Vane Shear Test for Saturated Fine-Grained Clayey Soil (ASTM D4648)

Client:	City of Cambridge	Tested By:	AS
Project Name:	Tobin School	Test Date:	8/18/2017
Project Location:	Cambridge, MA		
Project Number:	139-220813		
Sample Number:	CDM-15		
Sample Location:	ST-2		
Sample Depth (ft):	31-33'		
Sample Date:	7/20/2017		
Lab ID:	453082095		

Moisture Content: 29.6%
Rotation Rate: 10° per minute
Vane Test Depth (ft): 32.1

Initial Shear Strength

Vane Dimensions: 3/4"H x 1/2"D
Spring #: 4

Maximum Degrees of Deflection: 85

Shear Strength (psf): 1311.27

Remolded Shear Strength

Vane Dimensions: 3/4"H x 1/2"D Vane Revolutions for Remold 6
Spring #: 4

Maximum Degrees of Deflection: 70.5

Shear Strength (psf): 1087.58

Calibration Curves Attached
Lab Vane Apparatus: Wykehem Farrance, Model #23541

ATTACHMENT J

PHASE 2 - GEOTECHNICAL LABORATORY TEST RESULTS

CDM Smith

Geotechnical Engineering Laboratory

Standard Test Method for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils(ASTM D2974)

Client:	City of Cambridge		
Project Name:	Tobin School	Tested By:	AS
Project Location:	Cambridge, MA	Test Date:	3/6/2018
Project Number:	00139-220813		
Boring Number:	CDM-101B	Procedure:	C
Sample Number:	S-4	Temperature:	440° C
Sample Depth (ft):	7-9		
Sample Date:	2/1/2018		

AS RECEIVED MOISTURE CONTENT	
Tin Mass (g)	64.49
Wet Mass of Sample & Tin (g)	123.98
Dry Mass of Sample & Tin (g)	97.11
Mass of Water (g)	26.87
Mass of Dry Soil (g)	32.62
Moisture Content (%)	**82.4**

ASH CONTENT	
Porcelain Dish Mass (g)	64.49
Porcelain Dish + Oven Dried Soil (g)	97.11
Mass of Oven Dried Soil (g)	32.62
Mass of Dish & Burned Soil (g)	91.58
Mass of Burned Soil (g)	27.09
Mass of Organic Material (g)	5.53
Ash Content (%)	83.0
Organic Content (%)	**17.0**

CDM Smith

Geotechnical Engineering Laboratory

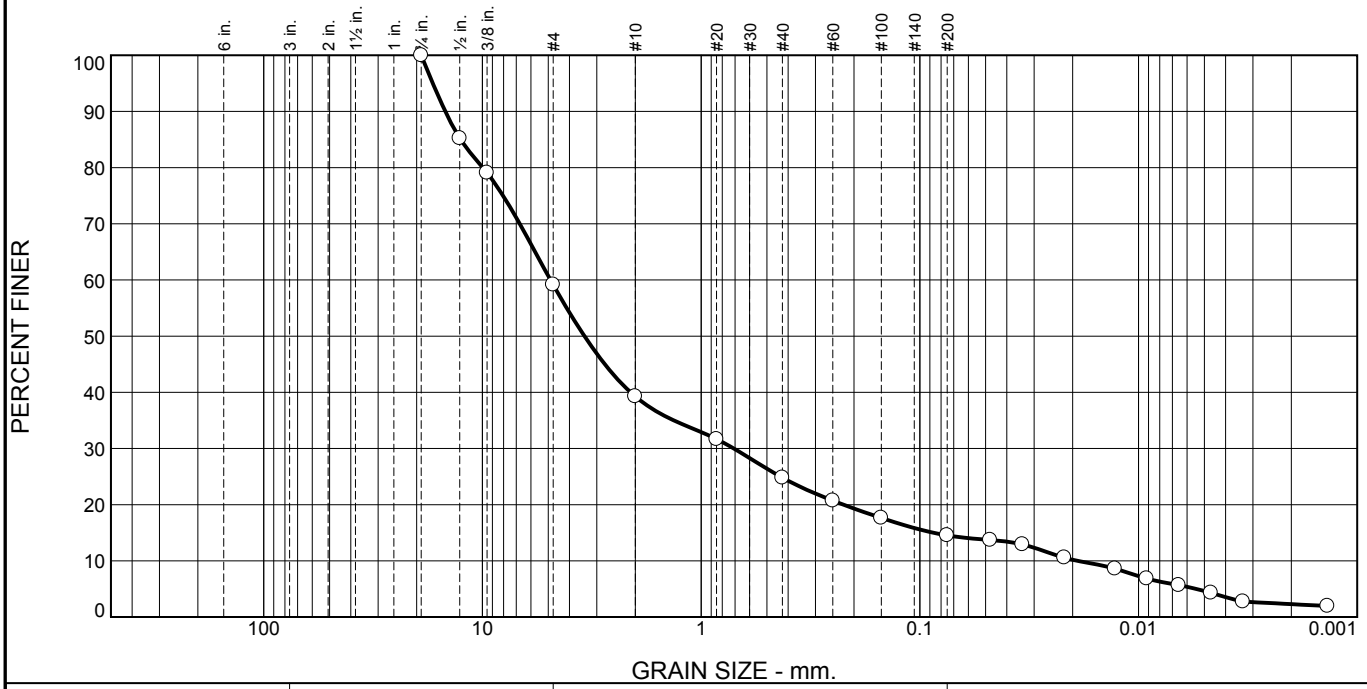
Standard Test Method for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils(ASTM D2974)

Client:	City of Cambridge		
Project Name:	Tobin School	Tested By:	AS
Project Location:	Cambridge, MA	Test Date:	3/6/2018
Project Number:	00139-220813		
Boring Number:	CDM-102B	Procedure:	C
Sample Number:	S-4B	Temperature:	440° C
Sample Depth (ft):	7-9		
Sample Date:	1/26/2018		

AS RECEIVED MOISTURE CONTENT	
Tin Mass (g)	126.69
Wet Mass of Sample & Tin (g)	197.71
Dry Mass of Sample & Tin (g)	167.47
Mass of Water (g)	30.24
Mass of Dry Soil (g)	40.78
Moisture Content (%)	**74.2**

ASH CONTENT	
Porcelain Dish Mass (g)	126.69
Porcelain Dish + Oven Dried Soil (g)	167.47
Mass of Oven Dried Soil (g)	40.78
Mass of Dish & Burned Soil (g)	159.81
Mass of Burned Soil (g)	33.12
Mass of Organic Material (g)	7.66
Ash Content (%)	81.2
Organic Content (%)	**18.8**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	40.8	19.9	14.5	10.3	9.9	4.6

Test Results (ASTM D6913 & D7928 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75	100.0		
.5	85.2		
.375	79.1		
#4	59.2		
#10	39.3		
#20	31.7		
#40	24.8		
#60	20.7		
#100	17.6		
#200	14.5		
0.0477 mm.	13.7		
0.0339 mm.	12.9		
0.0219 mm.	10.6		
0.0128 mm.	8.6		
0.0092 mm.	6.9		
0.0065 mm.	5.7		
0.0047 mm.	4.3		
0.0033 mm.	2.7		
0.0014 mm.	2.0		

* (no specification provided)

Material Description

Brown silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 14.7879 D_{85}= 12.5970 D_{60}= 4.8837
D_{50}= 3.4152 D_{30}= 0.7094 D_{15}= 0.0867
D_{10}= 0.0190 C_u= 257.65 C_c= 5.44

Remarks

As recieved MC = 45.4%

Date Received: **Date Tested:** 3/6/18

Tested By: MP

Checked By: MP

Title: Laboratory Manager

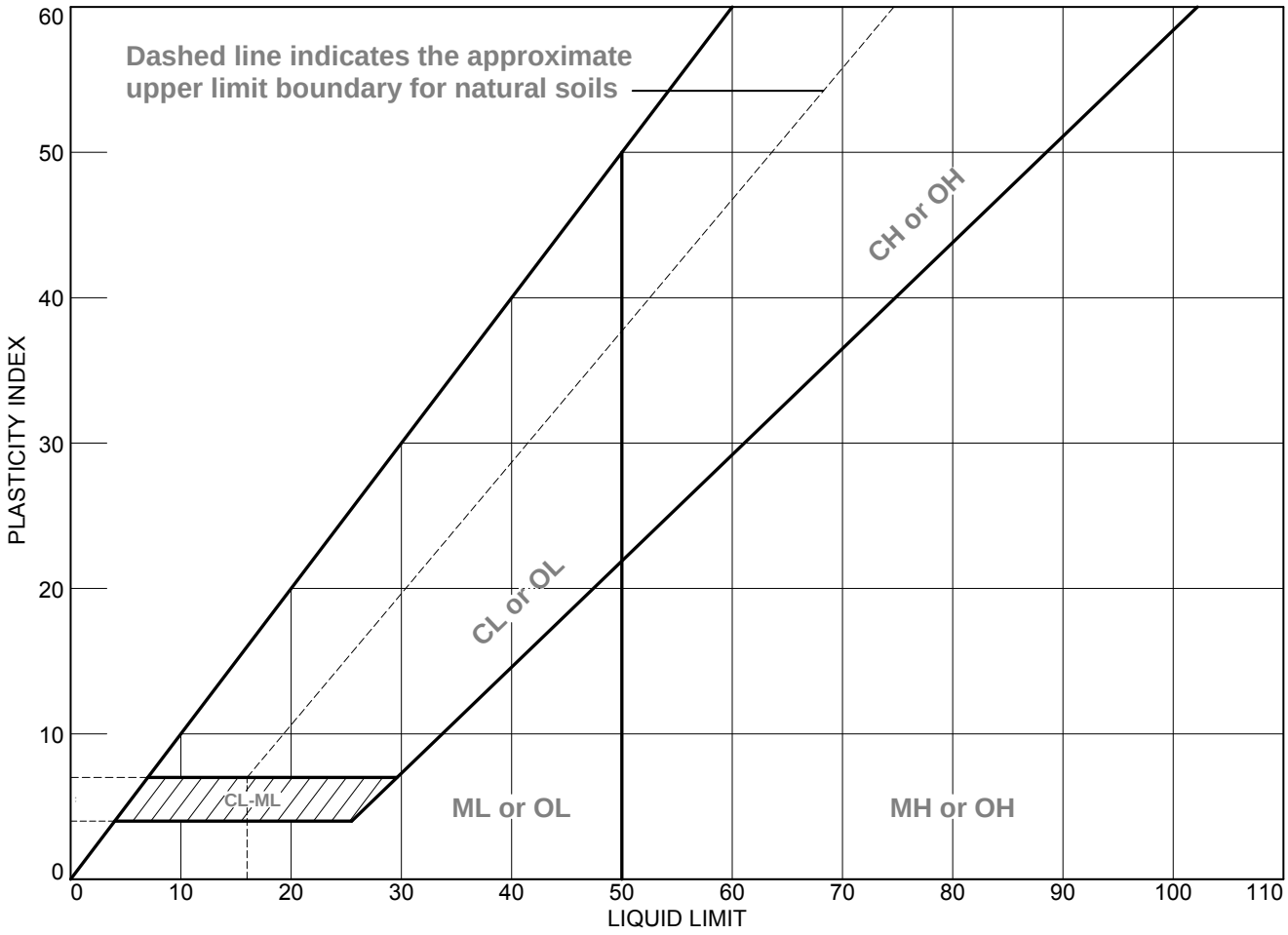
Source of Sample: CDM-103 **Depth:** 15-17' **Date Sampled:** 1/25/18
Sample Number: S-8

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-103	S-11	21-23'	25.1	NP	NV	NP	ML

CDM Smith

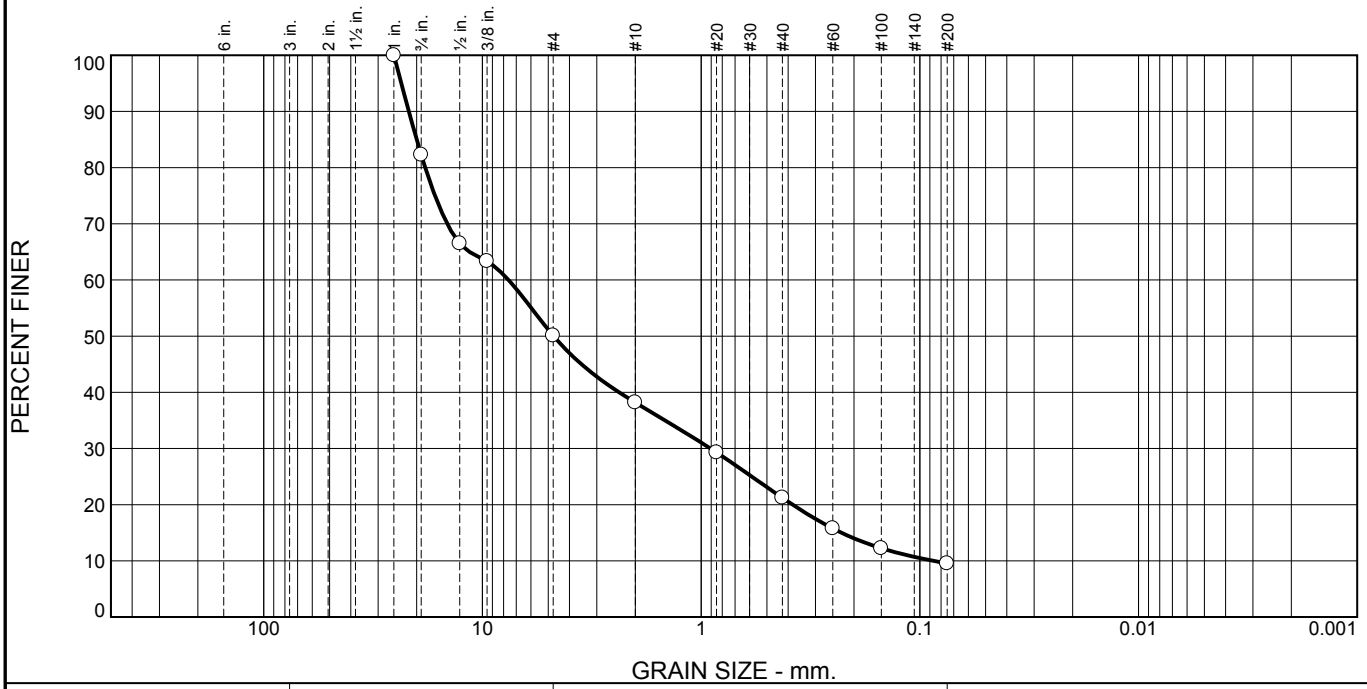
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: SB **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	17.7	32.2	11.9	17.0	11.7	9.5	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
.75"	82.3		
.5"	66.5		
.375"	63.3		
#4	50.1		
#10	38.2		
#20	29.3		
#40	21.2		
#60	15.8		
#100	12.2		
#200	9.5		

* (no specification provided)

Material Description

Dark brown well-graded gravel with silt and sand
(Urban fill)

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GW-GM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 21.7112 D_{85}= 19.9792 D_{60}= 7.6036
D_{50}= 4.7233 D_{30}= 0.9066 D_{15}= 0.2280
D_{10}= 0.0865 C_u= 87.88 C_c= 1.25

Remarks

As received MC = 29.8%

Date Received: 3/5/18 **Date Tested:** 3/6/18

Tested By: MP

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-104 **Depth:** 12-14' **Date Sampled:** 1/24/18

Sample Number: S-7

CDM Smith

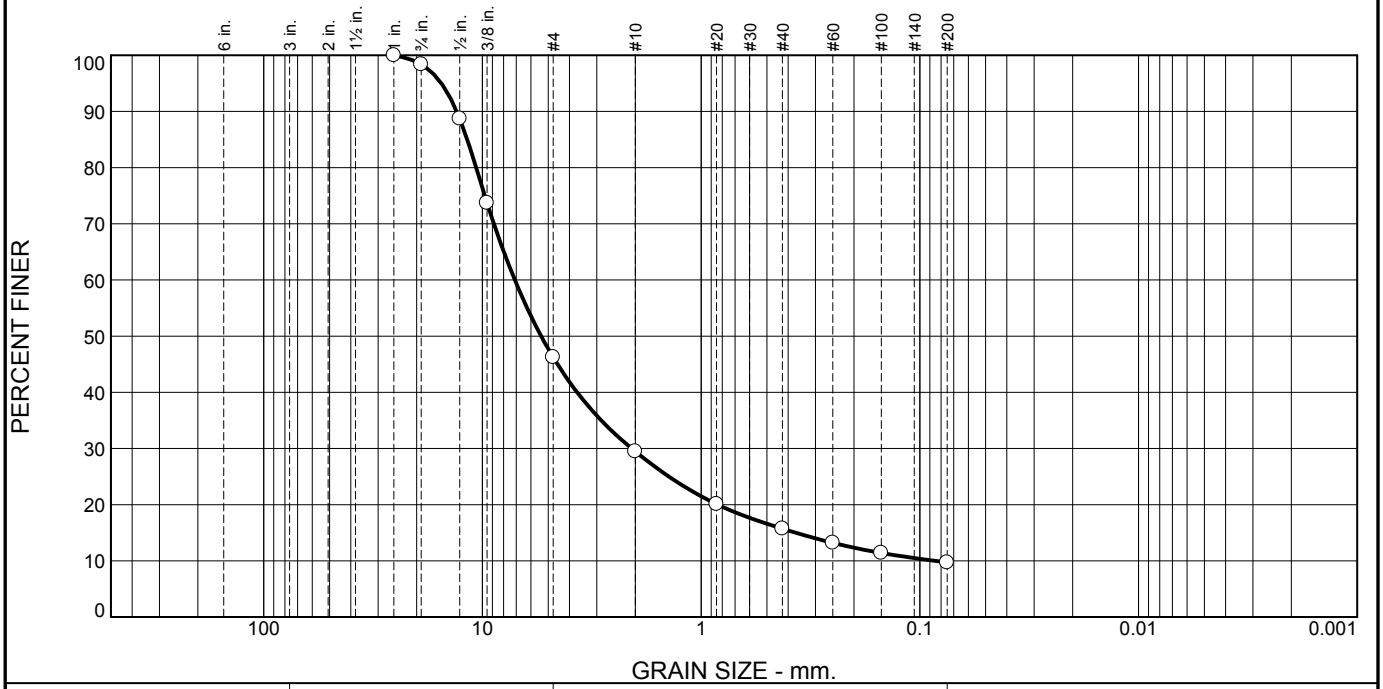
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.6	52.1	16.8	13.8	6.0	9.7	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
.75"	98.4		
.5"	88.7		
.375"	73.7		
#4	46.3		
#10	29.5		
#20	20.1		
#40	15.7		
#60	13.2		
#100	11.4		
#200	9.7		

* (no specification provided)

Material Description

Dark gray poorly graded gravel with silt and sand
(Urban fill)

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GP-GM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 13.1054 D_{85}= 11.7372 D_{60}= 7.1121
D_{50}= 5.3876 D_{30}= 2.0772 D_{15}= 0.3688
D_{10}= 0.0853 C_u= 83.38 C_c= 7.11

Remarks

As received MC = 28.2%

Date Received: 3/5/18 **Date Tested:** 3/6/18

Tested By: MP

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-104 **Depth:** 28-30' **Date Sampled:** 1/24/18

Sample Number: S-15

CDM Smith

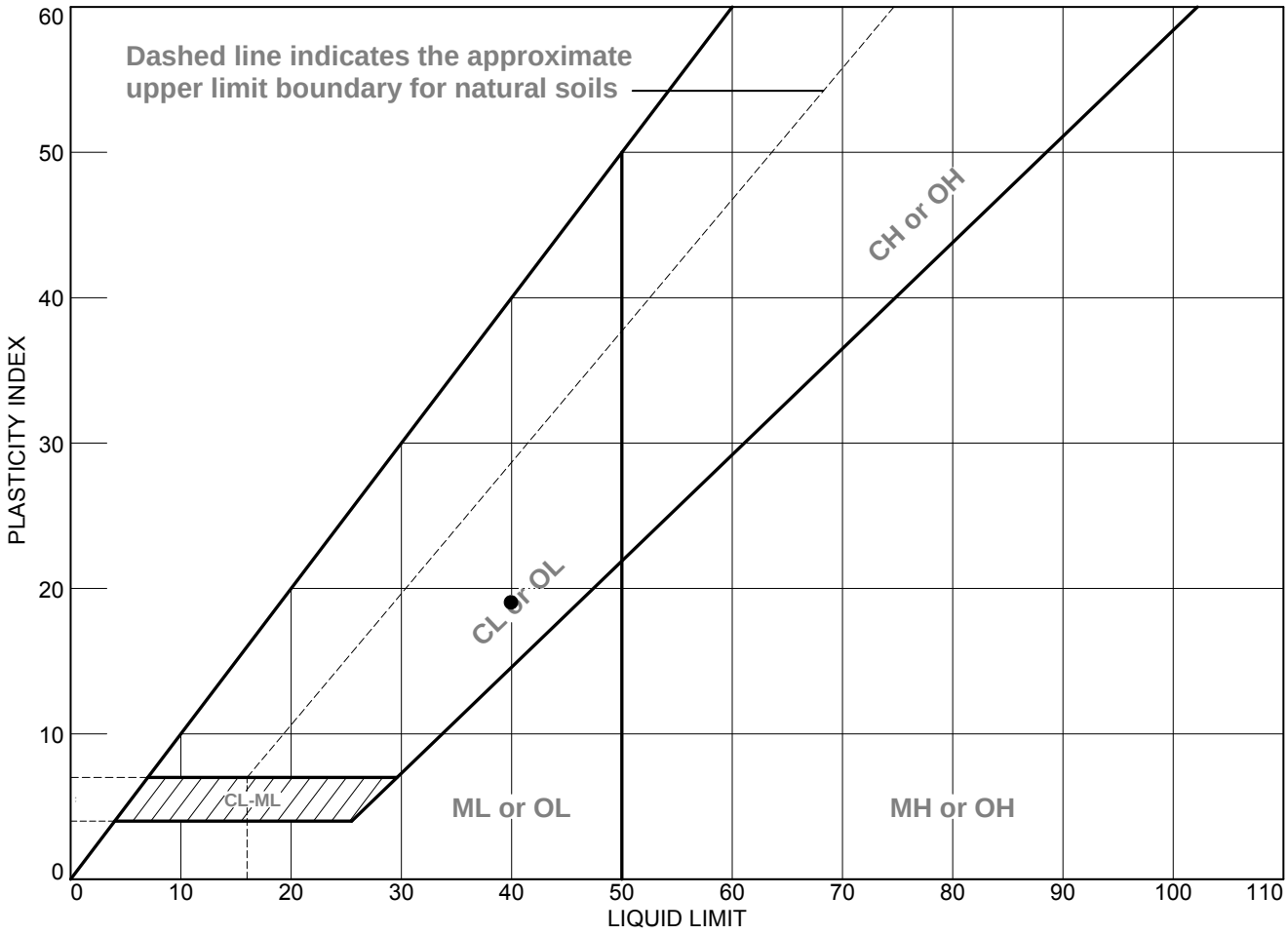
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-104	S-17	32-34'	32.3	21	40	19	CL

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: SB **Checked By:** MP

CDM Smith

Geotechnical Engineering Laboratory

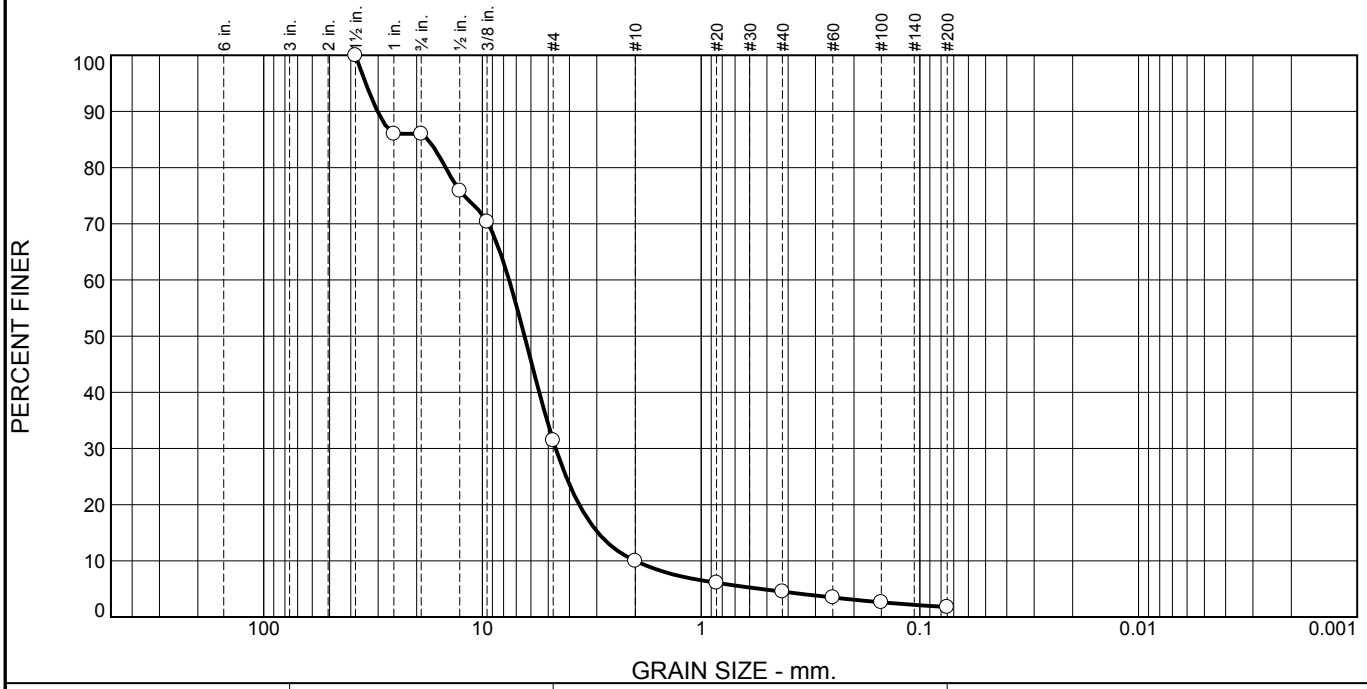
Standard Test Method for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils(ASTM D2974)

Client:	City of Cambridge		
Project Name:	Tobin School	Tested By:	AS
Project Location:	Cambridge, MA	Test Date:	3/6/2018
Project Number:	00139-220813		
Boring Number:	CDM-105	Procedure:	C
Sample Number:	S-4B	Temperature:	440° C
Sample Depth (ft):	6-8		
Sample Date:	1/23/2018		

AS RECEIVED MOISTURE CONTENT	
Tin Mass (g)	90.34
Wet Mass of Sample & Tin (g)	182.59
Dry Mass of Sample & Tin (g)	165.38
Mass of Water (g)	17.21
Mass of Dry Soil (g)	75.04
Moisture Content (%)	**22.9**

ASH CONTENT	
Porcelain Dish Mass (g)	90.34
Porcelain Dish + Oven Dried Soil (g)	165.38
Mass of Oven Dried Soil (g)	75.04
Mass of Dish & Burned Soil (g)	163.58
Mass of Burned Soil (g)	73.24
Mass of Organic Material (g)	1.80
Ash Content (%)	97.6
Organic Content (%)	**2.4**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	14.0	54.6	21.4	5.5	2.7	1.8	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1.5"	100.0		
1"	86.0		
.75"	86.0		
.5"	75.9		
.375"	70.4		
#4	31.4		
#10	10.0		
#20	6.1		
#40	4.5		
#60	3.5		
#100	2.6		
#200	1.8		

* (no specification provided)

Material Description

Dark brown poorly graded gravel with sand
(Urban fill)

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GP **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 30.1834 D_{85}= 17.7268 D_{60}= 7.5528
D_{50}= 6.4198 D_{30}= 4.6206 D_{15}= 2.9615
D_{10}= 2.0012 C_u= 3.77 C_c= 1.41

Remarks

As received MC = 22.1%

Date Received: 3/5/18 **Date Tested:** 3/6/18

Tested By: MP

Checked By: MP

Title: Laboratory Manager

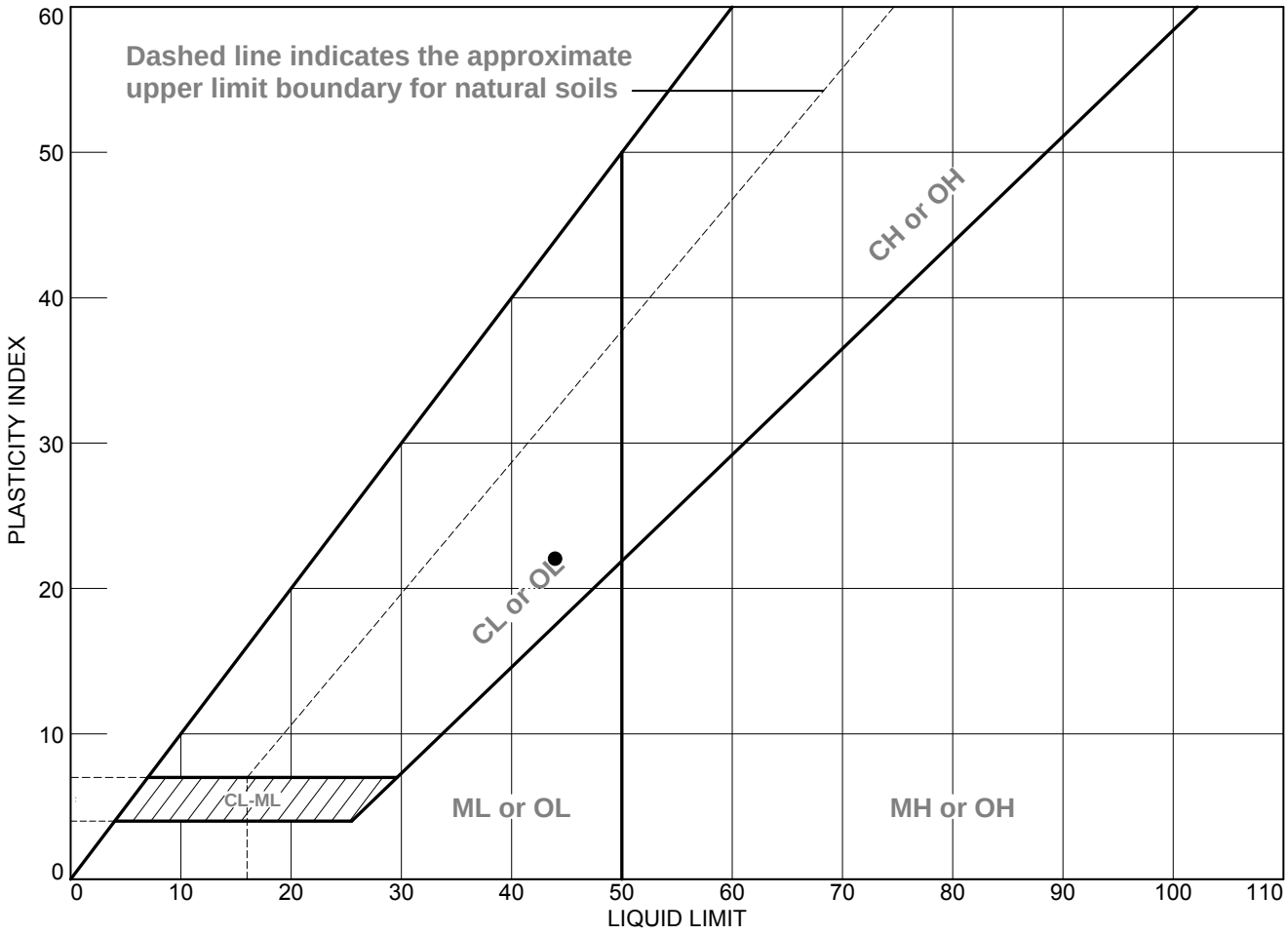
Source of Sample: CDM-106 **Depth:** 10-12' **Date Sampled:** 1/23/18
Sample Number: S-6

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-106	S-9	16-18'	29.9	22	44	22	CL

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: SB **Checked By:** MP

CDM Smith

Geotechnical Engineering Laboratory

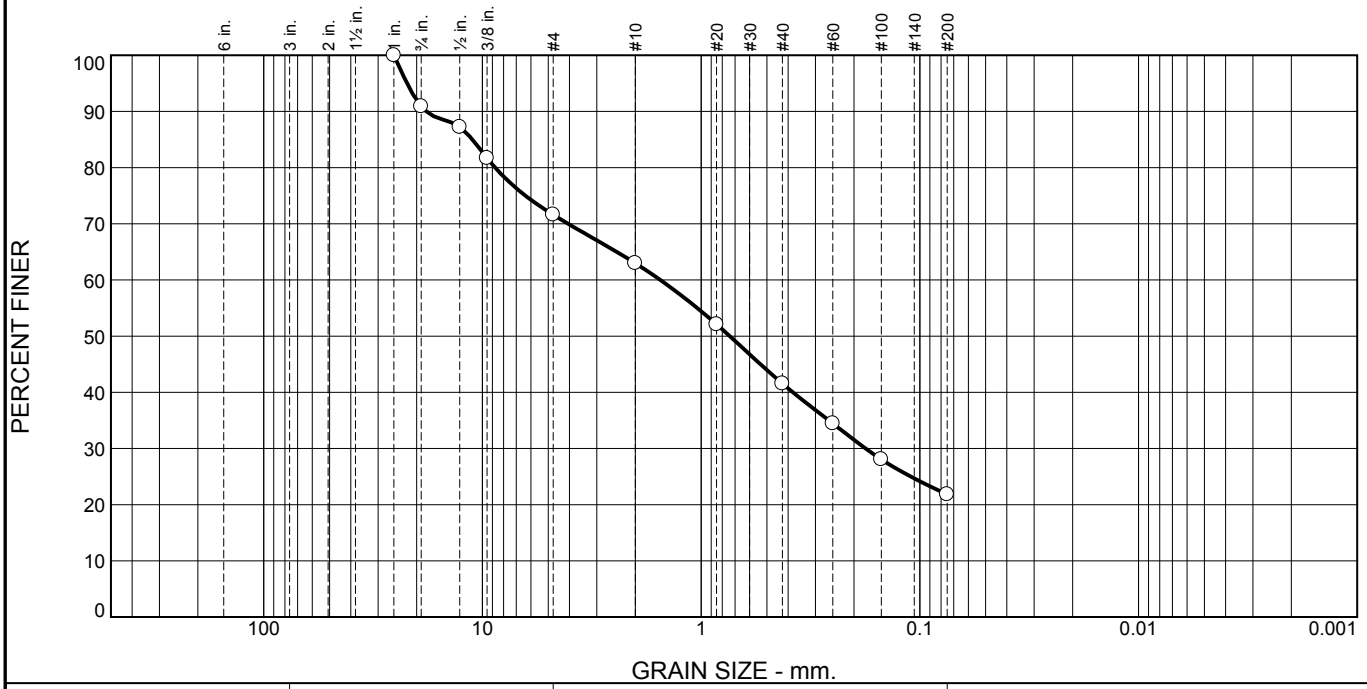
Standard Test Method for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils(ASTM D2974)

Client:	City of Cambridge		
Project Name:	Tobin School	Tested By:	AS
Project Location:	Cambridge, MA	Test Date:	3/6/2018
Project Number:	00139-220813		
Boring Number:	CDM-108	Procedure:	C
Sample Number:	S-4B	Temperature:	440° C
Sample Depth (ft):	7-9		
Sample Date:	1/30/2018		

AS RECEIVED MOISTURE CONTENT	
Tin Mass (g)	78.18
Wet Mass of Sample & Tin (g)	142.35
Dry Mass of Sample & Tin (g)	115.68
Mass of Water (g)	26.67
Mass of Dry Soil (g)	37.50
Moisture Content (%)	**71.1**

ASH CONTENT	
Porcelain Dish Mass (g)	78.18
Porcelain Dish + Oven Dried Soil (g)	115.68
Mass of Oven Dried Soil (g)	37.50
Mass of Dish & Burned Soil (g)	109.12
Mass of Burned Soil (g)	30.94
Mass of Organic Material (g)	6.56
Ash Content (%)	82.5
Organic Content (%)	**17.5**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.1	19.3	8.6	21.4	19.8	21.8	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
.75"	90.9		
.5"	87.2		
.375"	81.7		
#4	71.6		
#10	63.0		
#20	52.1		
#40	41.6		
#60	34.5		
#100	28.1		
#200	21.8		

* (no specification provided)

Material Description

Dark gray silty sand with gravel
(Urban fill)

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 18.0612 D_{85}= 11.1241 D_{60}= 1.5373
D_{50}= 0.7398 D_{30}= 0.1769 D_{15}=
D_{10}= C_u= C_c=

Remarks

As received MC = 32.5%

Date Received: 3/5/18 **Date Tested:** 3/6/18

Tested By: MP

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-109 **Depth:** 3-5' **Date Sampled:** 1/30/18
Sample Number: S-2B

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813 **Figure**

CDM Smith

Geotechnical Engineering Laboratory

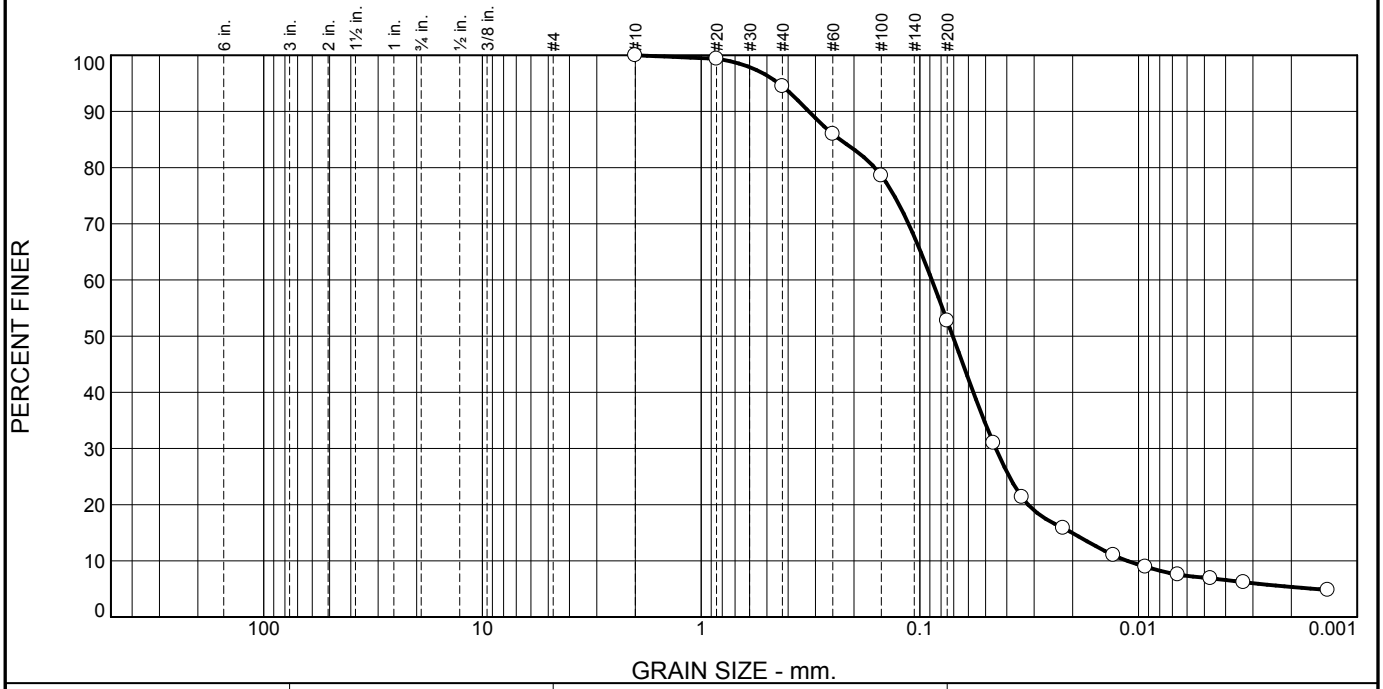
Standard Test Method for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils(ASTM D2974)

Client:	City of Cambridge		
Project Name:	Tobin School	Tested By:	AS
Project Location:	Cambridge, MA	Test Date:	3/6/2018
Project Number:	00139-220813		
Boring Number:	CDM-109	Procedure:	C
Sample Number:	S-4A	Temperature:	440° C
Sample Depth (ft):	7-9		
Sample Date:	1/30/2018		

AS RECEIVED MOISTURE CONTENT	
Tin Mass (g)	96.92
Wet Mass of Sample & Tin (g)	184.40
Dry Mass of Sample & Tin (g)	155.67
Mass of Water (g)	28.73
Mass of Dry Soil (g)	58.75
Moisture Content (%)	**48.9**

ASH CONTENT	
Porcelain Dish Mass (g)	96.92
Porcelain Dish + Oven Dried Soil (g)	155.67
Mass of Oven Dried Soil (g)	58.75
Mass of Dish & Burned Soil (g)	149.47
Mass of Burned Soil (g)	52.55
Mass of Organic Material (g)	6.20
Ash Content (%)	89.4
Organic Content (%)	**10.6**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.5	41.8	45.7	7.0

Test Results (ASTM D6913 & D7928 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#10	100.0		
#20	99.4		
#40	94.5		
#60	86.0		
#100	78.6		
#200	52.7		
0.0461 mm.	31.0		
0.0341 mm.	21.4		
0.0221 mm.	15.8		
0.0130 mm.	11.0		
0.0093 mm.	9.0		
0.0066 mm.	7.6		
0.0047 mm.	6.9		
0.0033 mm.	6.2		
0.0014 mm.	4.8		

* (no specification provided)

Material Description

Brown sandy silt

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= ML **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 0.3216 D_{85}= 0.2319 D_{60}= 0.0881
D_{50}= 0.0707 D_{30}= 0.0449 D_{15}= 0.0201
D_{10}= 0.0112 C_u= 7.83 C_c= 2.04

Remarks

As recieved MC = 24.6%

Date Received: **Date Tested:** 3/6/18

Tested By: MP

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-109 **Depth:** 7-9' **Date Sampled:** 1/30/18

Sample Number: S-4B

CDM Smith

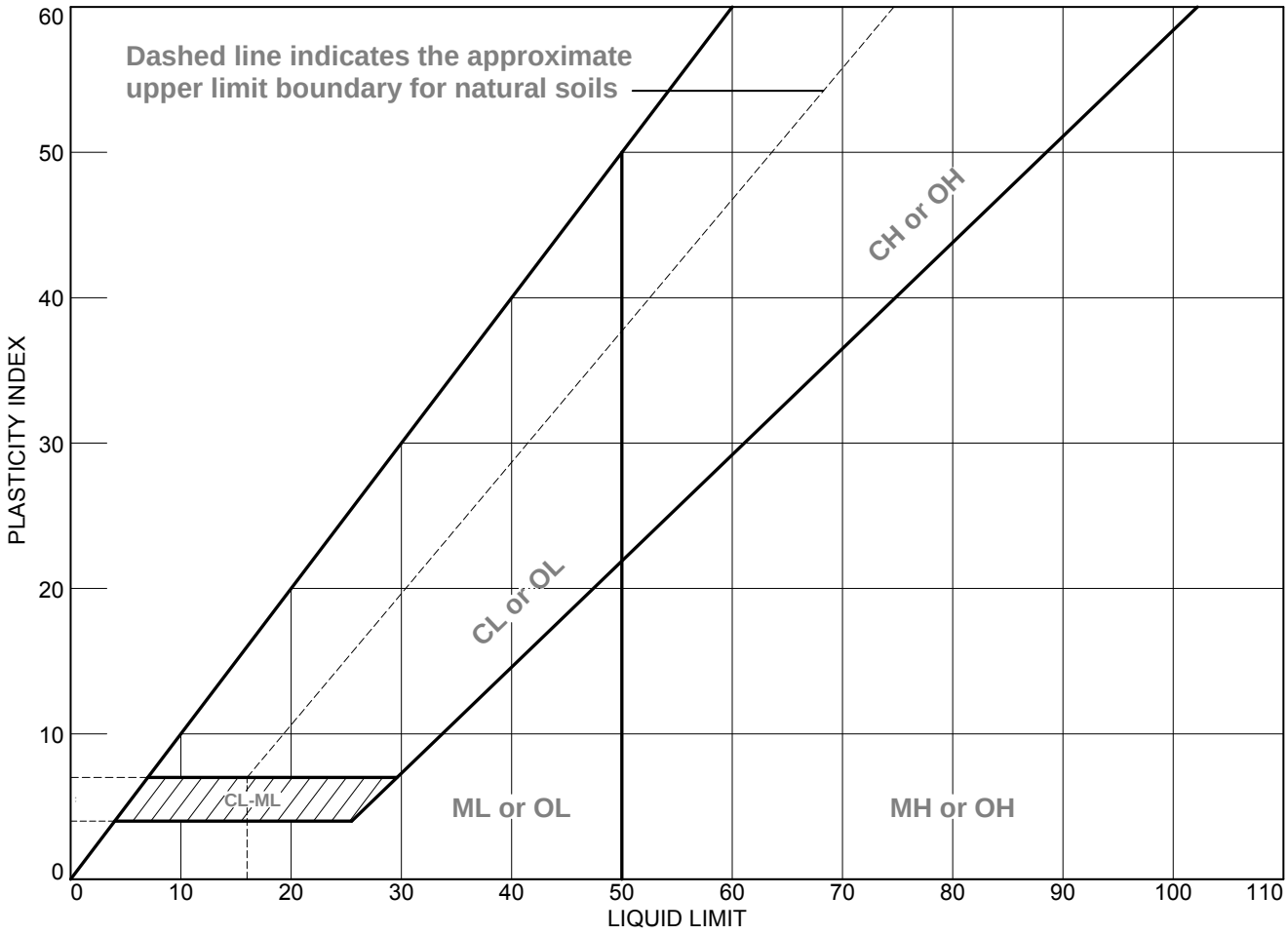
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-109	S-4B	7-9'	24.6	NP	NV	NP	ML

CDM Smith

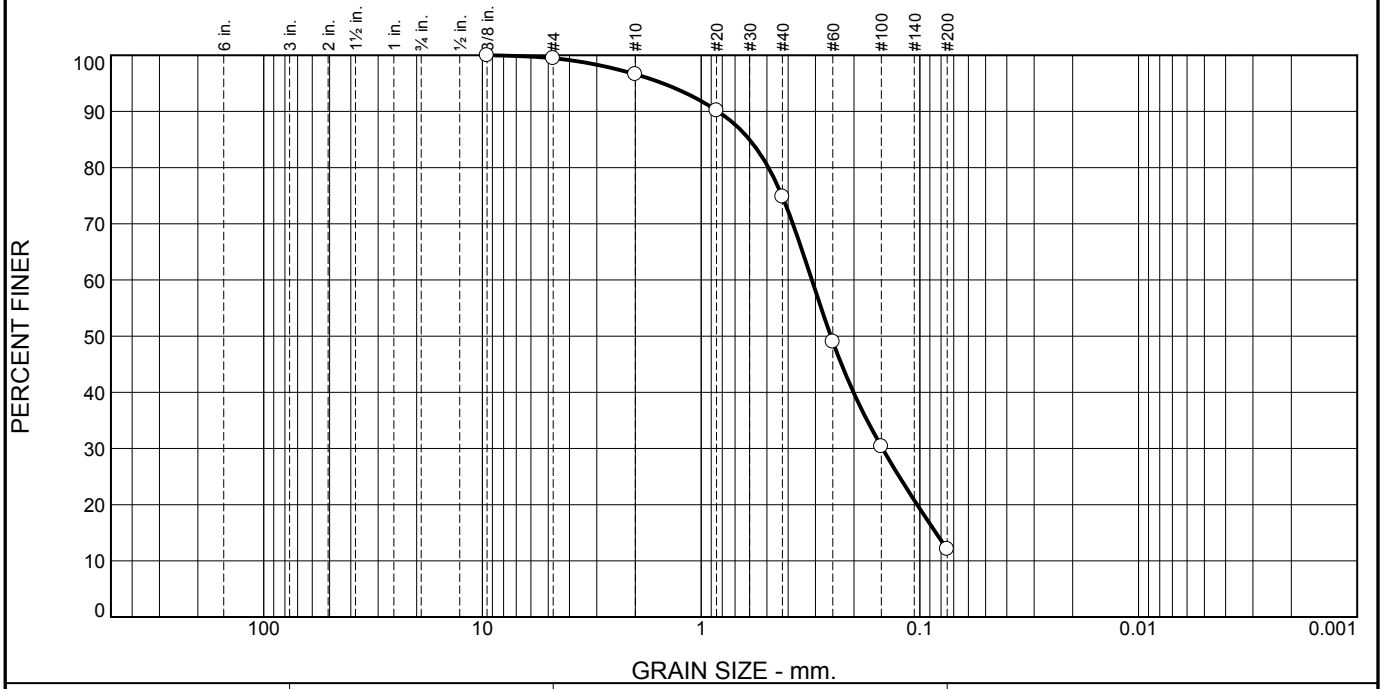
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: SB **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	2.9	21.8	62.7	12.1	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375"	100.0		
#4	99.5		
#10	96.6		
#20	90.2		
#40	74.8		
#60	49.0		
#100	30.4		
#200	12.1		

* (no specification provided)

Material Description

Gray silty sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 0.8376 D_{85}= 0.6005 D_{60}= 0.3116
D_{50}= 0.2553 D_{30}= 0.1481 D_{15}= 0.0844
D_{10}= C_u= C_c=

Remarks

As received MC = 18.9%

Date Received: 3/5/18 **Date Tested:** 3/6/18

Tested By: MP/SB

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-109 **Depth:** 9-11' **Date Sampled:** 1/30/18

Sample Number: S-5B

CDM Smith

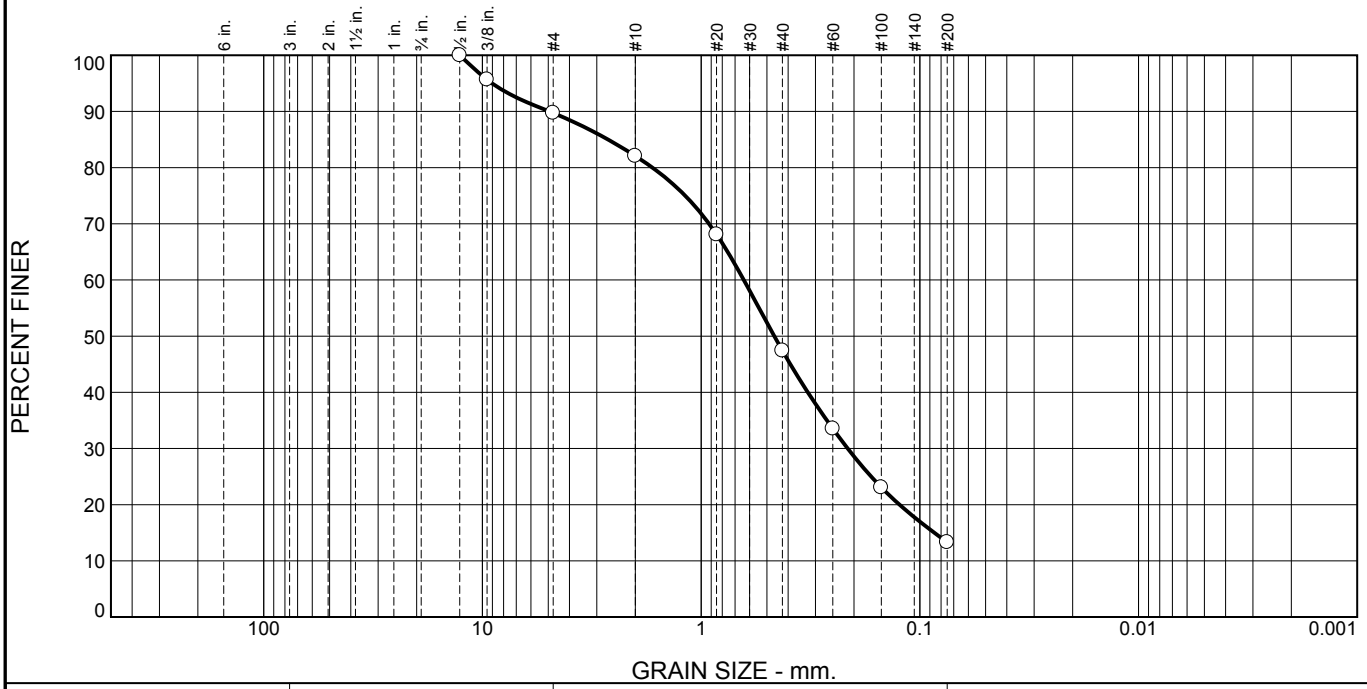
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	10.3	7.6	34.7	34.1	13.3	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.5"	100.0		
.375"	95.7		
#4	89.7		
#10	82.1		
#20	68.1		
#40	47.4		
#60	33.5		
#100	23.1		
#200	13.3		

* (no specification provided)

Material Description

Dark brown silty sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 4.9347 D_{85}= 2.6658 D_{60}= 0.6381
D_{50}= 0.4629 D_{30}= 0.2136 D_{15}= 0.0858
D_{10}= C_u= C_c=

Remarks

As received MC = 29.7%

Date Received: 3/5/18 **Date Tested:** 3/6/18

Tested By: MP

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-110 **Depth:** 5-7' **Date Sampled:** 1/29/18

Sample Number: S-3

CDM Smith

Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

CDM Smith

Geotechnical Engineering Laboratory

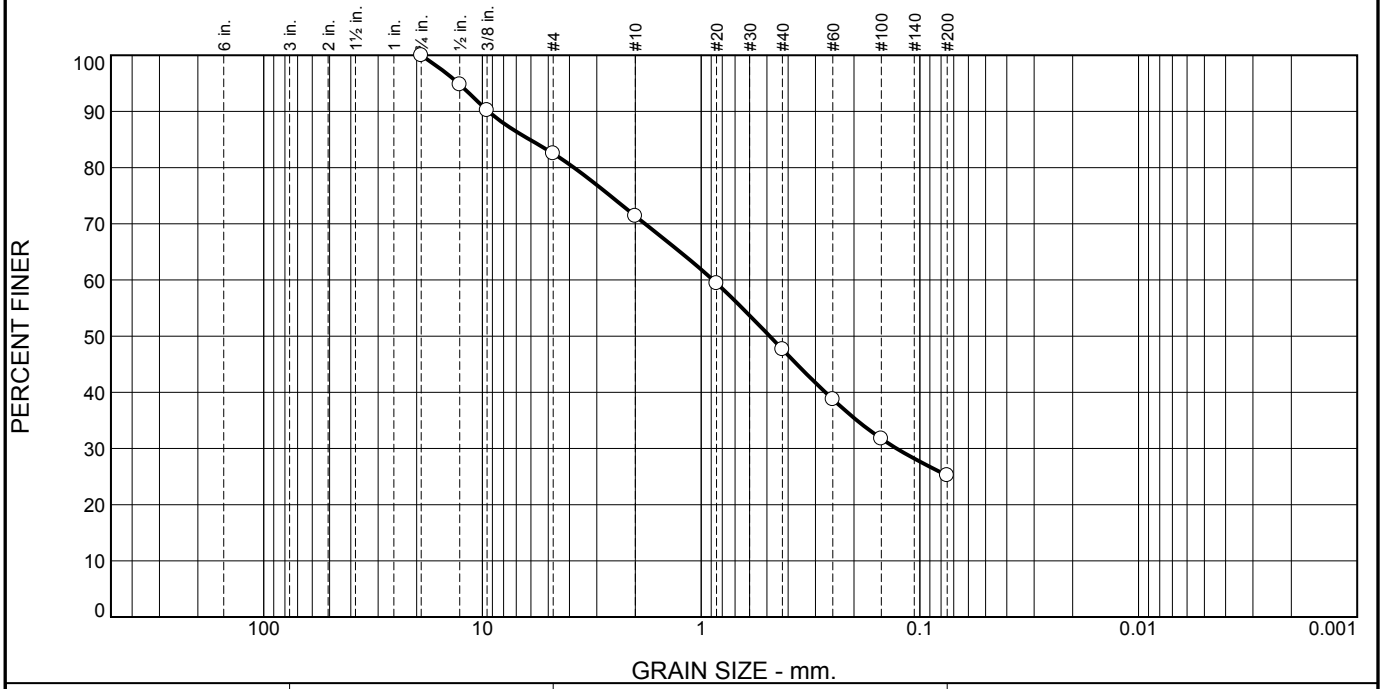
Standard Test Method for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils(ASTM D2974)

Client:	City of Cambridge		
Project Name:	Tobin School	Tested By:	AS
Project Location:	Cambridge, MA	Test Date:	3/6/2018
Project Number:	00139-220813		
Boring Number:	CDM-110	Procedure:	C
Sample Number:	S-4A	Temperature:	440° C
Sample Depth (ft):	7-9		
Sample Date:	1/29/2018		

AS RECEIVED MOISTURE CONTENT	
Tin Mass (g)	105.34
Wet Mass of Sample & Tin (g)	182.33
Dry Mass of Sample & Tin (g)	167.25
Mass of Water (g)	15.08
Mass of Dry Soil (g)	61.91
Moisture Content (%)	**24.4**

ASH CONTENT	
Porcelain Dish Mass (g)	105.34
Porcelain Dish + Oven Dried Soil (g)	167.25
Mass of Oven Dried Soil (g)	61.91
Mass of Dish & Burned Soil (g)	161.45
Mass of Burned Soil (g)	56.11
Mass of Organic Material (g)	5.80
Ash Content (%)	90.6
Organic Content (%)	**9.4**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	17.5	11.1	23.7	22.5	25.2	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75"	100.0		
.5"	94.8		
.375"	90.2		
#4	82.5		
#10	71.4		
#20	59.4		
#40	47.7		
#60	38.8		
#100	31.8		
#200	25.2		

* (no specification provided)

Material Description

Brown silty sand with gravel
(Urban fill)

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 9.3881 D_{85}= 6.0823 D_{60}= 0.8831
D_{50}= 0.4859 D_{30}= 0.1277 D_{15}=
D_{10}= C_u= C_c=

