AECOM Environment

Submitted to:
Kimberly N. Tisa
PCB Coordinator
USEPA Region 1
5 Post Office Square
Suite 100 (OSRR07-2)
Boston, MA 02109-3912

Submitted by:
Town of Greenwich
Department of Public Works
Town Hall
101 Field Point Road
Greenwich, CT 06836-2540
September 2013

Remedial Action Plan-DRAFT

Greenwich High School
Greenwich, CT

AECOM Environment

Submitted to:
Kimberly N. Tisa
PCB Coordinator
USEPA Region 1
5 Post Office Square
Suite 100 (OSRR07-2)
Boston, MA 02109-3912

Submitted by:
Town of Greenwich
Department of Public Works
Town Hall
101 Field Point Road
Greenwich, CT 06836-2540
September 2013

Remedial Action Plan - DRAFT

Greenwich High School
Greenwich, CT

_____
Prepared By: Matthew D. Rood

_____
Reviewed By: Malcolm A. Beeler

_____
Technical Advisory Review by: William A. Baker

Not signed as this is a draft document and not the official submittal.

Contents

List of Tables

List of Figures

List of Appendices

List of Acronyms

AST	Aboveground Storage Tank
AOC	Area of Concern
bgs	Below Ground Surface
BAP	Benzo(a)pyrene
BOE	Greenwich Board of Education
CBYD	Call Before You Dig
CFR	Code of Federal Regulations
COC	Contaminant of Concern
CSM	Conceptual Site Model
CT DEEP	Connecticut Department of Energy and Environmental Protection
CT DPH	Connecticut Department of Public Health
CY	Cubic Yard
DPW	Greenwich Department of Public Works
EM	Electromagnetic
EPA	United States Environmental Protection Agency
ETPH	Extractable Total Petroleum Hydrocarbons
FFS	Focused Feasibility Study
GC/MS	Gas Chromatography/Mass Spectrometry
GHS	Greenwich High School
GPR	Ground Penetrating Radar
HAZWOPER	Hazardous Waste Operations and Emergency Response
HASP	Health and Safety Plan
HHRA	Human Health Risk Assessment
IMMP	Inspection, Maintenance, and Monitoring Plan
IRM	Interim Remedial Measure
IWWA	Inland Wetland and Watercourses Association
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MDL	Method Detection Limit
mg/kg	Milligrams per Kilogram
µg/l	Micrograms per liter
MISA	Music and Instructional Space Auditorium

OSHA	Occupational Safety and Health Administration
PAMP	Perimeter Air Monitoring Plan
PPE	Personal Protective Equipment
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PRG	Preliminary Remediation Goal
PTA	Property Transfer Act
QA/QC	Quality Assurance and Quality Control
QAPP	Quality Assurance Project Plan
RAP	Remedial Action Plan
RAR	Remedial Action Report
RCRA	Resource Conservation and Recovery Act
RBCA	Risk Based Corrective Action
RDEC	Residential Direct Exposure Criteria
RI	Remedial Investigation
RSR	Remediation Standard Regulations
SF	Square Feet
SLERA	Screening Level Ecological Risk Assessment
SVOC	Semi-Volatile Organic Compound
SPLP	Synthetic Precipitation Leaching Procedure
SS	Stainless Steel
SOP	Standard Operating Procedure
TAC	Target Indoor Air Concentrations
THA	Task Hazard Analysis
TSCA	Toxic Substances Control Act
UST	Underground Storage Tank
VOC	Volatile Organic Compound

Executive Summary

The following Remedial Action Plan (RAP) has been prepared for remedial actions to be performed at the Greenwich High School Site at 10 Hillside Road in Greenwich, CT. The primary objectives of this RAP are to:

- Describe the selected remedial actions and the procedures for implementing these actions for each of the remediation areas at the site;
- Summarize the planning activities required to permit the selected remedial actions and other measures to be performed to protect the health and safety of on-site personnel, the surrounding community, and the environment;
- Describe verification sampling, record-keeping, and documentation activities to be followed during performance of the planned remedial actions;
- Present planned post-remediation activities which will include maintenance and monitoring of engineered protective barriers and groundwater;
- Present a schedule for completion of the planned remedial activities; and
- Describe the ongoing public communication process for the implementation of the work described in this RAP.

The selected remedial actions were developed based upon the results and conclusions from the analysis of site data in the Remedial Investigation Report (RI) (AECOM, 2013a), the Human Health Risk Assessment (HHRA) (AECOM, 2013b) and the Focused Feasibility Study (FFS) (AECOM, 2013c). Public meetings and a public comment period were held to present and discuss the findings of these reports and the recommended remedial alternative presented in the FFS. Remedial actions that are protective of human health for both current and future site use and that comply with applicable federal and state regulations were designed based upon the data collected, conclusions developed within these reports, and public input.

The recommended approach for soil remediation, as described in the FFS and detailed in this RAP, is a risk-based alternative consisting of using barriers already in place on site to prevent exposure and removal of varying depths of surficial soil in areas where impacted soil is or may be potentially accessible to students, staff, site visitors, site workers, and utility and/or construction workers to construct new barriers. The preliminary remedial goals developed in the HHRA were used to define remediation area limits. Active remediation of groundwater impacts is not proposed because these impacts are not observed to be migrating offsite and do not pose a risk to current or future site users, the surrounding community, or the environment. However, groundwater will be monitored following the completion of remedial activities to verify that current conditions do not change. Remediation is not currently proposed for sediments or surface water within the water bodies at the site as these are still being investigated.

Following the completion of the designed soil removals as confirmed by verification sampling, each area will be backfilled with clean fill material and restored to current conditions or the designated future use. The clean backfill in each area will serve as a protective barrier to impacted soil remaining in place. Excavated soil will be removed from the site and transported to properly permitted facilities for disposal.

Remediation planning activities to be performed prior to implementation of the RAP include:

- Preparation of specifications for the work to be performed that will establish work procedures that shall be protective of site workers, other site users, and the surrounding community;

- Preparation of Health and Safety Plans for workers involved with remedial activities;
- Preparation of a Perimeter Air Monitoring Plan to be protective of site users and the surrounding community;
- Securing necessary permits and approvals for the work to be performed; and
- Public notice of remediation.

Post-remediation activities will be conducted following completion of the remedial activities. These post-remediation activities will be conducted to document the continued effectiveness of the remedial actions, maintain the integrity of protective engineered barriers preventing exposure to impacted soil, and to prevent potential future exposure to remaining impacted soil during construction activities at the site. The post-remediation activities include:

- Regular inspection of the surface of the protective engineered barrier and performing maintenance activities when inspection finds that these are required;
- Performance of groundwater monitoring and evaluation of groundwater data to confirm that groundwater impacts are not migrating from the site;
- Implementation of Environmental Land Use Restrictions that will provide guidelines for performance of future construction activities and notification requirements; and
- Establishing a financial surety in an amount sufficient to provide funds to perform post-remediation work in the event of a default by the Town of Greenwich.

Ongoing throughout the entire planning, implementation and post-remediation phases will be a public communication program. This program will be implemented in a manner that continually informs the community of the work performed to date and the planned path forward so that public input on the process may be received. This program will also allow the community to comment or express concerns on how work is progressing or being implemented.

The remediation is expected to be completed in two phases with remediation activities anticipated to commence during the summer of 2014. The second phase is anticipated be completed during the summer break of 2015. All planned remediation work will be conducted during school summer breaks to limit impacts to the operation of the high school. Given the schedule restrictions, remediation activities may not all be completed by 2015 and additional remedial activities may be performed during the summer break 2016.

.

1.0 Introduction

AECOM Technical Services, Inc. (AECOM) was contracted by the Town of Greenwich (the Town), Connecticut to develop this Remedial Action Plan (RAP) for the Greenwich High School (GHS) property located at 10 Hillside Road in Greenwich, Connecticut (the site). This RAP details the remedial approach to address impacted soil located in environmental areas of concern (AOCs) on site. Previous investigations have been performed to define the limits of chemical impacts within AOCs on site. The results of that investigation and previous site characterization efforts were summarized in a Remedial Investigation Report (RI) (AECOM, 2013a). Evaluation of risk posed by the identified chemical impacts to current and future site users was completed in the Human Health Risk Assessment (HHRA) (AECOM, 2013b). Identification, screening, and selection of remedial alternatives for impacted soil in AOCs on site were conducted in a Focused Feasibility Study (FFS) (AECOM, 2013c).

The objectives of this RAP are to:

- Document and describe the selected remedial actions and the rationale used to develop these actions including the Conceptual Site Model (CSM), current and anticipated future use, Preliminary Remedial Goals (PRGs), and background concentrations of chemicals. Also described are the procedures for implementing these actions for each of the remediation areas at the site;
- Summarize the planning activities required to permit the selected remedial actions and other measures to be performed to protect the health and safety of on-site personnel, the surrounding community, and the environment;
- Describe verification sampling, record-keeping, and documentation activities to be followed during performance of the planned remedial actions;
- Present planned post-remediation activities which will include maintenance and monitoring of protective barriers and groundwater;
- Present a schedule for completion of the planned remedial activities; and
- Describe the ongoing public communication process for the implementation of the work described in this Remedial Action Plan.

This RAP was developed as part of ongoing investigation and remediation activities at the site. The remedial approach for soil detailed in this RAP draws on data analysis and conclusions outlined in the RI, the HHRA, and the FFS and also from comments received from the public during public meetings and during the public comment period. Soil remedial actions were designed based upon the PRGs developed in the HHRA. PRGs were developed to be protective of human health for both current and potential future site users. An evaluation of remedial options capable of achieving the remedial goals developed in the HHRA was performed in the FFS. Numerous remedial options were evaluated and use of existing protective barriers and limited soil excavation and disposal at an appropriately permitted landfill with site restoration to create additional protective barriers to limit exposure was selected as the most effective remedial option to address chemical impacts at the site.

Active remediation for groundwater impacts identified at the site is not planned as groundwater impacts are not observed to be migrating from the site and the impacts present do not pose a risk to current and future site users, the surrounding community, or the environment. Groundwater monitoring has been performed quarterly at the site since January 2012, seven sampling events total, and the groundwater analytical data and groundwater flow patterns determined all support the conclusion that identified impacts do not pose an unacceptable risk. However, continued monitoring of groundwater will be performed at the frequency indicated in **Section 7.3**. The data collected will be evaluated to verify that impacts identified remain stable and continue to not migrate from the site.

Limited impacts to sediments and surface water were described in the RI and the data were analyzed in the HHRA and the Screening Level Ecological Risk Assessment (SLERA) (AECOM, 2013d). The impacts to sediments and surface water were determined to not pose an unacceptable risk to human health under current and future site uses. However, the conclusions of the SLERA included findings that these impacts may pose an unacceptable risk to environmental receptors and additional investigation to further evaluate these limited impacts was recommended. These investigations are ongoing and remedial activities, if necessary, will be discussed in a separate document.

1.1 Report Organization

The RAP is organized as follows:

- **Section 1** – A summary of site background information including a description of the AOCs and constituents of concern (COCs) on site, a discussion of the site CSM, and identification of applicable and relevant remedial standards and goals;
- **Section 2** – An overview of the remedial design investigation activities that were implemented at the site following completion of the FFS. These data have not been previously reported;
- **Section 3** - A detailed description of remedial actions that are planned for individual AOCs on site;
- **Section 4** – A summary of planning activities and documents (e.g. work plan, health and safety plan, etc) that will be developed prior to implementing remedial actions at the site, permitting requirements, and plans for public involvement;
- **Section 5** – A description of the sampling and analysis approach that will be used during and following remediation to monitor progress and effectiveness of the implementation;
- **Section 6** – A summary of field data collection and documentation requirements during and following remediation;
- **Section 7** – A description of post-remediation inspection, maintenance, and monitoring requirements;
- **Section 8** – An estimated schedule for implementing the RAP; and
- **Section 9** – References used in developing the RAP.

1.2 Background

The following provides a brief site description and a summary of the AOCs and COCs developed for the site which are discussed in more detail in the RI. AOCs were identified based upon site history

and results from previous site investigations. COCs were identified based upon comparison to federal and Connecticut (state) standards. Specifically, federal and state regulatory standards were used to screen analytical data. If a chemical was found to exceed federal or state regulatory standards it was deemed to be a COC and that additional investigation and evaluation were required to determine the extent of these impacts. The delineation of a COC was deemed to be complete when the extent of impacts exceeding the federal or state standards was determined. **Table 1-1** lists COCs determined within each of the AOCs investigated.

1.2.1 Site Description

Greenwich High School is located at 10 Hillside Road in Greenwich, Connecticut, which is approximately 73.61 degrees west longitude and 41.04 degrees north latitude. The site is owned by the Town of Greenwich, and includes 54.75 acres. A Site Location Map is included as **Figure 1-1**. A Site Plan, depicting pertinent site features and AOCs, is included as **Figure 1-2**. This RAP describes the remediation of the site outside of the Music Instructional Space Auditorium (MISA) footprint. Remediation within the MISA footprint prior to construction of the auditorium is described under a separate remedial plan.

The site is currently used as a public high school with associated athletic facilities. The southeast corner of the site has been undeveloped since the Town purchased the property but private residences were formerly located within this area. Improvements on the rest of the site include the high school buildings, paved parking areas, natural and synthetic turf athletic fields, tennis courts, batting cages, landscaped areas, and pedestrian walkways. Utilities servicing the property include municipal water, storm water drainage, sanitary sewer, electricity, and communications. Heating is provided by oil-fired boilers; fuel oil for heating is stored on-site in a 15,000-gallon underground storage tank (UST).

West Brothers Brook enters the property from the northwest and flows in a concrete channel that follows the western boundary. The concrete channel curves east between the football stadium (Field 1) and the baseball diamond (Field 2) before returning to a natural stream channel. The natural stream channel widens into a small surface water impoundment in the southeast corner of the site; referred to as Cider Mill Pond. Water flows from the impoundment over two spillways in a man-made dam, and West Brothers Brook resumes beyond Cider Mill Pond and exits the property via culverts under East Putnam Avenue.

1.2.2 Site History

Before the Town acquired the site in 1966, historical maps indicate that limited portions of the property on the eastern and southern extents were used for residential purposes with the majority of the parcel left undeveloped. The central portion of the property was a wetlands and an unnamed pond that is currently referred to as Cider Mill Pond was present in the southeast corner. West Brothers Brook entered the property at the same location as it does currently, flowed southeast into the wetlands, and then beyond to Cider Mill Pond and eventually off the property at its current location in the southeast corner.

During the initial construction phase for the high school in the late 1960s, the brook was rerouted along the western portion of the site into the concrete channel it currently occupies. Fill was brought onto the property to fill the wetlands to grades similar to those that currently exist. The high school buildings were constructed on the eastern portion of the property, beyond the limits of the historical wetlands, on areas of shallow bedrock or bedrock outcrops.

Construction of the high school was performed between 1966 and 1972 and included Buildings A through K, eight tennis courts and athletic fields to the west of the school buildings, with the school opening for use in 1970. Several improvements to the property have taken place since the initial construction of the high school in 1972 and are summarized in the RI.

1.2.3 Surrounding Properties and Land Use

The site is bounded by residential properties to the north and west, East Putnam Avenue to the south, and Hillside Road to the east. Residential properties are located beyond East Putnam Avenue and Hillside Road.

The site is currently developed with the school buildings, paved parking lots, and natural and artificial turf athletic fields (see **Figure 1-2**). The southeast corner of the property, where Cider Mill Pond is located has not been developed as part of the school property and has vegetative cover with numerous trees. School buildings are constructed on the eastern side of the property where bedrock is shallow. Asphalt parking lots are constructed in the areas surrounding the school buildings and in the northeast portion of the property. Parking lots are typically constructed of 4 to 6 inches of asphalt underlain by 1.5 to 3 feet of subbase materials. Artificial turf fields are constructed of drainage materials underlain by a geotextile (separates the drainage materials from soil beneath) and covered by a cushion layer and the artificial turf. The total thickness of the artificial turf and drainage materials is typically 1.5 feet.

1.2.4 Site Geology and Hydrogeology

The following is a brief discussion of site geology and hydrogeology. A more complete discussion was presented in the RI which is attached as **Appendix A**.

1.2.4.1 Surficial Materials

Most of the site is underlain by a silty, sandy till. An extensive layer of peat and organic silt is found beneath athletic Fields 3, 4, 5, a portion of Field 6, and the west parking lot. Non-native fill material is also present in the former wetlands area. This fill material comprises AOC-1, and is the subject of most of the remedial actions planned for the site.

The following is a summary of the composition of subsurface geologic materials encountered at the site.

1) Surficial Materials: Generally six inches of topsoil (or asphalt in parking lot areas).

2) Fill: The non-native fill materials can generally be described as fine to medium sand with some silt and traces of gravel with debris containing trace amounts of cinders, brick, glass, roots, wood, plastic, and rubber. Other fill materials consist of silty sand with gravels, cobbles and boulders, similar to the native soils encountered at the site and may represent reworked (moved during constructing activities) native materials. In general, fill materials were encountered at depths ranging anywhere from the surface to 14 feet below ground surface (ft bgs). The average thickness of the non-native fill material encountered at the various depths was approximately 2.5 ft. Most of the fill is medium to very dense.

3) Peat/Organic Silt: Beneath the non-native fill, a layer of soft organic material extends to depths ranging from 15 to 40 ft bgs, shallower beneath the parking lot and deeper under the athletic fields. The maximum thickness encountered measured 24.5 ft.

4) Dense Till: A layer of dense silty sands (till) was encountered beneath the non-native fill and the peat/organic silt units. This material contains varying amounts of gravel, cobbles and boulders and extends to depths ranging from 8.5 to 59 ft bgs.

5) Gneiss Bedrock: Gneiss was encountered in numerous borings across the site. Depth to bedrock surface ranged from the surface (bedrock outcroppings on site) to 59 ft bgs. At some boring locations, the upper one to two ft is decomposed (weathered) and was easily drilled. In general, competency of the rock increased with depth.

1.2.4.2 Surface Water

West Brothers Brook enters the site from the northwest corner. On-site, the surface water flow is controlled within a concrete channel and then a natural channel. Initially the water flows south past Fields 4 and 3, respectively, and then curves around Field 2 to the east and then northeast. The concrete channel then makes a sharp turn and West Brothers Brook is re-directed to the southeast. The concrete channel ends halfway around this turn and the stream then follows an earthen channel. Some cracks were observed in the concrete channel and minor to moderate leakage into or out of the structure is expected.

1.2.4.3 Groundwater

At the site, groundwater has been observed in the shallow overburden materials that include till, fill and swamp (peat or highly organic) deposits. Groundwater is also present within fractures of the shallow bedrock zone.

Manual and continuous water level readings have been collected at the site. Manual water levels were collected from both monitoring wells and surface water gaging locations. The continuous water levels were recorded automatically using pressure transducers installed within four separate monitoring wells. Based on historical groundwater and surface water elevation measurements collected quarterly since January 2012, groundwater generally flows on to the site from the north and east and exits the site to the southeast. A groundwater mound exists on the western portion of the site, beneath athletic turf Fields 3 and 4.

1.3 Summary of Areas of Concern (AOCs) and Chemicals of Concern (COCs)

Table 1-1 summarizes AOCs and COCs identified at the site and the AOC locations are shown on **Figure 1-2**. AOCs 1 through 9 were identified in the Phase 1 Environmental Site Assessment ((DTC, 2011) prior to the completion of the site wide investigation program. These AOCs were identified based upon site history and the potential for releases within the area. However, investigation findings for some of the AOCs did not identify chemical impacts that exceeded federal or state standards used as screening criteria. These areas were not evaluated for remediation. In addition, as discussed in the RI (AECOM, 2013a), some of the AOCs were grouped together for evaluation of remedial options.

The following is a brief discussion of AOCs and COCs pertinent to this RAP. As previously discussed, remedial actions in AOC 10 (groundwater) and AOCs 11 and 12 (stream and pond sediments), are not included in the RAP. A detailed discussion of each AOC including analytical data tables and figures is presented in the RI, attached in **Appendix A**.

1.3.1 AOC 1 Fill Area

A wetland, fed and drained by West Brothers Brook, existed at the site before the parcels that make up the GHS site were purchased by the Town. Prior to construction of the school, the brook was diverted into a concrete channel and the wetland filled and built up to current grades. The total area of AOC 1 is approximately 495,000 square feet (SF) (11.4 acres) and this AOC is located in the central and western portions of the site. Fields 2, 3, 4, 5 and 6 and the west parking lot are located at the surface over AOC 1.

COCs identified in AOC 1 include volatile organic compounds (VOCs), extractable total petroleum hydrocarbons (ETPH), polycyclic aromatic hydrocarbons (PAHs), metals, polychlorinated biphenyls (PCBs) and pesticides. The fill material is highly heterogeneous and concentrations of COCs vary greatly throughout. VOCs have been identified in soil borings within the northern portion of Field 2 and the southern portion of Field 3 but are typically not detected in other areas. The area of highest concentrations for PCBs, ETPH, and PAHs is located to the west of the western parking lot and extends beneath Fields 3 and 4 and a limited portion of Field 2.

1.3.2 AOC 2 through AOC 6 Facility Boilers, Fuel Storage and Transformers

AOCs 2 through 6 include the facility boilers and associated appurtenances, fuel storage (USTs, aboveground storage tanks (ASTs) and associated piping) and electrical transformers, which are all located inside or outside and nearby to the west and east of Wing B of the high school building. AOCs 2 through 6 comprise a total area of approximately 7,200 SF.

ETPH, PCBs, PAHs, arsenic and lead were identified as COCs for these areas. For the purposes of this RAP, PCBs reported above screening criteria in surficial soil samples SS-248 and SS-249, which had been included in the Non-AOC and AOC 13 in the RI, respectively, will be included in the remediation plan for these areas.

1.3.3 AOC 8 Pesticides

AOC 8 includes an area to the south of Wing D along the north bank of Cider Mill Pond. The area is covered by grass and the eastern part is mowed by the grounds crew while the western end is fenced off as part of an interim remedial measure (IRM) performed at the site to prevent contact with surficial soil. AOC-8 comprises an area of approximately 5,700 SF.

Chlordane is the COC for AOC 8. No other COCs were identified within this AOC.

1.3.4 AOC 13 Southern Arsenic Area

The southern arsenic area is located east of Field 1 and covers an area of approximately 255,000 SF (5.8 acres). Bedrock outcrops have been observed in this area and depth to bedrock typically ranges from ground surface to 9 feet below ground surface (bgs). AOC 13 is primarily wooded and open grass areas. Private residences were located within this AOC but were demolished prior to construction of the high school. During construction of the high school, which included placing of fill materials in AOC 1, bid documents indicate that this area was fenced off and not developed, filled, or otherwise modified. The area surrounds Cider Mill Pond and a portion of the West Brothers Brook natural channel. Subsets of the main arsenic area are found near soil boring location I26 and surface soil samples N8 and N9 (located south of Field 2).

Arsenic was identified as a COC for AOC 13 based upon comparison with screening criteria. The site-specific background concentration of arsenic was determined to be 20 milligrams per kilogram (mg/kg) and this value was used in remedial planning. Additional sampling was performed to define remediation areas and the data, not previously reported, are discussed in **Section 2.0**.

1.3.5 Benzo (a) pyrene Areas

Based on the results of the HHRA, benzo (a) pyrene (BAP) was added as a COC for select areas throughout the site. The PRG for BAP was determined to be 0.159 mg/kg in surficial soil (0 to 1 ft bgs). Several of the soil sample analytical reporting limits reported during remedial investigation activities did not meet the PRG for BAP. This represented a data gap for remediation planning and additional investigation activities were initiated to address this gap. The additional investigation activities are summarized in **Section 2.0**.

1.4 Conceptual Site Model

The CSM defines what is known about the source(s) of chemical impacts, mechanisms of release, impacted media, migration pathways and potential receptors. The CSM for the site was developed and refined during remedial investigation activities completed at the site between August 2011 and June 2013. The CSM was discussed in the RI report and more fully developed in the HHRA. The following is a summary of the CSM for the site.

1.4.1 Potential Source Areas

Prior to 1966, the site was undeveloped except for residences that were located along the current eastern and southern property boundaries. Historical maps of the property depict a wetlands located in central portions of the site. The Town of Greenwich purchased the property in 1966 and commenced construction of the high school. According to historical records obtained from the Town, the brook was diverted and fill material was used for filling and grading the site for future use. This fill material was not designated for use elsewhere at the site.

