Nobis
Engineering a Sustainable Future

May 25, 2017
File No. 91830.02

Ms. Alicia Caritano
Senior Associate
Perkins Eastman
50 Franklin Street, Suite 203
Boston, Massachusetts 02110

Re: Transmittal of Phase II Environmental Site Assessment
Cawley Site
Perkins Eastman Project #67150.00
Lowell, Massachusetts

Dear Ms. Caritano:

Nobis Engineering, Inc. (Nobis) completed a Phase II Site Assessment (Phase II) in support of a Feasibility Study being performed by Perkins Eastman on behalf of the City of Lowell under a grant provided by the Massachusetts School Building Authority (MSBA). The Phase II was conducted on a portion of the Cawley Site (the Site) located on Douglas Road in Lowell. The Phase II was conducted to address the recommendations provided by Nobis in a Phase I Environmental Site Assessment (ESA) dated May 8, 2017. The Phase I ESA identified a Recognized Environmental Condition (REC) associated with the placement of historical fill material that could potentially have resulted in the release of contaminants to the environment.

OBJECTIVE OF THE PHASE II

The objective of the Phase II was to make a preliminary characterization of fill material identified during previous subsurface investigations, and determine whether fill material was present in areas where new construction is proposed under the most recent Cawley Site conceptual school layout options. The information gathered during the assessment was used to evaluate the need for soil management during construction and to estimate potential cost impacts from off-site soil reuse or disposal. Therefore, the scope of the Phase II investigation was limited to an area to the north of the Martin Softball Field (where historical fill material is present), an area to the east of the Desmond Athletic Field (within the footprint of the proposed school location), and to the west of Cawley Stadium (where a new playing field is being contemplated). The Phase II did not include investigation in areas of the Cawley Site where new construction is not being considered.

PHASE II SITE ASSESSMENT FINDINGS

Nobis advanced seven soil borings at the Cawley Site in areas currently being considered for new construction, as described above and shown on Figure 2 of the Phase II report. Geological

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descriptions of soil cores indicated that historical fill is present beyond the outfield fence of the Martin Softball Field, between the fence and the top of the slope at the north end of the developed portion of the Site. The historical fill appears to extend west to the property boundary (adjacent to Janas Rink) and east to the Lowell/Tewksbury property line. The presence of fill material would impact construction activities for the northern wing of the proposed high school building, should the building be located as presented in the most recent drawings. The presence of fill material would also impact the construction of parking areas to the north of the school building. Historical fill does not appear to be present in the other proposed areas of new construction.

The presence of historical fill material suggests that any soils removed or displaced during future earthwork activities should be considered potentially contaminated with urban fill constituents such as polycyclic aromatic hydrocarbons (PAHs) and metals. Off-site reuse or disposal of this material will incur additional cost, as this material is not likely to be suitable for unrestricted use.

Seven soil samples were collected for laboratory analysis during the Phase II investigation to obtain a preliminary characterization of this material so that off-site reuse/disposal costs could be estimated. There were no volatile contaminants detected in any of the soil samples, suggesting vapor intrusion is not likely to be an issue for any new building constructed over the fill materials. PAHs and metals were detected in all of the samples of historical fill collected during the assessment. The contaminant levels in the fill material samples collected during the Phase II are considered low and pose no significant risk to human health or the environment.

POTENTIAL COST IMPACTS FROM SUBSURFACE ENVIRONMENTAL CONTAMINATION

Based on the information collected to date from the Cawley Site during the Feasibility Study, it is reasonable to assume that any earthwork required to construct a new high school building, or parking areas, within the limits of historical fill will involve handling of potentially contaminated soils. While contaminant levels detected in soil samples were below reportable concentrations, and this soil does not pose a hazard in its current location, there will be restrictions on the reuse of this material if it needs to be removed in order to permit construction of a new school building.

Any excess soils generated during future construction activities within the historical fill area should be presumed contaminated and pre-characterized in order to determine off-site reuse/disposal options and develop appropriate health and safety protocols for construction workers. The number and location of samples should be determined based on the anticipated volume of soil expected to be managed and the anticipated locations of earthwork operations. The estimated cost associated with pre-construction environmental services including the collection and analysis of pre-characterization samples, preparation of a Soil Management Plan, and preparation of a site-specific Health and Safety Plan compliant with OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) would be $15,000 to $25,000.

Construction-phase environmental services including oversight of earth moving activities within fill areas, on-site management of historical fill material during construction, and soil shipment documentation should be provided by a Licensed Site Professional (LSP). The estimated cost for

construction-phase services will vary based on the volume of soil to be managed, but is likely to be in the range of $30,000 to $60,000.

Depending upon the type of contaminants detected in pre-characterization soil samples, the levels of contamination present, and the volume of soil expected to be disturbed during construction activities, the cost of transportation and off-site reuse/disposal of excess soils is likely to be on the order of $80,000 to $250,000. This cost estimate assumes 2 to 4 feet of fill material must be removed to accommodate construction of a portion of the new school building, but no fill material will need to be removed in proposed parking areas overlying fill areas. This estimate further assumes that 75 percent of the excess soil generated during construction activities will contain no contaminants above reportable concentrations and will be suitable for reuse at a MassDEP-approved soil reclamation project. The other 25 percent of soils are assumed to require off-site reuse/disposal at an in-state landfill under the MassDEP's COMM-97 Policy due to levels of PAHs or metals above reportable concentrations. The costs for a 4-story building would be higher than for a 5-story building due to the increased size of the building footprint required for the 4-story option, but still within the range provided above.

A cost range is provided to reflect the preliminary nature of this estimate. Variables such as the actual contaminant levels measured in the excavated fill material, the volume of fill material requiring removal to achieve the project lines and grades, and the actual layout of the school building and parking areas will not be known until the design phase of the project. Broad assumptions on the range of possible outcomes were made in an effort to provide a meaningful cost estimate at this early stage of the project. Cost ranges will be refined in subsequent phases of the project if the Cawley Site is selected as the preferred option, as more specific details on the design of the project will be developed.

It should be noted that additional costs above this range could be incurred if polychlorinated biphenyls (PCBs) were detected in soil samples during pre-characterization activities. PCBs are not expected to be present based on historical research performed during the Phase I ESA, but there is a possibility that fill originating from an unknown source contains unexpected contaminants.

If you have any questions on the content of this letter or the attached Phase II report, please do not hesitate to contact me at (978) 703-6029 or by email at *svetere@nobiseng.com*.

Very truly yours,

Nobis Engineering, Inc.

Stephen Vetere

Stephen Vetere, PE, LSP
Director of Environmental Services

Attachments: Phase II Environmental Site Assessment, Cawley Site

PHASE II ENVIRONMENTAL SITE ASSESSMENT

CAWLEY SITE
MSBA FEASIBILITY STUDY

DOUGLAS ROAD
LOWELL, MASSACHUSETTS

FOR

PERKINS EASTMAN
PROJECT NUMBER 67150.00

BY

NOBIS ENGINEERING, INC.
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Nobis Project No. 91830.02
May 25, 2017

Nobis
Engineering a Sustainable Future

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1.0 INTRODUCTION

Nobis Engineering, Inc. (Nobis) completed a Phase II Site Assessment (Phase II) in support of a Feasibility Study being performed by Perkins Eastman on behalf of the City of Lowell under a grant provided by the Massachusetts School Building Authority (MSBA). The Phase II was conducted on a portion of the 43-acre Martin Alumni Athletic Complex (also known as the Cawley Site), comprised of nine tax parcels in Lowell and Tewksbury, Massachusetts (Figure 1). The Phase II was conducted to address the recommendations provided by Nobis in a Phase I Environmental Site Assessment (ESA) prepared in May 2017, which identified a Recognized Environmental Condition (REC) associated with the presence of historical fill in the northern portion of the Site.

The objective of the Phase II was to characterize soils in potential future school construction areas so that soil management procedures could be developed for the project and potential cost impacts from soil remediation could be evaluated. Therefore, the scope of the Phase II investigation was limited to the James S. Martin Softball Field, the William J. Desmond Athletic Field, and Parcel 1840-438, where the proposed new high school construction work would take place. A second REC that was identified on another parcel, where new construction is not being contemplated and extensive management of soil is not anticipated, was beyond the scope of the Phase II and therefore excluded from the assessment.

2.0 GENERAL SITE INFORMATION

The following sections describe the Site and surrounding properties, and include a summary of ownership history and previous environmental investigations. This discussion focuses on the James S. Martin Softball Field (Parcel 1285-512.1), William J. Desmond Athletic Field (Parcel 1285-512), and Parcel 1840-438 (Figure 2). Equivalent information about the other parcels at Cawley Site can be found in the May 2017 Phase I ESA.

2.1 Site Location and Description

The Cawley Site consists of nine parcels occupied by the Edward D. Cawley Memorial football stadium, Stanley J. Stoklosa Alumni baseball field, James S. Martin softball field, Thomas R. Machado Memorial and William J. Desmond practice football fields, Lowell High School (LHS) varsity field hockey field, and Lucas F. Carvalho Sr. varsity soccer field. The facility is also

improved with lighting, concessions, and spectator infrastructure associated with each of the fields.

Tax parcel 1285-512 is located east of Cawley Stadium. The parcel is improved with a practice football field and half of an adjacent field to the east of the practice football field. The parcel is also improved with the main access driveway servicing the ballfields to the north and east of Cawley Stadium. The driveway is located west of the practice football field, and connects to Village Street to the south. A chain-link fence runs along the southern property boundary adjacent to Village Street. The property is improved with a small, single-story concrete block building which contains the electrical panels and transformers for the field lights surrounding the ballfield.

Tax parcel 1285-512.1 is the northernmost parcel of the complex, and contains the Martin Softball Field. A second, smaller ballfield is located east of the softball field. The Martin Softball Field facility includes two dugouts, three spectator bleacher sections, and a press box located behind the central bleachers. The softball field is accessible by the bituminous concrete drive, which extends north from the adjacent parcel to the south, and runs along the southern parcel boundary towards the raw materials storage area. Just south of this driveway lies two small storage sheds, one containing softball equipment, and one containing the electrical panels and transformers for the softball field lights. The eastern edge of the parcel is improved with the Parks Department raw materials storage area. Piles of raw materials are stored in this area, including bark mulch, crushed stone, sand, etc. The northernmost third of the parcel is undeveloped and remains vegetated. The vegetated area of the parcel is separated from the softball facility by a chain-link fence. The chain-link fence also runs along the western parcel boundary.

Tax parcel 1840-438 is located west of the Cawley Stadium facility. The tax parcel is improved with bituminous concrete, and operates as a parking area for the athletic complex. The southern third of tax parcel 1840-438 is undeveloped, and remains vegetated land.

The subject properties are located within a suburban area of the City of Lowell and the Town of Tewksbury. The surrounding area is comprised of mixed residential, commercial, and light industrial uses. According to a City of Lowell Zoning Map, the Site is zoned as both RR (Regional Retail District) and SSF (Suburban Single Family). The Martin Alumni Athletic Complex is accessed via Douglas Road to the west. The facility and associated ballfields can also be accessed by three driveways connected to Village Street to the east of the subject properties.

Site topography is generally flat, with the highest elevation points being observed in the northwestern region of the Site, where the field hockey field and the softball field are located.

2.2 Site Ownership and Usage

The Cawley Site is currently utilized as the Martin Alumni Athletic Complex, which includes six athletic fields. Most of the Site is owned by the City of Lowell, but the easternmost parcel, occupied by the varsity field hockey field, is owned by the Town of Tewksbury.

2.3 Site Operations History

Historically, the Cawley Site has been either undeveloped or improved with athletic recreational fields. Most of the current Site was historically owned by the Lowell High School Alumni Association, who over time sold portions of the land to the City of Lowell on the condition that the land be used as athletic fields

2.4 Previous Investigations and Recognized Environmental Conditions

Nobis completed a Phase I ESA of the entire Cawley Site in May 2017. The Phase I ESA included assessment of nine tax parcels in Lowell and Tewksbury, Massachusetts. Based on the review of historical records, including a test pitting report completed in April 2017 as part of the Feasibility Study, Nobis identified the following RECs in the 2017 Phase I ESA:

- According to the review of test pit logs prepared by Nitsch Engineering in April 2017 as part of the Feasibility Study, the northern portion of the Cawley Site appears to have been reclaimed through the placement of urban fill material. Nitsch Engineering observed urban fill materials including metal, brick, glass, and concrete in four test pits excavated to the north of the softball stadium. A petroleum odor was noted in one of the test pits. The placement of historical fill material at the Cawley Site may have resulted in the release of contaminants to the environment. If construction activities were to be implemented in this portion of the Site, pre-construction soil sampling would be recommended to establish the presence or absence of contamination, and to determine soil management and/or remediation requirements.

- The State Hazardous Waste Site (SHWS) database identifies USA Petroleum, located adjacent southeast of the Cawley Site, as a Disposal Site which remains open from a MassDEP regulatory perspective. This former retail gasoline facility contains both soil and groundwater contamination associated with a historical release from a gasoline UST. Groundwater flow is inferred to be in the direction of the Cawley Site. The upgradient status of the Former USA Petroleum site constitutes a REC, as the groundwater contamination could potentially impact environmental conditions at the Cawley Site.

  Groundwater results obtained during 2017 from two nearby monitoring wells (MW-8 and MW-9) indicate low levels of groundwater contamination adjacent to the eastern property boundary of the southernmost parcel of the Site, suggesting there is no immediate threat of groundwater contamination on the Cawley Site. However, potential future construction activities (i.e. dewatering) at the Cawley Site could potentially modify subsurface conditions and permit groundwater contamination to migrate onto the Site. If a building were to be proposed for construction on this southern portion of the Cawley Site, pre-construction groundwater sampling would be recommended to confirm the absence of contamination, or to ensure that the proper engineering controls could be incorporated into the design of the building to prevent contaminant exposure to occupants via vapor intrusion.

The Phase I ESA report recommended implementation of a limited subsurface investigation prior to any pre-design or construction work to evaluate whether the identified RECs have resulted in a release of contamination to the environment. The Phase II investigation was intended to provide information to assist with soil management and health and safety planning for Site workers in the event that one of the Cawley Site high school options were to be implemented.

3.0 2017 PHASE II FIELD INVESTIGATION PROGRAM

The 2017 Phase II field investigation included the advancement of seven soil borings, classification and field screening of soil samples, collection of soil samples for laboratory analysis, and evaluation of laboratory data. The sections below summarize the field investigation activities performed in May 2017. Limitations of the assessment are provided in Appendix A.

3.1 DigSafe Utility Clearance

On the morning of May 11, 2017, at 11:00 Nobis notified DigSafe to initiate utility clearance activities in anticipation of commencing drilling activities. DigSafe assigned Ticket Number 20171913234 to the notification, and with the 72-hour notification requirement, a potential start date of May 16, 2017 at 11:00 was established.

3.2 Soil Boring Advancement and Soil Sampling

On May 17, 2017, Drilex advanced 7 overburden soil borings at the Site. Drilling activities were directed by a Nobis field engineer, who was responsible for characterizing soils and collecting soil samples for laboratory analysis. The borings were advanced using a Geoprobe® 6620 track-mounted drill rig. Borings were located beyond the outfield fence (to the north) of the Martin Softball Field (Parcel 1285-512.1), to the south of the Martin Softball Field on Parcel 1285-512, and on Parcel 1840-438 adjacent to the parking lot, as shown on Figure 2. These locations were selected based on their location within new construction areas proposed on the preliminary site layout drawings for the potential new school at the Cawley Site.

During drilling activities, soil samples were collected from each boring continuously using dedicated macro-core acetate sampling sleeves. All borings were advanced from the ground surface until either a maximum depth of 15 feet was achieved, or native material was encountered. All soil samples were characterized in the field by a Nobis engineer and screened for the presence of volatile organic compounds (VOCs) using a photo-ionization detector (PID). Field screening, geological classification, and any other pertinent observations made during soil boring advancement were recorded on boring log forms, which are included in Appendix B.

One soil sample was collected for laboratory analysis from each soil boring: the sample was collected from varying depths depending where material representative of historical fill was observed. Soil samples were kept chilled on ice and transported under chain-of-custody until received by Con-Test Analytical Laboratories of East Longmeadow, Massachusetts for analysis. Laboratory samples were collected for VOC analysis by EPA Method 8260, volatile petroleum hydrocarbons (VPH) by the MassDEP Method, extractable petroleum hydrocarbons (EPH) and PAHs by the MassDEP Method, and Massachusetts Contingency Plan (MCP) metals analysis by EPA Methods 6010/6020.

4.0 SITE HYDROGEOLOGICAL OBSERVATIONS

Based on observations made during the 2017 subsurface soil characterization, both historical fill material and naturally-occurring soil deposits are present at the Site. Historical fill material observed at the Site generally consists of brown to dark grayish-brown poorly sorted silty sands, with varying amounts of debris materials encountered (brick, glass fragments, rubber fragments, asphalt fragments, cobbles). Historical fill material was encountered below a layer of topsoil and up to a depth of 7 feet bgs in the soil borings advanced beyond the outfield fence of the Martin Softball Field (NOB-101 through NOB-104). Underlying native deposits were generally characterized as brown or light brown sand, with low levels of silts and gravels. Nobis did not observe historical fill material in soil borings NOB-105, NOB-106, and NOB-107.

Based on soil boring moisture and/or soil staining observations made by Nobis, the groundwater table appears to be deeper than 10 bgs in most locations. Soil borings advanced to the north of the Martin Softball Field by Geotechnical Partnership in March 2017 as part of the Feasibility Study identified groundwater depths of approximately 15 feet bgs. Several pockets of shallow, wet soil were observed by Nobis in borings NOB-106 and NOB-107, which are both located on parcel 1840-438. Nobis observed a slight petroleum odor in borings NOB-102 and NOB-103, consistent with observations made by Nitsch Engineering in test pit TP-8 during April 2017.

5.0 2017 SOIL ANALYTICAL RESULTS

The following section presents a summary of the laboratory analytical data collected during the 2017 Phase II field investigation. Samples were collected for laboratory analysis of VOCs, VPH, EPH, PAHs, and MCP metals. Analytical results were compared to MassDEP criteria to evaluate potential human health risks associated with the contaminant levels detected. A summary of soil analytical results is provided on Table 1. Laboratory data reports for soil samples collected during the Phase II assessment are provided in Appendix C.

5.1 Applicable Regulatory Criteria

Pursuant to 310 CMR 40.0361, the soil analytical results were screened against the MCP Reportable Concentrations of Oil and Hazardous Material in Category S-1 Soil (RCS-1) to establish whether the results triggered any 120-day reporting obligations to MassDEP. Table 1 provides a comparison of analytical data to these MCP criteria, with a comparison to RCS-1.

5.2 VOC Analytical Results

None of the samples collected during the May 17, 2017 investigation contained VOC concentrations above laboratory detection limits.

5.3 VPH Analytical Results

None of the samples collected during the May 17, 2017 investigation contained any VPH compounds above laboratory reporting limits.

5.4 EPH/PAH Analytical Results

Four of the seven soil samples collected during the May 17, 2017 investigation contained EPH hydrocarbon ranges and/or PAHs above laboratory detection limits. Most of the detected concentrations were low (above laboratory detections limits but below RCS-1). However, the soil sample collected from NOB-103 (3-4 feet bgs) contained benzo(a)pyrene slightly above RCS-1 (2.2 mg/kg compared to RCS-1 of 2.0 mg/kg).

5.5 MCP Metals Analytical Results

The MCP metals analysis includes antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, vanadium, and zinc. Each of the seven samples collected for metals analysis during the May 17, 2017 investigation contained at least one of these metals above laboratory detection limits. All the detected concentrations were below applicable MCP soil standards. The results are summarized below:

- Antimony, selenium, and silver were not detected in any of the samples analyzed.

- Arsenic, barium, beryllium, chromium, lead, nickel, vanadium, and zinc were detected in each of the soil samples at concentrations below RCS-1.

6.0 PHASE II CONCLUSIONS

Nobis completed a Phase II site assessment for a portion of the Cawley Site located in the vicinity of 440 Douglas Road in Lowell, Massachusetts. The following is a summary of the findings of the Phase II activities performed by Nobis.

- Nobis performed a Phase II site assessment for a portion of the Cawley Site, specifically parcels 1285-512.1, 1285-512, and 1840-438 which are occupied by the Martin Softball Field, William J. Desmond Athletic Field, and parking areas, respectively. These areas were targeted because they lie within the areas proposed for new construction on the preliminary drawings for a potential new school at the Cawley Site.