Remarks

As received MC = 10.1%

Date Received: 3/5/18 **Date Tested:** 3/6/18

Tested By: MP

Checked By: MP

Title: Laboratory Manager

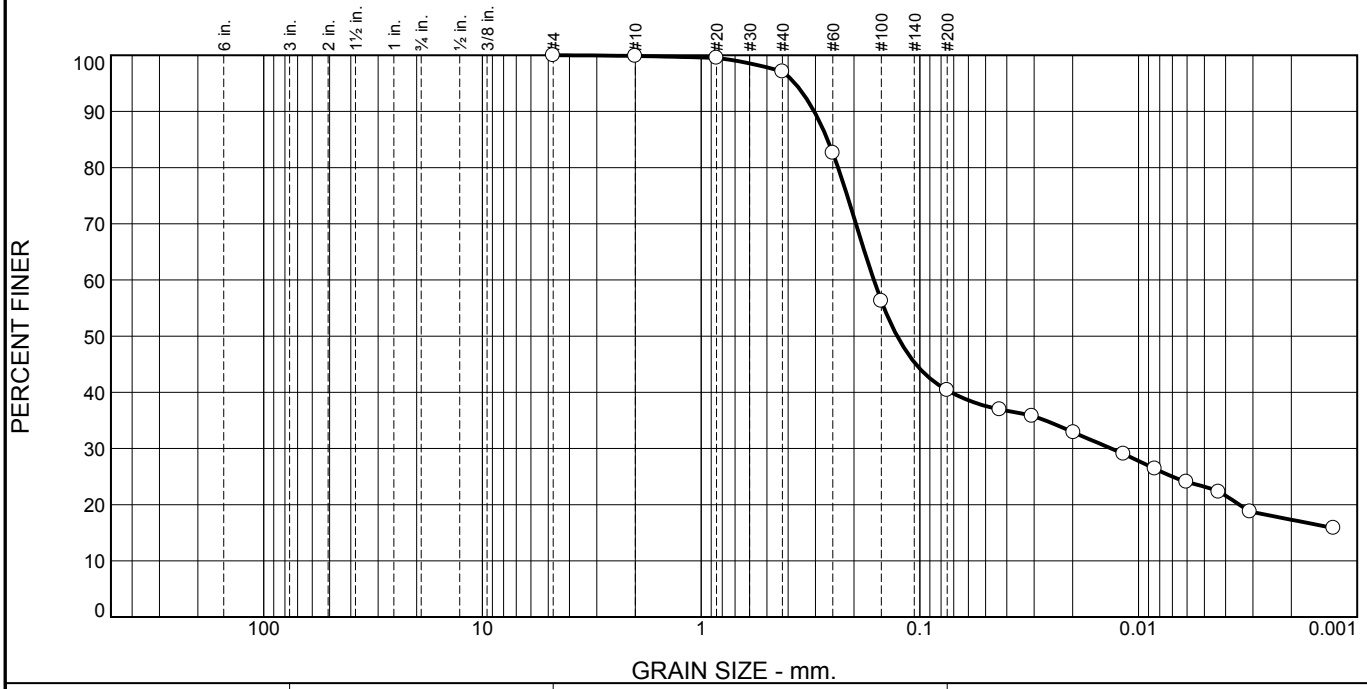
Source of Sample: CDM-112 **Depth:** 4-6' **Date Sampled:** 1/26/18
Sample Number: S-3

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.8	56.7	17.2	23.2

Test Results (ASTM D6913 & D7928 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.9		
#20	99.5		
#40	97.1		
#60	82.6		
#100	56.3		
#200	40.4		
0.0431 mm.	37.0		
0.0307 mm.	35.8		
0.0198 mm.	32.9		
0.0117 mm.	29.0		
0.0084 mm.	26.4		
0.0060 mm.	24.1		
0.0043 mm.	22.3		
0.0031 mm.	18.8		
0.0013 mm.	15.8		

* (no specification provided)

Material Description

Brown silty sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 0.3040 D_{85}= 0.2643 D_{60}= 0.1624
D_{50}= 0.1269 D_{30}= 0.0133 D_{15}=
D_{10}= C_u= C_c=

Remarks

As recieved MC = 18.1%

Date Received: **Date Tested:** 3/6/18

Tested By: MP

Checked By: MP

Title: Laboratory Manager

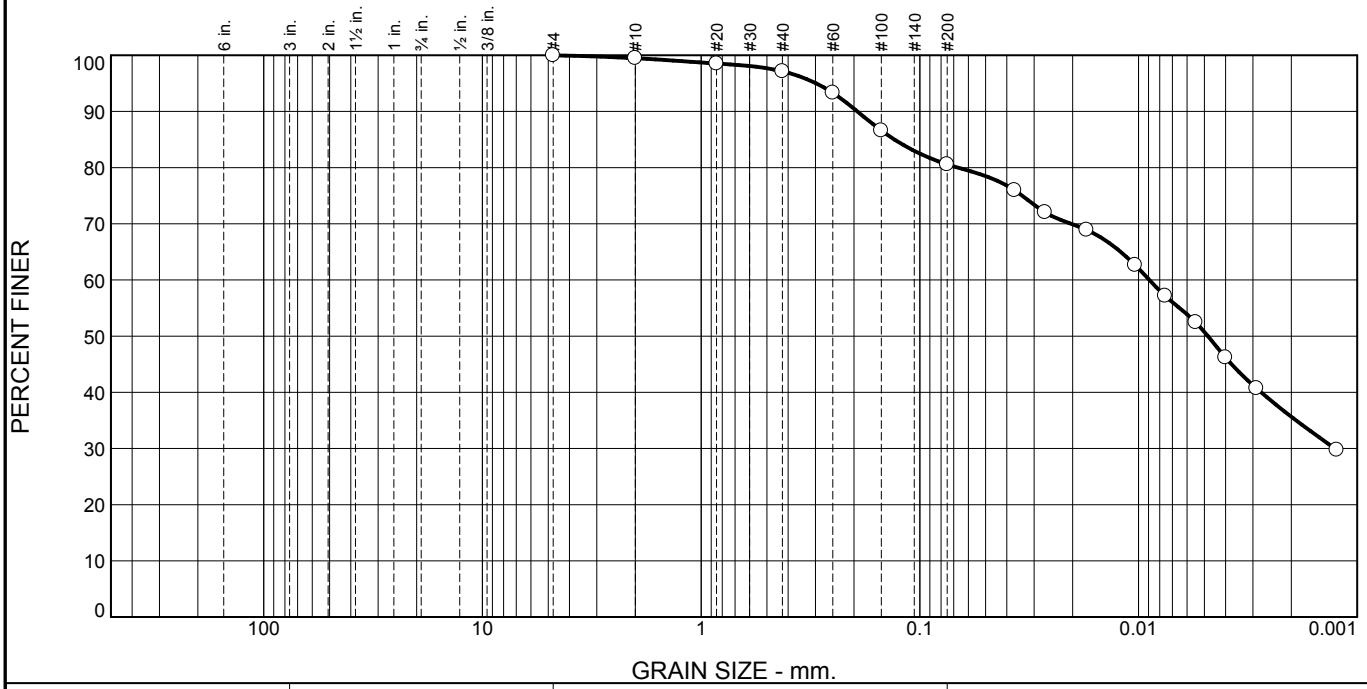
Source of Sample: CDM-115 **Depth:** 6-8' **Date Sampled:** 2/2/18
Sample Number: S-4

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	2.4	16.5	29.8	50.8

Test Results (ASTM D6913 & D7928 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.5		
#20	98.5		
#40	97.1		
#60	93.3		
#100	86.6		
#200	80.6		
0.0369 mm.	76.0		
0.0268 mm.	72.1		
0.0173 mm.	68.9		
0.0104 mm.	62.7		
0.0076 mm.	57.2		
0.0055 mm.	52.5		
0.0040 mm.	46.2		
0.0029 mm.	40.7		
0.0012 mm.	29.8		

* (no specification provided)

Material Description

Brown lean clay with sand

Atterberg Limits (ASTM D 4318)

PL= 15 **LL=** 27 **PI=** 12

Classification

USCS (D 2487)= CL **AASHTO (M 145)=** A-6(8)

Coefficients

D_{90}= 0.1930 D_{85}= 0.1307 D_{60}= 0.0089
D_{50}= 0.0048 D_{30}= 0.0013 D_{15}=
D_{10}= C_u= C_c=

Remarks

As recieved MC = 28.0%

Date Received: **Date Tested:** 3/6/18

Tested By: MP

Checked By: MP

Title: Laboratory Manager

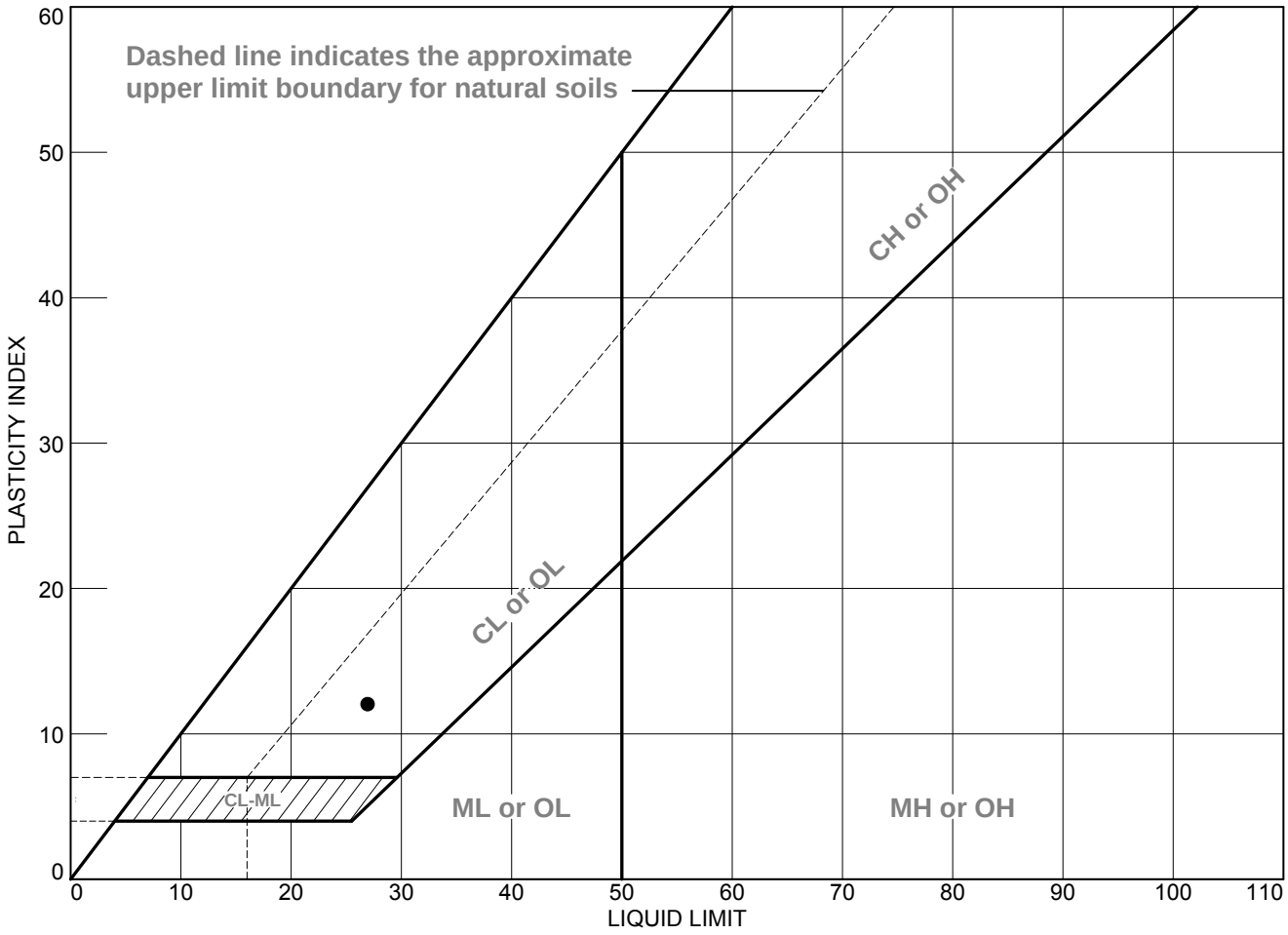
Source of Sample: CDM-115 **Depth:** 12-14' **Date Sampled:** 2/2/18
Sample Number: S-7

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-115	S-7	12-14'	28.0	15	27	12	CL

CDM Smith

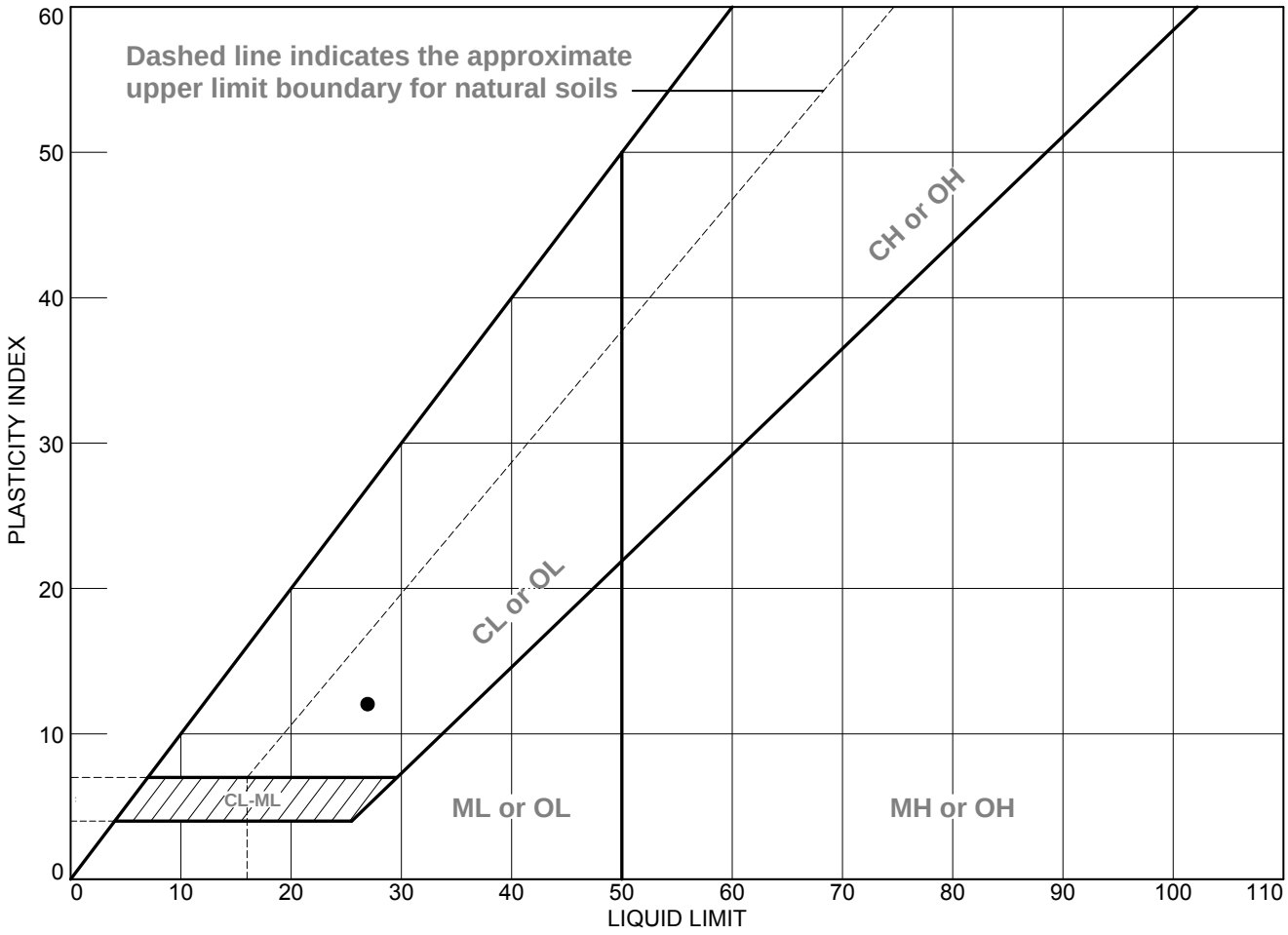
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: SB **Checked By:** MP

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-115	S-7	12-14'	28.0	15	27	12	CL

CDM Smith

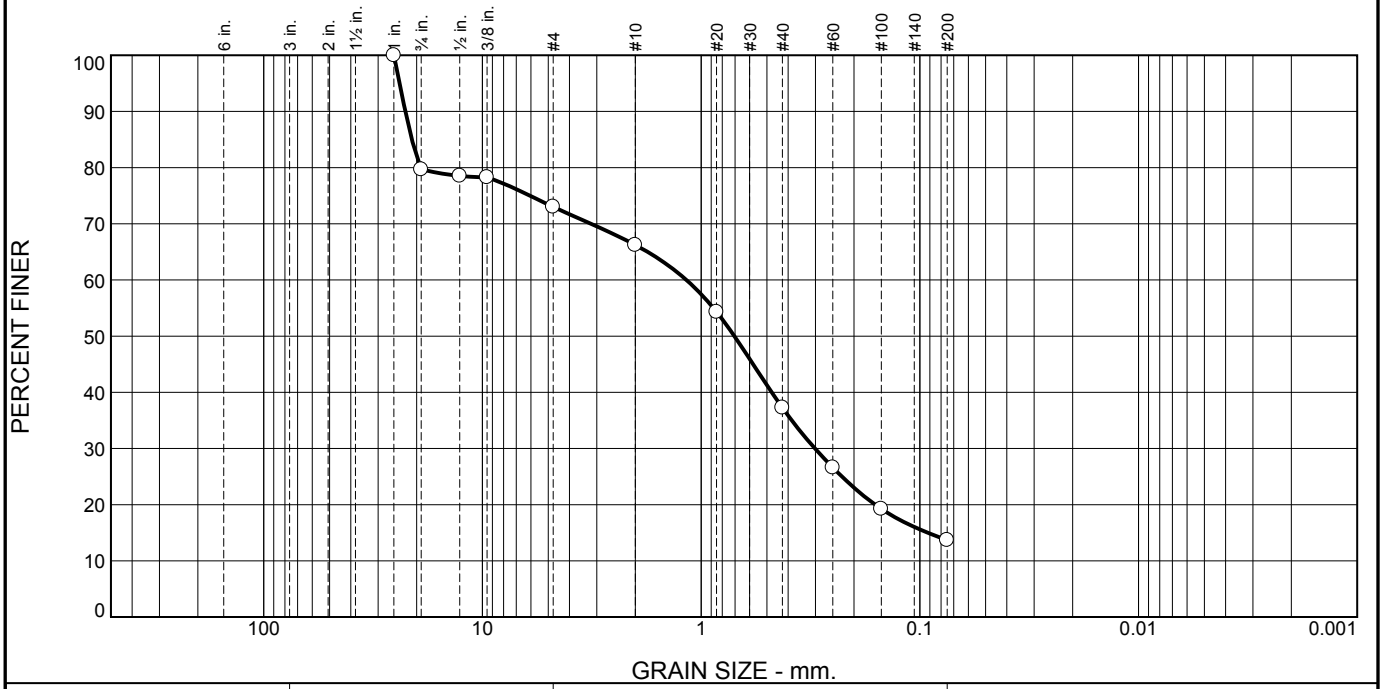
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: SB **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	20.3	6.7	6.8	28.9	23.6	13.7	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
.75"	79.7		
.5"	78.5		
.375"	78.3		
#4	73.0		
#10	66.2		
#20	54.3		
#40	37.3		
#60	26.6		
#100	19.3		
#200	13.7		

* (no specification provided)

Material Description

Dark gray silty sand with gravel
(Urban fill with strong odor)

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 22.5223 D_{85}= 21.0193 D_{60}= 1.1677
D_{50}= 0.7048 D_{30}= 0.3017 D_{15}= 0.0918
D_{10}= C_u= C_c=

Remarks

As received MC = 16.4%

Date Received: 3/5/18 **Date Tested:** 3/6/18

Tested By: MP

Checked By: MP

Title: Laboratory Manager

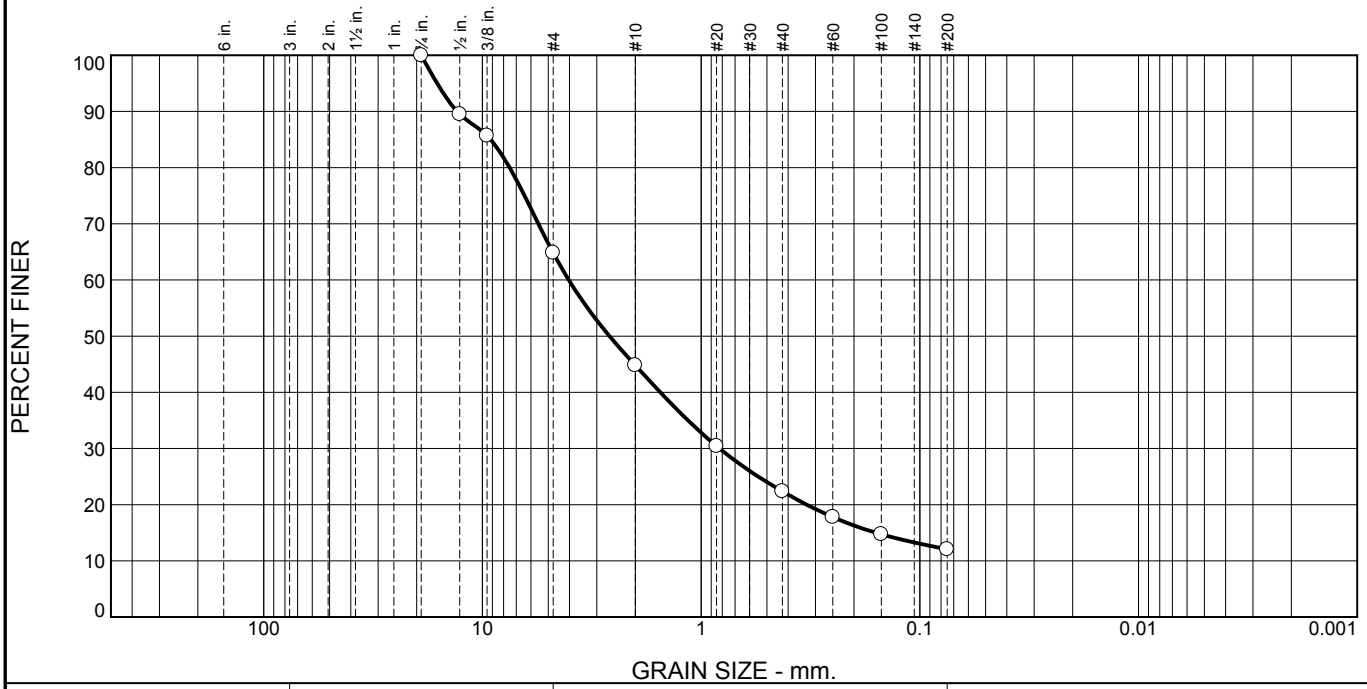
Source of Sample: CDM-118 **Depth:** 6-8' **Date Sampled:** 1/31/18
Sample Number: S-4

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	35.2	20.0	22.4	10.3	12.1	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75"	100.0		
.5"	89.5		
.375"	85.7		
#4	64.8		
#10	44.8		
#20	30.4		
#40	22.4		
#60	17.8		
#100	14.7		
#200	12.1		

* (no specification provided)

Material Description

Gray silty sand with gravel
(Urban fill)

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 13.0711 D_{85}= 9.1702 D_{60}= 4.0307
D_{50}= 2.6235 D_{30}= 0.8243 D_{15}= 0.1586
D_{10}= C_u= C_c=

Remarks

As received MC = 55.3%

Date Received: 3/5/18 **Date Tested:** 3/6/18

Tested By: MP

Checked By: MP

Title: Laboratory Manager

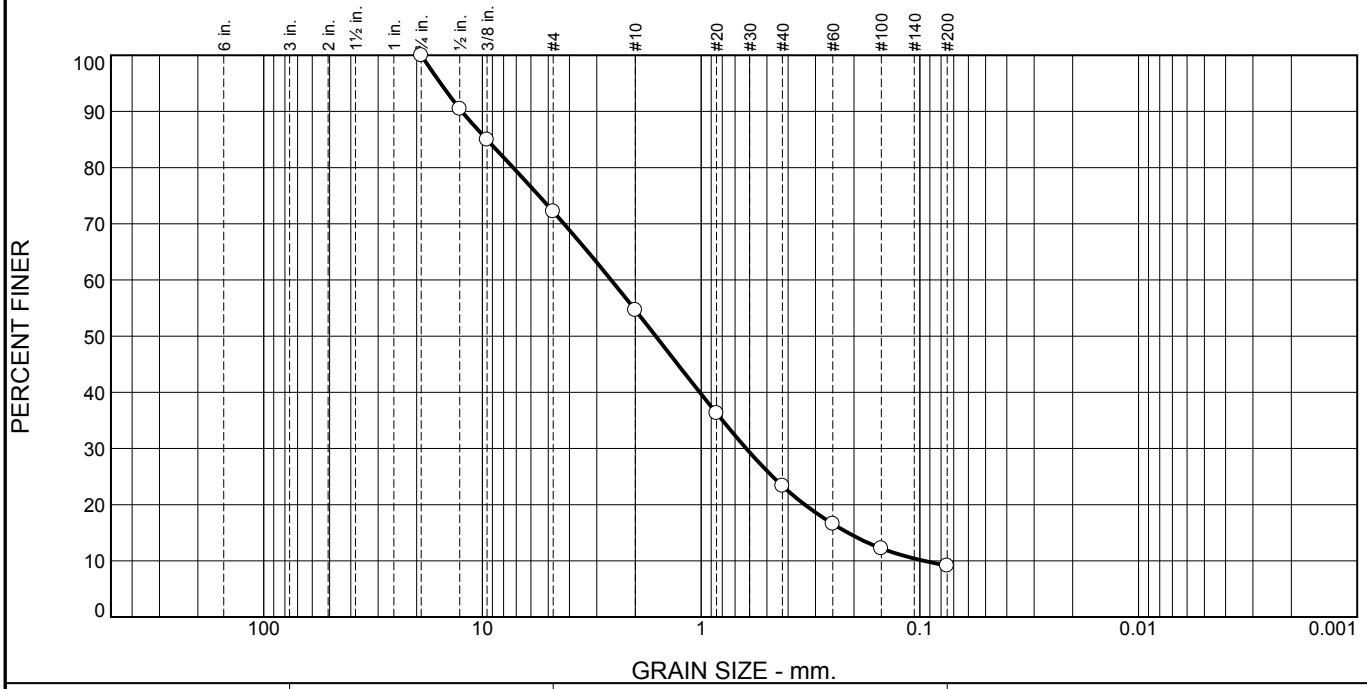
Source of Sample: CDM-118 **Depth:** 18-20' **Date Sampled:** 1/31/18
Sample Number: S-10A

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	27.8	17.6	31.3	14.2	9.1	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75"	100.0		
.5"	90.4		
.375"	85.0		
#4	72.2		
#10	54.6		
#20	36.3		
#40	23.3		
#60	16.6		
#100	12.2		
#200	9.1		

* (no specification provided)

Material Description

Dark gray well-graded sand with silt and gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SW-SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 12.4284 D_{85}= 9.5463 D_{60}= 2.5795
D_{50}= 1.6122 D_{30}= 0.6217 D_{15}= 0.2131
D_{10}= 0.0956 C_u= 26.98 C_c= 1.57

Remarks

As received MC = 54.1%

Date Received: 3/5/18 **Date Tested:** 3/6/18

Tested By: MP

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-119 **Depth:** 20-22' **Date Sampled:** 1/31/18

Sample Number: S-11

CDM Smith

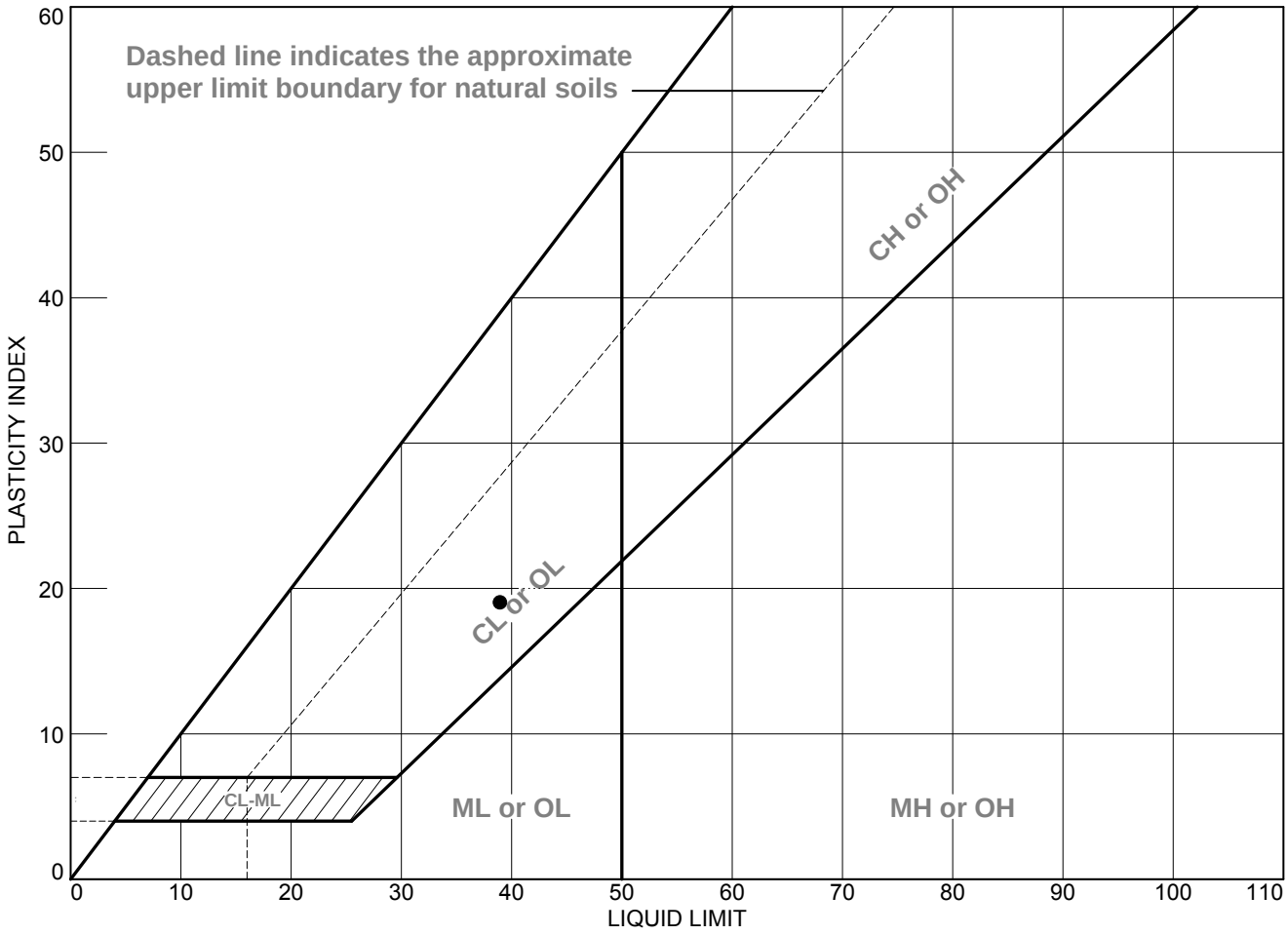
Boston, Massachusetts

Client: City of Cambridge

Project: Tobin School
Cambridge,MA

Project No: 139-220813 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	CDM-119	S-18	34-36'	28.4	20	39	19	CL

CDM Smith

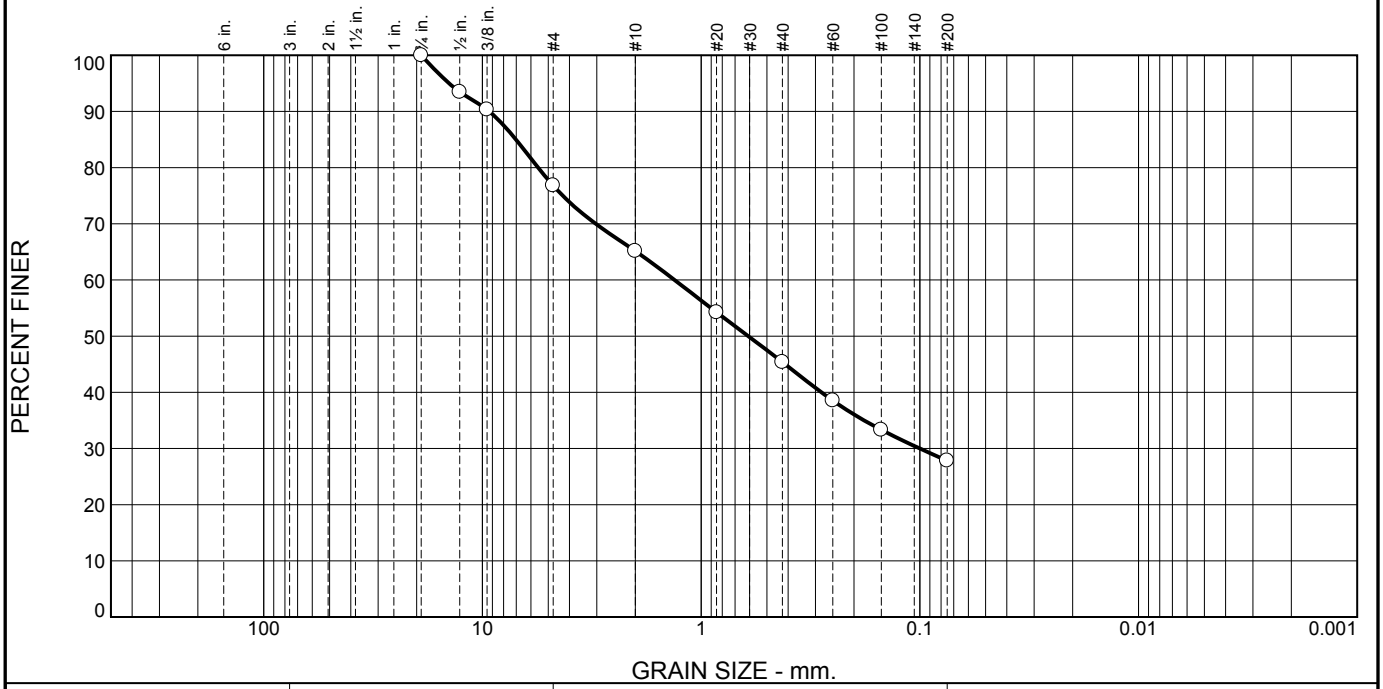
Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No.: 139-220813

Figure

Tested By: SB **Checked By:** MP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	23.2	11.7	19.7	17.6	27.8	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75"	100.0		
.5"	93.5		
.375"	90.3		
#4	76.8		
#10	65.1		
#20	54.2		
#40	45.4		
#60	38.5		
#100	33.3		
#200	27.8		

* (no specification provided)

Material Description

Brown & gray silty sand with gravel
(Urban fill)

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 9.3001 D_{85}= 7.0299 D_{60}= 1.3225
D_{50}= 0.6090 D_{30}= 0.1000 D_{15}=
D_{10}= C_u= C_c=

Remarks

As received MC = 77.6%

Date Received: 3/5/18 **Date Tested:** 3/6/18

Tested By: MP

Checked By: MP

Title: Laboratory Manager

Source of Sample: CDM-120 **Depth:** 9-11' **Date Sampled:** 2/1/18
Sample Number: S-5

CDM Smith

Boston, Massachusetts

Client: City of Cambridge
Project: Tobin School
Cambridge,MA
Project No: 139-220813 **Figure**

ATTACHMENT K
SLUG TESTING RESULTS

TABLE 1
SUMMARY OF HYDRAULIC CONDUCTIVITY
TOBIN SCHOOL
CAMRBIDGE, MASSACHUSETTS

WELL IDENTIFICATION	SCREENED INTERVAL		HYDRAULIC CONDUCTIVITY (ft/day)		HYDRAULIC CONDUCTIVITY (cm/sec)	
	DEPTH (BGS)	STRATA	FALLING	RISING	FALLING	RISING
MW-3S	3-13	FILL/WASTE	13.60	27.05	4.80E-03	9.54E-03
MW-3D	14-24	WASTE	7.57	18.59	2.67E-03	6.56E-03
MW-4S	3-18	Fill/WASTE	6.27	6.53	2.21E-03	2.31E-03
MW-4D	20-30	WASTE	14.05	10.02	4.96E-03	3.53E-03
MW-7S	3-13	FILL/WASTE	8.78	22.85	3.10E-03	8.06E-03
MW-7D	7-17	WASTE	8.85	11.40	3.12E-03	4.02E-03
MW-9S	2-12	FILL/WASTE	2.50	8.38	8.82E-04	2.96E-03
MW-9D	12-22	WASTE	6.47	4.57	2.28E-03	1.61E-03
MW-14S	2-12	FILL/WASTE	0.21	1.45	7.24E-05	5.12E-04
MW-14D	12-22	WASTE	2.35	15.90	8.28E-04	5.61E-03

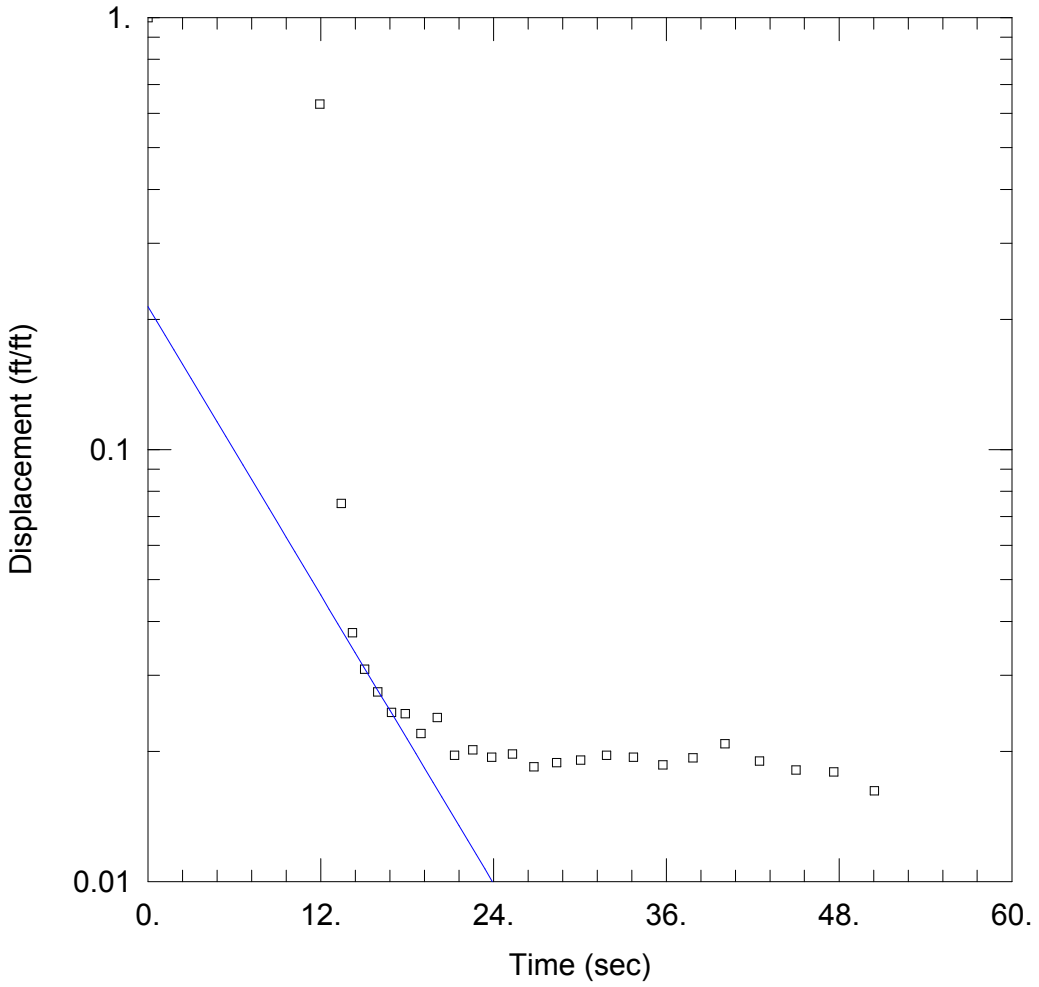
NOTES:
-All wells constructed using 2 " Schedule 40 PVC Riser and 2" (.01") Slot Schedule 40 PVC Screen
- Slug Testing completed on 3/1/2018

TABLE 2
SUMMARY OF AQTESOLV INPUT PARAMETERS
TOBIN SCHOOL
CAMBRIDGE, MASSACHUSETTS

Well ID	DTW from top of PVC (Static)	DTB from top of PVC	PVC Diff from GS	DTW from GS	DTB from GS	Static Water Column Height	Top of Screen from GS	Bottom of Screen from GS	Sat Thickness Aquifer	Kv/Kh	Depth to Top of Well Screen from Static	Well Diameter (inches)	Inside Radius of Well Casing	Borehole Diameter (inches)	Radius of Well including filter pack	Screen Length	Total Well Penetration Depth
MW-3S	5.78	11.58	0.3	6.08	11.88	5.80	1.88	11.88	5.80	0.1	0.00	2	0.083	4	0.167	5.8	5.80
MW-3D	5.81	23.13	0.5	6.31	23.63	17.32	13.63	23.63	10	0.1	7.32	2	0.083	4	0.167	10	17.32
MW-4S	6.3	18.5	0.4	6.7	18.9	12.20	3.90	18.90	12.20	0.1	0.00	2	0.083	4	0.167	12.2	12.20
MW-4D	6.19	29.55	0.4	6.59	29.95	23.36	19.95	29.95	10	0.1	13.36	2	0.083	4	0.167	10	23.36
MW-7S	6.03	12.35	0.3	6.33	12.65	6.32	2.65	12.65	6.32	0.1	0.00	2	0.083	8	0.333	6.32	6.32
MW-7D	6.14	16.55	0.4	6.54	16.95	10.41	6.95	16.95	10	0.1	0.41	2	0.083	8	0.333	10	10.41
MW-9S	6.15	11.7	0.3	6.45	12.00	5.55	2.00	12.00	5.55	0.1	0.00	2	0.083	4	0.167	5.55	5.55
MW-9D	6.11	21.6	0.4	6.51	22.00	15.49	12.00	22.00	10	0.1	5.49	2	0.083	4	0.167	10	15.49
MW-14S	7.34	11.7	0.3	7.64	12.00	4.36	2.00	12.00	4.36	0.1	0.00	2	0.083	4	0.167	4.36	4.36
MW-14D	7.35	20.8	1.2	8.55	22.00	13.45	12.00	22.00	10	0.1	3.45	2	0.083	4	0.167	10	13.45

All units measured in feet unless otherwise noted
GS = Ground Surface
Aquifer Anistropy Ratio: Kv = 0.2 ft/day Kh = 2.0 ft/day

Well ID	Initial Displacement (feet)
MW-3S FALLING	1.49
MW-3S RISING	6.21
MW-3D FALLING	1.14
MW-3D RISING	2.41
MW-4S FALLING	3.27
MW-4S RISING	3.25
MW-4D FALLING	0.98
MW-4D RISING	0.91
MW-7S FALLING	4.73
MW-7S RISING	5.75
MW-7D FALLING	2.50
MW-7D RISING	3.61
MW-9S FALLING	3.41
MW-9S RISING	4.97
MW-9D FALLING	5.00
MW-9D RISING	2.33
MW-14S FALLING	3.22
MW-14S RISING	5.25
MW-14D FALLING	2.27
MW-14D RISING	1.81



MW-3S FALLING

Data Set: C:\...\MW-3S FALLING.aqt
Date: 04/10/18 Time: 10:38:39

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-3S FALLING
Test Date: 03/01/18

AQUIFER DATA

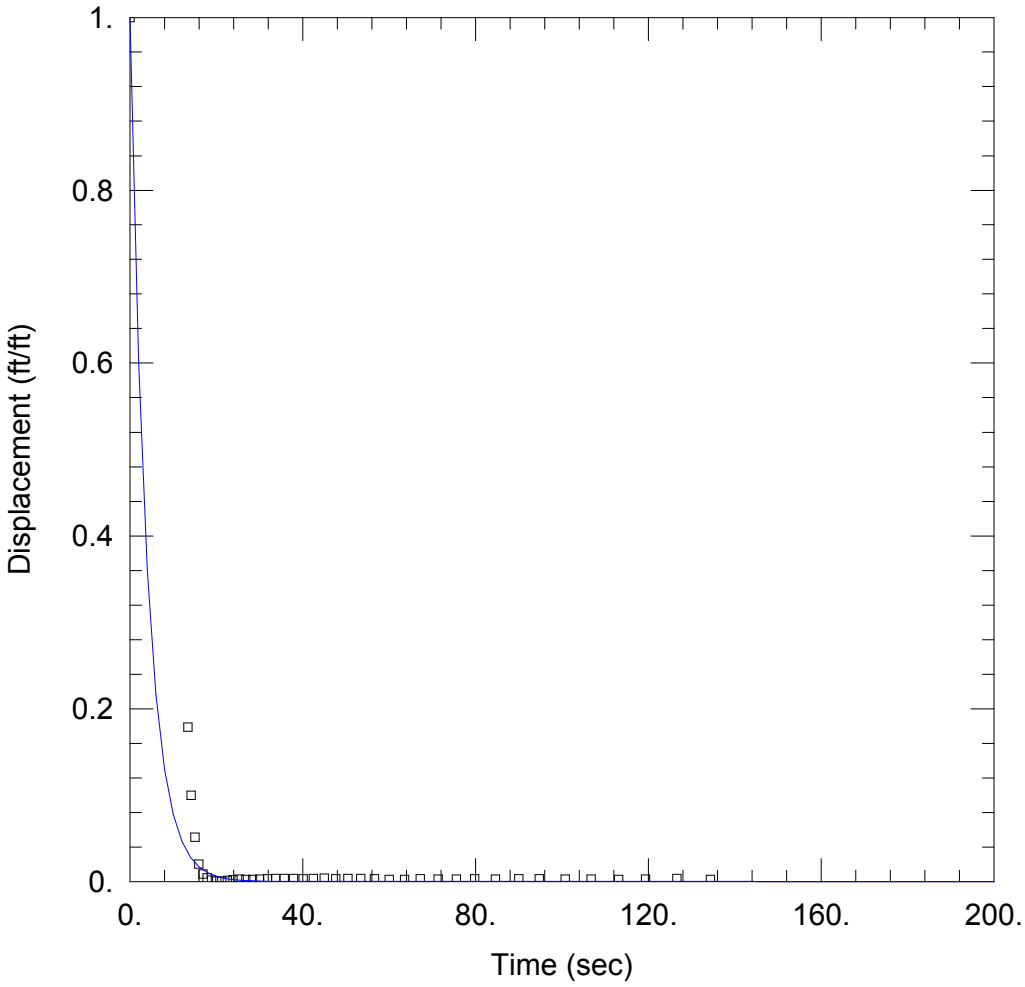
Saturated Thickness: 5.8 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-3S)

Initial Displacement: 1.49 ft
Total Well Penetration Depth: 5.8 ft
Casing Radius: 0.083 ft
Static Water Column Height: 5.8 ft
Screen Length: 5.8 ft
Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 13.6 ft/day
y0 = 0.3194 ft



MW-3S RISING

Data Set: C:\...\MW-3S RISING.aqt
Date: 04/10/18 Time: 10:39:03

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-3S RISING
Test Date: 03/01/18

AQUIFER DATA

Saturated Thickness: 5.8 ft Anisotropy Ratio (Kz/Kr): 0.1

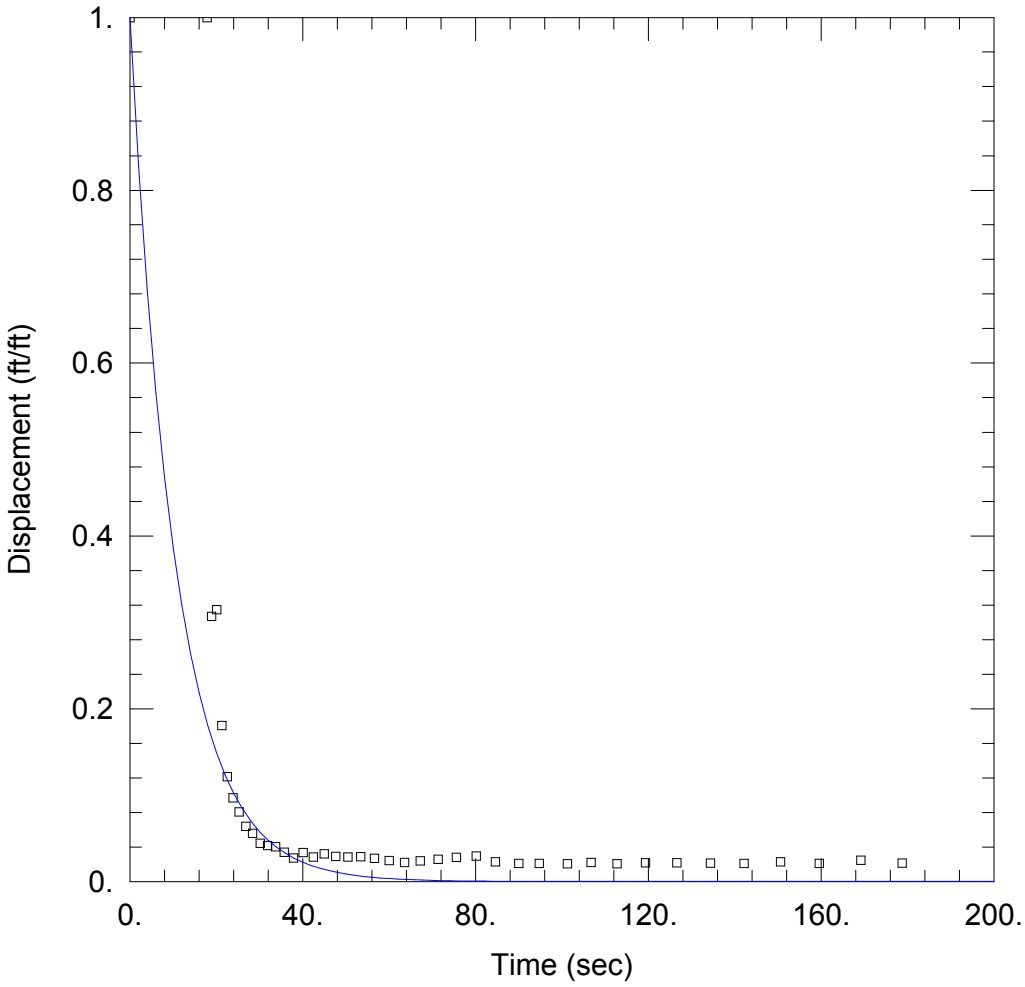
WELL DATA (MW-3S)

Initial Displacement: 6.21 ft
Total Well Penetration Depth: 5.8 ft
Casing Radius: 0.083 ft
Static Water Column Height: 5.8 ft
Screen Length: 5.8 ft
Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Springer-Gelhar

K = 27.05 ft/day Le = 1. ft



MW-3D FALLING

Data Set: C:\...\MW-3D FALLING.aqt
Date: 04/10/18 Time: 10:37:43

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-3D FALLING
Test Date: 03/01/18

AQUIFER DATA

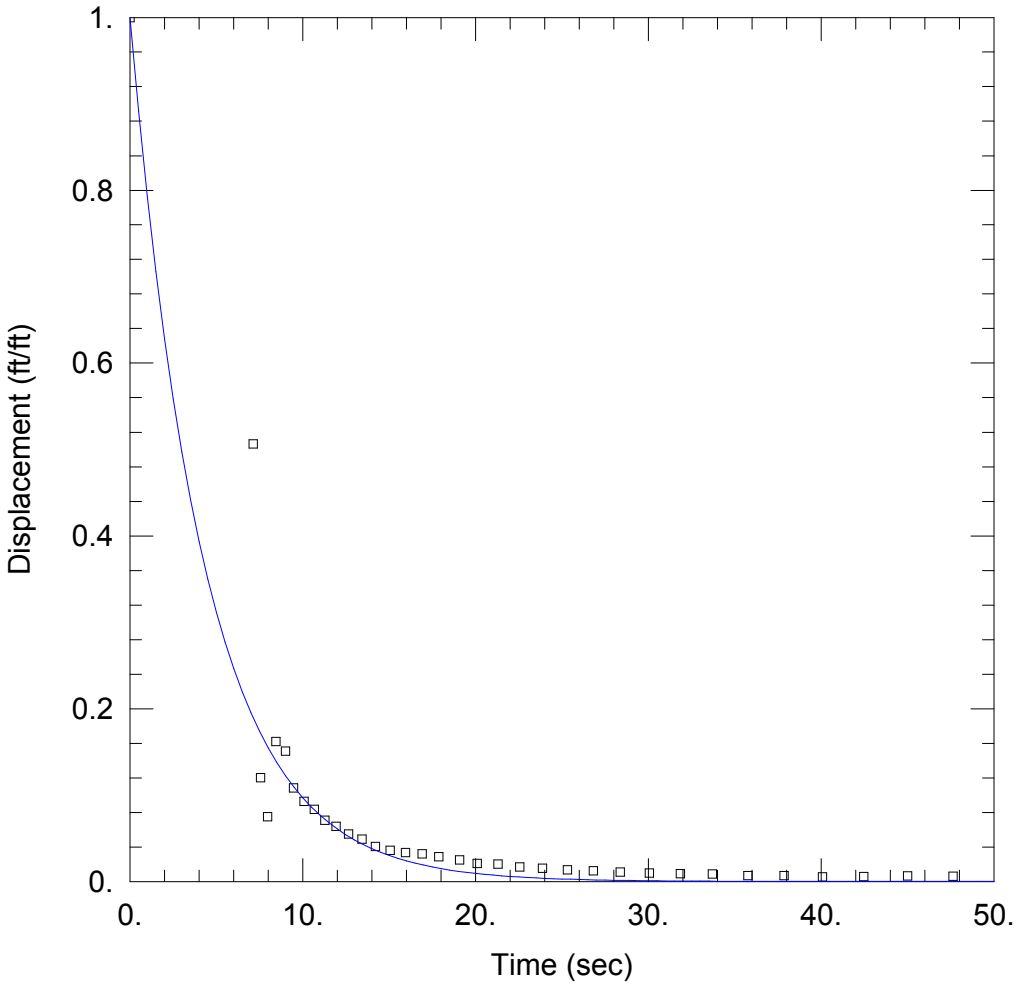
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-3D)

Initial Displacement: 1.14 ft
Total Well Penetration Depth: 17.32 ft
Casing Radius: 0.083 ft
Static Water Column Height: 17.32 ft
Screen Length: 10. ft
Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Springer-Gelhar
K = 7.573 ft/day
Le = 1. ft



MW-3D RISING

Data Set: C:\...\MW-3D RISING.aqt
Date: 04/10/18 Time: 10:38:14

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-3D RISING
Test Date: 03/01/18

AQUIFER DATA

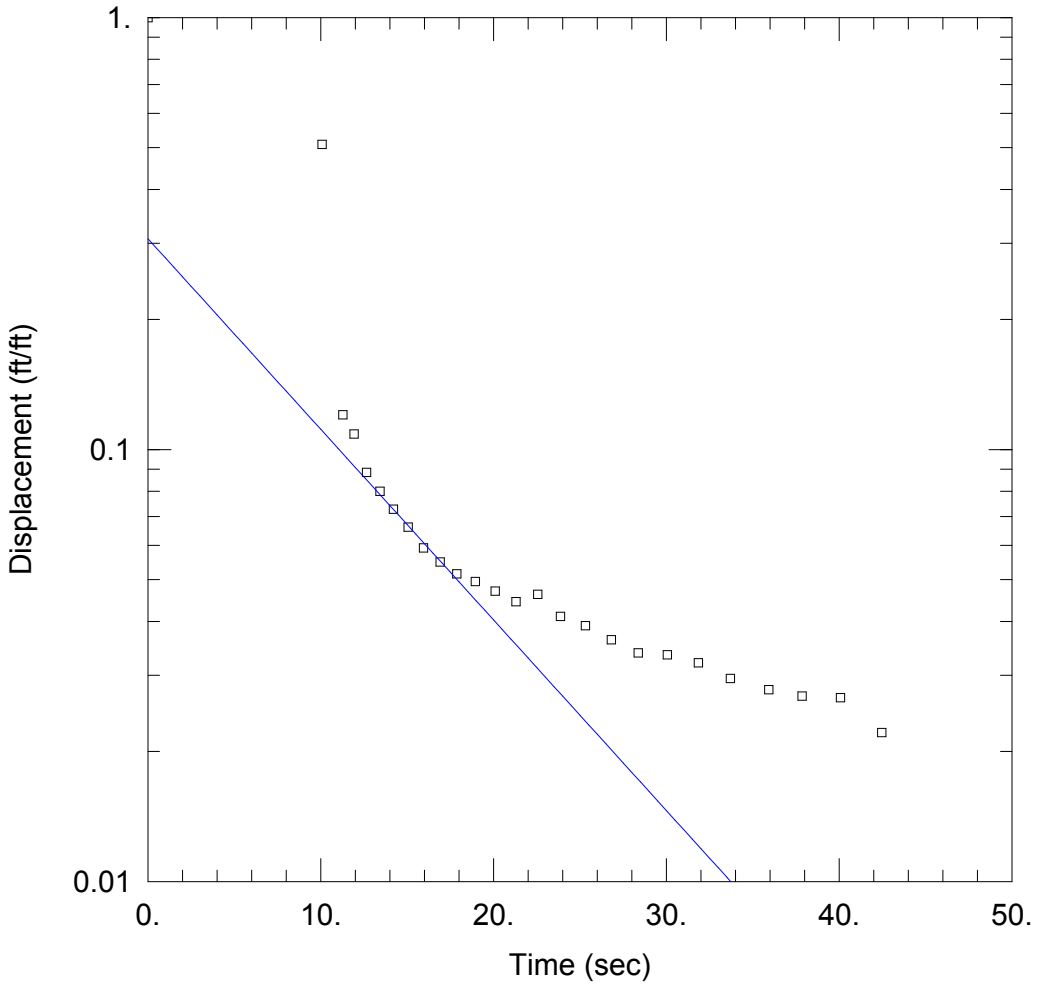
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-3D)

Initial Displacement: 2.41 ft
Total Well Penetration Depth: 17.32 ft
Casing Radius: 0.083 ft
Static Water Column Height: 17.32 ft
Screen Length: 10. ft
Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Springer-Gelhar
K = 18.59 ft/day
Le = 1. ft



MW-4S FALLING

Data Set: C:\...\MW-4S FALLING.aqt
Date: 04/10/18 Time: 10:40:30

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-4S FALLING
Test Date: 03/01/18

AQUIFER DATA

Saturated Thickness: 12.2 ft Anisotropy Ratio (Kz/Kr): 0.1

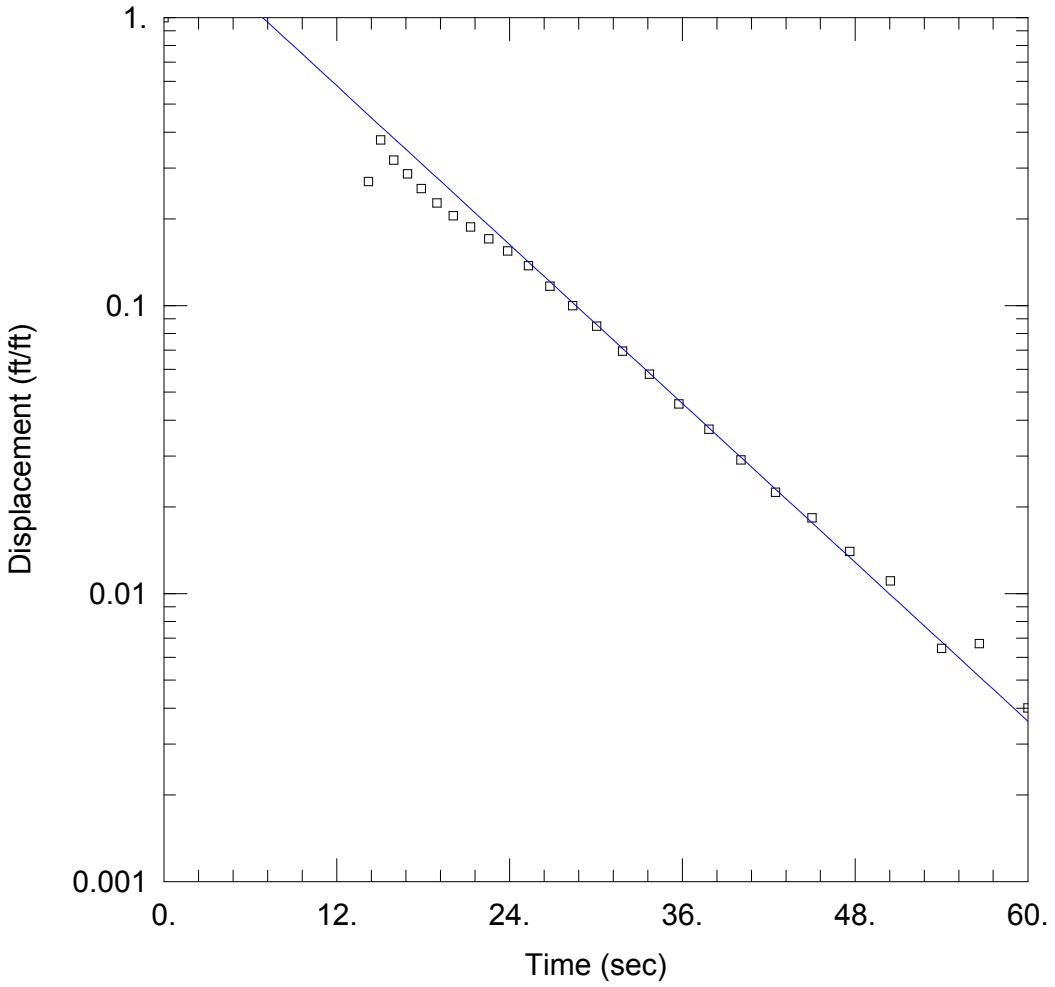
WELL DATA (MW-4S)