The fill material is the primary source of chemical impacts at the site. COCs identified in the fill include PCBs, VOCs, ETPH, PAHs and metals. Pesticides have also been identified in the fill material. However, pesticide impacts are likely the result of grounds-keeping activities and not inherent to the fill material brought to the site.

Arsenic-impacted soil has been identified in the southern area of the site. The source of arsenic in this area is unknown as fill material was not placed in this area. Arsenic has not been reported at concentrations indicative of a natural source in bedrock chip samples collected from nearby bedrock outcrops and deeper bedrock samples. However, an evaluation of arsenic data for the site outside of area AOC 1 (where non-native fill is known to have been placed) indicates that the background concentration for arsenic is 20 mg/kg.

Other potential sources of chemical impacts at the site include various USTs, aboveground storage tanks (ASTs), transformers, floor drains, oil water separators and grounds-keeping activities. Releases of COCs have been identified from some of these sources but the impacts are limited in nature and extent.

1.4.2 Chemical Fate and Transport

Potential migration pathways to be considered for the CSM include:

- leaching of chemicals from impacted soils into groundwater,
- groundwater transport through natural soils, fill and subsurface conduits,
- transport in surface water, including stream flow and overland flow,
- vapor migration through unsaturated soils and along subsurface utility corridors, and
- wind-blown dust and/or volatile air emissions from undeveloped portions of the site.

In addition to the potential migration pathways, the mobility of chemicals through the environment depends on physical properties of the chemical (solubility in water, volatility, etc.) as well as properties of the media (soil permeability, pH of groundwater, etc.).

Leaching of chemicals from impacted soil into groundwater is believed to be occurring at the site because groundwater impacts have been identified at the site. However, the groundwater transport of these chemical impacts is limited to within the property boundaries and there is no offsite migration of these impacts. In addition, there are no onsite uses (i.e., drinking water or irrigation) of groundwater so there is no direct exposure. Thus, leaching of chemicals and groundwater transport is not considered to be a completed pathway for exposure.

Surface water samples were collected during the remedial investigation phase to evaluate transport through this media. The surface water sample results indicated that impacts may be originating from offsite sources and evaluation of the data in the HHRA found that the impacts measured did not pose an unacceptable risk to human health. Additional testing and evaluation of surface water is being performed to determine potential impacts to ecological receptors.

During the remedial investigation phase there were limited detections of VOCs in soil and groundwater. Soil vapor and ambient air samples were collected to more fully evaluate the vapor migration pathway during the remedial investigation as well. Evaluation of the data in the RI and HHRA indicated that vapor migration was not a completed pathway for exposure.

Ambient air samples collected were also used to evaluate wind-blown or volatile emissions of chemicals as a potential pathway for exposure. Evaluation of the data in the RI and the HHRA indicated that this was not a completed pathway for exposure.

1.4.3 Identification of Potential Receptors and Exposure Scenarios

The following potential receptors were evaluated in the HHRA for potential exposure:

- A current/future typical indoor maintenance worker (custodian) scenario based upon typical work behaviors for custodial staff;
- A current/future outdoor maintenance worker (groundskeeper) based upon typical work practices for groundskeeping staff;
- A future construction/utility worker scenario based upon a scenario that involved excavation into the subsurface with exposures to impacted soil and groundwater;
- A current/future high school student (age 14 to 17 years) scenario based upon potential exposures that could occur to a student that was engaged in both indoor and outdoor school athletic teams;

- A current/future high school student (age 14 to 17 years) scenario based upon potential exposures that could occur to a student that was engaged in indoor school athletic teams;
- A current/future high school teacher scenario based upon potential exposures for a teacher that is also involved in coaching outdoor athletic teams;
- A current/future high school teacher scenario based upon potential exposures for a teacher that is also involved in coaching indoor athletic teams; and
- A current/future site visitor scenario based upon a spectator (parent accompanied by a small child) to be on-site while attending indoor and outdoor events at the school.

1.4.4 Preliminary Remedial Goals

The evaluation of exposures was based upon typical site use for the potential receptors discussed in **Section 1.4.3** and was performed to determine the increased cumulative risk due to these exposures. In the HHRA, none of the exposure scenarios evaluated were found to pose an increased cumulative risk of 1 in 100,000 (10^{-5}) which is a level considered acceptable to EPA. Thus, use of the site is safe under current conditions. For the purposes of this RAP, PRGs developed based upon an increased cumulative risk of 1 in 1,000,000 (10^{-6}) were used to design remedial activities and are highly protective of human health. The PRGs developed for the GHS site differ from federal and state regulatory remediation standards in that they were determined using actual exposure scenarios developed for the site instead of the assumed exposure scenarios used in developing the federal and state standards.

In the evaluation of exposure scenarios the site was broken down into areas that weren't entirely based upon the AOCs developed in the RI. Instead, the areas used for evaluating exposures were developed for the HHRA based upon typical use and the COCs present. The PRGs determined based upon this data analysis in the HHRA are specific to a chemical within a specified use area for the specified exposure scenario (e.g., PCBs, Athletic Fields – Fill Area, outdoor maintenance worker) and are presented in this manner in **Table 1-2**. The PRGs are also specific to a media to which the user may be exposed (e.g., surface soil (0-1 ft bgs) or combined soil (0-15 ft bgs)). The site areas used for evaluation in the HHRA are as follows:

- Athletic Fields – Fill Area – Includes the entire fill area (AOC 1) and locations immediately surrounding. Included within the Athletic Fields – Fill Area were all of Fields 2, 3, and 4, the southern portion of Field 5 and the west parking lot. PRGs were developed in the HHRA for specific chemicals and site uses within this area.
- Athletic Fields – Non-Fill Area – Includes athletic fields beyond the fill area which is the remainder of Field 5 and all of Fields 6 and 7. Also included in this area were the north parking lot and the school property outside the buildings on the east side. PRGs were developed in the HHRA for specific chemicals and site uses within this area.
- Southern Area - Includes the property south of West Brothers Brook and that surrounding Cider Mill Pond. PRGs were developed in the HHRA for specific chemicals and site uses within this area.
- Cider Mill Pond/West Brother's Brook – Includes the surface water bodies found on the property and the sediments within the boundaries of these water bodies. There were no PRGs developed for human exposures within this area.

- School Buildings – Includes the interior of the existing structures on site and the MISA building currently under construction. There were no PRGs developed for human exposures within this area for chemicals found in soil or groundwater at the site.

The planned remedial actions described in this RAP have been designed to eliminate the exposure pathways to soil with concentrations of a specific chemical exceeding the PRG for a specified user. Specifically, remedial measures are designed to eliminate the following pathways with PRGs:

- Athletic Fields – Fill Area
    - Exposure of an Outdoor Maintenance Worker (Groundskeeper) to surface soil containing total PCBs at a concentration equal to or greater than 1.24 mg/kg in the Athletic Fields - Fill Area. Given that the strictest federal and state standard for PCBs in soil is 1 mg/kg and that this standard is very close to the PRG, the state and federal standard of 1 mg/kg was used in the design of remedial actions. Remediation is designed to be protective for all activities performed by outdoor maintenance workers.
    - Exposure of a Construction Worker to combined soil (all soil above 15 ft bgs given the intrusive nature of the activities) containing equal to or greater than 8.39 mg/kg total PCBs in the Athletic Fields area. Remediation is designed for limited construction activities (0 to 3 ft bgs) that are anticipated in the future. Administrative controls (Environmental Land Use Restrictions) will also be employed to limit exposure for the construction worker engaged in more intrusive construction work.
    - A PRG was developed for Construction Worker exposure to PCBs in groundwater at a concentration of 8.5 µg/L. Because groundwater is typically encountered at depths greater than 3 ft bgs, active remedial measures have not been designed to address this PRG. Instead, administrative controls will be employed to prevent exposure under this use scenario.
- Athletic Fields – Non-Fill Area
    - Exposure of a Construction Worker to combined soil containing greater than 25.5 mg/kg arsenic or greater than 4.11 mg/kg benzo(a)pyrene. Remediation is designed for limited construction activities that are anticipated in the future. Administrative controls (Environmental Land Use Restrictions) will also be employed to limit exposure for the construction worker engaged in more intrusive construction work.
    - Exposure of a Site Visitor to surface soil (soil from 0 to 1 ft bgs given the non-intrusive nature of the activity) containing greater than 0.159 mg/kg Benzo(a)pyrene. The PRG developed for the site is less than the strictest state standard for this chemical and is considered to be extremely protective of human health.
- Southern Area
    - Exposure of an Outdoor Maintenance Worker to surface soil containing greater than 2.65 mg/kg arsenic or greater than 10.8 mg/kg chlordane. Because the PRG for arsenic is less than the determined background concentration of 20 mg/kg, the background concentration for arsenic was used in the design of the remediation.
    - Exposure of a Site Visitor to surface soil (soil from 0 to 1 ft bgs given the non-intrusive nature of the activity) containing greater than 0.159 mg/kg Benzo(a)pyrene.

The PRG developed for the site is less than the strictest state standard for this chemical and is considered to be extremely protective of human health.

No other completed receptor/exposure pathways with an increased cumulative risk of 10^{-6} to chemicals found in soil or groundwater at the site were identified.

1.5 Compliance with Federal and State Regulatory Standards

Federal and state standards used in the evaluation of the data were discussed in detail in the RI. The following is a brief discussion of how compliance with federal and state standards will be achieved by the remedial design.

1.5.1 Federal Remedial Standards

For soil and groundwater, compliance with the federal regulations for PCBs, found in 40 CFR Part 761, will be achieved under the provisions of §761.61(c). This RAP serves as the written application to EPA for the risk-based disposal approval. Information required under the Notification requirements in §761.61(a)(E)(3) is included within the text and the RI report which is attached in **Appendix A**. No remedial activities as described in this RAP will be performed until written Approval is received from EPA.

1.5.2 State Remedial Standards

For soil, compliance with the state regulations found in the Remediation Standard Regulations, 22a-133k-1 through -3 of the Regulations of Connecticut State Agencies would be achieved under the provisions of 22a-133k-2(f)(2) governing engineered controls. Because the site is not under the jurisdiction of CTDEEP, the state agency will not grant an approval for the remedial work. However, the Town will seek concurrence from the state that the planned remediation meets the requirements of the state regulations.

2.0 Remedial Design Investigation

Extensive characterization activities have been completed at the site including soil, sediment, surface water, groundwater, ambient air and soil vapor sampling. Analytical results, site geology and hydrogeology have been evaluated such that the horizontal and vertical distribution of chemical impacts has been sufficiently characterized and the subsurface soil and groundwater conditions are well understood. Investigation activities have been completed by AECOM and others and all results were reported in the RI which was submitted to the USEPA Region 1 PCB Coordinator, CT DEEP, and CT DPH in February 2013. The complete RI report, including all previously collected analytical data and figures, is included in **Appendix A**.

In June 2013, AECOM initiated a soil investigation program to fill existing data gaps and refine remedial areas in support of preparation of this RAP. Analytical data collected during the June 2013 have not been previously reported and are presented in the following sections. All sample collection and analysis procedures and data collection and analysis procedures employed in the remedial design investigation are the same as those described in the RI report and are not described further in this document.

2.1 Objective and Scope of Work

The remedial design investigation was planned to address data gaps and achieve the following objectives:

1. Delineate extent of surficial (0-1' bgs) arsenic impacts in AOC 13 and refine planned excavation areas of arsenic impacted soil.

2. Collect surficial soil samples in areas where previous laboratory reporting limits did not meet the PRG for BAP. Based on the results of the HHRA, the PRG for BAP is 0.159 mg/kg in surficial soil. To address this data gap, additional soil samples were collected and analyzed for PAHs via USEPA Method 8270 using selective ion monitoring (SIM) which is capable of achieving reporting limits lower than 0.159 mg/kg.

To accomplish the objectives of the remedial design investigation, AECOM collected 46 surficial (0-1' bgs) soil samples from selected areas Soil sampling locations from the June 2013 remedial design investigation are shown on **Figure 2-1**. Soil sampling methods are described below.

2.2 Preparatory Activities

A site-specific Health and Safety Plan (HASP), as required by the Occupational Safety and Health Administration (OSHA) under Hazardous Waste Operations & Emergency Response 29 CFR 1910.120, was developed to reflect planned work activities at the site. The HASP was updated as necessary when additional tasks were anticipated. Task Hazard Analyses (THAs) were also completed for each anticipated task at the site. THAs identify task-specific hazards and corrective actions for mitigating hazards. The THAs were incorporated into the HASP.

Prior to initiating the subsurface investigations, AECOM staff marked all proposed subsurface sampling locations at the site and notified Call Before You Dig (CBYD) to request a utility mark-out at the site. Additionally, New England Subsurface Imaging (NESI) was retained prior to commencement of the sampling program to perform ground-penetrating radar (GPR) and/or electromagnetic (EM) field surveys to locate underground structures and utilities in the area of the proposed sampling locations.

2.3 Soil Sampling Procedure

A majority of the surficial soil samples were collected using a Geoprobe direct-push drilling unit operated by Aquifer Drilling & Testing, Inc. (ADT) of Newington, Connecticut. Soil samples were retrieved from the subsurface in Macrocore sampling sleeves. Where conditions prevented use of the Geoprobe, surficial soil samples were collected using a hand auger. Following each use, the hang auger bucket was decontaminated using a solution of water and detergent and rinsed in clean water. Soil samples were immediately transferred to laboratory-supplied glassware and stored on ice under chain-of-custody protocol, for subsequent transport to the laboratory for analysis.

2.4 Soil Analytical Results

Soil samples were analyzed for PAHs via USEPA Method 8270-SIM and/or arsenic via USEPA Method 6000/7000 series methods. Soil analytical results are summarized in **Table 2-1**. Arsenic was reported at concentrations above the approved background screening concentration (20 mg/kg) in five samples analyzed. BAP was reported at concentrations above the PRG of 0.159 mg/kg in six samples analyzed. The laboratory analytical reports from the investigation are included in **Appendix. B**. The results of the remedial design investigation were used to define remediation areas and limits. The planned remediation is described further in **Section 3.0**.

3.0 Remedial Action Plan

This RAP more fully develops the remedial activities that were described in the FFS as Risk Based Option 3. This risk-based remedial plan is designed in a manner that complies with applicable federal and state regulations and also eliminates exposure pathways that potentially create an unacceptable risk (cumulative risk greater than 10^{-6}) for site users.

The planned remediation consists of removing various depths of soil within areas of natural cover (grass and vegetation) to create protective engineered barriers to prevent exposure to impacted soil with chemical concentrations greater than the determined PRGs. The designed depth of soil removal is based upon current and potential future uses of the site. Soil removal will be performed in areas where soil concentrations in samples from within the specified depth of removal exceed site-specific PRGs. Impacts to soil and groundwater exceeding these PRGs may remain beneath these designed depths but, based upon evaluation of the exposure scenarios in the HHRA, these impacts do not pose an unacceptable risk to current or future site users.

The artificial turf fields, as constructed, provide a sufficient barrier to exposure based upon current and potential future uses (i.e., use of the playing fields by student athletes and coaches and maintenance by groundskeepers). Areas paved with asphalt, as constructed, also provide a sufficient barrier to exposure based upon current and potential future uses. Thus, remediation is not planned for the areas covered by asphalt paving or artificial turf. In addition, environmental land use restrictions will be placed on the site. Any intrusive activities that would penetrate through protective engineered barriers (i.e., designed soil barriers, artificial turf fields, and asphalt paved areas) would require implementation of procedures described in the land use restrictions before they could be performed.

Figure 3-1 shows areas to be remediated by soil excavation under this planned remediation. Because groundwater impacts are not observed to be migrating from the site and do not pose a risk to current and potential future site users, active remedial actions (e.g., removal or treatment of the source materials for these impacts) are not included in this RAP.

Waste storage, handling and disposal requirements are detailed below for both solid and aqueous waste streams generated during the remediation. However, the contractor shall specify landfills to be used in the disposal of soil and other solids and treatment facilities for decontaminating aqueous waste streams. These disposal and treatment facilities will be specified in the Contractor's Work Plan which will be submitted to EPA, CT DEEP, and CT DPH for review prior to starting the remedial work. Personal protective equipment used by site workers during the performance of the work described within will be placed in line soil containers for disposal.

3.1 AOC 1 – PCB Remediation Area

3.1.1 Soil Excavation

AOC 1 is located on the central and western portions of the site and is the area where historical placement of PCB-impacted fill has resulted in PCB and other chemical impacts to soil. Remedial

activities in AOC 1 will include removing potentially accessible surficial soils in the areas of Field 2 and surrounding Fields 3, 4 and portions of Field 5. Soils beneath the artificial turf of Fields 3 and 4 and asphalt pavement are considered inaccessible and remediation is not planned for these areas. AOC 1 remedial areas are depicted on **Figure 3-1**. Cross-sections, depicting planned remediation depth and also indicating PCB analytical results collected to date are included on **Figure 3-2** through **Figure 3-4**. Boring logs for the soil borings used to generate these cross-sections are presented in **Appendix C**. Federal PCB Regulations found in 40 CFR Part 761 are applicable within this remediation area.

In the HHRA, all of AOC 1 was included in the evaluation of exposure scenarios for the Athletic Fields – Fill Area. The evaluation of exposure scenarios for current and potential future site users determined cumulative risks to outdoor maintenance workers and construction workers exceeded the goal of 10^{-6} increased risk for exposure to soil impacted by PCBs. The selected remedial action is the creation of engineered protective barriers to prevent these exposures.

Given that elevations of the asphalt parking lot and the artificial turf fields will not be changed, excavation and backfilling to current grades was selected over backfilling over existing grades to construct these barriers. In addition, only limited excavations will be performed within and near natural turf Fields 2 and 5 and grades need to be returned to existing following remediation so that the fields are flat and even. Thus, excavation and backfilling was selected in these areas as well as backfilling over existing grades is not practicable.

To prevent exposures, the following site uses were used to determine the necessary barrier thickness:

- Outdoor maintenance workers occasionally engage in intrusive activities within the natural turf fields which are limited to the upper foot of soil. Construction of a protective barrier 2 feet thick in these fields is considered necessary to prevent exposures.
- Outside of the athletic fields, outdoor maintenance worker activities are limited to care of ground cover (e.g., grass) which includes mowing and application of fertilizer and other chemicals but no intrusive activities. Thus, a protective barrier 1 foot thick in areas outside of the athletic fields is considered necessary to prevent exposures.
- For construction workers, given the current level of site development, typical construction activities to be performed in the future are likely to only include utility installation. A protective barrier 3 feet thick is considered necessary to prevent exposure for these workers. The area considered likely for future utility installation, as shown on **Figure 3-1**, is the area between the west parking lot and the athletic fields.
- The west parking lot will be extended to the south as shown on **Figures 3-1** and **3-5**. Excavation of soil to 2 feet below the final asphalt grade is deemed necessary to be protective of future construction workers as excavation to this depth will allow for removal of asphalt and repair of subbase layers without exposure to impacted soil.

The horizontal extent of the remediation areas were determined based upon evaluation of analytical and boring log data collected during the remedial investigation. The main driver for remediation in this area is the presence of PCBs at concentrations exceeding the PRGs. Figures developed for AOC 1 in the RI report that present the vertical and horizontal distribution of PCBs and other chemicals in soil are presented in **Appendix D**.

The following estimated soil volumes and weights are anticipated to be excavated from each area of the same excavation depth:

Depth Interval (ft)	Soil Removal (ft)	Extent (sq. ft)	Volume (CY)	Tons
0-1	1	19,580	725	1,230
0-2	2	40,060	2,970	5,040
0-3	3	58,620	6,510	11,100
		AOC 1 Total	10,200	17,400

All soil excavated from the 0-3 foot excavation will be stored, handled and disposed of as a PCB Remediation Waste with PCBs ≥50 mg/kg with disposal at a chemical waste landfill as characterization data collected indicate that soil with these PCB concentrations will be encountered within this excavation. A total of approximately 11,100 tons of soil will be disposed of in this manner. Soil from the 1 and 2 foot deep excavations will be stored handled and disposed of as a PCB Remediation Waste with PCBs <50 mg/kg at a non-hazardous waste landfill as the characterization data collected from these areas indicate that PCB impacts to soil are all much less than 50 mg/kg. A total of approximately 6,270 tons of soil will be disposed in this manner. The appropriately permitted landfills for disposal of each of these waste streams will be determined by the selected remedial contractor for the work. The Contractor's Work Plan, which will be provided to EPA, CT DEEP, and CT DPH prior to implementing the remediation, will provide information as to the selected landfills.

3.1.2 Special Procedures for Soil Excavation within AOC 1

Where excavations to a total of 3 feet below ground surface border the artificial turf fields, the total depth of the excavation along this border will be to a depth 1' above the base of the concrete curbing that forms the perimeter of the turf fields. Depth of the curbing will be verified in the field but it is anticipated to extend to a depth of two feet below the surface. Thus, it is anticipated that excavation along the perimeter of the artificial turf fields will be performed to a maximum depth of 1 foot below the ground surface. The excavation will be sloped away from this depth at a 2:1 slope until the desired depth of the excavation is achieved. Excavation in this manner will not undermine the artificial turf fields which are to serve as an engineered barrier to impacted soil beneath. These limitations will not be required in areas where excavations to a total depth of 1 foot below the ground surface are planned because the base of the curbing will not be exposed.

Current surface elevations in areas that are to be paved following the completion of the remedial work (to the west and south of the western parking lot) do not match final design elevations and are typically higher currently then they will be following remediation. To verify sufficient clean backfill is placed under the asphalt (two to three feet as shown on **Figure 3-5**) the base of the excavations in these areas will be surveyed prior to placing backfill to determine that the appropriate depth has been achieved.

Site improvements will be installed along the west perimeter of the western parking lot. These site improvements include chain link fencing, timber guard rails, water fountains, and site lighting. In addition to these improvements, irrigation lines currently installed within the excavation area will also need to be replaced. The designed supports for the fencing and the guard rails will not penetrate to a depth greater than 3 feet and no special excavation work is required to install these improvements

within clean backfill. However, the footings for the site lighting, potable water supply pipes, and irrigation lines will be installed at depths greater than 3 feet. For the potable water supply pipes and irrigation lines, a trench wide enough for repair work to be performed in the future will be excavated to a depth six inches below the base of these utilities . Excavations will also be performed at the locations for site lighting footings such that these site improvements will be installed within clean backfill.

Following the completion of excavation of soil in AOC 1 as determined by post-excavation verification sampling as described in **Section 3.1.3**, a barrier layer will be placed and marked across the entire base of the excavation. This barrier layer will consist of a 16-ounce per square yard non-woven geotextile overlain by bright-orange polypropylene mesh fencing. M_L marks will be affixed at regular intervals over the barrier layer (no less than one mark per every 1,000 square feet or approximately 120). Any utilities installed within the clean backfill (e.g., irrigation lines, electrical conduits, potable water supply lines) will be marked with a detectable marking tape so that these utilities may be more easily located in the future.

3.1.3 Post-Excavation Verification Sampling

Post-excavation sidewall and base samples will be collected from each of the remediation areas following soil removal. Post-excavation sidewall samples will be collected at a frequency of one sample every 30 linear feet of excavation sidewall. Sidewall samples must be ≤1 mg/kg total PCBs for remediation to be considered complete. If the sidewall samples exceed this remedial goal, excavation will be continued into that sidewall to the prescribed depth for the remedial area until the remedial goal is achieved.

Post-excavation base samples will be collected at a frequency of 1 per every 2,000 square feet of excavation. This reduced frequency is prescribed as the soil beneath the excavation areas has already been extensively characterized. No additional remedial actions will be performed based upon base verification sample analytical results as the prescribed depth of the excavation is already protective of human health for current and future site uses.

Verification samples will also be collected from the concrete curbs of the artificial turf fields. The curbing will be sampled at a frequency of one sample per every 30 linear feet of excavation sidewall using the EPA Region 1 Standard Operating Procedure for Sampling Porous Media. If verification sample results are >1 mg/kg total PCBs, the concrete will be double wash/rinsed following the procedures as specified in 40 CFR Part 761 Subpart S. The concrete will be resampled following the decontamination. If verification results are still >1 mg/kg, the concrete will be painted with two coats of epoxy paint of contrasting color and signed with an M_L mark prior to backfilling. At locations where excavation sidewalls contain both concrete curbing and soil (i.e., the western extent of the 3-foot deep excavation along Fields 3 and 4), soil samples will also be collected from the earthen sidewall at a frequency of one sample per every 30 linear feet. However, no additional excavation will be performed based upon the results of these samples.