- Nobis advanced seven soil borings in potential future construction areas to observe subsurface conditions and identify the presence or absence of historical fill material. Geological descriptions of soil samples indicate that both historical fill material and native soils exist at the Site. Historical fill material containing brick, glass fragments, asphalt fragments, and cobble was observed in soil borings NOB-101 through NOB-104, in the area to the north of the outfield fence of the Martin Softball Field, consistent with previous observations. Historical fill material was not observed in soil borings NOB-105 through NOB-107.

- Nobis field personnel collected one soil sample from each soil boring for laboratory analysis of VOCs, VPH, EPH, PAHs, and MCP metals. Soil samples were biased toward areas where historical fill materials were observed, if present at a particular location.

- Soil sampling results indicate that non-detect levels of volatile contamination (both VOCs and VPH) exist in the areas sampled. Therefore, the potential threat of vapor intrusion into future buildings appears to be low, and volatile contaminants are unlikely to be of concern during potential future construction activities.

- The only contaminant detected above reportable concentrations was benzo(a)pyrene, a PAH that was detected slightly above RCS-1 in a soil sample collected from NOB-103. This detection is exempt from reporting because it can be attributed to the presence of asphalt fragments in the historical fill material from which the sample was collected.

- Slight petroleum odors were noted during advancement of soil borings NOB-102 and NOB-103, however elevated concentrations of petroleum constituents were not detected in soil samples collected from these locations. Nonetheless, soils in this area should be considered potentially contaminated by petroleum and managed as such during future construction activities.

- The presence of historical fill material in the top 3 to 7 feet of soil beyond the outfield fence of the Martin Softball Field suggests that any soils removed or displaced from this area during future earthwork activities should be considered potentially contaminated with urban fill constituents such as PAHs and metals.

7.0 RECOMMENDATIONS AND REQUIREMENTS

The following subsections summarize the recommendations and/or any regulatory requirements resulting from the detection of contamination at the Site.

7.1 Regulatory Reporting Requirements

The concentrations of PAHs detected above RCS-1 are exempt from reporting because they can be attributed to the presence of asphalt fragments in the historical fill material from which the sample was collected. The City has no reporting obligations related to samples collected during the Phase II assessment.

7.2 Recommendations for Soil Management

If construction of a new school at the Cawley Site were to proceed, any soil that is removed or displaced from the historical fill areas during construction should be considered potentially contaminated. The construction cost estimate for the project should include provisions for worker safety, soil stockpiling in accordance with Section 310 CMR 40.0030 of the MCP, soil pre-characterization, and transportation/disposal of soils under the MassDEP Bill of Lading (BOL) process at an appropriately licensed facility. Any soil remediation made necessary by the construction of a new high school can likely be implemented under a Construction RAM Plan.

In areas where potentially contaminated soils are expected to be displaced by construction activities, pre-characterization soil samples should be collected to identify potential off-site reuse

or disposal options. The results of these laboratory analyses will assist the Environmental Professional with recommendations for soil handling and off-site reuse/disposal, as well as identify any health and safety protocols that should be incorporated into earthwork operations. In a very general sense, the types of soils that might be encountered at the Site during construction will fall into the following classifications:

- Class A-1: Soils meet the definition of background and are suitable for reuse without restrictions. Typically this means that there are no detectable concentrations of VOCs, PCBs, or TPH; and that SVOCs and metals are present at concentrations lower than the values published in Table 1 of the MassDEP Technical Guidance Document *Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil* (May 2002).

- Class A-2: Soils contain detectable concentrations of some contaminants above background, but all contaminants are present below RCS-1. This soil is not regulated for disposal under the MCP, and is therefore eligible for off-site reuse provided that the material meets the MassDEP's anti-degradation or "similar soils" provision (310 CMR 40.0032[3][b]). This section of the MCP states that soils must not be reused at a location where "existing concentrations of oil and/or hazardous material…are significantly lower than the levels of those oil and/or hazardous materials present in the soil being disposed or reused." In other words, the soils cannot be reused at a location where they would increase the level of contamination already present at the receiving site.

- Class B-1: Soils contain concentrations of at least one contaminant above RCS-1. These soils are regulated under the MCP and, in many cases, require reporting to MassDEP (although not if the release has already been reported). These soils may be disposed in a lined or unlined landfill within Massachusetts provided that they meet the criteria established in MassDEP Policy #COMM-97-001, *Reuse and Disposal of Contaminated Soil in Massachusetts Landfills* (August 1997).

- Class B-2: Soils contain concentrations of at least one contaminant above RCS-1 and the COMM-97 reuse criteria. These soils must be transported to an out-of-state landfill for disposal.

Pre-characterization of soils for off-site reuse or disposal was beyond the scope of the Phase II, and typically laboratory analysis for a wider range of contaminants is required to support off-site reuse or disposal of soils. However, based on the soil analytical data available at the time of this Phase II, the historical fill located beyond the outfield fence of the Martin Softball Field would be characterized as Class B-1 soil and suitable for reuse at an in-state landfill under the COMM-97 Policy. The soils originating from the areas represented by NOB-105, NOB-106, and NOB-107 would be characterized as Class A-1 soil, suitable for reuse on-site without restriction.

The general information included in the section above is provided as guidance for planning purposes during the feasibility stage of this project. There are several nuances, including exemptions and variances that can be applied if specific observations of urban fill materials are made, that might be applicable to the Site as subsurface information is collected and evaluated. A Licensed Site Professional (LSP) should be involved with any soil management evaluations that are made during pre-design or construction, to ensure compliance with all applicable environmental laws and regulations.

TABLES

Table 1
Summary of Soil Analytical Results
Cawley Site
Lowell, Massachusetts
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SAMPLE LOCATION		NOB-101	NOB-102	NOB-103	NOB-104	NOB-105	NOB-106	NOB-107
SAMPLE DATE		5/17/2017	5/17/2017	5/17/2017	5/17/2017	5/17/2017	5/17/2017	5/17/2017
SAMPLE DEPTH		3-4 Feet	5-7 Feet	3-5 Feet	5-6 Feet	4-5 Feet	5-7 Feet	3-4 Feet
MCP CRITERIA	**RCS-1**							
VOCs (mg/Kg dry)								
ACETONE	6	ND (0.096)	ND (0.10)	ND (0.084)	ND (0.099)	ND (0.083)	ND (0.090)	ND (0.083)
TERT-AMYL METHYL ETHER	~	ND (0.00096)	ND (0.0010)	ND (0.00084)	ND (0.00099)	ND (0.00083)	ND (0.00090)	ND (0.00083)
BENZENE	2	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
BROMOBENZENE	100	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
BROMOCHLOROMETHANE	~	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
BROMODICHLOROMETHANE	0.1	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
BROMOFORM	0.1	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
BROMOMETHANE	0.5	ND (0.0096)	ND (0.010)	ND (0.0084)	ND (0.0099)	ND (0.0083)	ND (0.0090)	ND (0.0083)
2-BUTANONE (MEK)	4	ND (0.038)	ND (0.042)	ND (0.033)	ND (0.040)	ND (0.033)	ND (0.036)	ND (0.033)
N-BUTYLBENZENE	~	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
SEC-BUTYLBENZENE	~	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
TERT-BUTYLBENZENE	100	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
TERT-BUTYLETHYL ETHER	~	ND (0.00096)	ND (0.0010)	ND (0.00084)	ND (0.00099)	ND (0.00083)	ND (0.00090)	ND (0.00083)
CARBON DISULFIDE	100	ND (0.0058)	ND (0.0063)	ND (0.0050)	ND (0.0060)	ND (0.0050)	ND (0.0054)	ND (0.0050)
CARBON TETRACHLORIDE	5	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
CHLOROBENZENE	1	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
CHLORODIBROMOMETHANE	0.005	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
CHLOROETHANE	100	ND (0.0096)	ND (0.010)	ND (0.0084)	ND (0.0099)	ND (0.0083)	ND (0.0090)	ND (0.0083)
CHLOROFORM	0.2	ND (0.0038)	ND (0.0042)	ND (0.0033)	ND (0.0040)	ND (0.0033)	ND (0.0036)	ND (0.0033)
CHLOROMETHANE	100	ND (0.0096)	ND (0.010)	ND (0.0084)	ND (0.0099)	ND (0.0083)	ND (0.0090)	ND (0.0083)
2-CHLOROTOLUENE	100	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
4-CHLOROTOLUENE	~	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
1,2-DIBROMO-3-CHLOROPROPANE	10	ND (0.0038)	ND (0.0042)	ND (0.0033)	ND (0.0040)	ND (0.0033)	ND (0.0036)	ND (0.0033)
1,2-DIBROMOETHANE (EDB)	0.1	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
DIBROMOMETHANE	500	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
1,2-DICHLOROBENZENE	9	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
1,3-DICHLOROBENZENE	3	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
1,4-DICHLOROBENZENE	0.7	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
DICHLORODIFLUOROMETHANE	1000	ND (0.0096)	ND (0.010)	ND (0.0084)	ND (0.0099)	ND (0.0083)	ND (0.0090)	ND (0.0083)
1,1-DICHLOROETHANE	0.4	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
1,2-DICHLOROETHANE	0.1	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
1,1-DICHLOROETHYLENE	3	ND (0.0038)	ND (0.0042)	ND (0.0033)	ND (0.0040)	ND (0.0033)	ND (0.0036)	ND (0.0033)
CIS-1,2-DICHLOROETHYLENE	0.1	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
TRANS-1,2-DICHLOROETHYLENE	1	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)

Table 1
Summary of Soil Analytical Results
Cawley Site
Lowell, Massachusetts
Page 2 of 4

SAMPLE LOCATION		NOB-101	NOB-102	NOB-103	NOB-104	NOB-105	NOB-106	NOB-107
SAMPLE DATE		5/17/2017	5/17/2017	5/17/2017	5/17/2017	5/17/2017	5/17/2017	5/17/2017
SAMPLE DEPTH		3-4 Feet	5-7 Feet	3-5 Feet	5-6 Feet	4-5 Feet	5-7 Feet	3-4 Feet
MCP CRITERIA	RCS-1							
VOCs (mg/Kg dry)								
1,2-DICHLOROPROPANE	0.1	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
1,3-DICHLOROPROPANE	500	ND (0.00096)	ND (0.0010)	ND (0.00084)	ND (0.00099)	ND (0.00083)	ND (0.00090)	ND (0.00083)
2,2-DICHLOROPROPANE	~	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
1,1-DICHLOROPROPENE	~	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
CIS-1,3-DICHLOROPROPENE	~	ND (0.00096)	ND (0.0010)	ND (0.00084)	ND (0.00099)	ND (0.00083)	ND (0.00090)	ND (0.00083)
TRANS-1,3-DICHLOROPROPENE	~	ND (0.00096)	ND (0.0010)	ND (0.00084)	ND (0.00099)	ND (0.00083)	ND (0.00090)	ND (0.00083)
DIETHYL ETHER	100	ND (0.0096)	ND (0.010)	ND (0.0084)	ND (0.0099)	ND (0.0083)	ND (0.0090)	ND (0.0083)
DIISOPROPYL ETHER	100	ND (0.00096)	ND (0.0010)	ND (0.00084)	ND (0.00099)	ND (0.00083)	ND (0.00090)	ND (0.00083)
1,4-DIOXANE	0.2	ND (0.19)	ND (0.21) *	ND (0.17)	ND (0.20)	ND (0.17)	ND (0.18)	ND (0.17)
ETHYLBENZENE	40	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
HEXACHLOROBUTADIENE	30	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
2-HEXANONE	100	ND (0.019)	ND (0.021)	ND (0.017)	ND (0.020)	ND (0.017)	ND (0.018)	ND (0.017)
ISOPROPYLBENZENE	1000	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
P-ISOPROPYLTOLUENE	100	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
METHYL TERT-BUTYL ETHER (MTBE)	0.1	ND (0.0038)	ND (0.0042)	ND (0.0033)	ND (0.0040)	ND (0.0033)	ND (0.0036)	ND (0.0033)
METHYLENE CHLORIDE	0.1	ND (0.0096)	ND (0.010)	ND (0.0084)	ND (0.0099)	ND (0.0083)	ND (0.0090)	ND (0.0083)
4-METHYL-2-PENTANONE (MIBK)	0.4	ND (0.019)	ND (0.021)	ND (0.017)	ND (0.020)	ND (0.017)	ND (0.018)	ND (0.017)
NAPHTHALENE	4	ND (0.0096)	ND (0.010)	ND (0.0084)	ND (0.0099)	ND (0.0083)	ND (0.0090)	ND (0.0083)
N-PROPYLBENZENE	100	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
STYRENE	3	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
1,1,1,2-TETRACHLOROETHANE	0.1	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
1,1,2,2-TETRACHLOROETHANE	0.005	ND (0.00096)	ND (0.0010)	ND (0.00084)	ND (0.00099)	ND (0.00083)	ND (0.00090)	ND (0.00083)
TETRACHLOROETHYLENE	1	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
TETRAHYDROFURAN	500	ND (0.0096)	ND (0.010)	ND (0.0084)	ND (0.0099)	ND (0.0083)	ND (0.0090)	ND (0.0083)
TOLUENE	30	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
1,2,3-TRICHLOROBENZENE	~	ND (0.0096)	ND (0.010)	ND (0.0084)	ND (0.0099)	ND (0.0083)	ND (0.0090)	ND (0.0083)
1,2,4-TRICHLOROBENZENE	2	ND (0.0096)	ND (0.010)	ND (0.0084)	ND (0.0099)	ND (0.0083)	ND (0.0090)	ND (0.0083)
1,1,1-TRICHLOROETHANE	30	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
1,1,2-TRICHLOROETHANE	0.1	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
TRICHLOROETHYLENE	0.3	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
TRICHLOROFLUOROMETHANE	1000	ND (0.0096)	ND (0.010)	ND (0.0084)	ND (0.0099)	ND (0.0083)	ND (0.0090)	ND (0.0083)
1,2,3-TRICHLOROPROPANE	100	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
1,2,4-TRIMETHYLBENZENE	1000	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
1,3,5-TRIMETHYLBENZENE	10	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)

Table 1
Summary of Soil Analytical Results
Cawley Site
Lowell, Massachusetts
Page 3 of 4

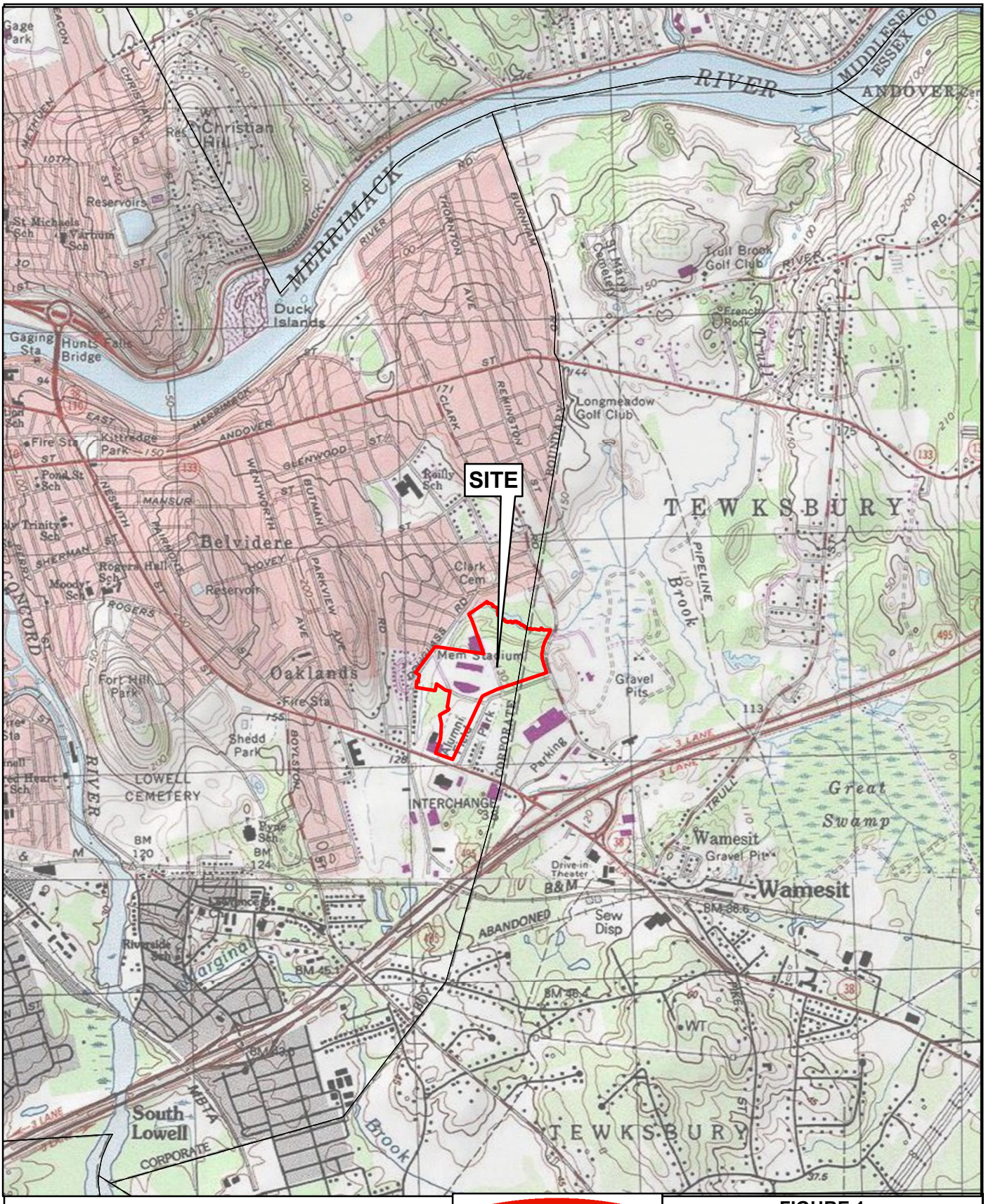
SAMPLE LOCATION		NOB-101	NOB-102	NOB-103	NOB-104	NOB-105	NOB-106	NOB-107
SAMPLE DATE		5/17/2017	5/17/2017	5/17/2017	5/17/2017	5/17/2017	5/17/2017	5/17/2017
SAMPLE DEPTH		3-4 Feet	5-7 Feet	3-5 Feet	5-6 Feet	4-5 Feet	5-7 Feet	3-4 Feet
MCP CRITERIA	RCS-1							
VOCs (mg/Kg dry)								
VINYL CHLORIDE	0.7	ND (0.0096)	ND (0.010)	ND (0.0084)	ND (0.0099)	ND (0.0083)	ND (0.0090)	ND (0.0083)
M/P-XYLENE	100	ND (0.0038)	ND (0.0042)	ND (0.0033)	ND (0.0040)	ND (0.0033)	ND (0.0036)	ND (0.0033)
O-XYLENE	100	ND (0.0019)	ND (0.0021)	ND (0.0017)	ND (0.0020)	ND (0.0017)	ND (0.0018)	ND (0.0017)
MADEP-VPH-04-1.1 (mg/Kg dry)								
UNADJUSTED C5-C8 ALIPHATICS	~	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (11)	ND (11)
C5-C8 ALIPHATICS	100	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (11)	ND (11)
UNADJUSTED C9-C12 ALIPHATICS	~	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (11)	ND (11)
C9-C12 ALIPHATICS	1000	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (11)	ND (11)
C9-C10 AROMATICS	100	ND (12)	ND (12)	ND (11)	ND (11)	ND (12)	ND (11)	ND (11)
BENZENE	2	ND (0.059)	ND (0.061)	ND (0.054)	ND (0.053)	ND (0.059)	ND (0.053)	ND (0.055)
ETHYLBENZENE	40	ND (0.059)	ND (0.061)	ND (0.054)	ND (0.053)	ND (0.059)	ND (0.053)	ND (0.055)
METHYL TERT-BUTYL ETHER (MTBE)	0.1	ND (0.059)	ND (0.061)	ND (0.054)	ND (0.053)	ND (0.059)	ND (0.053)	ND (0.055)
NAPHTHALENE	4	ND (0.29)	ND (0.31)	ND (0.27)	ND (0.27)	ND (0.29)	ND (0.27)	ND (0.27)
TOLUENE	30	ND (0.059)	ND (0.061)	ND (0.054)	ND (0.053)	ND (0.059)	ND (0.053)	ND (0.055)
M/P-XYLENE	100	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.12)	ND (0.11)	ND (0.11)
O-XYLENE	100	ND (0.059)	ND (0.061)	ND (0.054)	ND (0.053)	ND (0.059)	ND (0.053)	ND (0.055)
MADEP-EPH-04-1.1 (mg/Kg dry)								
C9-C18 ALIPHATICS	1000	ND (53)	ND (12)	ND (23)	ND (12)	ND (11)	ND (12)	ND (12)
C19-C36 ALIPHATICS	3000	230	17	45	30	ND (11)	ND (12)	ND (12)
UNADJUSTED C11-C22 AROMATICS	~	170	19	110	69	ND (11)	ND (12)	ND (12)
C11-C22 AROMATICS	1000	170	16	79	41	ND (11)	ND (12)	ND (12)
ACENAPHTHENE	4	ND (0.53)	ND (0.12)	ND (0.23)	0.37	ND (0.11)	ND (0.12)	ND (0.12)
ACENAPHTHYLENE	1	ND (0.53)	ND (0.12)	0.29	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.12)
ANTHRACENE	1000	ND (0.53)	ND (0.12)	0.95	0.79	ND (0.11)	ND (0.12)	ND (0.12)
BENZO(A)ANTHRACENE	7	ND (0.53)	0.31	2.3	1.9	ND (0.11)	ND (0.12)	ND (0.12)
BENZO(A)PYRENE	2	ND (0.53)	0.35	**2.2**	1.9	ND (0.11)	ND (0.12)	ND (0.12)
BENZO(B)FLUORANTHENE	7	ND (0.53)	0.46	2.8	2.4	ND (0.11)	ND (0.12)	ND (0.12)
BENZO(G,H,I)PERYLENE	1000	ND (0.53)	0.26	1.3	1.3	ND (0.11)	ND (0.12)	ND (0.12)
BENZO(K)FLUORANTHENE	70	ND (0.53)	0.16	0.99	0.88	ND (0.11)	ND (0.12)	ND (0.12)
CHRYSENE	70	ND (0.53)	0.37	2.4	2.1	ND (0.11)	ND (0.12)	ND (0.12)
DIBENZ(A,H)ANTHRACENE	0.7	ND (0.53)	ND (0.12)	0.36	0.28	ND (0.11)	ND (0.12)	ND (0.12)
FLUORANTHENE	1000	ND (0.53)	0.62	5.7	5.5	ND (0.11)	ND (0.12)	ND (0.12)
FLUORENE	1000	ND (0.53)	ND (0.12)	0.40	0.34	ND (0.11)	ND (0.12)	ND (0.12)
INDENO(1,2,3-CD)PYRENE	7	ND (0.53)	0.24	1.5	1.5	ND (0.11)	ND (0.12)	ND (0.12)