Initial Displacement: 3.27 ft
Total Well Penetration Depth: 12.2 ft
Casing Radius: 0.083 ft
Static Water Column Height: 12.2 ft
Screen Length: 12.2 ft
Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 6.27 ft/day y0 = 1.006 ft



MW-4S RISING

Data Set: C:\...\MW-4S RISING.aqt
Date: 04/10/18 Time: 10:40:53

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-4S RISING
Test Date: 03/01/18

AQUIFER DATA

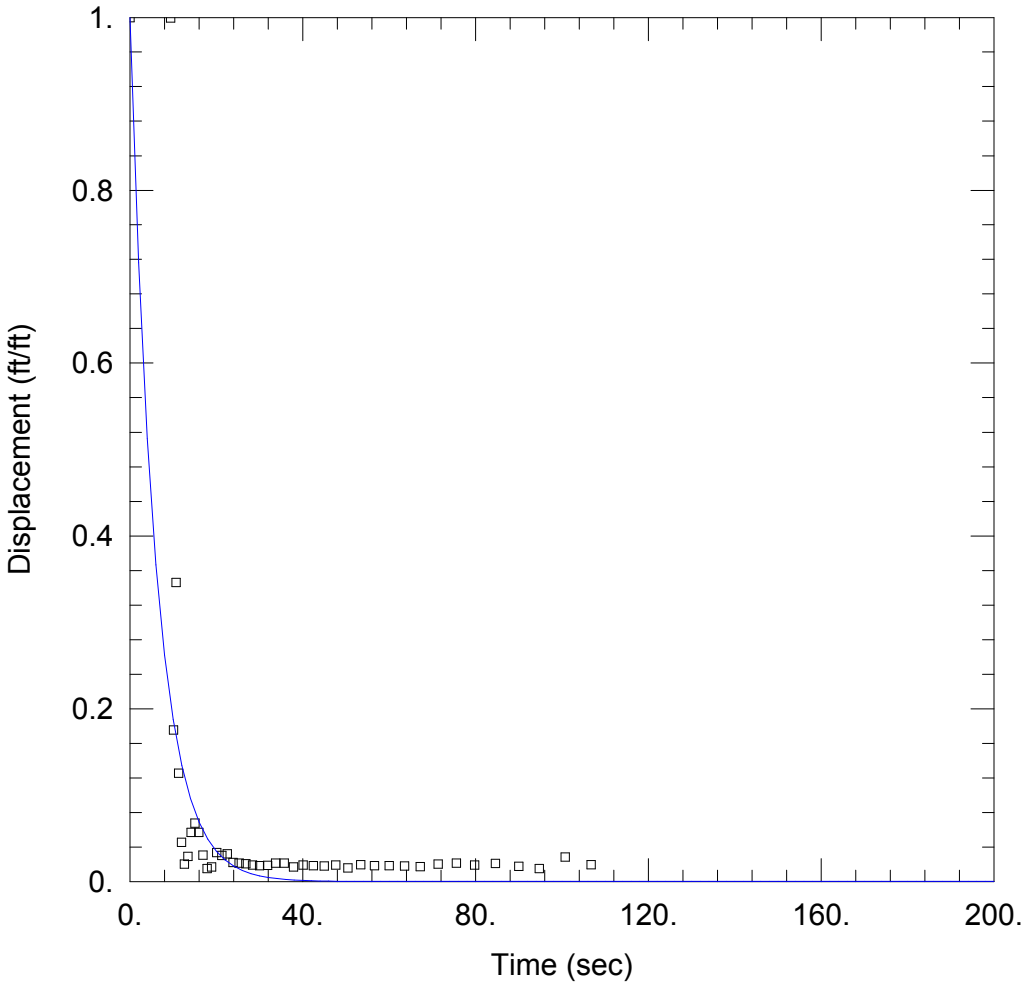
Saturated Thickness: 12.2 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-4S)

Initial Displacement: 3.25 ft
Total Well Penetration Depth: 12.2 ft
Casing Radius: 0.083 ft
Static Water Column Height: 12.2 ft
Screen Length: 12.2 ft
Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 6.534 ft/day
y0 = 6.714 ft



MW-4D FALLING

Data Set: C:\...\MW-4D FALLING.aqt
Date: 04/10/18 Time: 10:39:47

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-4D FALLING
Test Date: 03/01/18

AQUIFER DATA

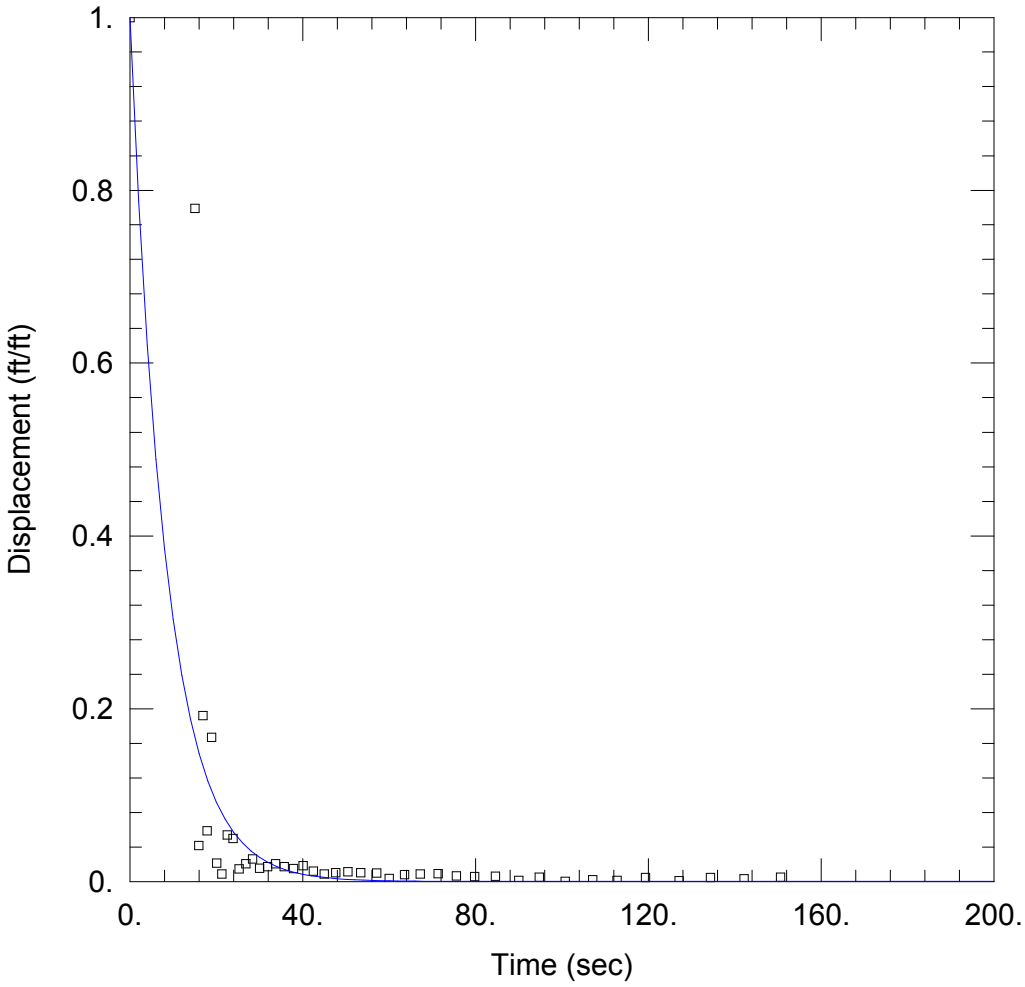
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-4D)

Initial Displacement: 0.98 ft Static Water Column Height: 23.36 ft
Total Well Penetration Depth: 23.36 ft Screen Length: 10. ft
Casing Radius: 0.083 ft Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Springer-Gelhar
K = 14.05 ft/day Le = 1. ft



MW-4D RISING

Data Set: C:\...\MW-4D RISING.aqt
Date: 04/10/18 Time: 10:40:08

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-4D RISING
Test Date: 03/01/18

AQUIFER DATA

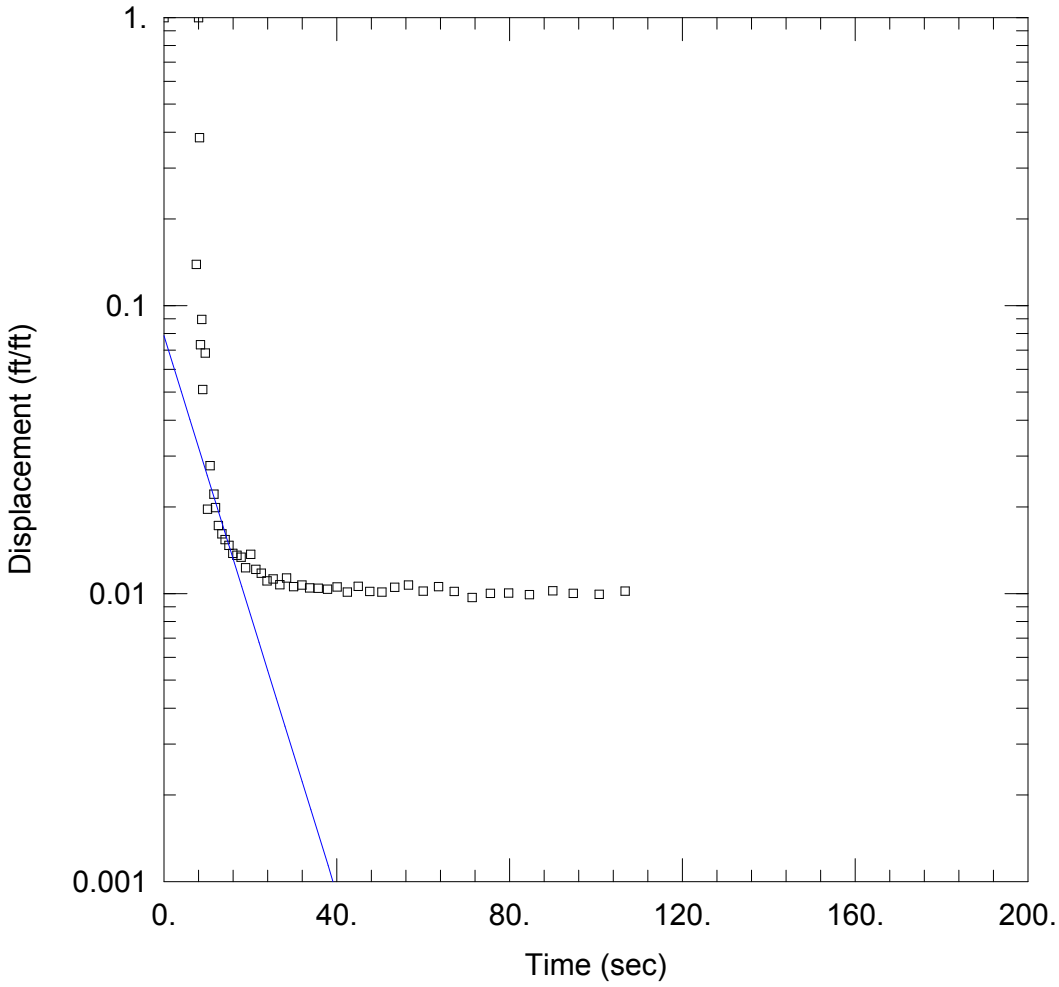
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-4D)

Initial Displacement: 0.91 ft Static Water Column Height: 23.36 ft
Total Well Penetration Depth: 23.36 ft Screen Length: 10. ft
Casing Radius: 0.083 ft Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Springer-Gelhar
K = 10.02 ft/day Le = 1. ft



MW-7S FALLING

Data Set: C:\...\MW-7S FALLING.aqt
Date: 04/10/18 Time: 10:42:04

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-7S FALLING
Test Date: 03/01/18

AQUIFER DATA

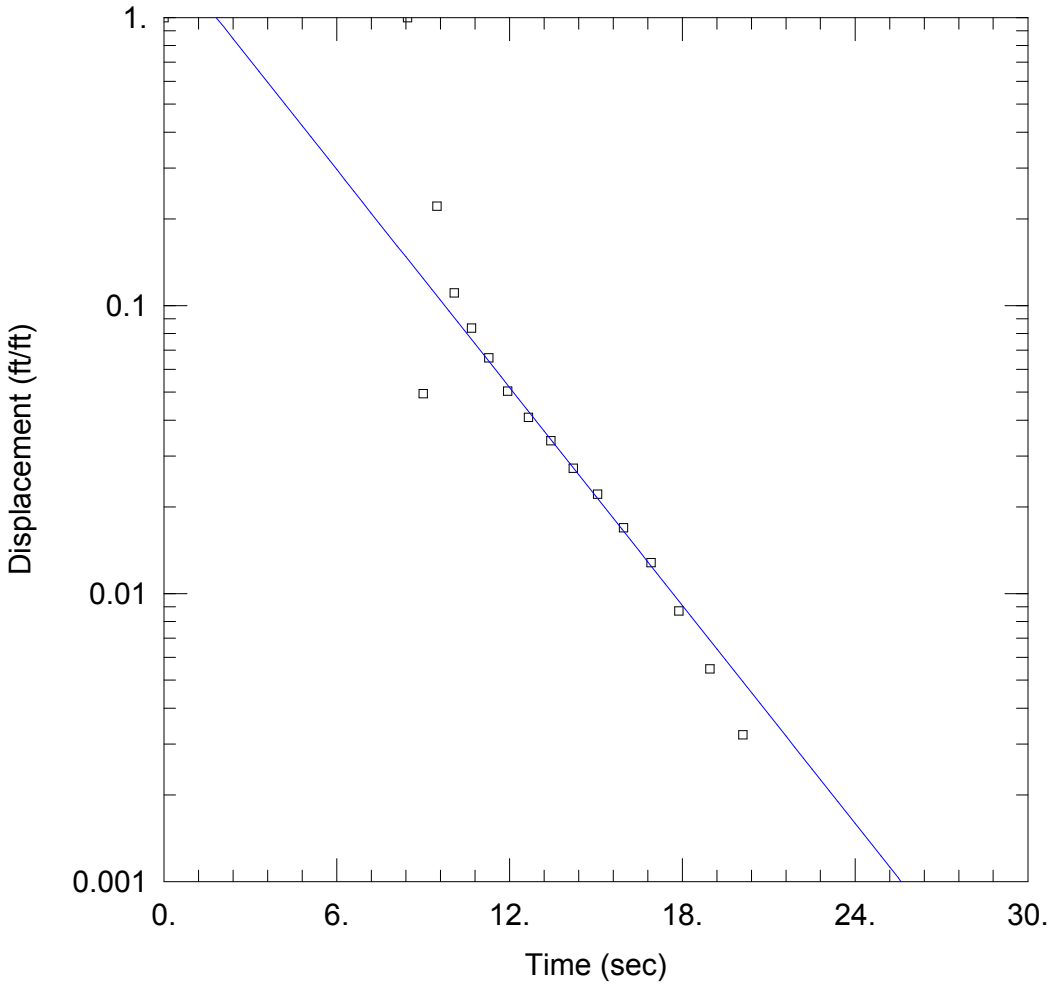
Saturated Thickness: 6.32 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-7S)

Initial Displacement: 4.73 ft
Total Well Penetration Depth: 6.32 ft
Casing Radius: 0.083 ft
Static Water Column Height: 6.32 ft
Screen Length: 6.32 ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 8.766 ft/day
y0 = 0.3712 ft



MW-7S RISING

Data Set: C:\...\MW-7S RISING.aqt
Date: 04/10/18 Time: 10:42:25

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-7S RISING
Test Date: 03/01/18

AQUIFER DATA

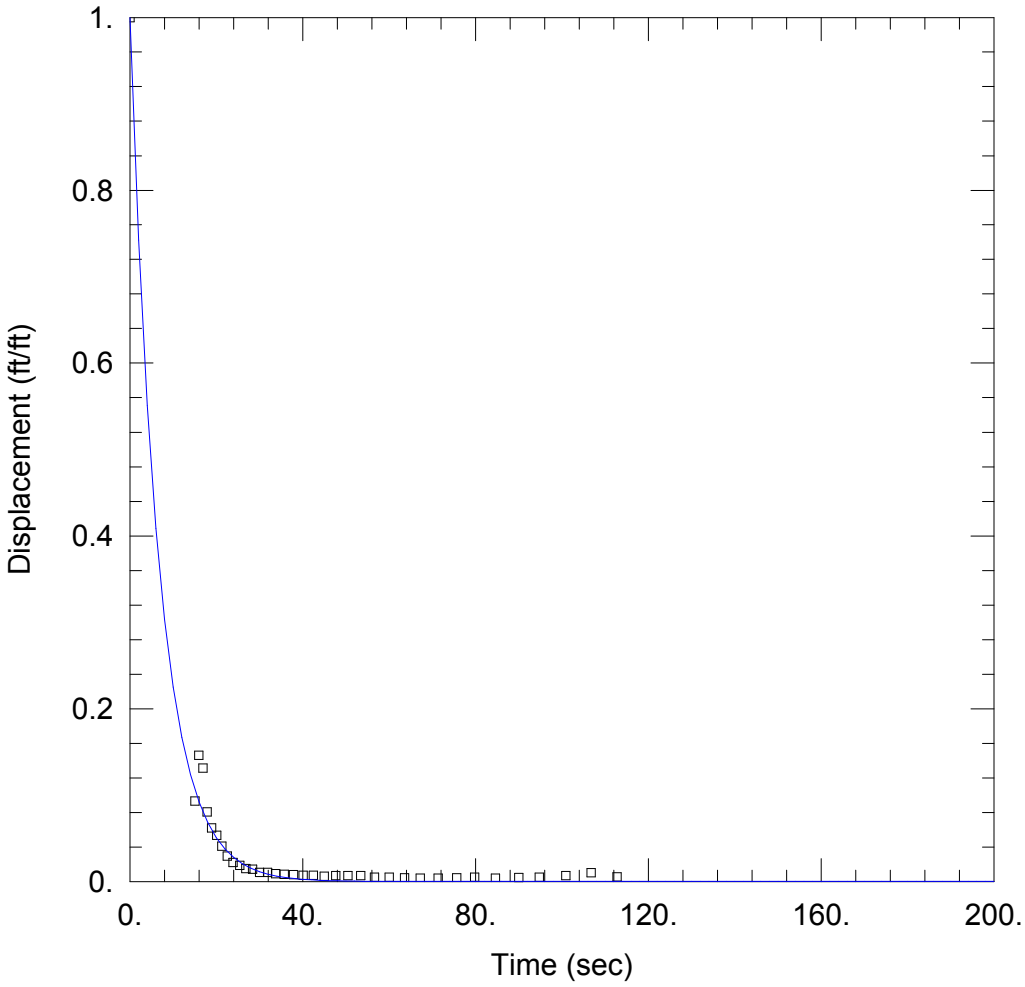
Saturated Thickness: 6.32 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-7S)

Initial Displacement: 5.75 ft
Total Well Penetration Depth: 6.32 ft
Casing Radius: 0.083 ft
Static Water Column Height: 6.32 ft
Screen Length: 6.32 ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 22.85 ft/day
y0 = 9.751 ft



MW-7D FALLING

Data Set: C:\...\MW-7D FALLING.aqt
Date: 04/10/18 Time: 10:41:13

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-7D FALLING
Test Date: 03/01/18

AQUIFER DATA

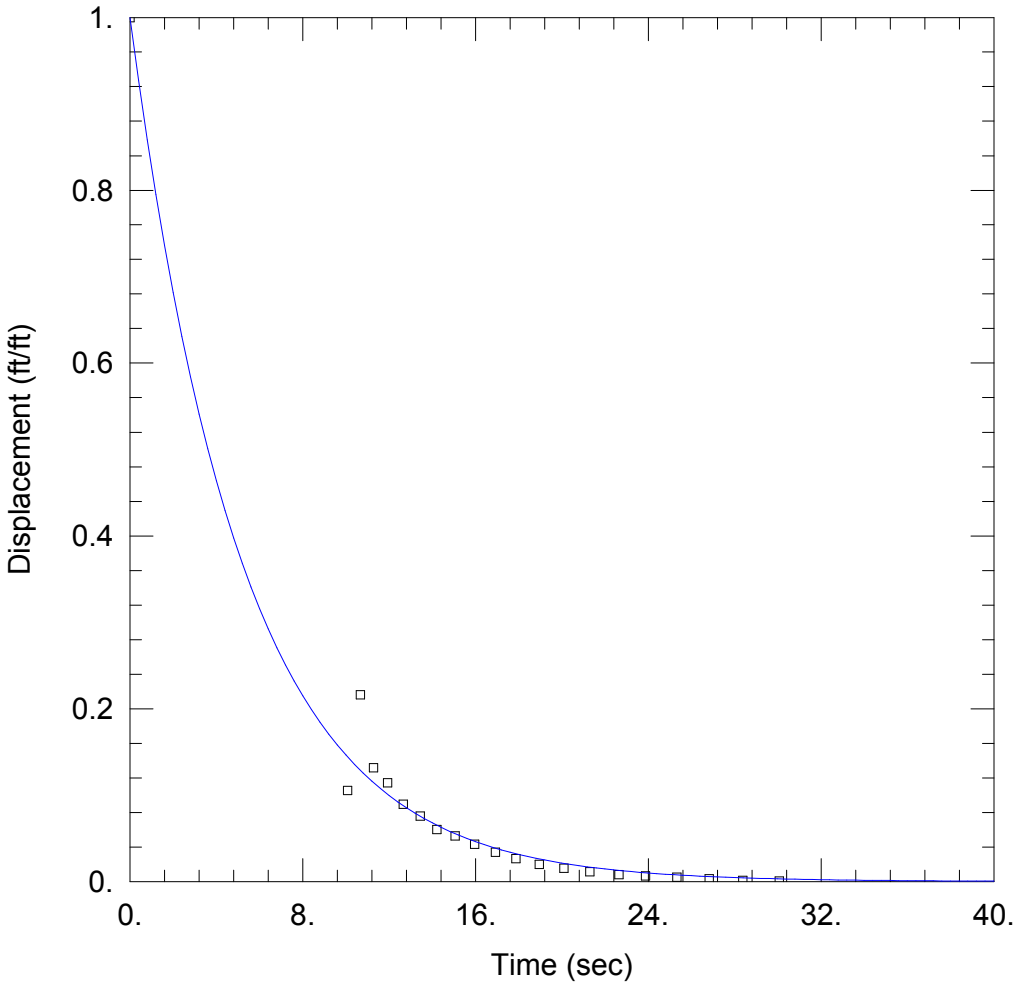
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-7D)

Initial Displacement: 2.5 ft
Total Well Penetration Depth: 10.41 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.41 ft
Screen Length: 10. ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Springer-Gelhar
K = 8.848 ft/day
Le = 1. ft



MW-7D RISING

Data Set: C:\...\MW-7D RISING.aqt
Date: 04/10/18 Time: 10:41:36

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-7D RISING
Test Date: 03/01/18

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 0.1

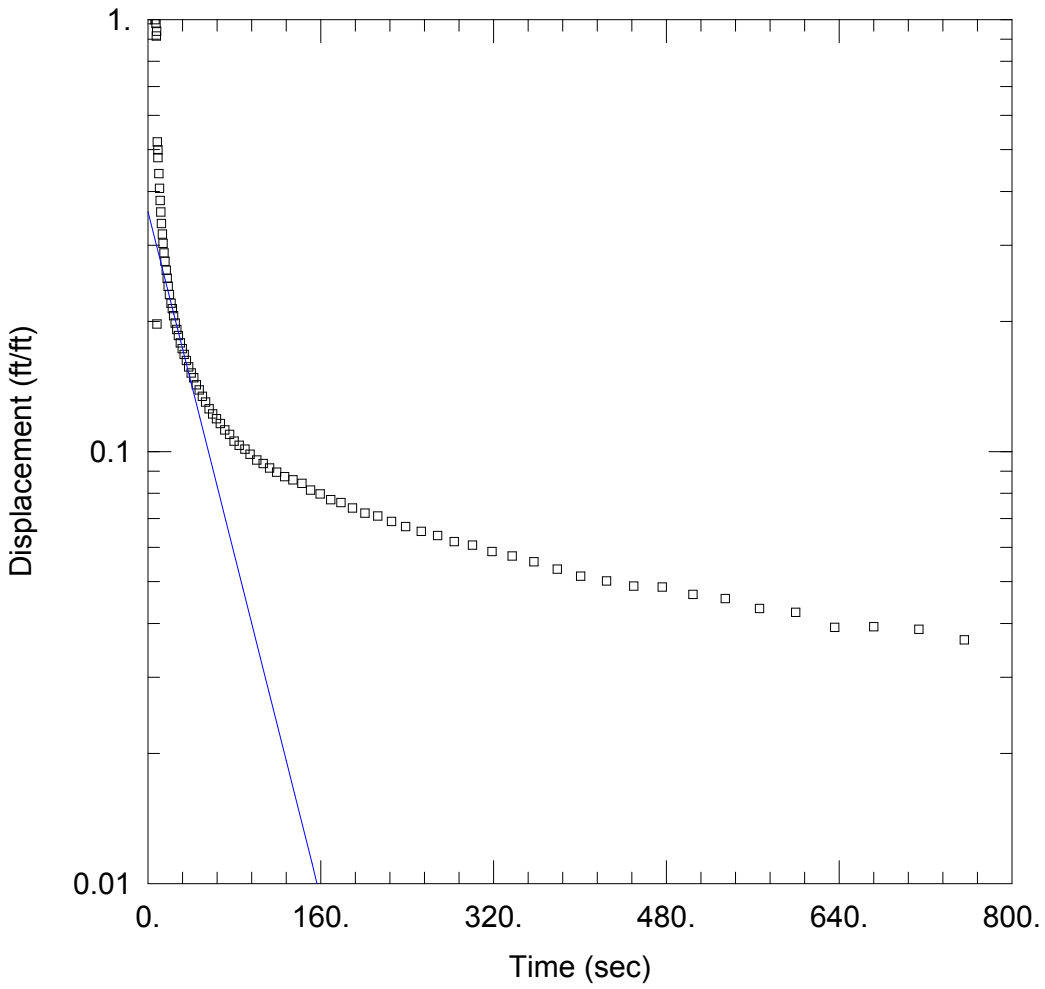
WELL DATA (MW-7D)

Initial Displacement: 3.61 ft
Total Well Penetration Depth: 10.41 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.41 ft
Screen Length: 10. ft
Well Radius: 0.333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Springer-Gelhar

K = 11.4 ft/day Le = 1. ft



MW-9S FALLING

Data Set: C:\...\MW-9S FALLING.aqt
Date: 04/10/18 Time: 10:43:34

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-9S FALLING
Test Date: 03/01/18

AQUIFER DATA

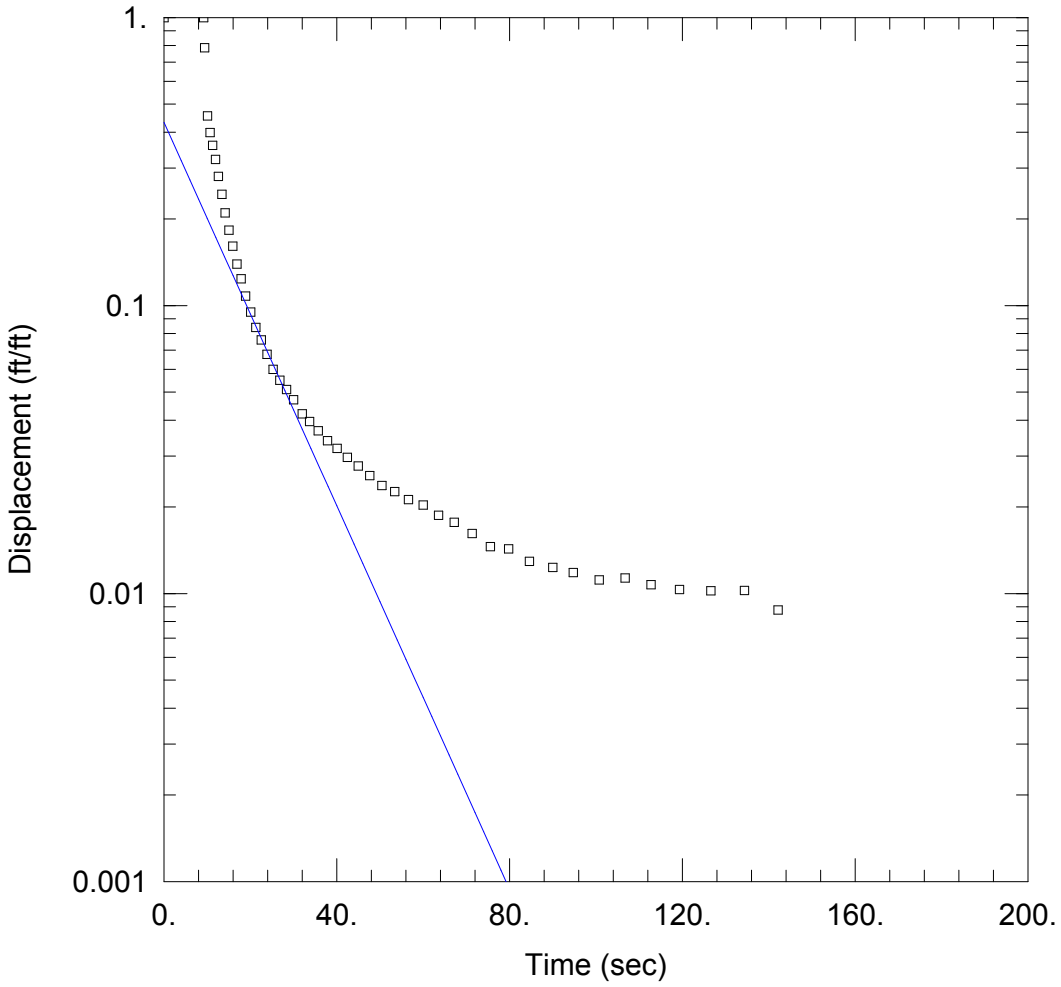
Saturated Thickness: 5.55 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-9S)

Initial Displacement: 3.41 ft
Total Well Penetration Depth: 5.55 ft
Casing Radius: 0.083 ft
Static Water Column Height: 5.55 ft
Screen Length: 5.55 ft
Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.501 ft/day
y0 = 1.225 ft



MW-9S RISING

Data Set: C:\...\MW-9S RISING.aqt
Date: 04/10/18 Time: 10:44:06

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-9S RISING
Test Date: 03/01/18

AQUIFER DATA

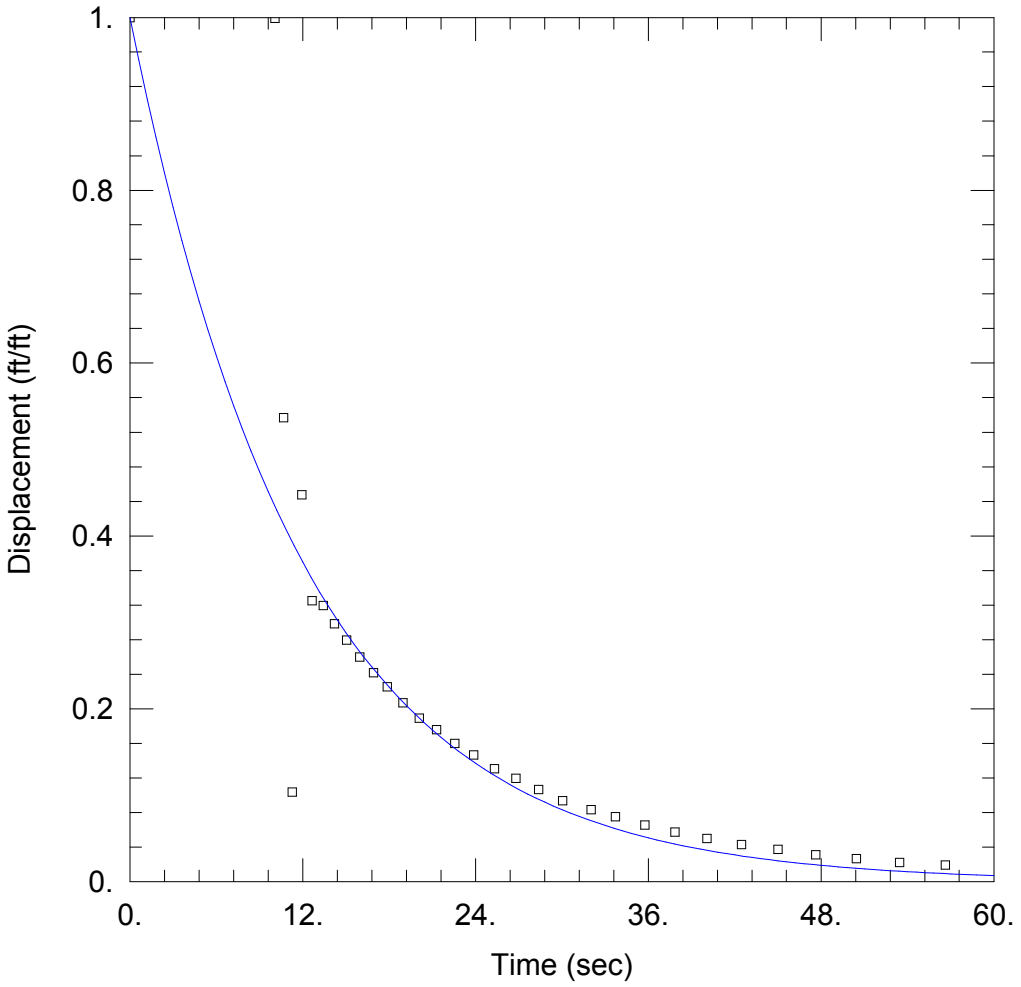
Saturated Thickness: 5.55 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-9S)

Initial Displacement: 4.97 ft
Total Well Penetration Depth: 5.55 ft
Casing Radius: 0.083 ft
Static Water Column Height: 5.55 ft
Screen Length: 5.55 ft
Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 8.384 ft/day
y0 = 2.149 ft



MW-9D FALLING

Data Set: C:\...\MW-9D FALLING.aqt
Date: 04/10/18 Time: 10:42:48

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-9D FALLING
Test Date: 03/01/18

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 0.1

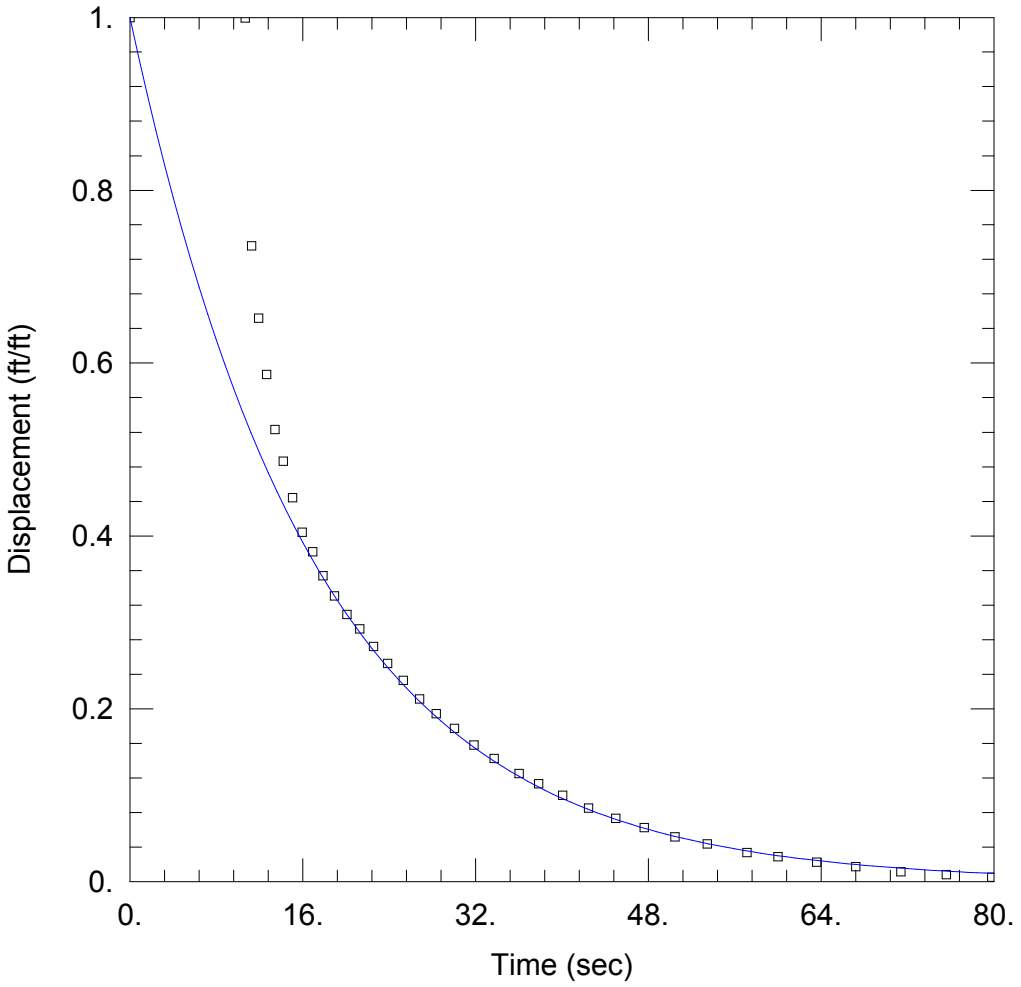
WELL DATA (MW-9D)

Initial Displacement: 5. ft
Total Well Penetration Depth: 15.49 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.49 ft
Screen Length: 10. ft
Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Springer-Gelhar

K = 6.473 ft/day Le = 1. ft



MW-9D RISING

Data Set: C:\...\MW-9D RISING.aqt
Date: 04/10/18 Time: 10:43:10

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-9D RISING
Test Date: 03/01/18

AQUIFER DATA

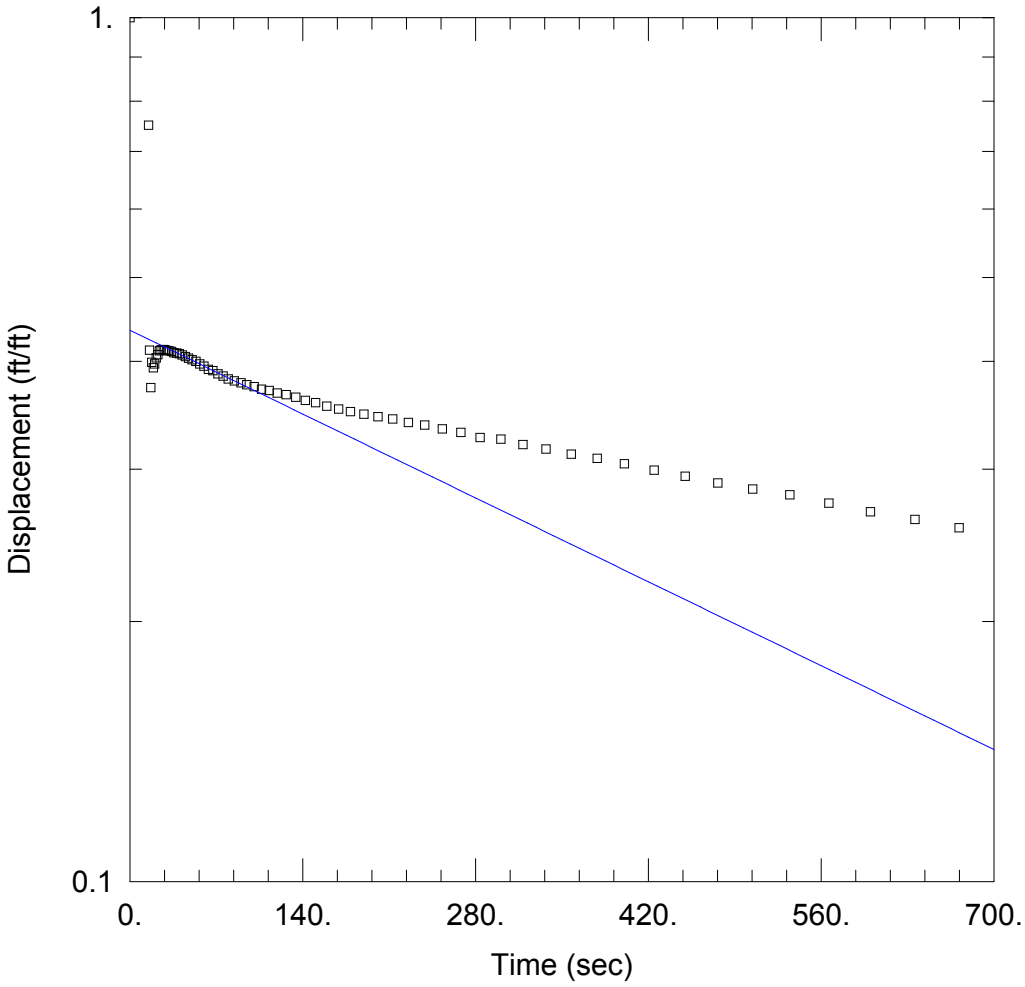
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-9D)

Initial Displacement: 2.33 ft Static Water Column Height: 15.49 ft
Total Well Penetration Depth: 15.49 ft Screen Length: 10. ft
Casing Radius: 0.083 ft Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Springer-Gelhar
K = 4.565 ft/day Le = 1. ft



MW-14S FALLING

Data Set: C:\...\MW-14S FALLING.aqt
Date: 04/10/18 Time: 10:45:10

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-14S FALLING
Test Date: 03/01/18

AQUIFER DATA

Saturated Thickness: 4.36 ft Anisotropy Ratio (Kz/Kr): 0.1

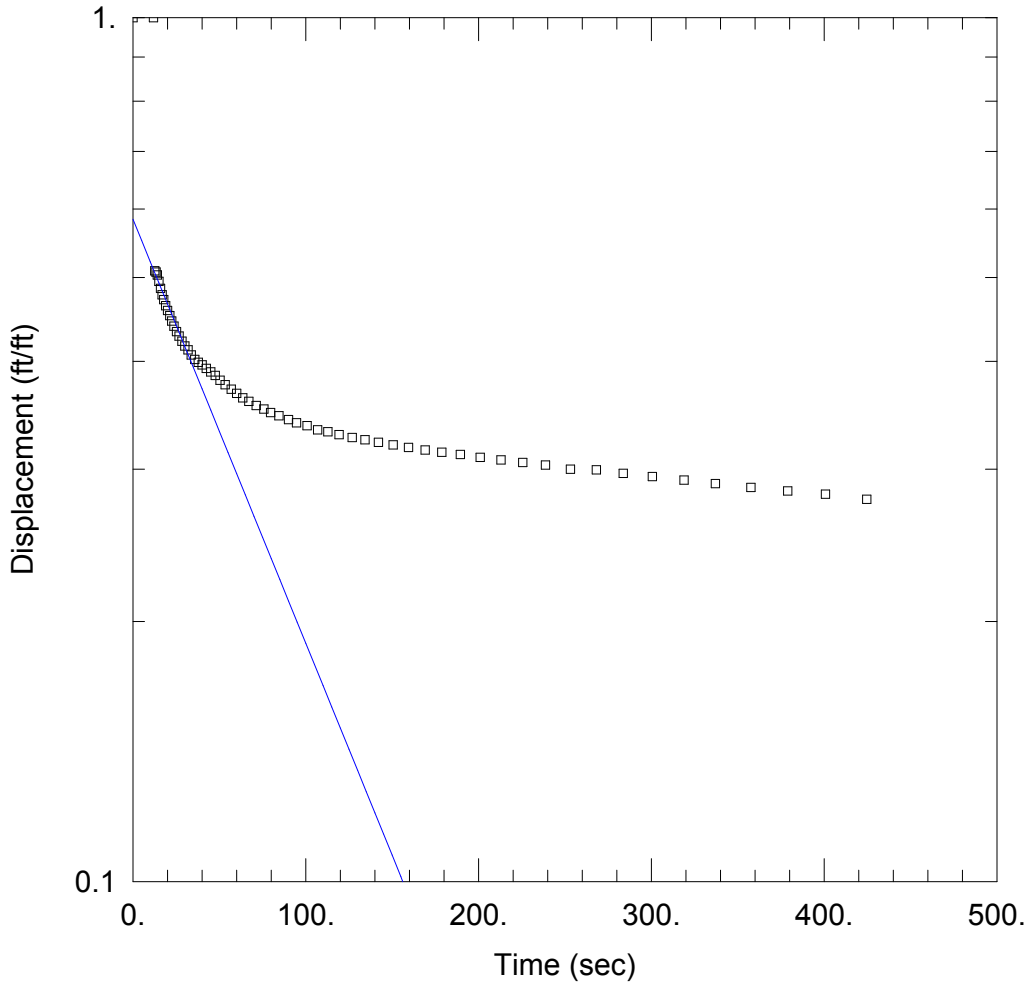
WELL DATA (MW-14S)

Initial Displacement: 3.22 ft
Total Well Penetration Depth: 4.36 ft
Casing Radius: 0.083 ft
Static Water Column Height: 4.36 ft
Screen Length: 4.36 ft
Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.2051 ft/day y0 = 1.399 ft



MW-14S RISING

Data Set: C:\...\MW-14S RISING.aqt
Date: 04/10/18 Time: 10:45:31

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-14S RISING
Test Date: 03/01/18

AQUIFER DATA

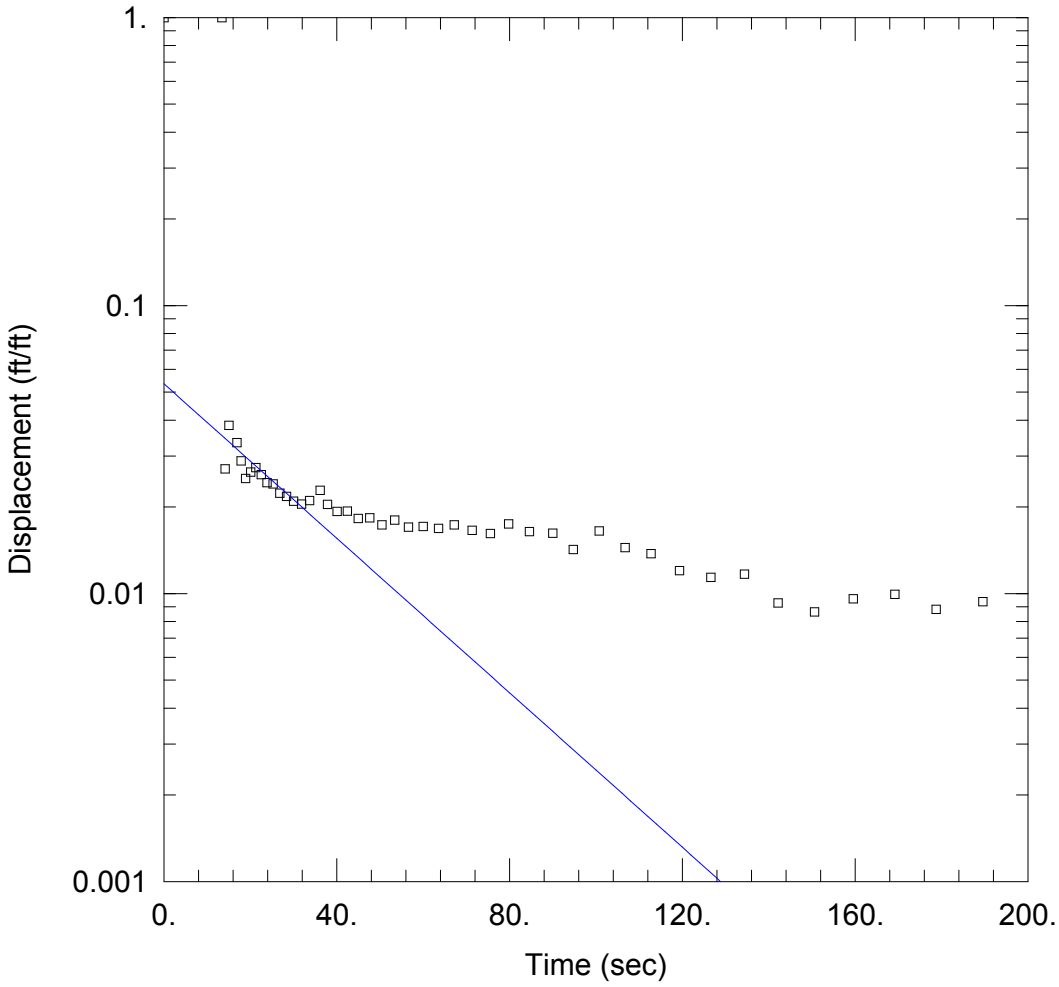
Saturated Thickness: 4.36 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-14S)

Initial Displacement: 5.25 ft
Total Well Penetration Depth: 4.36 ft
Casing Radius: 0.083 ft
Static Water Column Height: 4.36 ft
Screen Length: 4.36 ft
Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.451 ft/day
y0 = 3.066 ft



MW-14D FALLING

Data Set: C:\...\MW-14D FALLING.aqt
Date: 04/10/18 Time: 10:44:30

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-14D FALLING
Test Date: 03/01/18

AQUIFER DATA

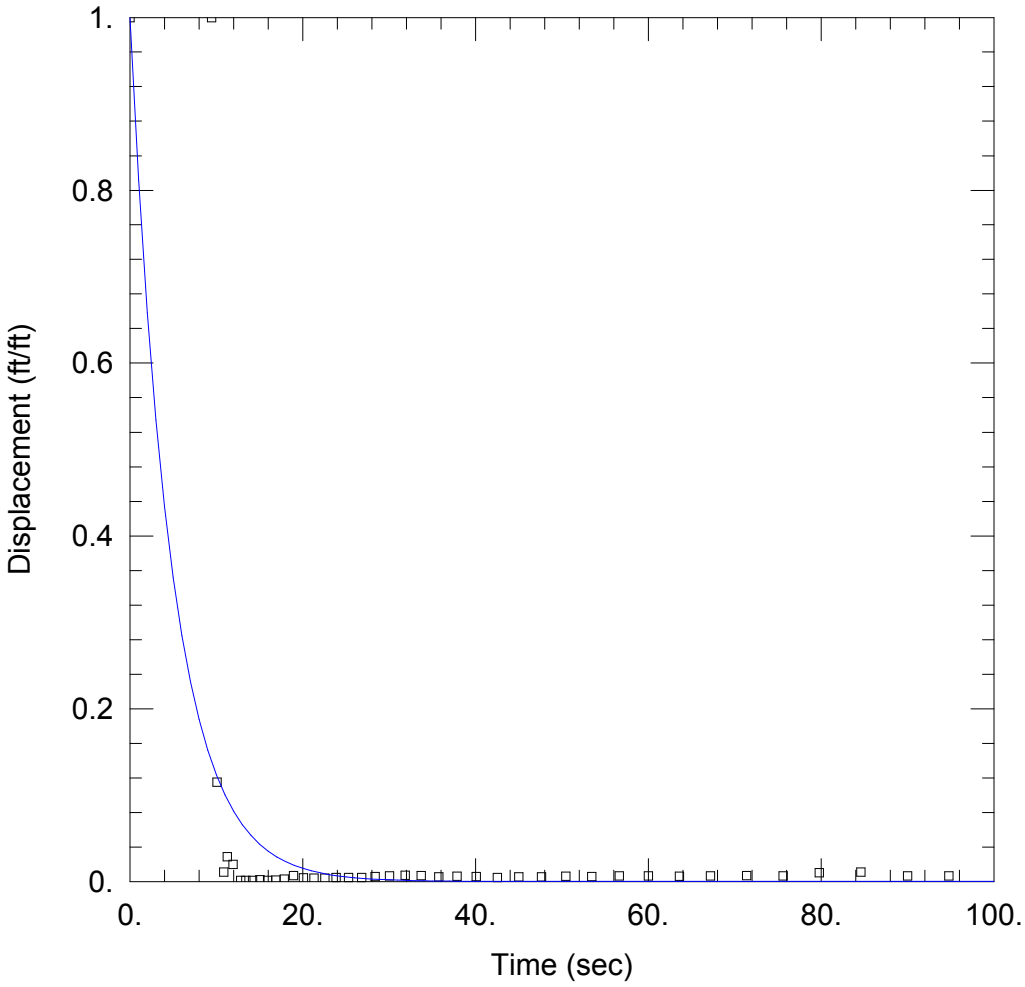
Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-14D)

Initial Displacement: 2.27 ft
Total Well Penetration Depth: 13.45 ft
Casing Radius: 0.083 ft
Static Water Column Height: 13.45 ft
Screen Length: 10. ft
Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.348 ft/day
y0 = 0.1213 ft



MW-14D RISING

Data Set: C:\...\MW-14D RISING.aqt
Date: 04/10/18 Time: 10:44:50

PROJECT INFORMATION

Company: CDM Smith
Client: City of Cambridge
Project: 220813
Location: Cambridge, MA
Test Well: MW-14D RISING
Test Date: 03/01/18

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-14D)

Initial Displacement: 1.81 ft Static Water Column Height: 13.45 ft
Total Well Penetration Depth: 13.45 ft Screen Length: 10. ft
Casing Radius: 0.083 ft Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Springer-Gelhar
K = 15.9 ft/day Le = 1. ft

ATTACHMENT L
DRUM DISPOSAL MANIFEST

5435

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) SB 1800831485-002 SC PPW 10/10/2017 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
MP6173496600	1	(800) 483-3718	011586386 FLE

GENERATOR

5. Generator's Name and Mailing Address
Tobin School
197 Vassal Lane
Cambridge, MA 02138
Generator's Phone: (617) 349-6600

Generator's Site Address (if different than mailing address)
SAME

6. Transporter 1 Company Name
Clean Harbors Environmental Services, Inc.
U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Clean Harbors of Braintree Inc
1 Hill Avenue
Braintree, MA 02184
Facility's Phone: (781) 380-7100
U.S. EPA ID Number: MAD053452637

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3082, HAZARDOUS WASTE, LIQUID, N.O.S., (ARSENIC, LEAD), 9, PG III	01	DM	40	G	D004 D005 D006 D007 D008 D010
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.CH1497929 ERG#171 (1 x 55 DM)

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Brendon Rox
Signature:
Month: 2 Day: 21 Year: 18

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Keith Turcotte
Signature:
Month: 2 Day: 21 Year: 18

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H141			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Keith Merrill
Signature:
Month: 2 Day: 21 Year: 18

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

SB1704152116-002 BC PPW 8/7/2017

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
MP6173496600	1	(800) 483-3718	010919441 FLE

GENERATOR

5. Generator's Name and Mailing Address
Tobin School
197 Vassal Lane
Cambridge, MA 02139
Generator's Phone: (617) 349-6600

Generator's Site Address (if different than mailing address)
SAME

6. Transporter 1 Company Name
Clean Harbors Environmental Services, Inc.
U.S. EPA ID Number
MAD039322250

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Spring Grove Resource Recovery Inc.
4879 Spring Grove Avenue
Cincinnati, OH 45232
Facility's Phone: (513) 681-5738
U.S. EPA ID Number
OHD000816629

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON DOT REGULATED MATERIAL, (WATER)	X 9	DM	490	G	MA99
	2. NON DOT REGULATED MATERIAL, (SOIL, WATER), (DRILL CUTTINGS)	X 5	DM	3500	P	MA99
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1. CB1496057 (9 X 55 DM)
2. CB1496056 (5 X 55 DM)

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name | Signature | Month | Day | Year

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Mitch Harcombe | Signature | Month | Day | Year

Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month | Day | Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H141	H141		

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name | Signature | Month | Day | Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping

GENERATOR'S INITIAL COPY

5435

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) SB 1704152116-002 SC PPW 8/7/2017 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	MP6173496600	1	(800) 483-3718	01091939 FLE

GENERATOR

5. Generator's Name and Mailing Address
Tobin School
197 Vassal Lane
Cambridge, MA 02138
Generator's Phone: (617) 349-6600

Generator's Site Address (if different than mailing address)
SAME

6. Transporter 1 Company Name: Clean Harbors Environmental Services, Inc.
U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Clean Harbors of Braintree Inc
1 Hill Avenue
Braintree, MA 02184
Facility's Phone: (781) 380-7100
U.S. EPA ID Number: MAD053452637

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3082, HAZARDOUS WASTE, LIQUID, N.O.S., (ARSENIC, LEAD), 9, PG III	15	DM	825	G	D004 D005 D006 D007 D008 D010
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1. CB1497929 ERG#171 (15 x 55 DM)

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Brendon Roy
Signature:
Month 8 Day 28 Year 17

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Rich Harcombe
Signature:
Month 6 Day 8 Year 17
Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H141			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Huyen Hoang
Signature:
Month 8 Day 29 Year 17

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)
Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

5435

SB1704152116-002 SC PPW 8/7/2017

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
MR6173496600	1	(800) 483-3718	010919440 FLE

GENERATOR

5. Generator's Name and Mailing Address
Tobin School
197 Vassal Lane
Cambridge, MA 02138
Generator's Phone: (617) 349-6600

Generator's Site Address (if different than mailing address)
SAME

6. Transporter 1 Company Name: Clean Harbors Environmental Services, Inc.
U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Clean Harbors El Dorado LLC
309 American Circle
El Dorado, AR 71730
Facility's Phone: (870) 863-7173
U.S. EPA ID Number: ARD069748192

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (ARSENIC, LEAD), 9, PG III	7	DM	4550	P	D004 D005 D006 D007 D008 D009
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1. CB1494111 ERG#171 (7x55PM)

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Brendan Roy
Signature:
Month: 8 Day: 28 Year: 17

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Rich Hurcombe
Signature:
Month: 8 Day: 28 Year: 17

Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H040			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name
Signature
Month Day Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

S725

SB 1704152116-005 SC PPW 8/28/2017

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	MP6173496600	1	(800) 483-3718	010919657 FLE

GENERATOR

5. Generator's Name and Mailing Address
Tobin School
197 Vassal Lane
Cambridge, MA 02138
Generator's Phone: (617) 349-6600

Generator's Site Address (if different than mailing address)
SAME

6. Transporter 1 Company Name
Clean Harbors Environmental Services, Inc.
U.S. EPA ID Number
MAD039322250

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Clean Harbors El Dorado LLC
309 American Circle
El Dorado, AR 71730
Facility's Phone: (870) 863-7173
U.S. EPA ID Number
ARD069748192

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. UN3266, WASTE CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S., (ARSENIC, SODIUM HYDROXIDE), 8, PG II	XX1	DF	700	P	D002	D004	D005
						D006	D007	D008
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1. CB1511538 ERG#154
1 overpack

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Jorg Esh Project Engineer
Signature:
Month: 8 Day: 31 Year: 17

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Shawn Giles
Signature:
Month: 8 Day: 31 Year: 17

Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H040			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Marleeka Thompson
Signature:
Month: 9 Day: 6 Year: 17

EPA Form 8700-22 (Rev. 3-05). Previous editions are obsolete.