All confirmatory soil samples will be submitted to a state-certified laboratory under chain-of-custody protocol and analyzed for PCBs via USEPA Method 8082 using Soxhlet extraction. All sample locations and results will be recorded in a manner such that they can be recorded on the land records following the completion of the remediation.

3.1.4 Waste Handling, Storage and Disposal

It is anticipated that excavated soils from AOC 1 will be direct-loaded into lined trucks and transported from the site. Soil loading and transport across the site will be conducted using established construction routes. No soil from these excavations will be stockpiled. If the soil is not live-loaded into trucks it will be placed into lined rolloff containers. The rolloff containers will be signed with the M_L mark and the date on which soil was first placed within the rolloff will be indicated on the M_L mark. Rolloffs not currently in use will be stored within a fenced and controlled area of the site with the cover tarp in place so that rainwater cannot enter the rolloff. Rolloffs will be stored onsite for a period of less than 30 days before they are transported offsite for disposal.

3.1.5 Equipment Decontamination

All equipment that has contacted PCB-impacted soil shall be decontaminated before being moved to another area or removed from the site. All non-porous surfaces (e.g., metal buckets on excavators) will be double wash/rinsed in accordance with the procedures specified in 40 CFR Part 761 Subpart S. Solid wastes generated during excavation or decontamination will be placed in soil disposal containers. Aqueous wastes will be containerized and tested prior to shipping offsite. Aqueous wastes with >0.5 µg/L total PCBs will be sent to an appropriately permitted facility for decontamination. The selected Contractor will provide the name of this facility in their Contractor's Work Plan to be submitted to EPA, CT DEEP and CT DPH prior to performing the work.

3.1.6 Site Restoration

Following receipt of post-excavation sampling results indicating that excavation is complete, restoration of the remediation areas within AOC 1 will be done as indicated on **Figure 3-5**. Fields 2 and 5 are currently active baseball and softball fields, respectively. The proposed remedial actions will disturb portions of each field. Restoration of Fields 2 and 5 will include placement of sod to the outfield areas, placement of infield material (typically clay, sand and silt mix) to any disturbed infield areas and replacement of irrigation components to the field. All field fencing and foul poles will also be replaced as necessary. A detailed description of the baseball and softball field restoration will be included in the remediation bidding documents which will be part of the Contractor's Work Plan.

Field 2 may be restored as an artificial turf field. If this method of restoration is selected, a Modification to this RAP will be submitted to EPA, CT DEEP, and CT DPH for review and approval. This modification, if necessary, will describe soil excavation, handling and disposal for soil to be removed as part of the artificial turf field construction that is not already covered under this RAP. The Modification will also include construction details for the artificial turf field that will demonstrate that the construction is sufficient to provide a barrier to exposure to impacted soil.

Additional improvement will be installed as part of site restoration. Construction of asphalt paving, site lighting, and irrigation lines were previously discussed but other improvements include installation of new or restoration or existing access ways to the athletic fields and installation of new bleachers. Access ways to the athletic fields will be constructed of materials that have greater permeability than asphalt so as to limit runoff but will still be able to support anticipated loads.

3.1.7 Completion - Engineered Barrier

Upon completion of remedial activities in AOC 1, the backfilled clean material, synthetic turf fields, asphalt areas and remaining un-impacted surficial materials will act as a protective engineered

barrier to prevent exposure to remaining impacted soils. The engineered barrier will eliminate human exposure pathways, such as direct contact dermal exposure, ingestion and inhalation.

A long-term groundwater monitoring plan and engineered barrier inspection and maintenance plan will be required following completion of remedial activities to maintain and monitor the effectiveness of the remediation and the integrity of the engineered barrier. An Environmental Land Use Restriction (ELUR) will also be required to be placed on the site to limit any future disturbance of the engineered barrier. Further information pertaining to post-remediation groundwater monitoring, engineered barrier maintenance and an ELUR are included in **Section 7.0**.

3.2 AOCs 2 through 6 – Additional PCB Remediation Areas

3.2.1 Soil Excavation

Remedial activities in AOCs 2 through 6 will include excavation of potentially accessible surficial soils in the area of soil samples SS-248 and SS-249, located in grids R21 and S21, respectively, on **Figure 3-1**. These two planned excavations are located south of the fenced area housing site utilities and along the northern edge West Brothers Brook stream channel. For the HHRA, this portion of the site was included under exposure scenarios for the Athletic Fields – Fill Area. Excavation in these areas will be conducted to remove areas where PCBs were reported at concentrations above PRGs for outdoor maintenance workers. Federal PCB Regulations found in 40 CFR Part 761 are applicable within this remediation area. Other COCs identified within AOCs 2 through 6, arsenic, lead, and ETPH, are found at depth and were not found to pose an excessive cumulative risk under any of the exposure scenarios evaluated. However, the presence of these COCs will be recorded on the land records as part of the Environmental Land Use Restrictions that will be placed on the site.

Soil excavation with restoration to current grades is the selected remedial action as capping cannot be performed within this area as it is within the 100-year flood plain. Soil excavation will be completed at approximately 2 ft bgs. Approximately 100 CY (170 tons) of soil will be excavated from these two excavation areas.

3.2.2 Post-Excavation Verification Sampling

Post-excavation verification sampling for these two small remedial areas will be performed as per 40 CFR Part 761 Subpart O. The verification sampling grid will be oriented on the north-south magnetic axis centered upon the middle of each of the excavations. Remediation sampling will be considered complete when all verification sample results are ≤1 mg/kg total PCBs. All verification samples will be submitted to a state-certified laboratory under chain-of-custody protocol and analyzed for PCBs via USEPA Method 8082 using Soxhlet extraction.

3.2.3 Waste Handling, Storage and Disposal

Based on their location on-site, it is anticipated that excavated soil from these areas will be direct-loaded into trucks and transported to a designated disposal facility. Soil from these excavations will not be stockpiled and may be placed in lined rolloff containers if not live loaded into trucks. Rolloffs will be marked and stored as indicated in **Section 3.1.4**. Excavated soil will be handled as PCB remediation waste <50 mg/kg total PCBs and transported to a licensed facility permitted to accept such waste.

3.2.4 Equipment Decontamination

All equipment that has contacted PCB-impacted soil shall be decontaminated before being moved to another area or removed from the site. All non-porous surfaces (e.g., metal buckets on excavators) will be double wash/rinsed in accordance with the procedures specified in 40 CFR Part 761 Subpart S. Solid wastes generated during excavation work or decontamination will be placed in soil disposal containers. Aqueous wastes will be containerized and tested prior to shipping offsite. Aqueous wastes with >0.5 µg/L total PCBs will be sent to an appropriately permitted facility for decontamination. The selected Contractor will provide the name of this facility in their Contractor's Work Plan to be submitted to EPA, CT DEEP and CT DPH prior to performing the work.

3.2.5 Site Restoration

Following receipt of post-excavation sampling results, these areas will be restored to their current condition. Clean backfill will be placed in the excavation, followed by either placing sod or topsoil and grass seed to restore the landscaped cover. These areas will be restored to their existing grades. No recording on land records will be required as all impacts >1 mg/kg will be removed from the excavation areas.

3.2.6 Completion

Following restoration, the excavation areas will be inspected to determine that ground cover (i.e., grass) is sufficient to prevent erosion of soil into the nearby brook. However, long-term inspection and maintenance of these excavation areas will not be part of the site-wide post-remediation inspection program as all PCB impacts >1 mg/kg will have been removed and the soil backfill placed will not be serving as a protective engineered barrier.

3.3 AOC 8 – Chlordane Remediation Area

3.3.1 Soil Excavation

Remedial activities in AOC 8 will include excavation of potentially accessible surficial soils in the area of soil samples SS-243, SS-244 and SS-279, located along the northern shore of Cider Mill Pond (**Figure 3-1**). This area of the site was included in the evaluation of exposure scenarios in the Southern Area. Excavation in this area will be conducted to remove soil where chlordane was reported at concentrations above the calculated site-specific PRGs for outdoor maintenance workers. The federal PCB regulations do not apply to this excavation area as there have been no detections of PCBs within the excavation area and all PCB detections in surrounding areas were <1 mg/kg.

Soil excavation will be completed to 1 foot bgs and approximately 85 CY (145 tons) of soil will be excavated from this area. Excavation with restoration to current grades is the selected remedial alternative as capping in this area cannot be performed because it is within the 100-year floodplain.

3.3.2 Post-Excavation Sampling

Post-excavation soil samples will be collected from the base and sidewalls of the excavation following soil removal. Five post-excavation soil samples will be collected (approximately one per every 450 SF of excavation) to confirm that the remedial objectives were achieved. The excavation will be expanded if any of the verification sample results exceed the remedial goal. Soil samples will

be submitted to a state-certified laboratory under chain-of-custody protocol and analyzed for pesticides via USEPA Method 8081.

3.3.3 Waste Handling, Storage and Disposal

Excavated soils from this area will be direct-loaded into trucks and transported to a designated disposal facility permitted to accept such waste. If not live-loaded, soil from this excavation may be placed into stockpiles. Stockpiles will be constructed and covered in a manner that prevents runoff of soil during storm events or contact with clean materials beneath the stockpile.

3.3.4 Equipment Decontamination

All equipment that has contacted chlordane-impacted soil shall be decontaminated before being moved to another area or removed from the site. All non-porous surfaces (e.g., metal buckets on excavators) will be brushed clean so that no visible dirt remains. Other materials will either be decontaminated in the same manner or disposed of with the soil from the excavation.

3.3.5 Site Restoration

Following receipt of post-excavation sampling results indicating that remedial goals have been achieved, this area will be restored to its current condition. Clean backfill will be placed in the excavation, followed by either placing sod or topsoil and grass seed to restore the landscaped cover. This area will be restored to its existing grade. Post remediation inspection will be performed to determine that the ground cover has been established and prevents erosion of soil into the nearby surface water body. However, long-term inspection and maintenance of this area will not be performed as the soil cover is not an engineered protective barrier.

3.4 AOC 13 – Arsenic Remediation Area

3.4.1 Soil Excavation

Remedial activities in AOC 13 will include excavation of potentially accessible surficial soils (0 to 1 ft bgs) in five areas in the southeastern portion of the site and one area to the north of Field 1. AOC 13 excavation areas are depicted on **Figure 3-1**. In the HHRA, exposure scenarios for current and future site users were evaluated as part of the Southern Area. For arsenic, a PRG of 2.65 mg/kg was determined for an outdoor maintenance worker. However, this PRG is below the background arsenic concentration of 20 mg/kg which was determined for this portion of the site. Thus, remediation will be performed to remove arsenic concentrations greater than the background concentration. The federal PCB regulations are not considered to be applicable to these excavation areas as PCBs have not been detected in any of the excavation areas or the vicinity at concentrations >1 mg/kg.

Soil excavation will be completed to approximately 1 ft bgs in the areas shown on **Figure 3-1**. Excavation with restoration to current grades was selected as some of the excavation areas are within the 100-year floodplain. Approximately 710 CY (1,200 tons) of soil will be excavated from this area.

3.4.2 Post-Excavation Sampling

Post-excavation soil samples will be collected from excavation sidewalls in this area. Excavation base samples will not be collected as soils greater than 1’ bgs have been sufficiently characterized

during previous investigations in AOC 13. Approximately ten post-excavation sidewall soil samples will be collected to confirm that the remedial objectives were achieved. Soil samples will be submitted to a state-certified laboratory under chain-of-custody protocol and analyzed for arsenic via USEPA Method 6010.

3.4.3 Waste Handling, Storage and Disposal

Based on the location of AOC 13 excavation areas in highly wooded and limited access areas, it is anticipated that excavated soil from these areas will be stockpiled at a designated area on-site prior to transportation to an approved disposal facility permitted to accept such waste.

Additional waste streams generated during remediation in AOC 13 will include trees and shrubbery generated during clearing of the planned excavation areas. Removed trees and shrubbery will be chipped and used for ground cover at the site following completion of excavation activities, or alternatively, may be treated as land clearing waste. If appropriate (based on analytical results), land clearing waste may be processed as mulch and stored by the Town for future landscaping use. CTDEEP promotes such use to reduce the disposal burden on landfills and resource recovery facilities.

3.4.4 Equipment Decontamination

All equipment that has contacted arsenic-impacted soil shall be decontaminated before being moved to another area or removed from the site. All non-porous surfaces (e.g., metal buckets on excavators) will be brushed clean so that no visible dirt remains. Other materials will either be decontaminated in the same manner or disposed of with the soil from the excavation.

3.4.5 Site Restoration

Following receipt of post-excavation sampling results, this area will be restored. Clean backfill will be placed in the excavation followed by topsoil. All tree and brush clearing necessary to complete the remediation will be approved by the Town of Greenwich Tree Warden prior to implementing remedial actions. It is anticipated that landscaping, including the planting of replacement trees, shrubs and ground cover, will be required following remediation. Additional details pertaining to the restoration of wooded areas will be included in the remediation bid documents. Inspections will be performed to determine that all vegetation planted has survived and provides sufficient cover to prevent soil erosion. However, long-term inspection and maintenance will not be performed as the soil fill placed will not serve as an engineered protective barrier.

3.4.6 Underground Storage Tank Removal

A UST was identified in AOC 13 during a previous investigation. During utility clearing for soil boring placement, GPR identified what appeared to be a former fuel oil UST likely associated with one of the former residential properties at the Site. It should be noted that the age, suspected use and anticipated size of this UST precludes any registration with the CT DEEP UST Program. However, removal and any post-removal sampling will be conducted in accordance with CT DEEP guidance for evaluating former USTs. Removal and disposal of this UST will be conducted during remediation efforts in AOC 13. The following general procedure will be followed during the UST removal:

1. The location of the UST will be confirmed;
2. The UST will be uncovered and any remaining liquid will be removed;

3. The inside UST will be cleaned;
4. Removal of the UST;
5. Removal of any impacted soil (if present); and
6. Backfill tank grave and restore area.

An AECOM scientist will be present during the removal to document the conditions of the UST and the tank grave upon removal. If soil impacts are observed, impacted soil will be removed to the extent possible and transported to an approved facility permitted to accept petroleum waste. If impacted soil is excavated, up to four soil samples may be collected from the base and sidewalls of the excavation to confirm the effectiveness of the remedial efforts. Samples will be analyzed for VOCs, PAHs, ETPH and/or metals.

3.5 Benzo (a) Pyrene Areas

3.5.1 Soil Excavation

Remedial activities in the BAP areas will include excavation of potentially accessible surficial soils from three areas on the southern portion of the site and three areas on the northern portion of the site (Fields 6 and 7). In the HHRA, PRGs were developed for BAP in both the Southern Area and Athletic Fields – Non-Fill Area.

BAP excavation areas are depicted on **Figure 3-1**. Excavation in these areas will be conducted to remove areas where BAP was reported at concentrations above the calculated PRG of 0.159 mg/kg. All BAP concentrations determined in soil were less than the CT DEEP Residential Direct Exposure Criteria which was used as a screening standard. However, the HHRA determined a PRG less than this value for the Site Visitor exposure scenario. Thus, BAP impacts greater than the PRG will be excavated from surficial soil (0 to 1 ft bgs). PCBs have not been detected at the area of these excavations at concentrations >1 mg/kg. Thus, the federal PCB regulations are not applicable for these excavations.

Because of the small areas of these excavations, soil will be excavated and then backfilled to current grades with clean materials. Soil excavation will be completed to approximately 1' bgs at all of the locations shown on **Figure 3-1**. Approximately 360 CY (610 tons) of soil will be excavated from these areas.

3.5.2 Post-Excavation Sampling

Post-excavation base and sidewall soil samples will be collected on an as-needed basis where BAP has not been evaluated in soils greater than 1' bgs or at the horizontal extent of the excavation. Approximately fifteen post-excavation soil samples will be collected to confirm that the remedial objectives were achieved. Soil samples will be submitted to a state-certified laboratory under chain-of-custody protocol and analyzed PAHs via USEPA Method 8270 with selected ion monitoring so that reporting limits are low enough to indicate that remedial goals have been achieved.

3.5.3 Waste Handling, Storage and Disposal

Based on the location of the BAP excavation areas in wooded and/or limited access areas, it is anticipated that excavated soil from these areas will be stockpiled at a designated area on-site, prior to transportation to an approved disposal facility permitted to accept such waste.

Additional waste streams generated during remediation in BAP-impacted areas will include trees and shrubbery generated during clearing of some of the planned excavation areas. Removed trees and shrubbery may be saved for replacement following completion of excavation activities, or alternatively, may be treated as land clearing waste. If appropriate (based on analytical results), land clearing waste may be processed as mulch and stored by the Town for future landscaping use.

3.5.4 Equipment Decontamination

All equipment that has contacted BAP-impacted soil shall be decontaminated before being moved to another area or removed from the site. All non-porous surfaces (e.g., metal buckets on excavators) will be brushed clean so that no visible dirt remains. Other materials will either be decontaminated in the same manner or disposed of with the soil from the excavation.

3.5.5 Site Restoration

Following receipt of post-excavation sampling results, these areas will be restored to their current condition. Clean backfill will be placed in the excavation, followed by placing sod or topsoil and grass seed to restore the landscaped cover. Additionally, trees and shrubbery will be replaced to the satisfaction of the Town. Additional details pertaining to the restoration of wooded areas will be included in the remediation bidding documents. These areas will be restored to its existing grade. Inspections will be performed to determine that all vegetation planted has survived and provides sufficient cover to prevent soil erosion. However, long-term inspection and maintenance will not be performed as the soil fill placed will not serve as an engineered protective barrier.

3.6 Post-Remediation Conceptual Site Model

Upon completion of the soil remediation, the significant exposure pathways identified for the site in the HHRA will be eliminated. These include the potential direct exposure migration pathways of dermal contact, ingestion, and inhalation.

In order to monitor the effectiveness of soil remediation and to evaluate groundwater compliance applicable remediation criteria, a post remediation groundwater monitoring program will be implemented following the completion of remedial activities. Post-remediation groundwater monitoring is further described in **Section 7.2**.

An ELUR will be recorded on the land records to ensure that remedial efforts will not be disturbed by future site activities. If disturbance is required, the Town will request a temporary release of the ELUR and will provide soil management plans to CTDEEP. The planned ELUR is described further in **Section 7.3**.

4.0 Remediation Planning

The following sections describe the remediation planning tasks that will be performed prior to and/or in conjunction with the implementation of the remedial action plan.

4.1 Health and Safety

AECOM has prepared a HASP for activities previously conducted at the site which meets the requirements of 29 CFR 1910.120. Prior to initiating remediation activities, the existing HASP will be updated to include activities described in this RAP. AECOM employees will conduct activities in accordance with the HASP. Remediation service providers contracted to the Town will be required to develop and follow their own HASP during all remediation activities. All remediation activities will be conducted by personnel that have completed 40-hour OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) training.

The objective of the HASP will be as follows:

- To protect the health and safety of on-site personnel.
- To protect the public from exposure to materials generated during remediation activities.

The updated HASP will include the following:

- Brief Site Description
- Site Safety Hazards
- Task Hazard Analysis
- Chemical Compounds of Concern
- Project Personnel
- Site Training/Medical Surveillance Requirements
- Personnel Protective Equipment (PPE) Requirements
- Air Monitoring Requirements
- Decontamination Procedures
- Work Zones
- Remediation Derived Waste Disposal/Handling
- Emergency Response
- Special Operations Safety Requirements
- Emergency Resources
- Generic First Aid

4.2 Notification and Certification

In accordance with §761.61(a)(3)(E), this RAP serves as the Notification by the Town to the EPA Region 1 Coordinator and will be provided to state (CT DEEP and CT DPH) and local environmental officials (Town Health Department). Attached in **Appendix E** is a written certification, signed by a representative of the Town, the owner of the property where the cleanup site is located, indicating that all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site, are on file at the location designated in the certificate, and are available for EPA inspection.

4.3 Permits and Approval

The following permits and approvals from federal, state or local governmental agencies and boards will be applied for and received prior to conducting remedial actions at the site:

1. USEPA approval of a Risk Based Corrective Action (40 CFR § 761.61(c)). This Notification serves as the application for this Approval. All required information for the Notification is included within this RAP or the RI report which is attached as Appendix A.
2. Town of Greenwich Inland Wetlands and Watercourses Agency (IWWA) approval for performance of activities that will disturb soil within the 100-foot buffer zone of a delineated wetlands or watercourse.

The site is not currently enrolled in any CT DEEP regulatory program (property transfer program or voluntary remediation program) and environmental conditions are not subject to any orders or directives issued by CT DEEP. Therefore, proposed remediation activities do not require CT DEEP review or approval. However, AECOM and the Town will continue to provide updates and respond to any inquiries by CT DEEP pertaining to remediation activities at the site. The Town will continue to seek concurrence from CT DEEP and CT DPH that the remedial actions are appropriate for the site given its current and potential future uses.

Depending on the total area disturbed during remediation, it may be necessary to register the project for and follow the CT DEEP "General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities." The area to be disturbed as currently designed does not require this general permit but this requirement will be evaluated as the project progresses. In addition, depending on the specifics of the waste staging and handling activities, it may be necessary to register the project for and follow the requirements of the CT DEEP "General Permit for Contaminated Soil and/or Sediment Management." PCB-impacted soil will be stored temporarily onsite in lined containers and a permit for these activities is not anticipated. However, the means and methods for handling of other impacted soil to be excavated will be left to the Contractor performing the work and a soil management general permit may be required.

No work is proposed within the high-water mark of a watercourse or wetlands. Remediation of sediments on the site may be performed but additional investigation and data analysis is being performed. Thus, no permit application will be made to the United States Army Corp of Engineers (USACE) at this time. If remediation of on-site sediments is performed, the need for a permit from USACE to perform the work will be assessed.

4.4 Public Involvement Plan

The CT DEEP RSRs require notice of planned remediation activities to be communicated to the public prior to initiation of remedial activities at sites enrolled in CT DEEP remediation programs or under CT DEEP order. The prescribed process includes a requirement for public notice of remediation activities to be placed in a local newspaper having substantial circulation in the area of a remediation site a minimum of 45 days prior commencement of remediation activities and notification to the Director of Public Health for the town in which remedial activities are planned. Additionally, either notice of the planned remediation activities must be mailed to each owner of record for properties abutting the parcel, at the address for such property on the last-completed grand list for the town or a sign must be placed at the site which is visible from the road which states that an environmental clean-up is in progress at the site. In accordance with the referenced General Statute, if a sign is posted at the site, it will not be less than six feet by four feet, clearly visible from the road and include a name and telephone number of a person who can provide additional information about the project.

Although the planned remediation activities at the site are not subject to any CT DEEP approvals, and, while the site is not currently enrolled in any CT DEEP remediation programs or subject to any orders, public notice of the planned remediation activities will be completed as described above. Also, following submittal of this RAP, the Town will schedule a public meeting to hear questions, comments and concerns pertaining to the planned remedial activities. Following review of this RAP, the USEPA may also conduct a 30-day public notice/comment period. As the site is an active school building and soils having PCB concentrations greater than 1 ppm will remain at the site following remediation, a public outreach program will be required.

AECOM in conjunction with the Town Board of Education (BOE) and Department of Public Works (DPW) have set up a communication system of posting public updates on the BOE website. These updates have been an effective way of communicating investigation activities to the community and will continue to be prepared leading up to and during the remediation activities. Public communications to be performed in support of this RAP are described in **Section 6.2**.

4.5 Dust Control and Air Monitoring

Air monitoring will be performed for the duration of the remedial activities in accordance with the procedures established in the Perimeter Air Monitoring Plan (PAMP) that will be established for the site. The PAMP will be submitted to EPA and CT DEEP prior to the start of remedial actions for review and approval or concurrence. Air monitoring will be conducted to monitor ambient air conditions during soil excavation activities and to protect the surrounding community from any airborne emissions generated as a result of the remedial activities. The air monitoring program will include continuous particulate matter (PM_{10}) monitoring via monitoring stations deployed at select locations along the site perimeter and downwind of the work areas. Proposed air monitoring locations are depicted on **Figure 4-1**. Monitoring results will be reviewed in real-time and compared to airborne dust and particulate action levels established in the PAMP. Monitoring results will be evaluated to determine if dust control measures are required. The air monitoring program will consist of the following:

- Preparation of a Perimeter Air Monitoring Plan (PAMP) which will be submitted to EPA and CT DEEP for review and approval or concurrence.