Table 1
Summary of Soil Analytical Results
Cawley Site
Lowell, Massachusetts

SAMPLE LOCATION		NOB-101	NOB-102	NOB-103	NOB-104	NOB-105	NOB-106	NOB-107
SAMPLE DATE		5/17/2017	5/17/2017	5/17/2017	5/17/2017	5/17/2017	5/17/2017	5/17/2017
SAMPLE DEPTH		3-4 Feet	5-7 Feet	3-5 Feet	5-6 Feet	4-5 Feet	5-7 Feet	3-4 Feet
MCP CRITERIA	**RCS-1**							
MADEP-EPH-04-1.1 (mg/Kg dry)								
2-METHYLNAPHTHALENE	0.7	ND (0.53)	ND (0.12)	ND (0.23)	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.12)
NAPHTHALENE	4	ND (0.53)	ND (0.12)	0.32	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.12)
PHENANTHRENE	10	ND (0.53)	0.26	3.7	4.3	ND (0.11)	ND (0.12)	ND (0.12)
PYRENE	1000	ND (0.53)	0.62	5.3	5.2	ND (0.11)	ND (0.12)	ND (0.12)
Metals (mg/Kg)								
ANTIMONY	20	ND (2.4)	ND (2.8)	ND (2.8)	ND (2.9)	ND (2.6)	ND (2.7)	ND (3.0)
ARSENIC	20	3.5	14	9.9	12	4.6	5.2	11
BARIUM	1000	19	45	51	37	12	11	28
BERYLLIUM	90	0.31	0.64	0.55	0.52	0.50	0.30	0.43
CADMIUM	70	ND (0.24)	0.56	0.52	0.52	ND (0.26)	ND (0.27)	0.42
CHROMIUM	100	14	26	23	24	19	7.3	9.8
LEAD	200	6.8	58	91	31	3.3	1.8	2.7
MERCURY	20	ND (0.027)	0.16	0.29	0.039	ND (0.028)	ND (0.029)	ND (0.029)
NICKEL	600	8.9	16	16	15	8.7	6.5	9.9
SELENIUM	400	ND (4.9)	ND (5.6)	ND (5.6)	ND (5.7)	ND (5.2)	ND (5.4)	ND (6.1)
SILVER	100	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.13)	ND (0.12)	ND (0.12)	ND (0.13)
THALLIUM	8	ND (2.4)	ND (2.8)	ND (2.8)	ND (2.9)	3.0	ND (2.7)	4.3
VANADIUM	400	17	23	24	20	16	7.4	12
ZINC	1000	14	41	60	34	15	11	15
Percent Solids (% Wt)								
% Solids	~	94.3	85.5	87.8	86.3	88.6	86.2	82.1

NOTES:
1. ND = Not detected above the lab reporting limits shown in parenthesis.
2. NT = Not tested.
3. ~ = No reportable concentration available
4. Shaded values exceed the MCP Reportable Concentrations (RCs).

FIGURES



Map Location

USGS Topographic Map
Lowell, Mass.
Revised 1987

0 500 1,000 2,000

Feet 1 inch = 2,000 feet

N

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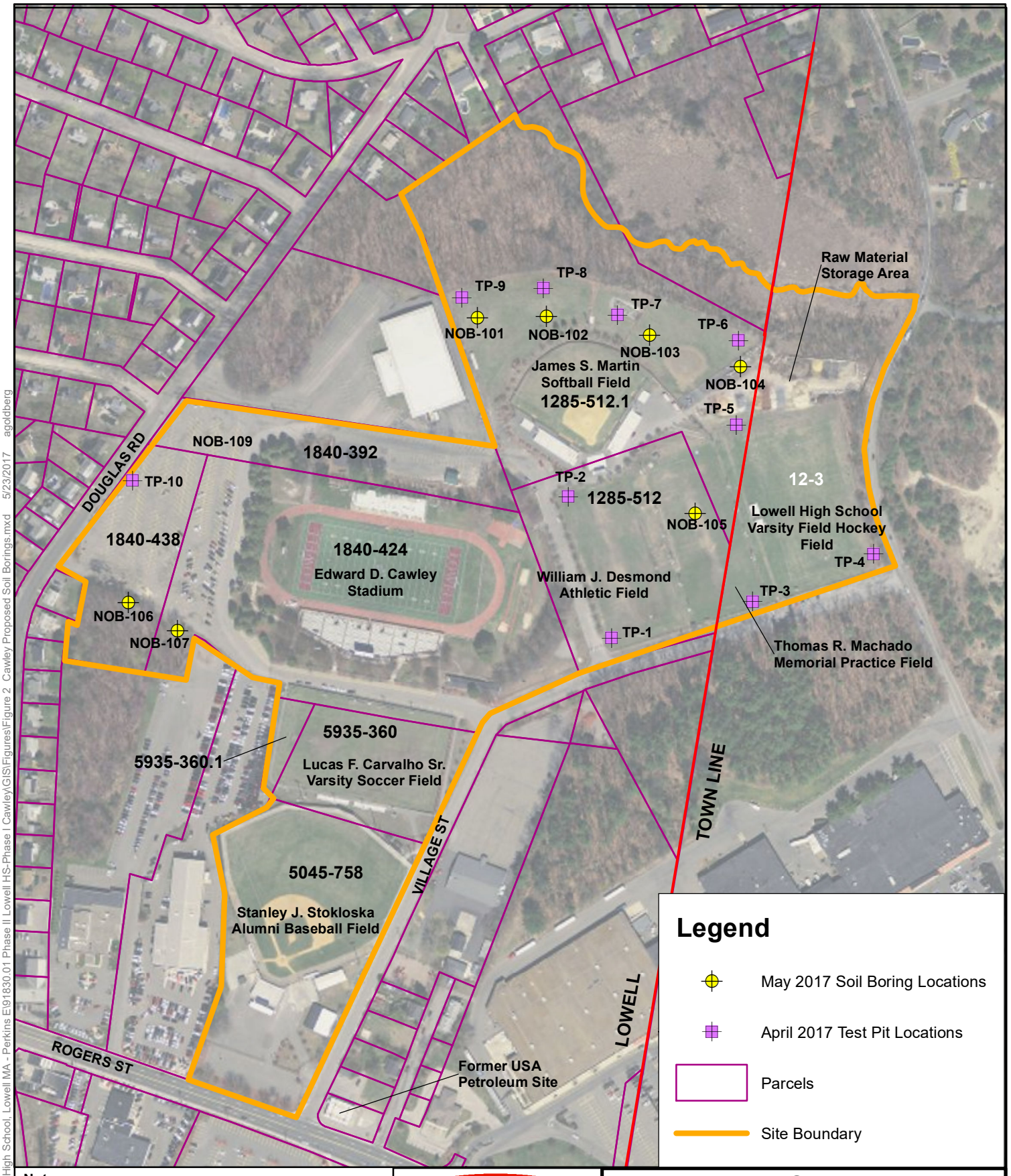
FIGURE 1

LOCUS MAP
CAWLEY SITE-PHASE II
LOWELL HIGH SCHOOL
LOWELL, MASSACHUSETTS

PREPARED BY: AG	CHECKED BY: SV
PROJECT NO. 91830.02	DATE: MAY 2017

Path: O:\Active\91830.00 - Lowell High School, Lowell MA - Perkins E\91830.02 Cawley Phase II\GIS\Figure 1 Lowell High Locus.mxd **Date Printed:** 5/22/2017



Notes:

1. Locations of site features depicted hereon are approximate and given for illustrative purposes only.

0 150 300 600

Feet 1 inch = 300 feet

N

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FIGURE 2

PHASE II INVESTIGATION - CAWLEY SITE
SOIL BORING LOCATIONS
LOWELL, MASSACHUSETTS

PREPARED BY: AG	CHECKED BY: SV
PROJECT NO. 91830.02	DATE: MAY 2017

O:\Active\91830.00 - Lowell High School, Lowell MA - Perkins E\91830.01 Phase II Lowell HS-Phase I Cawley\GIS\Figures\Figure 2 Cawley Proposed Soil Borings.mxd 5/23/2017 agoldberg

APPENDIX A

APPENDIX A
LIMITATIONS

1) These environmental services were performed in accordance with generally accepted practices of other consultants undertaking similar assessments at the same time and in the same geographical area. The results of this assessment are based on our professional judgment and are not scientific certainties. Specifically, Nobis Engineering, Inc. does not and cannot represent that the site contains no hazardous wastes, oil or other latent conditions beyond those observed during this assessment. No other warranty, express or implied, is made.

2) The observations and conclusions presented in this report were made solely on the basis of conditions described in the report and not on scientific tasks or procedures beyond the scope of described services or the budgetary and time constraints imposed by the client.

3) Observations were made of the site as indicated in this report. Where access to portions of the site was unavailable or limited, Nobis Engineering, Inc. renders no opinion as to the presence of hazardous wastes or the presence of indirect evidence of hazardous wastes in that portion of the site.

4) No property boundary, site feature or topographic surveys of the site were performed by Nobis Engineering, Inc. unless specifically indicated in the text of the report.

5) No sampling or testing was performed for the presence of dioxins, furans, pesticides, herbicides, radon, lead paint, urea-formaldehyde, asbestos or polychlorinated biphenyls (PCBs) at the site unless specifically indicated in the text of the report.

6) Chemical analyses have been performed for specific parameters during this assessment, as described in the text of the report. Additional chemical constituents not searched for during the current study may be present in soil and/or groundwater at the site. In addition, where such analyses have been conducted by an outside laboratory, Nobis Engineering, Inc. has relied upon the data provided and has not conducted an independent evaluation of the reliability of these data.

7) This report has been prepared for the exclusive use of Perkins Eastman and the City of Lowell solely for use in an environmental evaluation of the site. This report shall not, in whole or in part, be conveyed to any other party, other than Perkins Eastman or the City of Lowell without prior written consent of Nobis Engineering, Inc.

APPENDIX B

BORING LOG

Nobis — Engineering a Sustainable Future

Project: Cawley Stadium Phase II ESA
Location: Douglas Road, Lowell, MA
Nobis Project No.: 91830.01

Boring No.: **NOB-101**
Boring Location: See Site Plan
Checked by: S. Vetere
Date Start: May 17, 2017
Date Finish: May 17, 2017

Contractor: Drilex Environmental, Inc.
Driller: F. Harrington
Nobis Rep.: A. Goldberg

Rig Type / Model: Geoprobe 6620DT
Hammer Type: N/A
Hammer Hoist: N/A

Ground Surface Elev.:
Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)	1 3/4"	1.75 x 60
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
1	S-1	50	0-5					TOPSOIL / 0.6	S-1A (8"): DARK BROWN, fine SAND and Silt. litle Organics. dry.	
								URBAN FILL / 2.7	S-1B (24"): Dark brown, fine to coarse SAND, little Gravel, little Silt, trace Ceramics, trace Plastic, trace Asphalt, trace Glass. dry.	
4					0.0				S-1C (8"): Light brown, fine to coarse SAND, trace Gravel, trace Silt. dry.	
									S-1D (6"): Brown, fine SAND, little Silt, trace Gravel, trace Organics. moist.	
6	S-2	49	5-10						S-2 (49"): Light brown, fine to coarse SAND, trace Gravel. moist.	
								SAND		
10								/ 10.0		
11									Boring terminated at 10 feet.	

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Sample collected from 3-4' bgs for laboratory analysis.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

BORING LOG

Nobis — Engineering a Sustainable Future

Project: Cawley Stadium Phase II ESA
Location: Douglas Road, Lowell, MA
Nobis Project No.: 91830.01

Boring No.: **NOB-102**
Boring Location: See Site Plan
Checked by: S. Vetere
Date Start: May 17, 2017
Date Finish: May 17, 2017

Contractor: Drilex Environmental, Inc.
Driller: F. Harrington
Nobis Rep.: A. Goldberg

Rig Type / Model: Geoprobe 6620DT
Hammer Type: N/A
Hammer Hoist: N/A

Ground Surface Elev.:
Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)	1 3/4"	1.75 x 60
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	Sample Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Lithology Graphic	Lithology Stratum Elev. / Depth (ft.)	Sample Description and Remarks (Classification System: Modified Burmister)	Notes
1	S-1	42.5	0-5					TOPSOIL / 0.5	S-1A (6"): DARK BROWN, SAND & SILT, trace Gravel, trace Organics. dry.	
									S-1B (37"): Brown to black, fine to coarse SAND, little Gravel, little Silt, trace Asphalt, trace Glass, trace Brick, trace Organics. moist.	
2										
3					0.0					
4								URBAN FILL		
5										
6	S-2	29	5-10		0.0				S-2A (20"): Brown to black, fine to coarse SAND, some Silt, little Gravel, trace Brick, trace Glass, trace Asphalt. moist. Slight petroleum odor noted.	
7								/ 6.7		
8									S-2B (9"): Light brown, fine to medium SAND. dry.	
9										
10										
11	S-3	45	10-15					SAND	S-3A: Cave in from above.	
									S-3B (38"): Light brown, fine to medium SAND. dry.	
12										
13										
14										
15								/ 15.0		
16									Boring terminated at 15 feet.	
17										
18										
19										
20										
21										
22										
23										
24										
25										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Sample collected from 5-7' bgs for laboratory analysis.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

BORING LOG

Engineering a Sustainable Future

Project: Cawley Stadium Phase II ESA

Location: Douglas Road, Lowell, MA

Nobis Project No.: 91830.01

Boring No.: **NOB-103**

Boring Location: See Site Plan

Checked by: S. Vetere

Date Start: May 17, 2017

Date Finish: May 17, 2017

Contractor: Drilex Environmental, Inc.

Driller: F. Harrington

Nobis Rep.: A. Goldberg

Rig Type / Model: Geoprobe 6620DT

Hammer Type: N/A

Hammer Hoist: N/A

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)	1 3/4"	1.75 x 60
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
1	S-1	50	0-5						S-1A (10"): Dark brown, SAND & SILT, trace Gravel, trace Organics, trace brick fragments. dry. S-1B (10"): Brown, SAND & SILT, trace Glass. dry.	
2										
3									S-1C (30"): Brown, fine to coarse SAND, some Silt, some Gravel, trace Brick, trace Glass, trace Asphalt. dry. Slight petroleum odor noted.	
4					0.0			URBAN FILL		
5										
6	S-2	31	5-10					/ 6.0	S-2A (12"): Dry. Cave in from above. Crushed rock.	
7									S-2B (19"): Light brown, fine to medium SAND. dry.	
8										
9								SAND		
10								/ 10.0		
11									Boring terminated at 10 feet.	
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Sample collected from 3-5' bgs for laboratory analysis.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

BORING LOG

Nobis — Engineering a Sustainable Future

Project: Cawley Stadium Phase II ESA
Location: Douglas Road, Lowell, MA
Nobis Project No.: 91830.01

Boring No.: **NOB-104**
Boring Location: See Site Plan
Checked by: S. Vetere
Date Start: May 17, 2017
Date Finish: May 17, 2017

Contractor: Drilex Environmental, Inc.
Driller: F. Harrington
Nobis Rep.: A. Goldberg

Rig Type / Model: Geoprobe 6620DT
Hammer Type: N/A
Hammer Hoist: N/A

Ground Surface Elev.:
Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)	1 3/4"	1.75 x 60
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
1	S-1	36	0-5					TOPSOIL / 0.7	S-1A (8"): Brown, SILT, little fine Sand, trace Organics. dry.	
									S-1B (28"): Brown to gray, fine to coarse SAND, trace Gravel, trace Rubber, trace Plastic fragments. moist.	
2										
3										
4					0.0			URBAN FILL		
5										
6	S-2	49	5-10		0.0				S-2A (24"): Brown to black, fine to coarse SAND, little Silt, trace Gravel, trace Organics, trace Brick. moist.	
7								/ 7.0		
8									S-2B (7"): Light brown, fine SAND, trace Silt. dry.	
9								SAND		
10								/ 10.0		
11									Boring terminated at 10 feet.	
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Sample collected from 5-6' bgs for laboratory analysis.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

BORING LOG

Nobis — Engineering a Sustainable Future

Project: Cawley Stadium Phase II ESA
Location: Douglas Road, Lowell, MA
Nobis Project No.: 91830.01

Boring No.: **NOB-105**
Boring Location: See Site Plan
Checked by: S. Vetere
Date Start: May 17, 2017
Date Finish: May 17, 2017

Contractor: Drilex Environmental, Inc.
Driller: F. Harrington
Nobis Rep.: A. Goldberg

Rig Type / Model: Geoprobe 6620DT
Hammer Type: N/A
Hammer Hoist: N/A

Ground Surface Elev.:
Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)	1 3/4"	1.75 x 60
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
1	S-1	42	0-5					/ 0.4 TOPSOIL	S-1A (5"): Dark brown, fine to medium SAND and Silt, trace Gravel, trace Organics. dry.	
2									S-1B (37"): Brown, fine to medium SAND, trace Gravel. moist.	
3										
4										
5					0.0					
6	S-2	36	5-10					SAND	S-2 (36"): Light brown, fine to coarse SAND, trace Gravel. moist.	
7										
8										
9										
10								/ 10.0		
11									Boring terminated at 10 feet.	
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Sample collected from 4-5' bgs for laboratory analysis.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

BORING LOG

Nobis — Engineering a Sustainable Future

Project: Cawley Stadium Phase II ESA
Location: Douglas Road, Lowell, MA
Nobis Project No.: 91830.01

Boring No.: **NOB-106**
Boring Location: See Site Plan
Checked by: S. Vetere
Date Start: May 17, 2017
Date Finish: May 17, 2017

Contractor: Drilex Environmental, Inc.
Driller: F. Harrington
Nobis Rep.: A. Goldberg

Rig Type / Model: Geoprobe 6620DT
Hammer Type: N/A
Hammer Hoist: N/A

Ground Surface Elev.:
Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)	1 3/4"	1.75 x 60
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
1	S-1	37	0-5					TOPSOIL / 0.8	S-1A (9"): Brown, fine to coarse SAND, little Gravel, little Silt, trace Organics. dry.	
									S-1B (5"): Black, fine SAND and Silt. dry.	
2									S-1C (23"): Brown, fine to coarse SAND. wet.	
3										
4					0.3					
5										
6	S-2	29	5-10		0.0			SILTY SAND	S-2A (10"): Brown to read, fine to coarse SAND, trace Silt. wet.	
									S-2B (8"): Brown, fine SAND and Silt. wet.	
7									S-2C (11"): Gray, SILT and fine Sand. wet.	
8										
9										
10								/ 10.0		
11									Boring terminated at 10 feet.	
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:
1) Sample collected from 5-7' bgs for laboratory analysis.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

BORING LOG

Nobis — Engineering a Sustainable Future

Project: Cawley Stadium Phase II ESA

Location: Douglas Road, Lowell, MA

Nobis Project No.: 91830.01

Boring No.: **NOB-107**

Boring Location: See Site Plan

Checked by: S. Vetere

Date Start: May 17, 2017

Date Finish: May 17, 2017

Contractor: Drilex Environmental, Inc.