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

ATTACHMENT M

SOIL AND GROUNDWATER ANALYTICAL LABORATORY DATA

ANALYTICAL REPORT

Lab Number:	L1728684
Client:	CDM Smith, Inc. 75 State Street Suite 701 Boston, MA 02109
ATTN:	Nicholas Castonguay
Phone:	(617) 452-6721
Project Name:	TOBIN SCHOOL
Project Number:	0139-220813
Report Date:	08/23/17

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1728684-01	MW-7S	WATER	CAMBRIDGE, MA	08/16/17 10:50	08/16/17
L1728684-02	MW-7D	WATER	CAMBRIDGE, MA	08/16/17 11:00	08/16/17
L1728684-03	MW-14S	WATER	CAMBRIDGE, MA	08/16/17 12:50	08/16/17
L1728684-04	MW-14D	WATER	CAMBRIDGE, MA	08/16/17 13:00	08/16/17

Project Name: TOBIN SCHOOL **Lab Number:** L1728684

Project Number: 0139-220813 **Report Date:** 08/23/17

MADEP MCP Response Action Analytical Report Certification

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

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

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

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

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

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Case Narrative

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

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

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

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

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

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728684
Project Number: 0139-220813 **Report Date:** 08/23/17

Case Narrative (continued)

MCP Related Narratives

Volatile Organics

In reference to question H:

The initial calibration, associated with L1728684-01 through -04, did not meet the method required minimum response factor on the lowest calibration standard for acetone (0.0774), 4-methyl-2-pentanone (0.0623), and 1,4-dioxane (0.0015), as well as the average response factor for acetone, 2-butanone, 4-methyl-2-pentanone, and 1,4-dioxane. The initial calibration verification is outside acceptance criteria for carbon disulfide (69%) and 2,2-dichloropropane (66%), but within overall method criteria.

The continuing calibration standard, associated with L1728684-01 through -04, is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.

EPH

In reference to question I:

All samples were analyzed for a subset of MCP analytes per the Chain of Custody.

Metals

In reference to question G:

L1728684-01 through -04: One or more of the target analytes did not achieve the requested CAM reporting limits.

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: Melissa Cripps Melissa Cripps

Title: Technical Director/Representative Date: 08/23/17

ORGANICS

VOLATILES

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-01
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA

Date Collected: 08/16/17 10:50
Date Received: 08/16/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 08/18/17 10:40
Analyst: BD

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728684

Project Number: 0139-220813 **Report Date:** 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-01 Date Collected: 08/16/17 10:50

Client ID: MW-7S Date Received: 08/16/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	26		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1728684
Project Number: 0139-220813
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-01
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA
Date Collected: 08/16/17 10:50
Date Received: 08/16/17
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	126		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	116		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-02
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA

Date Collected: 08/16/17 11:00
Date Received: 08/16/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 08/18/17 11:11
Analyst: BD

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728684

Project Number: 0139-220813 **Report Date:** 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-02 Date Collected: 08/16/17 11:00

Client ID: MW-7D Date Received: 08/16/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	2.7		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1728684
Project Number: 0139-220813
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-02
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA
Date Collected: 08/16/17 11:00
Date Received: 08/16/17
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	113		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-03
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA

Date Collected: 08/16/17 12:50
Date Received: 08/16/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 08/18/17 11:42
Analyst: BD

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728684

Project Number: 0139-220813 **Report Date:** 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-03 Date Collected: 08/16/17 12:50

Client ID: MW-14S Date Received: 08/16/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	21		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1728684
Project Number: 0139-220813
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-03
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA
Date Collected: 08/16/17 12:50
Date Received: 08/16/17
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	128		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	116		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-04
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA

Date Collected: 08/16/17 13:00
Date Received: 08/16/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 08/18/17 12:15
Analyst: BD

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728684

Project Number: 0139-220813 **Report Date:** 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-04 Date Collected: 08/16/17 13:00

Client ID: MW-14D Date Received: 08/16/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

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

Project Name: TOBIN SCHOOL
Lab Number: L1728684
Project Number: 0139-220813
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-04
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA
Date Collected: 08/16/17 13:00
Date Received: 08/16/17
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	126		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	115		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 08/18/17 05:57
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-04 Batch: WG1033265-5					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,3-Dichloropropene, Total	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 08/18/17 05:57
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-04 Batch: WG1033265-5					
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
Xylene (Total)	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
1,2-Dichloroethene (total)	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
2-Butanone	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	2.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 08/18/17 05:57
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-04 Batch: WG1033265-5					
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Ethyl ether	ND		ug/l	2.0	--
Isopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		ug/l	2.0	--
tert-Butyl Alcohol	ND		ug/l	10	--
2-Chloroethylvinyl ether	ND		ug/l	10	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	108		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-04 Batch: WG1033265-3 WG1033265-4								
Methylene chloride	100		97		70-130	3		20
1,1-Dichloroethane	110		100		70-130	10		20
Chloroform	110		100		70-130	10		20
Carbon tetrachloride	110		100		70-130	10		20
1,2-Dichloropropane	100		100		70-130	0		20
Dibromochloromethane	110		110		70-130	0		20
1,1,2-Trichloroethane	110		110		70-130	0		20
Tetrachloroethene	110		110		70-130	0		20
Chlorobenzene	110		100		70-130	10		20
Trichlorofluoromethane	120		110		70-130	9		20
1,2-Dichloroethane	100		100		70-130	0		20
1,1,1-Trichloroethane	120		110		70-130	9		20
Bromodichloromethane	99		95		70-130	4		20
trans-1,3-Dichloropropene	110		100		70-130	10		20
cis-1,3-Dichloropropene	95		91		70-130	4		20
1,1-Dichloropropene	110		100		70-130	10		20
Bromoform	99		95		70-130	4		20
1,1,2,2-Tetrachloroethane	110		110		70-130	0		20
Benzene	110		100		70-130	10		20
Toluene	100		110		70-130	10		20
Ethylbenzene	120		110		70-130	9		20
Chloromethane	90		86		70-130	5		20
Bromomethane	120		120		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728684

Report Date: 08/23/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-04 Batch: WG1033265-3 WG1033265-4								
Vinyl chloride	130		120		70-130	8		20
Chloroethane	120		110		70-130	9		20
1,1-Dichloroethene	110		110		70-130	0		20
trans-1,2-Dichloroethene	100		98		70-130	2		20
Trichloroethene	100		100		70-130	0		20
1,2-Dichlorobenzene	110		100		70-130	10		20
1,3-Dichlorobenzene	110		110		70-130	0		20
1,4-Dichlorobenzene	110		100		70-130	10		20
Methyl tert butyl ether	94		92		70-130	2		20
p/m-Xylene	110		110		70-130	0		20
o-Xylene	115		110		70-130	4		20
cis-1,2-Dichloroethene	100		100		70-130	0		20
Dibromomethane	100		99		70-130	1		20
1,2,3-Trichloropropane	110		100		70-130	10		20
Styrene	115		115		70-130	0		20
Dichlorodifluoromethane	98		92		70-130	6		20
Acetone	90		82		70-130	9		20
Carbon disulfide	82		78		70-130	5		20
2-Butanone	82		76		70-130	8		20
4-Methyl-2-pentanone	95		93		70-130	2		20
2-Hexanone	89		87		70-130	2		20
Bromochloromethane	100		100		70-130	0		20
Tetrahydrofuran	87		84		70-130	4		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-04 Batch: WG1033265-3 WG1033265-4								
2,2-Dichloropropane	110		110		70-130	0		20
1,2-Dibromoethane	110		110		70-130	0		20
1,3-Dichloropropane	110		110		70-130	0		20
1,1,1,2-Tetrachloroethane	120		120		70-130	0		20
Bromobenzene	110		110		70-130	0		20
n-Butylbenzene	120		120		70-130	0		20
sec-Butylbenzene	120		120		70-130	0		20
tert-Butylbenzene	120		110		70-130	9		20
o-Chlorotoluene	110		110		70-130	0		20
p-Chlorotoluene	110		100		70-130	10		20
1,2-Dibromo-3-chloropropane	100		98		70-130	2		20
Hexachlorobutadiene	100		100		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
p-Isopropyltoluene	120		120		70-130	0		20
Naphthalene	120		120		70-130	0		20
n-Propylbenzene	110		110		70-130	0		20
1,2,3-Trichlorobenzene	110		100		70-130	10		20
1,2,4-Trichlorobenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	120		110		70-130	9		20
1,2,4-Trimethylbenzene	120		110		70-130	9		20
Ethyl ether	110		110		70-130	0		20
Isopropyl Ether	100		100		70-130	0		20
Ethyl-Tert-Butyl-Ether	110		110		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728684

Report Date: 08/23/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-04 Batch: WG1033265-3 WG1033265-4								
Tertiary-Amyl Methyl Ether	100		97		70-130	3		20
1,4-Dioxane	100		96		70-130	4		20
1,1,2-Trichloro-1,2,2-Trifluoroethane	130		120		70-130	8		20
tert-Butyl Alcohol	112		114		70-130	2		20
2-Chloroethylvinyl ether	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		111		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	101		98		70-130
Dibromofluoromethane	102		103		70-130

SEMIVOLATILES

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-01
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 08/21/17 12:26
Analyst: EK

Date Collected: 08/16/17 10:50
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	2.6		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1728684
Project Number: 0139-220813
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-01
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA
Date Collected: 08/16/17 10:50
Date Received: 08/16/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	48		15-110
Phenol-d6	35		15-110
Nitrobenzene-d5	83		30-130
2-Fluorobiphenyl	84		30-130
2,4,6-Tribromophenol	99		15-110
4-Terphenyl-d14	90		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-01
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/19/17 01:43
Analyst: TJ

Date Collected: 08/16/17 10:50
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/17/17 11:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.147	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	21		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-01
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 10:35
Analyst: DV

Date Collected: 08/16/17 10:50
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	5.7		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	1.8		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	10		ug/l	0.10	--	1
Benzo(a)anthracene	0.11		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	0.13		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	2.0		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	4.1		ug/l	0.10	--	1
Phenanthrene	9.9		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	1.3		ug/l	0.10	--	1
2-Methylnaphthalene	2.8		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728684

Project Number: 0139-220813 **Report Date:** 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-01 Date Collected: 08/16/17 10:50

Client ID: MW-7S Date Received: 08/16/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	41		15-110
Phenol-d6	32		15-110
Nitrobenzene-d5	83		30-130
2-Fluorobiphenyl	81		30-130
2,4,6-Tribromophenol	105		15-110
4-Terphenyl-d14	65		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-02
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 08/21/17 12:52
Analyst: EK

Date Collected: 08/16/17 11:00
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1728684
Project Number: 0139-220813
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-02
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA
Date Collected: 08/16/17 11:00
Date Received: 08/16/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		15-110
Phenol-d6	31		15-110
Nitrobenzene-d5	79		30-130
2-Fluorobiphenyl	77		30-130
2,4,6-Tribromophenol	94		15-110
4-Terphenyl-d14	84		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-02
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/19/17 02:24
Analyst: TJ

Date Collected: 08/16/17 11:00
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/17/17 11:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.144	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	19		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-02
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 11:04
Analyst: DV

Date Collected: 08/16/17 11:00
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	1.6		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	0.27		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	0.39		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	0.23		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	0.80		ug/l	0.10	--	1
Phenanthrene	1.1		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	0.21		ug/l	0.10	--	1
2-Methylnaphthalene	0.14		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728684

Project Number: 0139-220813 **Report Date:** 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-02 Date Collected: 08/16/17 11:00

Client ID: MW-7D Date Received: 08/16/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	48		15-110
Phenol-d6	38		15-110
Nitrobenzene-d5	100		30-130
2-Fluorobiphenyl	95		30-130
2,4,6-Tribromophenol	**133**	Q	15-110
4-Terphenyl-d14	77		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-03
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 08/21/17 13:18
Analyst: EK

Date Collected: 08/16/17 12:50
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728684

Project Number: 0139-220813 **Report Date:** 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-03 Date Collected: 08/16/17 12:50

Client ID: MW-14S Date Received: 08/16/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	19		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	52		15-110
Phenol-d6	35		15-110
Nitrobenzene-d5	90		30-130
2-Fluorobiphenyl	89		30-130
2,4,6-Tribromophenol	106		15-110
4-Terphenyl-d14	94		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-03
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/19/17 03:06
Analyst: TJ

Date Collected: 08/16/17 12:50
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/17/17 11:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.144	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	21		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-03
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 11:32
Analyst: DV

Date Collected: 08/16/17 12:50
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	2.0		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	1.3		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	0.96		ug/l	0.10	--	1
Benzo(a)anthracene	0.32		ug/l	0.10	--	1
Benzo(a)pyrene	0.25		ug/l	0.10	--	1
Benzo(b)fluoranthene	0.32		ug/l	0.10	--	1
Benzo(k)fluoranthene	0.13		ug/l	0.10	--	1
Chrysene	0.36		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	0.78		ug/l	0.10	--	1
Benzo(ghi)perylene	0.16		ug/l	0.10	--	1
Fluorene	2.6		ug/l	0.10	--	1
Phenanthrene	4.2		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	0.18		ug/l	0.10	--	1
Pyrene	0.90		ug/l	0.10	--	1
2-Methylnaphthalene	0.29		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728684

Project Number: 0139-220813 **Report Date:** 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-03 Date Collected: 08/16/17 12:50

Client ID: MW-14S Date Received: 08/16/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	44		15-110
Phenol-d6	35		15-110
Nitrobenzene-d5	94		30-130
2-Fluorobiphenyl	93		30-130
2,4,6-Tribromophenol	**113**	Q	15-110
4-Terphenyl-d14	77		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-04
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 08/21/17 13:45
Analyst: EK

Date Collected: 08/16/17 13:00
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1728684
Project Number: 0139-220813
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-04
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA
Date Collected: 08/16/17 13:00
Date Received: 08/16/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	54		15-110
Phenol-d6	36		15-110
Nitrobenzene-d5	90		30-130
2-Fluorobiphenyl	89		30-130
2,4,6-Tribromophenol	105		15-110
4-Terphenyl-d14	97		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-04
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/19/17 03:47
Analyst: TJ

Date Collected: 08/16/17 13:00
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/17/17 11:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.144	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	17		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-04
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 12:01
Analyst: DV

Date Collected: 08/16/17 13:00
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	3.0		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	0.91		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	0.26		ug/l	0.10	--	1
Benzo(a)anthracene	0.33		ug/l	0.10	--	1
Benzo(a)pyrene	0.28		ug/l	0.10	--	1
Benzo(b)fluoranthene	0.40		ug/l	0.10	--	1
Benzo(k)fluoranthene	0.16		ug/l	0.10	--	1
Chrysene	0.37		ug/l	0.10	--	1
Acenaphthylene	0.13		ug/l	0.10	--	1
Anthracene	0.55		ug/l	0.10	--	1
Benzo(ghi)perylene	0.27		ug/l	0.10	--	1
Fluorene	1.4		ug/l	0.10	--	1
Phenanthrene	1.9		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	0.26		ug/l	0.10	--	1
Pyrene	0.66		ug/l	0.10	--	1
2-Methylnaphthalene	0.14		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728684

Project Number: 0139-220813 **Report Date:** 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-04 Date Collected: 08/16/17 13:00

Client ID: MW-14D Date Received: 08/16/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		15-110
Phenol-d6	35		15-110
Nitrobenzene-d5	96		30-130
2-Fluorobiphenyl	90		30-130
2,4,6-Tribromophenol	**115**	Q	15-110
4-Terphenyl-d14	71		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 08/18/17 11:03
Analyst: TJ

Extraction Method: EPA 3510C
Extraction Date: 08/17/17 11:00

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-04 Batch: WG1032818-1					
1,4-Dioxane	ND		ug/l	0.150	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	20		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D
Analytical Date: 08/21/17 09:49
Analyst: EK

Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:52

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-04 Batch: WG1033450-1					
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--
1,2-Dichlorobenzene	ND		ug/l	2.0	--
1,3-Dichlorobenzene	ND		ug/l	2.0	--
1,4-Dichlorobenzene	ND		ug/l	2.0	--
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--
2,4-Dinitrotoluene	ND		ug/l	5.0	--
2,6-Dinitrotoluene	ND		ug/l	5.0	--
Azobenzene	ND		ug/l	2.0	--
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--
Isophorone	ND		ug/l	5.0	--
Nitrobenzene	ND		ug/l	2.0	--
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--
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	--
Aniline	ND		ug/l	2.0	--
4-Chloroaniline	ND		ug/l	5.0	--
Dibenzofuran	ND		ug/l	2.0	--
Acetophenone	ND		ug/l	5.0	--
2,4,6-Trichlorophenol	ND		ug/l	5.0	--
2-Chlorophenol	ND		ug/l	2.0	--
2,4-Dichlorophenol	ND		ug/l	5.0	--
2,4-Dimethylphenol	ND		ug/l	5.0	--
2-Nitrophenol	ND		ug/l	10	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D
Analytical Date: 08/21/17 09:49
Analyst: EK

Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:52

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-04 Batch: WG1033450-1					
4-Nitrophenol	ND		ug/l	10	--
2,4-Dinitrophenol	ND		ug/l	20	--
Phenol	ND		ug/l	5.0	--
2-Methylphenol	ND		ug/l	5.0	--
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--
2,4,5-Trichlorophenol	ND		ug/l	5.0	--
Pyridine	ND		ug/l	3.5	--
Tentatively Identified Compounds					
No Tentatively Identified Compounds	ND		ug/l		

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	54		15-110
Phenol-d6	38		15-110
Nitrobenzene-d5	94		30-130
2-Fluorobiphenyl	87		30-130
2,4,6-Tribromophenol	**111**	Q	15-110
4-Terphenyl-d14	107		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 09:09
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:54

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics by SIM - Westborough Lab for sample(s): 01-04 Batch: WG1033451-1					
Acenaphthene	ND		ug/l	0.10	--
2-Chloronaphthalene	ND		ug/l	0.20	--
Fluoranthene	ND		ug/l	0.10	--
Hexachlorobutadiene	ND		ug/l	0.50	--
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	--
2-Methylnaphthalene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	0.80	--
Hexachlorobenzene	ND		ug/l	0.80	--
Hexachloroethane	ND		ug/l	0.80	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 09:09
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:54

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics by SIM - Westborough Lab for sample(s): 01-04 Batch: WG1033451-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		15-110
Phenol-d6	36		15-110
Nitrobenzene-d5	89		30-130
2-Fluorobiphenyl	82		30-130
2,4,6-Tribromophenol	**112**	Q	15-110
4-Terphenyl-d14	82		30-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728684

Report Date: 08/23/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-04 Batch: WG1032818-2 WG1032818-3								
1,4-Dioxane	130		131		40-140	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	21		22		15-110

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-04 Batch: WG1033450-2 WG1033450-3								
1,2,4-Trichlorobenzene	57		54		40-140	5		20
Bis(2-chloroethyl)ether	72		69		40-140	4		20
1,2-Dichlorobenzene	55		52		40-140	6		20
1,3-Dichlorobenzene	54		51		40-140	6		20
1,4-Dichlorobenzene	54		51		40-140	6		20
3,3'-Dichlorobenzidine	68		67		40-140	1		20
2,4-Dinitrotoluene	93		94		40-140	1		20
2,6-Dinitrotoluene	86		90		40-140	5		20
Azobenzene	86		84		40-140	2		20
4-Bromophenyl phenyl ether	77		75		40-140	3		20
Bis(2-chloroisopropyl)ether	61		58		40-140	5		20
Bis(2-chloroethoxy)methane	78		75		40-140	4		20
Isophorone	86		85		40-140	1		20
Nitrobenzene	79		77		40-140	3		20
Bis(2-ethylhexyl)phthalate	77		75		40-140	3		20
Butyl benzyl phthalate	81		89		40-140	9		20
Di-n-butylphthalate	90		90		40-140	0		20
Di-n-octylphthalate	75		75		40-140	0		20
Diethyl phthalate	88		89		40-140	1		20
Dimethyl phthalate	84		88		40-140	5		20
Aniline	48		54		40-140	12		20
4-Chloroaniline	60		63		40-140	5		20
Dibenzofuran	70		66		40-140	6		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728684

Report Date: 08/23/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-04 Batch: WG1033450-2 WG1033450-3								
Acetophenone	82		81		40-140	1		20
2,4,6-Trichlorophenol	85		85		30-130	0		20
2-Chlorophenol	72		71		30-130	1		20
2,4-Dichlorophenol	82		81		30-130	1		20
2,4-Dimethylphenol	99		97		30-130	2		20
2-Nitrophenol	84		82		30-130	2		20
4-Nitrophenol	54		55		30-130	2		20
2,4-Dinitrophenol	69		79		30-130	14		20
Phenol	37		36		30-130	3		20
2-Methylphenol	72		70		30-130	3		20
3-Methylphenol/4-Methylphenol	68		66		30-130	3		20
2,4,5-Trichlorophenol	85		87		30-130	2		20
Pyridine	**24**	Q	**30**	Q	40-140	**22**	Q	20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	52		50		15-110
Phenol-d6	38		37		15-110
Nitrobenzene-d5	86		84		30-130
2-Fluorobiphenyl	79		78		30-130
2,4,6-Tribromophenol	95		96		15-110
4-Terphenyl-d14	84		87		30-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

MCP Semivolatile Organics by SIM - Westborough Lab Associated sample(s): 01-04 Batch: WG1033451-2 WG1033451-3

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Acenaphthene	67		64		40-140	5		20
2-Chloronaphthalene	60		54		40-140	11		20
Fluoranthene	68		73		40-140	7		20
Hexachlorobutadiene	69		61		40-140	12		20
Naphthalene	63		55		40-140	14		20
Benzo(a)anthracene	83		90		40-140	8		20
Benzo(a)pyrene	84		91		40-140	8		20
Benzo(b)fluoranthene	80		86		40-140	7		20
Benzo(k)fluoranthene	82		93		40-140	13		20
Chrysene	89		95		40-140	7		20
Acenaphthylene	67		63		40-140	6		20
Anthracene	70		76		40-140	8		20
Benzo(ghi)perylene	93		92		40-140	1		20
Fluorene	68		67		40-140	1		20
Phenanthrene	72		76		40-140	5		20
Dibenzo(a,h)anthracene	91		94		40-140	3		20
Indeno(1,2,3-cd)pyrene	91		92		40-140	1		20
Pyrene	68		72		40-140	6		20
2-Methylnaphthalene	62		56		40-140	10		20
Pentachlorophenol	84		94		30-130	11		20
Hexachlorobenzene	86		92		40-140	7		20
Hexachloroethane	74		63		40-140	16		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728684

Report Date: 08/23/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics by SIM - Westborough Lab Associated sample(s): 01-04 Batch: WG1033451-2 WG1033451-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	41		47		15-110
Phenol-d6	32		43		15-110
Nitrobenzene-d5	80		70		30-130
2-Fluorobiphenyl	74		68		30-130
2,4,6-Tribromophenol	98		104		15-110
4-Terphenyl-d14	65		70		30-130

PETROLEUM HYDROCARBONS

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID:	L1728684-01	Date Collected:	08/16/17 10:50
Client ID:	MW-7S	Date Received:	08/16/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/17/17 20:57
Analytical Date:	08/19/17 23:02	Cleanup Method1:	EPH-04-1
Analyst:	SR	Cleanup Date1:	08/19/17

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	127		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	105		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	51		40-140
o-Terphenyl	93		40-140
2-Fluorobiphenyl	87		40-140
2-Bromonaphthalene	85		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID:	L1728684-02	Date Collected:	08/16/17 11:00
Client ID:	MW-7D	Date Received:	08/16/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/17/17 20:57
Analytical Date:	08/19/17 23:33	Cleanup Method1:	EPH-04-1
Analyst:	SR	Cleanup Date1:	08/19/17

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	47		40-140
o-Terphenyl	73		40-140
2-Fluorobiphenyl	71		40-140
2-Bromonaphthalene	66		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID:	L1728684-04	Date Collected:	08/16/17 13:00
Client ID:	MW-14D	Date Received:	08/16/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/17/17 20:57
Analytical Date:	08/20/17 00:05	Cleanup Method1:	EPH-04-1
Analyst:	SR	Cleanup Date1:	08/19/17

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	59		40-140
o-Terphenyl	92		40-140
2-Fluorobiphenyl	84		40-140
2-Bromonaphthalene	81		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 08/17/17 19:00
Analyst: SR

Extraction Method: EPA 3510C
Extraction Date: 08/16/17 21:50
Cleanup Method: EPH-04-1
Cleanup Date: 08/17/17

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-02,04 Batch: WG1032655-1					
C9-C18 Aliphatics	ND		ug/l	100	--
C19-C36 Aliphatics	ND		ug/l	100	--
C11-C22 Aromatics	ND		ug/l	100	--
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	51		40-140
o-Terphenyl	52		40-140
2-Fluorobiphenyl	57		40-140
2-Bromonaphthalene	56		40-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-02,04 Batch: WG1032655-2 WG1032655-3								
C9-C18 Aliphatics	65		66		40-140	2		25
C19-C36 Aliphatics	78		78		40-140	0		25
C11-C22 Aromatics	66		81		40-140	20		25
Naphthalene	47		60		40-140	24		25
2-Methylnaphthalene	51		62		40-140	19		25
Acenaphthylene	57		70		40-140	20		25
Acenaphthene	58		70		40-140	19		25
Fluorene	61		75		40-140	21		25
Phenanthrene	63		79		40-140	23		25
Anthracene	66		82		40-140	22		25
Fluoranthene	66		84		40-140	24		25
Pyrene	68		86		40-140	23		25
Benzo(a)anthracene	66		84		40-140	24		25
Chrysene	68		86		40-140	23		25
Benzo(b)fluoranthene	68		85		40-140	22		25
Benzo(k)fluoranthene	67		85		40-140	24		25
Benzo(a)pyrene	65		82		40-140	23		25
Indeno(1,2,3-cd)Pyrene	65		84		40-140	**26**	Q	25
Dibenzo(a,h)anthracene	67		86		40-140	25		25
Benzo(ghi)perylene	62		81		40-140	**27**	Q	25
Nonane (C9)	47		48		30-140	2		25
Decane (C10)	55		56		40-140	2		25
Dodecane (C12)	63		63		40-140	0		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728684

Report Date: 08/23/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-02,04 Batch: WG1032655-2 WG1032655-3								
Tetradecane (C14)	69		67		40-140	3		25
Hexadecane (C16)	73		73		40-140	0		25
Octadecane (C18)	75		76		40-140	1		25
Nonadecane (C19)	74		76		40-140	3		25
Eicosane (C20)	75		77		40-140	3		25
Docosane (C22)	75		77		40-140	3		25
Tetracosane (C24)	75		78		40-140	4		25
Hexacosane (C26)	75		78		40-140	4		25
Octacosane (C28)	75		78		40-140	4		25
Triacontane (C30)	75		77		40-140	3		25
Hexatriacontane (C36)	73		77		40-140	5		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	61		64		40-140
o-Terphenyl	70		86		40-140
2-Fluorobiphenyl	63		81		40-140
2-Bromonaphthalene	63		81		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

PCBS

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-01
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 08/21/17 21:27
Analyst: JA

Date Collected: 08/16/17 10:50
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/18/17 14:04
Cleanup Method: EPA 3665A
Cleanup Date: 08/19/17
Cleanup Method: EPA 3660B
Cleanup Date: 08/19/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68		30-150	A
Decachlorobiphenyl	91		30-150	A
2,4,5,6-Tetrachloro-m-xylene	65		30-150	B
Decachlorobiphenyl	72		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-02
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 08/21/17 21:40
Analyst: JA

Date Collected: 08/16/17 11:00
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/18/17 14:04
Cleanup Method: EPA 3665A
Cleanup Date: 08/19/17
Cleanup Method: EPA 3660B
Cleanup Date: 08/19/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	78		30-150	A
Decachlorobiphenyl	69		30-150	A
2,4,5,6-Tetrachloro-m-xylene	69		30-150	B
Decachlorobiphenyl	65		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-03
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 08/21/17 21:54
Analyst: JA

Date Collected: 08/16/17 12:50
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/18/17 14:04
Cleanup Method: EPA 3665A
Cleanup Date: 08/19/17
Cleanup Method: EPA 3660B
Cleanup Date: 08/19/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	72		30-150	A
Decachlorobiphenyl	61		30-150	A
2,4,5,6-Tetrachloro-m-xylene	64		30-150	B
Decachlorobiphenyl	51		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-04
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 08/21/17 22:08
Analyst: JA

Date Collected: 08/16/17 13:00
Date Received: 08/16/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/18/17 14:04
Cleanup Method: EPA 3665A
Cleanup Date: 08/19/17
Cleanup Method: EPA 3660B
Cleanup Date: 08/19/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	70		30-150	A
Decachlorobiphenyl	46		30-150	A
2,4,5,6-Tetrachloro-m-xylene	64		30-150	B
Decachlorobiphenyl	42		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8082A
Analytical Date: 08/21/17 20:18
Analyst: JA

Extraction Method: EPA 3510C
Extraction Date: 08/18/17 14:04
Cleanup Method: EPA 3665A
Cleanup Date: 08/19/17
Cleanup Method: EPA 3660B
Cleanup Date: 08/19/17

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 01-04 Batch: WG1033344-1						
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	0.250	--	A
Aroclor 1262	ND		ug/l	0.250	--	A
Aroclor 1268	ND		ug/l	0.250	--	A
PCBs, Total	ND		ug/l	0.250	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	72		30-150	A
Decachlorobiphenyl	75		30-150	A
2,4,5,6-Tetrachloro-m-xylene	80		30-150	B
Decachlorobiphenyl	73		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728684

Report Date: 08/23/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 01-04 Batch: WG1033344-2 WG1033344-3									
Aroclor 1016	65		64		40-140	1		20	A
Aroclor 1260	77		74		40-140	3		20	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	75		73		30-150	A
Decachlorobiphenyl	81		79		30-150	A
2,4,5,6-Tetrachloro-m-xylene	80		79		30-150	B
Decachlorobiphenyl	78		77		30-150	B

METALS

Project Name: TOBIN SCHOOL
Lab Number: L1728684
Project Number: 0139-220813
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-01
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA
Matrix: Water
Date Collected: 08/16/17 10:50
Date Received: 08/16/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.0040	--	1	08/17/17 12:42	08/22/17 13:58	EPA 3005A	97,6020A	AM
Arsenic, Total	ND		mg/l	0.005	--	1	08/17/17 12:42	08/17/17 19:12	EPA 3005A	97,6010C	MC
Barium, Total	3.66		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:12	EPA 3005A	97,6010C	MC
Beryllium, Total	ND		mg/l	0.0005	--	1	08/17/17 12:42	08/22/17 13:58	EPA 3005A	97,6020A	AM
Cadmium, Total	ND		mg/l	0.004	--	1	08/17/17 12:42	08/17/17 19:12	EPA 3005A	97,6010C	MC
Chromium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:12	EPA 3005A	97,6010C	MC
Lead, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:12	EPA 3005A	97,6010C	MC
Mercury, Total	ND		mg/l	0.0002	--	1	08/18/17 11:15	08/18/17 18:40	EPA 7470A	97,7470A	MG
Nickel, Total	ND		mg/l	0.025	--	1	08/17/17 12:42	08/17/17 19:12	EPA 3005A	97,6010C	MC
Selenium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:12	EPA 3005A	97,6010C	MC
Silver, Total	ND		mg/l	0.007	--	1	08/17/17 12:42	08/17/17 19:12	EPA 3005A	97,6010C	MC
Thallium, Total	ND		mg/l	0.0005	--	1	08/17/17 12:42	08/22/17 13:58	EPA 3005A	97,6020A	AM
Vanadium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:12	EPA 3005A	97,6010C	MC
Zinc, Total	ND		mg/l	0.050	--	1	08/17/17 12:42	08/17/17 19:12	EPA 3005A	97,6010C	MC

Project Name: TOBIN SCHOOL
Lab Number: L1728684
Project Number: 0139-220813
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-02
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA
Matrix: Water

Date Collected: 08/16/17 11:00
Date Received: 08/16/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.0040	--	1	08/17/17 12:42	08/22/17 14:02	EPA 3005A	97,6020A	AM
Arsenic, Total	ND		mg/l	0.005	--	1	08/17/17 12:42	08/17/17 19:17	EPA 3005A	97,6010C	MC
Barium, Total	2.06		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:17	EPA 3005A	97,6010C	MC
Beryllium, Total	ND		mg/l	0.0005	--	1	08/17/17 12:42	08/22/17 14:02	EPA 3005A	97,6020A	AM
Cadmium, Total	ND		mg/l	0.004	--	1	08/17/17 12:42	08/17/17 19:17	EPA 3005A	97,6010C	MC
Chromium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:17	EPA 3005A	97,6010C	MC
Lead, Total	0.014		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:17	EPA 3005A	97,6010C	MC
Mercury, Total	ND		mg/l	0.0002	--	1	08/18/17 11:15	08/18/17 18:42	EPA 7470A	97,7470A	MG
Nickel, Total	ND		mg/l	0.025	--	1	08/17/17 12:42	08/17/17 19:17	EPA 3005A	97,6010C	MC
Selenium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:17	EPA 3005A	97,6010C	MC
Silver, Total	ND		mg/l	0.007	--	1	08/17/17 12:42	08/17/17 19:17	EPA 3005A	97,6010C	MC
Thallium, Total	ND		mg/l	0.0005	--	1	08/17/17 12:42	08/22/17 14:02	EPA 3005A	97,6020A	AM
Vanadium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:17	EPA 3005A	97,6010C	MC
Zinc, Total	ND		mg/l	0.050	--	1	08/17/17 12:42	08/17/17 19:17	EPA 3005A	97,6010C	MC

Project Name: TOBIN SCHOOL
Lab Number: L1728684
Project Number: 0139-220813
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-03
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA
Matrix: Water

Date Collected: 08/16/17 12:50
Date Received: 08/16/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.0040	--	1	08/17/17 12:42	08/22/17 14:06	EPA 3005A	97,6020A	AM
Arsenic, Total	0.011		mg/l	0.005	--	1	08/17/17 12:42	08/17/17 19:22	EPA 3005A	97,6010C	MC
Barium, Total	0.492		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:22	EPA 3005A	97,6010C	MC
Beryllium, Total	ND		mg/l	0.0005	--	1	08/17/17 12:42	08/22/17 14:06	EPA 3005A	97,6020A	AM
Cadmium, Total	ND		mg/l	0.004	--	1	08/17/17 12:42	08/17/17 19:22	EPA 3005A	97,6010C	MC
Chromium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:22	EPA 3005A	97,6010C	MC
Lead, Total	0.065		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:22	EPA 3005A	97,6010C	MC
Mercury, Total	ND		mg/l	0.0002	--	1	08/18/17 11:15	08/18/17 18:44	EPA 7470A	97,7470A	MG
Nickel, Total	ND		mg/l	0.025	--	1	08/17/17 12:42	08/17/17 19:22	EPA 3005A	97,6010C	MC
Selenium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:22	EPA 3005A	97,6010C	MC
Silver, Total	ND		mg/l	0.007	--	1	08/17/17 12:42	08/17/17 19:22	EPA 3005A	97,6010C	MC
Thallium, Total	ND		mg/l	0.0005	--	1	08/17/17 12:42	08/22/17 14:06	EPA 3005A	97,6020A	AM
Vanadium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:22	EPA 3005A	97,6010C	MC
Zinc, Total	0.234		mg/l	0.050	--	1	08/17/17 12:42	08/17/17 19:22	EPA 3005A	97,6010C	MC

Project Name: TOBIN SCHOOL
Lab Number: L1728684
Project Number: 0139-220813
Report Date: 08/23/17

SAMPLE RESULTS

Lab ID: L1728684-04
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA
Matrix: Water
Date Collected: 08/16/17 13:00
Date Received: 08/16/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.0040	--	1	08/17/17 12:42	08/22/17 14:10	EPA 3005A	97,6020A	AM
Arsenic, Total	ND		mg/l	0.005	--	1	08/17/17 12:42	08/17/17 19:27	EPA 3005A	97,6010C	MC
Barium, Total	0.795		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:27	EPA 3005A	97,6010C	MC
Beryllium, Total	ND		mg/l	0.0005	--	1	08/17/17 12:42	08/22/17 14:10	EPA 3005A	97,6020A	AM
Cadmium, Total	ND		mg/l	0.004	--	1	08/17/17 12:42	08/17/17 19:27	EPA 3005A	97,6010C	MC
Chromium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:27	EPA 3005A	97,6010C	MC
Lead, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:27	EPA 3005A	97,6010C	MC
Mercury, Total	ND		mg/l	0.0002	--	1	08/18/17 11:15	08/18/17 18:45	EPA 7470A	97,7470A	MG
Nickel, Total	ND		mg/l	0.025	--	1	08/17/17 12:42	08/17/17 19:27	EPA 3005A	97,6010C	MC
Selenium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:27	EPA 3005A	97,6010C	MC
Silver, Total	ND		mg/l	0.007	--	1	08/17/17 12:42	08/17/17 19:27	EPA 3005A	97,6010C	MC
Thallium, Total	ND		mg/l	0.0005	--	1	08/17/17 12:42	08/22/17 14:10	EPA 3005A	97,6020A	AM
Vanadium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 19:27	EPA 3005A	97,6010C	MC
Zinc, Total	ND		mg/l	0.050	--	1	08/17/17 12:42	08/17/17 19:27	EPA 3005A	97,6010C	MC

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01-04 Batch: WG1032891-1										
Antimony, Total	ND		mg/l	0.0040	--	1	08/17/17 12:42	08/22/17 13:46	97,6020A	AM
Beryllium, Total	ND		mg/l	0.0005	--	1	08/17/17 12:42	08/22/17 13:46	97,6020A	AM
Thallium, Total	ND		mg/l	0.0005	--	1	08/17/17 12:42	08/22/17 13:46	97,6020A	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01-04 Batch: WG1032986-1										
Arsenic, Total	ND		mg/l	0.005	--	1	08/17/17 12:42	08/17/17 18:44	97,6010C	MC
Barium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 18:44	97,6010C	MC
Cadmium, Total	ND		mg/l	0.004	--	1	08/17/17 12:42	08/17/17 18:44	97,6010C	MC
Chromium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 18:44	97,6010C	MC
Lead, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 18:44	97,6010C	MC
Nickel, Total	ND		mg/l	0.025	--	1	08/17/17 12:42	08/17/17 18:44	97,6010C	MC
Selenium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 18:44	97,6010C	MC
Silver, Total	ND		mg/l	0.007	--	1	08/17/17 12:42	08/17/17 18:44	97,6010C	MC
Vanadium, Total	ND		mg/l	0.010	--	1	08/17/17 12:42	08/17/17 18:44	97,6010C	MC
Zinc, Total	ND		mg/l	0.050	--	1	08/17/17 12:42	08/17/17 18:44	97,6010C	MC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01-04 Batch: WG1033261-1										
Mercury, Total	ND		mg/l	0.0002	--	1	08/18/17 11:15	08/18/17 18:24	97,7470A	MG

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728684
Report Date: 08/23/17

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 7470A

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728684

Report Date: 08/23/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 01-04 Batch: WG1032891-2 WG1032891-3								
Antimony, Total	95		98		80-120	3		20
Beryllium, Total	97		99		80-120	2		20
Thallium, Total	91		92		80-120	1		20
MCP Total Metals - Mansfield Lab Associated sample(s): 01-04 Batch: WG1032986-2 WG1032986-3								
Arsenic, Total	93		94		80-120	1		20
Barium, Total	96		98		80-120	2		20
Cadmium, Total	102		103		80-120	1		20
Chromium, Total	104		106		80-120	2		20
Lead, Total	94		94		80-120	0		20
Nickel, Total	100		101		80-120	1		20
Selenium, Total	100		100		80-120	0		20
Silver, Total	98		102		80-120	4		20
Vanadium, Total	106		108		80-120	2		20
Zinc, Total	100		101		80-120	1		20
MCP Total Metals - Mansfield Lab Associated sample(s): 01-04 Batch: WG1033261-2 WG1033261-3								
Mercury, Total	106		108		80-120	2		20

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1728684-01A	Vial HCl preserved	B	NA		5.3	Y	Absent		MCP-8260-10(14)
L1728684-01B	Vial HCl preserved	B	NA		5.3	Y	Absent		MCP-8260-10(14)
L1728684-01C	Vial HCl preserved	B	NA		5.3	Y	Absent		MCP-8260-10(14)
L1728684-01D	Plastic 250ml HNO3 preserved	B	<2	<2	5.3	Y	Absent		MCP-CR-6010T-10(180),MCP-BE-6020T-10(180),MCP-7470T-10(28),MCP-AS-6010T-10(180),MCP-TL-6020T-10(180),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-SB-6020T-10(180),MCP-V-6010T-10(180),MCP-NI-6010T-10(180),MCP-PB-6010T-10(180)
L1728684-01E	Amber 500ml unpreserved	B	7	7	5.3	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728684-01F	Amber 500ml unpreserved	B	7	7	5.3	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728684-01G	Amber 1000ml unpreserved	B	7	7	5.3	Y	Absent		MCP-8082-10(365)
L1728684-01H	Amber 1000ml unpreserved	B	7	7	5.3	Y	Absent		MCP-8082-10(365)
L1728684-01I	Amber 1000ml unpreserved	B	7	7	5.3	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728684-01J	Amber 1000ml unpreserved	B	7	7	5.3	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728684-01K	Amber 1000ml HCl preserved	B	<2	<2	5.3	Y	Absent		EPH-10(14)
L1728684-01L	Amber 1000ml HCl preserved	B	<2	<2	5.3	Y	Absent		EPH-10(14)
L1728684-02A	Vial HCl preserved	A	NA		5.0	Y	Absent		MCP-8260-10(14)
L1728684-02B	Vial HCl preserved	A	NA		5.0	Y	Absent		MCP-8260-10(14)
L1728684-02C	Vial HCl preserved	A	NA		5.0	Y	Absent		MCP-8260-10(14)

*Values in parentheses indicate holding time in days

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1728684-02D	Plastic 250ml HNO3 preserved	A	<2	<2	5.0	Y	Absent		MCP-CR-6010T-10(180),MCP-BE-6020T-10(180),MCP-7470T-10(28),MCP-AS-6010T-10(180),MCP-TL-6020T-10(180),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-SB-6020T-10(180),MCP-V-6010T-10(180),MCP-NI-6010T-10(180),MCP-PB-6010T-10(180)
L1728684-02E	Amber 500ml unpreserved	A	7	7	5.0	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728684-02F	Amber 500ml unpreserved	A	7	7	5.0	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728684-02G	Amber 1000ml unpreserved	A	7	7	5.0	Y	Absent		MCP-8082-10(365)
L1728684-02H	Amber 1000ml unpreserved	A	7	7	5.0	Y	Absent		MCP-8082-10(365)
L1728684-02I	Amber 1000ml unpreserved	A	7	7	5.0	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728684-02J	Amber 1000ml unpreserved	A	7	7	5.0	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728684-02K	Amber 1000ml HCl preserved	A	<2	<2	5.0	Y	Absent		EPH-10(14)
L1728684-02L	Amber 1000ml HCl preserved	A	<2	<2	5.0	Y	Absent		EPH-10(14)
L1728684-03A	Vial HCl preserved	C	NA		4.8	Y	Absent		MCP-8260-10(14)
L1728684-03B	Vial HCl preserved	C	NA		4.8	Y	Absent		MCP-8260-10(14)
L1728684-03C	Vial HCl preserved	C	NA		4.8	Y	Absent		MCP-8260-10(14)
L1728684-03D	Plastic 250ml HNO3 preserved	C	<2	<2	4.8	Y	Absent		MCP-CR-6010T-10(180),MCP-BE-6020T-10(180),MCP-7470T-10(28),MCP-AS-6010T-10(180),MCP-TL-6020T-10(180),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-SB-6020T-10(180),MCP-V-6010T-10(180),MCP-NI-6010T-10(180),MCP-PB-6010T-10(180)
L1728684-03E	Amber 500ml unpreserved	C	7	7	4.8	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728684-03F	Amber 1000ml unpreserved	C	7	7	4.8	Y	Absent		MCP-8082-10(365)
L1728684-03G	Amber 1000ml unpreserved	C	7	7	4.8	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728684-03H	Amber 1000ml HCl preserved	C	<2	<2	4.8	Y	Absent		HOLD-EPH(14)
L1728684-04A	Vial HCl preserved	D	NA		5.0	Y	Absent		MCP-8260-10(14)
L1728684-04B	Vial HCl preserved	D	NA		5.0	Y	Absent		MCP-8260-10(14)
L1728684-04C	Vial HCl preserved	D	NA		5.0	Y	Absent		MCP-8260-10(14)

*Values in parentheses indicate holding time in days

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728684
Report Date: 08/23/17

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1728684-04D	Plastic 250ml HNO3 preserved	D	<2	<2	5.0	Y	Absent		MCP-CR-6010T-10(180),MCP-BE-6020T-10(180),MCP-7470T-10(28),MCP-AS-6010T-10(180),MCP-TL-6020T-10(180),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-SB-6020T-10(180),MCP-V-6010T-10(180),MCP-NI-6010T-10(180),MCP-PB-6010T-10(180)
L1728684-04E	Amber 500ml unpreserved	D	7	7	5.0	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728684-04F	Amber 500ml unpreserved	D	7	7	5.0	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728684-04G	Amber 1000ml unpreserved	D	7	7	5.0	Y	Absent		MCP-8082-10(365)
L1728684-04H	Amber 1000ml unpreserved	D	7	7	5.0	Y	Absent		MCP-8082-10(365)
L1728684-04I	Amber 1000ml unpreserved	D	7	7	5.0	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728684-04J	Amber 1000ml unpreserved	D	7	7	5.0	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728684-04K	Amber 1000ml HCl preserved	D	<2	<2	5.0	Y	Absent		EPH-10(14)
L1728684-04L	Amber 1000ml HCl preserved	D	<2	<2	5.0	Y	Absent		EPH-10(14)

*Values in parentheses indicate holding time in days

Project Name:	TOBIN SCHOOL	**Lab Number:**	L1728684
Project Number:	0139-220813	**Report Date:**	08/23/17

GLOSSARY

Acronyms

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

Footnotes

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

Terms

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

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

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

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

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

Data Qualifiers

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

Report Format: Data Usability Report

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Data Qualifiers

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

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

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

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

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

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

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

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

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

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

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

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

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

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

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REFERENCES

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

98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.

LIMITATION OF LIABILITIES

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

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

Certification Information

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

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
SM 2540D: TSS
EPA 3005A NPW
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: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **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, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.**

Mansfield Facility:

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

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

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

CHAIN OF CUSTODY

PAGE 1 OF 1

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

Date Rec'd in Lab: 8/16/17

ALPHA Job #: L1728684

Client Information

Client: CDM Smith

Address: 75 State St, Suite 701
Boston MA 02109

Phone: 617-452-6721

Email: CastonguayNJ@CDMSmith.com

Project Information

Project Name: Tobin School

Project Location: Cambridge MA

Project #: 0139-220813

Project Manager: Jill Greene

ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due:

Report Information - Data Deliverables

☑ ADEx ☑ EMAIL

Billing Information

☑ Same as Client info PO #:

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 _____

Additional Project Information:
MUST Meet MA DEP GW-1 STANDARDS.
MCP Presumptive Certainty Required

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	VOC: ☑ 8260 ☐ 624	SVOC: ☐ 8270 ☐ 625 ☑ ABN ☐ 524.2 ☐ PAH	METALS: ☐ MCP 13 ☑ MCP 14 ☐ RCP 15	METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13	EPH: ☐ Ranges & Targets ☑ Ranges Only	VPH: ☐ Ranges & Targets ☐ Ranges Only	☑ PCB ☐ PEST	TPH: ☐ Quant Only ☐ Fingerprint	1,4 Dioxane 8270 D-SIM	Sample Comments	TOTAL # BOTTLES
28684-01	MW-7S	8/16/17	1050	MW	PB	X	X	X		X		X				12
-02	MW-7D		1100													
-03	MW-14S		1250							—						
-04	MW-14D		1302													

SAMPLE INFO
Filtration ☐ Field ☐ Lab to do
Preservation ☐ Lab to do

Container Type	V	A	P		A		A						
Preservative	B	A	C		B		A		A				

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

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

Relinquished By:	Date/Time	Received By:	Date/Time
	8/16/17 1545	Lindsay AAL	8/16/17 1545
Lindsay AAL	8/16/17 1750		8/16/17 1750

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

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

CHAIN OF CUSTODY

PAGE 1 OF 1

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

Date Rec'd in Lab: 8/16/17

ALPHA Job #: L1728684

Client Information
Client: CDM Smith
Address: 75 State St, Suite 701, Boston MA 02109
Phone: 617-452-6721
Email: CastonguayNJ@CDMSmith.com

Project Information
Project Name: Tobin School
Project Location: Cambridge MA
Project #: 0139-220813
Project Manager: Jill Greene
ALPHA Quote #:

Turn-Around Time
☑ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due:

Report Information - Data Deliverables
☑ ADEx ☑ EMAIL

Billing Information
☑ Same as Client info PO #:

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 _____

Additional Project Information:
MUST Meet MA DEP GW-1 STANDARDS.
MCP Presumptive Certainty Required

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	VOC: ☑ 8260 ☐ 624	SVOC: ☐ 524.2 ☑ ABN ☐ PAH	METALS: ☐ MCP 13	METALS: ☑ MCP 14 ☐ RCP 15 ☐ RCRA5 ☐ RCRA8	EPH: ☐ PP13 ☐ Ranges & Targets	VPH: ☑ Ranges Only ☐ Ranges & Targets	☑ PCB ☐ PEST	TPH: ☐ Ranges Only ☐ Quant Only	1,4 Dioxane 8270D-SIM	☐ Fingerprint	Sample Comments	TOTAL # BOTTLES
28684-01	MW-7S	8/16/17	1050	MW	PB	X	X	X		X		X					12
-02	MW-7D		1100														
-03	MW-14S		1250														
-04	MW-14D		1302														

SAMPLE INFO
Filtration
☐ Field ☐ Lab to do
Preservation
☐ Lab to do

Container Type	V	A	P		A		A						
Preservative	B	A	C		B		A		A				

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

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

Relinquished By:	Date/Time	Received By:	Date/Time
	8/16/17 1545	Lindsay AAL	8/16/17 1545
Lindsay AAL	8/16/17 1750		8/16/17 1750

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

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

Method Blank Summary
Form 4

Client	: CDM Smith, Inc.	**Lab Number**	: L1728684
Project Name	: TOBIN SCHOOL	**Project Number**	: 0139-220813
Lab Sample ID	: WG1033265-5	**Lab File ID**	: VQ170818A05
Instrument ID	: QUIMBY		
Matrix	: WATER	**Analysis Date**	: 08/18/17 05:57

Client Sample No.	Lab Sample ID	Analysis Date
WG1033265-3LCS	WG1033265-3	08/18/17 04:22
WG1033265-4LCSD	WG1033265-4	08/18/17 04:54
MW-7S	L1728684-01	08/18/17 10:40
MW-7D	L1728684-02	08/18/17 11:11
MW-14S	L1728684-03	08/18/17 11:42
MW-14D	L1728684-04	08/18/17 12:15

Continuing Calibration
Form 7

Client	: CDM Smith, Inc.	Lab Number	: L1728684	
Project Name	: TOBIN SCHOOL	Project Number	: 0139-220813	
Instrument ID	: QUIMBY	Calibration Date	: 08/18/17 04:22	
Lab File ID	: VQ170818A02	Init. Calib. Date(s)	: 06/23/17	06/24/17
Sample No	: WG1033265-2	Init. Calib. Times	: 20:16	00:58
Channel	:			

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	109	0
Dichlorodifluoromethane	0.466	0.458	-	1.7	20	97	0
Chloromethane	0.528	0.476	-	9.8	20	95	.01
Vinyl chloride	0.388	0.492	-	-26.8*	20	126	0
Bromomethane	0.242	0.304	-	-25.6*	20	151	0
Chloroethane	0.317	0.385	-	-21.5*	20	125	0
Trichlorofluoromethane	0.626	0.752	-	-20.1*	20	123	0
Ethyl ether	0.172	0.19	-	-10.5	20	118	0
1,1-Dichloroethene	0.356	0.397	-	-11.5	20	118	0
Carbon disulfide	1.055	0.862	-	18.3	20	85	0
Freon-113	0.304	0.399	-	-31.3*	20	136	0
Methylene chloride	0.476	0.486	-	-2.1	20	109	0
Acetone	0.058	0.052*	-	10.3	20	102	0
trans-1,2-Dichloroethene	0.423	0.447	-	-5.7	20	111	0
Methyl tert-butyl ether	0.793	0.743	-	6.3	20	103	0
tert-Butyl alcohol	0.011	0.013*	-	-18.2	20	136	0
Diisopropyl ether	1.265	1.314	-	-3.9	20	108	0
1,1-Dichloroethane	0.813	0.881	-	-8.4	20	109	0
Ethyl tert-butyl ether	0.939	1.038	-	-10.5	20	126	0
cis-1,2-Dichloroethene	0.454	0.479	-	-5.5	20	108	0
2,2-Dichloropropane	10	11.252	-	-12.5	20	158	0
Bromochloromethane	0.164	0.173	-	-5.5	20	109	0
Chloroform	0.782	0.845	-	-8.1	20	109	0
Carbon tetrachloride	10	10.83	-	-8.3	20	131	0
Tetrahydrofuran	0.062	0.054	-	12.9	20	99	0
Dibromofluoromethane	0.201	0.206	-	-2.5	20	111	0
1,1,1-Trichloroethane	0.688	0.795	-	-15.6	20	123	0
2-Butanone	0.091	0.074*	-	18.7	20	87	0
1,1-Dichloropropene	0.653	0.71	-	-8.7	20	110	0
Benzene	1.807	1.97	-	-9	20	109	0
tert-Amyl methyl ether	0.794	0.795	-	-0.1	20	115	0
1,2-Dichloroethane-d4	0.259	0.271	-	-4.6	20	110	0
1,2-Dichloroethane	0.56	0.574	-	-2.5	20	104	0
Trichloroethene	0.48	0.5	-	-4.2	20	107	0
Dibromomethane	0.201	0.202	-	-0.5	20	108	0
1,2-Dichloropropane	0.454	0.46	-	-1.3	20	107	0
2-Chloroethyl vinyl ether	0.152	0.158	-	-3.9	20	89	0
Bromodichloromethane	0.571	0.564	-	1.2	20	104	0
1,4-Dioxane	0.00186	0.00187*	-	-0.5	20	103	0
cis-1,3-Dichloropropene	10	9.46	-	5.4	20	115	0
Chlorobenzene-d5	1	1	-	0	20	103	0
Toluene-d8	1.36	1.436	-	-5.6	20	107	0
Toluene	1.628	1.725	-	-6	20	99	0
4-Methyl-2-pentanone	0.097	0.092*	-	5.2	20	93	0
Tetrachloroethene	0.612	0.693	-	-13.2	20	108	0

* Value outside of QC limits.

Continuing Calibration
Form 7

Client	: CDM Smith, Inc.	Lab Number	: L1728684	
Project Name	: TOBIN SCHOOL	Project Number	: 0139-220813	
Instrument ID	: QUIMBY	Calibration Date	: 08/18/17 04:22	
Lab File ID	: VQ170818A02	Init. Calib. Date(s)	: 06/23/17	06/24/17
Sample No	: WG1033265-2	Init. Calib. Times	: 20:16	00:58
Channel	:			

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
trans-1,3-Dichloropropene	10	10.629	-	-6.3	20	122	0
1,1,2-Trichloroethane	0.298	0.331	-	-11.1	20	107	0
Chlorodibromomethane	0.376	0.424	-	-12.8	20	112	0
1,3-Dichloropropane	0.663	0.735	-	-10.9	20	107	0
1,2-Dibromoethane	0.318	0.347	-	-9.1	20	108	0
2-Hexanone	0.176	0.157	-	10.8	20	91	0
Chlorobenzene	1.73	1.883	-	-8.8	20	104	0
Ethylbenzene	3.154	3.635	-	-15.3	20	106	0
1,1,1,2-Tetrachloroethane	0.476	0.568	-	-19.3	20	120	0
p/m Xylene	0.982	1.079	-	-9.9	20	103	0
o Xylene	0.893	1.024	-	-14.7	20	106	0
Styrene	1.447	1.678	-	-16	20	105	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	94	0
Bromoform	10	9.889	-	1.1	20	115	0
Isopropylbenzene	6.684	7.637	-	-14.3	20	99	0
4-Bromofluorobenzene	1.211	1.226	-	-1.2	20	99	0
Bromobenzene	1.467	1.68	-	-14.5	20	106	0
n-Propylbenzene	7.634	8.672	-	-13.6	20	97	0
1,1,2,2-Tetrachloroethane	1.02	1.172	-	-14.9	20	108	0
2-Chlorotoluene	5.252	5.919	-	-12.7	20	101	0
1,3,5-Trimethylbenzene	4.405	5.159	-	-17.1	20	100	0
1,2,3-Trichloropropane	0.892	0.977	-	-9.5	20	106	0
4-Chlorotoluene	4.746	5.172	-	-9	20	98	0
tert-Butylbenzene	4.434	5.132	-	-15.7	20	99	0
1,2,4-Trimethylbenzene	4.363	5.185	-	-18.8	20	100	0
sec-Butylbenzene	6.296	7.494	-	-19	20	100	0
p-Isopropyltoluene	4.919	5.92	-	-20.3*	20	98	0
1,3-Dichlorobenzene	2.67	2.94	-	-10.1	20	98	0
1,4-Dichlorobenzene	2.554	2.765	-	-8.3	20	98	0
n-Butylbenzene	5.68	6.984	-	-23*	20	98	0
1,2-Dichlorobenzene	2.364	2.584	-	-9.3	20	97	0
1,2-Dibromo-3-chloropropan	10	10.19	-	-1.9	20	101	0
Hexachlorobutadiene	0.807	0.834	-	-3.3	20	93	0
1,2,4-Trichlorobenzene	1.307	1.472	-	-12.6	20	90	0
Naphthalene	2.325	2.842	-	-22.2*	20	92	0
1,2,3-Trichlorobenzene	1.152	1.276	-	-10.8	20	88	0

* Value outside of QC limits.