- Real-time monitoring for PM_{10}.
- Hand-held and observational monitoring for PM_{10} and visible dust (as necessary).
- Continuous meteorological monitoring.
- Baseline monitoring program.
- Quality assurance and quality control (QA/QC).
- Reporting.

If air monitoring indicates that dust control measures are required (i.e., action levels have been exceeded), water will be sprayed on soil in the work area to mitigate airborne migration of particulates. Water will also be sprayed onto high-traffic areas, such as temporary construction/trucking routes in the work areas to mitigate dust emissions caused by vehicular traffic.

4.6 Sedimentation and Erosion Control

Prior to excavation of impacted soil, an erosion and sedimentation control system (hay bales and/or silt fencing) will be installed around the designated work areas. Site erosion and sedimentation controls will be installed and maintained in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control. Typical erosion and sedimentation control details that may be employed are shown on **Figure 4-2**. Sediment and erosion control plans will be developed in detail in the application for a permit from the Town IWWA. Copies of the approved permit application will be provided to federal, state, and local regulatory authorities.

4.7 Decontamination

Items requiring decontamination during and following the completion of the remedial activities include heavy equipment used to perform the remedial actions such as soil excavators and backhoes, and any equipment used for transporting impacted material across the site, such as loaders and dump trucks. All decontamination activities will be conducted in accordance with §761.79(c)(2). Non-porous metal parts of equipment that have contacted soil classified as PCB Remediation Waste will be double washed/rinsed in accordance with the procedures specified in 40 CFR Part 761 Subpart S. The decontamination area will be located as to facilitate ease of movement and access for on-site equipment. The proposed location of the decontamination area is depicted on **Figure 4-1**.

All vehicular traffic entering and leaving the site will utilize the established construction entrance where an anti-tracking pad will help to prevent tracking of material from the work area onto the street. The anticipated construction entrance and trucking route is shown on **Figure 4-1**.

4.8 Site Restoration

Following completion of the remedial activities, the site will be restored to conditions as indicated on **Figure 3-5** and to the satisfaction of the Town per the remediation contractor bidding documents. Restoration activities will include:

- Placement of clean backfill material into the excavated areas. Designated excavation areas will be backfilled to existing grade with clean back-fill imported to the site. Excavation areas to be paved will be backfilled to the designed grade with clean backfill and suitable subgrade and then paved in accordance with the contract documents.
- Placement of topsoil and grass. Proposed excavation areas on the northern portion of the site (Fields 6 and 7), the central portion of the site (Fields 3 and 4) and surrounding the football stadium (Field 1), currently have grass cover. These areas will be restored to their current conditions with either sod or grass seed.
- Planting of trees and shrubbery. Proposed excavation areas on the southeastern portion of the site are located in heavily wooded areas. These areas will be restored by placement of new plantings to the extent practicable. The extent of restoration in these areas will ultimately be determined by the Town and described in the remediation bidding documents. Additional plantings will be performed around the perimeter of the west parking lot.
- Restoration of Field 2. Field 2 is currently an active baseball field including a diamond and outfield. The proposed remedial activities will disturb a large portion of this area. Restoration of Field 2 will include placement of sod in the outfield areas, placement of infield material (typically clay, sand and silt mix) to any disturbed infield areas and repair of any damages drainage and sprinkler components to the field. All field fencing and foul poles will also be replaced as necessary. Field 2 may also be restored with artificial turf. A detailed description of the baseball field restoration will be included in the remediation bidding documents.

4.9 Site Security

Temporary fencing will be used to secure the work area(s) during remediation activities. Signage will be used to alert the public to the site conditions, the nature of the project activities and to provide contact information. Updates pertaining to remediation activities, including closure of the school athletic fields during the work, will be also be communicated to the community via public updates posted on the Greenwich Public Schools website and distributed via electronic mail, as was done during previous environmental work.

4.10 Demobilization

Environmental contractor equipment, excess materials and wastes shall be removed from the site following completion of soil remediation activities during each phase.

5.0 Sampling and Analysis Plan

Soil sampling during and following remediation activities will include post-excavation soil quality sampling, sampling of clean fill materials prior to their delivery to the site and waste characterization sampling for soil disposal. The sampling and analysis plan will be submitted to the USEPA in a Quality Assurance Project Plan (QAPP) for review and approval prior to implementation of remediation activities.

5.1 Post-Remediation Soil Quality Evaluation Sampling

Post-remediation soil quality evaluation sampling will be conducted as described in **Section 3.0** of this RAP.

5.2 Clean Fill Sampling

Prior to delivery of imported backfill materials to the site, representative samples will be collected and analyzed. The sampling frequency for clean fill materials to be brought on site will be one sample per every 2000 CY. Based on the anticipated volumes of material to be imported, approximately seven to eight composite samples of imported material will be submitted under chain of custody for laboratory analysis. As an alternative, the suppliers may issue recent analyses for materials from the same source. All data will be reviewed and approved prior to delivery of off-site materials to the site.

Clean fill material will be analyzed for the following parameters: VOCs by USEPA method 8260, semi-volatile organic compounds (SVOCs) by USEPA Method 8270, ETPH, pesticides by USEPA Method 8081, PCBs by USEPA method 8082 and CT DEEP metals by USEPA Method 6000 and 7000 series. Synthetic precipitation leaching procedure (SPLP) analyses will also be conducted on select samples based on the total mass analytical results.

5.3 Waste Characterization Sampling

Waste characterization sampling will be performed when necessary to supplement existing information and data for the purposes of satisfying the permit requirements of the disposal facilities. Sampling frequency and analytical parameters/procedures will be in accordance with these disposal facilities requirements. Waste characterization samples will be submitted under chain of custody for laboratory analysis.

5.4 Sampling Protocol

The typical equipment requirements and collection procedures used to sample soil are described below.

<u>Equipment</u>

- Stainless Steel (SS) Trowels, Spoons, or Scoops
- SS Bowls
- Sample Containers (provided by the laboratory)

Sample Collection Procedures

Soil samples will be collected according to the following procedure. Changes to these procedures will be recorded in the field logbook.

1. Decontaminate sampling equipment.

2. Record the weather conditions and other notable site conditions.

3. Sketch and record the sampling location and conditions on the site map and in the field notebook.

4. Photograph the sampling location and conditions.

5. Collect the fill sample in a manner that is appropriate for the depth of the samples and the physical access.

6. Samples for the analysis of VOCs should not be composited or mixed. These samples should be placed into sample containers as quickly as possible with minimal disturbance. Sample containers should be filled to minimize headspace.

7. Mix the remainder of the sample. Fill containers at least ¾ full for all parameters.

8. Immediately label and refrigerate/ice the sample.

9. Record GPS location of sample and record in logbook.

10. Submit the samples to the laboratory under chain of custody protocol.

Documentation

The following information is typical of that documented and reported in the field logbook when collecting confirmatory samples:

- Description of the sample that is being submitted to the laboratory including the physical characteristics of the sample (e.g., color, odor, and texture), and any unusual characteristics.

- Type of sample (grab or composite).

- Sample designation and location.

5.5 Laboratory Analysis

All proposed laboratory analyses will be performed by a laboratory certified to perform such analyses in the State of Connecticut. Targeted laboratory reporting limits will be below applicable remediation, verification, and/or disposal criteria and may be considered unusable if target reporting limits are not met. The Standard Operating Procedures (SOPs) laboratory protocols specific to the laboratory subcontractor will be applied. Details regarding the laboratory analytical methods will be provided in the QAPP that accompanies this project.

5.6 Quality Assurance/Quality Control

The analytical laboratory will be required to perform all internal quality control procedures that are specified in the analytical methods. These include, but are not limited to:

- Blanks – The laboratory will analyze method blanks prepared and analyzed with each set of samples. These are a check of the accuracy of the system and indicate if there are positive biases.

- Calibration Checks – These are standards, generally from a different source than the calibration standards that are analyzed along with the samples. The purpose of the calibration checks are to determine if the analytical equipment is functioning properly.

Field QA/QC samples will be submitted along with the laboratory samples. A description of each of the sample QC types is described below:

- Field duplicates – Field duplicates provide an indication of the overall precision of the field sampling and analytical method. Approximately one field duplicate will be collected for every 20 samples analyzed.

- Matrix Spike/Matrix Spike Duplicates – Matrix spike and matrix spike duplicate (MS/MSD) samples are used to evaluate the performance of an analytical method to the specific sample matrix being tested. Approximately one MS/MSD sample will be collected for every 20 samples analyzed.

- Equipment Blank – Equipment blanks are used to evaluate decontamination procedures for field sampling equipment. Preparation of an equipment blank will include pouring analyte-free water over/through decontaminated field sampling equipment and containerizing the rinseate for analysis.

Upon receipt of the laboratory data, AECOM will perform a review of the data to evaluate its usability. This will include checking of such items as:

- Holding times;

- Field and laboratory blanks;

- Field and laboratory duplicates;

- Surrogate recoveries, if applicable;

- Calibration checks;

- Spike recoveries, if applicable, and

- Analytical method detection limits (MDLs).

Items such as gas chromatography/mass spectrometry (GC/MS) tuning, initial calibrations, calculations, and raw data will be checked by the laboratory. The SOP laboratory protocols for the project analytical laboratory will be applied.

6.0 Field Documentation and Community Interaction

AECOM, on behalf of the Town, will be on-site during the planned remediation activities to maintain a record of the activities performed, to conduct perimeter air monitoring, and to perform verification sampling. AECOM will be responsible for documenting that the work is completed in accordance with the specifications of this RAP and for providing this information for inclusion in the Remedial Action Report (see **Section 7.1**) to be completed after the completion of remediation activities.

6.1 Field Documentation

The following list identifies the specific documentation and reporting requirements that will be required for this project.

- Documenting completion of remedial actions at each area, including verification sampling as described in this RAP;
- Surveying, performed by a Connecticut licensed surveyor, of all verification sample locations and the extent and limits of all excavations;
- Maintaining an accounting of materials entering and leaving the site, including waste soils and other materials;
- Photographic documentation of completed excavations, completed remediation areas, and other pertinent observations;
- Documenting that all work activities are conducted in accordance with the HASP and the PAMP, including perimeter air monitoring and any implemented dust control measures;
- Documenting segregation, storage, and accounting of wastes that may be stockpiled at the site;
- Documenting and reporting of any disruption/damage to utility structures;
- Documenting that erosion control and site security measures are installed prior to commencing excavation activities and adequately maintained throughout the project;
- Maintaining transportation/disposal documentation including waste manifests and certifications; and
- Documenting decontamination prior to demobilization.

6.2 Community Interaction

Project updates will be prepared and submitted to the community, EPA, CT DEEP, and CT DPH prior to implementing remedial activities, during the performance of the work, and following the completion of each phase of the remediation. These project updates will be distributed in the same manner as project updates already prepared and disseminated for the remedial investigation performed at the site. The project updates will include a summary of activities to be performed, work completed to date, and a description of the schedule moving forward.

The community will also be provided with a central point of contact during the remediation. The point of contact, the website established for the project, will give the community an opportunity to post any

questions, comments, or concerns they have concerning the implementation of the remediation project. Concerns raised on the website will be discussed during daily safety meetings held with the remediation contractor on the site and documented in field records. The Town will work to post written responses to comments on the website as received.

7.0 Post-Remediation Activities

Post remediation activities to be performed include:

- Preparation and submittal of a Remedial Action Report within 60-days of completion of all remediation activities at the site;
- Inspection and maintenance of all engineered barriers either constructed during remediation or already in place (e.g., artificial turf fields 3 and 4);
- Groundwater monitoring performed to verify that groundwater impacts measured at the site are not migrating offsite;
- Establishing Environmental Land Use Restrictions for the site; and
- Establishing a Financial Surety in accordance with federal and state regulations.

The post-remediation activities described below are for the entire site and include activities required to be performed following the separate MISA remediation. No separate inspection, maintenance, or monitoring will be required for the MISA remediation.

7.1 Remedial Action Report and Record Keeping

A Remedial Action Report (RAR) will be prepared and submitted to EPA, CT DEEP, and CT DPH within 60 days of the completion of all remedial activities at the site. At a minimum, this RAR will include a short narrative of the project activities with photo-documentation, verification sample results in tables with figures depicting sample locations, the quantities for each waste stream generated for disposal and associated waste manifests and copies of certificates of disposal for PCB Remediation Wastes. The RAR will also include:

- Record site plans(s) showing the surveyed limits of the completed excavation areas;
- Complete laboratory reports;
- Documentation of all materials incorporated into the project (sand, topsoil, etc.) including any testing data associated with these materials; and
- Documentation related to the geotextile used to line excavations as to liner manufacturer's and the liner installer's quality control for the liner material and the stitched seams made to secure the liner; and

A central file location for storage of all records and documents required by 40 CFR Part 761 and state regulations will also be established at the Town of Greenwich Department of Public Works. The location of these files will be provided in the RAR prepared for the site. These records will include information required under Subparts J and K of 40 CFR Part 761 and other information pertinent to the remedial efforts. The files will be made available to EPA for inspection and any time and will be maintained until EPA indicates in writing an alternative disposition for these records.

7.2 Engineered Barrier Inspection and Maintenance

An Inspection, Maintenance, and Monitoring Plan (IMMP) will be prepared and submitted to EPA for review and approval with the RAR. The IMMP will detail post-remediation inspection and

maintenance procedures for the engineered barrier and groundwater monitoring (discussed further in **Section 7.3**) for the duration of time that impacted soil remains in place. It is anticipated that the engineered barrier will be maintained and inspected twice annually. This barrier will include all surface materials over the area designated as AOC 1 such as the asphalt already in place and to be installed within the western parking lot, artificial turf fields 3, 4, and 6, natural turf athletic fields 2 and 5, and the clean fill used in other excavated areas.

Inspections will include an evaluation of surface conditions and not any deterioration of the surface materials (e.g., failing asphalt or eroded soil cover). Inspections will not be invasive and no evaluation of the geotextile barrier installed at the base of the clean fill materials placed is anticipated. Inspections will be documented on pre-prepared forms and pictures representative of site conditions will be maintained electronically. Any necessary repairs or issues with the engineered barrier will be recorded during inspection. Repairs will be completed and the extent of the repairs will be recorded during the following inspection event.

Reports, including filled out forms and photographs documenting the condition of the engineered barrier, will be prepared annually. These reports will be maintained in the files for the GHS project and made available for inspection by federal, state, and local agencies when requested.

7.3 Groundwater Monitoring

At a minimum, post-remediation groundwater monitoring will comply with the requirements of the State of Connecticut Regulation of Department of Energy and Environmental Protection Section 22a-133k-3. This will measure the effectiveness of the remediation and document that groundwater impacts are not migrating offsite.

The details of the post-remediation groundwater monitoring plan will be provided in the IMMP submitted with the RAR. It is anticipated that post-remediation monitoring will begin with a comprehensive analysis of all of the site wells and that the number of wells sampled and the types of analyses used will reduce as the post-monitoring period progresses. However, groundwater monitoring will be performed for as long as impacted soil remains at the site. The likely post-remediation groundwater monitoring program will include:

- Quarterly for the first year of the post-remediation period and will include sampling of all 29 site monitoring wells with analysis for ETPH, PAHs via SIM, Metals, VOCs, and PCBs via homologs.
- Semi-annual groundwater monitoring for the following four years which will include the sampling of approximately 25 site wells with analysis for PAHs via SIM, Metals, and PCBs via homologs.
- Annual monitoring for the next 5 years with sampling for the same analytical parameters in approximately 20 monitoring wells.

If groundwater impacts at the site are unchanged during the first 10 years of monitoring, groundwater monitoring will be performed for the duration of time that impacted soil is left in place at the site and will be performed every two years at wells to be selected.

Reports documenting results of chemical analyses and determination of groundwater elevation contours will be prepared and submitted to the regulatory agencies on an annual basis. All records associated with groundwater monitoring will be maintained in the central file location established for

the project. Any change in the groundwater monitoring program (e.g., a request to reduce from quarterly monitoring to semi-annual monitoring with a reduced number of wells sampled and fewer chemical parameters tested) will be submitted in writing as part of the annual reports for review and approval by EPA and concurrence from CT DEEP.

Given that groundwater monitoring over the last seven quarterly monitoring periods indicates that groundwater impacts and flow conditions are stable, no significant changes in these measured parameters are expected. However, in the case that a change in the groundwater conditions at the site is noted during monitoring, a report will be prepared and submitted to the regulatory agencies within 30 days of receipt of the data indicating the change in site conditions.

Changes that might require this type of reporting is receipt of data indicating the migration of chemical impacts beyond the currently established limits (but not necessarily offsite migration) or significant changes in groundwater elevation contours indicating a change in groundwater flow direction at the site. Changes in groundwater elevations and hydraulic gradients have been measured at the site and are expected due to seasonal variation (e.g., changes caused by periods of high precipitation) and, if changes in general groundwater flow direction is not observed, will not require special reporting. In addition, groundwater analytical data collected to date have had sporadic detections of metals exceeding the CT DEEP Surface Water and Groundwater Protection Criteria. However, these detections have not indicated a consistent impact to groundwater or a groundwater plume. Thus, sporadic detections of metals exceeding screening criteria are anticipated and will not require special reporting to the regulatory agencies.

The report provided to regulators when a change in site conditions is identified will include analytical data collected, figures showing hydraulic gradients and indicate changes in flow patterns observed, and any proposed changes in the groundwater monitoring program such that sufficient monitoring is performed to continue verifying that groundwater impacts are not migrating offsite. Active remediation of groundwater impacts may not be required, especially if groundwater impacts are not migrating offsite. However, active remediation will be evaluated, if necessary.

7.4 Environmental Land Use Restriction

Environmental Land Use Restrictions consistent with the requirements of Section 22a-133q-1 of the Regulations of Connecticut State Agencies (RCSA) will be filed on the property land records following the completion of remedial activities. The filing on the land records will indicate:

- Areas of the site where clean backfill materials have been placed and the depth of these clean materials;
- Areas of the site where impacts remain;
- Restrictions on intrusive activities for all areas of the site. These restrictions will include:
    - Procedures for notifying regulatory agencies that the engineered barriers will be breached to perform construction or other activities;
    - Health and safety requirements to be protective of site workers, site users, the surrounding community, and the environment to perform intrusive work; and
    - Soil handling and disposal requirements.

Any use or pumping of groundwater at the site will be prohibited. In lieu of following specified soil handling and disposal requirements, the Town may perform a site investigation to generate sufficient

data to support development of a remedial action plan in support of a construction project or other activity. The remedial action plan would be submitted to federal and state authorities for review and approval or concurrence with the proposed activities.

A certification will be submitted to EPA from the Town indicating that the land use restrictions have been filed on the property. The land use restrictions will be recorded on the deed for the property and records of these restrictions will be maintained in the central file for the remediation project.

7.5 Financial Surety

A financial surety plan will be established pursuant to the Code of Federal Regulations Chapter 40 Subsection 761.65 sections (f) and (g). The surety will consider the post-remediation costs associated with maintaining and monitoring the remediation zones. Costs for artificial turf field maintenance and replacement, annual asphalt maintenance, and post-remediation groundwater monitoring will be accounted for in the post-closure costs based on quotes from subcontractors and the Greenwich DPW - Highway Division.

8.0 Schedule

The following section summarizes the anticipated schedule for remedial activities. Note that a majority of remedial activities will take place during high school summer breaks. However, planning, design, notification and reporting activities may occur throughout the year.

2013	
Draft RAP made public to community	September
RAP Public Meeting	September
Second revision based on public comments	October
Submit Final RAP to USEPA	November
2014 – Phase I	
Remedial planning and design	November – February
Bidding and Contracts	February - June
Initiate remediation	June (start of summer break)
Complete first phase of remediation	August (start of school and fall athletics)
Project update	September
2015 – Phase II	
Remedial planning and design	November 2014 - February
Bidding and Contracts	February - June
Initiate remediation	June (start of summer break)
Complete second phase of remediation	August (start of school and fall athletics)
Project update	September
Prepare Final Remedial Action Report	September - October

It is anticipated that remediation within AOC 1 at the border with the western parking lot will be performed during the first phase of remediation so that the additional parking may be established. Remediation of arsenic impacts on the south side of the site and other select areas will also be performed. The remainder of the remediation within AOC 1 will be performed during the second phase of the remediation as well as other remediation areas that were not completed during the first phase.

9.0 References

AECOM, 2013a. *Remedial Investigation Report*. Greenwich High School Property. Greenwich, CT. AECOM. February 2013.

AECOM, 2013b. *Human Health Risk Assessment*. Greenwich High School Property. Greenwich, CT. AECOM. February 2013.

AECOM, 2013c. *Focused Feasibility Study*. Greenwich High School Property. Greenwich, CT. AECOM. April 2013.

AECOM, 2013d. *Screening Level Ecological Risk Assessment*. Greenwich High School Property. Greenwich, CT. AECOM. February 2013.

DTC, 2011, *Phase I Environmental Site Assessment*, Greenwich High School, 10 Hillside Road, Greenwich, CT. DTC. August 2011.

EPA. 2002c. Draft guidance for evaluating the vapor intrusion to indoor air pathway from groundwater and soils (Subsurface Vapor Intrusion Guidance). Federal Register Notice – Nov 29, 2002.

Tables

Table 1-1
Areas of Concern and Chemicals of Concern Summary Table
Remedial Action Plan

AOC Name	AOC Description	Location	Constitents of Concern (COCs)	Impacted media	Status of AOC	Remediation Anticipated	Remediation Notes
AOC 1 Fill Area	Fill Area - impacted fill used for grading and filling of former wetlands area prior to construction of the high school (current location of athletic fields and western parking area).	Fields 2, 3, 4, 5, 6 and west parking lot	PCBs Pesticides ETPH Metals PAHs VOCs	Soil	COCs reported at concentrations above RDEC. PCBs reported at concentrations above RDEC and federal regulatory limits, will require remediation.	Yes	Federal PCB regulations limit remedial options for PCBs to excavation and disposal or engineered barrier.
AOCs 2 - 6 15,000-gallon UST 1,000-gallon UST 200-gallon AST Boiler Room Wing B Transformers	15,000-gallon #2 fuel oil UST services boiler room.	Outside boiler room	ETPH PAHs Metals PCBs	Soil	ETPH, arsenic and lead reported at concentrations above RDEC. PAHs reported at concentrations above laboratory reporting limits (V21-SB345 5-6'). PCBs reported above RDEC at SS-248 and SS-249.	Yes	V21-SB345 is located within the electrical substation which is enclosed with a chain link fence. Impacted soils are inaccessible beneath a paved surface. Remediation plan includes soil excavation in areas of SS-248 and SS-249, which had previously been included in the Non-AOC area.
	1,000-gallon diesel UST services the emergency generator in the transormer area	Adjacent to transformer area					
	200-gallon diesel AST services the emergency generator in the transformer area	Transformer area					
	Boiler room located in basement of Wing B. Serviced by 15,000-gallon UST (AOC 2). Release of 75-100 gallons of fuel oil reported.	Basement of Wing B					
	Transformers located within cages area west of Wing B. Reportedly do not contain PCBs	Transformer area					
AOC 7 Floor Drain, Oil/Water Separator and Hydraulic Lift	Hydraulic lift, oil/water separator and floor drain located in the Science and Technology Wing. Chemical storage also	Science and Technology Wing	None	Soil	Remediation of impacts within AOC 7 to be performed during MISA construction.	Yes	PAHs reported at concentrations above the RDEC in the 2-3' bgd sample collected from boring AH23-SB204. AH23 to be removed during MISA construction project.
AOC 8 Pesticides	Pesticides and herbicides may have been applied during groundskeeping and maintenance activities	Southern portion of Site	Pesticides	Soil	Pesticides and arsenic reported above RDEC in surficial soil samples collected from this area. Remediation required for AOC-8.	Yes	Pesticides identified in shallow soils (0-1' bgd).
AOC 9 Former Residences	Prior to construction of the high school, several residences were located on the property. Residences were demolished prior to high school construciton. USTs associated with the residential properties may remain/were not properly abandoned.	Site-wide	None	Soil	Remediation of impacts within AOC 9 to be performed during remediation of other AOCs.	No	PCB and arsenic impacts to be remediated under separate AOCs as they are not believed to be due to activities within AOC 9. Removal/abandonment of fuel oil UST will be completed and planned for as part of AOC 13.
AOC 10 Site Groundwater	Groundwater has been impacted by PCBs and PAHs within AOC 1. Sporadic detections of VOCs, ETPH, and Metals also found in groundwater. Offsite migration of groundwater impacts is not observed.	Site-wide	ETPH PCBs PAHs Metals VOCs	Groundwater	ETPH, metals, PAHs and PCBs reported above GWPC and/or SWPC.	No	Impacts to groundwater do not appear to be migrating offsite. Long-term monitoring of groundwater will be performed to verify that site conditions do not change.
AOC 13 Southern Arsenic Area	Arsenic detected surrounding the southern boundary of West Brothers Brook to East Putnam Avenue and south of the high school building.	Southern portion of Site	Metals	Soil	Arsenic reported above RDEC. Remediation necessary in this area to remove arsenic 'hot spots'	Yes	Background arsenic determination for non-fill areas indicate background concentration of arsenic is 20 mg/kg. Remediation will be performed to remove shallow arsenic concentrations greater than the background level.
AOC 14 Parking Lots	ETPH and PAHs have been reported in soil samples collected from beneath the northern and eastern parking lots. ETPH also reported in soil samples collected from the football stadium area.	Northern and eastern paved parking areas. Southern football stadium area	ETPH PAHs	Soil	ETPH and PAHs reported above the RDEC. Impacts potentially related to asphalt in sample.	No	Limited ETPH and PAHs above RDEC at borings D10, AH29 and AW32 which are located beneath the paved asphalt surface and are not accessible.
Non-AOC	Includes areas where soil borings were advanced for additional Site characterization information. Locations are not associated with a specifice AOC.	Site-wide	PCBs ETPH	Soil	ETPH and PCBs reported at concentrations above the RDEC in soil samples collected from the non-AOC area.	Yes	Remediation of ETPH and PCBs to be performed.