Driller: F. Harrington

Nobis Rep.: A. Goldberg

Rig Type / Model: Geoprobe 6620DT

Hammer Type: N/A

Hammer Hoist: N/A

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)	1 3/4"	1.75 x 60
Advancement	Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time

Depth (ft.)	SAMPLE INFORMATION: Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	LITHOLOGY: Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
1	S-1	42	0-5					TOPSOIL / 0.5	S-1A (6"): Dark brown, SILT and fine Sand, trace Gravel, trace Organics. dry.	
									S-1B (16"): Brown, fine to coarse SAND, little Silt, trace Gravel. moist.	
2								SAND		
									S-1C (14"): Light brown, fine SAND, some Silt. wet.	
3								/ 3.0		
4					0.0				S-1D (6"): Weathered rock..	
5								WEATHERED ROCK		
6	S-2	24	5-7						S-2 (24"): Weathered rock.	
7								/ 7.0		
8									Boring terminated at 7 feet.	
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

1) Sample collected from 3-4' bgs for laboratory anaylsis.
2) Refusal at 7' bgs from weathered rock. Moved 2' towards NOB-106, hit refusal at 7' bgs. Soil was native-boring was terminated.

Soil descriptions are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

APPENDIX C

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

May 19, 2017

Stephen Vetere
Nobis Engineering
585 Middlesex Street
Lowell, MA 01851

Project Location: Cawley Stadium, Lowell High
Client Job Number:
Project Number: 91830.01
Laboratory Work Order Number: 17E0912

Enclosed are results of analyses for samples received by the laboratory on May 18, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Meghan E. Kelley
Project Manager

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con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Nobis Engineering
585 Middlesex Street
Lowell, MA 01851
ATTN: Stephen Vetere

REPORT DATE: 5/19/2017

PURCHASE ORDER NUMBER: MO 16-008

PROJECT NUMBER: 91830.01

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17E0912

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Cawley Stadium, Lowell High

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
NOB101-0304	17E0912-01	Soil		MADEP-EPH-04-1.1	
				MADEP-VPH-04-1.1	
				SM 2540G	
				SW-846 6010C-D	
				SW-846 6020A-B	
				SW-846 7471B	
				SW-846 8260C	
NOB102-0507	17E0912-02	Soil		MADEP-EPH-04-1.1	
				MADEP-VPH-04-1.1	
				SM 2540G	
				SW-846 6010C-D	
				SW-846 6020A-B	
				SW-846 7471B	
				SW-846 8260C	
NOB103-0305	17E0912-03	Soil		MADEP-EPH-04-1.1	
				MADEP-VPH-04-1.1	
				SM 2540G	
				SW-846 6010C-D	
				SW-846 6020A-B	
				SW-846 7471B	
				SW-846 8260C	
NOB104-0506	17E0912-04	Soil		MADEP-EPH-04-1.1	
				MADEP-VPH-04-1.1	
				SM 2540G	
				SW-846 6010C-D	
				SW-846 6020A-B	
				SW-846 7471B	
				SW-846 8260C	
NOB105-0405	17E0912-05	Soil		MADEP-EPH-04-1.1	
				MADEP-VPH-04-1.1	
				SM 2540G	
				SW-846 6010C-D	
				SW-846 6020A-B	
				SW-846 7471B	
				SW-846 8260C	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Nobis Engineering
585 Middlesex Street
Lowell, MA 01851
ATTN: Stephen Vetere

REPORT DATE: 5/19/2017

PURCHASE ORDER NUMBER: MO 16-008

PROJECT NUMBER: 91830.01

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17E0912

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Cawley Stadium, Lowell High

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
NOB106-0507	17E0912-06	Soil		MADEP-EPH-04-1.1	
				MADEP-VPH-04-1.1	
				SM 2540G	
				SW-846 6010C-D	
				SW-846 6020A-B	
				SW-846 7471B	
				SW-846 8260C	
NOB107-0304	17E0912-07	Soil		MADEP-EPH-04-1.1	
				MADEP-VPH-04-1.1	
				SM 2540G	
				SW-846 6010C-D	
				SW-846 6020A-B	
				SW-846 7471B	
				SW-846 8260C	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

MADEP-EPH-04-1.1

Qualifications:

RL-08

Elevated reporting limit due to sample matrix interference. MA CAM reporting limit not met.

Analyte & Samples(s) Qualified:

2-Methylnaphthalene
17E0912-01[NOB101-0304]

Acenaphthene
17E0912-01[NOB101-0304]

Acenaphthylene
17E0912-01[NOB101-0304]

Anthracene
17E0912-01[NOB101-0304]

Benzo(a)anthracene
17E0912-01[NOB101-0304]

Benzo(a)pyrene
17E0912-01[NOB101-0304]

Benzo(b)fluoranthene
17E0912-01[NOB101-0304]

Benzo(g,h,i)perylene
17E0912-01[NOB101-0304]

Benzo(k)fluoranthene
17E0912-01[NOB101-0304]

C9-C18 Aliphatics
17E0912-01[NOB101-0304], 17E0912-03[NOB103-0305]

Chrysene
17E0912-01[NOB101-0304]

Dibenz(a,h)anthracene
17E0912-01[NOB101-0304]

Fluoranthene
17E0912-01[NOB101-0304]

Fluorene
17E0912-01[NOB101-0304]

Indeno(1,2,3-cd)pyrene
17E0912-01[NOB101-0304]

Naphthalene
17E0912-01[NOB101-0304]

Phenanthrene
17E0912-01[NOB101-0304]

Pyrene
17E0912-01[NOB101-0304]

MADEP-VPH-04-1.1

Qualifications:

O-01

Soil/methanol ratio does not meet method specifications. Excess amount of soil. Sample was completely covered with methanol, but with less than the method-specified amount.

Analyte & Samples(s) Qualified:

17E0912-04[NOB104-0506], 17E0912-06[NOB106-0507], 17E0912-06RE1[NOB106-0507], 17E0912-07[NOB107-0304]

S-08

Duplicate analysis confirmed surrogate failure due to matrix effects.

Analyte & Samples(s) Qualified:

2,5-Dibromotoluene (PID)
17E0912-06RE1[NOB106-0507]

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S-19

Surrogate recovery is outside of control limits, matrix interference suspected. Reanalysis yielded similar surrogate non-conformance.

Analyte & Samples(s) Qualified:

2,5-Dibromotoluene (PID)
17E0912-06[NOB106-0507]

SW-846 8260C

Qualifications:

R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:

1,2-Dibromo-3-chloropropane (DB
17E0912-01[NOB101-0304], 17E0912-02[NOB102-0507], 17E0912-03[NOB103-0305], 17E0912-04[NOB104-0506], 17E0912-05[NOB105-0405], 17E0912-06[NOB106-0507], 17E0912-07[NOB107-0304], B177275-BLK1, B177275-BS1, B177275-BSD1

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the low side.

Analyte & Samples(s) Qualified:

Acetone
17E0912-01[NOB101-0304], 17E0912-02[NOB102-0507], 17E0912-03[NOB103-0305], 17E0912-04[NOB104-0506], 17E0912-05[NOB105-0405], 17E0912-06[NOB106-0507], 17E0912-07[NOB107-0304], B177275-BLK1, B177275-BS1, B177275-BSD1

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane
17E0912-01[NOB101-0304], 17E0912-02[NOB102-0507], 17E0912-03[NOB103-0305], 17E0912-04[NOB104-0506], 17E0912-05[NOB105-0405], 17E0912-06[NOB106-0507], 17E0912-07[NOB107-0304], B177275-BLK1, B177275-BS1, B177275-BSD1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

1,2-Dichloroethane
B177275-BS1, B177275-BSD1

Carbon Tetrachloride
B177275-BS1, B177275-BSD1

Chlorodibromomethane
B177275-BS1, B177275-BSD1

Dichlorodifluoromethane (Freon 12
B177275-BS1, B177275-BSD1

Trichlorofluoromethane (Freon 11)
B177275-BS1, B177275-BSD1

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MADEP-EPH-04-1.1

SPE cartridge contamination with non-petroleum compounds, if present, is verified by GC/MS in each method blank per extraction batch and excluded from C 11-C22 aromatic range fraction in all samples in the batch. No significant modifications were made to the method.

MADEP-VPH-04-1.1

No significant modifications were made to the method. All VPH samples were received preserved properly in methanol with a soil/methanol ratio of 1:1 +/- 25% completely covered by methanol in the proper containers specified on the chain-of-custody form unless specified in this narrative.

SW-846 6010C/D SW-846 6020A/B

For NC, Metals methods SW-846 6010D and SW-846 6020B are followed, and for all other states methods SW-846 6010C and SW-846 6020A are followed.

SW-846 8260C

Laboratory control sample recoveries for required MCP Data Enhancement 8260 compounds were all within limits specified by the method except for “difficult analytes” where recovery control limits of 40-160% are used and/or unless otherwise listed in this narrative. Difficult analytes: MIBK, MEK, acetone, 1,4-dioxane, chloromethane, dichlorodifluoromethane, 2-hexanone, and bromomethane.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB101-0304 | Sampled: 5/17/2017 09:30

Sample ID: 17E0912-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.096	mg/Kg dry	1	V-05	SW-846 8260C	5/19/17	5/19/17 8:12	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Benzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Bromobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Bromochloromethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Bromodichloromethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Bromoform	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Bromomethane	ND	0.0096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
2-Butanone (MEK)	ND	0.038	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
n-Butylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
sec-Butylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
tert-Butylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Carbon Disulfide	ND	0.0058	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Carbon Tetrachloride	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Chlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Chlorodibromomethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Chloroethane	ND	0.0096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Chloroform	ND	0.0038	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Chloromethane	ND	0.0096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
2-Chlorotoluene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
4-Chlorotoluene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0038	mg/Kg dry	1	R-05	SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,2-Dibromoethane (EDB)	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Dibromomethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,2-Dichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,3-Dichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,4-Dichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,1-Dichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,2-Dichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,1-Dichloroethylene	ND	0.0038	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
cis-1,2-Dichloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
trans-1,2-Dichloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,2-Dichloropropane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,3-Dichloropropane	ND	0.00096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
2,2-Dichloropropane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,1-Dichloropropene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
cis-1,3-Dichloropropene	ND	0.00096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
trans-1,3-Dichloropropene	ND	0.00096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Diethyl Ether	ND	0.0096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Diisopropyl Ether (DIPE)	ND	0.00096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,4-Dioxane	ND	0.19	mg/Kg dry	1	V-16	SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Ethylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB101-0304 | Sampled: 5/17/2017 09:30

Sample ID: 17E0912-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
2-Hexanone (MBK)	ND	0.019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Isopropylbenzene (Cumene)	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0038	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Methylene Chloride	ND	0.0096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Naphthalene	ND	0.0096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
n-Propylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Styrene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,1,1,2-Tetrachloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,1,2,2-Tetrachloroethane	ND	0.00096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Tetrachloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Tetrahydrofuran	ND	0.0096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Toluene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,2,3-Trichlorobenzene	ND	0.0096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,2,4-Trichlorobenzene	ND	0.0096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,1,1-Trichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,1,2-Trichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Trichloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,2,3-Trichloropropane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,2,4-Trimethylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
1,3,5-Trimethylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
Vinyl Chloride	ND	0.0096	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
m+p Xylene	ND	0.0038	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF
o-Xylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:12	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	112	70-130		5/19/17 8:12
Toluene-d8	95.4	70-130		5/19/17 8:12
4-Bromofluorobenzene	91.8	70-130		5/19/17 8:12

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB101-0304 | Sampled: 5/17/2017 09:30

Sample ID: 17E0912-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
C19-C36 Aliphatics	230	53	mg/Kg dry	5		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Unadjusted C11-C22 Aromatics	170	53	mg/Kg dry	5		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
C11-C22 Aromatics	170	53	mg/Kg dry	5		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Acenaphthene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Acenaphthylene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Anthracene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Benzo(a)anthracene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Benzo(a)pyrene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Benzo(b)fluoranthene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Benzo(g,h,i)perylene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Benzo(k)fluoranthene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Chrysene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Dibenz(a,h)anthracene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Fluoranthene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Fluorene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Indeno(1,2,3-cd)pyrene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
2-Methylnaphthalene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Naphthalene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Phenanthrene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS
Pyrene	ND	0.53	mg/Kg dry	5	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 14:18	SCS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Chlorooctadecane (COD)	48.5	40-140		5/19/17 14:18
o-Terphenyl (OTP)	57.1	40-140		5/19/17 14:18
2-Bromonaphthalene	77.3	40-140		5/19/17 14:18
2-Fluorobiphenyl	85.7	40-140		5/19/17 14:18

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB101-0304 | Sampled: 5/17/2017 09:30

Sample ID: 17E0912-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 0.96

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 6:37	EEH
C5-C8 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 6:37	EEH
Unadjusted C9-C12 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 6:37	EEH
C9-C12 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 6:37	EEH
C9-C10 Aromatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 6:37	EEH
Benzene	ND	0.059	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 6:37	EEH
Ethylbenzene	ND	0.059	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 6:37	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.059	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 6:37	EEH
Naphthalene	ND	0.29	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 6:37	EEH
Toluene	ND	0.059	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 6:37	EEH
m+p Xylene	ND	0.12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 6:37	EEH
o-Xylene	ND	0.059	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 6:37	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
2,5-Dibromotoluene (FID)	80.4	70-130		5/19/17	6:37
2,5-Dibromotoluene (PID)	73.8	70-130		5/19/17	6:37

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB101-0304 | Sampled: 5/17/2017 09:30

Sample ID: 17E0912-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.4	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:19	SHN
Arsenic	3.5	2.4	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:19	SHN
Barium	19	2.4	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:19	SHN
Beryllium	0.31	0.24	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:19	SHN
Cadmium	ND	0.24	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:19	SHN
Chromium	14	0.49	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:19	SHN
Lead	6.8	0.73	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:19	SHN
Mercury	ND	0.027	mg/Kg dry	1		SW-846 7471B	5/18/17	5/19/17 8:57	SCB
Nickel	8.9	0.49	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:19	SHN
Selenium	ND	4.9	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:19	SHN
Silver	ND	0.11	mg/Kg dry	5		SW-846 6020A-B	5/18/17	5/19/17 9:34	MJH
Thallium	ND	2.4	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:19	SHN
Vanadium	17	0.98	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:19	SHN
Zinc	14	0.98	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:19	SHN

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB101-0304 | Sampled: 5/17/2017 09:30

Sample ID: 17E0912-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	94.3		% Wt	1		SM 2540G	5/18/17	5/19/17 9:54	MRL

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB102-0507 | Sampled: 5/17/2017 09:55

Sample ID: 17E0912-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.10	mg/Kg dry	1	V-05	SW-846 8260C	5/19/17	5/19/17 8:45	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Benzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Bromobenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Bromochloromethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Bromodichloromethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Bromoform	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Bromomethane	ND	0.010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
2-Butanone (MEK)	ND	0.042	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
n-Butylbenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
sec-Butylbenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
tert-Butylbenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Carbon Disulfide	ND	0.0063	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Carbon Tetrachloride	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Chlorobenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Chlorodibromomethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Chloroethane	ND	0.010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Chloroform	ND	0.0042	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Chloromethane	ND	0.010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
2-Chlorotoluene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
4-Chlorotoluene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0042	mg/Kg dry	1	R-05	SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,2-Dibromoethane (EDB)	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Dibromomethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,2-Dichlorobenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,3-Dichlorobenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,4-Dichlorobenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,1-Dichloroethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,2-Dichloroethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,1-Dichloroethylene	ND	0.0042	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
cis-1,2-Dichloroethylene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
trans-1,2-Dichloroethylene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,2-Dichloropropane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,3-Dichloropropane	ND	0.0010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
2,2-Dichloropropane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,1-Dichloropropene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Diethyl Ether	ND	0.010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,4-Dioxane	ND	0.21	mg/Kg dry	1	V-16	SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Ethylbenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB102-0507 | Sampled: 5/17/2017 09:55

Sample ID: 17E0912-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
2-Hexanone (MBK)	ND	0.021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Isopropylbenzene (Cumene)	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0042	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Methylene Chloride	ND	0.010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Naphthalene	ND	0.010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
n-Propylbenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Styrene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,1,1,2-Tetrachloroethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Tetrachloroethylene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Tetrahydrofuran	ND	0.010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Toluene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,2,3-Trichlorobenzene	ND	0.010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,2,4-Trichlorobenzene	ND	0.010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,1,1-Trichloroethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,1,2-Trichloroethane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Trichloroethylene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,2,3-Trichloropropane	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,2,4-Trimethylbenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
1,3,5-Trimethylbenzene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
Vinyl Chloride	ND	0.010	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
m+p Xylene	ND	0.0042	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF
o-Xylene	ND	0.0021	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 8:45	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	112	70-130		5/19/17 8:45
Toluene-d8	98.5	70-130		5/19/17 8:45
4-Bromofluorobenzene	95.4	70-130		5/19/17 8:45

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB102-0507 | Sampled: 5/17/2017 09:55

Sample ID: 17E0912-02

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
C19-C36 Aliphatics	17	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Unadjusted C11-C22 Aromatics	19	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
C11-C22 Aromatics	16	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Acenaphthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Acenaphthylene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Benzo(a)anthracene	0.31	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Benzo(a)pyrene	0.35	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Benzo(b)fluoranthene	0.46	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Benzo(g,h,i)perylene	0.26	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Benzo(k)fluoranthene	0.16	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Chrysene	0.37	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Dibenz(a,h)anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Fluoranthene	0.62	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Fluorene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Indeno(1,2,3-cd)pyrene	0.24	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
2-Methylnaphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Naphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Phenanthrene	0.26	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS
Pyrene	0.62	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:18	SCS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Chlorooctadecane (COD)	49.6	40-140		5/19/17 13:18
o-Terphenyl (OTP)	59.1	40-140		5/19/17 13:18
2-Bromonaphthalene	75.4	40-140		5/19/17 13:18
2-Fluorobiphenyl	80.4	40-140		5/19/17 13:18

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB102-0507 | Sampled: 5/17/2017 09:55

Sample ID: 17E0912-02

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.11

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:06	EEH
C5-C8 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:06	EEH
Unadjusted C9-C12 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:06	EEH
C9-C12 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:06	EEH
C9-C10 Aromatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:06	EEH
Benzene	ND	0.061	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:06	EEH
Ethylbenzene	ND	0.061	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:06	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.061	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:06	EEH
Naphthalene	ND	0.31	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:06	EEH
Toluene	ND	0.061	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:06	EEH
m+p Xylene	ND	0.12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:06	EEH
o-Xylene	ND	0.061	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:06	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
2,5-Dibromotoluene (FID)	81.4	70-130		5/19/17	7:06
2,5-Dibromotoluene (PID)	72.2	70-130		5/19/17	7:06

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Project Location: Cawley Stadium, Lowell High Sample Description: Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB102-0507 Sampled: 5/17/2017 09:55

Sample ID: 17E0912-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.8	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:24	SHN
Arsenic	14	2.8	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:24	SHN
Barium	45	2.8	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:24	SHN
Beryllium	0.64	0.28	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:24	SHN
Cadmium	0.56	0.28	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:24	SHN
Chromium	26	0.56	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:24	SHN
Lead	58	0.84	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:24	SHN
Mercury	0.16	0.029	mg/Kg dry	1		SW-846 7471B	5/18/17	5/19/17 8:58	SCB
Nickel	16	0.56	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:24	SHN
Selenium	ND	5.6	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:24	SHN
Silver	ND	0.12	mg/Kg dry	5		SW-846 6020A-B	5/18/17	5/19/17 9:38	MJH
Thallium	ND	2.8	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:24	SHN
Vanadium	23	1.1	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:24	SHN
Zinc	41	1.1	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:24	SHN

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB102-0507 | Sampled: 5/17/2017 09:55

Sample ID: 17E0912-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	85.5		% Wt	1		SM 2540G	5/18/17	5/19/17 9:54	MRL

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB103-0305 | Sampled: 5/17/2017 10:30