ANALYTICAL REPORT

Lab Number:	L1728873
Client:	CDM Smith, Inc. 75 State Street Suite 701 Boston, MA 02109
ATTN:	Nicholas Castonguay
Phone:	(617) 452-6721
Project Name:	TOBIN SCHOOL
Project Number:	0139-220813
Report Date:	08/28/17

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1728873-01	MW-9D	WATER	CAMBRIDGE, MA	08/16/17 15:30	08/17/17
L1728873-02	MW-9S	WATER	CAMBRIDGE, MA	08/16/17 15:20	08/17/17
L1728873-03	MW-3S	WATER	CAMBRIDGE, MA	08/17/17 09:20	08/17/17
L1728873-04	MW-3D	WATER	CAMBRIDGE, MA	08/17/17 09:00	08/17/17
L1728873-05	MW-4D	WATER	CAMBRIDGE, MA	08/17/17 13:30	08/17/17
L1728873-06	MW-4S	WATER	CAMBRIDGE, MA	08/17/17 13:10	08/17/17
L1728873-07	DUP-1	WATER	CAMBRIDGE, MA	08/17/17 00:00	08/17/17
L1728873-08	TRIP BLANK	WATER	CAMBRIDGE, MA	08/17/17 00:00	08/17/17

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

MADEP MCP Response Action Analytical Report Certification

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

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

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

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

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

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Case Narrative

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

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

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

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

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

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

Project Name:	TOBIN SCHOOL	**Lab Number:**	L1728873
Project Number:	0139-220813	**Report Date:**	08/28/17

Case Narrative (continued)

MCP Related Narratives

Volatile Organics

In reference to question G:

L1728873-01: One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

The initial calibration, associated with L1728873-01 through -08, did not meet the method required minimum response factor on the lowest calibration standard for 1,4-dioxane (0.0061), as well as the average response factor for 1,4-dioxane, and utilized a quadratic fit for chloroethane.

The continuing calibration standard, associated with L1728873-01 through -08, is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.

EPH

In reference to question I:

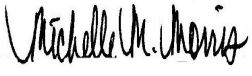
All samples were analyzed for a subset of MCP analytes per the Chain of Custody.

Total Metals

In reference to question G:

L1728873-01 through -07: One or more of the target analytes did not achieve the requested CAM reporting limits.

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

Authorized Signature:  Michelle M. Morris

Title: Technical Director/Representative Date: 08/28/17

ORGANICS

VOLATILES

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-01 D
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA

Date Collected: 08/16/17 15:30
Date Received: 08/17/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 08/22/17 19:55
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	4.0	--	2
1,1-Dichloroethane	ND		ug/l	2.0	--	2
Chloroform	ND		ug/l	2.0	--	2
Carbon tetrachloride	ND		ug/l	2.0	--	2
1,2-Dichloropropane	ND		ug/l	2.0	--	2
Dibromochloromethane	ND		ug/l	2.0	--	2
1,1,2-Trichloroethane	ND		ug/l	2.0	--	2
Tetrachloroethene	4.4		ug/l	2.0	--	2
Chlorobenzene	ND		ug/l	2.0	--	2
Trichlorofluoromethane	ND		ug/l	4.0	--	2
1,2-Dichloroethane	ND		ug/l	2.0	--	2
1,1,1-Trichloroethane	ND		ug/l	2.0	--	2
Bromodichloromethane	ND		ug/l	2.0	--	2
trans-1,3-Dichloropropene	ND		ug/l	1.0	--	2
cis-1,3-Dichloropropene	ND		ug/l	1.0	--	2
1,3-Dichloropropene, Total	ND		ug/l	1.0	--	2
1,1-Dichloropropene	ND		ug/l	4.0	--	2
Bromoform	ND		ug/l	4.0	--	2
1,1,2,2-Tetrachloroethane	ND		ug/l	2.0	--	2
Benzene	ND		ug/l	1.0	--	2
Toluene	ND		ug/l	2.0	--	2
Ethylbenzene	ND		ug/l	2.0	--	2
Chloromethane	ND		ug/l	4.0	--	2
Bromomethane	ND		ug/l	4.0	--	2
Vinyl chloride	ND		ug/l	2.0	--	2
Chloroethane	ND		ug/l	4.0	--	2
1,1-Dichloroethene	ND		ug/l	2.0	--	2
trans-1,2-Dichloroethene	ND		ug/l	2.0	--	2
Trichloroethene	ND		ug/l	2.0	--	2
1,2-Dichlorobenzene	ND		ug/l	2.0	--	2

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-01 D Date Collected: 08/16/17 15:30

Client ID: MW-9D Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.0	--	2
1,4-Dichlorobenzene	ND		ug/l	2.0	--	2
Methyl tert butyl ether	400		ug/l	4.0	--	2
p/m-Xylene	ND		ug/l	4.0	--	2
o-Xylene	ND		ug/l	2.0	--	2
Xylene (Total)	ND		ug/l	2.0	--	2
cis-1,2-Dichloroethene	ND		ug/l	2.0	--	2
1,2-Dichloroethene (total)	ND		ug/l	2.0	--	2
Dibromomethane	ND		ug/l	4.0	--	2
1,2,3-Trichloropropane	ND		ug/l	4.0	--	2
Styrene	ND		ug/l	2.0	--	2
Dichlorodifluoromethane	ND		ug/l	4.0	--	2
Acetone	ND		ug/l	10	--	2
Carbon disulfide	ND		ug/l	4.0	--	2
2-Butanone	ND		ug/l	10	--	2
4-Methyl-2-pentanone	ND		ug/l	10	--	2
2-Hexanone	ND		ug/l	10	--	2
Bromochloromethane	ND		ug/l	4.0	--	2
Tetrahydrofuran	ND		ug/l	4.0	--	2
2,2-Dichloropropane	ND		ug/l	4.0	--	2
1,2-Dibromoethane	ND		ug/l	4.0	--	2
1,3-Dichloropropane	ND		ug/l	4.0	--	2
1,1,1,2-Tetrachloroethane	ND		ug/l	2.0	--	2
Bromobenzene	ND		ug/l	4.0	--	2
n-Butylbenzene	ND		ug/l	4.0	--	2
sec-Butylbenzene	ND		ug/l	4.0	--	2
tert-Butylbenzene	ND		ug/l	4.0	--	2
o-Chlorotoluene	ND		ug/l	4.0	--	2
p-Chlorotoluene	ND		ug/l	4.0	--	2
1,2-Dibromo-3-chloropropane	ND		ug/l	4.0	--	2
Hexachlorobutadiene	ND		ug/l	1.2	--	2
Isopropylbenzene	ND		ug/l	4.0	--	2
p-Isopropyltoluene	ND		ug/l	4.0	--	2
Naphthalene	ND		ug/l	4.0	--	2
n-Propylbenzene	ND		ug/l	4.0	--	2
1,2,3-Trichlorobenzene	ND		ug/l	4.0	--	2
1,2,4-Trichlorobenzene	ND		ug/l	4.0	--	2
1,3,5-Trimethylbenzene	ND		ug/l	4.0	--	2
1,2,4-Trimethylbenzene	ND		ug/l	4.0	--	2

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-01 D Date Collected: 08/16/17 15:30

Client ID: MW-9D Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Ethyl ether	ND		ug/l	4.0	--	2
Isopropyl Ether	ND		ug/l	4.0	--	2
Ethyl-Tert-Butyl-Ether	ND		ug/l	4.0	--	2
Tertiary-Amyl Methyl Ether	25		ug/l	4.0	--	2
1,4-Dioxane	ND		ug/l	500	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	112		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-02
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA

Date Collected: 08/16/17 15:20
Date Received: 08/17/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 08/22/17 20:26
Analyst: MM

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-02 Date Collected: 08/16/17 15:20

Client ID: MW-9S Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-02 Date Collected: 08/16/17 15:20

Client ID: MW-9S Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	87		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	110		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-03
Client ID: MW-3S
Sample Location: CAMBRIDGE, MA

Date Collected: 08/17/17 09:20
Date Received: 08/17/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 08/22/17 20:56
Analyst: MM

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-03 Date Collected: 08/17/17 09:20

Client ID: MW-3S Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-03 Date Collected: 08/17/17 09:20

Client ID: MW-3S Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	111		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-04
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA

Date Collected: 08/17/17 09:00
Date Received: 08/17/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 08/22/17 21:26
Analyst: MM

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-04 Date Collected: 08/17/17 09:00

Client ID: MW-3D Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-04 Date Collected: 08/17/17 09:00

Client ID: MW-3D Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	108		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-05
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA

Date Collected: 08/17/17 13:30
Date Received: 08/17/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 08/22/17 21:57
Analyst: MM

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-05 Date Collected: 08/17/17 13:30

Client ID: MW-4D Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	9.4		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1728873
Project Number: 0139-220813
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-05
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA
Date Collected: 08/17/17 13:30
Date Received: 08/17/17
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	111		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-06
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA

Date Collected: 08/17/17 13:10
Date Received: 08/17/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 08/22/17 22:27
Analyst: MM

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-06 Date Collected: 08/17/17 13:10

Client ID: MW-4S Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	4.5		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-06 Date Collected: 08/17/17 13:10

Client ID: MW-4S Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	110		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-07
Client ID: DUP-1
Sample Location: CAMBRIDGE, MA

Date Collected: 08/17/17 00:00
Date Received: 08/17/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 08/22/17 22:58
Analyst: MM

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-07 Date Collected: 08/17/17 00:00

Client ID: DUP-1 Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	9.9		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-07 Date Collected: 08/17/17 00:00

Client ID: DUP-1 Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	108		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-08
Client ID: TRIP BLANK
Sample Location: CAMBRIDGE, MA

Date Collected: 08/17/17 00:00
Date Received: 08/17/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 08/22/17 18:54
Analyst: MM

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

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-08 Date Collected: 08/17/17 00:00

Client ID: TRIP BLANK Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

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

Project Name: TOBIN SCHOOL
Lab Number: L1728873
Project Number: 0139-220813
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-08
Client ID: TRIP BLANK
Sample Location: CAMBRIDGE, MA
Date Collected: 08/17/17 00:00
Date Received: 08/17/17
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	110		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 08/22/17 17:53
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-08 Batch: WG1034493-5					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,3-Dichloropropene, Total	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 08/22/17 17:53
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-08 Batch: WG1034493-5					
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
Xylene (Total)	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
1,2-Dichloroethene (total)	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
2-Butanone	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	2.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 08/22/17 17:53
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-08 Batch: WG1034493-5					
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Ethyl ether	ND		ug/l	2.0	--
Isopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	109		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728873

Report Date: 08/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-08 Batch: WG1034493-3 WG1034493-4								
Methylene chloride	120		120		70-130	0		20
1,1-Dichloroethane	120		120		70-130	0		20
Chloroform	120		120		70-130	0		20
Carbon tetrachloride	110		120		70-130	9		20
1,2-Dichloropropane	120		120		70-130	0		20
Dibromochloromethane	88		90		70-130	2		20
1,1,2-Trichloroethane	92		91		70-130	1		20
Tetrachloroethene	93		94		70-130	1		20
Chlorobenzene	95		94		70-130	1		20
Trichlorofluoromethane	110		120		70-130	9		20
1,2-Dichloroethane	120		120		70-130	0		20
1,1,1-Trichloroethane	110		120		70-130	9		20
Bromodichloromethane	110		120		70-130	9		20
trans-1,3-Dichloropropene	92		92		70-130	0		20
cis-1,3-Dichloropropene	100		100		70-130	0		20
1,1-Dichloropropene	120		120		70-130	0		20
Bromoform	75		80		70-130	6		20
1,1,2,2-Tetrachloroethane	88		90		70-130	2		20
Benzene	110		120		70-130	9		20
Toluene	97		95		70-130	2		20
Ethylbenzene	93		94		70-130	1		20
Chloromethane	120		120		70-130	0		20
Bromomethane	97		100		70-130	3		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728873

Report Date: 08/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-08 Batch: WG1034493-3 WG1034493-4								
Vinyl chloride	120		120		70-130	0		20
Chloroethane	120		110		70-130	9		20
1,1-Dichloroethene	120		130		70-130	8		20
trans-1,2-Dichloroethene	120		120		70-130	0		20
Trichloroethene	120		110		70-130	9		20
1,2-Dichlorobenzene	92		95		70-130	3		20
1,3-Dichlorobenzene	92		91		70-130	1		20
1,4-Dichlorobenzene	88		93		70-130	6		20
Methyl tert butyl ether	120		120		70-130	0		20
p/m-Xylene	90		90		70-130	0		20
o-Xylene	90		95		70-130	5		20
cis-1,2-Dichloroethene	120		130		70-130	8		20
Dibromomethane	110		120		70-130	9		20
1,2,3-Trichloropropane	87		90		70-130	3		20
Styrene	95		95		70-130	0		20
Dichlorodifluoromethane	110		110		70-130	0		20
Acetone	120		120		70-130	0		20
Carbon disulfide	110		110		70-130	0		20
2-Butanone	110		100		70-130	10		20
4-Methyl-2-pentanone	88		88		70-130	0		20
2-Hexanone	89		90		70-130	1		20
Bromochloromethane	120		120		70-130	0		20
Tetrahydrofuran	110		110		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728873

Report Date: 08/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-08 Batch: WG1034493-3 WG1034493-4								
2,2-Dichloropropane	120		120		70-130	0		20
1,2-Dibromoethane	89		92		70-130	3		20
1,3-Dichloropropane	91		92		70-130	1		20
1,1,1,2-Tetrachloroethane	88		89		70-130	1		20
Bromobenzene	93		94		70-130	1		20
n-Butylbenzene	96		97		70-130	1		20
sec-Butylbenzene	91		93		70-130	2		20
tert-Butylbenzene	90		93		70-130	3		20
o-Chlorotoluene	91		91		70-130	0		20
p-Chlorotoluene	90		92		70-130	2		20
1,2-Dibromo-3-chloropropane	83		83		70-130	0		20
Hexachlorobutadiene	100		100		70-130	0		20
Isopropylbenzene	91		93		70-130	2		20
p-Isopropyltoluene	95		95		70-130	0		20
Naphthalene	88		94		70-130	7		20
n-Propylbenzene	90		94		70-130	4		20
1,2,3-Trichlorobenzene	97		100		70-130	3		20
1,2,4-Trichlorobenzene	95		95		70-130	0		20
1,3,5-Trimethylbenzene	90		95		70-130	5		20
1,2,4-Trimethylbenzene	92		95		70-130	3		20
Ethyl ether	110		120		70-130	9		20
Isopropyl Ether	120		120		70-130	0		20
Ethyl-Tert-Butyl-Ether	120		120		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728873

Report Date: 08/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-08 Batch: WG1034493-3 WG1034493-4								
Tertiary-Amyl Methyl Ether	110		120		70-130	9		20
1,4-Dioxane	102		102		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		97		70-130
Toluene-d8	89		90		70-130
4-Bromofluorobenzene	97		100		70-130
Dibromofluoromethane	108		110		70-130

SEMIVOLATILES

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-01
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 08/22/17 19:05
Analyst: KR

Date Collected: 08/16/17 15:30
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 17:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-01 Date Collected: 08/16/17 15:30

Client ID: MW-9D Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	51		15-110
Phenol-d6	38		15-110
Nitrobenzene-d5	74		30-130
2-Fluorobiphenyl	68		30-130
2,4,6-Tribromophenol	65		15-110
4-Terphenyl-d14	64		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-01
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 12:29
Analyst: DV

Date Collected: 08/16/17 15:30
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 18:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	0.57		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	0.15		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	0.13		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	0.17		ug/l	0.10	--	1
Phenanthrene	0.50		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	0.11		ug/l	0.10	--	1
2-Methylnaphthalene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1728873
Project Number: 0139-220813
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-01
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA
Date Collected: 08/16/17 15:30
Date Received: 08/17/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	49		15-110
Phenol-d6	41		15-110
Nitrobenzene-d5	87		30-130
2-Fluorobiphenyl	84		30-130
2,4,6-Tribromophenol	**115**	Q	15-110
4-Terphenyl-d14	69		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-01
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/26/17 09:28
Analyst: TJ

Date Collected: 08/16/17 15:30
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/23/17 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	0.198		ug/l	0.156	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	23		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-02
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 08/22/17 19:31
Analyst: KR

Date Collected: 08/16/17 15:20
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 17:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1728873
Project Number: 0139-220813
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-02
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA
Date Collected: 08/16/17 15:20
Date Received: 08/17/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	54		15-110
Phenol-d6	41		15-110
Nitrobenzene-d5	85		30-130
2-Fluorobiphenyl	74		30-130
2,4,6-Tribromophenol	65		15-110
4-Terphenyl-d14	69		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-02
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 12:57
Analyst: DV

Date Collected: 08/16/17 15:20
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 18:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	1.0		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	0.32		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	0.69		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	0.21		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	0.64		ug/l	0.10	--	1
Phenanthrene	0.42		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	0.22		ug/l	0.10	--	1
2-Methylnaphthalene	0.12		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-02 Date Collected: 08/16/17 15:20

Client ID: MW-9S Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	53		15-110
Phenol-d6	45		15-110
Nitrobenzene-d5	99		30-130
2-Fluorobiphenyl	93		30-130
2,4,6-Tribromophenol	**123**	Q	15-110
4-Terphenyl-d14	73		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-02
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/26/17 10:10
Analyst: TJ

Date Collected: 08/16/17 15:20
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/23/17 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.147	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	23		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-03
Client ID: MW-3S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 08/22/17 19:57
Analyst: KR

Date Collected: 08/17/17 09:20
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 17:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-03 Date Collected: 08/17/17 09:20

Client ID: MW-3S Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	53		15-110
Phenol-d6	40		15-110
Nitrobenzene-d5	80		30-130
2-Fluorobiphenyl	71		30-130
2,4,6-Tribromophenol	63		15-110
4-Terphenyl-d14	68		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-03
Client ID: MW-3S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 13:26
Analyst: DV

Date Collected: 08/17/17 09:20
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 18:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	3.8		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	1.0		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	1.3		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	0.10		ug/l	0.10	--	1
Anthracene	0.78		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	3.2		ug/l	0.10	--	1
Phenanthrene	3.4		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	0.75		ug/l	0.10	--	1
2-Methylnaphthalene	0.56		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-03 Date Collected: 08/17/17 09:20

Client ID: MW-3S Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	51		15-110
Phenol-d6	43		15-110
Nitrobenzene-d5	92		30-130
2-Fluorobiphenyl	86		30-130
2,4,6-Tribromophenol	**123**	Q	15-110
4-Terphenyl-d14	71		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-03
Client ID: MW-3S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/26/17 10:53
Analyst: TJ

Date Collected: 08/17/17 09:20
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/23/17 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.142	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	26		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-04
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 08/22/17 20:23
Analyst: KR

Date Collected: 08/17/17 09:00
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 17:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-04 Date Collected: 08/17/17 09:00

Client ID: MW-3D Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	43		15-110
Phenol-d6	34		15-110
Nitrobenzene-d5	69		30-130
2-Fluorobiphenyl	65		30-130
2,4,6-Tribromophenol	61		15-110
4-Terphenyl-d14	69		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-04
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 13:55
Analyst: DV

Date Collected: 08/17/17 09:00
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 18:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	0.42		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	ND		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	0.14		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	0.15		ug/l	0.10	--	1
Phenanthrene	0.34		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
2-Methylnaphthalene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1728873
Project Number: 0139-220813
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-04
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA
Date Collected: 08/17/17 09:00
Date Received: 08/17/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		15-110
Phenol-d6	39		15-110
Nitrobenzene-d5	84		30-130
2-Fluorobiphenyl	82		30-130
2,4,6-Tribromophenol	**114**	Q	15-110
4-Terphenyl-d14	70		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-04
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/26/17 11:35
Analyst: TJ

Date Collected: 08/17/17 09:00
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/23/17 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.142	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	24		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-05
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 08/22/17 20:49
Analyst: KR

Date Collected: 08/17/17 13:30
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 17:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-05 Date Collected: 08/17/17 13:30

Client ID: MW-4D Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	54		15-110
Phenol-d6	40		15-110
Nitrobenzene-d5	81		30-130
2-Fluorobiphenyl	74		30-130
2,4,6-Tribromophenol	73		15-110
4-Terphenyl-d14	73		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-05
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 14:23
Analyst: DV

Date Collected: 08/17/17 13:30
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 18:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	4.5		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	0.93		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	5.8		ug/l	0.10	--	1
Benzo(a)anthracene	0.12		ug/l	0.10	--	1
Benzo(a)pyrene	ND		ug/l	0.10	--	1
Benzo(b)fluoranthene	0.10		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	0.14		ug/l	0.10	--	1
Acenaphthylene	0.34		ug/l	0.10	--	1
Anthracene	0.94		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	3.3		ug/l	0.10	--	1
Phenanthrene	5.4		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	0.63		ug/l	0.10	--	1
2-Methylnaphthalene	2.0		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-05 Date Collected: 08/17/17 13:30

Client ID: MW-4D Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	50		15-110
Phenol-d6	42		15-110
Nitrobenzene-d5	91		30-130
2-Fluorobiphenyl	95		30-130
2,4,6-Tribromophenol	**134**	Q	15-110
4-Terphenyl-d14	77		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-05
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/26/17 12:17
Analyst: TJ

Date Collected: 08/17/17 13:30
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/23/17 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.142	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	26		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-06
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 08/22/17 21:14
Analyst: KR

Date Collected: 08/17/17 13:10
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 20:40

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-06 Date Collected: 08/17/17 13:10

Client ID: MW-4S Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	60		15-110
Phenol-d6	45		15-110
Nitrobenzene-d5	94		30-130
2-Fluorobiphenyl	79		30-130
2,4,6-Tribromophenol	75		15-110
4-Terphenyl-d14	75		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-06
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 14:52
Analyst: DV

Date Collected: 08/17/17 13:10
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 18:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	11		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	0.84		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	2.8		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	0.20		ug/l	0.10	--	1
Anthracene	1.5		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	6.6		ug/l	0.10	--	1
Phenanthrene	9.3		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	0.56		ug/l	0.10	--	1
2-Methylnaphthalene	1.2		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-06 Date Collected: 08/17/17 13:10

Client ID: MW-4S Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	58		15-110
Phenol-d6	47		15-110
Nitrobenzene-d5	105		30-130
2-Fluorobiphenyl	97		30-130
2,4,6-Tribromophenol	**131**	Q	15-110
4-Terphenyl-d14	78		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-06
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/26/17 12:59
Analyst: TJ

Date Collected: 08/17/17 13:10
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/23/17 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.147	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	25		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-07
Client ID: DUP-1
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 08/22/17 21:40
Analyst: KR

Date Collected: 08/17/17 00:00
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 20:40

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-07 Date Collected: 08/17/17 00:00

Client ID: DUP-1 Date Received: 08/17/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	51		15-110
Phenol-d6	37		15-110
Nitrobenzene-d5	79		30-130
2-Fluorobiphenyl	70		30-130
2,4,6-Tribromophenol	69		15-110
4-Terphenyl-d14	69		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-07
Client ID: DUP-1
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 15:20
Analyst: DV

Date Collected: 08/17/17 00:00
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 18:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	4.8		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	1.1		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	6.1		ug/l	0.10	--	1
Benzo(a)anthracene	0.18		ug/l	0.10	--	1
Benzo(a)pyrene	0.12		ug/l	0.10	--	1
Benzo(b)fluoranthene	0.16		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	0.21		ug/l	0.10	--	1
Acenaphthylene	0.34		ug/l	0.10	--	1
Anthracene	1.1		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	3.4		ug/l	0.10	--	1
Phenanthrene	6.0		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	0.75		ug/l	0.10	--	1
2-Methylnaphthalene	2.1		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1728873
Project Number: 0139-220813
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-07
Client ID: DUP-1
Sample Location: CAMBRIDGE, MA
Date Collected: 08/17/17 00:00
Date Received: 08/17/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	52		15-110
Phenol-d6	43		15-110
Nitrobenzene-d5	94		30-130
2-Fluorobiphenyl	94		30-130
2,4,6-Tribromophenol	**130**	Q	15-110
4-Terphenyl-d14	76		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-07
Client ID: DUP-1
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 08/26/17 13:06
Analyst: TJ

Date Collected: 08/17/17 00:00
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/24/17 12:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.144	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	18		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D
Analytical Date: 08/21/17 09:49
Analyst: EK

Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:52

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-07 Batch: WG1033450-1					
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--
1,2-Dichlorobenzene	ND		ug/l	2.0	--
1,3-Dichlorobenzene	ND		ug/l	2.0	--
1,4-Dichlorobenzene	ND		ug/l	2.0	--
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--
2,4-Dinitrotoluene	ND		ug/l	5.0	--
2,6-Dinitrotoluene	ND		ug/l	5.0	--
Azobenzene	ND		ug/l	2.0	--
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--
Isophorone	ND		ug/l	5.0	--
Nitrobenzene	ND		ug/l	2.0	--
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--
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	--
Aniline	ND		ug/l	2.0	--
4-Chloroaniline	ND		ug/l	5.0	--
Dibenzofuran	ND		ug/l	2.0	--
Acetophenone	ND		ug/l	5.0	--
2,4,6-Trichlorophenol	ND		ug/l	5.0	--
2-Chlorophenol	ND		ug/l	2.0	--
2,4-Dichlorophenol	ND		ug/l	5.0	--
2,4-Dimethylphenol	ND		ug/l	5.0	--
2-Nitrophenol	ND		ug/l	10	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D
Analytical Date: 08/21/17 09:49
Analyst: EK

Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:52

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-07 Batch: WG1033450-1					
4-Nitrophenol	ND		ug/l	10	--
2,4-Dinitrophenol	ND		ug/l	20	--
Phenol	ND		ug/l	5.0	--
2-Methylphenol	ND		ug/l	5.0	--
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--
2,4,5-Trichlorophenol	ND		ug/l	5.0	--
Pyridine	ND		ug/l	3.5	--
Tentatively Identified Compounds					
No Tentatively Identified Compounds	ND		ug/l		

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	54		15-110
Phenol-d6	38		15-110
Nitrobenzene-d5	94		30-130
2-Fluorobiphenyl	87		30-130
2,4,6-Tribromophenol	**111**	Q	15-110
4-Terphenyl-d14	107		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 09:09
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:54

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics by SIM - Westborough Lab for sample(s): 01-07 Batch: WG1033451-1					
Acenaphthene	ND		ug/l	0.10	--
2-Chloronaphthalene	ND		ug/l	0.20	--
Fluoranthene	ND		ug/l	0.10	--
Hexachlorobutadiene	ND		ug/l	0.50	--
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	--
2-Methylnaphthalene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	0.80	--
Hexachlorobenzene	ND		ug/l	0.80	--
Hexachloroethane	ND		ug/l	0.80	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 08/21/17 09:09
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 08/18/17 21:54

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics by SIM - Westborough Lab for sample(s): 01-07 Batch: WG1033451-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		15-110
Phenol-d6	36		15-110
Nitrobenzene-d5	89		30-130
2-Fluorobiphenyl	82		30-130
2,4,6-Tribromophenol	**112**	Q	15-110
4-Terphenyl-d14	82		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 08/25/17 20:41
Analyst: TJ

Extraction Method: EPA 3510C
Extraction Date: 08/23/17 17:00

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-06 Batch: WG1034721-1					
1,4-Dioxane	ND		ug/l	0.150	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	23		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 08/25/17 22:38
Analyst: TJ

Extraction Method: EPA 3510C
Extraction Date: 08/24/17 12:00

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 07 Batch: WG1035041-1					
1,4-Dioxane	ND		ug/l	0.150	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	23		15-110

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-07 Batch: WG1033450-2 WG1033450-3								
1,2,4-Trichlorobenzene	57		54		40-140	5		20
Bis(2-chloroethyl)ether	72		69		40-140	4		20
1,2-Dichlorobenzene	55		52		40-140	6		20
1,3-Dichlorobenzene	54		51		40-140	6		20
1,4-Dichlorobenzene	54		51		40-140	6		20
3,3'-Dichlorobenzidine	68		67		40-140	1		20
2,4-Dinitrotoluene	93		94		40-140	1		20
2,6-Dinitrotoluene	86		90		40-140	5		20
Azobenzene	86		84		40-140	2		20
4-Bromophenyl phenyl ether	77		75		40-140	3		20
Bis(2-chloroisopropyl)ether	61		58		40-140	5		20
Bis(2-chloroethoxy)methane	78		75		40-140	4		20
Isophorone	86		85		40-140	1		20
Nitrobenzene	79		77		40-140	3		20
Bis(2-ethylhexyl)phthalate	77		75		40-140	3		20
Butyl benzyl phthalate	81		89		40-140	9		20
Di-n-butylphthalate	90		90		40-140	0		20
Di-n-octylphthalate	75		75		40-140	0		20
Diethyl phthalate	88		89		40-140	1		20
Dimethyl phthalate	84		88		40-140	5		20
Aniline	48		54		40-140	12		20
4-Chloroaniline	60		63		40-140	5		20
Dibenzofuran	70		66		40-140	6		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728873

Report Date: 08/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-07 Batch: WG1033450-2 WG1033450-3								
Acetophenone	82		81		40-140	1		20
2,4,6-Trichlorophenol	85		85		30-130	0		20
2-Chlorophenol	72		71		30-130	1		20
2,4-Dichlorophenol	82		81		30-130	1		20
2,4-Dimethylphenol	99		97		30-130	2		20
2-Nitrophenol	84		82		30-130	2		20
4-Nitrophenol	54		55		30-130	2		20
2,4-Dinitrophenol	69		79		30-130	14		20
Phenol	37		36		30-130	3		20
2-Methylphenol	72		70		30-130	3		20
3-Methylphenol/4-Methylphenol	68		66		30-130	3		20
2,4,5-Trichlorophenol	85		87		30-130	2		20
Pyridine	**24**	Q	**30**	Q	40-140	**22**	Q	20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	52		50		15-110
Phenol-d6	38		37		15-110
Nitrobenzene-d5	86		84		30-130
2-Fluorobiphenyl	79		78		30-130
2,4,6-Tribromophenol	95		96		15-110
4-Terphenyl-d14	84		87		30-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

MCP Semivolatile Organics by SIM - Westborough Lab Associated sample(s): 01-07 Batch: WG1033451-2 WG1033451-3

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Acenaphthene	67		64		40-140	5		20
2-Chloronaphthalene	60		54		40-140	11		20
Fluoranthene	68		73		40-140	7		20
Hexachlorobutadiene	69		61		40-140	12		20
Naphthalene	63		55		40-140	14		20
Benzo(a)anthracene	83		90		40-140	8		20
Benzo(a)pyrene	84		91		40-140	8		20
Benzo(b)fluoranthene	80		86		40-140	7		20
Benzo(k)fluoranthene	82		93		40-140	13		20
Chrysene	89		95		40-140	7		20
Acenaphthylene	67		63		40-140	6		20
Anthracene	70		76		40-140	8		20
Benzo(ghi)perylene	93		92		40-140	1		20
Fluorene	68		67		40-140	1		20
Phenanthrene	72		76		40-140	5		20
Dibenzo(a,h)anthracene	91		94		40-140	3		20
Indeno(1,2,3-cd)pyrene	91		92		40-140	1		20
Pyrene	68		72		40-140	6		20
2-Methylnaphthalene	62		56		40-140	10		20
Pentachlorophenol	84		94		30-130	11		20
Hexachlorobenzene	86		92		40-140	7		20
Hexachloroethane	74		63		40-140	16		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728873

Report Date: 08/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics by SIM - Westborough Lab Associated sample(s): 01-07 Batch: WG1033451-2 WG1033451-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	41		47		15-110
Phenol-d6	32		43		15-110
Nitrobenzene-d5	80		70		30-130
2-Fluorobiphenyl	74		68		30-130
2,4,6-Tribromophenol	98		104		15-110
4-Terphenyl-d14	65		70		30-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728873

Report Date: 08/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab	Associated sample(s): 01-06		Batch: WG1034721-2		WG1034721-3			
1,4-Dioxane	123		127		40-140	3		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	31		28		15-110

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728873

Report Date: 08/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 07 Batch: WG1035041-2 WG1035041-3								
1,4-Dioxane	125		127		40-140	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	25		26		15-110

PETROLEUM HYDROCARBONS

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID:	L1728873-01	Date Collected:	08/16/17 15:30
Client ID:	MW-9D	Date Received:	08/17/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/19/17 08:10
Analytical Date:	08/21/17 04:56	Cleanup Method1:	EPH-04-1
Analyst:	NS	Cleanup Date1:	08/19/17

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	67		40-140
o-Terphenyl	97		40-140
2-Fluorobiphenyl	97		40-140
2-Bromonaphthalene	96		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID:	L1728873-02	Date Collected:	08/16/17 15:20
Client ID:	MW-9S	Date Received:	08/17/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/19/17 08:10
Analytical Date:	08/21/17 05:38	Cleanup Method1:	EPH-04-1
Analyst:	NS	Cleanup Date1:	08/19/17

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	62		40-140
o-Terphenyl	103		40-140
2-Fluorobiphenyl	106		40-140
2-Bromonaphthalene	105		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID:	L1728873-03	Date Collected:	08/17/17 09:20
Client ID:	MW-3S	Date Received:	08/17/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/19/17 08:10
Analytical Date:	08/21/17 06:20	Cleanup Method1:	EPH-04-1
Analyst:	NS	Cleanup Date1:	08/19/17

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	60		40-140
o-Terphenyl	96		40-140
2-Fluorobiphenyl	106		40-140
2-Bromonaphthalene	104		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID:	L1728873-04	Date Collected:	08/17/17 09:00
Client ID:	MW-3D	Date Received:	08/17/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/19/17 08:10
Analytical Date:	08/21/17 07:02	Cleanup Method1:	EPH-04-1
Analyst:	NS	Cleanup Date1:	08/19/17

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	54		40-140
o-Terphenyl	96		40-140
2-Fluorobiphenyl	102		40-140
2-Bromonaphthalene	101		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID:	L1728873-05	Date Collected:	08/17/17 13:30
Client ID:	MW-4D	Date Received:	08/17/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/19/17 08:10
Analytical Date:	08/21/17 07:43	Cleanup Method1:	EPH-04-1
Analyst:	NS	Cleanup Date1:	08/19/17

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	140		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	140		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	58		40-140
o-Terphenyl	104		40-140
2-Fluorobiphenyl	107		40-140
2-Bromonaphthalene	106		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID:	L1728873-06	Date Collected:	08/17/17 13:10
Client ID:	MW-4S	Date Received:	08/17/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/19/17 08:10
Analytical Date:	08/21/17 08:25	Cleanup Method1:	EPH-04-1
Analyst:	NS	Cleanup Date1:	08/19/17

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	173		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	149		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	56		40-140
o-Terphenyl	99		40-140
2-Fluorobiphenyl	103		40-140
2-Bromonaphthalene	103		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID:	L1728873-07	Date Collected:	08/17/17 00:00
Client ID:	DUP-1	Date Received:	08/17/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/19/17 08:10
Analytical Date:	08/21/17 09:07	Cleanup Method1:	EPH-04-1
Analyst:	NS	Cleanup Date1:	08/19/17

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	109		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	109		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	65		40-140
o-Terphenyl	83		40-140
2-Fluorobiphenyl	82		40-140
2-Bromonaphthalene	82		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 08/20/17 11:14
Analyst: SR

Extraction Method: EPA 3510C
Extraction Date: 08/18/17 08:23
Cleanup Method: EPH-04-1
Cleanup Date: 08/18/17

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-07 Batch: WG1033197-1					
C9-C18 Aliphatics	ND		ug/l	100	--
C19-C36 Aliphatics	ND		ug/l	100	--
C11-C22 Aromatics	ND		ug/l	100	--
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	59		40-140
o-Terphenyl	66		40-140
2-Fluorobiphenyl	59		40-140
2-Bromonaphthalene	58		40-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-07 Batch: WG1033197-2 WG1033197-3								
C9-C18 Aliphatics	71		67		40-140	6		25
C19-C36 Aliphatics	83		78		40-140	6		25
C11-C22 Aromatics	76		76		40-140	0		25
Naphthalene	55		54		40-140	2		25
2-Methylnaphthalene	59		59		40-140	0		25
Acenaphthylene	67		66		40-140	2		25
Acenaphthene	67		66		40-140	2		25
Fluorene	71		69		40-140	3		25
Phenanthrene	74		73		40-140	1		25
Anthracene	76		74		40-140	3		25
Fluoranthene	79		78		40-140	1		25
Pyrene	80		79		40-140	1		25
Benzo(a)anthracene	78		77		40-140	1		25
Chrysene	79		79		40-140	0		25
Benzo(b)fluoranthene	82		80		40-140	2		25
Benzo(k)fluoranthene	78		78		40-140	0		25
Benzo(a)pyrene	77		76		40-140	1		25
Indeno(1,2,3-cd)Pyrene	80		77		40-140	4		25
Dibenzo(a,h)anthracene	70		70		40-140	0		25
Benzo(ghi)perylene	71		71		40-140	0		25
Nonane (C9)	57		52		30-140	9		25
Decane (C10)	65		60		40-140	8		25
Dodecane (C12)	69		65		40-140	6		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-07 Batch: WG1033197-2 WG1033197-3								
Tetradecane (C14)	71		67		40-140	6		25
Hexadecane (C16)	75		71		40-140	5		25
Octadecane (C18)	80		75		40-140	6		25
Nonadecane (C19)	80		75		40-140	6		25
Eicosane (C20)	81		76		40-140	6		25
Docosane (C22)	82		77		40-140	6		25
Tetracosane (C24)	83		77		40-140	8		25
Hexacosane (C26)	83		77		40-140	8		25
Octacosane (C28)	83		77		40-140	8		25
Triacontane (C30)	82		77		40-140	6		25
Hexatriacontane (C36)	81		76		40-140	6		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	68		65		40-140
o-Terphenyl	80		79		40-140
2-Fluorobiphenyl	67		65		40-140
2-Bromonaphthalene	65		63		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

PCBS

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-01
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 08/21/17 05:59
Analyst: JW

Date Collected: 08/16/17 15:30
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 16:14
Cleanup Method: EPA 3665A
Cleanup Date: 08/20/17
Cleanup Method: EPA 3660B
Cleanup Date: 08/20/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	65		30-150	A
Decachlorobiphenyl	48		30-150	A
2,4,5,6-Tetrachloro-m-xylene	64		30-150	B
Decachlorobiphenyl	47		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-02
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 08/21/17 06:11
Analyst: JW

Date Collected: 08/16/17 15:20
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 16:14
Cleanup Method: EPA 3665A
Cleanup Date: 08/20/17
Cleanup Method: EPA 3660B
Cleanup Date: 08/20/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68		30-150	A
Decachlorobiphenyl	48		30-150	A
2,4,5,6-Tetrachloro-m-xylene	65		30-150	B
Decachlorobiphenyl	53		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-03
Client ID: MW-3S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 08/21/17 06:23
Analyst: JW

Date Collected: 08/17/17 09:20
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 16:14
Cleanup Method: EPA 3665A
Cleanup Date: 08/20/17
Cleanup Method: EPA 3660B
Cleanup Date: 08/20/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	73		30-150	A
Decachlorobiphenyl	52		30-150	A
2,4,5,6-Tetrachloro-m-xylene	64		30-150	B
Decachlorobiphenyl	56		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-04
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 08/21/17 06:35
Analyst: JW

Date Collected: 08/17/17 09:00
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 16:14
Cleanup Method: EPA 3665A
Cleanup Date: 08/20/17
Cleanup Method: EPA 3660B
Cleanup Date: 08/20/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	69		30-150	A
Decachlorobiphenyl	56		30-150	A
2,4,5,6-Tetrachloro-m-xylene	68		30-150	B
Decachlorobiphenyl	50		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-05
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 08/21/17 06:48
Analyst: JW

Date Collected: 08/17/17 13:30
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 16:14
Cleanup Method: EPA 3665A
Cleanup Date: 08/20/17
Cleanup Method: EPA 3660B
Cleanup Date: 08/20/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76		30-150	A
Decachlorobiphenyl	32		30-150	A
2,4,5,6-Tetrachloro-m-xylene	66		30-150	B
Decachlorobiphenyl	33		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-06
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 08/21/17 07:00
Analyst: JW

Date Collected: 08/17/17 13:10
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 16:14
Cleanup Method: EPA 3665A
Cleanup Date: 08/20/17
Cleanup Method: EPA 3660B
Cleanup Date: 08/20/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	80		30-150	A
Decachlorobiphenyl	50		30-150	A
2,4,5,6-Tetrachloro-m-xylene	66		30-150	B
Decachlorobiphenyl	43		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-07
Client ID: DUP-1
Sample Location: CAMBRIDGE, MA

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 08/21/17 07:13
Analyst: JW

Date Collected: 08/17/17 00:00
Date Received: 08/17/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 08/19/17 16:14
Cleanup Method: EPA 3665A
Cleanup Date: 08/20/17
Cleanup Method: EPA 3660B
Cleanup Date: 08/20/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	73		30-150	A
Decachlorobiphenyl	31		30-150	A
2,4,5,6-Tetrachloro-m-xylene	63		30-150	B
Decachlorobiphenyl	**28**	Q	30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8082A
Analytical Date: 08/21/17 09:16
Analyst: JW

Extraction Method: EPA 3510C
Extraction Date: 08/19/17 16:14
Cleanup Method: EPA 3665A
Cleanup Date: 08/20/17
Cleanup Method: EPA 3660B
Cleanup Date: 08/20/17

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 01-07 Batch: WG1033611-1						
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	0.250	--	A
Aroclor 1262	ND		ug/l	0.250	--	A
Aroclor 1268	ND		ug/l	0.250	--	A
PCBs, Total	ND		ug/l	0.250	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	58		30-150	A
Decachlorobiphenyl	59		30-150	A
2,4,5,6-Tetrachloro-m-xylene	57		30-150	B
Decachlorobiphenyl	48		30-150	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 01-07 Batch: WG1033611-2 WG1033611-3									
Aroclor 1016	60		65		40-140	8		20	A
Aroclor 1260	72		77		40-140	8		20	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	60		65		30-150	A
Decachlorobiphenyl	76		91		30-150	A
2,4,5,6-Tetrachloro-m-xylene	59		64		30-150	B
Decachlorobiphenyl	61		70		30-150	B

METALS

Project Name: TOBIN SCHOOL
Lab Number: L1728873
Project Number: 0139-220813
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-01
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA
Matrix: Water
Date Collected: 08/16/17 15:30
Date Received: 08/17/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.0040	--	1	08/21/17 10:15	08/22/17 15:37	EPA 3005A	97,6020A	AM
Arsenic, Total	0.028		mg/l	0.005	--	1	08/21/17 10:15	08/22/17 10:56	EPA 3005A	97,6010C	PS
Barium, Total	0.070		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 10:56	EPA 3005A	97,6010C	PS
Beryllium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 15:37	EPA 3005A	97,6020A	AM
Cadmium, Total	ND		mg/l	0.004	--	1	08/21/17 10:15	08/22/17 10:56	EPA 3005A	97,6010C	PS
Chromium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 10:56	EPA 3005A	97,6010C	PS
Lead, Total	0.011		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 10:56	EPA 3005A	97,6010C	PS
Mercury, Total	ND		mg/l	0.0002	--	1	08/21/17 10:25	08/21/17 14:50	EPA 7470A	97,7470A	MG
Nickel, Total	ND		mg/l	0.025	--	1	08/21/17 10:15	08/22/17 10:56	EPA 3005A	97,6010C	PS
Selenium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 10:56	EPA 3005A	97,6010C	PS
Silver, Total	ND		mg/l	0.007	--	1	08/21/17 10:15	08/22/17 10:56	EPA 3005A	97,6010C	PS
Thallium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 15:37	EPA 3005A	97,6020A	AM
Vanadium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 10:56	EPA 3005A	97,6010C	PS
Zinc, Total	ND		mg/l	0.050	--	1	08/21/17 10:15	08/22/17 10:56	EPA 3005A	97,6010C	PS

Project Name: TOBIN SCHOOL
Lab Number: L1728873
Project Number: 0139-220813
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-02
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA
Matrix: Water

Date Collected: 08/16/17 15:20
Date Received: 08/17/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.0040	--	1	08/21/17 10:15	08/22/17 15:41	EPA 3005A	97,6020A	AM
Arsenic, Total	0.006		mg/l	0.005	--	1	08/21/17 10:15	08/22/17 11:01	EPA 3005A	97,6010C	PS
Barium, Total	0.114		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:01	EPA 3005A	97,6010C	PS
Beryllium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 15:41	EPA 3005A	97,6020A	AM
Cadmium, Total	ND		mg/l	0.004	--	1	08/21/17 10:15	08/22/17 11:01	EPA 3005A	97,6010C	PS
Chromium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:01	EPA 3005A	97,6010C	PS
Lead, Total	0.026		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:01	EPA 3005A	97,6010C	PS
Mercury, Total	ND		mg/l	0.0002	--	1	08/21/17 10:25	08/21/17 14:51	EPA 7470A	97,7470A	MG
Nickel, Total	ND		mg/l	0.025	--	1	08/21/17 10:15	08/22/17 11:01	EPA 3005A	97,6010C	PS
Selenium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:01	EPA 3005A	97,6010C	PS
Silver, Total	ND		mg/l	0.007	--	1	08/21/17 10:15	08/22/17 11:01	EPA 3005A	97,6010C	PS
Thallium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 15:41	EPA 3005A	97,6020A	AM
Vanadium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:01	EPA 3005A	97,6010C	PS
Zinc, Total	ND		mg/l	0.050	--	1	08/21/17 10:15	08/22/17 11:01	EPA 3005A	97,6010C	PS

Project Name: TOBIN SCHOOL
Lab Number: L1728873
Project Number: 0139-220813
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-03
Client ID: MW-3S
Sample Location: CAMBRIDGE, MA
Matrix: Water
Date Collected: 08/17/17 09:20
Date Received: 08/17/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.0040	--	1	08/21/17 10:15	08/22/17 15:45	EPA 3005A	97,6020A	AM
Arsenic, Total	ND		mg/l	0.005	--	1	08/21/17 10:15	08/22/17 11:06	EPA 3005A	97,6010C	PS
Barium, Total	0.170		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:06	EPA 3005A	97,6010C	PS
Beryllium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 15:45	EPA 3005A	97,6020A	AM
Cadmium, Total	ND		mg/l	0.004	--	1	08/21/17 10:15	08/22/17 11:06	EPA 3005A	97,6010C	PS
Chromium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:06	EPA 3005A	97,6010C	PS
Lead, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:06	EPA 3005A	97,6010C	PS
Mercury, Total	ND		mg/l	0.0002	--	1	08/21/17 10:25	08/21/17 14:53	EPA 7470A	97,7470A	MG
Nickel, Total	ND		mg/l	0.025	--	1	08/21/17 10:15	08/22/17 11:06	EPA 3005A	97,6010C	PS
Selenium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:06	EPA 3005A	97,6010C	PS
Silver, Total	ND		mg/l	0.007	--	1	08/21/17 10:15	08/22/17 11:06	EPA 3005A	97,6010C	PS
Thallium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 15:45	EPA 3005A	97,6020A	AM
Vanadium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:06	EPA 3005A	97,6010C	PS
Zinc, Total	ND		mg/l	0.050	--	1	08/21/17 10:15	08/22/17 11:06	EPA 3005A	97,6010C	PS

Project Name: TOBIN SCHOOL
Lab Number: L1728873
Project Number: 0139-220813
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-04
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA
Matrix: Water
Date Collected: 08/17/17 09:00
Date Received: 08/17/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.0040	--	1	08/21/17 10:15	08/22/17 15:49	EPA 3005A	97,6020A	AM
Arsenic, Total	0.008		mg/l	0.005	--	1	08/21/17 10:15	08/22/17 11:10	EPA 3005A	97,6010C	PS
Barium, Total	0.303		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:10	EPA 3005A	97,6010C	PS
Beryllium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 15:49	EPA 3005A	97,6020A	AM
Cadmium, Total	ND		mg/l	0.004	--	1	08/21/17 10:15	08/22/17 11:10	EPA 3005A	97,6010C	PS
Chromium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:10	EPA 3005A	97,6010C	PS
Lead, Total	0.067		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:10	EPA 3005A	97,6010C	PS
Mercury, Total	ND		mg/l	0.0002	--	1	08/21/17 10:25	08/21/17 14:59	EPA 7470A	97,7470A	MG
Nickel, Total	ND		mg/l	0.025	--	1	08/21/17 10:15	08/22/17 11:10	EPA 3005A	97,6010C	PS
Selenium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:10	EPA 3005A	97,6010C	PS
Silver, Total	ND		mg/l	0.007	--	1	08/21/17 10:15	08/22/17 11:10	EPA 3005A	97,6010C	PS
Thallium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 15:49	EPA 3005A	97,6020A	AM
Vanadium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:10	EPA 3005A	97,6010C	PS
Zinc, Total	0.054		mg/l	0.050	--	1	08/21/17 10:15	08/22/17 11:10	EPA 3005A	97,6010C	PS

Project Name: TOBIN SCHOOL
Lab Number: L1728873
Project Number: 0139-220813
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-05
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA
Matrix: Water

Date Collected: 08/17/17 13:30
Date Received: 08/17/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.0040	--	1	08/21/17 10:15	08/22/17 15:53	EPA 3005A	97,6020A	AM
Arsenic, Total	0.006		mg/l	0.005	--	1	08/21/17 10:15	08/22/17 11:15	EPA 3005A	97,6010C	PS
Barium, Total	0.608		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:15	EPA 3005A	97,6010C	PS
Beryllium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 15:53	EPA 3005A	97,6020A	AM
Cadmium, Total	ND		mg/l	0.004	--	1	08/21/17 10:15	08/22/17 11:15	EPA 3005A	97,6010C	PS
Chromium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:15	EPA 3005A	97,6010C	PS
Lead, Total	0.031		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:15	EPA 3005A	97,6010C	PS
Mercury, Total	ND		mg/l	0.0002	--	1	08/21/17 10:25	08/21/17 15:01	EPA 7470A	97,7470A	MG
Nickel, Total	ND		mg/l	0.025	--	1	08/21/17 10:15	08/22/17 11:15	EPA 3005A	97,6010C	PS
Selenium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:15	EPA 3005A	97,6010C	PS
Silver, Total	ND		mg/l	0.007	--	1	08/21/17 10:15	08/22/17 11:15	EPA 3005A	97,6010C	PS
Thallium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 15:53	EPA 3005A	97,6020A	AM
Vanadium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:15	EPA 3005A	97,6010C	PS
Zinc, Total	ND		mg/l	0.050	--	1	08/21/17 10:15	08/22/17 11:15	EPA 3005A	97,6010C	PS

Project Name: TOBIN SCHOOL
Lab Number: L1728873
Project Number: 0139-220813
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-06
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA
Matrix: Water

Date Collected: 08/17/17 13:10
Date Received: 08/17/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.0040	--	1	08/21/17 10:15	08/22/17 15:57	EPA 3005A	97,6020A	AM
Arsenic, Total	0.009		mg/l	0.005	--	1	08/21/17 10:15	08/22/17 11:19	EPA 3005A	97,6010C	PS
Barium, Total	0.716		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:19	EPA 3005A	97,6010C	PS
Beryllium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 15:57	EPA 3005A	97,6020A	AM
Cadmium, Total	ND		mg/l	0.004	--	1	08/21/17 10:15	08/22/17 11:19	EPA 3005A	97,6010C	PS
Chromium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:19	EPA 3005A	97,6010C	PS
Lead, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:19	EPA 3005A	97,6010C	PS
Mercury, Total	ND		mg/l	0.0002	--	1	08/21/17 10:25	08/21/17 15:02	EPA 7470A	97,7470A	MG
Nickel, Total	ND		mg/l	0.025	--	1	08/21/17 10:15	08/22/17 11:19	EPA 3005A	97,6010C	PS
Selenium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:19	EPA 3005A	97,6010C	PS
Silver, Total	ND		mg/l	0.007	--	1	08/21/17 10:15	08/22/17 11:19	EPA 3005A	97,6010C	PS
Thallium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 15:57	EPA 3005A	97,6020A	AM
Vanadium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:19	EPA 3005A	97,6010C	PS
Zinc, Total	ND		mg/l	0.050	--	1	08/21/17 10:15	08/22/17 11:19	EPA 3005A	97,6010C	PS

Project Name: TOBIN SCHOOL
Lab Number: L1728873
Project Number: 0139-220813
Report Date: 08/28/17

SAMPLE RESULTS

Lab ID: L1728873-07
Client ID: DUP-1
Sample Location: CAMBRIDGE, MA
Matrix: Water

Date Collected: 08/17/17 00:00
Date Received: 08/17/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.0040	--	1	08/21/17 10:15	08/22/17 16:01	EPA 3005A	97,6020A	AM
Arsenic, Total	0.006		mg/l	0.005	--	1	08/21/17 10:15	08/22/17 11:24	EPA 3005A	97,6010C	PS
Barium, Total	0.600		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:24	EPA 3005A	97,6010C	PS
Beryllium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 16:01	EPA 3005A	97,6020A	AM
Cadmium, Total	ND		mg/l	0.004	--	1	08/21/17 10:15	08/22/17 11:24	EPA 3005A	97,6010C	PS
Chromium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:24	EPA 3005A	97,6010C	PS
Lead, Total	0.029		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:24	EPA 3005A	97,6010C	PS
Mercury, Total	ND		mg/l	0.0002	--	1	08/21/17 10:25	08/21/17 15:04	EPA 7470A	97,7470A	MG
Nickel, Total	ND		mg/l	0.025	--	1	08/21/17 10:15	08/22/17 11:24	EPA 3005A	97,6010C	PS
Selenium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:24	EPA 3005A	97,6010C	PS
Silver, Total	ND		mg/l	0.007	--	1	08/21/17 10:15	08/22/17 11:24	EPA 3005A	97,6010C	PS
Thallium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 16:01	EPA 3005A	97,6020A	AM
Vanadium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 11:24	EPA 3005A	97,6010C	PS
Zinc, Total	ND		mg/l	0.050	--	1	08/21/17 10:15	08/22/17 11:24	EPA 3005A	97,6010C	PS

Project Name: TOBIN SCHOOL **Lab Number:** L1728873

Project Number: 0139-220813 **Report Date:** 08/28/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01-07 Batch: WG1033815-1										
Mercury, Total	ND		mg/l	0.0002	--	1	08/21/17 10:25	08/21/17 14:44	97,7470A	MG

Prep Information

Digestion Method: EPA 7470A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01-07 Batch: WG1033821-1										
Arsenic, Total	ND		mg/l	0.005	--	1	08/21/17 10:15	08/22/17 10:43	97,6010C	PS
Barium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 10:43	97,6010C	PS
Cadmium, Total	ND		mg/l	0.004	--	1	08/21/17 10:15	08/22/17 10:43	97,6010C	PS
Chromium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 10:43	97,6010C	PS
Lead, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 10:43	97,6010C	PS
Nickel, Total	ND		mg/l	0.025	--	1	08/21/17 10:15	08/22/17 10:43	97,6010C	PS
Selenium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 10:43	97,6010C	PS
Silver, Total	ND		mg/l	0.007	--	1	08/21/17 10:15	08/22/17 10:43	97,6010C	PS
Vanadium, Total	ND		mg/l	0.010	--	1	08/21/17 10:15	08/22/17 10:43	97,6010C	PS
Zinc, Total	ND		mg/l	0.050	--	1	08/21/17 10:15	08/22/17 10:43	97,6010C	PS

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01-07 Batch: WG1033822-1										
Antimony, Total	ND		mg/l	0.0040	--	1	08/21/17 10:15	08/22/17 15:25	97,6020A	AM
Beryllium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 15:25	97,6020A	AM
Thallium, Total	ND		mg/l	0.0005	--	1	08/21/17 10:15	08/22/17 15:25	97,6020A	AM

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1728873
Report Date: 08/28/17

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1728873

Report Date: 08/28/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 01-07 Batch: WG1033815-2 WG1033815-3								
Mercury, Total	92		86		80-120	7		20
MCP Total Metals - Mansfield Lab Associated sample(s): 01-07 Batch: WG1033821-2 WG1033821-3								
Arsenic, Total	113		108		80-120	5		20
Barium, Total	108		106		80-120	2		20
Cadmium, Total	112		110		80-120	2		20
Chromium, Total	106		103		80-120	3		20
Lead, Total	104		102		80-120	2		20
Nickel, Total	107		105		80-120	2		20
Selenium, Total	112		110		80-120	2		20
Silver, Total	104		102		80-120	2		20
Vanadium, Total	108		105		80-120	3		20
Zinc, Total	110		108		80-120	2		20
MCP Total Metals - Mansfield Lab Associated sample(s): 01-07 Batch: WG1033822-2 WG1033822-3								
Antimony, Total	100		102		80-120	2		20
Beryllium, Total	102		102		80-120	0		20
Thallium, Total	95		94		80-120	1		20

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent
E	Absent
F	Absent
G	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1728873-01A	Vial HCl preserved	D	NA		3.5	Y	Absent		MCP-8260-10(14)
L1728873-01B	Vial HCl preserved	D	NA		3.5	Y	Absent		MCP-8260-10(14)
L1728873-01C	Vial HCl preserved	D	NA		3.5	Y	Absent		MCP-8260-10(14)
L1728873-01D	Plastic 250ml HNO3 preserved	D	<2	<2	3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-BE-6020T-10(180),MCP-7470T-10(28),MCP-AS-6010T-10(180),MCP-TL-6020T-10(180),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-SB-6020T-10(180),MCP-V-6010T-10(180),MCP-NI-6010T-10(180),MCP-PB-6010T-10(180)
L1728873-01E	Amber 500ml unpreserved	D	7	7	3.5	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728873-01F	Amber 500ml unpreserved	D	7	7	3.5	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728873-01G	Amber 1000ml unpreserved	D	7	7	3.5	Y	Absent		MCP-8082-10(365)
L1728873-01H	Amber 1000ml unpreserved	D	7	7	3.5	Y	Absent		MCP-8082-10(365)
L1728873-01I	Amber 1000ml unpreserved	D	7	7	3.5	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728873-01J	Amber 1000ml unpreserved	D	7	7	3.5	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728873-01K	Amber 1000ml HCl preserved	D	<2	<2	3.5	Y	Absent		EPH-10(14)
L1728873-01L	Amber 1000ml HCl preserved	D	<2	<2	3.5	Y	Absent		EPH-10(14)
L1728873-02A	Vial HCl preserved	G	NA		3.2	Y	Absent		MCP-8260-10(14)