Notes:

RDEC, GWPC, and SWPC are recommended screening criteria for COCs

Abbreviations:

AST - Aboveground Storage Tank
COCs - Constituents of Concern
ETPH - Extractable Total Petroleum Hydrocarbons
GWPC - Groundwater Protection Criteria
PAHs - Polycyclic Aromatic Hydrocarbons
PCBs - Polychlorinated Biphenyls
R DEC (RDEC) - Residential Direct Exposure Criteria
SWPC - Surface Water Protection Criteria
UST - Underground Storage Tank
VOCs - Volatile Organic Compounds

AECOM

Table 1-2
Calculated Site-Specific PRGs for COCs Based on 10^{-6} Cumulative Risk Level and Target HI of 1
Remedial Action Plan

Greenwich High School
Greenwich, CT

						Site-Specific			Calculated PRG Based on Cancer Effects (b)			Calculated PRG Based on Noncancer Effects (b)
Exposure Area	**Media**	**COC**	**Receptor (a)**	**CAS**	**Units**	**EPC**	**Total Potential ELCR**	**Total Potential HI**	**Target ELCR= 1E-6**	**Target ELCR=1E-5**	**Target ELCR=1E-4**	**Target HQ=1**
Athletic Fields - Fill Area	Surface Soil	Total PCB Aroclors	Maintenance Worker (Outdoor)	RACALC-PCB	mg/kg	4.29E+00	3.46E-06	2.42E-01	1.24E+00	1.24E+01	1.24E+02	1.77E+01
	Combined Soil	Total PCB Aroclors	Construction Worker	RACALC-PCB	mg/kg	1.65E+02	1.13E-05	1.97E+01	1.47E+01	1.47E+02	1.47E+03	8.39E+00
	Groundwater	Total PCB Homologues	Construction Worker	RACALC-PCB-H	ug/L	1.64E+01	3.83E-08	1.92E+00	4.28E+02	4.28E+03	4.28E+04	8.56E+00
Athletic Fields - NonFill Area	Combined Soil	Arsenic	Construction Worker	7440-38-2	mg/kg	5.73E+02	2.25E-05	3.49E+00	2.55E+01	2.55E+02	2.55E+03	1.64E+02
	Combined Soil	Benzo(a)pyrene	Construction Worker	50-32-8	mg/kg	9.68E+00	2.36E-06	NC	4.11E+00	4.11E+01	4.11E+02	NC
	Surface soil	Benzo(a)pyrene	Site Visitor	50-32-8	mg/kg	7.56E-01	4.74E-06	NC	1.59E-01	1.59E+00	1.59E+01	NC
Southern Area	Surface soil	Arsenic	Maintenance Worker (Outdoor)	7440-38-2	mg/kg	1.89E+01	7.13E-06	4.44E-02	2.65E+00	2.65E+01	2.65E+02	4.27E+02
	Surface soil	Benzo(a)pyrene	Site Visitor	50-32-8	mg/kg	4.05E-01	2.54E-06	NC	1.59E-01	1.59E+00	1.59E+01	NC
	Surface soil	Chlordane	Maintenance Worker (Outdoor)	57-74-9	mg/kg	1.24E+01	1.15E-06	1.84E-02	1.08E+01	1.08E+02	1.08E+03	6.74E+02

Notes:
CAS - Chemical Abstracts Service.
COC - Compound of concern identified in the human health risk assessment.
ELCR - Excess Lifetime Cancer Risk.
EPC - Exposure point concentration.
mg/kg - milligram per kilogram.
NC - Not Calculated.
HI - Hazard Index.
HQ - Hazard Quotient.
PRG - Preliminary Remedial Goals.
ug/L - microgram per liter.
(a) Selected receptors have the highest ELCR/HI for those compounds selected as COCs for multiple receptors.
(b) The PRG is calculated using the following equation:

$$PRG = \frac{\text{Target ELCR or HQ} * \text{EPC}}{\text{Total Potential ELCR or HQ}}$$

Shaded value equals the selected PRG concentration based on the lower of the PRGs calculated based on cancer and noncancer effects.

Table 2-1
Remedial Design Investigation Soil Analytical Data
Remedial Action Plan

Location ID Depth Interval Sample ID Sample Date SDG	RES DEC	PRG	34-SB316A 0-1 34-SB316A(0-1)_062513-1 6/25/2013 SB72106	34-SB316B 0-1 34-SB316B(0-1)_062513-1 6/25/2013 SB72106	34-SB316C 0-1 34-SB316C(0-1)_062513-1 6/25/2013 SB72106	AH29-SB231A 0-1 AH29-SB231A(0-1)_062513-1 6/25/2013 SB72106	AN19-SS117A 0-1 AN19-SS117A(0-1)_062513-1 6/25/2013 SB72106	AN19-SS117A 0-1 AN19-SS117A(0-1)_062513-2 6/25/2013 SB72106	AQ18-SS144A 0-1 AQ18-SS144A(0-1)_062513-1 6/25/2013 SB72106	AX31-SS232A 0-1 AX31-SS232A(0-1)_062513-1 6/25/2013 SB72106	BB20-SS139A 0-1 BB20-SS139A(0-1)_062513-1 6/25/2013 SB72106	BB31-SS230A 0-1 BB31-SS230A(0-1)_062513-1 6/25/2013 SB72106	BC22-SS161A 0-1 BC22-SS161A(0-1)_062513-1 6/25/2013 SB72106
PAHs (ug/Kg)													
Acenaphthylene	1000000	NE	NA	NA	NA	<71	<73	<70	<73	<78	**140**	<68	<73
Anthracene	1000000	NE	NA	NA	NA	<71	<73	<70	<73	<78	**330**	<68	<73
Benzo(a)anthracene	1000	NE	NA	NA	NA	**77**	<73	<70	<73	<78	**590**	<68	**93**
Benzo(a)pyrene	1000	159 [1]	NA	NA	NA	**79**	**75**	<70	<73	<78	**510**	<68	**90**
Benzo(b)fluoranthene	1000	NE	NA	NA	NA	**110**	**94**	**73**	<73	<78	**680**	**83**	**120**
Benzo(g,h,i)perylene	*1000000 (g)*	NE	NA	NA	NA	<71	<73	<70	<73	<78	**310**	<68	**79**
Benzo(k)fluoranthene	8400	NE	NA	NA	NA	<71	<73	<70	<73	<78	**240**	<68	<73
Chrysene	*84000 (g)*	NE	NA	NA	NA	**74**	<73	<70	<73	<78	**560**	<68	**87**
Dibenzo(a,h)anthracene	*1000 (g)*	NE	NA	NA	NA	<71	<73	<70	<73	<78	**81**	<68	<73
Fluoranthene	1000000	NE	NA	NA	NA	**91**	**110**	<70	<73	<78	**1300**	**110**	**160**
Fluorene	1000000	NE	NA	NA	NA	<71	<73	<70	<73	<78	**100**	<68	<73
Indeno(1,2,3-cd)pyrene	*1000 (g)*	NE	NA	NA	NA	<71	<73	<70	<73	<78	**390**	<68	**79**
Phenanthrene	1000000	NE	NA	NA	NA	<71	<73	<70	<73	<78	**880**	<68	<73
Pyrene	1000000	NE	NA	NA	NA	**78**	**97**	<70	<73	<78	**1100**	**92**	**140**
Total PAHs	NE	NE	NA	NA	NA	**509**	**376**	**73**	<0	<0	**7211**	**285**	**848**
Metals (mg/Kg)													
Arsenic	10	20 [2]	**6.32**	**4.12**	**33.6**	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

This is a summary table. Only detected chemicals are presented.

<0.010 = Not detected above given laboratory reporting limit.

Bold = Detected above reporting limit

Bold Italics = Not detected value exceeds criteria

Blue highlighted cells exceed RES DEC.

Orange highlighted cells exceed PRGs.

RES DEC = Residential Direct Exposure Criteria.

PRG = Preliminary Remedial Goals.

NE = Criteria has not been established.

NA = Not analyzed for this constituent.

ug/kg = microgram per kilogram

mg/kg = milligram per kilogram

Italics requires CT DEEP approval

[1] Based on Human Health Risk Assessment criteria (AECOM, 2012).

[2] Based on CTDEEP-approved background concentration for arsenic.

Table 2-1
Remedial Design Investigation Soil Analytical Data
Remedial Action Plan

Location ID Depth Interval Sample ID Sample Date SDG	RES DEC	PRG	C11-SS01A 0-1 C11-SS01A(0-1)_062513-1 6/25/2013 SB72106	C13-SS02A 0-1 C13-SS02A(0-1)_062513-1 6/25/2013 SB72106	C19-SS5A 0-1 C19-SS5A(0-1)_062513-1 6/25/2013 SB72106	C20-SS5B 0-1 C20-SS5B(0-1)_062513-1 6/25/2013 SB72106	C25-SB321A 0-1 C25-SB321A(0-1)-062613-1 6/26/2013 SB72189	C35-SB500 0-1 C35-SB500(0-1)_062513-1 6/25/2013 SB72106	D24-SB321B 0-1 D24-SB321B(0-1)-062613-1 6/26/2013 SB72189	D25-SB321C 0-1 D25-SB321C(0-1)-062613-1 6/26/2013 SB72189	D25-SB321D 0-1 D25-SB321D(0-1)-062613-1 6/26/2013 SB72189	D4-SS06A 0-1 D4-SS06A(0-1)_062513-1 6/25/2013 SB72106	D4-SS06A 0-1 D4-SS06A(0-1)_062513-2 6/25/2013 SB72106
PAHs (ug/Kg)													
Acenaphthylene	1000000	NE	<78	<77	NA	NA	NA	NA	NA	NA	NA	<74	<73
Anthracene	1000000	NE	<78	<77	NA	NA	NA	NA	NA	NA	NA	<74	<73
Benzo(a)anthracene	1000	NE	**96**	<77	NA	NA	NA	NA	NA	NA	NA	**75**	<73
Benzo(a)pyrene	1000	159 [1]	**100**	<77	NA	NA	NA	NA	NA	NA	NA	<74	<73
Benzo(b)fluoranthene	1000	NE	**150**	<77	NA	NA	NA	NA	NA	NA	NA	**99**	**88**
Benzo(g,h,i)perylene	*1000000 (g)*	NE	**79**	<77	NA	NA	NA	NA	NA	NA	NA	<74	<73
Benzo(k)fluoranthene	8400	NE	<78	<77	NA	NA	NA	NA	NA	NA	NA	<74	<73
Chrysene	*84000 (g)*	NE	**120**	<77	NA	NA	NA	NA	NA	NA	NA	**78**	<73
Dibenzo(a,h)anthracene	*1000 (g)*	NE	<78	<77	NA	NA	NA	NA	NA	NA	NA	<74	<73
Fluoranthene	1000000	NE	**220**	<77	NA	NA	NA	NA	NA	NA	NA	**150**	**150**
Fluorene	1000000	NE	<78	<77	NA	NA	NA	NA	NA	NA	NA	<74	<73
Indeno(1,2,3-cd)pyrene	*1000 (g)*	NE	**91**	<77	NA	NA	NA	NA	NA	NA	NA	<74	<73
Phenanthrene	1000000	NE	<78	<77	NA	NA	NA	NA	NA	NA	NA	<74	<73
Pyrene	1000000	NE	**180**	<77	NA	NA	NA	NA	NA	NA	NA	**140**	**130**
Total PAHs	NE	NE	**1036**	<0	NA	NA	NA	NA	NA	NA	NA	**542**	**368**
Metals (mg/Kg)													
Arsenic	10	20 [2]	NA	NA	**2.76**	**3.69**	**19.4**	**15.6**	**68.9**	**16.6**	**28.1**	NA	NA

Notes:

This is a summary table. Only detected chemicals are presented.

<0.010 = Not detected above given laboratory reporting limit.

Bold = Detected above reporting limit

Bold Italics = Not detected value exceeds criteria

Blue highlighted cells exceed RES DEC.

Orange highlighted cells exceed PRGs.

RES DEC = Residential Direct Exposure Criteria.

PRG = Preliminary Remedial Goals.

NE = Criteria has not been established.

NA = Not analyzed for this constituent.

ug/kg = microgram per kilogram

mg/kg = milligram per kilogram

Italics requires CT DEEP approval

[1] Based on Human Health Risk Assessment criteria (AECOM, 2012).

[2] Based on CTDEEP-approved background concentration for arsenic.

Table 2-1
Remedial Design Investigation Soil Analytical Data
Remedial Action Plan

Location ID Depth Interval Sample ID Sample Date SDG	RES DEC	PRG	E16-SS08A 0-1 E16-SS08A(0-1)_062513-1 6/25/2013 SB72106	E18-SS09 0-1 E18-SS09(0-1)_062513-1 6/25/2013 SB72106	E3-SS07A 0-1 E3-SS07A(0-1)_062513-1 6/25/2013 SB72106	F35-SB287B 0-1 F35-SB287B(0-1)_062513-1 6/25/2013 SB72106	F35-SB487A 0-1 F35-SB487A(0-1)_062513-1 6/25/2013 SB72106	F35-SB487A 0-1 F35-SB487A(0-1)_062513-2 6/25/2013 SB72106	F4-S1A 0-1 F4-S1A(0-1)_062513-1 6/25/2013 SB72106	G29-SB248B 0-1 G29-SB248B(0-1)_062513-1 6/25/2013 SB72106	G30-SB248C 0-1 G30-SB248C(0-1)_062513-1 6/25/2013 SB72106	G30-SB248D 0-1 G30-SB248D(0-1)_062513-1 6/25/2013 SB72106	I2-SS14A 0-1 I2-SS14A(0-1)_062513-1 6/25/2013 SB72106
PAHs (ug/Kg)													
Acenaphthylene	1000000	NE	<84	<73	<76	NA	NA	NA	<77	NA	NA	NA	**280**
Anthracene	1000000	NE	<84	<73	<76	NA	NA	NA	<77	NA	NA	NA	**150**
Benzo(a)anthracene	1000	NE	<84	<73	**81**	NA	NA	NA	<77	NA	NA	NA	**560**
Benzo(a)pyrene	1000	159 [1]	<84	<73	**93**	NA	NA	NA	<77	NA	NA	NA	**610**
Benzo(b)fluoranthene	1000	NE	**110**	<73	**130**	NA	NA	NA	<77	NA	NA	NA	**830**
Benzo(g,h,i)perylene	*1000000 (g)*	NE	<84	<73	**91**	NA	NA	NA	<77	NA	NA	NA	**390**
Benzo(k)fluoranthene	8400	NE	<84	<73	<76	NA	NA	NA	<77	NA	NA	NA	**310**
Chrysene	*84000 (g)*	NE	**92**	<73	**92**	NA	NA	NA	<77	NA	NA	NA	**700**
Dibenzo(a,h)anthracene	*1000 (g)*	NE	<84	<73	<76	NA	NA	NA	<77	NA	NA	NA	**91**
Fluoranthene	1000000	NE	**170**	<73	**150**	NA	NA	NA	<77	NA	NA	NA	**1400**
Fluorene	1000000	NE	<84	<73	<76	NA	NA	NA	<77	NA	NA	NA	<77
Indeno(1,2,3-cd)pyrene	*1000 (g)*	NE	<84	<73	**90**	NA	NA	NA	<77	NA	NA	NA	**480**
Phenanthrene	1000000	NE	<84	<73	<76	NA	NA	NA	<77	NA	NA	NA	**450**
Pyrene	1000000	NE	**150**	<73	**130**	NA	NA	NA	<77	NA	NA	NA	**1100**
Total PAHs	NE	NE	**522**	<0	**857**	NA	NA	NA	<0	NA	NA	NA	**7351**
Metals (mg/Kg)													
Arsenic	10	20 [2]	NA	NA	NA	**3.58**	**3.83**	**4.32**	NA	**12.4**	**11.6**	**31.4**	NA

Notes:
This is a summary table. Only detected chemicals are presented.
<0.010 = Not detected above given laboratory reporting limit.
Bold = Detected above reporting limit
Bold Italics = Not detected value exceeds criteria
Blue highlighted cells exceed RES DEC.
Orange highlighted cells exceed PRGs.
RES DEC = Residential Direct Exposure Criteria.
PRG = Preliminary Remedial Goals.
NE = Criteria has not been established.
NA = Not analyzed for this constituent.
ug/kg = microgram per kilogram
mg/kg = milligram per kilogram
Italics requires CT DEEP approval
[1] Based on Human Health Risk Assessment criteria (AECOM, 2012).
[2] Based on CTDEEP-approved background concentration for arsenic.

Table 2-1
Remedial Design Investigation Soil Analytical Data
Remedial Action Plan

Location ID Depth Interval Sample ID Sample Date SDG	RES DEC	PRG	J23-SB245A 0-1 J23-SB245A(0-1)_062513-1 6/25/2013 SB72106	K23-SB245B 0-1 K23-SB245B(0-1)-062613-1 6/26/2013 SB72189	L14-SS17A 0-1 L14-SS17A(0-1)_062513-1 6/25/2013 SB72106	L23-SB245C 0-1 L23-SB245C(0-1)_062513-1 6/25/2013 SB72106	M10-SS21A 0-1 M10-SS21A(0-1)_062513-1 6/25/2013 SB72106	M9-SS257B 0-1 M9-SS257B(0-1)_062513-1 6/25/2013 SB72106	N4-SS20A 0-1 N4-SS20A(0-1)_062513-1 6/25/2013 SB72106	N8-SS257A 0-1 N8-SS257A(0-1)_062513-1 6/25/2013 SB72106	R11-SS147A 0-1 R11-SS147A(0-1)_062513-1 6/25/2013 SB72106	SS-235A 0-1 SS235A(0-1)_062513-1 6/25/2013 SB72106	SS-238A1 0-1 SS-238A1(0-1)_062513-1 6/25/2013 SB72106
PAHs (ug/Kg)													
Acenaphthylene	1000000	NE	NA	NA	<73	NA	NA	NA	<86	NA	<74	<74	<100
Anthracene	1000000	NE	NA	NA	<73	NA	NA	NA	<86	NA	<74	<74	<100
Benzo(a)anthracene	1000	NE	NA	NA	<73	NA	NA	NA	**100**	NA	<74	**190**	<100
Benzo(a)pyrene	1000	159 [1]	NA	NA	<73	NA	NA	NA	**99**	NA	<74	**280**	<100
Benzo(b)fluoranthene	1000	NE	NA	NA	**99**	NA	NA	NA	**150**	NA	<74	**350**	<100
Benzo(g,h,i)perylene	*1000000 (g)*	NE	NA	NA	<73	NA	NA	NA	<86	NA	<74	**290**	<100
Benzo(k)fluoranthene	8400	NE	NA	NA	<73	NA	NA	NA	<86	NA	<74	**130**	<100
Chrysene	*84000 (g)*	NE	NA	NA	**78**	NA	NA	NA	**110**	NA	<74	**210**	<100
Dibenzo(a,h)anthracene	*1000 (g)*	NE	NA	NA	<73	NA	NA	NA	<86	NA	<74	<74	<100
Fluoranthene	1000000	NE	NA	NA	**130**	NA	NA	NA	**200**	NA	<74	**380**	**140**
Fluorene	1000000	NE	NA	NA	<73	NA	NA	NA	<86	NA	<74	<74	<100
Indeno(1,2,3-cd)pyrene	*1000 (g)*	NE	NA	NA	<73	NA	NA	NA	<86	NA	<74	**300**	<100
Phenanthrene	1000000	NE	NA	NA	<73	NA	NA	NA	<86	NA	<74	**110**	<100
Pyrene	1000000	NE	NA	NA	**97**	NA	NA	NA	**180**	NA	<74	**320**	**110**
Total PAHs	NE	NE	NA	NA	**404**	NA	NA	NA	**839**	NA	<0	**2560**	**250**
Metals (mg/Kg)													
Arsenic	10	20 [2]	**41**	**17**	NA	**2.95**	**8.39**	**4.88**	NA	**7.42**	NA	NA	NA

Notes:
This is a summary table. Only detected chemicals are presented.
<0.010 = Not detected above given laboratory reporting limit.
Bold = Detected above reporting limit
Bold Italics = Not detected value exceeds criteria
Blue highlighted cells exceed RES DEC.
Orange highlighted cells exceed PRGs.
RES DEC = Residential Direct Exposure Criteria.
PRG = Preliminary Remedial Goals.
NE = Criteria has not been established.
NA = Not analyzed for this constituent.
ug/kg = microgram per kilogram
mg/kg = milligram per kilogram
Italics requires CT DEEP approval
[1] Based on Human Health Risk Assessment criteria (AECOM, 2012).
[2] Based on CTDEEP-approved background concentration for arsenic.

Table 2-1
Remedial Design Investigation Soil Analytical Data
Remedial Action Plan

Location ID Depth Interval Sample ID Sample Date SDG	RES DEC	PRG	SS-240A 0-1 SS-240A(0-1)-062613-1 6/26/2013 SB72189	SS-240B 0-1 SS-240B(0-1)-062613-1 6/26/2013 SB72189	SS-241A 0-1 SS-241A(0-1)-062613-1 6/26/2013 SB72189	SS-241B 0-1 SS-241B(0-1)-062613-1 6/26/2013 SB72189	T12-SS146A 0-1 T12-SS146A(0-1)_062513-1 6/25/2013 SB72106
PAHs (ug/Kg)							
Acenaphthylene	1000000	NE	<73	<110	**120**	**110**	<76
Anthracene	1000000	NE	<73	<110	**160**	<71	<76
Benzo(a)anthracene	1000	NE	<73	**200**	**500**	**390**	<76
Benzo(a)pyrene	1000	159 [1]	<73	**210**	**590**	**400**	<76
Benzo(b)fluoranthene	1000	NE	**85**	**280**	**720**	**480**	<76
Benzo(g,h,i)perylene	*1000000 (g)*	NE	<73	**140**	**380**	**260**	<76
Benzo(k)fluoranthene	8400	NE	<73	<110	**300**	**190**	<76
Chrysene	*84000 (g)*	NE	<73	**250**	**630**	**370**	<76
Dibenzo(a,h)anthracene	*1000 (g)*	NE	<73	<110	**84**	<71	<76
Fluoranthene	1000000	NE	**110**	**460**	**1200**	**730**	<76
Fluorene	1000000	NE	<73	<110	<75	<71	<76
Indeno(1,2,3-cd)pyrene	*1000 (g)*	NE	<73	**170**	**460**	**320**	<76
Phenanthrene	1000000	NE	<73	**160**	**410**	**240**	<76
Pyrene	1000000	NE	**92**	**370**	**930**	**600**	<76
Total PAHs	NE	NE	**287**	**2240**	**6484**	**4090**	<0
Metals (mg/Kg)							
Arsenic	10	20 [2]	**4.71**	**18.1**	**8.04**	**3.89**	NA

Notes:

This is a summary table. Only detected chemicals are presented.