Sample ID: 17E0912-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.084	mg/Kg dry	1	V-05	SW-846 8260C	5/19/17	5/19/17 9:12	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Benzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Bromobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Bromochloromethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Bromodichloromethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Bromoform	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Bromomethane	ND	0.0084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
2-Butanone (MEK)	ND	0.033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
n-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
sec-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
tert-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Carbon Disulfide	ND	0.0050	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Carbon Tetrachloride	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Chlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Chlorodibromomethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Chloroethane	ND	0.0084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Chloroform	ND	0.0033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Chloromethane	ND	0.0084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
2-Chlorotoluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
4-Chlorotoluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0033	mg/Kg dry	1	R-05	SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,2-Dibromoethane (EDB)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Dibromomethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,2-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,3-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,4-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,1-Dichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,2-Dichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,1-Dichloroethylene	ND	0.0033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
cis-1,2-Dichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
trans-1,2-Dichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,2-Dichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,3-Dichloropropane	ND	0.00084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
2,2-Dichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,1-Dichloropropene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
cis-1,3-Dichloropropene	ND	0.00084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
trans-1,3-Dichloropropene	ND	0.00084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Diethyl Ether	ND	0.0084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Diisopropyl Ether (DIPE)	ND	0.00084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,4-Dioxane	ND	0.17	mg/Kg dry	1	V-16	SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Ethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB103-0305 | Sampled: 5/17/2017 10:30

Sample ID: 17E0912-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
2-Hexanone (MBK)	ND	0.017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Isopropylbenzene (Cumene)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Methylene Chloride	ND	0.0084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Naphthalene	ND	0.0084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
n-Propylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Styrene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,1,1,2-Tetrachloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,1,2,2-Tetrachloroethane	ND	0.00084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Tetrachloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Tetrahydrofuran	ND	0.0084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Toluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,2,3-Trichlorobenzene	ND	0.0084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,2,4-Trichlorobenzene	ND	0.0084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,1,1-Trichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,1,2-Trichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Trichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,2,3-Trichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,2,4-Trimethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
1,3,5-Trimethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
Vinyl Chloride	ND	0.0084	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
m+p Xylene	ND	0.0033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF
o-Xylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:12	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	110	70-130		5/19/17 9:12
Toluene-d8	95.3	70-130		5/19/17 9:12
4-Bromofluorobenzene	92.6	70-130		5/19/17 9:12

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB103-0305 | Sampled: 5/17/2017 10:30

Sample ID: 17E0912-03

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	23	mg/Kg dry	2	RL-08	MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
C19-C36 Aliphatics	45	23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Unadjusted C11-C22 Aromatics	110	23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
C11-C22 Aromatics	79	23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Acenaphthene	ND	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Acenaphthylene	0.29	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Anthracene	0.95	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Benzo(a)anthracene	2.3	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Benzo(a)pyrene	2.2	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Benzo(b)fluoranthene	2.8	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Benzo(g,h,i)perylene	1.3	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Benzo(k)fluoranthene	0.99	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Chrysene	2.4	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Dibenz(a,h)anthracene	0.36	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Fluoranthene	5.7	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Fluorene	0.40	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Indeno(1,2,3-cd)pyrene	1.5	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
2-Methylnaphthalene	ND	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Naphthalene	0.32	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Phenanthrene	3.7	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS
Pyrene	5.3	0.23	mg/Kg dry	2		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:58	SCS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Chlorooctadecane (COD)	49.2	40-140		5/19/17 13:58
o-Terphenyl (OTP)	61.5	40-140		5/19/17 13:58
2-Bromonaphthalene	86.6	40-140		5/19/17 13:58
2-Fluorobiphenyl	94.9	40-140		5/19/17 13:58

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB103-0305 | Sampled: 5/17/2017 10:30

Sample ID: 17E0912-03

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.23

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:35	EEH
C5-C8 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:35	EEH
Unadjusted C9-C12 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:35	EEH
C9-C12 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:35	EEH
C9-C10 Aromatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:35	EEH
Benzene	ND	0.054	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:35	EEH
Ethylbenzene	ND	0.054	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:35	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.054	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:35	EEH
Naphthalene	ND	0.27	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:35	EEH
Toluene	ND	0.054	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:35	EEH
m+p Xylene	ND	0.11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:35	EEH
o-Xylene	ND	0.054	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 7:35	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
2,5-Dibromotoluene (FID)	86.4	70-130		5/19/17	7:35
2,5-Dibromotoluene (PID)	76.6	70-130		5/19/17	7:35

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB103-0305 | Sampled: 5/17/2017 10:30

Sample ID: 17E0912-03

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.8	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:30	SHN
Arsenic	9.9	2.8	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:30	SHN
Barium	51	2.8	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:30	SHN
Beryllium	0.55	0.28	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:30	SHN
Cadmium	0.52	0.28	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:30	SHN
Chromium	23	0.56	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:30	SHN
Lead	91	0.84	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:30	SHN
Mercury	0.29	0.028	mg/Kg dry	1		SW-846 7471B	5/18/17	5/19/17 8:59	SCB
Nickel	16	0.56	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:30	SHN
Selenium	ND	5.6	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:30	SHN
Silver	ND	0.12	mg/Kg dry	5		SW-846 6020A-B	5/18/17	5/19/17 9:54	MJH
Thallium	ND	2.8	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:30	SHN
Vanadium	24	1.1	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:30	SHN
Zinc	60	1.1	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:30	SHN

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB103-0305 | Sampled: 5/17/2017 10:30

Sample ID: 17E0912-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	87.8		% Wt	1		SM 2540G	5/18/17	5/19/17 9:54	MRL

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB104-0506 | Sampled: 5/17/2017 10:55

Sample ID: 17E0912-04

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.099	mg/Kg dry	1	V-05	SW-846 8260C	5/19/17	5/19/17 9:39	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Benzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Bromobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Bromochloromethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Bromodichloromethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Bromoform	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Bromomethane	ND	0.0099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
2-Butanone (MEK)	ND	0.040	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
n-Butylbenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
sec-Butylbenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
tert-Butylbenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Carbon Disulfide	ND	0.0060	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Carbon Tetrachloride	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Chlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Chlorodibromomethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Chloroethane	ND	0.0099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Chloroform	ND	0.0040	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Chloromethane	ND	0.0099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
2-Chlorotoluene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
4-Chlorotoluene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0040	mg/Kg dry	1	R-05	SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,2-Dibromoethane (EDB)	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Dibromomethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,2-Dichlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,3-Dichlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,4-Dichlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,1-Dichloroethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,2-Dichloroethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,1-Dichloroethylene	ND	0.0040	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,2-Dichloropropane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,3-Dichloropropane	ND	0.00099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
2,2-Dichloropropane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,1-Dichloropropene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
cis-1,3-Dichloropropene	ND	0.00099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
trans-1,3-Dichloropropene	ND	0.00099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Diethyl Ether	ND	0.0099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Diisopropyl Ether (DIPE)	ND	0.00099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,4-Dioxane	ND	0.20	mg/Kg dry	1	V-16	SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Ethylbenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB104-0506 | Sampled: 5/17/2017 10:55

Sample ID: 17E0912-04

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
2-Hexanone (MBK)	ND	0.020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Methylene Chloride	ND	0.0099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Naphthalene	ND	0.0099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
n-Propylbenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Styrene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,1,2,2-Tetrachloroethane	ND	0.00099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Tetrachloroethylene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Tetrahydrofuran	ND	0.0099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Toluene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,2,3-Trichlorobenzene	ND	0.0099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,2,4-Trichlorobenzene	ND	0.0099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,1,1-Trichloroethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,1,2-Trichloroethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Trichloroethylene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,2,3-Trichloropropane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
Vinyl Chloride	ND	0.0099	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
m+p Xylene	ND	0.0040	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF
o-Xylene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 9:39	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	112	70-130		5/19/17 9:39
Toluene-d8	96.4	70-130		5/19/17 9:39
4-Bromofluorobenzene	93.1	70-130		5/19/17 9:39

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB104-0506 | Sampled: 5/17/2017 10:55

Sample ID: 17E0912-04

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
C19-C36 Aliphatics	30	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Unadjusted C11-C22 Aromatics	69	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
C11-C22 Aromatics	41	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Acenaphthene	0.37	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Acenaphthylene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Anthracene	0.79	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Benzo(a)anthracene	1.9	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Benzo(a)pyrene	1.9	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Benzo(b)fluoranthene	2.4	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Benzo(g,h,i)perylene	1.3	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Benzo(k)fluoranthene	0.88	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Chrysene	2.1	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Dibenz(a,h)anthracene	0.28	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Fluoranthene	5.5	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Fluorene	0.34	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Indeno(1,2,3-cd)pyrene	1.5	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
2-Methylnaphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Naphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Phenanthrene	4.3	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS
Pyrene	5.2	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:38	SCS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Chlorooctadecane (COD)	57.0	40-140		5/19/17 13:38
o-Terphenyl (OTP)	68.4	40-140		5/19/17 13:38
2-Bromonaphthalene	72.3	40-140		5/19/17 13:38
2-Fluorobiphenyl	80.4	40-140		5/19/17 13:38

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB104-0506 | Sampled: 5/17/2017 10:55

Sample ID: 17E0912-04

Sample Matrix: Soil

Sample Flags: O-01

Soil/Methanol Preservation Ratio: 1.28

Petroleum Hydrocarbons Analyses - VPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 10:34	EEH
C5-C8 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 10:34	EEH
Unadjusted C9-C12 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 10:34	EEH
C9-C12 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 10:34	EEH
C9-C10 Aromatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 10:34	EEH
Benzene	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 10:34	EEH
Ethylbenzene	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 10:34	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 10:34	EEH
Naphthalene	ND	0.27	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 10:34	EEH
Toluene	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 10:34	EEH
m+p Xylene	ND	0.11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 10:34	EEH
o-Xylene	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 10:34	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,5-Dibromotoluene (FID)	79.7	70-130		5/19/17 10:34
2,5-Dibromotoluene (PID)	70.3	70-130		5/19/17 10:34

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB104-0506 | Sampled: 5/17/2017 10:55

Sample ID: 17E0912-04

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.9	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:35	SHN
Arsenic	12	2.9	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:35	SHN
Barium	37	2.9	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:35	SHN
Beryllium	0.52	0.29	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:35	SHN
Cadmium	0.52	0.29	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:35	SHN
Chromium	24	0.57	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:35	SHN
Lead	31	0.86	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:35	SHN
Mercury	0.039	0.028	mg/Kg dry	1		SW-846 7471B	5/18/17	5/19/17 9:01	SCB
Nickel	15	0.57	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:35	SHN
Selenium	ND	5.7	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:35	SHN
Silver	ND	0.13	mg/Kg dry	5		SW-846 6020A-B	5/18/17	5/19/17 9:58	MJH
Thallium	ND	2.9	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:35	SHN
Vanadium	20	1.1	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:35	SHN
Zinc	34	1.1	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:35	SHN

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB104-0506 | Sampled: 5/17/2017 10:55

Sample ID: 17E0912-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	86.3		% Wt	1		SM 2540G	5/18/17	5/19/17 9:54	MRL

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB105-0405 | Sampled: 5/17/2017 11:45

Sample ID: 17E0912-05

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.083	mg/Kg dry	1	V-05	SW-846 8260C	5/19/17	5/19/17 10:07	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Benzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Bromobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Bromochloromethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Bromodichloromethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Bromoform	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Bromomethane	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
2-Butanone (MEK)	ND	0.033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
n-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
sec-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
tert-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Carbon Disulfide	ND	0.0050	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Carbon Tetrachloride	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Chlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Chlorodibromomethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Chloroethane	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Chloroform	ND	0.0033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Chloromethane	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
2-Chlorotoluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
4-Chlorotoluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0033	mg/Kg dry	1	R-05	SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,2-Dibromoethane (EDB)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Dibromomethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,2-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,3-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,4-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,1-Dichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,2-Dichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,1-Dichloroethylene	ND	0.0033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
cis-1,2-Dichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
trans-1,2-Dichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,2-Dichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,3-Dichloropropane	ND	0.00083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
2,2-Dichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,1-Dichloropropene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
cis-1,3-Dichloropropene	ND	0.00083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
trans-1,3-Dichloropropene	ND	0.00083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Diethyl Ether	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Diisopropyl Ether (DIPE)	ND	0.00083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,4-Dioxane	ND	0.17	mg/Kg dry	1	V-16	SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Ethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB105-0405 | Sampled: 5/17/2017 11:45

Sample ID: 17E0912-05

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
2-Hexanone (MBK)	ND	0.017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Isopropylbenzene (Cumene)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Methylene Chloride	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Naphthalene	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
n-Propylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Styrene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,1,1,2-Tetrachloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,1,2,2-Tetrachloroethane	ND	0.00083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Tetrachloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Tetrahydrofuran	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Toluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,2,3-Trichlorobenzene	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,2,4-Trichlorobenzene	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,1,1-Trichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,1,2-Trichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Trichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,2,3-Trichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,2,4-Trimethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
1,3,5-Trimethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
Vinyl Chloride	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
m+p Xylene	ND	0.0033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF
o-Xylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:07	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	113	70-130		5/19/17 10:07
Toluene-d8	95.9	70-130		5/19/17 10:07
4-Bromofluorobenzene	94.9	70-130		5/19/17 10:07

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB105-0405 | Sampled: 5/17/2017 11:45

Sample ID: 17E0912-05

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
C19-C36 Aliphatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Unadjusted C11-C22 Aromatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
C11-C22 Aromatics	ND	11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Acenaphthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Acenaphthylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Benzo(a)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Benzo(a)pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Benzo(b)fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Benzo(g,h,i)perylene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Benzo(k)fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Chrysene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Dibenz(a,h)anthracene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Fluoranthene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Fluorene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Indeno(1,2,3-cd)pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
2-Methylnaphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Naphthalene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Phenanthrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS
Pyrene	ND	0.11	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 13:55	SCS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Chlorooctadecane (COD)	60.7	40-140		5/19/17 13:55
o-Terphenyl (OTP)	72.8	40-140		5/19/17 13:55
2-Bromonaphthalene	83.2	40-140		5/19/17 13:55
2-Fluorobiphenyl	87.3	40-140		5/19/17 13:55

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB105-0405 | Sampled: 5/17/2017 11:45

Sample ID: 17E0912-05

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - VPH

Soil/Methanol Preservation Ratio: 1.09

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:03	EEH
C5-C8 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:03	EEH
Unadjusted C9-C12 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:03	EEH
C9-C12 Aliphatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:03	EEH
C9-C10 Aromatics	ND	12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:03	EEH
Benzene	ND	0.059	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:03	EEH
Ethylbenzene	ND	0.059	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:03	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.059	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:03	EEH
Naphthalene	ND	0.29	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:03	EEH
Toluene	ND	0.059	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:03	EEH
m+p Xylene	ND	0.12	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:03	EEH
o-Xylene	ND	0.059	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:03	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,5-Dibromotoluene (FID)	81.3	70-130		5/19/17 11:03
2,5-Dibromotoluene (PID)	72.0	70-130		5/19/17 11:03

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB105-0405 | Sampled: 5/17/2017 11:45

Sample ID: 17E0912-05

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.6	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:40	SHN
Arsenic	4.6	2.6	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:40	SHN
Barium	12	2.6	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:40	SHN
Beryllium	0.50	0.26	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:40	SHN
Cadmium	ND	0.26	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:40	SHN
Chromium	19	0.52	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:40	SHN
Lead	3.3	0.79	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:40	SHN
Mercury	ND	0.028	mg/Kg dry	1		SW-846 7471B	5/18/17	5/19/17 9:06	SCB
Nickel	8.7	0.52	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:40	SHN
Selenium	ND	5.2	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:40	SHN
Silver	ND	0.12	mg/Kg dry	5		SW-846 6020A-B	5/18/17	5/19/17 10:02	MJH
Thallium	3.0	2.6	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:40	SHN
Vanadium	16	1.0	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:40	SHN
Zinc	15	1.0	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:40	SHN

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB105-0405 | Sampled: 5/17/2017 11:45

Sample ID: 17E0912-05

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	88.6		% Wt	1		SM 2540G	5/18/17	5/19/17 9:54	MRL

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB106-0507 | Sampled: 5/17/2017 08:40

Sample ID: 17E0912-06

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.090	mg/Kg dry	1	V-05	SW-846 8260C	5/19/17	5/19/17 10:34	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Benzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Bromobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Bromochloromethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Bromodichloromethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Bromoform	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Bromomethane	ND	0.0090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
2-Butanone (MEK)	ND	0.036	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
n-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
sec-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
tert-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Carbon Disulfide	ND	0.0054	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Carbon Tetrachloride	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Chlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Chlorodibromomethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Chloroethane	ND	0.0090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Chloroform	ND	0.0036	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Chloromethane	ND	0.0090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
2-Chlorotoluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
4-Chlorotoluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0036	mg/Kg dry	1	R-05	SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,2-Dibromoethane (EDB)	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Dibromomethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,2-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,3-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,4-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,1-Dichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,2-Dichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,1-Dichloroethylene	ND	0.0036	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
cis-1,2-Dichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
trans-1,2-Dichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,2-Dichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,3-Dichloropropane	ND	0.00090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
2,2-Dichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,1-Dichloropropene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
cis-1,3-Dichloropropene	ND	0.00090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
trans-1,3-Dichloropropene	ND	0.00090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Diethyl Ether	ND	0.0090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Diisopropyl Ether (DIPE)	ND	0.00090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,4-Dioxane	ND	0.18	mg/Kg dry	1	V-16	SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Ethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB106-0507 | Sampled: 5/17/2017 08:40

Sample ID: 17E0912-06

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
2-Hexanone (MBK)	ND	0.018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Isopropylbenzene (Cumene)	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0036	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Methylene Chloride	ND	0.0090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Naphthalene	ND	0.0090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
n-Propylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Styrene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,1,1,2-Tetrachloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,1,2,2-Tetrachloroethane	ND	0.00090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Tetrachloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Tetrahydrofuran	ND	0.0090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Toluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,2,3-Trichlorobenzene	ND	0.0090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,2,4-Trichlorobenzene	ND	0.0090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,1,1-Trichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,1,2-Trichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Trichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,2,3-Trichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,2,4-Trimethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
1,3,5-Trimethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
Vinyl Chloride	ND	0.0090	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
m+p Xylene	ND	0.0036	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF
o-Xylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 10:34	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	110	70-130		5/19/17 10:34
Toluene-d8	99.2	70-130		5/19/17 10:34
4-Bromofluorobenzene	93.6	70-130		5/19/17 10:34

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB106-0507 | Sampled: 5/17/2017 08:40

Sample ID: 17E0912-06

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
C19-C36 Aliphatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Unadjusted C11-C22 Aromatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
C11-C22 Aromatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Acenaphthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Acenaphthylene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Benzo(a)anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Benzo(a)pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Benzo(b)fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Benzo(g,h,i)perylene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Benzo(k)fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Chrysene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Dibenz(a,h)anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Fluorene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Indeno(1,2,3-cd)pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
2-Methylnaphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Naphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Phenanthrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS
Pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 14:15	SCS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Chlorooctadecane (COD)	55.7	40-140		5/19/17 14:15
o-Terphenyl (OTP)	66.7	40-140		5/19/17 14:15
2-Bromonaphthalene	81.4	40-140		5/19/17 14:15
2-Fluorobiphenyl	88.6	40-140		5/19/17 14:15

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB106-0507 | Sampled: 5/17/2017 08:40

Sample ID: 17E0912-06

Sample Matrix: Soil

Sample Flags: O-01

Soil/Methanol Preservation Ratio: 1.29

Petroleum Hydrocarbons Analyses - VPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:03	EEH
Unadjusted C5-C8 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:32	EEH
C5-C8 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:32	EEH
C5-C8 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:03	EEH
Unadjusted C9-C12 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:03	EEH
Unadjusted C9-C12 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:32	EEH
C9-C12 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:32	EEH
C9-C12 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:03	EEH
C9-C10 Aromatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:32	EEH
C9-C10 Aromatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:03	EEH
Benzene	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:03	EEH
Benzene	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:32	EEH
Ethylbenzene	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:32	EEH
Ethylbenzene	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:03	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:32	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:03	EEH
Naphthalene	ND	0.27	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:32	EEH
Naphthalene	ND	0.27	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:03	EEH
Toluene	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:03	EEH
Toluene	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:32	EEH
m+p Xylene	ND	0.11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:32	EEH
m+p Xylene	ND	0.11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:03	EEH
o-Xylene	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 11:32	EEH
o-Xylene	ND	0.053	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:03	EEH