*Values in parentheses indicate holding time in days

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1728873-02B	Vial HCl preserved	G	NA		3.2	Y	Absent		MCP-8260-10(14)
L1728873-02C	Vial HCl preserved	G	NA		3.2	Y	Absent		MCP-8260-10(14)
L1728873-02D	Plastic 250ml HNO3 preserved	G	<2	<2	3.2	Y	Absent		MCP-CR-6010T-10(180),MCP-BE-6020T-10(180),MCP-7470T-10(28),MCP-AS-6010T-10(180),MCP-TL-6020T-10(180),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-SB-6020T-10(180),MCP-V-6010T-10(180),MCP-NI-6010T-10(180),MCP-PB-6010T-10(180)
L1728873-02E	Amber 500ml unpreserved	G	7	7	3.2	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728873-02F	Amber 500ml unpreserved	G	7	7	3.2	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728873-02G	Amber 1000ml unpreserved	G	7	7	3.2	Y	Absent		MCP-8082-10(365)
L1728873-02H	Amber 1000ml unpreserved	G	7	7	3.2	Y	Absent		MCP-8082-10(365)
L1728873-02I	Amber 1000ml unpreserved	G	7	7	3.2	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728873-02J	Amber 1000ml unpreserved	G	7	7	3.2	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728873-02K	Amber 1000ml HCl preserved	G	<2	<2	3.2	Y	Absent		EPH-10(14)
L1728873-02L	Amber 1000ml HCl preserved	G	<2	<2	3.2	Y	Absent		EPH-10(14)
L1728873-03A	Vial HCl preserved	A	NA		4.2	Y	Absent		MCP-8260-10(14)
L1728873-03B	Vial HCl preserved	A	NA		4.2	Y	Absent		MCP-8260-10(14)
L1728873-03C	Vial HCl preserved	A	NA		4.2	Y	Absent		MCP-8260-10(14)
L1728873-03D	Plastic 250ml HNO3 preserved	A	<2	<2	4.2	Y	Absent		MCP-CR-6010T-10(180),MCP-BE-6020T-10(180),MCP-7470T-10(28),MCP-AS-6010T-10(180),MCP-TL-6020T-10(180),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-SB-6020T-10(180),MCP-V-6010T-10(180),MCP-NI-6010T-10(180),MCP-PB-6010T-10(180)
L1728873-03E	Amber 500ml unpreserved	A	7	7	4.2	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728873-03F	Amber 500ml unpreserved	A	7	7	4.2	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728873-03G	Amber 1000ml unpreserved	A	7	7	4.2	Y	Absent		MCP-8082-10(365)
L1728873-03H	Amber 1000ml unpreserved	A	7	7	4.2	Y	Absent		MCP-8082-10(365)
L1728873-03I	Amber 1000ml unpreserved	A	7	7	4.2	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728873-03J	Amber 1000ml unpreserved	A	7	7	4.2	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)

*Values in parentheses indicate holding time in days

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1728873-03K	Amber 1000ml HCl preserved	A	<2	<2	4.2	Y	Absent		EPH-10(14)
L1728873-03L	Amber 1000ml HCl preserved	A	<2	<2	4.2	Y	Absent		EPH-10(14)
L1728873-04A	Vial HCl preserved	C	NA		4.2	Y	Absent		MCP-8260-10(14)
L1728873-04B	Vial HCl preserved	C	NA		4.2	Y	Absent		MCP-8260-10(14)
L1728873-04C	Vial HCl preserved	C	NA		4.2	Y	Absent		MCP-8260-10(14)
L1728873-04D	Plastic 250ml HNO3 preserved	C	<2	<2	4.2	Y	Absent		MCP-CR-6010T-10(180),MCP-BE-6020T-10(180),MCP-7470T-10(28),MCP-AS-6010T-10(180),MCP-TL-6020T-10(180),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-SB-6020T-10(180),MCP-V-6010T-10(180),MCP-NI-6010T-10(180),MCP-PB-6010T-10(180)
L1728873-04E	Amber 500ml unpreserved	C	7	7	4.2	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728873-04F	Amber 500ml unpreserved	C	7	7	4.2	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728873-04G	Amber 1000ml unpreserved	C	7	7	4.2	Y	Absent		MCP-8082-10(365)
L1728873-04H	Amber 1000ml unpreserved	C	7	7	4.2	Y	Absent		MCP-8082-10(365)
L1728873-04I	Amber 1000ml unpreserved	C	7	7	4.2	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728873-04J	Amber 1000ml unpreserved	C	7	7	4.2	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728873-04K	Amber 1000ml HCl preserved	C	<2	<2	4.2	Y	Absent		EPH-10(14)
L1728873-04L	Amber 1000ml HCl preserved	C	<2	<2	4.2	Y	Absent		EPH-10(14)
L1728873-05A	Vial HCl preserved	B	NA		2.0	Y	Absent		MCP-8260-10(14)
L1728873-05B	Vial HCl preserved	B	NA		2.0	Y	Absent		MCP-8260-10(14)
L1728873-05C	Vial HCl preserved	B	NA		2.0	Y	Absent		MCP-8260-10(14)
L1728873-05D	Plastic 250ml HNO3 preserved	B	<2	<2	2.0	Y	Absent		MCP-CR-6010T-10(180),MCP-BE-6020T-10(180),MCP-7470T-10(28),MCP-AS-6010T-10(180),MCP-TL-6020T-10(180),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-SB-6020T-10(180),MCP-V-6010T-10(180),MCP-NI-6010T-10(180),MCP-PB-6010T-10(180)
L1728873-05E	Amber 500ml unpreserved	B	7	7	2.0	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728873-05F	Amber 500ml unpreserved	B	7	7	2.0	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728873-05G	Amber 1000ml unpreserved	B	7	7	2.0	Y	Absent		MCP-8082-10(365)

*Values in parentheses indicate holding time in days

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1728873-05H	Amber 1000ml unpreserved	B	7	7	2.0	Y	Absent		MCP-8082-10(365)
L1728873-05I	Amber 1000ml unpreserved	B	7	7	2.0	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728873-05J	Amber 1000ml unpreserved	B	7	7	2.0	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728873-05K	Amber 1000ml HCl preserved	B	<2	<2	2.0	Y	Absent		EPH-10(14)
L1728873-05L	Amber 1000ml HCl preserved	B	<2	<2	2.0	Y	Absent		EPH-10(14)
L1728873-06A	Vial HCl preserved	F	NA		5.0	Y	Absent		MCP-8260-10(14)
L1728873-06B	Vial HCl preserved	F	NA		5.0	Y	Absent		MCP-8260-10(14)
L1728873-06C	Vial HCl preserved	F	NA		5.0	Y	Absent		MCP-8260-10(14)
L1728873-06D	Plastic 250ml HNO3 preserved	F	<2	<2	5.0	Y	Absent		MCP-CR-6010T-10(180),MCP-BE-6020T-10(180),MCP-7470T-10(28),MCP-AS-6010T-10(180),MCP-TL-6020T-10(180),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-SB-6020T-10(180),MCP-V-6010T-10(180),MCP-NI-6010T-10(180),MCP-PB-6010T-10(180)
L1728873-06E	Amber 500ml unpreserved	F	7	7	5.0	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728873-06F	Amber 500ml unpreserved	F	7	7	5.0	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728873-06G	Amber 1000ml unpreserved	F	7	7	5.0	Y	Absent		MCP-8082-10(365)
L1728873-06H	Amber 1000ml unpreserved	F	7	7	5.0	Y	Absent		MCP-8082-10(365)
L1728873-06I	Amber 1000ml unpreserved	F	7	7	5.0	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728873-06J	Amber 1000ml unpreserved	F	7	7	5.0	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728873-06K	Amber 1000ml HCl preserved	F	<2	<2	5.0	Y	Absent		EPH-10(14)
L1728873-06L	Amber 1000ml HCl preserved	F	<2	<2	5.0	Y	Absent		EPH-10(14)
L1728873-07A	Vial HCl preserved	E	NA		3.4	Y	Absent		MCP-8260-10(14)
L1728873-07B	Vial HCl preserved	E	NA		3.4	Y	Absent		MCP-8260-10(14)
L1728873-07C	Vial HCl preserved	E	NA		3.4	Y	Absent		MCP-8260-10(14)
L1728873-07D	Plastic 250ml HNO3 preserved	E	<2	<2	3.4	Y	Absent		MCP-CR-6010T-10(180),MCP-BE-6020T-10(180),MCP-7470T-10(28),MCP-AS-6010T-10(180),MCP-TL-6020T-10(180),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-SB-6020T-10(180),MCP-V-6010T-10(180),MCP-NI-6010T-10(180),MCP-PB-6010T-10(180)

*Values in parentheses indicate holding time in days

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1728873
Report Date: 08/28/17

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1728873-07E	Amber 500ml unpreserved	E	7	7	3.4	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728873-07F	Amber 500ml unpreserved	E	7	7	3.4	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1728873-07G	Amber 1000ml unpreserved	E	7	7	3.4	Y	Absent		MCP-8082-10(365)
L1728873-07H	Amber 1000ml unpreserved	E	7	7	3.4	Y	Absent		MCP-8082-10(365)
L1728873-07I	Amber 1000ml unpreserved	E	7	7	3.4	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728873-07J	Amber 1000ml unpreserved	E	7	7	3.4	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1728873-07K	Amber 1000ml HCl preserved	E	<2	<2	3.4	Y	Absent		EPH-10(14)
L1728873-07L	Amber 1000ml HCl preserved	E	<2	<2	3.4	Y	Absent		EPH-10(14)
L1728873-08A	Vial HCl preserved	E	NA		3.4	Y	Absent		MCP-8260-10(14)
L1728873-08B	Vial HCl preserved	E	NA		3.4	Y	Absent		MCP-8260-10(14)

*Values in parentheses indicate holding time in days

Project Name:	TOBIN SCHOOL	**Lab Number:**	L1728873
Project Number:	0139-220813	**Report Date:**	08/28/17

GLOSSARY

Acronyms

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

Footnotes

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

Terms

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

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

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

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

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

Data Qualifiers

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

Report Format: Data Usability Report

Project Name:	TOBIN SCHOOL	**Lab Number:**	L1728873
Project Number:	0139-220813	**Report Date:**	08/28/17

Data Qualifiers

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

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

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

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

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

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

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

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

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

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

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

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

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

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

Report Format: Data Usability Report

Project Name:	TOBIN SCHOOL	**Lab Number:**	L1728873
Project Number:	0139-220813	**Report Date:**	08/28/17

REFERENCES

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

98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.

LIMITATION OF LIABILITIES

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

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

Certification Information

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

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
SM 2540D: TSS
EPA 3005A NPW
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: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **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, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.**

Mansfield Facility:

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

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

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

CHAIN OF CUSTODY

PAGE 1 OF 1

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

Date Rec'd in Lab: 8/17/17

ALPHA Job #: L1728873

Client Information
Client: COM Smith
Address: 75 State St. Suite 701, Boston, MA 02109
Phone: 617-452-6721
Email: castonguay.nicholas@comsmith.com

Project Information
Project Name: Tobin School
Project Location: Cambridge, MA
Project #: 0139-220813
Project Manager: Jill Greene
ALPHA Quote #:

Turn-Around Time
☑ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due:

Report Information - Data Deliverables
☑ ADEx ☑ EMAIL

Billing Information
☐ Same as Client info PO #:

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 _____

Additional Project Information:
- MWs meet MassDEP GW-1 Standards
- MCP Presumptive Certainty Required

ANALYSIS

VOC: ☑ 8260 ☐ 624 ☐ 524.2
SVOC: ☑ ABN ☐ PAH
METALS: ☐ MCP 13 ☑ MCP 14 ☐ RCP 15
METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13
EPH: ☐ Ranges & Targets ☑ Ranges Only
VPH: ☐ Ranges & Targets ☐ Ranges Only
☑ PCB ☐ PEST
TPH: ☐ Quant Only ☐ Fingerprint
1,4-Dioxane 8270D-SIM

SAMPLE INFO
Filtration ☐ Field ☐ Lab to do
Preservation ☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	VOC	SVOC	METALS	METALS	EPH	VPH	PCB	TPH	1,4-D						Sample Comments	TOTAL # BOTTLES
28873-01	MW-9D	8/16/17	15:30	GW	BB	✓	✓	✓		✓	✓	✓	✓	✓							12
02	MW-9S	8/16/17	15:20		MC	✓	✓	✓		✓	✓	✓	✓	✓							12
03	MW-3S	8/17/17	09:20			✓	✓	✓		✓	✓	✓	✓	✓							12
04	MW-3D		09:00			✓	✓	✓		✓	✓	✓	✓	✓							12
05	MW-4D		13:30			✓	✓	✓		✓	✓	✓	✓	✓							12
06	MW-4S		13:10			✓	✓	✓		✓	✓	✓	✓	✓							12
07	Dup-1		—	↓	↓	✓	✓	✓		✓	—	✓	✓	✓							12
08	Trip blank	↓	—	TB	—	✓															1
Container Type						V	A	P		A		A		A							
Preservative						B	B	C		B		B		A							

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

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

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] AAC	8/17/17 15:20	[signature] AAC	8/17/17 1520
[signature]	8/17/17 1810	[signature] Danielle Mata	8/17 18:10

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

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

Method Blank Summary
Form 4

Client	: CDM Smith, Inc.	**Lab Number**	: L1728873
Project Name	: TOBIN SCHOOL	**Project Number**	: 0139-220813
Lab Sample ID	: WG1034493-5	**Lab File ID**	: VJ170822N04
Instrument ID	: JACK		
Matrix	: WATER	**Analysis Date**	: 08/22/17 17:53

Client Sample No.	Lab Sample ID	Analysis Date
WG1034493-3LCS	WG1034493-3	08/22/17 16:22
WG1034493-4LCSD	WG1034493-4	08/22/17 16:53
TRIP BLANK	L1728873-08	08/22/17 18:54
MW-9D	L1728873-01D	08/22/17 19:55
MW-9S	L1728873-02	08/22/17 20:26
MW-3S	L1728873-03	08/22/17 20:56
MW-3D	L1728873-04	08/22/17 21:26
MW-4D	L1728873-05	08/22/17 21:57
MW-4S	L1728873-06	08/22/17 22:27
DUP-1	L1728873-07	08/22/17 22:58

Continuing Calibration
Form 7

Client	: CDM Smith, Inc.	**Lab Number**	: L1728873		
Project Name	: TOBIN SCHOOL	**Project Number**	: 0139-220813		
Instrument ID	: JACK	**Calibration Date**	: 08/22/17 16:22		
Lab File ID	: VJ170822N01	**Init. Calib. Date(s)**	: 08/18/17	08/18/17	
Sample No	: WG1034493-2	**Init. Calib. Times**	: 03:55	07:29	
Channel	:				

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	10	10	-	0	20	82	0
Dichlorodifluoromethane	0.529	0.591	-	-11.7	20	90	0
Chloromethane	0.89	1.045	-	-17.4	20	96	0
Vinyl chloride	0.776	0.935	-	-20.5*	20	96	0
Bromomethane	10	9.741	-	2.6	20	72	0
Chloroethane	10	11.75	-	-17.5	20	103	0
Trichlorofluoromethane	0.684	0.779	-	-13.9	20	91	-.01
Ethyl ether	0.279	0.32	-	-14.7	20	94	-.02
1,1-Dichloroethene	0.441	0.541	-	-22.7*	20	96	-.02
Carbon disulfide	1.428	1.555	-	-8.9	20	94	-.02
Methylene chloride	0.546	0.667	-	-22.2*	20	101	-.02
Acetone	10	12.466	-	-24.7*	20	99	-.03
trans-1,2-Dichloroethene	0.504	0.612	-	-21.4*	20	99	-.02
Methyl tert-butyl ether	1.302	1.521	-	-16.8	20	92	-.02
Diisopropyl ether	2.238	2.639	-	-17.9	20	96	-.01
1,1-Dichloroethane	1.12	1.387	-	-23.8*	20	104	-.02
Ethyl tert-butyl ether	1.709	2.002	-	-17.1	20	96	-.02
cis-1,2-Dichloroethene	0.537	0.675	-	-25.7*	20	104	-.01
2,2-Dichloropropane	0.845	1.016	-	-20.2*	20	97	-.01
Bromochloromethane	0.21	0.248	-	-18.1	20	96	-.01
Chloroform	0.93	1.156	-	-24.3*	20	99	-.01
Carbon tetrachloride	0.584	0.666	-	-14	20	94	-.02
Tetrahydrofuran	0.181	0.194	-	-7.2	20	91	0
Dibromofluoromethane	0.217	0.234	-	-7.8	20	87	0
1,1,1-Trichloroethane	0.794	0.908	-	-14.4	20	95	-.02
2-Butanone	0.227	0.245	-	-7.9	20	85	0
1,1-Dichloropropene	0.852	1.007	-	-18.2	20	96	-.02
Benzene	2.591	2.97	-	-14.6	20	98	-.01
tert-Amyl methyl ether	1.41	1.598	-	-13.3	20	95	-.01
1,2-Dichloroethane-d4	0.304	0.285	-	6.3	20	80	-.01
1,2-Dichloroethane	0.695	0.826	-	-18.8	20	96	-.01
Trichloroethene	0.582	0.67	-	-15.1	20	97	0
Dibromomethane	0.275	0.314	-	-14.2	20	92	0
1,2-Dichloropropane	0.677	0.795	-	-17.4	20	97	0
Bromodichloromethane	0.707	0.792	-	-12	20	93	0
1,4-Dioxane	0.00481	0.00487*	-	-1.2	20	90	0
cis-1,3-Dichloropropene	10	9.98	-	0.2	20	95	0
Chlorobenzene-d5	1	1	-	0	20	107	0
Toluene-d8	1.139	1.01	-	11.3	20	92	-.02
Toluene	1.473	1.426	-	3.2	20	100	-.01
4-Methyl-2-pentanone	0.165	0.145	-	12.1	20	93	-.02
Tetrachloroethene	0.544	0.508	-	6.6	20	98	-.02
trans-1,3-Dichloropropene	0.784	0.723	-	7.8	20	95	-.02
1,1,2-Trichloroethane	0.387	0.356	-	8	20	92	-.02
Chlorodibromomethane	0.418	0.367	-	12.2	20	94	0

* Value outside of QC limits.

Continuing Calibration
Form 7

Client	: CDM Smith, Inc.	**Lab Number**	: L1728873		
Project Name	: TOBIN SCHOOL	**Project Number**	: 0139-220813		
Instrument ID	: JACK	**Calibration Date**	: 08/22/17 16:22		
Lab File ID	: VJ170822N01	**Init. Calib. Date(s)**	: 08/18/17	08/18/17	
Sample No	: WG1034493-2	**Init. Calib. Times**	: 03:55	07:29	
Channel	:				

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,3-Dichloropropane	0.837	0.764	-	8.7	20	95	-.02
1,2-Dibromoethane	0.398	0.354	-	11.1	20	93	-.01
2-Hexanone	0.313	0.279	-	10.9	20	92	0
Chlorobenzene	1.594	1.512	-	5.1	20	101	0
Ethylbenzene	3.12	2.909	-	6.8	20	98	0
1,1,1,2-Tetrachloroethane	0.487	0.431	-	11.5	20	92	0
p/m Xylene	20	18.374	-	8.1	20	101	0
o Xylene	1.135	1.042	-	8.2	20	99	0
Styrene	1.958	1.853	-	5.4	20	100	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	110	0
Bromoform	0.46	0.345	-	25*	20	89	-.01
Isopropylbenzene	5.333	4.841	-	9.2	20	101	-.01
4-Bromofluorobenzene	1.013	0.987	-	2.6	20	110	0
Bromobenzene	1.062	0.984	-	7.3	20	105	0
n-Propylbenzene	6.629	5.959	-	10.1	20	100	0
1,1,2,2-Tetrachloroethane	0.997	0.872	-	12.5	20	91	0
2-Chlorotoluene	4.298	3.902	-	9.2	20	102	0
1,3,5-Trimethylbenzene	4.169	3.765	-	9.7	20	100	0
1,2,3-Trichloropropane	0.853	0.742	-	13	20	92	0
4-Chlorotoluene	4.073	3.685	-	9.5	20	100	0
tert-Butylbenzene	3.374	3.057	-	9.4	20	100	0
1,2,4-Trimethylbenzene	4.218	3.9	-	7.5	20	102	0
sec-Butylbenzene	4.804	4.367	-	9.1	20	100	0
p-Isopropyltoluene	3.919	3.713	-	5.3	20	105	0
1,3-Dichlorobenzene	2.186	2.02	-	7.6	20	102	0
1,4-Dichlorobenzene	2.184	1.93	-	11.6	20	97	0
n-Butylbenzene	3.544	3.395	-	4.2	20	101	0
1,2-Dichlorobenzene	2.022	1.868	-	7.6	20	102	0
1,2-Dibromo-3-chloropropan	0.128	0.106	-	17.2	20	95	0
Hexachlorobutadiene	0.339	0.354	-	-4.4	20	106	0
1,2,4-Trichlorobenzene	10	9.468	-	5.3	20	103	0
Naphthalene	10	8.84	-	11.6	20	98	0
1,2,3-Trichlorobenzene	0.8	0.779	-	2.6	20	101	0

* Value outside of QC limits.

ANALYTICAL REPORT

Lab Number:	L1807193
Client:	CDM Smith, Inc. 75 State Street Suite 701 Boston, MA 02109
ATTN:	Nicholas Castonguay
Phone:	(617) 452-6721
Project Name:	TOBIN SCHOOL
Project Number:	0139-220813
Report Date:	03/09/18

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1807193-01	MW-3S	WATER	CAMBRIDGE, MA	03/01/18 10:05	03/01/18
L1807193-02	MW-3D	WATER	CAMBRIDGE, MA	03/01/18 10:15	03/01/18
L1807193-03	MW-4S	WATER	CAMBRIDGE, MA	03/01/18 12:15	03/01/18
L1807193-04	MW-4D	WATER	CAMBRIDGE, MA	03/01/18 11:45	03/01/18
L1807193-05	MW-7D	WATER	CAMBRIDGE, MA	03/01/18 13:40	03/01/18
L1807193-06	MW-7S	WATER	CAMBRIDGE, MA	03/01/18 13:40	03/01/18
L1807193-07	MW-9D	WATER	CAMBRIDGE, MA	03/01/18 14:55	03/01/18
L1807193-08	MW-9S	WATER	CAMBRIDGE, MA	03/01/18 15:00	03/01/18
L1807193-09	TRIP BLANK	WATER	CAMBRIDGE, MA	02/27/18 00:00	03/01/18

Project Name:	TOBIN SCHOOL	**Lab Number:**	L1807193
Project Number:	0139-220813	**Report Date:**	03/09/18

MADEP MCP Response Action Analytical Report Certification

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

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

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

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

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

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Case Narrative

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

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

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

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

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

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

Project Name: TOBIN SCHOOL **Lab Number:** L1807193
Project Number: 0139-220813 **Report Date:** 03/09/18

Case Narrative (continued)

MCP Related Narratives

Volatile Organics

In reference to question H:

The initial calibration, associated with L1807193-01 through -09, did not meet the method required minimum response factor on the lowest calibration standard for 1,4-dioxane (0.0014), as well as the average response factor for 1,4-dioxane.

The continuing calibration standard, associated with L1807193-01 through -09, is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.

EPH

In reference to question H:

L1807193-08: The surrogate recovery was outside the acceptance criteria for chloro-octadecane (27%); however, re-extraction achieved similar results: chloro-octadecane (26%) and o-terphenyl (38%). The results of both extractions are reported; however, all associated compounds are considered to have a potential bias.

In reference to question I:

All samples were analyzed for a subset of MCP analytes per the Chain of Custody.

Dissolved Metals

In reference to question G:

L1807193-01 through -08: One or more of the target analytes did not achieve the requested CAM reporting limits.

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

Authorized Signature:  Amita Naik

Title: Technical Director/Representative Date: 03/09/18

ORGANICS

VOLATILES

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-01
Client ID: MW-3S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 10:05
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 03/06/18 19:37
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.40	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.40	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1807193

Project Number: 0139-220813 **Report Date:** 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-01 Date Collected: 03/01/18 10:05

Client ID: MW-3S Date Received: 03/01/18

Sample Location: CAMBRIDGE, MA Field Prep: Field Filtered (Dissolved Met)

Sample Depth:

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

Project Name: TOBIN SCHOOL **Lab Number:** L1807193

Project Number: 0139-220813 **Report Date:** 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-01 Date Collected: 03/01/18 10:05

Client ID: MW-3S Date Received: 03/01/18

Sample Location: CAMBRIDGE, MA Field Prep: Field Filtered (Dissolved Met)

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	101		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-02
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 10:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 03/06/18 20:02
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.40	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.40	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-02
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 10:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

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

Project Name: TOBIN SCHOOL **Lab Number:** L1807193

Project Number: 0139-220813 **Report Date:** 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-02
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 10:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	104		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-03
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 12:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 03/06/18 20:28
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.40	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.40	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-03
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 12:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

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

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-03
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 12:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	105		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-04
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 11:45
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 03/06/18 20:53
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.40	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.40	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1807193

Project Number: 0139-220813 **Report Date:** 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-04
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 11:45
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

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

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-04
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 11:45
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	103		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-05
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 03/06/18 21:18
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.40	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.40	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1807193

Project Number: 0139-220813 **Report Date:** 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-05 Date Collected: 03/01/18 13:40

Client ID: MW-7D Date Received: 03/01/18

Sample Location: CAMBRIDGE, MA Field Prep: Field Filtered (Dissolved Met)

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	3.3		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-05
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	106		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-06
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 03/06/18 21:43
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.40	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.40	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1807193

Project Number: 0139-220813 **Report Date:** 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-06
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	2.2		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	4.7		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-06
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	108		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-07
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 14:55
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 03/06/18 22:08
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.40	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.40	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-07
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 14:55
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	430	E	ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-07
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 14:55
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	22		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	102		70-130

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-07 D
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 14:55
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 03/07/18 10:55
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methyl tert butyl ether	400		ug/l	20	--	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	102		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-08
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 15:00
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 03/06/18 22:33
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.40	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.40	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-08
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 15:00
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

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

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-08
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 15:00
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	108		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-09
Client ID: TRIP BLANK
Sample Location: CAMBRIDGE, MA
Sample Depth:
Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 03/06/18 19:12
Analyst: MM

Date Collected: 02/27/18 00:00
Date Received: 03/01/18
Field Prep: None

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.40	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.40	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1807193

Project Number: 0139-220813 **Report Date:** 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-09 Date Collected: 02/27/18 00:00

Client ID: TRIP BLANK Date Received: 03/01/18

Sample Location: CAMBRIDGE, MA Field Prep: None

Sample Depth:

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

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-09
Client ID: TRIP BLANK
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 02/27/18 00:00
Date Received: 03/01/18
Field Prep: None

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	104		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 03/07/18 07:59
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 07 Batch: WG1095128-10					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.40	--
cis-1,3-Dichloropropene	ND		ug/l	0.40	--
1,3-Dichloropropene, Total	ND		ug/l	0.40	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 03/07/18 07:59
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 07 Batch: WG1095128-10					
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
Xylene (Total)	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
1,2-Dichloroethene (total)	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
2-Butanone	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	2.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 03/07/18 07:59
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 07 Batch: WG1095128-10					
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Ethyl ether	ND		ug/l	2.0	--
Isopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	107		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 03/06/18 18:47
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-09 Batch: WG1095128-5					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.40	--
cis-1,3-Dichloropropene	ND		ug/l	0.40	--
1,3-Dichloropropene, Total	ND		ug/l	0.40	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 03/06/18 18:47
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-09 Batch: WG1095128-5					
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
Xylene (Total)	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
1,2-Dichloroethene (total)	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
2-Butanone	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	2.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 03/06/18 18:47
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-09 Batch: WG1095128-5					
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Ethyl ether	ND		ug/l	2.0	--
Isopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		ug/l	2.0	--
tert-Butyl Alcohol	ND		ug/l	10	--
2-Chloroethylvinyl ether	ND		ug/l	10	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	106		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-09 Batch: WG1095128-3 WG1095128-4								
Methylene chloride	110		120		70-130	9		20
1,1-Dichloroethane	99		110		70-130	11		20
Chloroform	110		110		70-130	0		20
Carbon tetrachloride	110		120		70-130	9		20
1,2-Dichloropropane	96		100		70-130	4		20
Dibromochloromethane	100		100		70-130	0		20
1,1,2-Trichloroethane	110		120		70-130	9		20
Tetrachloroethene	99		100		70-130	1		20
Chlorobenzene	100		100		70-130	0		20
Trichlorofluoromethane	110		120		70-130	9		20
1,2-Dichloroethane	97		100		70-130	3		20
1,1,1-Trichloroethane	110		110		70-130	0		20
Bromodichloromethane	110		110		70-130	0		20
trans-1,3-Dichloropropene	100		110		70-130	10		20
cis-1,3-Dichloropropene	110		110		70-130	0		20
1,1-Dichloropropene	110		110		70-130	0		20
Bromoform	95		100		70-130	5		20
1,1,2,2-Tetrachloroethane	110		110		70-130	0		20
Benzene	110		110		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
Chloromethane	81		88		70-130	8		20
Bromomethane	130		120		70-130	8		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-09 Batch: WG1095128-3 WG1095128-4								
Vinyl chloride	100		110		70-130	10		20
Chloroethane	100		110		70-130	10		20
1,1-Dichloroethene	110		120		70-130	9		20
trans-1,2-Dichloroethene	110		110		70-130	0		20
Trichloroethene	110		120		70-130	9		20
1,2-Dichlorobenzene	98		100		70-130	2		20
1,3-Dichlorobenzene	100		100		70-130	0		20
1,4-Dichlorobenzene	97		100		70-130	3		20
Methyl tert butyl ether	100		110		70-130	10		20
p/m-Xylene	100		105		70-130	5		20
o-Xylene	100		100		70-130	0		20
cis-1,2-Dichloroethene	100		110		70-130	10		20
Dibromomethane	110		120		70-130	9		20
1,2,3-Trichloropropane	110		110		70-130	0		20
Styrene	100		105		70-130	5		20
Dichlorodifluoromethane	110		120		70-130	9		20
Acetone	98		100		70-130	2		20
Carbon disulfide	120		120		70-130	0		20
2-Butanone	89		98		70-130	10		20
4-Methyl-2-pentanone	82		89		70-130	8		20
2-Hexanone	76		79		70-130	4		20
Bromochloromethane	110		120		70-130	9		20
Tetrahydrofuran	89		97		70-130	9		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-09 Batch: WG1095128-3 WG1095128-4								
2,2-Dichloropropane	110		120		70-130	9		20
1,2-Dibromoethane	100		110		70-130	10		20
1,3-Dichloropropane	110		110		70-130	0		20
1,1,1,2-Tetrachloroethane	100		110		70-130	10		20
Bromobenzene	98		98		70-130	0		20
n-Butylbenzene	100		100		70-130	0		20
sec-Butylbenzene	99		100		70-130	1		20
tert-Butylbenzene	110		98		70-130	12		20
o-Chlorotoluene	100		100		70-130	0		20
p-Chlorotoluene	100		100		70-130	0		20
1,2-Dibromo-3-chloropropane	95		100		70-130	5		20
Hexachlorobutadiene	96		96		70-130	0		20
Isopropylbenzene	99		100		70-130	1		20
p-Isopropyltoluene	98		100		70-130	2		20
Naphthalene	93		100		70-130	7		20
n-Propylbenzene	100		100		70-130	0		20
1,2,3-Trichlorobenzene	94		100		70-130	6		20
1,2,4-Trichlorobenzene	93		98		70-130	5		20
1,3,5-Trimethylbenzene	100		100		70-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
Ethyl ether	110		120		70-130	9		20
Isopropyl Ether	87		92		70-130	6		20
Ethyl-Tert-Butyl-Ether	93		100		70-130	7		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807193

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-09 Batch: WG1095128-3 WG1095128-4								
Tertiary-Amyl Methyl Ether	100		110		70-130	10		20
1,4-Dioxane	84		106		70-130	**23**	Q	20
1,1,2-Trichloro-1,2,2-Trifluoroethane	120		120		70-130	0		20
tert-Butyl Alcohol	92		104		70-130	12		20
2-Chloroethylvinyl ether	81		89		70-130	9		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		99		70-130
Toluene-d8	101		100		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	100		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 07 Batch: WG1095128-8 WG1095128-9								
Methylene chloride	120		120		70-130	0		20
1,1-Dichloroethane	110		110		70-130	0		20
Chloroform	120		120		70-130	0		20
Carbon tetrachloride	110		120		70-130	9		20
1,2-Dichloropropane	110		110		70-130	0		20
Dibromochloromethane	110		110		70-130	0		20
1,1,2-Trichloroethane	120		120		70-130	0		20
Tetrachloroethene	99		100		70-130	1		20
Chlorobenzene	100		100		70-130	0		20
Trichlorofluoromethane	120		120		70-130	0		20
1,2-Dichloroethane	110		110		70-130	0		20
1,1,1-Trichloroethane	110		110		70-130	0		20
Bromodichloromethane	120		120		70-130	0		20
trans-1,3-Dichloropropene	100		110		70-130	10		20
cis-1,3-Dichloropropene	110		120		70-130	9		20
1,1-Dichloropropene	110		110		70-130	0		20
Bromoform	100		98		70-130	2		20
1,1,2,2-Tetrachloroethane	120		120		70-130	0		20
Benzene	110		110		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
Chloromethane	81		80		70-130	1		20
Bromomethane	110		110		70-130	0		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 07 Batch: WG1095128-8 WG1095128-9								
Vinyl chloride	100		100		70-130	0		20
Chloroethane	110		120		70-130	9		20
1,1-Dichloroethene	120		120		70-130	0		20
trans-1,2-Dichloroethene	110		110		70-130	0		20
Trichloroethene	110		120		70-130	9		20
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	100		100		70-130	0		20
1,4-Dichlorobenzene	98		100		70-130	2		20
Methyl tert butyl ether	110		110		70-130	0		20
p/m-Xylene	100		105		70-130	5		20
o-Xylene	100		100		70-130	0		20
cis-1,2-Dichloroethene	110		110		70-130	0		20
Dibromomethane	120		120		70-130	0		20
1,2,3-Trichloropropane	120		120		70-130	0		20
Styrene	100		105		70-130	5		20
Dichlorodifluoromethane	120		120		70-130	0		20
Acetone	110		100		70-130	10		20
Carbon disulfide	130		120		70-130	8		20
2-Butanone	110		100		70-130	10		20
4-Methyl-2-pentanone	86		84		70-130	2		20
2-Hexanone	84		84		70-130	0		20
Bromochloromethane	120		120		70-130	0		20
Tetrahydrofuran	100		100		70-130	0		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 07 Batch: WG1095128-8 WG1095128-9								
2,2-Dichloropropane	120		120		70-130	0		20
1,2-Dibromoethane	110		110		70-130	0		20
1,3-Dichloropropane	110		110		70-130	0		20
1,1,1,2-Tetrachloroethane	110		110		70-130	0		20
Bromobenzene	98		97		70-130	1		20
n-Butylbenzene	100		100		70-130	0		20
sec-Butylbenzene	98		100		70-130	2		20
tert-Butylbenzene	91		92		70-130	1		20
o-Chlorotoluene	100		110		70-130	10		20
p-Chlorotoluene	100		100		70-130	0		20
1,2-Dibromo-3-chloropropane	100		100		70-130	0		20
Hexachlorobutadiene	92		96		70-130	4		20
Isopropylbenzene	95		98		70-130	3		20
p-Isopropyltoluene	96		98		70-130	2		20
Naphthalene	96		95		70-130	1		20
n-Propylbenzene	100		100		70-130	0		20
1,2,3-Trichlorobenzene	98		97		70-130	1		20
1,2,4-Trichlorobenzene	91		92		70-130	1		20
1,3,5-Trimethylbenzene	100		100		70-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
Ethyl ether	120		120		70-130	0		20
Isopropyl Ether	92		93		70-130	1		20
Ethyl-Tert-Butyl-Ether	99		100		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807193

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 07 Batch: WG1095128-8 WG1095128-9								
Tertiary-Amyl Methyl Ether	110		110		70-130	0		20
1,4-Dioxane	100		102		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		105		70-130
Toluene-d8	100		100		70-130
4-Bromofluorobenzene	100		106		70-130
Dibromofluoromethane	102		106		70-130

SEMIVOLATILES

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-01
Client ID: MW-3S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 03/08/18 11:07
Analyst: ALS

Date Collected: 03/01/18 10:05
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1807193

Project Number: 0139-220813 **Report Date:** 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-01
Client ID: MW-3S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 10:05
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	70		15-110
Phenol-d6	30		15-110
Nitrobenzene-d5	85		30-130
2-Fluorobiphenyl	93		30-130
2,4,6-Tribromophenol	81		15-110
4-Terphenyl-d14	97		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-01
Client ID: MW-3S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/05/18 10:33
Analyst: DV

Date Collected: 03/01/18 10:05
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	1.3		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	0.50		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	0.24		ug/l	0.10	--	1
Benzo(a)anthracene	0.12		ug/l	0.10	--	1
Benzo(a)pyrene	0.12		ug/l	0.10	--	1
Benzo(b)fluoranthene	0.16		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	0.11		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	0.20		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	0.94		ug/l	0.10	--	1
Phenanthrene	0.40		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	0.49		ug/l	0.10	--	1
2-Methylnaphthalene	0.11		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-01
Client ID: MW-3S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 10:05
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	41		15-110
Phenol-d6	33		15-110
Nitrobenzene-d5	98		30-130
2-Fluorobiphenyl	93		30-130
2,4,6-Tribromophenol	77		15-110
4-Terphenyl-d14	97		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-01
Client ID: MW-3S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/07/18 19:30
Analyst: TJ

Date Collected: 03/01/18 10:05
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/06/18 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.150	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	16		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-02
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 03/08/18 11:33
Analyst: ALS

Date Collected: 03/01/18 10:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-02
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 10:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	40		15-110
Phenol-d6	36		15-110
Nitrobenzene-d5	93		30-130
2-Fluorobiphenyl	78		30-130
2,4,6-Tribromophenol	68		15-110
4-Terphenyl-d14	79		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-02
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/05/18 11:01
Analyst: DV

Date Collected: 03/01/18 10:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	0.41		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	0.12		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	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	0.10		ug/l	0.10	--	1
Anthracene	ND		ug/l	0.10	--	1
Benzo(ghi)perylene	0.13		ug/l	0.10	--	1
Fluorene	ND		ug/l	0.10	--	1
Phenanthrene	0.16		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	0.11		ug/l	0.10	--	1
2-Methylnaphthalene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-02
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 10:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	43		15-110
Phenol-d6	32		15-110
Nitrobenzene-d5	89		30-130
2-Fluorobiphenyl	84		30-130
2,4,6-Tribromophenol	76		15-110
4-Terphenyl-d14	84		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-02
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/07/18 19:51
Analyst: TJ

Date Collected: 03/01/18 10:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/06/18 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.142	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	16		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-03
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 03/08/18 12:27
Analyst: ALS

Date Collected: 03/01/18 12:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-03
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 12:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	42		15-110
Phenol-d6	37		15-110
Nitrobenzene-d5	52		30-130
2-Fluorobiphenyl	92		30-130
2,4,6-Tribromophenol	91		15-110
4-Terphenyl-d14	98		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-03
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/07/18 06:40
Analyst: KL

Date Collected: 03/01/18 12:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	5.2		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	0.76		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	0.54		ug/l	0.10	--	1
Benzo(a)anthracene	0.23		ug/l	0.10	--	1
Benzo(a)pyrene	0.22		ug/l	0.10	--	1
Benzo(b)fluoranthene	0.31		ug/l	0.10	--	1
Benzo(k)fluoranthene	0.10		ug/l	0.10	--	1
Chrysene	0.21		ug/l	0.10	--	1
Acenaphthylene	0.12		ug/l	0.10	--	1
Anthracene	0.63		ug/l	0.10	--	1
Benzo(ghi)perylene	0.16		ug/l	0.10	--	1
Fluorene	3.5		ug/l	0.10	--	1
Phenanthrene	3.2		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	0.15		ug/l	0.10	--	1
Pyrene	0.60		ug/l	0.10	--	1
2-Methylnaphthalene	0.26		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-03
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 12:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	42		15-110
Phenol-d6	33		15-110
Nitrobenzene-d5	97		30-130
2-Fluorobiphenyl	87		30-130
2,4,6-Tribromophenol	87		15-110
4-Terphenyl-d14	106		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-03
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/07/18 20:11
Analyst: TJ

Date Collected: 03/01/18 12:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/06/18 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.142	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	17		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-04
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 03/08/18 12:53
Analyst: ALS

Date Collected: 03/01/18 11:45
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-04
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 11:45
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	42		15-110
Phenol-d6	36		15-110
Nitrobenzene-d5	92		30-130
2-Fluorobiphenyl	82		30-130
2,4,6-Tribromophenol	95		15-110
4-Terphenyl-d14	90		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-04
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/07/18 07:05
Analyst: KL

Date Collected: 03/01/18 11:45
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	2.8		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	2.9		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	1.4		ug/l	0.10	--	1
Benzo(a)anthracene	0.97		ug/l	0.10	--	1
Benzo(a)pyrene	0.97		ug/l	0.10	--	1
Benzo(b)fluoranthene	1.3		ug/l	0.10	--	1
Benzo(k)fluoranthene	0.45		ug/l	0.10	--	1
Chrysene	0.96		ug/l	0.10	--	1
Acenaphthylene	0.29		ug/l	0.10	--	1
Anthracene	1.1		ug/l	0.10	--	1
Benzo(ghi)perylene	0.76		ug/l	0.10	--	1
Fluorene	2.6		ug/l	0.10	--	1
Phenanthrene	5.5		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	0.17		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	0.68		ug/l	0.10	--	1
Pyrene	2.2		ug/l	0.10	--	1
2-Methylnaphthalene	0.69		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-04
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 11:45
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	41		15-110
Phenol-d6	31		15-110
Nitrobenzene-d5	90		30-130
2-Fluorobiphenyl	86		30-130
2,4,6-Tribromophenol	80		15-110
4-Terphenyl-d14	85		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-04
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/07/18 20:32
Analyst: TJ

Date Collected: 03/01/18 11:45
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/06/18 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.144	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	17		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-05
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 03/09/18 02:23
Analyst: RC

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-05
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	38		15-110
Phenol-d6	28		15-110
Nitrobenzene-d5	83		30-130
2-Fluorobiphenyl	80		30-130
2,4,6-Tribromophenol	90		15-110
4-Terphenyl-d14	81		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-05
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/05/18 12:28
Analyst: DV

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	0.38		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	ND		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	0.10		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	0.22		ug/l	0.10	--	1
Phenanthrene	0.24		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
2-Methylnaphthalene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-05
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	41		15-110
Phenol-d6	31		15-110
Nitrobenzene-d5	88		30-130
2-Fluorobiphenyl	81		30-130
2,4,6-Tribromophenol	65		15-110
4-Terphenyl-d14	81		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-05
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/07/18 20:53
Analyst: TJ

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/06/18 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.150	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	19		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-06
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 03/09/18 10:06
Analyst: RC

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-06
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	48		15-110
Phenol-d6	36		15-110
Nitrobenzene-d5	90		30-130
2-Fluorobiphenyl	84		30-130
2,4,6-Tribromophenol	85		15-110
4-Terphenyl-d14	88		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-06
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/05/18 12:57
Analyst: DV

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	2.2		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	0.54		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	2.8		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	0.49		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	1.7		ug/l	0.10	--	1
Phenanthrene	2.2		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	0.46		ug/l	0.10	--	1
2-Methylnaphthalene	0.40		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-06
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	41		15-110
Phenol-d6	31		15-110
Nitrobenzene-d5	86		30-130
2-Fluorobiphenyl	88		30-130
2,4,6-Tribromophenol	86		15-110
4-Terphenyl-d14	84		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-06
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/07/18 21:14
Analyst: TJ

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/06/18 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.144	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	18		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-07
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 03/08/18 17:53
Analyst: EK

Date Collected: 03/01/18 14:55
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-07
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 14:55
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	47		15-110
Phenol-d6	36		15-110
Nitrobenzene-d5	99		30-130
2-Fluorobiphenyl	90		30-130
2,4,6-Tribromophenol	90		15-110
4-Terphenyl-d14	86		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-07
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/05/18 13:25
Analyst: DV

Date Collected: 03/01/18 14:55
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	0.42		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	ND		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	0.25		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	0.14		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
2-Methylnaphthalene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-07
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 14:55
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	42		15-110
Phenol-d6	33		15-110
Nitrobenzene-d5	94		30-130
2-Fluorobiphenyl	90		30-130
2,4,6-Tribromophenol	76		15-110
4-Terphenyl-d14	86		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-07
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/07/18 21:35
Analyst: TJ

Date Collected: 03/01/18 14:55
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/06/18 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	0.158		ug/l	0.150	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	18		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-08
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 03/09/18 10:33
Analyst: RC

Date Collected: 03/01/18 15:00
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1807193

Project Number: 0139-220813 **Report Date:** 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-08 Date Collected: 03/01/18 15:00

Client ID: MW-9S Date Received: 03/01/18

Sample Location: CAMBRIDGE, MA Field Prep: Field Filtered (Dissolved Met)

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	52		15-110
Phenol-d6	38		15-110
Nitrobenzene-d5	87		30-130
2-Fluorobiphenyl	99		30-130
2,4,6-Tribromophenol	107		15-110
4-Terphenyl-d14	94		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-08
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/05/18 13:54
Analyst: DV

Date Collected: 03/01/18 15:00
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	ND		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	0.52		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
2-Methylnaphthalene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-08
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 15:00
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

MCP Semivolatile Organics by SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	44		15-110
Phenol-d6	36		15-110
Nitrobenzene-d5	98		30-130
2-Fluorobiphenyl	84		30-130
2,4,6-Tribromophenol	79		15-110
4-Terphenyl-d14	82		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-08
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/09/18 10:55
Analyst: TJ

Date Collected: 03/01/18 15:00
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/08/18 20:15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.147	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	26		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D
Analytical Date: 03/08/18 09:15
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:43

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-08 Batch: WG1094304-1					
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--
1,2-Dichlorobenzene	ND		ug/l	2.0	--
1,3-Dichlorobenzene	ND		ug/l	2.0	--
1,4-Dichlorobenzene	ND		ug/l	2.0	--
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--
2,4-Dinitrotoluene	ND		ug/l	5.0	--
2,6-Dinitrotoluene	ND		ug/l	5.0	--
Azobenzene	ND		ug/l	2.0	--
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--
Isophorone	ND		ug/l	5.0	--
Nitrobenzene	ND		ug/l	2.0	--
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--
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	--
Aniline	ND		ug/l	2.0	--
4-Chloroaniline	ND		ug/l	5.0	--
Dibenzofuran	ND		ug/l	2.0	--
Acetophenone	ND		ug/l	5.0	--
2,4,6-Trichlorophenol	ND		ug/l	5.0	--
2-Chlorophenol	ND		ug/l	2.0	--
2,4-Dichlorophenol	ND		ug/l	5.0	--
2,4-Dimethylphenol	ND		ug/l	5.0	--
2-Nitrophenol	ND		ug/l	10	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D
Analytical Date: 03/08/18 09:15
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:43

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-08 Batch: WG1094304-1					
4-Nitrophenol	ND		ug/l	10	--
2,4-Dinitrophenol	ND		ug/l	20	--
Phenol	ND		ug/l	5.0	--
2-Methylphenol	ND		ug/l	5.0	--
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--
2,4,5-Trichlorophenol	ND		ug/l	5.0	--
Pyridine	ND		ug/l	3.5	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		15-110
Phenol-d6	31		15-110
Nitrobenzene-d5	93		30-130
2-Fluorobiphenyl	94		30-130
2,4,6-Tribromophenol	102		15-110
4-Terphenyl-d14	100		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 03/05/18 09:06
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:44

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics by SIM - Westborough Lab for sample(s): 01-08 Batch: WG1094305-1					
Acenaphthene	ND		ug/l	0.10	--
2-Chloronaphthalene	ND		ug/l	0.20	--
Fluoranthene	ND		ug/l	0.10	--
Hexachlorobutadiene	ND		ug/l	0.50	--
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	--
2-Methylnaphthalene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	0.80	--
Hexachlorobenzene	ND		ug/l	0.80	--
Hexachloroethane	ND		ug/l	0.80	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 03/05/18 09:06
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:44

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics by SIM - Westborough Lab for sample(s): 01-08 Batch: WG1094305-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	46		15-110
Phenol-d6	35		15-110
Nitrobenzene-d5	96		30-130
2-Fluorobiphenyl	92		30-130
2,4,6-Tribromophenol	79		15-110
4-Terphenyl-d14	90		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 03/07/18 18:27
Analyst: TJ

Extraction Method: EPA 3510C
Extraction Date: 03/06/18 13:00

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-07 Batch: WG1094840-1					
1,4-Dioxane	ND		ug/l	0.150	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	23		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 03/09/18 09:54
Analyst: TJ

Extraction Method: EPA 3510C
Extraction Date: 03/08/18 20:15

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 08 Batch: WG1095659-1					
1,4-Dioxane	ND		ug/l	0.150	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	29		15-110

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-08 Batch: WG1094304-2 WG1094304-3								
1,2,4-Trichlorobenzene	89		73		40-140	20		20
Bis(2-chloroethyl)ether	80		76		40-140	5		20
1,2-Dichlorobenzene	81		64		40-140	**23**	Q	20
1,3-Dichlorobenzene	77		60		40-140	**25**	Q	20
1,4-Dichlorobenzene	76		61		40-140	**22**	Q	20
3,3'-Dichlorobenzidine	80		81		40-140	1		20
2,4-Dinitrotoluene	107		105		40-140	2		20
2,6-Dinitrotoluene	112		110		40-140	2		20
Azobenzene	104		102		40-140	2		20
4-Bromophenyl phenyl ether	100		98		40-140	2		20
Bis(2-chloroisopropyl)ether	55		51		40-140	8		20
Bis(2-chloroethoxy)methane	90		87		40-140	3		20
Isophorone	103		100		40-140	3		20
Nitrobenzene	96		92		40-140	4		20
Bis(2-ethylhexyl)phthalate	108		109		40-140	1		20
Butyl benzyl phthalate	110		107		40-140	3		20
Di-n-butylphthalate	103		102		40-140	1		20
Di-n-octylphthalate	111		112		40-140	1		20
Diethyl phthalate	107		106		40-140	1		20
Dimethyl phthalate	112		110		40-140	2		20
Aniline	**39**	Q	49		40-140	**23**	Q	20
4-Chloroaniline	67		67		40-140	0		20
Dibenzofuran	93		90		40-140	3		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807193

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-08 Batch: WG1094304-2 WG1094304-3								
Acetophenone	103		98		40-140	5		20
2,4,6-Trichlorophenol	114		116		30-130	2		20
2-Chlorophenol	80		76		30-130	5		20
2,4-Dichlorophenol	97		94		30-130	3		20
2,4-Dimethylphenol	95		93		30-130	2		20
2-Nitrophenol	95		90		30-130	5		20
4-Nitrophenol	68		69		30-130	1		20
2,4-Dinitrophenol	95		94		30-130	1		20
Phenol	38		38		30-130	0		20
2-Methylphenol	74		75		30-130	1		20
3-Methylphenol/4-Methylphenol	78		78		30-130	0		20
2,4,5-Trichlorophenol	117		117		30-130	0		20
Pyridine	**30**	Q	**34**	Q	40-140	13		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	50		47		15-110
Phenol-d6	36		36		15-110
Nitrobenzene-d5	97		90		30-130
2-Fluorobiphenyl	93		92		30-130
2,4,6-Tribromophenol	104		103		15-110
4-Terphenyl-d14	87		85		30-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

MCP Semivolatile Organics by SIM - Westborough Lab Associated sample(s): 01-08 Batch: WG1094305-2 WG1094305-3

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Acenaphthene	67		61		40-140	9		20
2-Chloronaphthalene	80		62		40-140	**25**	Q	20
Fluoranthene	83		73		40-140	13		20
Hexachlorobutadiene	92		79		40-140	15		20
Naphthalene	74		62		40-140	18		20
Benzo(a)anthracene	83		70		40-140	17		20
Benzo(a)pyrene	94		80		40-140	16		20
Benzo(b)fluoranthene	87		78		40-140	11		20
Benzo(k)fluoranthene	89		72		40-140	**21**	Q	20
Chrysene	77		65		40-140	17		20
Acenaphthylene	90		67		40-140	**29**	Q	20
Anthracene	80		62		40-140	**25**	Q	20
Benzo(ghi)perylene	93		79		40-140	16		20
Fluorene	76		73		40-140	4		20
Phenanthrene	71		60		40-140	17		20
Dibenzo(a,h)anthracene	96		81		40-140	17		20
Indeno(1,2,3-cd)pyrene	97		82		40-140	17		20
Pyrene	80		71		40-140	12		20
2-Methylnaphthalene	80		64		40-140	**22**	Q	20
Pentachlorophenol	72		54		30-130	**29**	Q	20
Hexachlorobenzene	71		61		40-140	15		20
Hexachloroethane	76		65		40-140	16		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807193

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics by SIM - Westborough Lab Associated sample(s): 01-08 Batch: WG1094305-2 WG1094305-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	49		39		15-110
Phenol-d6	37		30		15-110
Nitrobenzene-d5	97		80		30-130
2-Fluorobiphenyl	92		73		30-130
2,4,6-Tribromophenol	79		70		15-110
4-Terphenyl-d14	94		82		30-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807193

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab	Associated sample(s): 01-07		Batch: WG1094840-2		WG1094840-3			
1,4-Dioxane	113		114		40-140	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	24		26		15-110

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807193

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 08 Batch: WG1095659-2 WG1095659-3								
1,4-Dioxane	108		109		40-140	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	28		28		15-110

PETROLEUM HYDROCARBONS

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID:	L1807193-01	Date Collected:	03/01/18 10:05
Client ID:	MW-3S	Date Received:	03/01/18
Sample Location:	CAMBRIDGE, MA	Field Prep:	Field Filtered (Dissolved Met)
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	03/03/18 10:49
Analytical Date:	03/05/18 00:36	Cleanup Method1:	EPH-04-1
Analyst:	NS	Cleanup Date1:	03/04/18

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	40		40-140
o-Terphenyl	59		40-140
2-Fluorobiphenyl	84		40-140
2-Bromonaphthalene	83		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID:	L1807193-02	Date Collected:	03/01/18 10:15
Client ID:	MW-3D	Date Received:	03/01/18
Sample Location:	CAMBRIDGE, MA	Field Prep:	Field Filtered (Dissolved Met)
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	03/03/18 10:49
Analytical Date:	03/05/18 01:21	Cleanup Method1:	EPH-04-1
Analyst:	NS	Cleanup Date1:	03/04/18

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	49		40-140
o-Terphenyl	61		40-140
2-Fluorobiphenyl	80		40-140
2-Bromonaphthalene	77		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID:	L1807193-03	Date Collected:	03/01/18 12:15
Client ID:	MW-4S	Date Received:	03/01/18
Sample Location:	CAMBRIDGE, MA	Field Prep:	Field Filtered (Dissolved Met)
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	03/03/18 10:49
Analytical Date:	03/05/18 02:07	Cleanup Method1:	EPH-04-1
Analyst:	NS	Cleanup Date1:	03/04/18

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	47		40-140
o-Terphenyl	57		40-140
2-Fluorobiphenyl	68		40-140
2-Bromonaphthalene	65		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID:	L1807193-04	Date Collected:	03/01/18 11:45
Client ID:	MW-4D	Date Received:	03/01/18
Sample Location:	CAMBRIDGE, MA	Field Prep:	Field Filtered (Dissolved Met)
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	03/03/18 10:49
Analytical Date:	03/05/18 02:52	Cleanup Method1:	EPH-04-1
Analyst:	NS	Cleanup Date1:	03/04/18

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	44		40-140
o-Terphenyl	60		40-140
2-Fluorobiphenyl	74		40-140
2-Bromonaphthalene	72		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID:	L1807193-05	Date Collected:	03/01/18 13:40
Client ID:	MW-7D	Date Received:	03/01/18
Sample Location:	CAMBRIDGE, MA	Field Prep:	Field Filtered (Dissolved Met)
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	03/03/18 10:49
Analytical Date:	03/05/18 03:37	Cleanup Method1:	EPH-04-1
Analyst:	NS	Cleanup Date1:	03/04/18

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	48		40-140
o-Terphenyl	62		40-140
2-Fluorobiphenyl	78		40-140
2-Bromonaphthalene	75		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID:	L1807193-06	Date Collected:	03/01/18 13:40
Client ID:	MW-7S	Date Received:	03/01/18
Sample Location:	CAMBRIDGE, MA	Field Prep:	Field Filtered (Dissolved Met)
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	03/03/18 10:49
Analytical Date:	03/05/18 04:23	Cleanup Method1:	EPH-04-1
Analyst:	NS	Cleanup Date1:	03/04/18

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	47		40-140
o-Terphenyl	65		40-140
2-Fluorobiphenyl	81		40-140
2-Bromonaphthalene	80		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID:	L1807193-07	Date Collected:	03/01/18 14:55
Client ID:	MW-9D	Date Received:	03/01/18
Sample Location:	CAMBRIDGE, MA	Field Prep:	Field Filtered (Dissolved Met)
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	03/03/18 10:49
Analytical Date:	03/05/18 05:08	Cleanup Method1:	EPH-04-1
Analyst:	NS	Cleanup Date1:	03/04/18

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	51		40-140
o-Terphenyl	51		40-140
2-Fluorobiphenyl	60		40-140
2-Bromonaphthalene	59		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID:	L1807193-08	Date Collected:	03/01/18 15:00
Client ID:	MW-9S	Date Received:	03/01/18
Sample Location:	CAMBRIDGE, MA	Field Prep:	Field Filtered (Dissolved Met)
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	03/03/18 10:49
Analytical Date:	03/06/18 23:17	Cleanup Method1:	EPH-04-1
Analyst:	DG	Cleanup Date1:	03/06/18

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	**27**	Q	40-140
o-Terphenyl	44		40-140
2-Fluorobiphenyl	69		40-140
2-Bromonaphthalene	70		40-140

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID:	L1807193-08 RE	Date Collected:	03/01/18 15:00
Client ID:	MW-9S	Date Received:	03/01/18
Sample Location:	CAMBRIDGE, MA	Field Prep:	Field Filtered (Dissolved Met)
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	03/08/18 13:52
Analytical Date:	03/09/18 10:51	Cleanup Method1:	EPH-04-1
Analyst:	DG	Cleanup Date1:	03/08/18

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	**26**	Q	40-140
o-Terphenyl	**38**	Q	40-140
2-Fluorobiphenyl	67		40-140
2-Bromonaphthalene	65		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 03/04/18 17:03
Analyst: NS

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 10:49
Cleanup Method: EPH-04-1
Cleanup Date: 03/04/18

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-07 Batch: WG1094204-1					
C9-C18 Aliphatics	ND		ug/l	100	--
C19-C36 Aliphatics	ND		ug/l	100	--
C11-C22 Aromatics	ND		ug/l	100	--
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	57		40-140
o-Terphenyl	62		40-140
2-Fluorobiphenyl	73		40-140
2-Bromonaphthalene	71		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 03/06/18 22:31
Analyst: DG

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 10:49
Cleanup Method: EPH-04-1
Cleanup Date: 03/06/18

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 08 Batch: WG1094968-1					
C9-C18 Aliphatics	ND		ug/l	100	--
C19-C36 Aliphatics	ND		ug/l	100	--
C11-C22 Aromatics	ND		ug/l	100	--
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	61		40-140
o-Terphenyl	48		40-140
2-Fluorobiphenyl	60		40-140
2-Bromonaphthalene	60		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 03/09/18 10:13
Analyst: DG

Extraction Method: EPA 3510C
Extraction Date: 03/08/18 13:52
Cleanup Method: EPH-04-1
Cleanup Date: 03/08/18