<0.010 = Not detected above given laboratory reporting limit.

Bold = Detected above reporting limit

Bold Italics = Not detected value exceeds criteria

Blue highlighted cells exceed RES DEC.

Orange highlighted cells exceed PRGs.

RES DEC = Residential Direct Exposure Criteria.

PRG = Preliminary Remedial Goals.

NE = Criteria has not been established.

NA = Not analyzed for this constituent.

ug/kg = microgram per kilogram

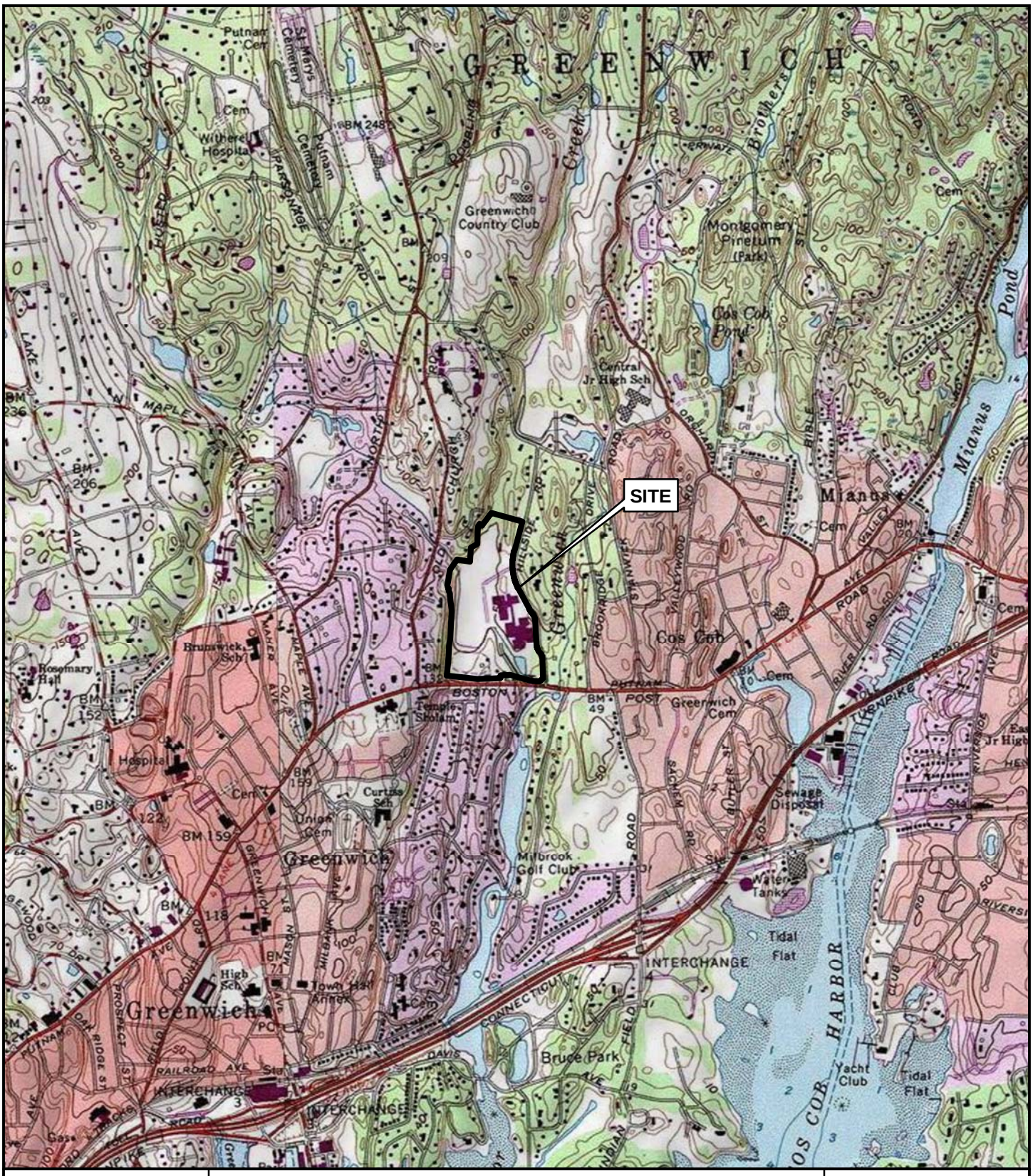
mg/kg = milligram per kilogram

Italics requires CT DEEP approval

[1] Based on Human Health Risk Assessment criteria (AECOM, 2012).

[2] Based on CTDEEP-approved background concentration for arsenic.

Figures



Map Location

SITE LOCATION MAP
GREENWICH HIGH SCHOOL
10 HILLSIDE ROAD
GREENWICH, CT

0 500 1,000 2,000 3,000 4,000 5,000 6,000 Feet

0 100 200 400 600 800 1,000 1,200 1,400 1,600 Meters

Map Projection: State Plane, NAD 83, Feet.
Image Source: National Geographic Society Quadrangle: Stamford, CT.

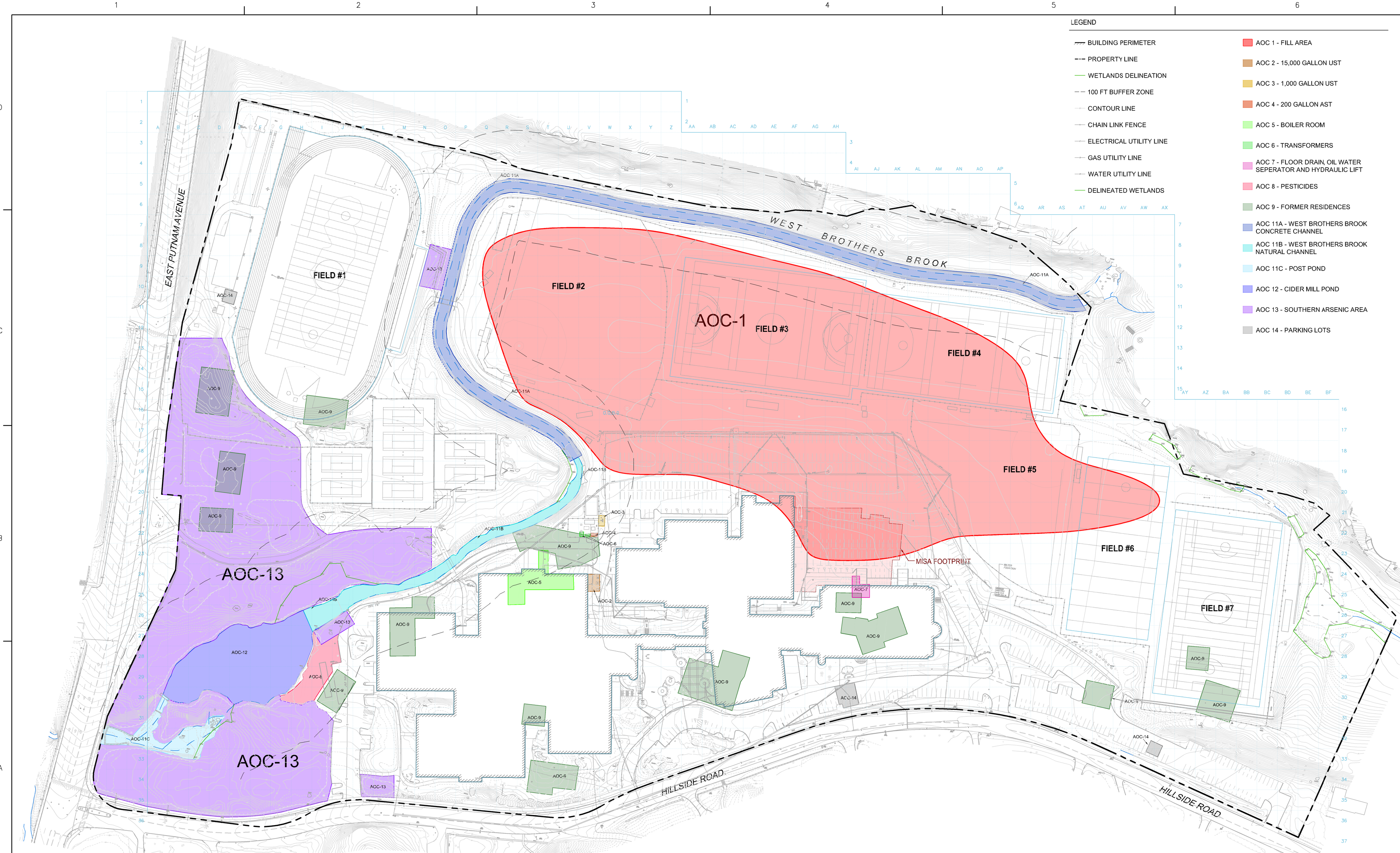
Scale: 1:24,000

AECOM

Figure 1-1

Project #: 60225155

Path: J:\Indl_Service\Project Files\Greenwich_High_School\GIS\Projects\Remedial_Investigation_Report\Figure_1-1_Site_Location_Map.mxd



AECOM Environment
500 ENTERPRISE DR. STE 1A
ROCKY HILL, CT 06067
(860) 263-8800
www.aecom.com

AECOM

SCALE:
1" = 80'
0 80 160 240
SCALE FEET

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE RD
GREENWICH, CT

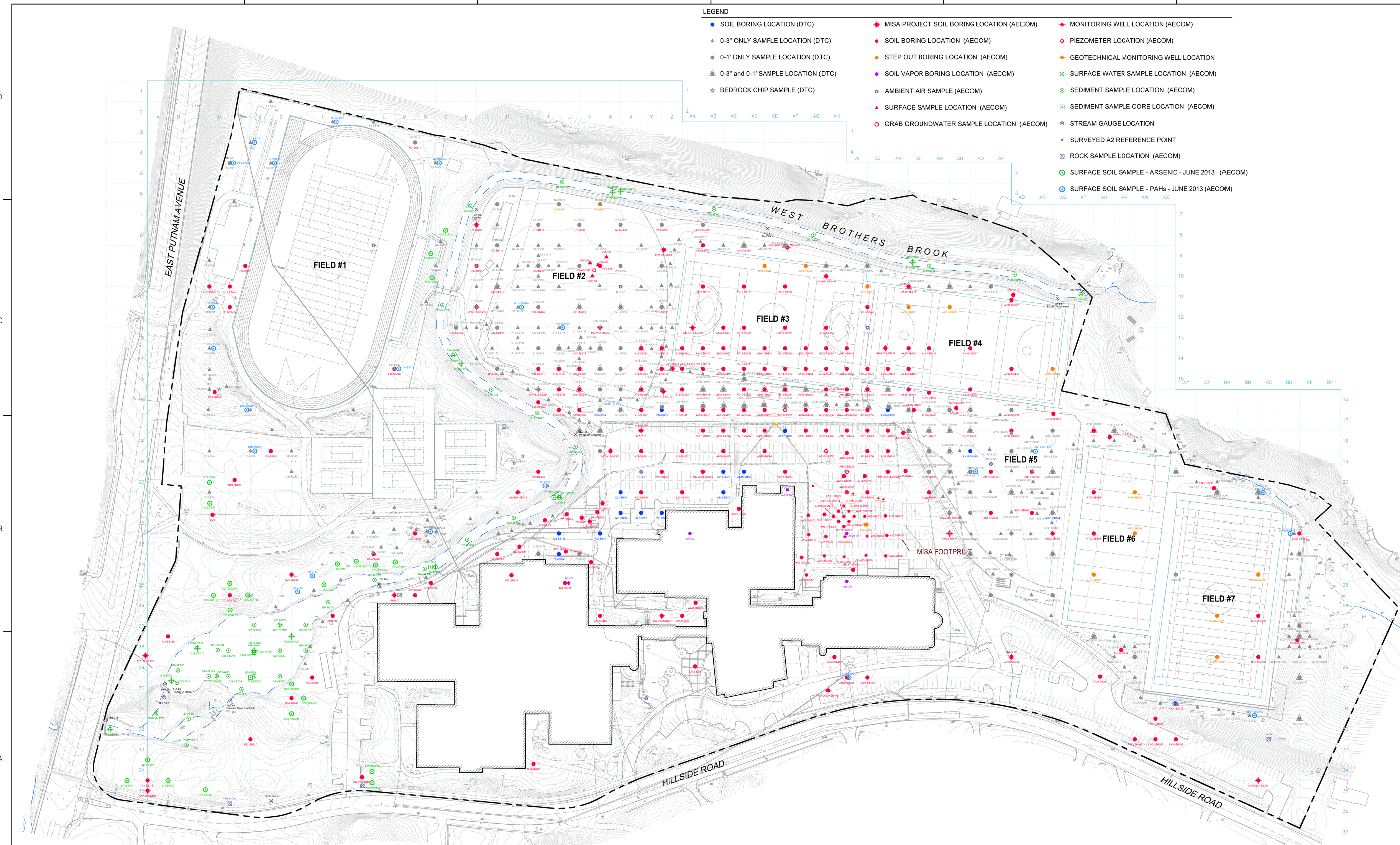
DRAFT

FIGURE 1-2
SITE PLAN
REMEDIAL ACTION PLAN

SEPTEMBER 2013

JOB 60225155
FILE NO.
CAD FILE REMEDIAL ACTION PLAN
SHEET

PATH/FILENAME: P:\60225155 - CHS\GREENWICH HIGH SCHOOL\ORIGINAL DRAWING FILES\PROJECT\UPDATED\SUPPLEMENTAL DRAWINGS\RAP JULY 2013\REMEDIAL ACTION PLAN.DWG
LAST UPDATE: Monday, August 12, 2013 11:57:42 AM
PLOT DATE: Monday, August 12, 2013 11:59:49 AM
ARCH D – 3-7-05



AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

SCALE:
1" = 80'
0 80 160 240
SCALE FEET

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE RD
GREENWICH, CT

DRAFT

FIGURE 2-1
SAMPLING LOCATIONS
REMEDIAL ACTION PLAN

SEPTEMBER 2013

JOB 60225155
FILE NO.
CAD FILE SITE INVESTIGATION RAP
SHEET

PATH/FILENAME: P:\60225155 - GHS\GREENWICH HIGH SCHOOL\ORIGINAL DRAWING FILES\PROJECT\UPDATED\SUPPLEMENTAL DRAWINGS\RAP JULY 2013\SITE INVESTIGATION RAP.DWG
LAST UPDATE: Monday, August 05, 2013 2:15:14 PM
PLOT DATE: Monday, August 12, 2013 12:18:30 PM
ARCH D - 3-7-05

SAMPLING POINTS

- SOIL BORING LOCATION (DTC)
- 0-3" ONLY SAMPLE LOCATION (DTC)
- 0-1' ONLY SAMPLE LOCATION (DTC)
- 0-3" and 0-1' SAMPLE LOCATION (DTC)
- MISA PROJECT SOIL BORING LOCATION (AECOM)
- SOIL BORING LOCATION (AECOM)
- STEP OUT BORING LOCATION (AECOM)
- SURFACE SAMPLE LOCATION (AECOM)
- MONITORING WELL LOCATION (AECOM)
- PIEZOMETER LOCATION (AECOM)
- SURFACE SOIL SAMPLE - ARSENIC - JUNE 2013 (AECOM)
- SURFACE SOIL SAMPLE - PAHs - JUNE 2013 (AECOM)

LEGEND

- BENZO (a) PYRENE REMEDIATION AREA
- ARSENIC REMEDIATION AREA
- PESTICIDE REMEDIATION AREA
- PCB REMEDIATION AREA (0-3' BGS)
- PCB REMEDIATION AREA (0-2' BGS)
- PCB REMEDIATION AREA (0-1' BGS)
- MISA FOOTPRINT
- A — APPROXIMATE LOCATION OF CROSS SECTION

EAST PUTNAM AVENUE

WEST BROTHERS BROOK

HILLSIDE ROAD

FIELD #1

FIELD #2

FIELD #3

FIELD #4

FIELD #5

FIELD #6

FIELD #7

0-2 FT BGS

0-1 FT BGS

0-3 FT BGS

MISA FOOTPRINT

A A' B B' C

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

SCALE:

1" = 80'

0 80 160 240

SCALE FEET

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE RD
GREENWICH, CT

DRAFT

FIGURE 3-1
PROPOSED REMEDIATION AREAS
REMEDIAL ACTION PLAN

SEPTEMBER 2013

JOB 60225155

FILE NO.

CAD FILE PROPOSED REMDIATION AREAS

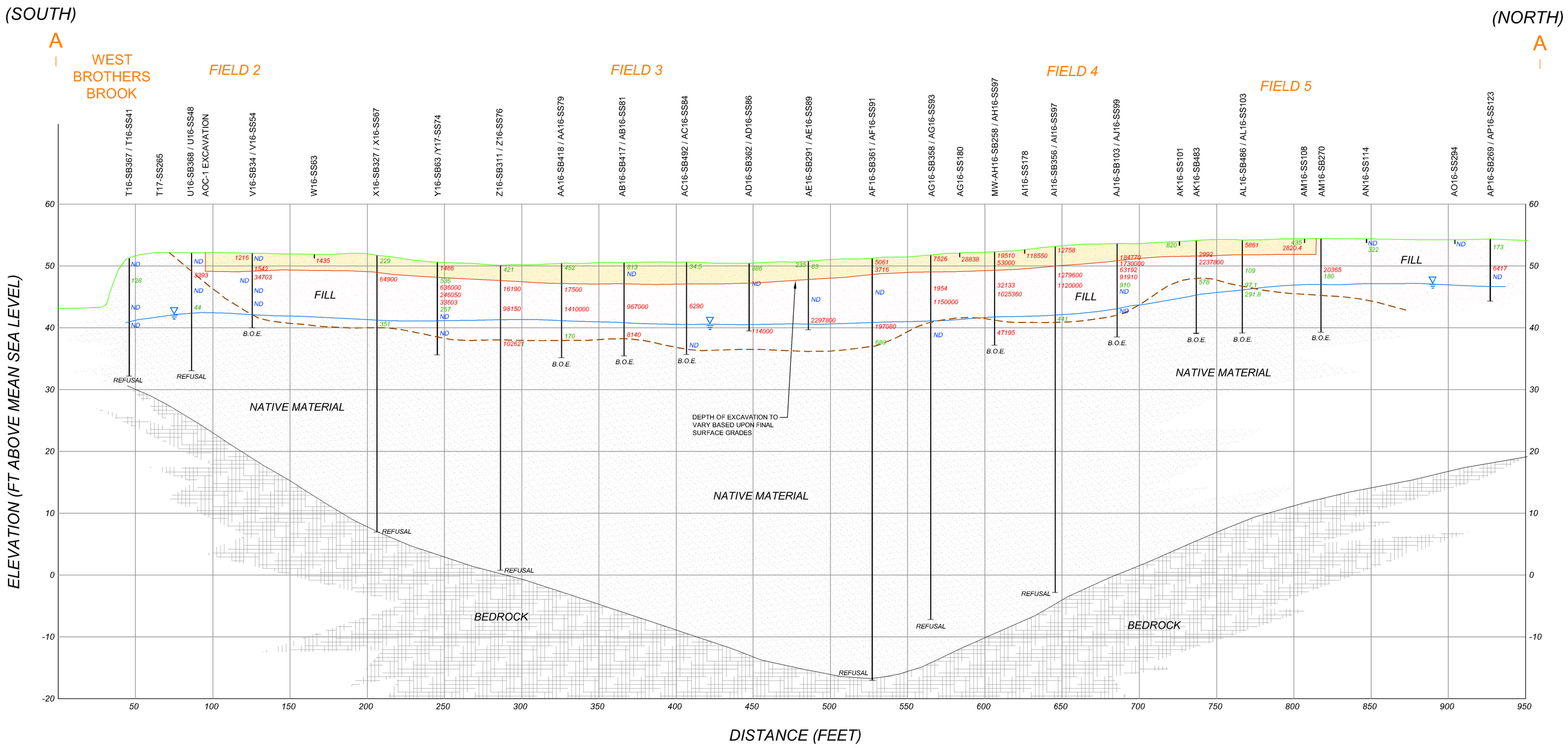
SHEET

PATH/FILENAME: P:\60225155 - GHS\GREENWICH HIGH SCHOOL\ORIGINAL DRAWING FILES\PROJECT\UPDATED\SUPPLEMENTAL DRAWINGS\RAP JULY 2013\PROPOSED REMDIATION AREAS.DWG

LAST UPDATE: Tuesday, August 13, 2013 12:32:47 PM

PLOT DATE: Tuesday, August 13, 2013 12:33:12 PM

ARCH D - 3-7-05



LEGEND:

B.O.E.	BOTTOM OF EXPLORATION
▽	WATER TABLE INDICATOR
ND	PCBs NOT DETECTED
44	PCB CONCENTRATION (µg/kg) <1,000
3393	PCB CONCENTRATION (µg/kg) >1,000
	EXCAVATION AREA
	APPROXIMATE FILL BOUNDARY

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

SCALE:
1" = 10' VERTICAL SCALE (0, 10, 20, 30 FEET)
1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

GREENWICH HIGH SCHOOL
10 HILLSIDE RD
GREENWICH, CT

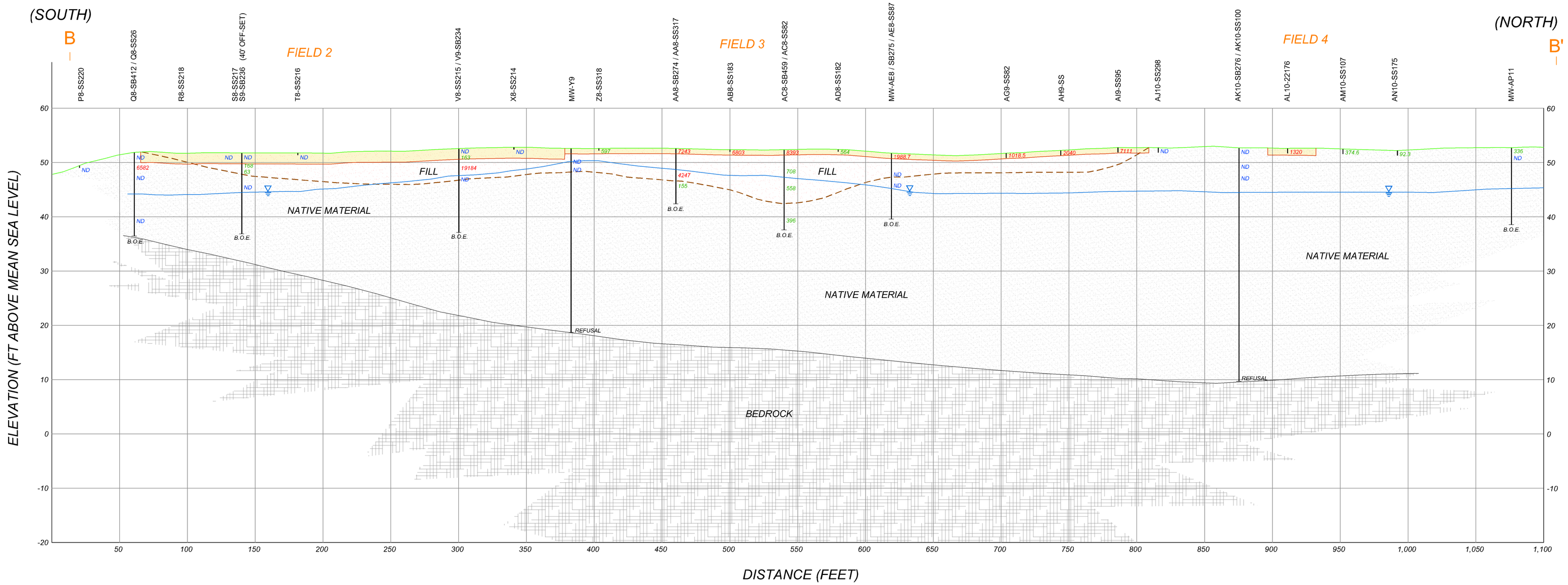
FIGURE 3-2
CROSS SECTION A-A'
REMEDIAL ACTION PLAN