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
2,5-Dibromotoluene (FID)	77.1		70-130		5/19/17 11:32
2,5-Dibromotoluene (FID)	77.6		70-130		5/19/17 9:03
2,5-Dibromotoluene (PID)	**68.7**	*	70-130	S-08	5/19/17 11:32
2,5-Dibromotoluene (PID)	**68.8**	*	70-130	S-19	5/19/17 9:03

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB106-0507 | Sampled: 5/17/2017 08:40

Sample ID: 17E0912-06

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.7	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:45	SHN
Arsenic	5.2	2.7	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:45	SHN
Barium	11	2.7	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:45	SHN
Beryllium	0.30	0.27	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:45	SHN
Cadmium	ND	0.27	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:45	SHN
Chromium	7.3	0.54	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:45	SHN
Lead	1.8	0.82	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:45	SHN
Mercury	ND	0.029	mg/Kg dry	1		SW-846 7471B	5/18/17	5/19/17 9:07	SCB
Nickel	6.5	0.54	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:45	SHN
Selenium	ND	5.4	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:45	SHN
Silver	ND	0.12	mg/Kg dry	5		SW-846 6020A-B	5/18/17	5/19/17 10:06	MJH
Thallium	ND	2.7	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:45	SHN
Vanadium	7.4	1.1	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:45	SHN
Zinc	11	1.1	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:45	SHN

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB106-0507 | Sampled: 5/17/2017 08:40

Sample ID: 17E0912-06

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	86.2		% Wt	1		SM 2540G	5/18/17	5/19/17 9:54	MRL

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB107-0304 | Sampled: 5/17/2017 12:25

Sample ID: 17E0912-07

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.083	mg/Kg dry	1	V-05	SW-846 8260C	5/19/17	5/19/17 11:01	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Benzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Bromobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Bromochloromethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Bromodichloromethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Bromoform	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Bromomethane	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
2-Butanone (MEK)	ND	0.033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
n-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
sec-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
tert-Butylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Carbon Disulfide	ND	0.0050	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Carbon Tetrachloride	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Chlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Chlorodibromomethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Chloroethane	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Chloroform	ND	0.0033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Chloromethane	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
2-Chlorotoluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
4-Chlorotoluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0033	mg/Kg dry	1	R-05	SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,2-Dibromoethane (EDB)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Dibromomethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,2-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,3-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,4-Dichlorobenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,1-Dichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,2-Dichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,1-Dichloroethylene	ND	0.0033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
cis-1,2-Dichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
trans-1,2-Dichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,2-Dichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,3-Dichloropropane	ND	0.00083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
2,2-Dichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,1-Dichloropropene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
cis-1,3-Dichloropropene	ND	0.00083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
trans-1,3-Dichloropropene	ND	0.00083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Diethyl Ether	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Diisopropyl Ether (DIPE)	ND	0.00083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,4-Dioxane	ND	0.17	mg/Kg dry	1	V-16	SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Ethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB107-0304 | Sampled: 5/17/2017 12:25

Sample ID: 17E0912-07

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
2-Hexanone (MBK)	ND	0.017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Isopropylbenzene (Cumene)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Methylene Chloride	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Naphthalene	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
n-Propylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Styrene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,1,1,2-Tetrachloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,1,2,2-Tetrachloroethane	ND	0.00083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Tetrachloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Tetrahydrofuran	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Toluene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,2,3-Trichlorobenzene	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,2,4-Trichlorobenzene	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,1,1-Trichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,1,2-Trichloroethane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Trichloroethylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,2,3-Trichloropropane	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,2,4-Trimethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
1,3,5-Trimethylbenzene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
Vinyl Chloride	ND	0.0083	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
m+p Xylene	ND	0.0033	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF
o-Xylene	ND	0.0017	mg/Kg dry	1		SW-846 8260C	5/19/17	5/19/17 11:01	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	113	70-130		5/19/17 11:01
Toluene-d8	96.3	70-130		5/19/17 11:01
4-Bromofluorobenzene	94.1	70-130		5/19/17 11:01

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB107-0304 | Sampled: 5/17/2017 12:25

Sample ID: 17E0912-07

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
C19-C36 Aliphatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Unadjusted C11-C22 Aromatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
C11-C22 Aromatics	ND	12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Acenaphthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Acenaphthylene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Benzo(a)anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Benzo(a)pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Benzo(b)fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Benzo(g,h,i)perylene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Benzo(k)fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Chrysene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Dibenz(a,h)anthracene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Fluoranthene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Fluorene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Indeno(1,2,3-cd)pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
2-Methylnaphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Naphthalene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Phenanthrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS
Pyrene	ND	0.12	mg/Kg dry	1		MADEP-EPH-04-1.1	5/18/17	5/19/17 12:58	SCS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Chlorooctadecane (COD)	56.7	40-140		5/19/17 12:58
o-Terphenyl (OTP)	63.4	40-140		5/19/17 12:58
2-Bromonaphthalene	72.6	40-140		5/19/17 12:58
2-Fluorobiphenyl	82.4	40-140		5/19/17 12:58

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB107-0304 | Sampled: 5/17/2017 12:25

Sample ID: 17E0912-07

Sample Matrix: Soil

Sample Flags: O-01

Soil/Methanol Preservation Ratio: 1.41

Petroleum Hydrocarbons Analyses - VPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:33	EEH
C5-C8 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:33	EEH
Unadjusted C9-C12 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:33	EEH
C9-C12 Aliphatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:33	EEH
C9-C10 Aromatics	ND	11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:33	EEH
Benzene	ND	0.055	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:33	EEH
Ethylbenzene	ND	0.055	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:33	EEH
Methyl tert-Butyl Ether (MTBE)	ND	0.055	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:33	EEH
Naphthalene	ND	0.27	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:33	EEH
Toluene	ND	0.055	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:33	EEH
m+p Xylene	ND	0.11	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:33	EEH
o-Xylene	ND	0.055	mg/Kg dry	1		MADEP-VPH-04-1.1	5/19/17	5/19/17 9:33	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2,5-Dibromotoluene (FID)	85.8	70-130		5/19/17 9:33
2,5-Dibromotoluene (PID)	75.3	70-130		5/19/17 9:33

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB107-0304 | Sampled: 5/17/2017 12:25

Sample ID: 17E0912-07

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	3.0	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:50	SHN
Arsenic	11	3.0	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:50	SHN
Barium	28	3.0	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:50	SHN
Beryllium	0.43	0.30	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:50	SHN
Cadmium	0.42	0.30	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:50	SHN
Chromium	9.8	0.61	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:50	SHN
Lead	2.7	0.91	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:50	SHN
Mercury	ND	0.029	mg/Kg dry	1		SW-846 7471B	5/18/17	5/19/17 9:08	SCB
Nickel	9.9	0.61	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:50	SHN
Selenium	ND	6.1	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:50	SHN
Silver	ND	0.13	mg/Kg dry	5		SW-846 6020A-B	5/18/17	5/19/17 10:10	MJH
Thallium	4.3	3.0	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:50	SHN
Vanadium	12	1.2	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:50	SHN
Zinc	15	1.2	mg/Kg dry	1		SW-846 6010C-D	5/18/17	5/19/17 13:50	SHN

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Project Location: Cawley Stadium, Lowell High | Sample Description: | Work Order: 17E0912

Date Received: 5/18/2017

Field Sample #: NOB107-0304 | Sampled: 5/17/2017 12:25

Sample ID: 17E0912-07

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	82.1		% Wt	1		SM 2540G	5/18/17	5/19/17 9:54	MRL

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Sample Extraction Data

Prep Method: SW-846 3546-MADEP-EPH-04-1.1

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
17E0912-01 [NOB101-0304]	B177261	20.0	2.00	05/18/17
17E0912-02 [NOB102-0507]	B177261	20.0	2.00	05/18/17
17E0912-03 [NOB103-0305]	B177261	20.0	2.00	05/18/17
17E0912-04 [NOB104-0506]	B177261	20.0	2.00	05/18/17
17E0912-05 [NOB105-0405]	B177261	20.0	2.00	05/18/17
17E0912-06 [NOB106-0507]	B177261	20.0	2.00	05/18/17
17E0912-07 [NOB107-0304]	B177261	20.0	2.00	05/18/17

Prep Method: MA VPH-MADEP-VPH-04-1.1

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
17E0912-01 [NOB101-0304]	B177276	14.4	15.9	05/19/17
17E0912-02 [NOB102-0507]	B177276	16.7	17.5	05/19/17
17E0912-03 [NOB103-0305]	B177276	18.5	17.4	05/19/17
17E0912-04 [NOB104-0506]	B177276	19.2	17.7	05/19/17
17E0912-05 [NOB105-0405]	B177276	16.3	17.0	05/19/17
17E0912-06 [NOB106-0507]	B177276	19.3	17.8	05/19/17
17E0912-06RE1 [NOB106-0507]	B177276	19.3	17.8	05/19/17
17E0912-07 [NOB107-0304]	B177276	21.1	18.9	05/19/17

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
17E0912-01 [NOB101-0304]	B177269	05/18/17
17E0912-02 [NOB102-0507]	B177269	05/18/17
17E0912-03 [NOB103-0305]	B177269	05/18/17
17E0912-04 [NOB104-0506]	B177269	05/18/17
17E0912-05 [NOB105-0405]	B177269	05/18/17
17E0912-06 [NOB106-0507]	B177269	05/18/17
17E0912-07 [NOB107-0304]	B177269	05/18/17

Prep Method: SW-846 3050B-SW-846 6010C-D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
17E0912-01 [NOB101-0304]	B177247	1.08	50.0	05/18/17
17E0912-02 [NOB102-0507]	B177247	1.05	50.0	05/18/17
17E0912-03 [NOB103-0305]	B177247	1.02	50.0	05/18/17
17E0912-04 [NOB104-0506]	B177247	1.01	50.0	05/18/17
17E0912-05 [NOB105-0405]	B177247	1.08	50.0	05/18/17
17E0912-06 [NOB106-0507]	B177247	1.07	50.0	05/18/17
17E0912-07 [NOB107-0304]	B177247	1.01	50.0	05/18/17

Prep Method: SW-846 3050B-SW-846 6020A-B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
17E0912-01 [NOB101-0304]	B177249	1.08	50.0	05/18/17
17E0912-02 [NOB102-0507]	B177249	1.05	50.0	05/18/17
17E0912-03 [NOB103-0305]	B177249	1.02	50.0	05/18/17
17E0912-04 [NOB104-0506]	B177249	1.01	50.0	05/18/17
17E0912-05 [NOB105-0405]	B177249	1.08	50.0	05/18/17

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Sample Extraction Data

Prep Method: SW-846 3050B-SW-846 6020A-B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
17E0912-06 [NOB106-0507]	B177249	1.07	50.0	05/18/17
17E0912-07 [NOB107-0304]	B177249	1.01	50.0	05/18/17

Prep Method: SW-846 7471-SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
17E0912-01 [NOB101-0304]	B177246	0.595	50.0	05/18/17
17E0912-02 [NOB102-0507]	B177246	0.611	50.0	05/18/17
17E0912-03 [NOB103-0305]	B177246	0.602	50.0	05/18/17
17E0912-04 [NOB104-0506]	B177246	0.621	50.0	05/18/17
17E0912-05 [NOB105-0405]	B177246	0.605	50.0	05/18/17
17E0912-06 [NOB106-0507]	B177246	0.596	50.0	05/18/17
17E0912-07 [NOB107-0304]	B177246	0.622	50.0	05/18/17

Prep Method: SW-846 5035-SW-846 8260C

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
17E0912-01 [NOB101-0304]	B177275	5.52	10.0	05/19/17
17E0912-02 [NOB102-0507]	B177275	5.57	10.0	05/19/17
17E0912-03 [NOB103-0305]	B177275	6.81	10.0	05/19/17
17E0912-04 [NOB104-0506]	B177275	5.83	10.0	05/19/17
17E0912-05 [NOB105-0405]	B177275	6.83	10.0	05/19/17
17E0912-06 [NOB106-0507]	B177275	6.47	10.0	05/19/17
17E0912-07 [NOB107-0304]	B177275	7.38	10.0	05/19/17

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B177275 - SW-846 5035										
Blank (B177275-BLK1)				Prepared & Analyzed: 05/19/17						
Acetone	ND	0.10	mg/Kg wet							V-05
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet							
Benzene	ND	0.0020	mg/Kg wet							
Bromobenzene	ND	0.0020	mg/Kg wet							
Bromochloromethane	ND	0.0020	mg/Kg wet							
Bromodichloromethane	ND	0.0020	mg/Kg wet							
Bromoform	ND	0.0020	mg/Kg wet							
Bromomethane	ND	0.010	mg/Kg wet							
2-Butanone (MEK)	ND	0.040	mg/Kg wet							
n-Butylbenzene	ND	0.0020	mg/Kg wet							
sec-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							
Carbon Disulfide	ND	0.0060	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.010	mg/Kg wet							
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							R-05
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.010	mg/Kg wet							
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
Diethyl Ether	ND	0.010	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							V-16
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							
Methylene Chloride	ND	0.010	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							
Naphthalene	ND	0.0040	mg/Kg wet							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B177275 - SW-846 5035											
Blank (B177275-BLK1)			Prepared & Analyzed: 05/19/17								
n-Propylbenzene	ND	0.0020	mg/Kg wet								
Styrene	ND	0.0020	mg/Kg wet								
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet								
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet								
Tetrachloroethylene	ND	0.0020	mg/Kg wet								
Tetrahydrofuran	ND	0.010	mg/Kg wet								
Toluene	ND	0.0020	mg/Kg wet								
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet								
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet								
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet								
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet								
Trichloroethylene	ND	0.0020	mg/Kg wet								
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet								
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet								
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet								
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet								
Vinyl Chloride	ND	0.010	mg/Kg wet								
m+p Xylene	ND	0.0040	mg/Kg wet								
o-Xylene	ND	0.0020	mg/Kg wet								
Surrogate: 1,2-Dichloroethane-d4	*0.0561*		mg/Kg wet	0.0500		112	70-130				
Surrogate: Toluene-d8	*0.0481*		mg/Kg wet	0.0500		96.2	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0490*		mg/Kg wet	0.0500		98.1	70-130				
LCS (B177275-BS1)			Prepared & Analyzed: 05/19/17								
Acetone	0.158	0.10	mg/Kg wet	0.200		79.2	40-160			V-05	†
tert-Amyl Methyl Ether (TAME)	0.0179	0.0010	mg/Kg wet	0.0200		89.4	70-130				
Benzene	0.0201	0.0020	mg/Kg wet	0.0200		101	70-130				
Bromobenzene	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130				
Bromochloromethane	0.0237	0.0020	mg/Kg wet	0.0200		118	70-130				
Bromodichloromethane	0.0242	0.0020	mg/Kg wet	0.0200		121	70-130				
Bromoform	0.0258	0.0020	mg/Kg wet	0.0200		129	70-130				
Bromomethane	0.0145	0.010	mg/Kg wet	0.0200		72.3	40-160				†
2-Butanone (MEK)	0.168	0.040	mg/Kg wet	0.200		84.0	40-160				†
n-Butylbenzene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130				
sec-Butylbenzene	0.0199	0.0020	mg/Kg wet	0.0200		99.4	70-130				
tert-Butylbenzene	0.0194	0.0020	mg/Kg wet	0.0200		97.0	70-130				
tert-Butyl Ethyl Ether (TBEE)	0.0178	0.0010	mg/Kg wet	0.0200		88.9	70-130				
Carbon Disulfide	0.0244	0.0060	mg/Kg wet	0.0200		122	70-130				
Carbon Tetrachloride	0.0252	0.0020	mg/Kg wet	0.0200		126	70-130			V-20	
Chlorobenzene	0.0205	0.0020	mg/Kg wet	0.0200		103	70-130				
Chlorodibromomethane	0.0242	0.0010	mg/Kg wet	0.0200		121	70-130			V-20	
Chloroethane	0.0172	0.010	mg/Kg wet	0.0200		85.8	70-130				
Chloroform	0.0221	0.0040	mg/Kg wet	0.0200		111	70-130				
Chloromethane	0.0157	0.010	mg/Kg wet	0.0200		78.4	40-160				†
2-Chlorotoluene	0.0217	0.0020	mg/Kg wet	0.0200		109	70-130				
4-Chlorotoluene	0.0221	0.0020	mg/Kg wet	0.0200		110	70-130				
1,2-Dibromo-3-chloropropane (DBCP)	0.0175	0.0020	mg/Kg wet	0.0200		87.3	70-130			R-05	
1,2-Dibromoethane (EDB)	0.0211	0.0010	mg/Kg wet	0.0200		106	70-130				
Dibromomethane	0.0219	0.0020	mg/Kg wet	0.0200		110	70-130				
1,2-Dichlorobenzene	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130				
1,3-Dichlorobenzene	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130				
1,4-Dichlorobenzene	0.0201	0.0020	mg/Kg wet	0.0200		101	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B177275 - SW-846 5035											
LCS (B177275-BS1)				Prepared & Analyzed: 05/19/17							
Dichlorodifluoromethane (Freon 12)	0.0141	0.010	mg/Kg wet	0.0200		70.6	40-160			V-20	†
1,1-Dichloroethane	0.0228	0.0020	mg/Kg wet	0.0200		114	70-130				
1,2-Dichloroethane	0.0253	0.0020	mg/Kg wet	0.0200		126	70-130			V-20	
1,1-Dichloroethylene	0.0222	0.0040	mg/Kg wet	0.0200		111	70-130				
cis-1,2-Dichloroethylene	0.0212	0.0020	mg/Kg wet	0.0200		106	70-130				
trans-1,2-Dichloroethylene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130				
1,2-Dichloropropane	0.0212	0.0020	mg/Kg wet	0.0200		106	70-130				
1,3-Dichloropropane	0.0206	0.0010	mg/Kg wet	0.0200		103	70-130				
2,2-Dichloropropane	0.0218	0.0020	mg/Kg wet	0.0200		109	70-130				
1,1-Dichloropropene	0.0211	0.0020	mg/Kg wet	0.0200		106	70-130				
cis-1,3-Dichloropropene	0.0198	0.0010	mg/Kg wet	0.0200		98.8	70-130				
trans-1,3-Dichloropropene	0.0209	0.0010	mg/Kg wet	0.0200		104	70-130				
Diethyl Ether	0.0186	0.010	mg/Kg wet	0.0200		93.0	70-130				
Diisopropyl Ether (DIPE)	0.0199	0.0010	mg/Kg wet	0.0200		99.5	70-130				
1,4-Dioxane	0.218	0.10	mg/Kg wet	0.200		109	40-160			V-16	†
Ethylbenzene	0.0213	0.0020	mg/Kg wet	0.0200		106	70-130				
Hexachlorobutadiene	0.0243	0.0020	mg/Kg wet	0.0200		122	70-130				
2-Hexanone (MBK)	0.176	0.020	mg/Kg wet	0.200		88.0	40-160				†
Isopropylbenzene (Cumene)	0.0230	0.0020	mg/Kg wet	0.0200		115	70-130				
p-Isopropyltoluene (p-Cymene)	0.0209	0.0020	mg/Kg wet	0.0200		104	70-130				
Methyl tert-Butyl Ether (MTBE)	0.0171	0.0040	mg/Kg wet	0.0200		85.5	70-130				
Methylene Chloride	0.0220	0.010	mg/Kg wet	0.0200		110	70-130				
4-Methyl-2-pentanone (MIBK)	0.201	0.020	mg/Kg wet	0.200		100	40-160				†
Naphthalene	0.0160	0.0040	mg/Kg wet	0.0200		80.1	70-130				
n-Propylbenzene	0.0216	0.0020	mg/Kg wet	0.0200		108	70-130				
Styrene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130				
1,1,1,2-Tetrachloroethane	0.0219	0.0020	mg/Kg wet	0.0200		109	70-130				
1,1,2,2-Tetrachloroethane	0.0202	0.0010	mg/Kg wet	0.0200		101	70-130				
Tetrachloroethylene	0.0248	0.0020	mg/Kg wet	0.0200		124	70-130				
Tetrahydrofuran	0.0175	0.010	mg/Kg wet	0.0200		87.3	70-130				
Toluene	0.0200	0.0020	mg/Kg wet	0.0200		100	70-130				
1,2,3-Trichlorobenzene	0.0184	0.0020	mg/Kg wet	0.0200		92.2	70-130				
1,2,4-Trichlorobenzene	0.0190	0.0020	mg/Kg wet	0.0200		94.8	70-130				
1,1,1-Trichloroethane	0.0234	0.0020	mg/Kg wet	0.0200		117	70-130				
1,1,2-Trichloroethane	0.0213	0.0020	mg/Kg wet	0.0200		106	70-130				
Trichloroethylene	0.0226	0.0020	mg/Kg wet	0.0200		113	70-130				
Trichlorofluoromethane (Freon 11)	0.0218	0.010	mg/Kg wet	0.0200		109	70-130			V-20	
1,2,3-Trichloropropane	0.0206	0.0020	mg/Kg wet	0.0200		103	70-130				
1,2,4-Trimethylbenzene	0.0189	0.0020	mg/Kg wet	0.0200		94.5	70-130				
1,3,5-Trimethylbenzene	0.0217	0.0020	mg/Kg wet	0.0200		108	70-130				
Vinyl Chloride	0.0170	0.010	mg/Kg wet	0.0200		84.8	70-130				
m+p Xylene	0.0416	0.0040	mg/Kg wet	0.0400		104	70-130				
o-Xylene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130				
Surrogate: 1,2-Dichloroethane-d4	*0.0564*		mg/Kg wet	0.0500		113	70-130				
Surrogate: Toluene-d8	*0.0483*		mg/Kg wet	0.0500		96.7	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0505*		mg/Kg wet	0.0500		101	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B177275 - SW-846 5035											
LCS Dup (B177275-BSD1)				Prepared & Analyzed: 05/19/17							
Acetone	0.150	0.10	mg/Kg wet	0.200		75.1	40-160	5.34	20	V-05	†
tert-Amyl Methyl Ether (TAME)	0.0173	0.0010	mg/Kg wet	0.0200		86.6	70-130	3.18	20		
Benzene	0.0193	0.0020	mg/Kg wet	0.0200		96.7	70-130	3.95	20		
Bromobenzene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130	1.94	20		
Bromochloromethane	0.0227	0.0020	mg/Kg wet	0.0200		114	70-130	4.22	20		
Bromodichloromethane	0.0237	0.0020	mg/Kg wet	0.0200		119	70-130	2.00	20		
Bromoform	0.0232	0.0020	mg/Kg wet	0.0200		116	70-130	10.6	20		
Bromomethane	0.0141	0.010	mg/Kg wet	0.0200		70.7	40-160	2.24	20		†
2-Butanone (MEK)	0.167	0.040	mg/Kg wet	0.200		83.7	40-160	0.358	20		†
n-Butylbenzene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130	0.0951	20		
sec-Butylbenzene	0.0203	0.0020	mg/Kg wet	0.0200		102	70-130	2.29	20		
tert-Butylbenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.5	70-130	1.53	20		
tert-Butyl Ethyl Ether (TBEE)	0.0177	0.0010	mg/Kg wet	0.0200		88.4	70-130	0.564	20		
Carbon Disulfide	0.0238	0.0060	mg/Kg wet	0.0200		119	70-130	2.41	20		
Carbon Tetrachloride	0.0248	0.0020	mg/Kg wet	0.0200		124	70-130	1.36	20	V-20	
Chlorobenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.7	70-130	3.87	20		
Chlorodibromomethane	0.0243	0.0010	mg/Kg wet	0.0200		121	70-130	0.495	20	V-20	
Chloroethane	0.0171	0.010	mg/Kg wet	0.0200		85.7	70-130	0.117	20		
Chloroform	0.0215	0.0040	mg/Kg wet	0.0200		107	70-130	3.03	20		
Chloromethane	0.0153	0.010	mg/Kg wet	0.0200		76.6	40-160	2.32	20		†
2-Chlorotoluene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	7.15	20		
4-Chlorotoluene	0.0212	0.0020	mg/Kg wet	0.0200		106	70-130	4.07	20		
1,2-Dibromo-3-chloropropane (DBCP)	0.0222	0.0020	mg/Kg wet	0.0200		111	70-130	**24.1**	* 20	R-05	
1,2-Dibromoethane (EDB)	0.0219	0.0010	mg/Kg wet	0.0200		109	70-130	3.53	20		
Dibromomethane	0.0226	0.0020	mg/Kg wet	0.0200		113	70-130	3.23	20		
1,2-Dichlorobenzene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130	2.14	20		
1,3-Dichlorobenzene	0.0211	0.0020	mg/Kg wet	0.0200		105	70-130	1.15	20		
1,4-Dichlorobenzene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	0.397	20		
Dichlorodifluoromethane (Freon 12)	0.0139	0.010	mg/Kg wet	0.0200		69.5	40-160	1.57	20	L-14, V-20	†
1,1-Dichloroethane	0.0217	0.0020	mg/Kg wet	0.0200		108	70-130	5.12	20		
1,2-Dichloroethane	0.0253	0.0020	mg/Kg wet	0.0200		126	70-130	0.0791	20	V-20	
1,1-Dichloroethylene	0.0221	0.0040	mg/Kg wet	0.0200		110	70-130	0.361	20		
cis-1,2-Dichloroethylene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130	1.04	20		
trans-1,2-Dichloroethylene	0.0200	0.0020	mg/Kg wet	0.0200		100	70-130	4.78	20		
1,2-Dichloropropane	0.0199	0.0020	mg/Kg wet	0.0200		99.6	70-130	6.04	20		
1,3-Dichloropropane	0.0202	0.0010	mg/Kg wet	0.0200		101	70-130	1.76	20		
2,2-Dichloropropane	0.0215	0.0020	mg/Kg wet	0.0200		108	70-130	1.57	20		
1,1-Dichloropropene	0.0206	0.0020	mg/Kg wet	0.0200		103	70-130	2.68	20		
cis-1,3-Dichloropropene	0.0198	0.0010	mg/Kg wet	0.0200		98.8	70-130	0.00	20		
trans-1,3-Dichloropropene	0.0202	0.0010	mg/Kg wet	0.0200		101	70-130	3.41	20		
Diethyl Ether	0.0182	0.010	mg/Kg wet	0.0200		91.1	70-130	2.06	20		
Diisopropyl Ether (DIPE)	0.0194	0.0010	mg/Kg wet	0.0200		96.9	70-130	2.65	20		
1,4-Dioxane	0.260	0.10	mg/Kg wet	0.200		130	40-160	17.5	20	V-16	†
Ethylbenzene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130	4.13	20		
Hexachlorobutadiene	0.0235	0.0020	mg/Kg wet	0.0200		118	70-130	3.18	20		
2-Hexanone (MBK)	0.179	0.020	mg/Kg wet	0.200		89.4	40-160	1.53	20		†
Isopropylbenzene (Cumene)	0.0219	0.0020	mg/Kg wet	0.0200		109	70-130	4.99	20		
p-Isopropyltoluene (p-Cymene)	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	3.21	20		
Methyl tert-Butyl Ether (MTBE)	0.0177	0.0040	mg/Kg wet	0.0200		88.6	70-130	3.56	20		
Methylene Chloride	0.0211	0.010	mg/Kg wet	0.0200		106	70-130	4.08	20		
4-Methyl-2-pentanone (MIBK)	0.197	0.020	mg/Kg wet	0.200		98.6	40-160	1.87	20		†
Naphthalene	0.0165	0.0040	mg/Kg wet	0.0200		82.3	70-130	2.71	20		