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 08 Batch: WG1095559-1					
C9-C18 Aliphatics	ND		ug/l	100	--
C19-C36 Aliphatics	ND		ug/l	100	--
C11-C22 Aromatics	ND		ug/l	100	--
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	67		40-140
o-Terphenyl	66		40-140
2-Fluorobiphenyl	69		40-140
2-Bromonaphthalene	66		40-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-07 Batch: WG1094204-2 WG1094204-3								
C9-C18 Aliphatics	58		53		40-140	9		25
C19-C36 Aliphatics	73		59		40-140	21		25
C11-C22 Aromatics	75		64		40-140	16		25
Naphthalene	61		56		40-140	9		25
2-Methylnaphthalene	64		58		40-140	10		25
Acenaphthylene	68		60		40-140	13		25
Acenaphthene	70		62		40-140	12		25
Fluorene	70		62		40-140	12		25
Phenanthrene	73		63		40-140	15		25
Anthracene	74		64		40-140	14		25
Fluoranthene	74		63		40-140	16		25
Pyrene	76		65		40-140	16		25
Benzo(a)anthracene	74		63		40-140	16		25
Chrysene	76		65		40-140	16		25
Benzo(b)fluoranthene	74		63		40-140	16		25
Benzo(k)fluoranthene	73		62		40-140	16		25
Benzo(a)pyrene	72		61		40-140	17		25
Indeno(1,2,3-cd)Pyrene	66		57		40-140	15		25
Dibenzo(a,h)anthracene	70		61		40-140	14		25
Benzo(ghi)perylene	67		58		40-140	14		25
Nonane (C9)	36		38		30-140	5		25
Decane (C10)	44		45		40-140	2		25
Dodecane (C12)	56		53		40-140	6		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807193

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-07 Batch: WG1094204-2 WG1094204-3								
Tetradecane (C14)	60		56		40-140	7		25
Hexadecane (C16)	61		57		40-140	7		25
Octadecane (C18)	66		59		40-140	11		25
Nonadecane (C19)	65		58		40-140	11		25
Eicosane (C20)	66		58		40-140	13		25
Docosane (C22)	66		58		40-140	13		25
Tetracosane (C24)	65		58		40-140	11		25
Hexacosane (C26)	65		57		40-140	13		25
Octacosane (C28)	65		57		40-140	13		25
Triacontane (C30)	65		57		40-140	13		25
Hexatriacontane (C36)	62		57		40-140	8		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	62		52		40-140
o-Terphenyl	77		66		40-140
2-Fluorobiphenyl	84		82		40-140
2-Bromonaphthalene	82		80		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 08 Batch: WG1094968-2 WG1094968-3								
C9-C18 Aliphatics	51		51		40-140	0		25
C19-C36 Aliphatics	60		59		40-140	2		25
C11-C22 Aromatics	60		64		40-140	6		25
Naphthalene	49		55		40-140	12		25
2-Methylnaphthalene	52		57		40-140	9		25
Acenaphthylene	54		58		40-140	7		25
Acenaphthene	57		61		40-140	7		25
Fluorene	57		61		40-140	7		25
Phenanthrene	60		62		40-140	3		25
Anthracene	59		61		40-140	3		25
Fluoranthene	61		63		40-140	3		25
Pyrene	62		64		40-140	3		25
Benzo(a)anthracene	60		62		40-140	3		25
Chrysene	62		65		40-140	5		25
Benzo(b)fluoranthene	60		63		40-140	5		25
Benzo(k)fluoranthene	60		62		40-140	3		25
Benzo(a)pyrene	57		59		40-140	3		25
Indeno(1,2,3-cd)Pyrene	54		58		40-140	7		25
Dibenzo(a,h)anthracene	58		62		40-140	7		25
Benzo(ghi)perylene	54		58		40-140	7		25
Nonane (C9)	**29**	Q	33		30-140	13		25
Decane (C10)	**37**	Q	41		40-140	10		25
Dodecane (C12)	48		50		40-140	4		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 08 Batch: WG1094968-2 WG1094968-3								
Tetradecane (C14)	53		54		40-140	2		25
Hexadecane (C16)	56		56		40-140	0		25
Octadecane (C18)	59		58		40-140	2		25
Nonadecane (C19)	58		57		40-140	2		25
Eicosane (C20)	58		57		40-140	2		25
Docosane (C22)	58		57		40-140	2		25
Tetracosane (C24)	58		57		40-140	2		25
Hexacosane (C26)	57		56		40-140	2		25
Octacosane (C28)	57		56		40-140	2		25
Triacontane (C30)	57		56		40-140	2		25
Hexatriacontane (C36)	55		56		40-140	2		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	60		57		40-140
o-Terphenyl	61		62		40-140
2-Fluorobiphenyl	68		80		40-140
2-Bromonaphthalene	70		82		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 08 Batch: WG1095559-2 WG1095559-3								
C9-C18 Aliphatics	74		79		40-140	7		25
C19-C36 Aliphatics	75		74		40-140	1		25
C11-C22 Aromatics	55		62		40-140	12		25
Naphthalene	47		52		40-140	10		25
2-Methylnaphthalene	48		54		40-140	12		25
Acenaphthylene	50		57		40-140	13		25
Acenaphthene	52		60		40-140	14		25
Fluorene	52		60		40-140	14		25
Phenanthrene	53		61		40-140	14		25
Anthracene	53		61		40-140	14		25
Fluoranthene	54		61		40-140	12		25
Pyrene	55		63		40-140	14		25
Benzo(a)anthracene	54		61		40-140	12		25
Chrysene	55		63		40-140	14		25
Benzo(b)fluoranthene	54		62		40-140	14		25
Benzo(k)fluoranthene	54		61		40-140	12		25
Benzo(a)pyrene	52		59		40-140	13		25
Indeno(1,2,3-cd)Pyrene	50		56		40-140	11		25
Dibenzo(a,h)anthracene	58		57		40-140	2		25
Benzo(ghi)perylene	49		57		40-140	15		25
Nonane (C9)	62		69		30-140	11		25
Decane (C10)	67		74		40-140	10		25
Dodecane (C12)	70		76		40-140	8		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807193

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 08 Batch: WG1095559-2 WG1095559-3								
Tetradecane (C14)	71		77		40-140	8		25
Hexadecane (C16)	71		77		40-140	8		25
Octadecane (C18)	70		75		40-140	7		25
Nonadecane (C19)	70		74		40-140	6		25
Eicosane (C20)	69		74		40-140	7		25
Docosane (C22)	69		73		40-140	6		25
Tetracosane (C24)	68		71		40-140	4		25
Hexacosane (C26)	68		71		40-140	4		25
Octacosane (C28)	68		70		40-140	3		25
Triacontane (C30)	68		70		40-140	3		25
Hexatriacontane (C36)	69		71		40-140	3		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	67		70		40-140
o-Terphenyl	55		62		40-140
2-Fluorobiphenyl	62		61		40-140
2-Bromonaphthalene	60		60		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

PCBS

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-01
Client ID: MW-3S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 03/06/18 06:10
Analyst: WR

Date Collected: 03/01/18 10:05
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 16:26
Cleanup Method: EPA 3665A
Cleanup Date: 03/04/18
Cleanup Method: EPA 3660B
Cleanup Date: 03/04/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	81		30-150	A
Decachlorobiphenyl	70		30-150	A
2,4,5,6-Tetrachloro-m-xylene	78		30-150	B
Decachlorobiphenyl	78		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-02
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 03/06/18 06:24
Analyst: WR

Date Collected: 03/01/18 10:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 16:26
Cleanup Method: EPA 3665A
Cleanup Date: 03/04/18
Cleanup Method: EPA 3660B
Cleanup Date: 03/04/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	117		30-150	A
Decachlorobiphenyl	90		30-150	A
2,4,5,6-Tetrachloro-m-xylene	113		30-150	B
Decachlorobiphenyl	94		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-03
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 03/06/18 06:37
Analyst: WR

Date Collected: 03/01/18 12:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 16:26
Cleanup Method: EPA 3665A
Cleanup Date: 03/04/18
Cleanup Method: EPA 3660B
Cleanup Date: 03/04/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	88		30-150	A
Decachlorobiphenyl	74		30-150	A
2,4,5,6-Tetrachloro-m-xylene	86		30-150	B
Decachlorobiphenyl	80		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-04
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 03/06/18 06:50
Analyst: WR

Date Collected: 03/01/18 11:45
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 16:26
Cleanup Method: EPA 3665A
Cleanup Date: 03/03/18
Cleanup Method: EPA 3660B
Cleanup Date: 03/04/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	85		30-150	A
Decachlorobiphenyl	43		30-150	A
2,4,5,6-Tetrachloro-m-xylene	80		30-150	B
Decachlorobiphenyl	47		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-05
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 03/06/18 07:04
Analyst: WR

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 16:26
Cleanup Method: EPA 3665A
Cleanup Date: 03/03/18
Cleanup Method: EPA 3660B
Cleanup Date: 03/04/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	93		30-150	A
Decachlorobiphenyl	63		30-150	A
2,4,5,6-Tetrachloro-m-xylene	91		30-150	B
Decachlorobiphenyl	68		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-06
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 03/06/18 07:17
Analyst: WR

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 16:26
Cleanup Method: EPA 3665A
Cleanup Date: 03/04/18
Cleanup Method: EPA 3660B
Cleanup Date: 03/04/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	88		30-150	A
Decachlorobiphenyl	79		30-150	A
2,4,5,6-Tetrachloro-m-xylene	85		30-150	B
Decachlorobiphenyl	89		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-07
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 03/06/18 07:30
Analyst: WR

Date Collected: 03/01/18 14:55
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 16:26
Cleanup Method: EPA 3665A
Cleanup Date: 03/04/18
Cleanup Method: EPA 3660B
Cleanup Date: 03/04/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	104		30-150	A
Decachlorobiphenyl	82		30-150	A
2,4,5,6-Tetrachloro-m-xylene	109		30-150	B
Decachlorobiphenyl	94		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-08
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 03/06/18 07:44
Analyst: WR

Date Collected: 03/01/18 15:00
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 16:26
Cleanup Method: EPA 3665A
Cleanup Date: 03/04/18
Cleanup Method: EPA 3660B
Cleanup Date: 03/04/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	64		30-150	A
Decachlorobiphenyl	47		30-150	A
2,4,5,6-Tetrachloro-m-xylene	66		30-150	B
Decachlorobiphenyl	52		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8082A
Analytical Date: 03/06/18 05:30
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 16:26
Cleanup Method: EPA 3665A
Cleanup Date: 03/03/18
Cleanup Method: EPA 3660B
Cleanup Date: 03/04/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 01-08 Batch: WG1094294-1						
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	0.250	--	A
Aroclor 1262	ND		ug/l	0.250	--	A
Aroclor 1268	ND		ug/l	0.250	--	A
PCBs, Total	ND		ug/l	0.250	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	78		30-150	A
Decachlorobiphenyl	109		30-150	A
2,4,5,6-Tetrachloro-m-xylene	85		30-150	B
Decachlorobiphenyl	121		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807193

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 01-08 Batch: WG1094294-2 WG1094294-3									
Aroclor 1016	87		86		40-140	1		20	A
Aroclor 1260	91		88		40-140	3		20	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	90		89		30-150	A
Decachlorobiphenyl	104		102		30-150	A
2,4,5,6-Tetrachloro-m-xylene	92		92		30-150	B
Decachlorobiphenyl	114		112		30-150	B

METALS

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-01
Client ID: MW-3S
Sample Location: CAMBRIDGE, MA
Sample Depth:
Matrix: Water

Date Collected: 03/01/18 10:05
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	03/03/18 10:40	03/06/18 13:42	EPA 3005A	97,6020A	AM
Arsenic, Dissolved	ND		mg/l	0.0050	--	1	03/03/18 10:40	03/07/18 10:53	EPA 3005A	97,6010C	LC
Barium, Dissolved	0.049		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:53	EPA 3005A	97,6010C	LC
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 13:42	EPA 3005A	97,6020A	AM
Cadmium, Dissolved	ND		mg/l	0.004	--	1	03/03/18 10:40	03/07/18 10:53	EPA 3005A	97,6010C	LC
Chromium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:53	EPA 3005A	97,6010C	LC
Lead, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:53	EPA 3005A	97,6010C	LC
Mercury, Dissolved	ND		mg/l	0.0002	--	1	03/02/18 12:31	03/02/18 17:14	EPA 7470A	97,7470A	MG
Nickel, Dissolved	ND		mg/l	0.025	--	1	03/03/18 10:40	03/07/18 10:53	EPA 3005A	97,6010C	LC
Selenium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:53	EPA 3005A	97,6010C	LC
Silver, Dissolved	ND		mg/l	0.007	--	1	03/03/18 10:40	03/07/18 10:53	EPA 3005A	97,6010C	LC
Thallium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 13:42	EPA 3005A	97,6020A	AM
Vanadium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:53	EPA 3005A	97,6010C	LC
Zinc, Dissolved	ND		mg/l	0.050	--	1	03/03/18 10:40	03/07/18 10:53	EPA 3005A	97,6010C	LC

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-02
Client ID: MW-3D
Sample Location: CAMBRIDGE, MA
Sample Depth:
Matrix: Water

Date Collected: 03/01/18 10:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	03/03/18 10:40	03/06/18 13:46	EPA 3005A	97,6020A	AM
Arsenic, Dissolved	0.0066		mg/l	0.0050	--	1	03/03/18 10:40	03/07/18 11:12	EPA 3005A	97,6010C	LC
Barium, Dissolved	0.262		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:12	EPA 3005A	97,6010C	LC
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 13:46	EPA 3005A	97,6020A	AM
Cadmium, Dissolved	ND		mg/l	0.004	--	1	03/03/18 10:40	03/07/18 11:12	EPA 3005A	97,6010C	LC
Chromium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:12	EPA 3005A	97,6010C	LC
Lead, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:12	EPA 3005A	97,6010C	LC
Mercury, Dissolved	ND		mg/l	0.0002	--	1	03/02/18 12:31	03/02/18 17:20	EPA 7470A	97,7470A	MG
Nickel, Dissolved	ND		mg/l	0.025	--	1	03/03/18 10:40	03/07/18 11:12	EPA 3005A	97,6010C	LC
Selenium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:12	EPA 3005A	97,6010C	LC
Silver, Dissolved	ND		mg/l	0.007	--	1	03/03/18 10:40	03/07/18 11:12	EPA 3005A	97,6010C	LC
Thallium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 13:46	EPA 3005A	97,6020A	AM
Vanadium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:12	EPA 3005A	97,6010C	LC
Zinc, Dissolved	ND		mg/l	0.050	--	1	03/03/18 10:40	03/07/18 11:12	EPA 3005A	97,6010C	LC

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-03
Client ID: MW-4S
Sample Location: CAMBRIDGE, MA
Sample Depth:
Matrix: Water

Date Collected: 03/01/18 12:15
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	03/03/18 10:40	03/06/18 13:51	EPA 3005A	97,6020A	AM
Arsenic, Dissolved	ND		mg/l	0.0050	--	1	03/03/18 10:40	03/07/18 11:16	EPA 3005A	97,6010C	LC
Barium, Dissolved	0.646		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:16	EPA 3005A	97,6010C	LC
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 13:51	EPA 3005A	97,6020A	AM
Cadmium, Dissolved	ND		mg/l	0.004	--	1	03/03/18 10:40	03/07/18 11:16	EPA 3005A	97,6010C	LC
Chromium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:16	EPA 3005A	97,6010C	LC
Lead, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:16	EPA 3005A	97,6010C	LC
Mercury, Dissolved	ND		mg/l	0.0002	--	1	03/02/18 12:31	03/02/18 17:21	EPA 7470A	97,7470A	MG
Nickel, Dissolved	ND		mg/l	0.025	--	1	03/03/18 10:40	03/07/18 11:16	EPA 3005A	97,6010C	LC
Selenium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:16	EPA 3005A	97,6010C	LC
Silver, Dissolved	ND		mg/l	0.007	--	1	03/03/18 10:40	03/07/18 11:16	EPA 3005A	97,6010C	LC
Thallium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 13:51	EPA 3005A	97,6020A	AM
Vanadium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:16	EPA 3005A	97,6010C	LC
Zinc, Dissolved	ND		mg/l	0.050	--	1	03/03/18 10:40	03/07/18 11:16	EPA 3005A	97,6010C	LC

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-04
Client ID: MW-4D
Sample Location: CAMBRIDGE, MA
Sample Depth:
Matrix: Water

Date Collected: 03/01/18 11:45
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	03/03/18 10:40	03/06/18 13:55	EPA 3005A	97,6020A	AM
Arsenic, Dissolved	ND		mg/l	0.0050	--	1	03/03/18 10:40	03/07/18 11:21	EPA 3005A	97,6010C	LC
Barium, Dissolved	0.729		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:21	EPA 3005A	97,6010C	LC
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 13:55	EPA 3005A	97,6020A	AM
Cadmium, Dissolved	ND		mg/l	0.004	--	1	03/03/18 10:40	03/07/18 11:21	EPA 3005A	97,6010C	LC
Chromium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:21	EPA 3005A	97,6010C	LC
Lead, Dissolved	0.077		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:21	EPA 3005A	97,6010C	LC
Mercury, Dissolved	ND		mg/l	0.0002	--	1	03/02/18 12:31	03/02/18 17:23	EPA 7470A	97,7470A	MG
Nickel, Dissolved	ND		mg/l	0.025	--	1	03/03/18 10:40	03/07/18 11:21	EPA 3005A	97,6010C	LC
Selenium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:21	EPA 3005A	97,6010C	LC
Silver, Dissolved	ND		mg/l	0.007	--	1	03/03/18 10:40	03/07/18 11:21	EPA 3005A	97,6010C	LC
Thallium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 13:55	EPA 3005A	97,6020A	AM
Vanadium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:21	EPA 3005A	97,6010C	LC
Zinc, Dissolved	ND		mg/l	0.050	--	1	03/03/18 10:40	03/07/18 11:21	EPA 3005A	97,6010C	LC

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-05
Client ID: MW-7D
Sample Location: CAMBRIDGE, MA
Sample Depth:
Matrix: Water

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	03/03/18 10:40	03/06/18 13:59	EPA 3005A	97,6020A	AM
Arsenic, Dissolved	ND		mg/l	0.0050	--	1	03/03/18 10:40	03/07/18 11:25	EPA 3005A	97,6010C	LC
Barium, Dissolved	2.14		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:25	EPA 3005A	97,6010C	LC
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 13:59	EPA 3005A	97,6020A	AM
Cadmium, Dissolved	ND		mg/l	0.004	--	1	03/03/18 10:40	03/07/18 11:25	EPA 3005A	97,6010C	LC
Chromium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:25	EPA 3005A	97,6010C	LC
Lead, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:25	EPA 3005A	97,6010C	LC
Mercury, Dissolved	ND		mg/l	0.0002	--	1	03/02/18 12:31	03/02/18 17:25	EPA 7470A	97,7470A	MG
Nickel, Dissolved	ND		mg/l	0.025	--	1	03/03/18 10:40	03/07/18 11:25	EPA 3005A	97,6010C	LC
Selenium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:25	EPA 3005A	97,6010C	LC
Silver, Dissolved	ND		mg/l	0.007	--	1	03/03/18 10:40	03/07/18 11:25	EPA 3005A	97,6010C	LC
Thallium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 13:59	EPA 3005A	97,6020A	AM
Vanadium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:25	EPA 3005A	97,6010C	LC
Zinc, Dissolved	ND		mg/l	0.050	--	1	03/03/18 10:40	03/07/18 11:25	EPA 3005A	97,6010C	LC

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-06
Client ID: MW-7S
Sample Location: CAMBRIDGE, MA
Sample Depth:
Matrix: Water

Date Collected: 03/01/18 13:40
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	03/03/18 10:40	03/06/18 14:03	EPA 3005A	97,6020A	AM
Arsenic, Dissolved	ND		mg/l	0.0050	--	1	03/03/18 10:40	03/07/18 11:29	EPA 3005A	97,6010C	LC
Barium, Dissolved	0.526		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:29	EPA 3005A	97,6010C	LC
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 14:03	EPA 3005A	97,6020A	AM
Cadmium, Dissolved	ND		mg/l	0.004	--	1	03/03/18 10:40	03/07/18 11:29	EPA 3005A	97,6010C	LC
Chromium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:29	EPA 3005A	97,6010C	LC
Lead, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:29	EPA 3005A	97,6010C	LC
Mercury, Dissolved	ND		mg/l	0.0002	--	1	03/02/18 12:31	03/02/18 17:26	EPA 7470A	97,7470A	MG
Nickel, Dissolved	ND		mg/l	0.025	--	1	03/03/18 10:40	03/07/18 11:29	EPA 3005A	97,6010C	LC
Selenium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:29	EPA 3005A	97,6010C	LC
Silver, Dissolved	ND		mg/l	0.007	--	1	03/03/18 10:40	03/07/18 11:29	EPA 3005A	97,6010C	LC
Thallium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 14:03	EPA 3005A	97,6020A	AM
Vanadium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:29	EPA 3005A	97,6010C	LC
Zinc, Dissolved	0.060		mg/l	0.050	--	1	03/03/18 10:40	03/07/18 11:29	EPA 3005A	97,6010C	LC

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-07
Client ID: MW-9D
Sample Location: CAMBRIDGE, MA
Sample Depth:
Matrix: Water

Date Collected: 03/01/18 14:55
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	03/03/18 10:40	03/06/18 14:27	EPA 3005A	97,6020A	AM
Arsenic, Dissolved	0.0402		mg/l	0.0050	--	1	03/03/18 10:40	03/07/18 11:34	EPA 3005A	97,6010C	LC
Barium, Dissolved	0.134		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:34	EPA 3005A	97,6010C	LC
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 14:27	EPA 3005A	97,6020A	AM
Cadmium, Dissolved	ND		mg/l	0.004	--	1	03/03/18 10:40	03/07/18 11:34	EPA 3005A	97,6010C	LC
Chromium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:34	EPA 3005A	97,6010C	LC
Lead, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:34	EPA 3005A	97,6010C	LC
Mercury, Dissolved	ND		mg/l	0.0002	--	1	03/02/18 12:31	03/02/18 17:28	EPA 7470A	97,7470A	MG
Nickel, Dissolved	ND		mg/l	0.025	--	1	03/03/18 10:40	03/07/18 11:34	EPA 3005A	97,6010C	LC
Selenium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:34	EPA 3005A	97,6010C	LC
Silver, Dissolved	ND		mg/l	0.007	--	1	03/03/18 10:40	03/07/18 11:34	EPA 3005A	97,6010C	LC
Thallium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 14:27	EPA 3005A	97,6020A	AM
Vanadium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:34	EPA 3005A	97,6010C	LC
Zinc, Dissolved	ND		mg/l	0.050	--	1	03/03/18 10:40	03/07/18 11:34	EPA 3005A	97,6010C	LC

Project Name: TOBIN SCHOOL
Lab Number: L1807193
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807193-08
Client ID: MW-9S
Sample Location: CAMBRIDGE, MA
Sample Depth:
Matrix: Water

Date Collected: 03/01/18 15:00
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	03/03/18 10:40	03/06/18 14:32	EPA 3005A	97,6020A	AM
Arsenic, Dissolved	ND		mg/l	0.0050	--	1	03/03/18 10:40	03/07/18 11:38	EPA 3005A	97,6010C	LC
Barium, Dissolved	0.113		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:38	EPA 3005A	97,6010C	LC
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 14:32	EPA 3005A	97,6020A	AM
Cadmium, Dissolved	ND		mg/l	0.004	--	1	03/03/18 10:40	03/07/18 11:38	EPA 3005A	97,6010C	LC
Chromium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:38	EPA 3005A	97,6010C	LC
Lead, Dissolved	0.054		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:38	EPA 3005A	97,6010C	LC
Mercury, Dissolved	ND		mg/l	0.0002	--	1	03/02/18 12:31	03/02/18 17:30	EPA 7470A	97,7470A	MG
Nickel, Dissolved	ND		mg/l	0.025	--	1	03/03/18 10:40	03/07/18 11:38	EPA 3005A	97,6010C	LC
Selenium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:38	EPA 3005A	97,6010C	LC
Silver, Dissolved	ND		mg/l	0.007	--	1	03/03/18 10:40	03/07/18 11:38	EPA 3005A	97,6010C	LC
Thallium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 14:32	EPA 3005A	97,6020A	AM
Vanadium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:38	EPA 3005A	97,6010C	LC
Zinc, Dissolved	0.224		mg/l	0.050	--	1	03/03/18 10:40	03/07/18 11:38	EPA 3005A	97,6010C	LC

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab for sample(s): 01-08 Batch: WG1093949-1										
Mercury, Dissolved	ND		mg/l	0.0002	--	1	03/02/18 12:31	03/02/18 16:59	97,7470A	MG

Prep Information

Digestion Method: EPA 7470A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab for sample(s): 01-08 Batch: WG1094197-1										
Antimony, Dissolved	ND		mg/l	0.0040	--	1	03/03/18 10:40	03/06/18 13:30	97,6020A	AM
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 13:30	97,6020A	AM
Thallium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 13:30	97,6020A	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab for sample(s): 01-08 Batch: WG1094198-1										
Arsenic, Dissolved	ND		mg/l	0.0050	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Barium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Cadmium, Dissolved	ND		mg/l	0.004	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Chromium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Lead, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Nickel, Dissolved	ND		mg/l	0.025	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Selenium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Silver, Dissolved	ND		mg/l	0.007	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Vanadium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Zinc, Dissolved	ND		mg/l	0.050	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807193
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807193

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Dissolved Metals - Mansfield Lab Associated sample(s): 01-08 Batch: WG1093949-2 WG1093949-3								
Mercury, Dissolved	93		97		80-120	4		20
MCP Dissolved Metals - Mansfield Lab Associated sample(s): 01-08 Batch: WG1094197-2 WG1094197-3								
Antimony, Dissolved	109		110		80-120	1		20
Beryllium, Dissolved	110		110		80-120	0		20
Thallium, Dissolved	98		96		80-120	2		20
MCP Dissolved Metals - Mansfield Lab Associated sample(s): 01-08 Batch: WG1094198-2 WG1094198-3								
Arsenic, Dissolved	112		110		80-120	2		20
Barium, Dissolved	106		108		80-120	2		20
Cadmium, Dissolved	110		109		80-120	1		20
Chromium, Dissolved	104		104		80-120	0		20
Lead, Dissolved	107		106		80-120	1		20
Nickel, Dissolved	102		102		80-120	0		20
Selenium, Dissolved	113		113		80-120	0		20
Silver, Dissolved	117		115		80-120	2		20
Vanadium, Dissolved	106		106		80-120	0		20
Zinc, Dissolved	106		106		80-120	0		20

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent
E	Absent
F	Absent
G	Absent
H	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1807193-01A	Vial HCl preserved	H	NA		3.7	Y	Absent		MCP-8260-10(14)
L1807193-01B	Vial HCl preserved	H	NA		3.7	Y	Absent		MCP-8260-10(14)
L1807193-01C	Vial HCl preserved	H	NA		3.7	Y	Absent		MCP-8260-10(14)
L1807193-01D	Plastic 250ml HNO3 preserved	H	<2	<2	3.7	Y	Absent		MCP-BE-6020S-10(180),MCP-CD-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-SB-6020S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-TL-6020S-10(180),MCP-BA-6010S-10(180),MCP-PB-6010S-10(180),MCP-NI-6010S-10(180),MCP-SE-6010S-10(180),MCP-V-6010S-10(180)
L1807193-01E	Amber 500ml unpreserved	H	7	7	3.7	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-01F	Amber 500ml unpreserved	H	7	7	3.7	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-01H	Amber 1000ml unpreserved	H	7	7	3.7	Y	Absent		MCP-8082-10(365)
L1807193-01I	Amber 1000ml unpreserved	H	7	7	3.7	Y	Absent		MCP-8082-10(365)
L1807193-01J	Amber 1000ml unpreserved	H	7	7	3.7	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-01K	Amber 1000ml unpreserved	H	7	7	3.7	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-01L	Amber 1000ml HCl preserved	H	<2	<2	3.7	Y	Absent		EPH-10(14)
L1807193-01M	Amber 1000ml HCl preserved	H	<2	<2	3.7	Y	Absent		EPH-10(14)

*Values in parentheses indicate holding time in days

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1807193-02A	Vial HCl preserved	D	NA		3.9	Y	Absent		MCP-8260-10(14)
L1807193-02B	Vial HCl preserved	D	NA		3.9	Y	Absent		MCP-8260-10(14)
L1807193-02C	Vial HCl preserved	D	NA		3.9	Y	Absent		MCP-8260-10(14)
L1807193-02D	Plastic 250ml HNO3 preserved	D	<2	<2	3.9	Y	Absent		MCP-BE-6020S-10(180),MCP-CD-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-SB-6020S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-TL-6020S-10(180),MCP-BA-6010S-10(180),MCP-PB-6010S-10(180),MCP-NI-6010S-10(180),MCP-SE-6010S-10(180),MCP-V-6010S-10(180)
L1807193-02E	Amber 500ml unpreserved	D	7	7	3.9	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-02F	Amber 500ml unpreserved	D	7	7	3.9	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-02H	Amber 1000ml unpreserved	D	7	7	3.9	Y	Absent		MCP-8082-10(365)
L1807193-02I	Amber 1000ml unpreserved	D	7	7	3.9	Y	Absent		MCP-8082-10(365)
L1807193-02J	Amber 1000ml unpreserved	D	7	7	3.9	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-02K	Amber 1000ml unpreserved	D	7	7	3.9	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-02L	Amber 1000ml HCl preserved	D	<2	<2	3.9	Y	Absent		EPH-10(14)
L1807193-02M	Amber 1000ml HCl preserved	D	<2	<2	3.9	Y	Absent		EPH-10(14)
L1807193-03A	Vial HCl preserved	A	NA		3.0	Y	Absent		MCP-8260-10(14)
L1807193-03B	Vial HCl preserved	A	NA		3.0	Y	Absent		MCP-8260-10(14)
L1807193-03C	Vial HCl preserved	A	NA		3.0	Y	Absent		MCP-8260-10(14)
L1807193-03D	Plastic 250ml HNO3 preserved	A	<2	<2	3.0	Y	Absent		MCP-BE-6020S-10(180),MCP-CD-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-SB-6020S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-TL-6020S-10(180),MCP-BA-6010S-10(180),MCP-PB-6010S-10(180),MCP-NI-6010S-10(180),MCP-SE-6010S-10(180),MCP-V-6010S-10(180)
L1807193-03E	Amber 500ml unpreserved	A	7	7	3.0	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-03F	Amber 500ml unpreserved	A	7	7	3.0	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-03H	Amber 1000ml unpreserved	A	7	7	3.0	Y	Absent		MCP-8082-10(365)
L1807193-03I	Amber 1000ml unpreserved	A	7	7	3.0	Y	Absent		MCP-8082-10(365)
L1807193-03J	Amber 1000ml unpreserved	A	7	7	3.0	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)

*Values in parentheses indicate holding time in days

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1807193-03K	Amber 1000ml unpreserved	A	7	7	3.0	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-03L	Amber 1000ml HCl preserved	A	<2	<2	3.0	Y	Absent		EPH-10(14)
L1807193-03M	Amber 1000ml HCl preserved	A	<2	<2	3.0	Y	Absent		EPH-10(14)
L1807193-04A	Vial HCl preserved	F	NA		3.3	Y	Absent		MCP-8260-10(14)
L1807193-04B	Vial HCl preserved	F	NA		3.3	Y	Absent		MCP-8260-10(14)
L1807193-04C	Vial HCl preserved	F	NA		3.3	Y	Absent		MCP-8260-10(14)
L1807193-04D	Plastic 250ml HNO3 preserved	F	<2	<2	3.3	Y	Absent		MCP-BE-6020S-10(180),MCP-CD-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-SB-6020S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-TL-6020S-10(180),MCP-BA-6010S-10(180),MCP-PB-6010S-10(180),MCP-NI-6010S-10(180),MCP-SE-6010S-10(180),MCP-V-6010S-10(180)
L1807193-04E	Amber 500ml unpreserved	F	7	7	3.3	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-04F	Amber 500ml unpreserved	F	7	7	3.3	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-04H	Amber 1000ml unpreserved	F	7	7	3.3	Y	Absent		MCP-8082-10(365)
L1807193-04I	Amber 1000ml unpreserved	F	7	7	3.3	Y	Absent		MCP-8082-10(365)
L1807193-04J	Amber 1000ml unpreserved	F	7	7	3.3	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-04K	Amber 1000ml unpreserved	F	7	7	3.3	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-04L	Amber 1000ml HCl preserved	F	<2	<2	3.3	Y	Absent		EPH-10(14)
L1807193-04M	Amber 1000ml HCl preserved	F	<2	<2	3.3	Y	Absent		EPH-10(14)
L1807193-05A	Vial HCl preserved	C	NA		2.8	Y	Absent		MCP-8260-10(14)
L1807193-05B	Vial HCl preserved	C	NA		2.8	Y	Absent		MCP-8260-10(14)
L1807193-05C	Vial HCl preserved	C	NA		2.8	Y	Absent		MCP-8260-10(14)
L1807193-05D	Plastic 250ml HNO3 preserved	C	<2	<2	2.8	Y	Absent		MCP-BE-6020S-10(180),MCP-CD-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-SB-6020S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-TL-6020S-10(180),MCP-BA-6010S-10(180),MCP-PB-6010S-10(180),MCP-NI-6010S-10(180),MCP-SE-6010S-10(180),MCP-V-6010S-10(180)
L1807193-05E	Amber 500ml unpreserved	C	7	7	2.8	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-05F	Amber 500ml unpreserved	C	7	7	2.8	Y	Absent		A2-MCP-14DX-SIM-PPB(7)

*Values in parentheses indicate holding time in days

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1807193-05H	Amber 1000ml unpreserved	C	7	7	2.8	Y	Absent		MCP-8082-10(365)
L1807193-05I	Amber 1000ml unpreserved	C	7	7	2.8	Y	Absent		MCP-8082-10(365)
L1807193-05J	Amber 1000ml unpreserved	C	7	7	2.8	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-05K	Amber 1000ml unpreserved	C	7	7	2.8	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-05L	Amber 1000ml HCl preserved	C	<2	<2	2.8	Y	Absent		EPH-10(14)
L1807193-05M	Amber 1000ml HCl preserved	C	<2	<2	2.8	Y	Absent		EPH-10(14)
L1807193-06A	Vial HCl preserved	E	NA		5.9	Y	Absent		MCP-8260-10(14)
L1807193-06B	Vial HCl preserved	E	NA		5.9	Y	Absent		MCP-8260-10(14)
L1807193-06C	Vial HCl preserved	E	NA		5.9	Y	Absent		MCP-8260-10(14)
L1807193-06D	Plastic 250ml HNO3 preserved	E	<2	<2	5.9	Y	Absent		MCP-BE-6020S-10(180),MCP-CD-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-SB-6020S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-TL-6020S-10(180),MCP-BA-6010S-10(180),MCP-PB-6010S-10(180),MCP-NI-6010S-10(180),MCP-SE-6010S-10(180),MCP-V-6010S-10(180)
L1807193-06E	Amber 500ml unpreserved	E	7	7	5.9	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-06F	Amber 500ml unpreserved	E	7	7	5.9	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-06H	Amber 1000ml unpreserved	E	7	7	5.9	Y	Absent		MCP-8082-10(365)
L1807193-06I	Amber 1000ml unpreserved	E	7	7	5.9	Y	Absent		MCP-8082-10(365)
L1807193-06J	Amber 1000ml unpreserved	E	7	7	5.9	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-06K	Amber 1000ml unpreserved	E	7	7	5.9	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-06L	Amber 1000ml HCl preserved	E	<2	<2	5.9	Y	Absent		EPH-10(14)
L1807193-06M	Amber 1000ml HCl preserved	E	<2	<2	5.9	Y	Absent		EPH-10(14)
L1807193-07A	Vial HCl preserved	B	NA		3.2	Y	Absent		MCP-8260-10(14)
L1807193-07B	Vial HCl preserved	B	NA		3.2	Y	Absent		MCP-8260-10(14)
L1807193-07C	Vial HCl preserved	B	NA		3.2	Y	Absent		MCP-8260-10(14)

*Values in parentheses indicate holding time in days

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1807193-07D	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		MCP-BE-6020S-10(180),MCP-CD-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-SB-6020S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-TL-6020S-10(180),MCP-BA-6010S-10(180),MCP-PB-6010S-10(180),MCP-NI-6010S-10(180),MCP-SE-6010S-10(180),MCP-V-6010S-10(180)
L1807193-07E	Amber 500ml unpreserved	B	7	7	3.2	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-07F	Amber 500ml unpreserved	B	7	7	3.2	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-07H	Amber 1000ml unpreserved	B	7	7	3.2	Y	Absent		MCP-8082-10(365)
L1807193-07I	Amber 1000ml unpreserved	B	7	7	3.2	Y	Absent		MCP-8082-10(365)
L1807193-07J	Amber 1000ml unpreserved	B	7	7	3.2	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-07K	Amber 1000ml unpreserved	B	7	7	3.2	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-07L	Amber 1000ml HCl preserved	B	<2	<2	3.2	Y	Absent		EPH-10(14)
L1807193-07M	Amber 1000ml HCl preserved	B	<2	<2	3.2	Y	Absent		EPH-10(14)
L1807193-08A	Vial HCl preserved	G	NA		4.6	Y	Absent		MCP-8260-10(14)
L1807193-08B	Vial HCl preserved	G	NA		4.6	Y	Absent		MCP-8260-10(14)
L1807193-08C	Vial HCl preserved	G	NA		4.6	Y	Absent		MCP-8260-10(14)
L1807193-08D	Plastic 250ml HNO3 preserved	G	<2	<2	4.6	Y	Absent		MCP-BE-6020S-10(180),MCP-CD-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-SB-6020S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-TL-6020S-10(180),MCP-BA-6010S-10(180),MCP-PB-6010S-10(180),MCP-NI-6010S-10(180),MCP-SE-6010S-10(180),MCP-V-6010S-10(180)
L1807193-08E	Amber 500ml unpreserved	G	7	7	4.6	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-08F	Amber 500ml unpreserved	G	7	7	4.6	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807193-08H	Amber 1000ml unpreserved	G	7	7	4.6	Y	Absent		MCP-8082-10(365)
L1807193-08I	Amber 1000ml unpreserved	G	7	7	4.6	Y	Absent		MCP-8082-10(365)
L1807193-08J	Amber 1000ml unpreserved	G	7	7	4.6	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-08K	Amber 1000ml unpreserved	G	7	7	4.6	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807193-08L	Amber 1000ml HCl preserved	G	<2	<2	4.6	Y	Absent		EPH-10(14)
L1807193-08M	Amber 1000ml HCl preserved	G	<2	<2	4.6	Y	Absent		EPH-10(14)

*Values in parentheses indicate holding time in days

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807193
Report Date: 03/09/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1807193-09A	Vial HCl preserved	C	NA		2.8	Y	Absent		MCP-8260-10(14)
L1807193-09B	Vial HCl preserved	C	NA		2.8	Y	Absent		MCP-8260-10(14)

*Values in parentheses indicate holding time in days

Project Name:	TOBIN SCHOOL	**Lab Number:**	L1807193
Project Number:	0139-220813	**Report Date:**	03/09/18

GLOSSARY

Acronyms

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

Footnotes

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

Terms

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

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

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

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

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

Data Qualifiers

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

Report Format: Data Usability Report

Project Name:	TOBIN SCHOOL	**Lab Number:**	L1807193
Project Number:	0139-220813	**Report Date:**	03/09/18

Data Qualifiers

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

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

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

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

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

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

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

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

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

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

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

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

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

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

Report Format: Data Usability Report

Project Name:	TOBIN SCHOOL	**Lab Number:**	L1807193
Project Number:	0139-220813	**Report Date:**	03/09/18

REFERENCES

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

98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.

LIMITATION OF LIABILITIES

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

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

Certification Information

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

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.

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

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

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, SM9222D.**

Mansfield Facility:

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

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

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

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 3/1/18

ALPHA Job #: L1807193

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: Tob. School
Project Location: Cambridge, MA
Project #: 0139-220813
Project Manager: JM Greene
ALPHA Quote #:

Report Information - Data Deliverables
~~FAX~~ ☐ EMAIL

Billing Information
☐ Same as Client info PO #:

Client Information
Client: CPM Smith
Address: 75 State St. Suite 701
Boston, MA 02109
Phone: 617-452-6721
Email: cestonguay@cdrsmith.com

Turn-Around Time
☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due:

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 _____

Additional Project Information:
- MA New MCP Presumptive Certainty Requirements
- Must meet GW-1 Standards

ANALYSIS: VOC: ☐ 8260 ☐ 624 ☐ 524.2; SVOC: ☐ ABN ☐ PAH; METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15; METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13; EPH: ☐ Ranges & Targets ☐ Ranges Only; VPH: ☐ Ranges & Targets ☐ Ranges Only; ☐ PCB ☐ PEST; TPH: ☐ Quant Only ☐ Fingerprint; MCP 8260 - VOC; ABN Subcatalog - EPA 8270D; 14 - Dioxane EPA 8270D SIM; EPH - Cambridge EPA 8270D SIM; PCB - EPA 8082A; DJS MCP 14 Metals (6020A/7470)

SAMPLE INFO: Filtration ☑ Field ☐ Lab to do; Preservation ☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Sample Comments	TOTAL # BOTTLES
07193-01	MW-3S	3/1/18	10:05	GW	NC		12
02	MW-3D		10:15				
03	MW-4S		12:15				
04	MW-4D		11:45				
05	MW-7D		13:40				
06	MW-7S		13:40				
07	MW-9D		14:55				
08	MW-9S		15:00				
09	~~MW-11S~~ Trip Blank	2/27	—	TB	SC		1
	~~MW-11D~~						

Container Type								V	A	A	A	A	P
Preservative								B	A	A	B	A	C

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

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

Relinquished By:	Date/Time	Received By:	Date/Time
AAL 3/1/18	3/1/18 16:20	AAL 3/1/18	3/1/18 16:20
AAL 3/1/18	3/1/18 19:10	Danielle Mott	3/1/18 19:10

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

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

Method Blank Summary
Form 4

Client	: CDM Smith, Inc.	**Lab Number**	: L1807193
Project Name	: TOBIN SCHOOL	**Project Number**	: 0139-220813
Lab Sample ID	: WG1095128-5	**Lab File ID**	: V16180306N05
Instrument ID	: VOA116		
Matrix	: WATER	**Analysis Date**	: 03/06/18 18:47

Client Sample No.	Lab Sample ID	Analysis Date
WG1095128-3LCS	WG1095128-3	03/06/18 17:07
WG1095128-4LCSD	WG1095128-4	03/06/18 17:32
TRIP BLANK	L1807193-09	03/06/18 19:12
MW-3S	L1807193-01	03/06/18 19:37
MW-3D	L1807193-02	03/06/18 20:02
MW-4S	L1807193-03	03/06/18 20:28
MW-4D	L1807193-04	03/06/18 20:53
MW-7D	L1807193-05	03/06/18 21:18
MW-7S	L1807193-06	03/06/18 21:43
MW-9D	L1807193-07	03/06/18 22:08
MW-9S	L1807193-08	03/06/18 22:33

Method Blank Summary
Form 4

Client	: CDM Smith, Inc.	**Lab Number**	: L1807193
Project Name	: TOBIN SCHOOL	**Project Number**	: 0139-220813
Lab Sample ID	: WG1095128-10	**Lab File ID**	: V16180307A06
Instrument ID	: VOA116		
Matrix	: WATER	**Analysis Date**	: 03/07/18 07:59

Client Sample No.	Lab Sample ID	Analysis Date
WG1095128-8LCS	WG1095128-8	03/07/18 06:19
WG1095128-9LCSD	WG1095128-9	03/07/18 06:44
MW-9D	L1807193-07D	03/07/18 10:55

Continuing Calibration
Form 7

Client	: CDM Smith, Inc.	**Lab Number**	: L1807193		
Project Name	: TOBIN SCHOOL	**Project Number**	: 0139-220813		
Instrument ID	: VOA116	**Calibration Date**	: 03/06/18 17:07		
Lab File ID	: V16180306N01	**Init. Calib. Date(s)**	: 03/01/18	03/01/18	
Sample No	: WG1095128-2	**Init. Calib. Times**	: 17:47	20:42	
Channel	:				

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	81	0
Dichlorodifluoromethane	0.365	0.409	-	-12.1	20	87	0
Chloromethane	0.549	0.447	-	18.6	20	65	0
Vinyl chloride	0.501	0.514	-	-2.6	20	79	0
Bromomethane	0.22	0.294	-	-33.6*	20	105	0
Chloroethane	0.299	0.316	-	-5.7	20	79	0
Trichlorofluoromethane	0.555	0.628	-	-13.2	20	87	0
Ethyl ether	0.16	0.176	-	-10	20	84	0
1,1-Dichloroethene	0.279	0.317	-	-13.6	20	91	0
Carbon disulfide	0.85	0.998	-	-17.4	20	94	0
Freon-113	0.307	0.357	-	-16.3	20	91	0
Methylene chloride	0.299	0.328	-	-9.7	20	83	0
Acetone	10	9.803	-	2	20	70	0
trans-1,2-Dichloroethene	0.294	0.32	-	-8.8	20	84	0
Methyl tert-butyl ether	0.686	0.715	-	-4.2	20	84	0
tert-Butyl alcohol	0.023	0.021*	-	8.7	20	68	0
Diisopropyl ether	1.453	1.262	-	13.1	20	69	0
1,1-Dichloroethane	0.729	0.724	-	0.7	20	78	0
Ethyl tert-butyl ether	1.104	1.023	-	7.3	20	73	0
cis-1,2-Dichloroethene	0.323	0.342	-	-5.9	20	86	0
2,2-Dichloropropane	0.545	0.614	-	-12.7	20	90	0
Bromochloromethane	0.122	0.14	-	-14.8	20	82	0
Chloroform	0.595	0.643	-	-8.1	20	86	0
Carbon tetrachloride	0.436	0.476	-	-9.2	20	84	0
Tetrahydrofuran	10	8.872	-	11.3	20	67	0
Dibromofluoromethane	0.266	0.266	-	0	20	80	0
1,1,1-Trichloroethane	0.524	0.557	-	-6.3	20	84	0
2-Butanone	10	8.891	-	11.1	20	66	0
1,1-Dichloropropene	0.49	0.525	-	-7.1	20	86	0
Benzene	1.331	1.417	-	-6.5	20	85	0
tert-Amyl methyl ether	0.806	0.814	-	-1	20	82	0
1,2-Dichloroethane-d4	0.37	0.362	-	2.2	20	81	0
1,2-Dichloroethane	0.526	0.512	-	2.7	20	79	0
Trichloroethene	0.323	0.358	-	-10.8	20	86	0
Dibromomethane	0.178	0.19	-	-6.7	20	81	0
1,2-Dichloropropane	0.394	0.379	-	3.8	20	78	0
2-Chloroethyl vinyl ether	0.165	0.134	-	18.8	20	67	0
Bromodichloromethane	0.473	0.505	-	-6.8	20	83	0
1,4-Dioxane	0.00174	0.00147*	-	15.5	20	66	0
cis-1,3-Dichloropropene	0.531	0.582	-	-9.6	20	85	0
Chlorobenzene-d5	1	1	-	0	20	81	0
Toluene-d8	1.309	1.316	-	-0.5	20	81	0
Toluene	1.011	1.025	-	-1.4	20	81	0
4-Methyl-2-pentanone	10	8.19	-	18.1	20	69	0
Tetrachloroethene	0.355	0.351	-	1.1	20	78	0

* Value outside of QC limits.

Continuing Calibration
Form 7

Client	: CDM Smith, Inc.		Lab Number	: L1807193	
Project Name	: TOBIN SCHOOL		Project Number	: 0139-220813	
Instrument ID	: VOA116		Calibration Date	: 03/06/18 17:07	
Lab File ID	: V16180306N01		Init. Calib. Date(s)	: 03/01/18	03/01/18
Sample No	: WG1095128-2		Init. Calib. Times	: 17:47	20:42
Channel	:				

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
trans-1,3-Dichloropropene	10	10.158	-	-1.6	20	82	0
1,1,2-Trichloroethane	0.271	0.295	-	-8.9	20	85	0
Chlorodibromomethane	0.333	0.336	-	-0.9	20	81	0
1,3-Dichloropropane	0.583	0.62	-	-6.3	20	84	0
1,2-Dibromoethane	0.282	0.292	-	-3.5	20	81	0
2-Hexanone	10	7.642	-	23.6*	20	65	.01
Chlorobenzene	1.013	1.049	-	-3.6	20	84	0
Ethylbenzene	1.973	1.991	-	-0.9	20	82	0
1,1,1,2-Tetrachloroethane	0.347	0.364	-	-4.9	20	82	0
p/m Xylene	0.703	0.714	-	-1.6	20	83	0
o Xylene	0.654	0.648	-	0.9	20	80	0
Styrene	1.089	1.091	-	-0.2	20	81	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	81	0
Bromoform	0.4	0.381	-	4.8	20	78	0
Isopropylbenzene	3.791	3.753	-	1	20	80	0
4-Bromofluorobenzene	1.073	1.104	-	-2.9	20	84	0
Bromobenzene	0.764	0.748	-	2.1	20	81	0
n-Propylbenzene	4.843	4.96	-	-2.4	20	83	0
1,1,2,2-Tetrachloroethane	0.745	0.798	-	-7.1	20	83	0
2-Chlorotoluene	3.174	3.232	-	-1.8	20	81	0
1,3,5-Trimethylbenzene	3.125	3.141	-	-0.5	20	81	0
1,2,3-Trichloropropane	0.642	0.694	-	-8.1	20	83	0
4-Chlorotoluene	2.797	2.889	-	-3.3	20	82	0
tert-Butylbenzene	1.968	2.232	-	-13.4	20	95	0
1,2,4-Trimethylbenzene	3.05	3.053	-	-0.1	20	79	0
sec-Butylbenzene	3.759	3.73	-	0.8	20	79	0
p-Isopropyltoluene	3.068	3.01	-	1.9	20	79	0
1,3-Dichlorobenzene	1.462	1.471	-	-0.6	20	80	0
1,4-Dichlorobenzene	1.497	1.459	-	2.5	20	80	0
n-Butylbenzene	3.188	3.279	-	-2.9	20	84	0
1,2-Dichlorobenzene	1.341	1.313	-	2.1	20	80	0
1,2-Dibromo-3-chloropropan	0.086	0.082	-	4.7	20	76	0
Hexachlorobutadiene	0.258	0.248	-	3.9	20	78	0
1,2,4-Trichlorobenzene	0.788	0.731	-	7.2	20	77	0
Naphthalene	1.872	1.747	-	6.7	20	76	0
1,2,3-Trichlorobenzene	0.69	0.653	-	5.4	20	76	0

* Value outside of QC limits.

Continuing Calibration
Form 7

Client	: CDM Smith, Inc.		Lab Number	: L1807193	
Project Name	: TOBIN SCHOOL		Project Number	: 0139-220813	
Instrument ID	: VOA116		Calibration Date	: 03/07/18 06:19	
Lab File ID	: V16180307A02		Init. Calib. Date(s)	: 03/01/18	03/01/18
Sample No	: WG1095128-7		Init. Calib. Times	: 17:47	20:42
Channel	:				

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	63	0
Dichlorodifluoromethane	0.365	0.429	-	-17.5	20	71	0
Chloromethane	0.549	0.446	-	18.8	20	51	0
Vinyl chloride	0.501	0.509	-	-1.6	20	61	0
Bromomethane	0.22	0.25	-	-13.6	20	70	0
Chloroethane	0.299	0.337	-	-12.7	20	65	0
Trichlorofluoromethane	0.555	0.674	-	-21.4*	20	73	0
Ethyl ether	0.16	0.195	-	-21.9*	20	72	0
1,1-Dichloroethene	0.279	0.336	-	-20.4*	20	75	0
Carbon disulfide	0.85	1.098	-	-29.2*	20	80	0
Methylene chloride	0.299	0.352	-	-17.7	20	69	0
Acetone	10	11.169	-	-11.7	20	62	0
trans-1,2-Dichloroethene	0.294	0.32	-	-8.8	20	66	0
Methyl tert-butyl ether	0.686	0.766	-	-11.7	20	70	0
Diisopropyl ether	1.453	1.329	-	8.5	20	57	0
1,1-Dichloroethane	0.729	0.788	-	-8.1	20	66	0
Ethyl tert-butyl ether	1.104	1.094	-	0.9	20	61	0
cis-1,2-Dichloroethene	0.323	0.347	-	-7.4	20	67	0
2,2-Dichloropropane	0.545	0.641	-	-17.6	20	73	0
Bromochloromethane	0.122	0.149	-	-22.1*	20	67	0
Chloroform	0.595	0.693	-	-16.5	20	72	0
Carbon tetrachloride	0.436	0.5	-	-14.7	20	68	0
Tetrahydrofuran	10	10.506	-	-5.1	20	61	0
Dibromofluoromethane	0.266	0.272	-	-2.3	20	64	0
1,1,1-Trichloroethane	0.524	0.591	-	-12.8	20	69	0
2-Butanone	10	10.64	-	-6.4	20	62	0
1,1-Dichloropropene	0.49	0.524	-	-6.9	20	67	0
Benzene	1.331	1.479	-	-11.1	20	69	0
tert-Amyl methyl ether	0.806	0.86	-	-6.7	20	67	0
1,2-Dichloroethane-d4	0.37	0.39	-	-5.4	20	68	0
1,2-Dichloroethane	0.526	0.566	-	-7.6	20	68	0
Trichloroethene	0.323	0.37	-	-14.6	20	69	0
Dibromomethane	0.178	0.214	-	-20.2*	20	71	0
1,2-Dichloropropane	0.394	0.419	-	-6.3	20	67	0
Bromodichloromethane	0.473	0.559	-	-18.2	20	71	0
1,4-Dioxane	0.00174	0.00175*	-	-0.6	20	61	0
cis-1,3-Dichloropropene	0.531	0.591	-	-11.3	20	67	0
Chlorobenzene-d5	1	1	-	0	20	65	0
Toluene-d8	1.309	1.303	-	0.5	20	64	0
Toluene	1.011	1.039	-	-2.8	20	66	0
4-Methyl-2-pentanone	10	8.598	-	14	20	59	0
Tetrachloroethene	0.355	0.351	-	1.1	20	62	0
trans-1,3-Dichloropropene	10	10.542	-	-5.4	20	68	0
1,1,2-Trichloroethane	0.271	0.316	-	-16.6	20	73	0
Chlorodibromomethane	0.333	0.363	-	-9	20	71	0

* Value outside of QC limits.

Continuing Calibration
Form 7

Client	: CDM Smith, Inc.	**Lab Number**	: L1807193		
Project Name	: TOBIN SCHOOL	**Project Number**	: 0139-220813		
Instrument ID	: VOA116	**Calibration Date**	: 03/07/18 06:19		
Lab File ID	: V16180307A02	**Init. Calib. Date(s)**	: 03/01/18	03/01/18	
Sample No	: WG1095128-7	**Init. Calib. Times**	: 17:47	20:42	
Channel	:				

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,3-Dichloropropane	0.583	0.645	-	-10.6	20	70	0
1,2-Dibromoethane	0.282	0.319	-	-13.1	20	71	0
2-Hexanone	10	8.356	-	16.4	20	57	0
Chlorobenzene	1.013	1.037	-	-2.4	20	67	0
Ethylbenzene	1.973	1.979	-	-0.3	20	66	0
1,1,1,2-Tetrachloroethane	0.347	0.378	-	-8.9	20	68	0
p/m Xylene	0.703	0.711	-	-1.1	20	66	0
o Xylene	0.654	0.656	-	-0.3	20	65	0
Styrene	1.089	1.116	-	-2.5	20	66	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	66	0
Bromoform	0.4	0.407	-	-1.7	20	67	0
Isopropylbenzene	3.791	3.605	-	4.9	20	62	0
4-Bromofluorobenzene	1.073	1.072	-	0.1	20	66	0
Bromobenzene	0.764	0.753	-	1.4	20	66	0
n-Propylbenzene	4.843	4.936	-	-1.9	20	66	0
1,1,2,2-Tetrachloroethane	0.745	0.882	-	-18.4	20	73	0
2-Chlorotoluene	3.174	3.356	-	-5.7	20	67	0
1,3,5-Trimethylbenzene	3.125	3.174	-	-1.6	20	66	0
1,2,3-Trichloropropane	0.642	0.747	-	-16.4	20	72	0
4-Chlorotoluene	2.797	2.936	-	-5	20	67	0
tert-Butylbenzene	1.968	1.796	-	8.7	20	62	0
1,2,4-Trimethylbenzene	3.05	3.061	-	-0.4	20	64	0
sec-Butylbenzene	3.759	3.674	-	2.3	20	63	0
p-Isopropyltoluene	3.068	2.944	-	4	20	62	0
1,3-Dichlorobenzene	1.462	1.494	-	-2.2	20	65	0
1,4-Dichlorobenzene	1.497	1.472	-	1.7	20	65	0
n-Butylbenzene	3.188	3.279	-	-2.9	20	67	0
1,2-Dichlorobenzene	1.341	1.364	-	-1.7	20	67	0
1,2-Dibromo-3-chloropropan	0.086	0.09	-	-4.7	20	68	0
Hexachlorobutadiene	0.258	0.237	-	8.1	20	60	0
1,2,4-Trichlorobenzene	0.788	0.717	-	9	20	61	0
Naphthalene	1.872	1.801	-	3.8	20	63	0
1,2,3-Trichlorobenzene	0.69	0.676	-	2	20	63	0

* Value outside of QC limits.

ANALYTICAL REPORT

Lab Number:	L1807264
Client:	CDM Smith, Inc. 75 State Street Suite 701 Boston, MA 02109
ATTN:	Nicholas Castonguay
Phone:	(617) 452-6721
Project Name:	TOBIN SCHOOL
Project Number:	0139-220813
Report Date:	03/09/18

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807264
Report Date: 03/09/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1807264-01	MW-14D	WATER	CAMBRIDGE, MA	03/01/18 16:10	03/01/18
L1807264-02	MW-14S	WATER	CAMBRIDGE, MA	03/01/18 16:25	03/01/18

Project Name: TOBIN SCHOOL **Lab Number:** L1807264

Project Number: 0139-220813 **Report Date:** 03/09/18

MADEP MCP Response Action Analytical Report Certification

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

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

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

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

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

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807264
Report Date: 03/09/18

Case Narrative

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

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

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

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

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

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

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

Case Narrative (continued)

MCP Related Narratives

Volatile Organics

In reference to question H:

The initial calibration, associated with L1807264-01 and -02, did not meet the method required minimum response factor on the lowest calibration standard for 1,4-dioxane (0.0021), as well as the average response factor for 1,4-dioxane. In addition, a quadratic fit was utilized for chloroethane. The initial calibration verification, associated with L1807264-01 and -02, is outside acceptance criteria for carbon disulfide (133%). The continuing calibration standard, associated with L1807264-01 and -02, is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.

EPH

In reference to question A:

L1807264-02: Due to limited HCl preserved volume received, the results reported are from a re-extraction performed from an unpreserved container.

In reference to question I:

All samples were analyzed for a subset of MCP analytes per the Chain of Custody.

Dissolved Metals

In reference to question G:

L1807264-01 and -02: One or more of the target analytes did not achieve the requested CAM reporting limits.