DRAFT

SEPTEMBER 2013

JOB 60225155
FILE NO.
CAD FILE CROSS SECTIONS
SHEET

PATH/FILENAME: P:\60225155 - GHS\GREENWICH HIGH SCHOOL\ORIGINAL DRAWING FILES\PROJECT\UPDATED\SUPPLEMENTAL DRAWINGS\RAP JULY 2013\CROSS SECTIONS.DWG
LAST UPDATE: Monday, August 05, 2013 2:15:53 PM
PLOT DATE: Monday, August 12, 2013 3:28:05 PM
ARCH D - 3-7-05



LEGEND:

B.O.E.	BOTTOM OF EXPLORATION
▽	WATER TABLE INDICATOR
ND	PCBs NOT DETECTED
44	PCB CONCENTRATION (µg/kg) <1,000
3393	PCB CONCENTRATION (µg/kg) >1,000
	EXCAVATION AREA
	APPROXIMATE FILL BOUNDARY

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5803
www.aecom.com

AECOM

SCALE:
1" = 10' VERTICAL SCALE 0 10 20 30 FEET
1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

GREENWICH HIGH SCHOOL
10 HILLSIDE RD
GREENWICH, CT

FIGURE 3-3
CROSS SECTION B-B'
REMEDIAL ACTION PLAN

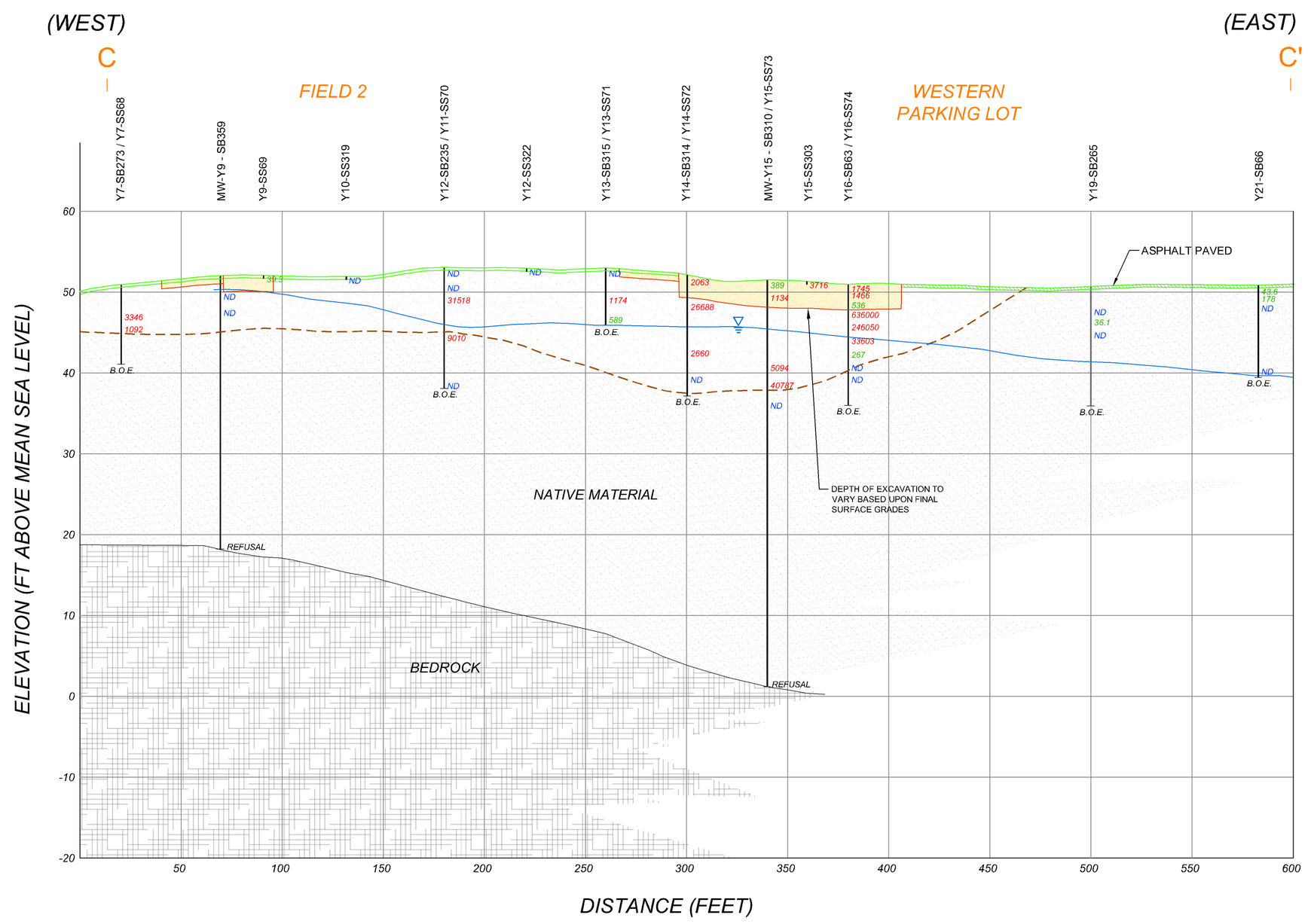
DRAFT

SEPTEMBER 2013

JOB 60225155
FILE NO.
CAD FILE CROSS SECTIONS
SHEET

ARCH D – 3-7-05

PATH/FILENAME: P:\60225155 – GHS\GREENWICH HIGH SCHOOL\ORIGINAL DRAWING FILES\PROJECT\UPDATED\SUPPLEMENTAL DRAWINGS\RAP JULY 2013\CROSS SECTIONS.DWG
LAST UPDATE: Monday, August 12, 2013 4:11:01 PM
PLOT DATE: Monday, August 12, 2013 4:11:15 PM



LEGEND:

B.O.E.	BOTTOM OF EXPLORATION
▽	WATER TABLE INDICATOR
ND	PCBs NOT DETECTED
44	PCB CONCENTRATION (µg/kg) <1,000
3393	PCB CONCENTRATION (µg/kg) >1,000
	EXCAVATION AREA
	APPROXIMATE FILL BOUNDARY

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5805
www.aecom.com

AECOM

SCALE:
1" = 10' VERTICAL SCALE 0 10 20 30 FEET
1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE RD
GREENWICH, CT

FIGURE 3-4
CROSS SECTION C-C'
REMEDIAL ACTION PLAN

DRAFT

SEPTEMBER 2013

JOB 60225155
FILE NO.
CAD FILE CROSS SECTIONS
SHEET

ARCH D – 3-7-05

PATH/FILENAME: P:\60225155 – GHS\GREENWICH HIGH SCHOOL\ORIGINAL DRAWING FILES\PROJECT\UPDATED\SUPPLEMENTAL DRAWINGS\RAP JULY 2013\CROSS SECTIONS.DWG
LAST UPDATE: Monday, August 12, 2013 4:45:48 PM
PLOT DATE: Monday, August 12, 2013 4:46:42 PM

LEGEND

- BUILDING PERIMETER
- PROPERTY LINE
- WETLANDS DELINEATION
- 100 FT BUFFER ZONE
- CONTOUR LINE
- CHAIN LINK FENCE
- ELECTRICAL UTILITY LINE
- GAS UTILITY LINE
- WATER UTILITY LINE
- DRINKING WATER FOUNTAIN
- MISA FOOTPRINT / ADDITION

EAST PUTNAM AVENUE

WEST BROTHERS BROOK

FIELD #1

FIELD #2

FIELD #3

FIELD #4

FIELD #5

FIELD #6

FIELD #7

RECONSTRUCT ACCESS TO FIELD 3 AND BLEACHERS

PROPOSED LOCATION OF ADA COMPLIANT ACCESS RAMP TO FIELD 3

PROPOSED LOCATION OF ADA COMPLIANT ACCESS RAMP TO FIELDS 4 AND 5

RECONSTRUCT ACCESS TO FIELD 2 AND BLEACHERS

LIMIT OF PROPOSED ASPHALT SURFACE

PROPOSED AUDITORIUM ADDITION

PROPOSED ADDITION

HILLSIDE ROAD

AECOM Environment
500 ENTERPRISE DR. STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

SCALE:

1" = 80'

0 80 160 240

SCALE FEET

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE RD
GREENWICH, CT

DRAFT

FIGURE 3-5
POST-REMEDIATION SITE RESTORATION
REMEDIAL ACTION PLAN

SEPTEMBER 2013

JOB 60225155

FILE NO.

CAD FILE POST REMEDIATION SITE REST

SHEET

PATH/FILENAME: P:\60225155 - GHS\GREENWICH HIGH SCHOOL\ORIGINAL DRAWING FILES\PROJECT\UPDATED\SUPPLEMENTAL DRAWINGS\RAP JULY 2013\POST REMEDIATION SITE REST.DWG
LAST UPDATE: Monday, August 05, 2013 2:34:46 PM
PLOT DATE: Monday, August 12, 2013 4:48:42 PM
ARCH D - 3-7-05

LEGEND

- DUMP TRAILER TRAFFIC FLOW PATTERN
- TRIAXLE TRAFFIC FLOW PATTERN
- BENZO (a) PYRENE REMEDIATION AREA
- ARSENIC REMEDIATION AREA
- PESTICIDE REMEDIATION AREA
- PCB REMEDIATION AREA (0-3' BGS)
- PCB REMEDIATION AREA (0-2' BGS)
- PCB REMEDIATION AREA (0-1' BGS)
- MISA FOOTPRINT
- POTENTIAL CONSTRUCTION ENTRANCE FOR TRANSPORT OF IMPACTED SOILS FROM SOUTHERN AREAS
- PROPOSED PERIMETER AIR MONITORING LOCATION

NOTE:

CONSTRUCTION ROUTING AND MATERIAL STAGING AREAS SUBJECT TO CHANGE BASED ON CONTRACTOR RECOMMENDATIONS

EAST PUTNAM AVENUE

WEST BROTHERS BROOK

FIELD #1

FIELD #3

FIELD #4

FIELD #5

FIELD #6

FIELD #7

DECONTAMINATION AREA

ROLLOFF AND DRUM STORAGE

CLEAN BACKFILL STOCKPILE

MISA FOOTPRINT

DUMP TRAILERS TO EXCAVATION AREA

TRIAXLES TO CLEAN BACKFILL STOCKPILE

DUMP TRAILER OVERFLOW

HILLSIDE ROAD

HILLSIDE ROAD

TO I-95 VIA EXIT 5

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

SCALE:

1" = 80'

0 80 160 240

SCALE FEET

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE RD
GREENWICH, CT

DRAFT

FIGURE 4-1
REMEDIATION PLANNING
REMEDIAL ACTION PLAN

SEPTEMBER 2013

JOB 60225155

FILE NO.

CAD FILE TRUCK ROUTING RAP

SHEET

PATH/FILENAME: P:\60225155 - CHS\GREENWICH HIGH SCHOOL\ORIGINAL DRAWING FILES\PROJECT\UPDATED\SUPPLEMENTAL DRAWINGS\RAP JULY 2013\TRUCK ROUTING RAP.DWG
LAST UPDATE: Monday, August 12, 2013 5:09:02 PM
PLOT DATE: Tuesday, August 13, 2013 12:39:02 PM

ARCH D - 3-7-05

Appendix A

Remedial Investigation Report

(Provided Electronically)

Appendix B

Laboratory Analytical Report June 2013 Remedial Design Investigation

Report Date:
02-Jul-13 15:54

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Laboratory Report

AECOM Environment
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Attn: Malcolm Beeler

Project: Greenwich HS - Greenwich, CT
Project #: 60225155

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB72106-01	AN19-SS117A(0-1)_062513-1	Soil	25-Jun-13 08:45	25-Jun-13 16:45
SB72106-02	AN19-SS117A(0-1)_062513-2	Soil	25-Jun-13 08:46	25-Jun-13 16:45
SB72106-03	AQ18-SS144A(0-1)_062513-1	Soil	25-Jun-13 09:00	25-Jun-13 16:45
SB72106-04	BC22-SS161A(0-1)_062513-1	Soil	25-Jun-13 09:07	25-Jun-13 16:45
SB72106-05	BB20-SS139A(0-1)_062513-1	Soil	25-Jun-13 09:05	25-Jun-13 16:45
SB72106-06	BB31-SS230A(0-1)_062513-1	Soil	25-Jun-13 09:20	25-Jun-13 16:45
SB72106-07	AX31-SS232A(0-1)_062513-1	Soil	25-Jun-13 09:25	25-Jun-13 16:45
SB72106-08	AH29-SB231A(0-1)_062513-1	Soil	25-Jun-13 09:35	25-Jun-13 16:45
SB72106-09	F35-SB487A(0-1)_062513-1	Soil	25-Jun-13 09:45	25-Jun-13 16:45
SB72106-10	F35-SB487A(0-1)_062513-2	Soil	25-Jun-13 09:50	25-Jun-13 16:45
SB72106-11	F35-SB287B(0-1)_062513-1	Soil	25-Jun-13 09:55	25-Jun-13 16:45
SB72106-12	34-SB316A(0-1)_062513-1	Soil	25-Jun-13 10:20	25-Jun-13 16:45
SB72106-13	34-SB316B(0-1)_062513-1	Soil	25-Jun-13 10:25	25-Jun-13 16:45
SB72106-14	34-SB316C(0-1)_062513-1	Soil	25-Jun-13 10:30	25-Jun-13 16:45
SB72106-15	G30-SB248D(0-1)_062513-1	Soil	25-Jun-13 11:00	25-Jun-13 16:45
SB72106-16	G30-SB248C(0-1)_062513-1	Soil	25-Jun-13 11:05	25-Jun-13 16:45
SB72106-17	G29-SB248B(0-1)_062513-1	Soil	25-Jun-13 11:10	25-Jun-13 16:45
SB72106-18	C35-SB500(0-1)_062513-1	Soil	25-Jun-13 10:55	25-Jun-13 16:45
SB72106-19	SS-238A1(0-1)_062513-1	Soil	25-Jun-13 11:15	25-Jun-13 16:45
SB72106-20	C19-SS5A(0-1)_062513-1	Soil	25-Jun-13 11:30	25-Jun-13 16:45
SB72106-21	C20-SS5B(0-1)_062513-1	Soil	25-Jun-13 12:05	25-Jun-13 16:45
SB72106-22	E18-SS09(0-1)_062513-1	Soil	25-Jun-13 12:13	25-Jun-13 16:45
SB72106-23	L23-SB245C(0-1)_062513-1	Soil	25-Jun-13 11:50	25-Jun-13 16:45
SB72106-24	J23-SB245A(0-1)_062513-1	Soil	25-Jun-13 11:55	25-Jun-13 16:45
SB72106-25	SS235A(0-1)_062513-1	Soil	25-Jun-13 11:56	25-Jun-13 16:45
SB72106-26	E16-SS08A(0-1)_062513-1	Soil	25-Jun-13 12:20	25-Jun-13 16:45
SB72106-27	C13-SS02A(0-1)_062513-1	Soil	25-Jun-13 12:30	25-Jun-13 16:45
SB72106-28	C11-SS01A(0-1)_062513-1	Soil	25-Jun-13 12:25	25-Jun-13 16:45
SB72106-29	E3-SS07A(0-1)_062513-1	Soil	25-Jun-13 12:40	25-Jun-13 16:45
SB72106-30	D4-SS06A(0-1)_062513-1	Soil	25-Jun-13 12:50	25-Jun-13 16:45
SB72106-31	D4-SS06A(0-1)_062513-2	Soil	25-Jun-13 12:52	25-Jun-13 16:45
SB72106-32	F4-S1A(0-1)_062513-1	Soil	25-Jun-13 12:44	25-Jun-13 16:45
SB72106-33	I2-SS14A(0-1)_062513-1	Soil	25-Jun-13 12:59	25-Jun-13 16:45
SB72106-34	N4-SS20A(0-1)_062513-1	Soil	25-Jun-13 13:05	25-Jun-13 16:45
SB72106-35	N8-SS257A(0-1)_062513-1	Soil	25-Jun-13 13:01	25-Jun-13 16:45
SB72106-36	M9-SS257B(0-1)_062513-1	Soil	25-Jun-13 13:17	25-Jun-13 16:45
SB72106-37	M10-SS21A(0-1)_062513-1	Soil	25-Jun-13 13:21	25-Jun-13 16:45

SB72106-38	L14-SS17A(0-1)_062513-1	Soil	25-Jun-13 13:28	25-Jun-13 16:45
SB72106-39	T12-SS146A(0-1)_062513-1	Soil	25-Jun-13 13:40	25-Jun-13 16:45
SB72106-40	R11-SS147A(0-1)_062513-1	Soil	25-Jun-13 14:00	25-Jun-13 16:45

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435

Authorized by:

Nicole Leja
Laboratory Director

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 51 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

Reasonable Confidence Protocols
Laboratory Analysis
QA/QC Certification Form

Laboratory Name: Spectrum Analytical, Inc.

Client: AECOM Environment - Rocky Hill, CT

Project Location: Greenwich HS - Greenwich, CT

Project Number: 60225155

Sampling Date(s):
6/25/2013

Laboratory Sample ID(s):
SB72106-01 through SB72106-40

RCP Methods Used:
SW846 6010C
SW846 8270D
SW846 8270D SIM

1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents?	✓ Yes	No
1A	Were the method specified preservation and holding time requirements met?	✓ Yes	No
1B	***VPH and EPH methods only***: Was the VPH or EPH method conducted without significant modifications (see Section 11.3 of respective RCP methods)?	Yes	No
2	Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody document(s)?	✓ Yes	No
3	Were samples received at an appropriate temperature?	✓ Yes	No
4	Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved?	Yes	✓ No
5	a) Were reporting limits specified or referenced on the chain-of-custody? b) Were these reporting limits met?	Yes Yes	✓ No No
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?	Yes	✓ No
7	Are project-specific matrix spikes and laboratory duplicates included in this data set?	✓ Yes	No

Note: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A, or #1B is "No", the data package does not meet the requirements for "Reasonable Confidence."

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

Nicole Leja
Laboratory Director
Date: 7/2/2013

CASE NARRATIVE:

The samples were received 1.8 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

Required site-specific Matrix Spike/Matrix Spike Duplicate (MS/MSD) must be requested by the client and sufficient sample must be submitted for the additional analyses. Samples submitted with insufficient volume/weight will not be analyzed for site specific MS/MSD, however a batch MS/MSD may be analyzed from a non-site specific sample.

CTDEP has published a list of analytical methods which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of decisions being made utilizing the Reasonable Confidence Protocol (RCP). "Reasonable Confidence" can be established only for those methods published by the CTDEP in the RCP guidelines. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method. Regulatory limits may not be achieved if specific method and/or technique was not requested on the Chain of Custody.

The CTDEP RCP requests that "all non-detects and all results below the reporting limit are reported as ND (Not Detected at the Specified Reporting Limit)". All non-detects and all results below the reporting limit are reported as "<" (less than) the reporting limit in this report.

If no reporting limits were specified or referenced on the chain-of-custody the laboratory's practical quantitation limits were applied.

For this work order, the reporting limits have not been referenced or specified.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 6010C

Spikes:

1315062-MSD1 *Source: SB72106-37*

RPD out of acceptance range. The batch is accepted based upon LCS and/or LCSD recovery.

Arsenic

The spike recovery exceeded the QC control limits for the MS and/or MSD. The batch was accepted based upon acceptable PS and /or LCS recovery.

Arsenic

Duplicates:

1315062-DUP1 *Source: SB72106-09*

RPD out of acceptance range. The batch is accepted based upon LCS and/or LCSD recovery.

Arsenic

Visual evaluation of the sample indicates the RPD is above the control limit due to a non-homogeneous sample matrix.

Arsenic

Sample Acceptance Check Form

Client:	AECOM Environment - Rocky Hill, CT
Project:	Greenwich HS - Greenwich, CT / 60225155
Work Order:	SB72106
Sample(s) received on:	6/25/2013
Received by:	Elie Makhoul

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
1. Were custody seals present?	☐	☑	☐
2. Were custody seals intact?	☐	☐	☑
3. Were samples received at a temperature of ≤ 6°C?	☑	☐	☐
4. Were samples cooled on ice upon transfer to laboratory representative?	☑	☐	☐
5. Were samples refrigerated upon transfer to laboratory representative?	☐	☑	☐
6. Were sample containers received intact?	☑	☐	☐
7. Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
8. Were samples accompanied by a Chain of Custody document?	☑	☐	☐
9. Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☐	☑	☐
10. Did sample container labels agree with Chain of Custody document?	☑	☐	☐
11. Were samples received within method-specific holding times?	☑	☐	☐

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
AN19-SS117A(0-1)_062513-1 SB72106-01	60225155	Soil	25-Jun-13 08:45	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**11**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 73		ug/Kg	73	22	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 73		ug/Kg	73	22	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 73		ug/Kg	73	19	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 73		ug/Kg	73	20	1	"	"	"	"	"	
86-73-7	Fluorene	< 73		ug/Kg	73	19	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 73		ug/Kg	73	22	1	"	"	"	"	"	
120-12-7	Anthracene	< 73		ug/Kg	73	21	1	"	"	"	"	"	
206-44-0	Fluoranthene	**110**		ug/Kg	73	33	1	"	"	"	"	"	
129-00-0	Pyrene	**97**		ug/Kg	73	24	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 73		ug/Kg	73	29	1	"	"	"	"	"	
218-01-9	Chrysene	< 73		ug/Kg	73	49	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**94**		ug/Kg	73	35	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 73		ug/Kg	73	29	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	**75**		ug/Kg	73	21	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*80.6*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
AN19-SS117A(0-1)_062513-2 SB72106-02	60225155	Soil	25-Jun-13 08:46	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	< 10		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 70		ug/Kg	70	21	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 70		ug/Kg	70	21	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 70		ug/Kg	70	19	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 70		ug/Kg	70	19	1	"	"	"	"	"	
86-73-7	Fluorene	< 70		ug/Kg	70	18	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 70		ug/Kg	70	21	1	"	"	"	"	"	
120-12-7	Anthracene	< 70		ug/Kg	70	20	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 70		ug/Kg	70	32	1	"	"	"	"	"	
129-00-0	Pyrene	< 70		ug/Kg	70	23	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 70		ug/Kg	70	28	1	"	"	"	"	"	
218-01-9	Chrysene	< 70		ug/Kg	70	47	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	73		ug/Kg	70	34	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 70		ug/Kg	70	28	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 70		ug/Kg	70	20	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 70		ug/Kg	70	23	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 70		ug/Kg	70	23	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 70		ug/Kg	70	23	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*80.9*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
AQ18-SS144A(0-1)_062513-1 SB72106-03	60225155	Soil	25-Jun-13 09:00	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	< 10		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 73		ug/Kg	73	22	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 73		ug/Kg	73	22	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 73		ug/Kg	73	19	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 73		ug/Kg	73	20	1	"	"	"	"	"	
86-73-7	Fluorene	< 73		ug/Kg	73	19	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 73		ug/Kg	73	22	1	"	"	"	"	"	
120-12-7	Anthracene	< 73		ug/Kg	73	21	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 73		ug/Kg	73	33	1	"	"	"	"	"	
129-00-0	Pyrene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 73		ug/Kg	73	29	1	"	"	"	"	"	
218-01-9	Chrysene	< 73		ug/Kg	73	48	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	< 73		ug/Kg	73	35	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 73		ug/Kg	73	29	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 73		ug/Kg	73	21	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*73.7*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
BC22-SS161A(0-1)_062513-1 SB72106-04	60225155	Soil	25-Jun-13 09:07	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**11**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 73		ug/Kg	73	22	1	SW846 8270D SIM	26-Jun-13	28-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 73		ug/Kg	73	22	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 73		ug/Kg	73	20	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 73		ug/Kg	73	20	1	"	"	"	"	"	
86-73-7	Fluorene	< 73		ug/Kg	73	19	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 73		ug/Kg	73	22	1	"	"	"	"	"	
120-12-7	Anthracene	< 73		ug/Kg	73	21	1	"	"	"	"	"	
206-44-0	Fluoranthene	**160**		ug/Kg	73	33	1	"	"	"	"	"	
129-00-0	Pyrene	**140**		ug/Kg	73	24	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	**93**		ug/Kg	73	29	1	"	"	"	"	"	
218-01-9	Chrysene	**87**		ug/Kg	73	49	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**120**		ug/Kg	73	36	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 73		ug/Kg	73	29	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	**90**		ug/Kg	73	21	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	**79**		ug/Kg	73	24	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	**79**		ug/Kg	73	24	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*73.3*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
BB20-SS139A(0-1)_062513-1 SB72106-05	60225155	Soil	25-Jun-13 09:05	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**14**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 76		ug/Kg	76	23	1	SW846 8270D SIM	26-Jun-13	28-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 76		ug/Kg	76	23	1	"	"	"	"	"	
208-96-8	Acenaphthylene	**140**		ug/Kg	76	20	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 76		ug/Kg	76	21	1	"	"	"	"	"	
86-73-7	Fluorene	**100**		ug/Kg	76	20	1	"	"	"	"	"	
85-01-8	Phenanthrene	**880**		ug/Kg	76	23	1	"	"	"	"	"	
120-12-7	Anthracene	**330**		ug/Kg	76	22	1	"	"	"	"	"	
206-44-0	Fluoranthene	**1,300**		ug/Kg	76	35	1	"	"	"	"	"	
129-00-0	Pyrene	**1,100**		ug/Kg	76	25	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	**590**		ug/Kg	76	30	1	"	"	"	"	"	
218-01-9	Chrysene	**560**		ug/Kg	76	51	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**680**		ug/Kg	76	37	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	**240**		ug/Kg	76	30	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	**510**		ug/Kg	76	22	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	**390**		ug/Kg	76	25	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	**81**		ug/Kg	76	25	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	**310**		ug/Kg	76	25	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*67.4*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
BB31-SS230A(0-1)_062513-1 SB72106-06	60225155	Soil	25-Jun-13 09:20	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	< 10		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 68		ug/Kg	68	21	1	SW846 8270D SIM	26-Jun-13	28-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 68		ug/Kg	68	21	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 68		ug/Kg	68	18	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 68		ug/Kg	68	19	1	"	"	"	"	"	
86-73-7	Fluorene	< 68		ug/Kg	68	18	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 68		ug/Kg	68	20	1	"	"	"	"	"	
120-12-7	Anthracene	< 68		ug/Kg	68	20	1	"	"	"	"	"	
206-44-0	Fluoranthene	**110**		ug/Kg	68	31	1	"	"	"	"	"	
129-00-0	Pyrene	**92**		ug/Kg	68	23	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 68		ug/Kg	68	27	1	"	"	"	"	"	
218-01-9	Chrysene	< 68		ug/Kg	68	45	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**83**		ug/Kg	68	33	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 68		ug/Kg	68	27	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 68		ug/Kg	68	20	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 68		ug/Kg	68	23	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 68		ug/Kg	68	23	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 68		ug/Kg	68	23	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*75.0*			*32-153 %*			"	"	"	"	"	