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B177275 - SW-846 5035										
LCS Dup (B177275-BSD1)				Prepared & Analyzed: 05/19/17						
n-Propylbenzene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130	2.53	20	
Styrene	0.0198	0.0020	mg/Kg wet	0.0200		99.2	70-130	2.00	20	
1,1,1,2-Tetrachloroethane	0.0203	0.0020	mg/Kg wet	0.0200		102	70-130	7.20	20	
1,1,2,2-Tetrachloroethane	0.0197	0.0010	mg/Kg wet	0.0200		98.7	70-130	2.11	20	
Tetrachloroethylene	0.0243	0.0020	mg/Kg wet	0.0200		121	70-130	2.12	20	
Tetrahydrofuran	0.0202	0.010	mg/Kg wet	0.0200		101	70-130	14.4	20	
Toluene	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130	3.53	20	
1,2,3-Trichlorobenzene	0.0190	0.0020	mg/Kg wet	0.0200		94.9	70-130	2.89	20	
1,2,4-Trichlorobenzene	0.0188	0.0020	mg/Kg wet	0.0200		93.8	70-130	1.06	20	
1,1,1-Trichloroethane	0.0232	0.0020	mg/Kg wet	0.0200		116	70-130	1.20	20	
1,1,2-Trichloroethane	0.0209	0.0020	mg/Kg wet	0.0200		104	70-130	1.90	20	
Trichloroethylene	0.0223	0.0020	mg/Kg wet	0.0200		111	70-130	1.51	20	
Trichlorofluoromethane (Freon 11)	0.0212	0.010	mg/Kg wet	0.0200		106	70-130	2.61	20	V-20
1,2,3-Trichloropropane	0.0192	0.0020	mg/Kg wet	0.0200		95.8	70-130	7.24	20	
1,2,4-Trimethylbenzene	0.0190	0.0020	mg/Kg wet	0.0200		94.9	70-130	0.422	20	
1,3,5-Trimethylbenzene	0.0212	0.0020	mg/Kg wet	0.0200		106	70-130	2.05	20	
Vinyl Chloride	0.0163	0.010	mg/Kg wet	0.0200		81.6	70-130	3.85	20	
m+p Xylene	0.0404	0.0040	mg/Kg wet	0.0400		101	70-130	3.02	20	
o-Xylene	0.0196	0.0020	mg/Kg wet	0.0200		97.9	70-130	4.20	20	
Surrogate: 1,2-Dichloroethane-d4	*0.0539*		mg/Kg wet	0.0500		108	70-130			
Surrogate: Toluene-d8	*0.0500*		mg/Kg wet	0.0500		100	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0493*		mg/Kg wet	0.0500		98.7	70-130			

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B177261 - SW-846 3546										
Blank (B177261-BLK1)				Prepared: 05/18/17 Analyzed: 05/19/17						
C9-C18 Aliphatics	ND	10	mg/Kg wet							
C19-C36 Aliphatics	ND	10	mg/Kg wet							
Unadjusted C11-C22 Aromatics	ND	10	mg/Kg wet							
C11-C22 Aromatics	ND	10	mg/Kg wet							
Acenaphthene	ND	0.10	mg/Kg wet							
Acenaphthylene	ND	0.10	mg/Kg wet							
Anthracene	ND	0.10	mg/Kg wet							
Benzo(a)anthracene	ND	0.10	mg/Kg wet							
Benzo(a)pyrene	ND	0.10	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.10	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.10	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.10	mg/Kg wet							
Chrysene	ND	0.10	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.10	mg/Kg wet							
Fluoranthene	ND	0.10	mg/Kg wet							
Fluorene	ND	0.10	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.10	mg/Kg wet							
2-Methylnaphthalene	ND	0.10	mg/Kg wet							
Naphthalene	ND	0.10	mg/Kg wet							
Phenanthrene	ND	0.10	mg/Kg wet							
Pyrene	ND	0.10	mg/Kg wet							
n-Decane	ND	0.10	mg/Kg wet							
n-Docosane	ND	0.10	mg/Kg wet							
n-Dodecane	ND	0.10	mg/Kg wet							
n-Eicosane	ND	0.10	mg/Kg wet							
n-Hexacosane	ND	0.10	mg/Kg wet							
n-Hexadecane	ND	0.10	mg/Kg wet							
n-Hexatriacontane	ND	0.10	mg/Kg wet							
n-Nonadecane	ND	0.10	mg/Kg wet							
n-Nonane	ND	0.10	mg/Kg wet							
n-Octacosane	ND	0.10	mg/Kg wet							
n-Octadecane	ND	0.10	mg/Kg wet							
n-Tetracosane	ND	0.10	mg/Kg wet							
n-Tetradecane	ND	0.10	mg/Kg wet							
n-Triacontane	ND	0.10	mg/Kg wet							
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet							
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet							
Surrogate: Chlorooctadecane (COD)	*3.29*		mg/Kg wet	4.99		65.9	40-140			
Surrogate: o-Terphenyl (OTP)	*3.80*		mg/Kg wet	5.00		76.1	40-140			
Surrogate: 2-Bromonaphthalene	*4.21*		mg/Kg wet	5.00		84.2	40-140			
Surrogate: 2-Fluorobiphenyl	*4.33*		mg/Kg wet	5.00		86.7	40-140			
LCS (B177261-BS1)				Prepared: 05/18/17 Analyzed: 05/19/17						
C9-C18 Aliphatics	22.2	10	mg/Kg wet	30.0		74.0	40-140			
C19-C36 Aliphatics	36.8	10	mg/Kg wet	40.0		92.1	40-140			
Acenaphthene	4.02	0.10	mg/Kg wet	5.00		80.4	40-140			
Acenaphthylene	3.92	0.10	mg/Kg wet	5.00		78.4	40-140			
Anthracene	4.18	0.10	mg/Kg wet	5.00		83.5	40-140			
Benzo(a)anthracene	4.35	0.10	mg/Kg wet	5.00		87.0	40-140			
Benzo(a)pyrene	4.21	0.10	mg/Kg wet	5.00		84.2	40-140			
Benzo(b)fluoranthene	4.37	0.10	mg/Kg wet	5.00		87.4	40-140			
Benzo(g,h,i)perylene	4.14	0.10	mg/Kg wet	5.00		82.8	40-140			

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B177261 - SW-846 3546										
LCS (B177261-BS1)				Prepared: 05/18/17 Analyzed: 05/19/17						
Benzo(k)fluoranthene	3.98	0.10	mg/Kg wet	5.00		79.6	40-140			
Chrysene	4.08	0.10	mg/Kg wet	5.00		81.6	40-140			
Dibenz(a,h)anthracene	4.29	0.10	mg/Kg wet	5.00		85.9	40-140			
Fluoranthene	4.27	0.10	mg/Kg wet	5.00		85.4	40-140			
Fluorene	4.13	0.10	mg/Kg wet	5.00		82.5	40-140			
Indeno(1,2,3-cd)pyrene	4.41	0.10	mg/Kg wet	5.00		88.2	40-140			
2-Methylnaphthalene	3.85	0.10	mg/Kg wet	5.00		77.0	40-140			
Naphthalene	3.21	0.10	mg/Kg wet	5.00		64.2	40-140			
Phenanthrene	4.24	0.10	mg/Kg wet	5.00		84.8	40-140			
Pyrene	4.34	0.10	mg/Kg wet	5.00		86.8	40-140			
n-Decane	2.52	0.10	mg/Kg wet	5.00		50.4	40-140			
n-Docosane	3.72	0.10	mg/Kg wet	5.00		74.3	40-140			
n-Dodecane	3.01	0.10	mg/Kg wet	5.00		60.2	40-140			
n-Eicosane	3.74	0.10	mg/Kg wet	5.00		74.8	40-140			
n-Hexacosane	3.78	0.10	mg/Kg wet	5.00		75.6	40-140			
n-Hexadecane	3.56	0.10	mg/Kg wet	5.00		71.2	40-140			
n-Hexatriacontane	4.09	0.10	mg/Kg wet	5.00		81.8	40-140			
n-Nonadecane	3.65	0.10	mg/Kg wet	5.00		73.1	40-140			
n-Nonane	1.93	0.10	mg/Kg wet	5.00		38.6	30-140			
n-Octacosane	3.77	0.10	mg/Kg wet	5.00		75.4	40-140			
n-Octadecane	3.75	0.10	mg/Kg wet	5.00		75.0	40-140			
n-Tetracosane	3.78	0.10	mg/Kg wet	5.00		75.6	40-140			
n-Tetradecane	3.38	0.10	mg/Kg wet	5.00		67.6	40-140			
n-Triacontane	3.88	0.10	mg/Kg wet	5.00		77.7	40-140			
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
Surrogate: Chlorooctadecane (COD)	*3.18*		mg/Kg wet	4.99		63.7	40-140			
Surrogate: o-Terphenyl (OTP)	*4.00*		mg/Kg wet	5.00		80.0	40-140			
Surrogate: 2-Bromonaphthalene	*4.64*		mg/Kg wet	5.00		92.7	40-140			
Surrogate: 2-Fluorobiphenyl	*4.80*		mg/Kg wet	5.00		96.1	40-140			
LCS Dup (B177261-BSD1)				Prepared: 05/18/17 Analyzed: 05/19/17						
C9-C18 Aliphatics	22.9	10	mg/Kg wet	30.0		76.2	40-140	2.94	25	
C19-C36 Aliphatics	37.9	10	mg/Kg wet	40.0		94.7	40-140	2.87	25	
Acenaphthene	3.94	0.10	mg/Kg wet	5.00		78.8	40-140	1.89	25	
Acenaphthylene	3.84	0.10	mg/Kg wet	5.00		76.8	40-140	2.08	25	
Anthracene	4.13	0.10	mg/Kg wet	5.00		82.5	40-140	1.23	25	
Benzo(a)anthracene	4.31	0.10	mg/Kg wet	5.00		86.3	40-140	0.771	25	
Benzo(a)pyrene	4.18	0.10	mg/Kg wet	5.00		83.5	40-140	0.773	25	
Benzo(b)fluoranthene	4.32	0.10	mg/Kg wet	5.00		86.4	40-140	1.25	25	
Benzo(g,h,i)perylene	4.13	0.10	mg/Kg wet	5.00		82.6	40-140	0.240	25	
Benzo(k)fluoranthene	3.97	0.10	mg/Kg wet	5.00		79.5	40-140	0.234	25	
Chrysene	4.07	0.10	mg/Kg wet	5.00		81.4	40-140	0.280	25	
Dibenz(a,h)anthracene	4.30	0.10	mg/Kg wet	5.00		86.0	40-140	0.112	25	
Fluoranthene	4.22	0.10	mg/Kg wet	5.00		84.4	40-140	1.29	25	
Fluorene	4.06	0.10	mg/Kg wet	5.00		81.1	40-140	1.66	25	
Indeno(1,2,3-cd)pyrene	4.37	0.10	mg/Kg wet	5.00		87.5	40-140	0.779	25	
2-Methylnaphthalene	3.76	0.10	mg/Kg wet	5.00		75.3	40-140	2.25	25	
Naphthalene	3.15	0.10	mg/Kg wet	5.00		63.0	40-140	2.03	25	
Phenanthrene	4.18	0.10	mg/Kg wet	5.00		83.5	40-140	1.47	25	
Pyrene	4.29	0.10	mg/Kg wet	5.00		85.7	40-140	1.25	25	
n-Decane	2.50	0.10	mg/Kg wet	5.00		50.1	40-140	0.577	25	

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B177261 - SW-846 3546										
LCS Dup (B177261-BSD1)				Prepared: 05/18/17 Analyzed: 05/19/17						
n-Docosane	3.89	0.10	mg/Kg wet	5.00		77.8	40-140	4.59	25	
n-Dodecane	3.05	0.10	mg/Kg wet	5.00		61.0	40-140	1.34	25	
n-Eicosane	3.91	0.10	mg/Kg wet	5.00		78.2	40-140	4.48	25	
n-Hexacosane	3.95	0.10	mg/Kg wet	5.00		78.9	40-140	4.39	25	
n-Hexadecane	3.70	0.10	mg/Kg wet	5.00		74.0	40-140	3.79	25	
n-Hexatriacontane	4.28	0.10	mg/Kg wet	5.00		85.6	40-140	4.52	25	
n-Nonadecane	3.82	0.10	mg/Kg wet	5.00		76.5	40-140	4.58	25	
n-Nonane	1.88	0.10	mg/Kg wet	5.00		37.6	30-140	2.76	25	
n-Octacosane	3.94	0.10	mg/Kg wet	5.00		78.9	40-140	4.51	25	
n-Octadecane	3.91	0.10	mg/Kg wet	5.00		78.3	40-140	4.19	25	
n-Tetracosane	3.95	0.10	mg/Kg wet	5.00		79.0	40-140	4.44	25	
n-Tetradecane	3.48	0.10	mg/Kg wet	5.00		69.6	40-140	3.01	25	
n-Triacontane	4.06	0.10	mg/Kg wet	5.00		81.3	40-140	4.49	25	
Naphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	0.10	mg/Kg wet	5.00			0-5			
Surrogate: Chlorooctadecane (COD)	*3.39*		mg/Kg wet	4.99		67.9	40-140			
Surrogate: o-Terphenyl (OTP)	*3.99*		mg/Kg wet	5.00		79.8	40-140			
Surrogate: 2-Bromonaphthalene	*4.47*		mg/Kg wet	5.00		89.4	40-140			
Surrogate: 2-Fluorobiphenyl	*4.69*		mg/Kg wet	5.00		93.8	40-140			