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

Authorized Signature: Amita Naik

Title: Technical Director/Representative Date: 03/09/18

ORGANICS

VOLATILES

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-01
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 16:10
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 03/07/18 06:07
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.40	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.40	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-01
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 16:10
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	6.7		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807264
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-01
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 16:10
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	100		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-02
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 16:25
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 03/07/18 06:37
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.40	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.40	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-02
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 16:25
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

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

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-02
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 16:25
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	102		70-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 03/07/18 04:36
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-02 Batch: WG1095245-5					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.40	--
cis-1,3-Dichloropropene	ND		ug/l	0.40	--
1,3-Dichloropropene, Total	ND		ug/l	0.40	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 03/07/18 04:36
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-02 Batch: WG1095245-5					
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
Xylene (Total)	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
1,2-Dichloroethene (total)	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
2-Butanone	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	2.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 03/07/18 04:36
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-02 Batch: WG1095245-5					
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Ethyl ether	ND		ug/l	2.0	--
Isopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807264

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-02 Batch: WG1095245-3 WG1095245-4								
Methylene chloride	100		97		70-130	3		20
1,1-Dichloroethane	100		98		70-130	2		20
Chloroform	110		100		70-130	10		20
Carbon tetrachloride	100		88		70-130	13		20
1,2-Dichloropropane	100		96		70-130	4		20
Dibromochloromethane	100		94		70-130	6		20
1,1,2-Trichloroethane	110		100		70-130	10		20
Tetrachloroethene	110		100		70-130	10		20
Chlorobenzene	110		100		70-130	10		20
Trichlorofluoromethane	120		110		70-130	9		20
1,2-Dichloroethane	100		89		70-130	12		20
1,1,1-Trichloroethane	110		98		70-130	12		20
Bromodichloromethane	110		99		70-130	11		20
trans-1,3-Dichloropropene	96		91		70-130	5		20
cis-1,3-Dichloropropene	92		85		70-130	8		20
1,1-Dichloropropene	100		92		70-130	8		20
Bromoform	94		90		70-130	4		20
1,1,2,2-Tetrachloroethane	110		110		70-130	0		20
Benzene	100		96		70-130	4		20
Toluene	110		100		70-130	10		20
Ethylbenzene	100		98		70-130	2		20
Chloromethane	83		75		70-130	10		20
Bromomethane	79		76		70-130	4		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807264
Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-02 Batch: WG1095245-3 WG1095245-4								
Vinyl chloride	110		98		70-130	12		20
Chloroethane	93		77		70-130	19		20
1,1-Dichloroethene	120		110		70-130	9		20
trans-1,2-Dichloroethene	120		110		70-130	9		20
Trichloroethene	100		93		70-130	7		20
1,2-Dichlorobenzene	110		100		70-130	10		20
1,3-Dichlorobenzene	110		100		70-130	10		20
1,4-Dichlorobenzene	100		100		70-130	0		20
Methyl tert butyl ether	79		74		70-130	7		20
p/m-Xylene	85		70		70-130	19		20
o-Xylene	100		95		70-130	5		20
cis-1,2-Dichloroethene	120		110		70-130	9		20
Dibromomethane	110		99		70-130	11		20
1,2,3-Trichloropropane	100		100		70-130	0		20
Styrene	100		90		70-130	11		20
Dichlorodifluoromethane	110		97		70-130	13		20
Acetone	120		100		70-130	18		20
Carbon disulfide	100		94		70-130	6		20
2-Butanone	96		87		70-130	10		20
4-Methyl-2-pentanone	93		95		70-130	2		20
2-Hexanone	95		90		70-130	5		20
Bromochloromethane	110		100		70-130	10		20
Tetrahydrofuran	91		84		70-130	8		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807264

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-02 Batch: WG1095245-3 WG1095245-4								
2,2-Dichloropropane	99		85		70-130	15		20
1,2-Dibromoethane	110		100		70-130	10		20
1,3-Dichloropropane	100		99		70-130	1		20
1,1,1,2-Tetrachloroethane	100		90		70-130	11		20
Bromobenzene	110		110		70-130	0		20
n-Butylbenzene	110		110		70-130	0		20
sec-Butylbenzene	120		120		70-130	0		20
tert-Butylbenzene	120		120		70-130	0		20
o-Chlorotoluene	120		110		70-130	9		20
p-Chlorotoluene	110		110		70-130	0		20
1,2-Dibromo-3-chloropropane	86		90		70-130	5		20
Hexachlorobutadiene	**140**	Q	**140**	Q	70-130	0		20
Isopropylbenzene	120		120		70-130	0		20
p-Isopropyltoluene	110		110		70-130	0		20
Naphthalene	89		88		70-130	1		20
n-Propylbenzene	120		120		70-130	0		20
1,2,3-Trichlorobenzene	100		110		70-130	10		20
1,2,4-Trichlorobenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	110		110		70-130	0		20
1,2,4-Trimethylbenzene	110		100		70-130	10		20
Ethyl ether	100		91		70-130	9		20
Isopropyl Ether	110		98		70-130	12		20
Ethyl-Tert-Butyl-Ether	100		96		70-130	4		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807264

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-02 Batch: WG1095245-3 WG1095245-4								
Tertiary-Amyl Methyl Ether	96		90		70-130	6		20
1,4-Dioxane	102		98		70-130	4		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		83		70-130
Toluene-d8	107		109		70-130
4-Bromofluorobenzene	112		111		70-130
Dibromofluoromethane	103		101		70-130

SEMIVOLATILES

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-01
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 03/08/18 12:44
Analyst: SZ

Date Collected: 03/01/18 16:10
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1807264

Project Number: 0139-220813 **Report Date:** 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-01
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 16:10
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	8.9		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	39		15-110
Phenol-d6	27		15-110
Nitrobenzene-d5	80		30-130
2-Fluorobiphenyl	85		30-130
2,4,6-Tribromophenol	98		15-110
4-Terphenyl-d14	81		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-01
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/03/18 16:44
Analyst: TJ

Date Collected: 03/01/18 16:10
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/02/18 10:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.147	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	19		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-01
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/07/18 07:30
Analyst: KL

Date Collected: 03/01/18 16:10
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	2.2		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	0.68		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	0.26		ug/l	0.10	--	1
Benzo(a)anthracene	0.18		ug/l	0.10	--	1
Benzo(a)pyrene	0.17		ug/l	0.10	--	1
Benzo(b)fluoranthene	0.24		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	0.18		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	0.36		ug/l	0.10	--	1
Benzo(ghi)perylene	0.13		ug/l	0.10	--	1
Fluorene	1.2		ug/l	0.10	--	1
Phenanthrene	1.1		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	0.12		ug/l	0.10	--	1
Pyrene	0.49		ug/l	0.10	--	1
2-Methylnaphthalene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807264
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-01
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 16:10
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	41		15-110
Phenol-d6	31		15-110
Nitrobenzene-d5	91		30-130
2-Fluorobiphenyl	86		30-130
2,4,6-Tribromophenol	80		15-110
4-Terphenyl-d14	81		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-02
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D
Analytical Date: 03/08/18 13:10
Analyst: SZ

Date Collected: 03/01/18 16:25
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1

Project Name: TOBIN SCHOOL **Lab Number:** L1807264

Project Number: 0139-220813 **Report Date:** 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-02 Date Collected: 03/01/18 16:25

Client ID: MW-14S Date Received: 03/01/18

Sample Location: CAMBRIDGE, MA Field Prep: Field Filtered (Dissolved Met)

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	43		15-110
Phenol-d6	29		15-110
Nitrobenzene-d5	86		30-130
2-Fluorobiphenyl	90		30-130
2,4,6-Tribromophenol	106		15-110
4-Terphenyl-d14	86		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-02
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/03/18 17:04
Analyst: TJ

Date Collected: 03/01/18 16:25
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/02/18 10:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.147	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	18		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-02
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8270D-SIM
Analytical Date: 03/05/18 14:52
Analyst: DV

Date Collected: 03/01/18 16:25
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	1.1		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	0.39		ug/l	0.10	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	0.24		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	0.26		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	1.8		ug/l	0.10	--	1
Phenanthrene	1.4		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	0.25		ug/l	0.10	--	1
2-Methylnaphthalene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: TOBIN SCHOOL
Lab Number: L1807264
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-02
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Date Collected: 03/01/18 16:25
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		15-110
Phenol-d6	33		15-110
Nitrobenzene-d5	96		30-130
2-Fluorobiphenyl	91		30-130
2,4,6-Tribromophenol	92		15-110
4-Terphenyl-d14	88		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807264
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 03/03/18 10:16
Analyst: TJ

Extraction Method: EPA 3510C
Extraction Date: 03/02/18 10:30

Parameter	Result	Qualifier	Units	RL	MDL
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-02 Batch: WG1093881-1					
1,4-Dioxane	ND		ug/l	0.150	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	21		15-110

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807264
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D
Analytical Date: 03/08/18 09:15
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:43

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-02 Batch: WG1094304-1					
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--
1,2-Dichlorobenzene	ND		ug/l	2.0	--
1,3-Dichlorobenzene	ND		ug/l	2.0	--
1,4-Dichlorobenzene	ND		ug/l	2.0	--
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--
2,4-Dinitrotoluene	ND		ug/l	5.0	--
2,6-Dinitrotoluene	ND		ug/l	5.0	--
Azobenzene	ND		ug/l	2.0	--
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--
Isophorone	ND		ug/l	5.0	--
Nitrobenzene	ND		ug/l	2.0	--
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--
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	--
Anthracene	ND		ug/l	2.0	--
Aniline	ND		ug/l	2.0	--
4-Chloroaniline	ND		ug/l	5.0	--
Dibenzofuran	ND		ug/l	2.0	--
Acetophenone	ND		ug/l	5.0	--
2,4,6-Trichlorophenol	ND		ug/l	5.0	--
2-Chlorophenol	ND		ug/l	2.0	--
2,4-Dichlorophenol	ND		ug/l	5.0	--
2,4-Dimethylphenol	ND		ug/l	5.0	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807264
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D
Analytical Date: 03/08/18 09:15
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:43

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-02 Batch: WG1094304-1					
2-Nitrophenol	ND		ug/l	10	--
4-Nitrophenol	ND		ug/l	10	--
2,4-Dinitrophenol	ND		ug/l	20	--
Phenol	ND		ug/l	5.0	--
2-Methylphenol	ND		ug/l	5.0	--
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--
2,4,5-Trichlorophenol	ND		ug/l	5.0	--
Pyridine	ND		ug/l	3.5	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		15-110
Phenol-d6	31		15-110
Nitrobenzene-d5	93		30-130
2-Fluorobiphenyl	94		30-130
2,4,6-Tribromophenol	102		15-110
4-Terphenyl-d14	100		30-130

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807264
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 03/05/18 09:06
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:44

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics by SIM - Westborough Lab for sample(s): 01-02 Batch: WG1094305-1					
Acenaphthene	ND		ug/l	0.10	--
2-Chloronaphthalene	ND		ug/l	0.20	--
Fluoranthene	ND		ug/l	0.10	--
Hexachlorobutadiene	ND		ug/l	0.50	--
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	--
2-Methylnaphthalene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	0.80	--
Hexachlorobenzene	ND		ug/l	0.80	--
Hexachloroethane	ND		ug/l	0.80	--

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807264
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D-SIM
Analytical Date: 03/05/18 09:06
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 17:44

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics by SIM - Westborough Lab for sample(s): 01-02 Batch: WG1094305-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	46		15-110
Phenol-d6	35		15-110
Nitrobenzene-d5	96		30-130
2-Fluorobiphenyl	92		30-130
2,4,6-Tribromophenol	79		15-110
4-Terphenyl-d14	90		30-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807264

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP 1,4 Dioxane by 8270D-SIM - Mansfield Lab	Associated sample(s): 01-02		Batch: WG1093881-2		WG1093881-3			
1,4-Dioxane	113		114		40-140	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	25		23		15-110

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807264
Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-02 Batch: WG1094304-2 WG1094304-3								
1,2,4-Trichlorobenzene	89		73		40-140	20		20
Bis(2-chloroethyl)ether	80		76		40-140	5		20
1,2-Dichlorobenzene	81		64		40-140	**23**	Q	20
1,3-Dichlorobenzene	77		60		40-140	**25**	Q	20
1,4-Dichlorobenzene	76		61		40-140	**22**	Q	20
3,3'-Dichlorobenzidine	80		81		40-140	1		20
2,4-Dinitrotoluene	107		105		40-140	2		20
2,6-Dinitrotoluene	112		110		40-140	2		20
Azobenzene	104		102		40-140	2		20
4-Bromophenyl phenyl ether	100		98		40-140	2		20
Bis(2-chloroisopropyl)ether	55		51		40-140	8		20
Bis(2-chloroethoxy)methane	90		87		40-140	3		20
Isophorone	103		100		40-140	3		20
Nitrobenzene	96		92		40-140	4		20
Bis(2-ethylhexyl)phthalate	108		109		40-140	1		20
Butyl benzyl phthalate	110		107		40-140	3		20
Di-n-butylphthalate	103		102		40-140	1		20
Di-n-octylphthalate	111		112		40-140	1		20
Diethyl phthalate	107		106		40-140	1		20
Dimethyl phthalate	112		110		40-140	2		20
Anthracene	91		87		40-140	4		20
Aniline	**39**	Q	49		40-140	**23**	Q	20
4-Chloroaniline	67		67		40-140	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807264

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-02 Batch: WG1094304-2 WG1094304-3								
Dibenzofuran	93		90		40-140	3		20
Acetophenone	103		98		40-140	5		20
2,4,6-Trichlorophenol	114		116		30-130	2		20
2-Chlorophenol	80		76		30-130	5		20
2,4-Dichlorophenol	97		94		30-130	3		20
2,4-Dimethylphenol	95		93		30-130	2		20
2-Nitrophenol	95		90		30-130	5		20
4-Nitrophenol	68		69		30-130	1		20
2,4-Dinitrophenol	95		94		30-130	1		20
Phenol	38		38		30-130	0		20
2-Methylphenol	74		75		30-130	1		20
3-Methylphenol/4-Methylphenol	78		78		30-130	0		20
2,4,5-Trichlorophenol	117		117		30-130	0		20
Pyridine	**30**	Q	**34**	Q	40-140	13		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	50		47		15-110
Phenol-d6	36		36		15-110
Nitrobenzene-d5	97		90		30-130
2-Fluorobiphenyl	93		92		30-130
2,4,6-Tribromophenol	104		103		15-110
4-Terphenyl-d14	87		85		30-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807264
Report Date: 03/09/18

MCP Semivolatile Organics by SIM - Westborough Lab Associated sample(s): 01-02 Batch: WG1094305-2 WG1094305-3

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Acenaphthene	67		61		40-140	9		20
2-Chloronaphthalene	80		62		40-140	**25**	Q	20
Fluoranthene	83		73		40-140	13		20
Hexachlorobutadiene	92		79		40-140	15		20
Naphthalene	74		62		40-140	18		20
Benzo(a)anthracene	83		70		40-140	17		20
Benzo(a)pyrene	94		80		40-140	16		20
Benzo(b)fluoranthene	87		78		40-140	11		20
Benzo(k)fluoranthene	89		72		40-140	**21**	Q	20
Chrysene	77		65		40-140	17		20
Acenaphthylene	90		67		40-140	**29**	Q	20
Anthracene	80		62		40-140	**25**	Q	20
Benzo(ghi)perylene	93		79		40-140	16		20
Fluorene	76		73		40-140	4		20
Phenanthrene	71		60		40-140	17		20
Dibenzo(a,h)anthracene	96		81		40-140	17		20
Indeno(1,2,3-cd)pyrene	97		82		40-140	17		20
Pyrene	80		71		40-140	12		20
2-Methylnaphthalene	80		64		40-140	**22**	Q	20
Pentachlorophenol	72		54		30-130	**29**	Q	20
Hexachlorobenzene	71		61		40-140	15		20
Hexachloroethane	76		65		40-140	16		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807264

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics by SIM - Westborough Lab Associated sample(s): 01-02 Batch: WG1094305-2 WG1094305-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	49		39		15-110
Phenol-d6	37		30		15-110
Nitrobenzene-d5	97		80		30-130
2-Fluorobiphenyl	92		73		30-130
2,4,6-Tribromophenol	79		70		15-110
4-Terphenyl-d14	94		82		30-130

PETROLEUM HYDROCARBONS

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID:	L1807264-01	Date Collected:	03/01/18 16:10
Client ID:	MW-14D	Date Received:	03/01/18
Sample Location:	CAMBRIDGE, MA	Field Prep:	Field Filtered (Dissolved Met)
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	03/08/18 13:52
Analytical Date:	03/09/18 11:30	Cleanup Method1:	EPH-04-1
Analyst:	DG	Cleanup Date1:	03/08/18

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	45		40-140
o-Terphenyl	53		40-140
2-Fluorobiphenyl	61		40-140
2-Bromonaphthalene	60		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID:	L1807264-02	Date Collected:	03/01/18 16:25
Client ID:	MW-14S	Date Received:	03/01/18
Sample Location:	CAMBRIDGE, MA	Field Prep:	Field Filtered (Dissolved Met)
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	03/08/18 15:05
Analytical Date:	03/09/18 12:09	Cleanup Method1:	EPH-04-1
Analyst:	DG	Cleanup Date1:	03/08/18

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	See Narrative
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	50		40-140
o-Terphenyl	54		40-140
2-Fluorobiphenyl	62		40-140
2-Bromonaphthalene	59		40-140

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807264
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 03/09/18 10:13
Analyst: DG

Extraction Method: EPA 3510C
Extraction Date: 03/08/18 13:52
Cleanup Method: EPH-04-1
Cleanup Date: 03/08/18

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-02 Batch: WG1095559-1					
C9-C18 Aliphatics	ND		ug/l	100	--
C19-C36 Aliphatics	ND		ug/l	100	--
C11-C22 Aromatics	ND		ug/l	100	--
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	67		40-140
o-Terphenyl	66		40-140
2-Fluorobiphenyl	69		40-140
2-Bromonaphthalene	66		40-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807264
Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-02 Batch: WG1095559-2 WG1095559-3								
C9-C18 Aliphatics	74		79		40-140	7		25
C19-C36 Aliphatics	75		74		40-140	1		25
C11-C22 Aromatics	55		62		40-140	12		25
Naphthalene	47		52		40-140	10		25
2-Methylnaphthalene	48		54		40-140	12		25
Acenaphthylene	50		57		40-140	13		25
Acenaphthene	52		60		40-140	14		25
Fluorene	52		60		40-140	14		25
Phenanthrene	53		61		40-140	14		25
Anthracene	53		61		40-140	14		25
Fluoranthene	54		61		40-140	12		25
Pyrene	55		63		40-140	14		25
Benzo(a)anthracene	54		61		40-140	12		25
Chrysene	55		63		40-140	14		25
Benzo(b)fluoranthene	54		62		40-140	14		25
Benzo(k)fluoranthene	54		61		40-140	12		25
Benzo(a)pyrene	52		59		40-140	13		25
Indeno(1,2,3-cd)Pyrene	50		56		40-140	11		25
Dibenzo(a,h)anthracene	58		57		40-140	2		25
Benzo(ghi)perylene	49		57		40-140	15		25
Nonane (C9)	62		69		30-140	11		25
Decane (C10)	67		74		40-140	10		25
Dodecane (C12)	70		76		40-140	8		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807264

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-02 Batch: WG1095559-2 WG1095559-3								
Tetradecane (C14)	71		77		40-140	8		25
Hexadecane (C16)	71		77		40-140	8		25
Octadecane (C18)	70		75		40-140	7		25
Nonadecane (C19)	70		74		40-140	6		25
Eicosane (C20)	69		74		40-140	7		25
Docosane (C22)	69		73		40-140	6		25
Tetracosane (C24)	68		71		40-140	4		25
Hexacosane (C26)	68		71		40-140	4		25
Octacosane (C28)	68		70		40-140	3		25
Triacontane (C30)	68		70		40-140	3		25
Hexatriacontane (C36)	69		71		40-140	3		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	67		70		40-140
o-Terphenyl	55		62		40-140
2-Fluorobiphenyl	62		61		40-140
2-Bromonaphthalene	60		60		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

PCBS

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-01
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 03/06/18 07:57
Analyst: WR

Date Collected: 03/01/18 16:10
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 16:26
Cleanup Method: EPA 3665A
Cleanup Date: 03/04/18
Cleanup Method: EPA 3660B
Cleanup Date: 03/04/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	92		30-150	A
Decachlorobiphenyl	76		30-150	A
2,4,5,6-Tetrachloro-m-xylene	86		30-150	B
Decachlorobiphenyl	82		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-02
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA
Sample Depth:

Matrix: Water
Analytical Method: 97,8082A
Analytical Date: 03/06/18 08:10
Analyst: WR

Date Collected: 03/01/18 16:25
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 16:26
Cleanup Method: EPA 3665A
Cleanup Date: 03/04/18
Cleanup Method: EPA 3660B
Cleanup Date: 03/04/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - 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	0.250	--	1	A
Aroclor 1262	ND		ug/l	0.250	--	1	A
Aroclor 1268	ND		ug/l	0.250	--	1	A
PCBs, Total	ND		ug/l	0.250	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	95		30-150	A
Decachlorobiphenyl	86		30-150	A
2,4,5,6-Tetrachloro-m-xylene	87		30-150	B
Decachlorobiphenyl	95		30-150	B

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807264
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8082A
Analytical Date: 03/06/18 05:30
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 03/03/18 16:26
Cleanup Method: EPA 3665A
Cleanup Date: 03/03/18
Cleanup Method: EPA 3660B
Cleanup Date: 03/04/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 01-02 Batch: WG1094294-1						
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	0.250	--	A
Aroclor 1262	ND		ug/l	0.250	--	A
Aroclor 1268	ND		ug/l	0.250	--	A
PCBs, Total	ND		ug/l	0.250	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	78		30-150	A
Decachlorobiphenyl	109		30-150	A
2,4,5,6-Tetrachloro-m-xylene	85		30-150	B
Decachlorobiphenyl	121		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807264

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 01-02 Batch: WG1094294-2 WG1094294-3									
Aroclor 1016	87		86		40-140	1		20	A
Aroclor 1260	91		88		40-140	3		20	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	90		89		30-150	A
Decachlorobiphenyl	104		102		30-150	A
2,4,5,6-Tetrachloro-m-xylene	92		92		30-150	B
Decachlorobiphenyl	114		112		30-150	B

METALS

Project Name: TOBIN SCHOOL
Lab Number: L1807264
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-01
Client ID: MW-14D
Sample Location: CAMBRIDGE, MA
Sample Depth:
Matrix: Water

Date Collected: 03/01/18 16:10
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	03/03/18 10:40	03/06/18 14:36	EPA 3005A	97,6020A	AM
Arsenic, Dissolved	ND		mg/l	0.0050	--	1	03/03/18 10:40	03/07/18 11:42	EPA 3005A	97,6010C	LC
Barium, Dissolved	1.15		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:42	EPA 3005A	97,6010C	LC
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 14:36	EPA 3005A	97,6020A	AM
Cadmium, Dissolved	ND		mg/l	0.004	--	1	03/03/18 10:40	03/07/18 11:42	EPA 3005A	97,6010C	LC
Chromium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:42	EPA 3005A	97,6010C	LC
Lead, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:42	EPA 3005A	97,6010C	LC
Mercury, Dissolved	ND		mg/l	0.0002	--	1	03/02/18 12:31	03/02/18 17:32	EPA 7470A	97,7470A	MG
Nickel, Dissolved	ND		mg/l	0.025	--	1	03/03/18 10:40	03/07/18 11:42	EPA 3005A	97,6010C	LC
Selenium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:42	EPA 3005A	97,6010C	LC
Silver, Dissolved	ND		mg/l	0.007	--	1	03/03/18 10:40	03/07/18 11:42	EPA 3005A	97,6010C	LC
Thallium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 14:36	EPA 3005A	97,6020A	AM
Vanadium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:42	EPA 3005A	97,6010C	LC
Zinc, Dissolved	ND		mg/l	0.050	--	1	03/03/18 10:40	03/07/18 11:42	EPA 3005A	97,6010C	LC

Project Name: TOBIN SCHOOL
Lab Number: L1807264
Project Number: 0139-220813
Report Date: 03/09/18

SAMPLE RESULTS

Lab ID: L1807264-02
Client ID: MW-14S
Sample Location: CAMBRIDGE, MA
Sample Depth:
Matrix: Water

Date Collected: 03/01/18 16:25
Date Received: 03/01/18
Field Prep: Field Filtered (Dissolved Met)

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	03/03/18 10:40	03/06/18 14:40	EPA 3005A	97,6020A	AM
Arsenic, Dissolved	0.0055		mg/l	0.0050	--	1	03/03/18 10:40	03/07/18 11:47	EPA 3005A	97,6010C	LC
Barium, Dissolved	0.833		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:47	EPA 3005A	97,6010C	LC
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 14:40	EPA 3005A	97,6020A	AM
Cadmium, Dissolved	ND		mg/l	0.004	--	1	03/03/18 10:40	03/07/18 11:47	EPA 3005A	97,6010C	LC
Chromium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:47	EPA 3005A	97,6010C	LC
Lead, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:47	EPA 3005A	97,6010C	LC
Mercury, Dissolved	ND		mg/l	0.0002	--	1	03/02/18 12:31	03/02/18 17:33	EPA 7470A	97,7470A	MG
Nickel, Dissolved	ND		mg/l	0.025	--	1	03/03/18 10:40	03/07/18 11:47	EPA 3005A	97,6010C	LC
Selenium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:47	EPA 3005A	97,6010C	LC
Silver, Dissolved	ND		mg/l	0.007	--	1	03/03/18 10:40	03/07/18 11:47	EPA 3005A	97,6010C	LC
Thallium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 14:40	EPA 3005A	97,6020A	AM
Vanadium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 11:47	EPA 3005A	97,6010C	LC
Zinc, Dissolved	ND		mg/l	0.050	--	1	03/03/18 10:40	03/07/18 11:47	EPA 3005A	97,6010C	LC

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
Lab Number: L1807264
Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1093949-1										
Mercury, Dissolved	ND		mg/l	0.0002	--	1	03/02/18 12:31	03/02/18 16:59	97,7470A	MG

Prep Information

Digestion Method: EPA 7470A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1094197-1										
Antimony, Dissolved	ND		mg/l	0.0040	--	1	03/03/18 10:40	03/06/18 13:30	97,6020A	AM
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 13:30	97,6020A	AM
Thallium, Dissolved	ND		mg/l	0.0005	--	1	03/03/18 10:40	03/06/18 13:30	97,6020A	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1094198-1										
Arsenic, Dissolved	ND		mg/l	0.0050	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Barium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Cadmium, Dissolved	ND		mg/l	0.004	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Chromium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Lead, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Nickel, Dissolved	ND		mg/l	0.025	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Selenium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Silver, Dissolved	ND		mg/l	0.007	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Vanadium, Dissolved	ND		mg/l	0.010	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC
Zinc, Dissolved	ND		mg/l	0.050	--	1	03/03/18 10:40	03/07/18 10:15	97,6010C	LC

Project Name: TOBIN SCHOOL
Project Number: 0139-220813
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Report Date: 03/09/18

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOBIN SCHOOL

Project Number: 0139-220813

Lab Number: L1807264

Report Date: 03/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1093949-2 WG1093949-3								
Mercury, Dissolved	93		97		80-120	4		20
MCP Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1094197-2 WG1094197-3								
Antimony, Dissolved	109		110		80-120	1		20
Beryllium, Dissolved	110		110		80-120	0		20
Thallium, Dissolved	98		96		80-120	2		20
MCP Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1094198-2 WG1094198-3								
Arsenic, Dissolved	112		110		80-120	2		20
Barium, Dissolved	106		108		80-120	2		20
Cadmium, Dissolved	110		109		80-120	1		20
Chromium, Dissolved	104		104		80-120	0		20
Lead, Dissolved	107		106		80-120	1		20
Nickel, Dissolved	102		102		80-120	0		20
Selenium, Dissolved	113		113		80-120	0		20
Silver, Dissolved	117		115		80-120	2		20
Vanadium, Dissolved	106		106		80-120	0		20
Zinc, Dissolved	106		106		80-120	0		20

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

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Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
B	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1807264-01A	Vial HCl preserved	B	NA		4.6	Y	Absent		MCP-8260-10(14)
L1807264-01B	Vial HCl preserved	B	NA		4.6	Y	Absent		MCP-8260-10(14)
L1807264-01C	Vial HCl preserved	B	NA		4.6	Y	Absent		MCP-8260-10(14)
L1807264-01D	Plastic 250ml HNO3 preserved	B	<2	<2	4.6	Y	Absent		MCP-BE-6020S-10(180),MCP-CD-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-SB-6020S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-TL-6020S-10(180),MCP-BA-6010S-10(180),MCP-PB-6010S-10(180),MCP-NI-6010S-10(180),MCP-SE-6010S-10(180),MCP-V-6010S-10(180)
L1807264-01E	Amber 500ml unpreserved	B	7	7	4.6	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807264-01F	Amber 500ml unpreserved	B	7	7	4.6	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807264-01G	Amber 1000ml unpreserved	B	7	7	4.6	Y	Absent		MCP-8082-10(365)
L1807264-01H	Amber 1000ml unpreserved	B	7	7	4.6	Y	Absent		MCP-8082-10(365)
L1807264-01I	Amber 1000ml unpreserved	B	7	7	4.6	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807264-01J	Amber 1000ml unpreserved	B	7	7	4.6	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807264-01K	Amber 1000ml HCl preserved	B	<2	<2	4.6	Y	Absent		EPH-10(14)
L1807264-01L	Amber 1000ml HCl preserved	B	<2	<2	4.6	Y	Absent		EPH-10(14)
L1807264-02A	Vial HCl preserved	D	NA		3.7	Y	Absent		MCP-8260-10(14)
L1807264-02B	Vial HCl preserved	D	NA		3.7	Y	Absent		MCP-8260-10(14)
L1807264-02C	Vial HCl preserved	D	NA		3.7	Y	Absent		MCP-8260-10(14)

*Values in parentheses indicate holding time in days

Project Name: TOBIN SCHOOL
Project Number: 0139-220813

Lab Number: L1807264
Report Date: 03/09/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1807264-02D	Plastic 250ml HNO3 preserved	D	<2	<2	3.7	Y	Absent		MCP-BE-6020S-10(180),MCP-CD-6010S-10(180),MCP-7470S-10(28),MCP-AG-6010S-10(180),MCP-SB-6020S-10(180),MCP-ZN-6010S-10(180),MCP-AS-6010S-10(180),MCP-CR-6010S-10(180),MCP-TL-6020S-10(180),MCP-BA-6010S-10(180),MCP-PB-6010S-10(180),MCP-NI-6010S-10(180),MCP-SE-6010S-10(180),MCP-V-6010S-10(180)
L1807264-02E	Amber 500ml unpreserved	D	7	7	3.7	Y	Absent		A2-MCP-14DX-SIM-PPB(7)
L1807264-02G	Amber 1000ml unpreserved	D	7	7	3.7	Y	Absent		MCP-8082-10(365)
L1807264-02I	Amber 1000ml unpreserved	D	7	7	3.7	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807264-02J	Amber 1000ml unpreserved	D	7	7	3.7	Y	Absent		MCP-8270-10(7),MCP-8270SIM-10(7)
L1807264-02K	Amber 1000ml HCl preserved	D	<2	<2	3.7	Y	Absent		EPH-10(14)

*Values in parentheses indicate holding time in days

Project Name:	TOBIN SCHOOL	**Lab Number:**	L1807264
Project Number:	0139-220813	**Report Date:**	03/09/18

GLOSSARY

Acronyms

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

Footnotes

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

Terms

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

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

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

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

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

Data Qualifiers

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

Report Format: Data Usability Report

Project Name:	TOBIN SCHOOL	**Lab Number:**	L1807264
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Data Qualifiers

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

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

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

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

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

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

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

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

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

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

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

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

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

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

Report Format: Data Usability Report

Project Name:	TOBIN SCHOOL	**Lab Number:**	L1807264
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REFERENCES

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

98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.

LIMITATION OF LIABILITIES

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

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

Certification Information

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

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.

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

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

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, SM9222D.**

Mansfield Facility:

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

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

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

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 3/1/18

ALPHA Job #: L1807264

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

Client Information

Client: Cox Smith

Address: 95 State St, Suite 701
Boston, MA 02109

Phone: 617-455-6721

Email: cashongsavanh@coxsmith.com

Project Information

Project Name: Tobin School

Project Location: Cambridge, MA

Project #: 0139-220813

Project Manager: J.M Greene

ALPHA Quote #:

Turn-Around Time

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

Date Due:

Report Information - Data Deliverables

☑ ADEx ☑ EMAIL

Billing Information

☐ Same as Client info PO #:

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 _____

Additional Project Information:

1) Must meet MCP Presumptive Certainty Requirements
2) Must meet GW-1 standards

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	ANALYSIS: MCP 8260 + 10 Oxygenates + Naphthalene	ABN Extractables - EPA 8270D SIM	Tot. Dioxane EPA 8270D SIM	EPH - Carbon ranges only	PCB - EPA 8082A	MCP 14 Metals (6020A)	SAMPLE INFO: Filtration ☑ Field ☐ Lab to do; Preservation ☐ Lab to do	Sample Comments	TOTAL # BOTTLES
07264-01	MW-140	3/1/18	16:10	GW	NL	X	X	X	X	X	X			12
02	MW-145	3/1/18	16:25	GW	NL	X	X	X	X	X	X			12
Container Type						✓	A	A	A	A	G			
Preservative						B	A	A	B	A	C			

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

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

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	3/1/18 1530	[signature]	3/1/18 1530
[signature]	3/1/18 1840	[signature]	3/1/18 1840

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

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

Method Blank Summary
Form 4

Client	: CDM Smith, Inc.	**Lab Number**	: L1807264
Project Name	: TOBIN SCHOOL	**Project Number**	: 0139-220813
Lab Sample ID	: WG1095245-5	**Lab File ID**	: VJ180307A07
Instrument ID	: JACK		
Matrix	: WATER	**Analysis Date**	: 03/07/18 04:36

Client Sample No.	Lab Sample ID	Analysis Date
WG1095245-3LCS	WG1095245-3	03/07/18 02:56
WG1095245-4LCSD	WG1095245-4	03/07/18 03:30
MW-14D	L1807264-01	03/07/18 06:07
MW-14S	L1807264-02	03/07/18 06:37

Continuing Calibration
Form 7

Client	: CDM Smith, Inc.	**Lab Number**	: L1807264		
Project Name	: TOBIN SCHOOL	**Project Number**	: 0139-220813		
Instrument ID	: JACK	**Calibration Date**	: 03/07/18 02:56		
Lab File ID	: VJ180307A01	**Init. Calib. Date(s)**	: 11/16/17	11/16/17	
Sample No	: WG1095245-2	**Init. Calib. Times**	: 11:07	15:06	
Channel	:				

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	112	0
Dichlorodifluoromethane	0.362	0.402	-	-11	20	121	0
Chloromethane	0.453	0.376	-	17	20	94	0
Vinyl chloride	0.431	0.489	-	-13.5	20	122	0
Bromomethane	10	7.89	-	21.1*	20	84	0
Chloroethane	10	9.262	-	7.4	20	100	-.01
Trichlorofluoromethane	0.591	0.699	-	-18.3	20	130	-.02
Ethyl ether	0.166	0.168	-	-1.2	20	123	-.02
1,1-Dichloroethene	0.328	0.387	-	-18	20	130	-.01
Carbon disulfide	10	10.411	-	-4.1	20	110	-.02
Methylene chloride	0.379	0.392	-	-3.4	20	128	-.03
Acetone	10	12.393	-	-23.9*	20	176	-.03
trans-1,2-Dichloroethene	0.356	0.417	-	-17.1	20	130	-.02
Methyl tert-butyl ether	0.859	0.679	-	21*	20	98	-.03
Diisopropyl ether	1.14	1.259	-	-10.4	20	130	-.03
1,1-Dichloroethane	0.631	0.663	-	-5.1	20	118	-.03
Ethyl tert-butyl ether	0.969	0.999	-	-3.1	20	124	-.02
cis-1,2-Dichloroethene	0.356	0.413	-	-16	20	128	-.01
2,2-Dichloropropane	0.581	0.573	-	1.4	20	109	-.02
Bromochloromethane	0.157	0.169	-	-7.6	20	124	-.02
Chloroform	0.604	0.669	-	-10.8	20	125	-.01
Carbon tetrachloride	10	10.191	-	-1.9	20	125	-.02
Tetrahydrofuran	10	9.094	-	9.1	20	120	-.01
Dibromofluoromethane	0.227	0.232	-	-2.2	20	115	0
1,1,1-Trichloroethane	0.56	0.624	-	-11.4	20	123	0
2-Butanone	10	9.654	-	3.5	20	125	-.02
1,1-Dichloropropene	0.538	0.545	-	-1.3	20	114	-.02
Benzene	1.571	1.632	-	-3.9	20	120	-.01
tert-Amyl methyl ether	0.871	0.836	-	4	20	119	0
1,2-Dichloroethane-d4	0.264	0.23	-	12.9	20	110	0
1,2-Dichloroethane	0.426	0.429	-	-0.7	20	116	0
Trichloroethene	10	10.316	-	-3.2	20	122	0
Dibromomethane	0.177	0.189	-	-6.8	20	129	0
1,2-Dichloropropane	0.372	0.384	-	-3.2	20	120	.01
Bromodichloromethane	0.476	0.516	-	-8.4	20	127	0
1,4-Dioxane	0.00204	0.00207*	-	-1.5	20	129	.02
cis-1,3-Dichloropropene	0.619	0.573	-	7.4	20	110	.02
Chlorobenzene-d5	1	1	-	0	20	106	0
Toluene-d8	1.177	1.262	-	-7.2	20	110	-.02
Toluene	1.189	1.333	-	-12.1	20	119	-.02
4-Methyl-2-pentanone	10	9.322	-	6.8	20	96	0
Tetrachloroethene	0.529	0.575	-	-8.7	20	111	-.01
trans-1,3-Dichloropropene	0.611	0.585	-	4.3	20	106	0
1,1,2-Trichloroethane	0.268	0.294	-	-9.7	20	121	0
Chlorodibromomethane	0.381	0.384	-	-0.8	20	113	0

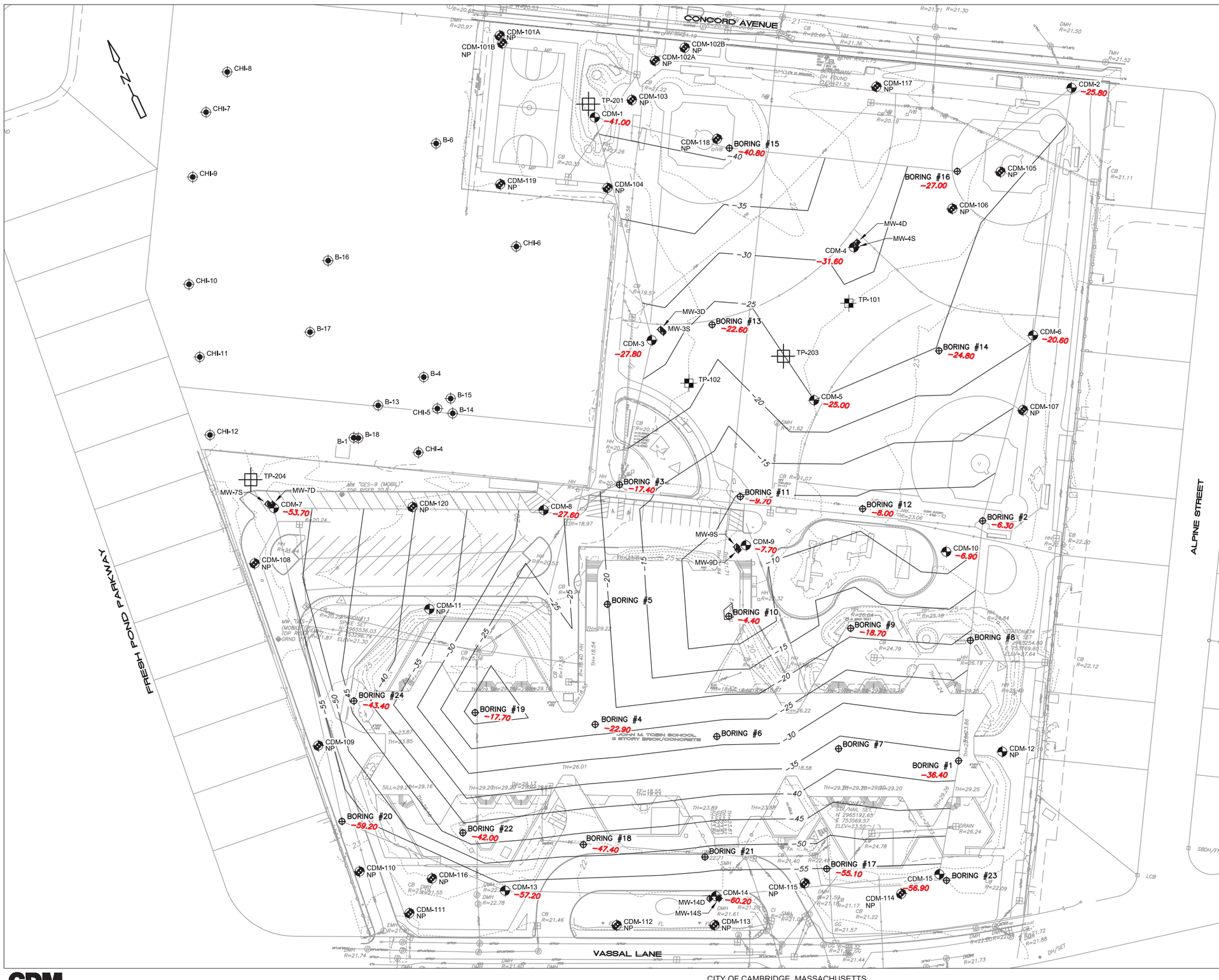
* Value outside of QC limits.

Continuing Calibration
Form 7

Client	: CDM Smith, Inc.	**Lab Number**	: L1807264		
Project Name	: TOBIN SCHOOL	**Project Number**	: 0139-220813		
Instrument ID	: JACK	**Calibration Date**	: 03/07/18 02:56		
Lab File ID	: VJ180307A01	**Init. Calib. Date(s)**	: 11/16/17	11/16/17	
Sample No	: WG1095245-2	**Init. Calib. Times**	: 11:07	15:06	
Channel	:				

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,3-Dichloropropane	0.574	0.596	-	-3.8	20	116	-.01
1,2-Dibromoethane	0.323	0.348	-	-7.7	20	121	0
2-Hexanone	10	9.483	-	5.2	20	122	0
Chlorobenzene	1.306	1.404	-	-7.5	20	114	0
Ethylbenzene	2.453	2.51	-	-2.3	20	110	0
1,1,1,2-Tetrachloroethane	0.446	0.453	-	-1.6	20	111	0
p/m Xylene	1.12	0.934	-	16.6	20	87	0
o Xylene	0.957	0.948	-	0.9	20	108	0
Styrene	1.557	1.546	-	0.7	20	108	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	88	0
Bromoform	10	9.358	-	6.4	20	100	-.03
Isopropylbenzene	4.062	5.09	-	-25.3*	20	115	-.02
4-Bromofluorobenzene	0.867	0.968	-	-11.6	20	100	-.02
Bromobenzene	0.984	1.105	-	-12.3	20	103	-.01
n-Propylbenzene	4.596	5.571	-	-21.2*	20	110	-.02
1,1,2,2-Tetrachloroethane	0.657	0.73	-	-11.1	20	109	-.01
2-Chlorotoluene	3.08	3.638	-	-18.1	20	107	-.02
1,3,5-Trimethylbenzene	3.247	3.63	-	-11.8	20	101	0
1,2,3-Trichloropropane	0.547	0.561	-	-2.6	20	101	-.01
4-Chlorotoluene	2.942	3.356	-	-14.1	20	105	-.01
tert-Butylbenzene	2.577	3.098	-	-20.2*	20	111	0
1,2,4-Trimethylbenzene	3.249	3.505	-	-7.9	20	96	0
sec-Butylbenzene	3.472	4.334	-	-24.8*	20	116	0
p-Isopropyltoluene	3.084	3.499	-	-13.5	20	103	0
1,3-Dichlorobenzene	1.807	1.94	-	-7.4	20	96	0
1,4-Dichlorobenzene	1.805	1.905	-	-5.5	20	93	0
n-Butylbenzene	2.472	2.816	-	-13.9	20	104	0
1,2-Dichlorobenzene	1.674	1.779	-	-6.3	20	92	0
1,2-Dibromo-3-chloropropan	10	8.586	-	14.1	20	81	0
Hexachlorobutadiene	10	14.122	-	-41.2*	20	117	.02
1,2,4-Trichlorobenzene	0.78	0.835	-	-7.1	20	92	.02
Naphthalene	1.761	1.56	-	11.4	20	80	.02
1,2,3-Trichlorobenzene	0.652	0.675	-	-3.5	20	88	0

* Value outside of QC limits.



LEGEND:

- **BORING #1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORINGS CONDUCTED BY NEW ENGLAND TEST BORING CORPORATION DATED OCTOBER–NOVEMBER 1966 AND JANUARY 1968.
- **CDM-1** — DESIGNATION AND APPROXIMATE LOCATION OF PHASE I TEST BORINGS CONDUCTED BY NEW ENGLAND BORING CONTRACTORS, INC. OF DERRY, NH BETWEEN JULY 17 AND AUGUST 9, 2017.
- **MW-3D** — DESIGNATION AND APPROXIMATE LOCATION OF MONITORING WELLS CONDUCTED BY NEW ENGLAND BORING CONTRACTORS, INC. OF DERRY, NH BETWEEN JULY 17 AND AUGUST 9, 2017.
- **CDM-101** — DESIGNATION AND APPROXIMATE LOCATION OF PHASE II TEST BORINGS CONDUCTED BY NEW ENGLAND BORING CONTRACTORS, INC. OF DERRY, NH BETWEEN JANUARY 22 AND FEBRUARY 2, 2018.
- **TP-101** — DESIGNATION AND APPROXIMATE LOCATION OF PHASE I TEST PIT CONDUCTED BY CHARTER CONTRACTING COMPANY, LLC. OF BOSTON, MA ON DECEMBER 28, 2017.
- **TP-201** — DESIGNATION AND APPROXIMATE LOCATION OF PHASE II TEST PIT CONDUCTED BY CHARTER CONTRACTING COMPANY, LLC. OF BOSTON, MA BETWEEN FEBRUARY 20 AND FEBRUARY 21, 2017.
- **B-1/CHI-1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORINGS CONDUCTED BY CLEAN HARBORS ENVIRONMENTAL SERVICES, INC. OF WEYMOUTH, MA DATED MARCH 2000 AND FEBRUARY 2001.
- **CDM-1** —— BORING DESIGNATION
  -41.00 —— ELEVATION OF BOTTOM OF CLAY & SILT LAYER
- **CDM-101A NP** — BORING TERMINATED ABOVE BOTTOM OF CLAY AND SILT LAYER

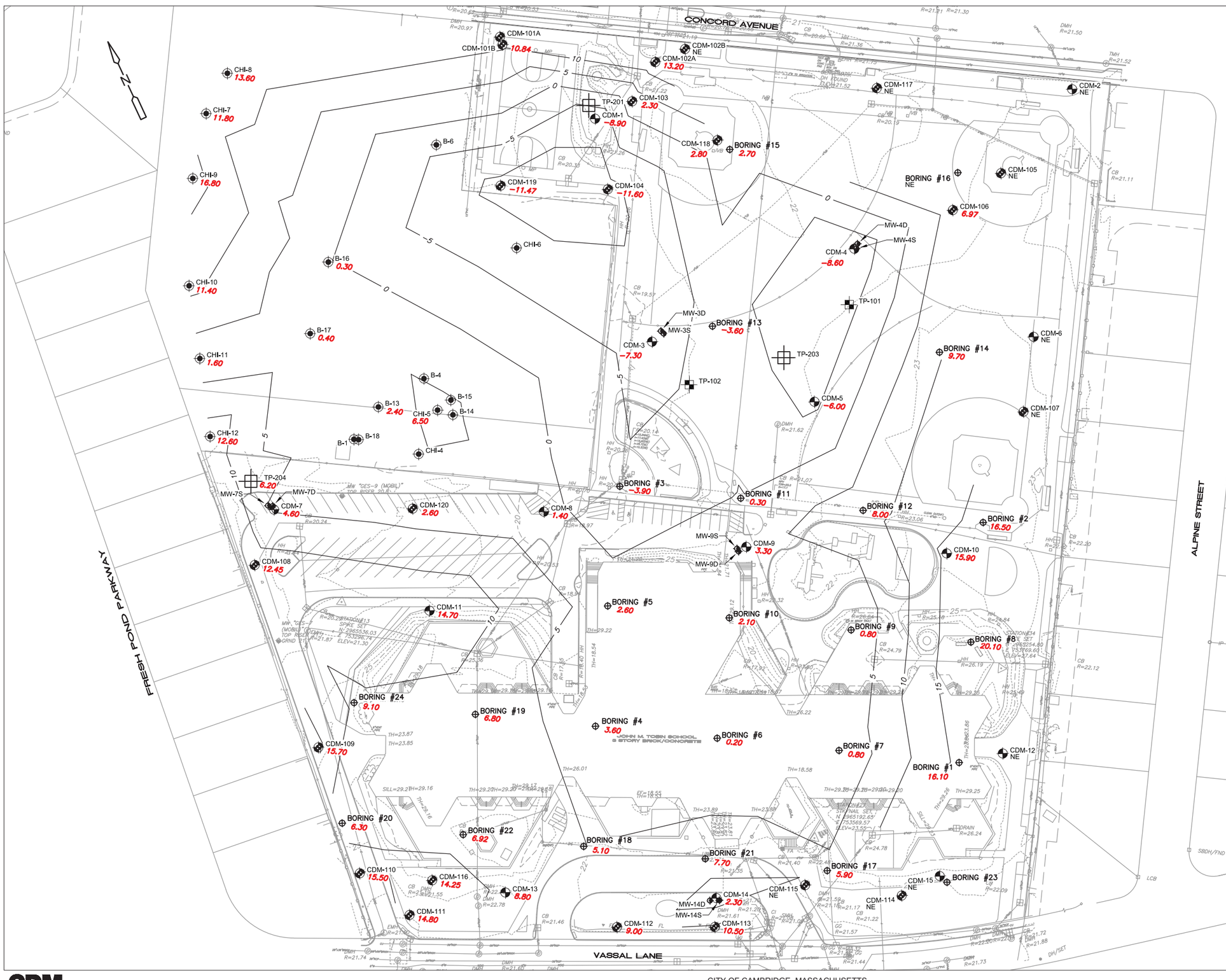
NOTES:

1. BASE PLAN PREPARED FROM A DRAWING ENTITLED "EXISTING CONDITIONS SURVEY", PREPARED BY SURVEYING AND MAPPING CONSULTANTS, SCALE 1"=20', DATED OCTOBER 2, 2017.
2. COORDINATES NOTED ARE IN FEET AND REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83).
3. ELEVATIONS AND CONTOUR LINES NOTED ARE IN FEET AND REFERENCED TO CAMBRIDGE CITY BASE (CCB) DATUM.
4. TEST BORINGS CDM–1 THROUGH CDM–15, TEST BORINGS CDM–101A THROUGH CDM–120, TEST PITS TP–101, TP–102, TP–201, TP–203, TP–204, AND MONITORING WELLS MW–3D THROUGH MW–14S WERE OBSERVED AND LOGGED ON A FULL–TIME BASIS BY A CDM SMITH GEOTECHNICAL ENGINEER OR GEOLOGIST.
5. TEST BORINGS BORING #1 THROUGH BORING #24 WERE LOCATED BASED ON A DRAWING TITLED "EXISTING CONDITIONS" FROM 1969.
6. TEST BORINGS B–1, B–4, B–6, B–13 THROUGH B–18, AND CHI–4 THROUGH CHI–12 WERE LOCATED BASED ON A DRAWING TITLED "MASSACHUSETTS army NATIONAL GUARD ARMORY – SITE PLAN" FROM 2002.

CDM Smith

CITY OF CAMBRIDGE, MASSACHUSETTS
TOBIN SCHOOL
CAMBRIDGE, MASSACHUSETTS

BOTTOM OF CLAY CONTOUR PLAN
MARCH 2019



LEGEND:

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- **B-1/CHI-1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORINGS CONDUCTED BY CLEAN HARBORS ENVIRONMENTAL SERVICES, INC. OF WEYMOUTH, MA DATED MARCH 2000 AND FEBRUARY 2001.
- **BORING #1** / 3.60 — BORING DESIGNATION / ELEVATION OF BOTTOM OF WASTE FILL
- **NE** — WASTE FILL NOT ENCOUNTERED

NOTES:

1. BASE PLAN PREPARED FROM A DRAWING ENTITLED "EXISTING CONDITIONS SURVEY", PREPARED BY SURVEYING AND MAPPING CONSULTANTS, SCALE 1"=20', DATED OCTOBER 2, 2017.
2. COORDINATES NOTED ARE IN FEET AND REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83).
3. ELEVATIONS AND CONTOUR LINES NOTED ARE IN FEET AND REFERENCED TO CAMBRIDGE CITY BASE (CCB) DATUM.
4. TEST BORINGS CDM–1 THROUGH CDM–15, TEST BORINGS CDM–101A THROUGH CDM–120, TEST PITS TP–101, TP–102, TP–201, TP–203, TP–204, AND MONITORING WELLS MW–3D THROUGH MW–14S WERE OBSERVED AND LOGGED ON A FULL–TIME BASIS BY A CDM SMITH GEOTECHNICAL ENGINEER OR GEOLOGIST.
5. TEST BORINGS BORING #1 THROUGH BORING #24 WERE LOCATED BASED ON A DRAWING TITLED "EXISTING CONDITIONS" FROM 1969.
6. TEST BORINGS B–1, B–4, B–6, B–13 THROUGH B–18, AND CHI–4 THROUGH CHI–12 WERE LOCATED BASED ON A DRAWING TITLED "MASSACHUSETTS ARMY NATIONAL GUARD ARMORY – SITE PLAN" FROM 2002.

CDM Smith

CITY OF CAMBRIDGE, MASSACHUSETTS
TOBIN SCHOOL
CAMBRIDGE, MASSACHUSETTS

BOTTOM OF WASTE CONTOUR PLAN
MARCH 2019

LEGEND:

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- **B-1/CHI-1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORINGS CONDUCTED BY CLEAN HARBORS ENVIRONMENTAL SERVICES, INC. OF WEYMOUTH, MA DATED MARCH 2000 AND FEBRUARY 2001.
- **CDM-1 / -53.5** — BORING DESIGNATION / ELEVATION OF TOP OF BEDROCK

NOTES:

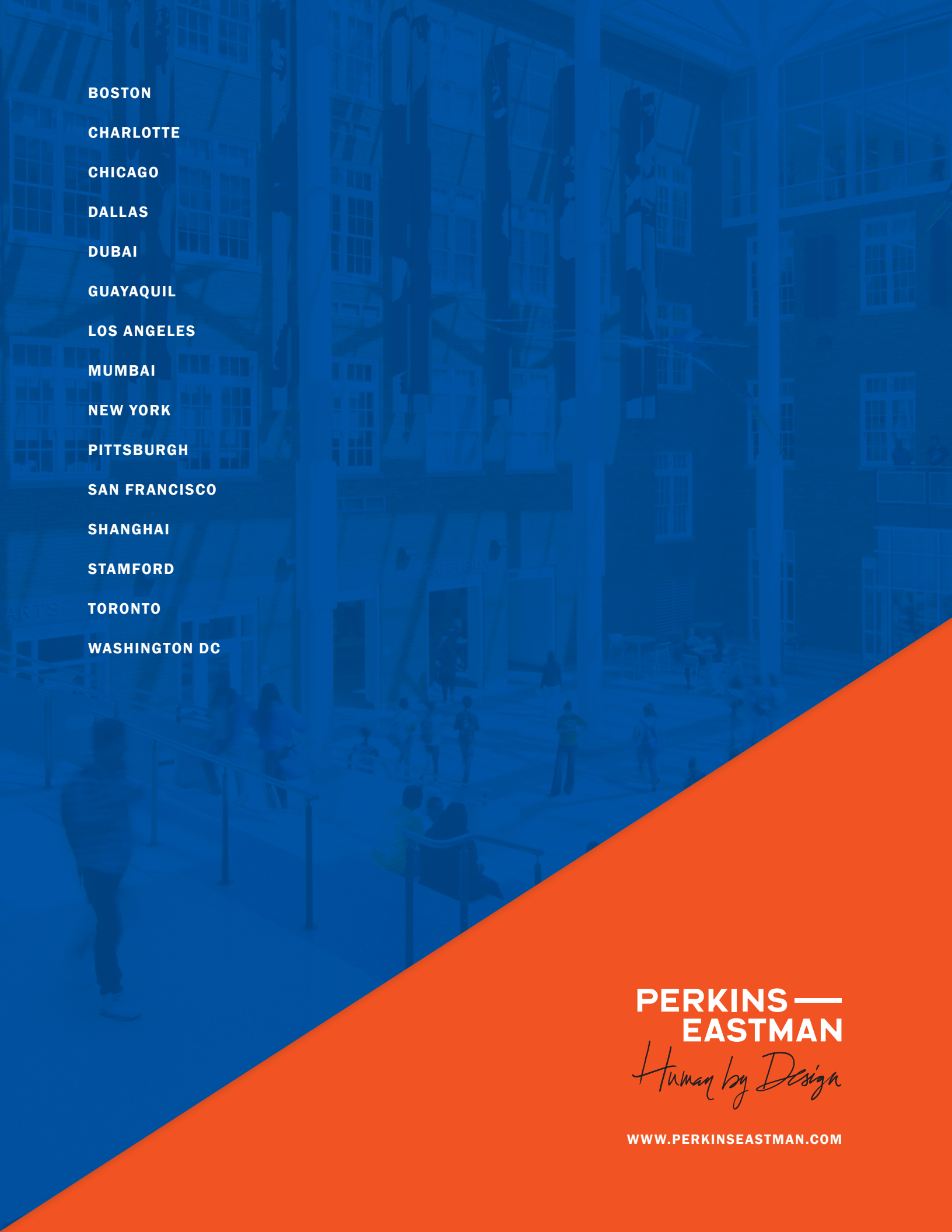
1. BASE PLAN PREPARED FROM A DRAWING ENTITLED "EXISTING CONDITIONS SURVEY", PREPARED BY SURVEYING AND MAPPING CONSULTANTS, SCALE 1"=20', DATED OCTOBER 2, 2017.
2. COORDINATES NOTED ARE IN FEET AND REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83).
3. ELEVATIONS AND CONTOUR LINES NOTED ARE IN FEET AND REFERENCED TO CAMBRIDGE CITY BASE (CCB) DATUM.
4. TEST BORINGS CDM–1 THROUGH CDM–15, TEST BORINGS CDM–101A THROUGH CDM–120, TEST PITS TP–101, TP–102, TP–201, TP–203, TP–204, AND MONITORING WELLS MW–3D THROUGH MW–14S WERE OBSERVED AND LOGGED ON A FULL–TIME BASIS BY A CDM SMITH GEOTECHNICAL ENGINEER OR GEOLOGIST.
5. TEST BORINGS BORING #1 THROUGH BORING #24 WERE LOCATED BASED ON A DRAWING TITLED "EXISTING CONDITIONS" FROM 1969.
6. TEST BORINGS B–1, B–4, B–6, B–13 THROUGH B–18, AND CHI–4 THROUGH CHI–12 WERE LOCATED BASED ON A DRAWING TITLED "MASSACHUSETTS ARMY NATIONAL GUARD ARMORY – SITE PLAN" FROM 2002.

CDM Smith

CITY OF CAMBRIDGE, MASSACHUSETTS
TOBIN SCHOOL
CAMBRIDGE, MASSACHUSETTS

TOP OF BEDROCK ELEVATIONS PLAN

MARCH 2019



BOSTON

CHARLOTTE

CHICAGO

DALLAS

DUBAI

GUAYAQUIL

LOS ANGELES

MUMBAI

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