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - VPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B177276 - MA VPH										
Blank (B177276-BLK1)				Prepared & Analyzed: 05/18/17						
Unadjusted C5-C8 Aliphatics	ND	10	mg/Kg wet							
C5-C8 Aliphatics	ND	10	mg/Kg wet							
Unadjusted C9-C12 Aliphatics	ND	10	mg/Kg wet							
C9-C12 Aliphatics	ND	10	mg/Kg wet							
C9-C10 Aromatics	ND	10	mg/Kg wet							
Benzene	ND	0.050	mg/Kg wet							
Butylcyclohexane	ND	0.050	mg/Kg wet							
Decane	ND	0.050	mg/Kg wet							
Ethylbenzene	ND	0.050	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/Kg wet							
2-Methylpentane	ND	0.050	mg/Kg wet							
Naphthalene	ND	0.25	mg/Kg wet							
Nonane	ND	0.050	mg/Kg wet							
Pentane	ND	0.050	mg/Kg wet							
Toluene	ND	0.050	mg/Kg wet							
1,2,4-Trimethylbenzene	ND	0.050	mg/Kg wet							
2,2,4-Trimethylpentane	ND	0.050	mg/Kg wet							
m+p Xylene	ND	0.10	mg/Kg wet							
o-Xylene	ND	0.050	mg/Kg wet							
Surrogate: 2,5-Dibromotoluene (FID)	*2.66*		mg/Kg wet	3.33		79.9	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	*2.38*		mg/Kg wet	3.33		71.5	70-130			
LCS (B177276-BS1)				Prepared & Analyzed: 05/18/17						
Benzene	0.0899	0.0010	mg/Kg wet	0.100		89.9	70-130			
Butylcyclohexane	0.0785	0.0010	mg/Kg wet	0.100		78.5	70-130			
Decane	0.0833	0.0010	mg/Kg wet	0.100		83.3	70-130			
Ethylbenzene	0.0887	0.0010	mg/Kg wet	0.100		88.7	70-130			
Methyl tert-Butyl Ether (MTBE)	0.0900	0.0010	mg/Kg wet	0.100		90.0	70-130			
2-Methylpentane	0.0930	0.0010	mg/Kg wet	0.100		93.0	70-130			
Naphthalene	0.0925	0.0050	mg/Kg wet	0.100		92.5	70-130			
Nonane	0.0777	0.0010	mg/Kg wet	0.100		77.7	30-130			
Pentane	0.0947	0.0010	mg/Kg wet	0.100		94.7	70-130			
Toluene	0.0896	0.0010	mg/Kg wet	0.100		89.6	70-130			
1,2,4-Trimethylbenzene	0.0864	0.0010	mg/Kg wet	0.100		86.4	70-130			
2,2,4-Trimethylpentane	0.0777	0.0010	mg/Kg wet	0.100		77.7	70-130			
m+p Xylene	0.177	0.0020	mg/Kg wet	0.200		88.5	70-130			
o-Xylene	0.0890	0.0010	mg/Kg wet	0.100		89.0	70-130			
Surrogate: 2,5-Dibromotoluene (FID)	*0.0399*		mg/Kg wet	0.0400		99.6	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	*0.0404*		mg/Kg wet	0.0400		101	70-130			
LCS Dup (B177276-BSD1)				Prepared & Analyzed: 05/18/17						
Benzene	0.0892	0.0010	mg/Kg wet	0.100		89.2	70-130	0.700	25	
Butylcyclohexane	0.0765	0.0010	mg/Kg wet	0.100		76.5	70-130	2.59	25	
Decane	0.0809	0.0010	mg/Kg wet	0.100		80.9	70-130	2.85	25	
Ethylbenzene	0.0877	0.0010	mg/Kg wet	0.100		87.7	70-130	1.07	25	
Methyl tert-Butyl Ether (MTBE)	0.0887	0.0010	mg/Kg wet	0.100		88.7	70-130	1.50	25	
2-Methylpentane	0.0913	0.0010	mg/Kg wet	0.100		91.3	70-130	1.84	25	
Naphthalene	0.0908	0.0050	mg/Kg wet	0.100		90.8	70-130	1.85	25	
Nonane	0.0757	0.0010	mg/Kg wet	0.100		75.7	30-130	2.64	25	
Pentane	0.0938	0.0010	mg/Kg wet	0.100		93.8	70-130	1.01	25	
Toluene	0.0886	0.0010	mg/Kg wet	0.100		88.6	70-130	1.03	25	
1,2,4-Trimethylbenzene	0.0852	0.0010	mg/Kg wet	0.100		85.2	70-130	1.39	25	

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - VPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B177276 - MA VPH										
LCS Dup (B177276-BSD1)				Prepared & Analyzed: 05/18/17						
2,2,4-Trimethylpentane	0.0764	0.0010	mg/Kg wet	0.100		76.4	70-130	1.60	25	
m+p Xylene	0.175	0.0020	mg/Kg wet	0.200		87.4	70-130	1.16	25	
o-Xylene	0.0879	0.0010	mg/Kg wet	0.100		87.9	70-130	1.22	25	
Surrogate: 2,5-Dibromotoluene (FID)	*0.0385*		mg/Kg wet	0.0400		96.2	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	*0.0396*		mg/Kg wet	0.0400		99.0	70-130			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B177246 - SW-846 7471										
Blank (B177246-BLK1)				Prepared: 05/18/17 Analyzed: 05/19/17						
Mercury	ND	0.025	mg/Kg wet							
LCS (B177246-BS1)				Prepared: 05/18/17 Analyzed: 05/19/17						
Mercury	10.1	1.9	mg/Kg wet	9.36		108	73.7-126.3			
LCS Dup (B177246-BSD1)				Prepared: 05/18/17 Analyzed: 05/19/17						
Mercury	9.68	1.9	mg/Kg wet	9.36		103	73.7-126.3	3.93	30	
Batch B177247 - SW-846 3050B										
Blank (B177247-BLK1)				Prepared: 05/18/17 Analyzed: 05/19/17						
Antimony	ND	2.5	mg/Kg wet							
Arsenic	ND	2.5	mg/Kg wet							
Barium	ND	2.5	mg/Kg wet							
Beryllium	ND	0.25	mg/Kg wet							
Cadmium	ND	0.25	mg/Kg wet							
Chromium	ND	0.50	mg/Kg wet							
Lead	ND	0.75	mg/Kg wet							
Nickel	ND	0.50	mg/Kg wet							
Selenium	ND	5.0	mg/Kg wet							
Thallium	ND	2.5	mg/Kg wet							
Vanadium	ND	1.0	mg/Kg wet							
Zinc	ND	1.0	mg/Kg wet							
LCS (B177247-BS1)				Prepared: 05/18/17 Analyzed: 05/19/17						
Antimony	77.3	5.1	mg/Kg wet	88.2		87.6	0-210.3			
Arsenic	56.2	5.1	mg/Kg wet	57.0		98.6	77.8-122.1			
Barium	108	5.1	mg/Kg wet	110		97.8	82-117.4			
Beryllium	69.9	0.51	mg/Kg wet	67.5		103	82.3-117.7			
Cadmium	74.1	0.51	mg/Kg wet	77.8		95.2	81.9-118.2			
Chromium	63.8	1.0	mg/Kg wet	65.0		98.1	78.7-120.6			
Lead	77.2	1.5	mg/Kg wet	85.6		90.2	82.4-117.8			
Nickel	58.4	1.0	mg/Kg wet	61.3		95.2	82.2-117.8			
Selenium	75.0	10	mg/Kg wet	78.9		95.1	77.1-122.3			
Thallium	182	5.1	mg/Kg wet	178		102	78.2-121.6			
Vanadium	58.6	2.0	mg/Kg wet	56.3		104	64.8-135.2			
Zinc	190	2.0	mg/Kg wet	198		95.9	79.7-120.8			
LCS Dup (B177247-BSD1)				Prepared: 05/18/17 Analyzed: 05/19/17						
Antimony	80.0	5.0	mg/Kg wet	88.2		90.7	0-210.3	3.42	30	
Arsenic	57.8	5.0	mg/Kg wet	57.0		101	77.8-122.1	2.76	30	
Barium	115	5.0	mg/Kg wet	110		104	82-117.4	6.29	30	
Beryllium	72.8	0.50	mg/Kg wet	67.5		108	82.3-117.7	4.06	30	
Cadmium	77.9	0.50	mg/Kg wet	77.8		100	81.9-118.2	4.96	30	
Chromium	64.4	0.99	mg/Kg wet	65.0		99.1	78.7-120.6	1.01	30	
Lead	77.4	1.5	mg/Kg wet	85.6		90.5	82.4-117.8	0.262	30	
Nickel	61.1	0.99	mg/Kg wet	61.3		99.7	82.2-117.8	4.62	30	
Selenium	77.8	9.9	mg/Kg wet	78.9		98.6	77.1-122.3	3.63	30	
Thallium	188	5.0	mg/Kg wet	178		106	78.2-121.6	3.56	30	
Vanadium	59.5	2.0	mg/Kg wet	56.3		106	64.8-135.2	1.64	30	
Zinc	194	2.0	mg/Kg wet	198		98.2	79.7-120.8	2.40	30	

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B177247 - SW-846 3050B										
MRL Check (B177247-MRL1)				Prepared: 05/18/17 Analyzed: 05/19/17						
Lead	0.776	0.74	mg/Kg wet	0.742		104	80-120			
Batch B177249 - SW-846 3050B										
Blank (B177249-BLK1)				Prepared: 05/18/17 Analyzed: 05/19/17						
Silver	ND	0.11	mg/Kg wet							
LCS (B177249-BS1)				Prepared: 05/18/17 Analyzed: 05/19/17						
Silver	53.3	0.89	mg/Kg wet	54.2		98.4	74.3-125.4			
LCS Dup (B177249-BSD1)				Prepared: 05/18/17 Analyzed: 05/19/17						
Silver	54.8	0.87	mg/Kg wet	54.2		101	74.3-125.4	2.74	30	

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B177269 - % Solids										
Duplicate (B177269-DUP1)	**Source: 17E0912-01**			Prepared: 05/18/17 Analyzed: 05/19/17						
% Solids	94.6		% Wt		94.3			0.318	20	

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.

L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
O-01	Soil/methanol ratio does not meet method specifications. Excess amount of soil. Sample was completely covered with methanol, but with less than the method-specified amount.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
RL-08	Elevated reporting limit due to sample matrix interference. MA CAM reporting limit not met.
S-08	Duplicate analysis confirmed surrogate failure due to matrix effects.
S-19	Surrogate recovery is outside of control limits, matrix interference suspected. Reanalysis yielded similar surrogate non-conformance.
V-05	Continuing calibration did not meet method specifications and was biased on the low side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the low side.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
MADEP-EPH-04-1.1 in Soil	
C9-C18 Aliphatics	CT,NC,ME,NH-P
C19-C36 Aliphatics	CT,NC,ME,NH-P
Unadjusted C11-C22 Aromatics	CT,NC,ME,NH-P
C11-C22 Aromatics	CT,NC,ME,NH-P
Acenaphthene	CT,NC,ME,NH-P
Acenaphthylene	CT,NC,ME,NH-P
Anthracene	CT,NC,ME,NH-P
Benzo(a)anthracene	CT,NC,ME,NH-P
Benzo(a)pyrene	CT,NC,ME,NH-P
Benzo(b)fluoranthene	CT,NC,ME,NH-P
Benzo(g,h,i)perylene	CT,NC,ME,NH-P
Benzo(k)fluoranthene	CT,NC,ME,NH-P
Chrysene	CT,NC,ME,NH-P
Dibenz(a,h)anthracene	CT,NC,ME,NH-P
Fluoranthene	CT,NC,ME,NH-P
Fluorene	CT,NC,ME
Indeno(1,2,3-cd)pyrene	CT,NC,ME,NH-P
2-Methylnaphthalene	CT,NC,ME
Naphthalene	CT,NC,ME,NH-P
Phenanthrene	CT,NC,ME,NH-P
Pyrene	CT,NC,ME,NH-P
MADEP-VPH-04-1.1 in Soil	
Unadjusted C5-C8 Aliphatics	CT,NC,ME,NH-P
C5-C8 Aliphatics	CT,NC,ME,NH-P
Unadjusted C9-C12 Aliphatics	CT,NC,ME,NH-P
C9-C12 Aliphatics	CT,NC,ME,NH-P
C9-C10 Aromatics	CT,NC,ME,NH-P
Benzene	CT,NC,ME,NH-P
Ethylbenzene	CT,NC,ME,NH-P
Methyl tert-Butyl Ether (MTBE)	CT,NC,ME,NH-P
Naphthalene	CT,NC,ME,NH-P
Toluene	CT,NC,ME,NH-P
m+p Xylene	CT,NC,ME,NH-P
o-Xylene	CT,NC,ME,NH-P
SW-846 6010C-D in Soil	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC
Beryllium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
Thallium	CT,NH,NY,ME,VA,NC

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 6010C-D in Soil	
Vanadium	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
SW-846 6020A-B in Soil	
Silver	NY,NC
SW-846 7471B in Soil	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8260C in Soil	
Acetone	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
1,4-Dioxane	NY
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	NH,NY,ME

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260C in Soil	
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME
p-Isopropyltoluene (p-Cymene)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NH,NY
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
Naphthalene	NH,NY,ME
n-Propylbenzene	NH,NY
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NY
1,2,4-Trichlorobenzene	NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2017
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2017
FL	Florida Department of Health	E871027 NELAP	06/30/2017
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2017
ME	State of Maine	2011028	06/9/2017
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017

17E0912

con-test ANALYTICAL LABORATORY

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http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

Doc # 381 Rev 1_03242017

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name:	Nobis Engineering
Address:	585 Middlesex St. Lowell, MA 01851
Phone:	9786830891
Project Name:	Cawley Stadium / Lowell High
Project Location:	Cawley Stadium
Project Number:	91830.01
Project Manager:	Steve Vetere
Con-Test Quote Name/Number:	
Invoice Recipient:	
Sampled By:	A. Goldberg

Requested Turnaround Time
7-Day [X] 10-Day [ ]
Due Date:

Rush Approval Required
1-Day [X] 3-Day [ ]
2-Day [ ] 4-Day [ ]

Data Delivery
Format: PDF [X] EXCEL [X]
Other:
CLP Like Data Pkg Required: [ ]
Email To: svetere@nobiseng.com
Fax To #:

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	[1] Matrix Code	Conc Code	EPH	Metals	VPH	VOCs	# of Containers	[2] Preservation Code	[3] Container Code
												1	1	1
												[X]		M
												3		BTX
1	NOB101-0304	5/17/17 9:30			X	S		X	X	X	X			
2	NOB102-0507	5/17/17 9:55			X	S		X	X	X	X			
3	NOB103-0305	5/17/17 10:30			X	S		X	X	X	X			
4	NOB104-0506	5/17/17 10:55			X	S		X	X	X	X			
5	NOB105-0405	5/17/17 11:45			X	S		X	X	X	X			
6	NOB106-0507	5/17/17 8:40			X	S		X	X	X	X			
7	NOB107-0304	5/17/17 12:25			X	S		X	X	X	X			

ANALYSIS REQUESTED

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments: EPH to include PAHs

MCP metals per client - MEK 5/19/2017

Please use the following codes to indicate possible sample concentration within the **Conc Code** column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	(Nobis)	Date/Time: 5/18/17 1000
Received by: (signature)		Date/Time: 1000 5/18/17
Relinquished by: (signature)		Date/Time: 5-20 5/18/17
Received by: (signature)		Date/Time: 1725 5/18/17
Relinquished by: (signature)		Date/Time:
Received by: (signature)		Date/Time:

Detection Limit Requirements
MA: S-1
CT:
Other:

Special Requirements
[X] MA MCP Required
[ ] MCP Certification Form Required
[ ] CT RCP Required
RCP Certification Form Required
[ ] MA State DW Required
PWSID #

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NELAC and AIHA-LAP, LLC Accredited

Project Entity
[ ] Government [ ] Municipality [ ] MWRA [ ] WRTA
[ ] Federal [ ] 21 J [ ] School
[ ] City [ ] Brownfield [ ] MBTA

Other
[ ] Chromatogram
[ ] *AIHA-LAP,LLC*

PCB ONLY
[ ] Soxhlet
[ ] Non Soxhlet

Table of Contents

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
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Sample Receipt Checklist

CLIENT NAME: Nobis RECEIVED BY: JM DATE: 5/18/17

1) Was the chain(s) of custody relinquished and signed? Yes ✓ No ____ No COC Incl.

2) Does the chain agree with the samples? Yes ✓ No ____
If not, explain:

3) Are all the samples in good condition? Yes ✓ No ____
If not, explain:

4) How were the samples received:
On Ice ✓ Direct from Sampling ____ Ambient ____ In Cooler(s) ✓

Were the samples received in Temperature Compliance of (2-6°C)? Yes ✓ No ____ N/A ____

Temperature °C by Temp blank ____ # ____ Temperature °C by Temp gun 4.5 # 7

5) Are there Dissolved samples for the lab to filter? Yes ____ No ✓
Who was notified ____ Date ____ Time ____

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes ✓ No ____
Who was notified Emily/Mac Date 5/18/17 Time 1730

7) Location where samples are stored: Login

Permission to subcontract samples? Yes No
(Walk-in clients only) if not already approved
Client Signature: ____

8) Do all samples have the proper Acid pH: Yes ____ No ____ N/A ✓

9) Do all samples have the proper Base pH: Yes ____ No ____ N/A ✓

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes ____ N/A ✓

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		16 oz amber	
500 mL Amber		8 oz amber/clear jar	7
250 mL Amber (8oz amber)		4 oz amber/clear jar	
1 Liter Plastic		2 oz amber/clear jar	
500 mL Plastic		Plastic Bag / Ziploc	
250 mL plastic		SOC Kit	
40 mL Vial - type listed below	28	Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

40 mL vials: # HCl ____ # Methanol 4 Time and Date Frozen:
Bisulfate 14 # DI Water ____
Thiosulfate ____ Unpreserved ____

Login Sample Receipt Checklist

(Rejection Criteria Listing - Using Sample Acceptance Policy)

Any False statement will be brought to the attention of Client

Question	Answer (True/False) T/F/NA	Comment
1) The cooler's custody seal, if present, is intact.	N/A	
2) The cooler or samples do not appear to have been compromised or tampered with.	T	
3) Samples were received on ice.	T	
4) Cooler Temperature is acceptable.	T	
5) Cooler Temperature is recorded.	T	
6) COC is filled out in ink and legible.	T	
7) COC is filled out with all pertinent information.	T	
8) Field Sampler's name present on COC.	T	
9) There are no discrepancies between the sample IDs on the container and the COC.	T	
10) Samples are received within Holding Time.	T	
11) Sample containers have legible labels.	T	
12) Containers are not broken or leaking.	T	
13) Air Cassettes are not broken/open.	N/A	
14) Sample collection date/times are provided.	T	
15) Appropriate sample containers are used.	T	
16) Proper collection media used.	T	
17) No headspace sample bottles are completely filled.	N/A	
18) There is sufficient volume for all requsted analyses, including any requested MS/MSDs.	T	
19) Trip blanks provided if applicable.	N/A	
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	N/A	
21) Samples do not require splitting or compositing.	T	

Who notified of False statements? **Date/Time:**

Doc #277 Rev. 4 August 2013 **Log-In Technician Initials:** JM **Date/Time:** 5/18/17 1725

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory	Project #: 17E0912
Project Location: Cawley Stadium, Lowell High	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

17E0912-01 thru 17E0912-07

Matrices: Soil

CAM Protocol (check all that below)

8260 VOC CAM II A (X)	7470/7471 Hg CAM IIIB (X)	MassDEP VPH CAM IV A (X)	8081 Pesticides CAM V B ( )	7196 Hex Cr CAM VI B ( )	MassDEP APH CAM IX A ( )
8270 SVOC CAM II B ( )	7010 Metals CAM III C ( )	MassDEP EPH CAM IV A (X)	8151 Herbicides CAM V C ( )	8330 Explosives CAM VIII A ( )	TO-15 VOC CAM IX B ( )
6010 Metals CAM III A (X)	6020 Metals CAM III D (X)	8082 PCB CAM V A ( )	9014 Total Cyanide/PAC CAM VI A ( )	6860 Perchlorate CAM VIII B ( )	

Affirmative response to Questions A throughF 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	☐ No[1]
B	Were the analytical method(s) and all associated QC requirements specificed in the selected CAM protocol(s) followed?	☑ Yes	☐ No[1]
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	☐ No[1]
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidlines for the Acquisition and Reporting of Analytical Data?	☑ Yes	☐ No[1]
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	☐ No[1]
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No[1]
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Qestions A through E)?	☑ Yes	☐ No[1]

A response to questions G, H and I below 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)?	☐ Yes	☑ No[1]

<u>Data User Note:</u> Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC perfomance standards specified in the CAM protocol(s) achieved?	☐ Yes	☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No[1]

[1] *All Negative responses must be addressed in an attached Environmental Laboratory case narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:  Position: Project Manager

Printed Name: Lisa A. Worthington Date: 05/19/17