This laboratory report is not valid without an authorized signature on the cover page.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
AX31-SS232A(0-1)_062513-1 SB72106-07	60225155	Soil	25-Jun-13 09:25	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	15		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 78		ug/Kg	78	24	1	SW846 8270D SIM	26-Jun-13	28-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 78		ug/Kg	78	24	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 78		ug/Kg	78	21	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 78		ug/Kg	78	21	1	"	"	"	"	"	
86-73-7	Fluorene	< 78		ug/Kg	78	21	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 78		ug/Kg	78	23	1	"	"	"	"	"	
120-12-7	Anthracene	< 78		ug/Kg	78	22	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 78		ug/Kg	78	35	1	"	"	"	"	"	
129-00-0	Pyrene	< 78		ug/Kg	78	26	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 78		ug/Kg	78	31	1	"	"	"	"	"	
218-01-9	Chrysene	< 78		ug/Kg	78	52	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	< 78		ug/Kg	78	38	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 78		ug/Kg	78	31	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 78		ug/Kg	78	22	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 78		ug/Kg	78	26	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 78		ug/Kg	78	26	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 78		ug/Kg	78	26	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*79.8*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
AH29-SB231A(0-1)_062513-1 SB72106-08	60225155	Soil	25-Jun-13 09:35	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	< 10		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 71		ug/Kg	71	21	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 71		ug/Kg	71	21	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 71		ug/Kg	71	19	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 71		ug/Kg	71	19	1	"	"	"	"	"	
86-73-7	Fluorene	< 71		ug/Kg	71	19	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 71		ug/Kg	71	21	1	"	"	"	"	"	
120-12-7	Anthracene	< 71		ug/Kg	71	20	1	"	"	"	"	"	
206-44-0	Fluoranthene	**91**		ug/Kg	71	32	1	"	"	"	"	"	
129-00-0	Pyrene	**78**		ug/Kg	71	24	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	**77**		ug/Kg	71	28	1	"	"	"	"	"	
218-01-9	Chrysene	**74**		ug/Kg	71	47	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**110**		ug/Kg	71	34	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 71		ug/Kg	71	28	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	**79**		ug/Kg	71	20	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 71		ug/Kg	71	24	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 71		ug/Kg	71	24	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 71		ug/Kg	71	24	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*76.1*			*32-153 %*			"	"	"	"	"	

This laboratory report is not valid without an authorized signature on the cover page.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
F35-SB487A(0-1)_062513-1 SB72106-09	60225155	Soil	25-Jun-13 09:45	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**3.83**		mg/kg dry	1.52	0.664	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**95.5**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315199	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
F35-SB487A(0-1)_062513-2 SB72106-10	60225155	Soil	25-Jun-13 09:50	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**4.32**		mg/kg dry	1.47	0.641	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**95.5**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315199	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
F35-SB287B(0-1)_062513-1 SB72106-11	60225155	Soil	25-Jun-13 09:55	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**3.58**		mg/kg dry	1.48	0.643	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**94.6**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315199	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
34-SB316A(0-1)_062513-1 SB72106-12	60225155	Soil	25-Jun-13 10:20	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**6.32**		mg/kg dry	1.59	0.693	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**88.5**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315199	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
34-SB316B(0-1)_062513-1 SB72106-13	60225155	Soil	25-Jun-13 10:25	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**4.12**		mg/kg dry	1.65	0.718	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**86.4**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315199	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
34-SB316C(0-1)_062513-1 SB72106-14	60225155	Soil	25-Jun-13 10:30	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**33.6**		mg/kg dry	1.60	0.696	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**89.5**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315199	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
G30-SB248D(0-1)_062513-1 SB72106-15	60225155	Soil	25-Jun-13 11:00	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**31.4**		mg/kg dry	1.65	0.719	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**80.7**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315199	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
G30-SB248C(0-1)_062513-1 SB72106-16	60225155	Soil	25-Jun-13 11:05	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	11.6		mg/kg dry	1.80	0.784	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	71.1		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315199	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
G29-SB248B(0-1)_062513-1 SB72106-17	60225155	Soil	25-Jun-13 11:10	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**12.4**		mg/kg dry	1.82	0.792	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**79.2**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315199	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
C35-SB500(0-1)_062513-1 SB72106-18	60225155	Soil	25-Jun-13 10:55	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**15.6**		mg/kg dry	1.59	0.692	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**93.3**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315199	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SS-238A1(0-1)_062513-1 SB72106-19	60225155	Soil	25-Jun-13 11:15	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**37**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 100		ug/Kg	100	31	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 100		ug/Kg	100	31	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 100		ug/Kg	100	27	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 100		ug/Kg	100	28	1	"	"	"	"	"	
86-73-7	Fluorene	< 100		ug/Kg	100	27	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 100		ug/Kg	100	30	1	"	"	"	"	"	
120-12-7	Anthracene	< 100		ug/Kg	100	29	1	"	"	"	"	"	
206-44-0	Fluoranthene	**140**		ug/Kg	100	46	1	"	"	"	"	"	
129-00-0	Pyrene	**110**		ug/Kg	100	34	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 100		ug/Kg	100	40	1	"	"	"	"	"	
218-01-9	Chrysene	< 100		ug/Kg	100	68	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	< 100		ug/Kg	100	49	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 100		ug/Kg	100	40	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 100		ug/Kg	100	29	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 100		ug/Kg	100	34	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 100		ug/Kg	100	34	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 100		ug/Kg	100	34	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*63.9*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
C19-SS5A(0-1)_062513-1 SB72106-20	60225155	Soil	25-Jun-13 11:30	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**2.76**		mg/kg dry	1.49	0.651	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**90.6**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315200	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
C20-SS5B(0-1)_062513-1 SB72106-21	60225155	Soil	25-Jun-13 12:05	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**3.69**		mg/kg dry	1.56	0.682	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**91.2**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315200	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
E18-SS09(0-1)_062513-1 SB72106-22	60225155	Soil	25-Jun-13 12:13	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	12		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 73		ug/Kg	73	22	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 73		ug/Kg	73	22	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 73		ug/Kg	73	20	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 73		ug/Kg	73	20	1	"	"	"	"	"	
86-73-7	Fluorene	< 73		ug/Kg	73	19	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 73		ug/Kg	73	22	1	"	"	"	"	"	
120-12-7	Anthracene	< 73		ug/Kg	73	21	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 73		ug/Kg	73	33	1	"	"	"	"	"	
129-00-0	Pyrene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 73		ug/Kg	73	29	1	"	"	"	"	"	
218-01-9	Chrysene	< 73		ug/Kg	73	49	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	< 73		ug/Kg	73	36	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 73		ug/Kg	73	29	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 73		ug/Kg	73	21	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*69.7*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
L23-SB245C(0-1)_062513-1 SB72106-23	60225155	Soil	25-Jun-13 11:50	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**2.95**		mg/kg dry	1.76	0.768	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**79.5**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315200	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
J23-SB245A(0-1)_062513-1 SB72106-24	60225155	Soil	25-Jun-13 11:55	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**41.0**		mg/kg dry	1.96	0.854	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**70.4**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315200	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SS235A(0-1)_062513-1 SB72106-25	60225155	Soil	25-Jun-13 11:56	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**11**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 74		ug/Kg	74	23	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 74		ug/Kg	74	23	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 74		ug/Kg	74	20	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 74		ug/Kg	74	20	1	"	"	"	"	"	
86-73-7	Fluorene	< 74		ug/Kg	74	20	1	"	"	"	"	"	
85-01-8	Phenanthrene	**110**		ug/Kg	74	22	1	"	"	"	"	"	
120-12-7	Anthracene	< 74		ug/Kg	74	21	1	"	"	"	"	"	
206-44-0	Fluoranthene	**380**		ug/Kg	74	34	1	"	"	"	"	"	
129-00-0	Pyrene	**320**		ug/Kg	74	25	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	**190**		ug/Kg	74	29	1	"	"	"	"	"	
218-01-9	Chrysene	**210**		ug/Kg	74	50	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**350**		ug/Kg	74	36	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	**130**		ug/Kg	74	29	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	**280**		ug/Kg	74	21	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	**300**		ug/Kg	74	25	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 74		ug/Kg	74	25	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	**290**		ug/Kg	74	25	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*59.9*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
E16-SS08A(0-1)_062513-1 SB72106-26	60225155	Soil	25-Jun-13 12:20	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	22		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 84		ug/Kg	84	26	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 84		ug/Kg	84	26	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 84		ug/Kg	84	23	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 84		ug/Kg	84	23	1	"	"	"	"	"	
86-73-7	Fluorene	< 84		ug/Kg	84	22	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 84		ug/Kg	84	25	1	"	"	"	"	"	
120-12-7	Anthracene	< 84		ug/Kg	84	24	1	"	"	"	"	"	
206-44-0	Fluoranthene	170		ug/Kg	84	38	1	"	"	"	"	"	
129-00-0	Pyrene	150		ug/Kg	84	28	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 84		ug/Kg	84	33	1	"	"	"	"	"	
218-01-9	Chrysene	92		ug/Kg	84	56	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	110		ug/Kg	84	41	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 84		ug/Kg	84	33	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 84		ug/Kg	84	24	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 84		ug/Kg	84	28	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 84		ug/Kg	84	28	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 84		ug/Kg	84	28	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*60.5*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
C13-SS02A(0-1)_062513-1 SB72106-27	60225155	Soil	25-Jun-13 12:30	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	15		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 77		ug/Kg	77	23	1	SW846 8270D SIM	27-Jun-13	28-Jun-13	PH-01	72471	
91-57-6	2-Methylnaphthalene	< 77		ug/Kg	77	23	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 77		ug/Kg	77	21	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 77		ug/Kg	77	21	1	"	"	"	"	"	
86-73-7	Fluorene	< 77		ug/Kg	77	20	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 77		ug/Kg	77	23	1	"	"	"	"	"	
120-12-7	Anthracene	< 77		ug/Kg	77	22	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 77		ug/Kg	77	35	1	"	"	"	"	"	
129-00-0	Pyrene	< 77		ug/Kg	77	26	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 77		ug/Kg	77	30	1	"	"	"	"	"	
218-01-9	Chrysene	< 77		ug/Kg	77	51	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	< 77		ug/Kg	77	37	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 77		ug/Kg	77	30	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 77		ug/Kg	77	22	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 77		ug/Kg	77	26	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 77		ug/Kg	77	26	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 77		ug/Kg	77	26	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*70.9*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
C11-SS01A(0-1)_062513-1 SB72106-28	60225155	Soil	25-Jun-13 12:25	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**16**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 78		ug/Kg	78	24	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 78		ug/Kg	78	24	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 78		ug/Kg	78	21	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 78		ug/Kg	78	21	1	"	"	"	"	"	
86-73-7	Fluorene	< 78		ug/Kg	78	21	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 78		ug/Kg	78	23	1	"	"	"	"	"	
120-12-7	Anthracene	< 78		ug/Kg	78	22	1	"	"	"	"	"	
206-44-0	Fluoranthene	**220**		ug/Kg	78	35	1	"	"	"	"	"	
129-00-0	Pyrene	**180**		ug/Kg	78	26	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	**96**		ug/Kg	78	31	1	"	"	"	"	"	
218-01-9	Chrysene	**120**		ug/Kg	78	52	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**150**		ug/Kg	78	38	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 78		ug/Kg	78	31	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	**100**		ug/Kg	78	22	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	**91**		ug/Kg	78	26	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 78		ug/Kg	78	26	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	**79**		ug/Kg	78	26	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*72.2*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
E3-SS07A(0-1)_062513-1 SB72106-29	60225155	Soil	25-Jun-13 12:40	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**15**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 76		ug/Kg	76	23	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 76		ug/Kg	76	23	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 76		ug/Kg	76	20	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 76		ug/Kg	76	21	1	"	"	"	"	"	
86-73-7	Fluorene	< 76		ug/Kg	76	20	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 76		ug/Kg	76	22	1	"	"	"	"	"	
120-12-7	Anthracene	< 76		ug/Kg	76	22	1	"	"	"	"	"	
206-44-0	Fluoranthene	**150**		ug/Kg	76	34	1	"	"	"	"	"	
129-00-0	Pyrene	**130**		ug/Kg	76	25	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	**81**		ug/Kg	76	30	1	"	"	"	"	"	
218-01-9	Chrysene	**92**		ug/Kg	76	50	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**130**		ug/Kg	76	37	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 76		ug/Kg	76	30	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	**93**		ug/Kg	76	22	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	**90**		ug/Kg	76	25	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 76		ug/Kg	76	25	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	**91**		ug/Kg	76	25	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*62.6*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
D4-SS06A(0-1)_062513-1 SB72106-30	60225155	Soil	25-Jun-13 12:50	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**12**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 74		ug/Kg	74	22	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 74		ug/Kg	74	22	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 74		ug/Kg	74	20	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 74		ug/Kg	74	20	1	"	"	"	"	"	
86-73-7	Fluorene	< 74		ug/Kg	74	19	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 74		ug/Kg	74	22	1	"	"	"	"	"	
120-12-7	Anthracene	< 74		ug/Kg	74	21	1	"	"	"	"	"	
206-44-0	Fluoranthene	**150**		ug/Kg	74	34	1	"	"	"	"	"	
129-00-0	Pyrene	**140**		ug/Kg	74	25	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	**75**		ug/Kg	74	29	1	"	"	"	"	"	
218-01-9	Chrysene	**78**		ug/Kg	74	49	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**99**		ug/Kg	74	36	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 74		ug/Kg	74	29	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 74		ug/Kg	74	21	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 74		ug/Kg	74	25	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 74		ug/Kg	74	25	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 74		ug/Kg	74	25	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*58.5*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
D4-SS06A(0-1)_062513-2 SB72106-31	60225155	Soil	25-Jun-13 12:52	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	12		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 73		ug/Kg	73	22	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 73		ug/Kg	73	22	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 73		ug/Kg	73	20	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 73		ug/Kg	73	20	1	"	"	"	"	"	
86-73-7	Fluorene	< 73		ug/Kg	73	19	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 73		ug/Kg	73	22	1	"	"	"	"	"	
120-12-7	Anthracene	< 73		ug/Kg	73	21	1	"	"	"	"	"	
206-44-0	Fluoranthene	150		ug/Kg	73	33	1	"	"	"	"	"	
129-00-0	Pyrene	130		ug/Kg	73	24	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 73		ug/Kg	73	29	1	"	"	"	"	"	
218-01-9	Chrysene	< 73		ug/Kg	73	49	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	88		ug/Kg	73	35	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 73		ug/Kg	73	29	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 73		ug/Kg	73	21	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*57.4*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
F4-S1A(0-1)_062513-1 SB72106-32	60225155	Soil	25-Jun-13 12:44	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	15		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 77		ug/Kg	77	23	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 77		ug/Kg	77	23	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 77		ug/Kg	77	21	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 77		ug/Kg	77	21	1	"	"	"	"	"	
86-73-7	Fluorene	< 77		ug/Kg	77	20	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 77		ug/Kg	77	23	1	"	"	"	"	"	
120-12-7	Anthracene	< 77		ug/Kg	77	22	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 77		ug/Kg	77	35	1	"	"	"	"	"	
129-00-0	Pyrene	< 77		ug/Kg	77	26	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 77		ug/Kg	77	30	1	"	"	"	"	"	
218-01-9	Chrysene	< 77		ug/Kg	77	51	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	< 77		ug/Kg	77	37	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 77		ug/Kg	77	30	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 77		ug/Kg	77	22	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 77		ug/Kg	77	26	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 77		ug/Kg	77	26	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 77		ug/Kg	77	26	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*47.2*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
I2-SS14A(0-1)_062513-1 SB72106-33	60225155	Soil	25-Jun-13 12:59	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**14**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 77		ug/Kg	77	23	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 77		ug/Kg	77	23	1	"	"	"	"	"	
208-96-8	Acenaphthylene	**280**		ug/Kg	77	21	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 77		ug/Kg	77	21	1	"	"	"	"	"	
86-73-7	Fluorene	< 77		ug/Kg	77	20	1	"	"	"	"	"	
85-01-8	Phenanthrene	**450**		ug/Kg	77	23	1	"	"	"	"	"	
120-12-7	Anthracene	**150**		ug/Kg	77	22	1	"	"	"	"	"	
206-44-0	Fluoranthene	**1,400**		ug/Kg	77	35	1	"	"	"	"	"	
129-00-0	Pyrene	**1,100**		ug/Kg	77	26	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	**560**		ug/Kg	77	30	1	"	"	"	"	"	
218-01-9	Chrysene	**700**		ug/Kg	77	51	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**830**		ug/Kg	77	37	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	**310**		ug/Kg	77	30	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	**610**		ug/Kg	77	22	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	**480**		ug/Kg	77	26	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	**91**		ug/Kg	77	26	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	**390**		ug/Kg	77	26	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*65.7*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
N4-SS20A(0-1)_062513-1 SB72106-34	60225155	Soil	25-Jun-13 13:05	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**24**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 86		ug/Kg	86	26	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 86		ug/Kg	86	26	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 86		ug/Kg	86	23	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 86		ug/Kg	86	23	1	"	"	"	"	"	
86-73-7	Fluorene	< 86		ug/Kg	86	23	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 86		ug/Kg	86	25	1	"	"	"	"	"	
120-12-7	Anthracene	< 86		ug/Kg	86	25	1	"	"	"	"	"	
206-44-0	Fluoranthene	**200**		ug/Kg	86	39	1	"	"	"	"	"	
129-00-0	Pyrene	**180**		ug/Kg	86	29	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	**100**		ug/Kg	86	34	1	"	"	"	"	"	
218-01-9	Chrysene	**110**		ug/Kg	86	57	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**150**		ug/Kg	86	42	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 86		ug/Kg	86	34	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	**99**		ug/Kg	86	25	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 86		ug/Kg	86	29	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 86		ug/Kg	86	29	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 86		ug/Kg	86	29	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*62.9*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
N8-SS257A(0-1)_062513-1 SB72106-35	60225155	Soil	25-Jun-13 13:01	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**7.42**		mg/kg dry	1.48	0.645	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**86.9**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315200	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
M9-SS257B(0-1)_062513-1 SB72106-36	60225155	Soil	25-Jun-13 13:17	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**4.88**		mg/kg dry	1.56	0.680	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**86.2**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315200	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
M10-SS21A(0-1)_062513-1 SB72106-37	60225155	Soil	25-Jun-13 13:21	25-Jun-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**8.39**		mg/kg dry	1.59	0.693	1	SW846 6010C	26-Jun-13	28-Jun-13	LR	1315062	X
General Chemistry Parameters													
	% Solids	**90.4**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315200	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
L14-SS17A(0-1)_062513-1 SB72106-38	60225155	Soil	25-Jun-13 13:28	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**12**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 73		ug/Kg	73	22	1	SW846 8270D SIM	26-Jun-13	29-Jun-13	PH-01	72462	
91-57-6	2-Methylnaphthalene	< 73		ug/Kg	73	22	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 73		ug/Kg	73	20	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 73		ug/Kg	73	20	1	"	"	"	"	"	
86-73-7	Fluorene	< 73		ug/Kg	73	19	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 73		ug/Kg	73	22	1	"	"	"	"	"	
120-12-7	Anthracene	< 73		ug/Kg	73	21	1	"	"	"	"	"	
206-44-0	Fluoranthene	**130**		ug/Kg	73	33	1	"	"	"	"	"	
129-00-0	Pyrene	**97**		ug/Kg	73	24	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 73		ug/Kg	73	29	1	"	"	"	"	"	
218-01-9	Chrysene	**78**		ug/Kg	73	49	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**99**		ug/Kg	73	36	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 73		ug/Kg	73	29	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 73		ug/Kg	73	21	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*59.7*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
T12-SS146A(0-1)_062513-1 SB72106-39	60225155	Soil	25-Jun-13 13:40	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	14		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 76		ug/Kg	76	23	1	SW846 8270D SIM	27-Jun-13	28-Jun-13	PH-01	72471	
91-57-6	2-Methylnaphthalene	< 76		ug/Kg	76	23	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 76		ug/Kg	76	20	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 76		ug/Kg	76	21	1	"	"	"	"	"	
86-73-7	Fluorene	< 76		ug/Kg	76	20	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 76		ug/Kg	76	23	1	"	"	"	"	"	
120-12-7	Anthracene	< 76		ug/Kg	76	22	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 76		ug/Kg	76	34	1	"	"	"	"	"	
129-00-0	Pyrene	< 76		ug/Kg	76	25	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 76		ug/Kg	76	30	1	"	"	"	"	"	
218-01-9	Chrysene	< 76		ug/Kg	76	51	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	< 76		ug/Kg	76	37	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 76		ug/Kg	76	30	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 76		ug/Kg	76	22	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 76		ug/Kg	76	25	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 76		ug/Kg	76	25	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 76		ug/Kg	76	25	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*64.3*			*32-153 %*			"	"	"	"	"	

This laboratory report is not valid without an authorized signature on the cover page.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
R11-SS147A(0-1)_062513-1 SB72106-40	60225155	Soil	25-Jun-13 14:00	25-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	11		PCT	10	0.050	1	ASTM D2216 -- PMOIST		26-Jun-13	PH-01	R74879	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 74		ug/Kg	74	22	1	SW846 8270D SIM	27-Jun-13	28-Jun-13	PH-01	72471	
91-57-6	2-Methylnaphthalene	< 74		ug/Kg	74	22	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 74		ug/Kg	74	20	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 74		ug/Kg	74	20	1	"	"	"	"	"	
86-73-7	Fluorene	< 74		ug/Kg	74	20	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 74		ug/Kg	74	22	1	"	"	"	"	"	
120-12-7	Anthracene	< 74		ug/Kg	74	21	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 74		ug/Kg	74	34	1	"	"	"	"	"	
129-00-0	Pyrene	< 74		ug/Kg	74	25	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 74		ug/Kg	74	29	1	"	"	"	"	"	
218-01-9	Chrysene	< 74		ug/Kg	74	49	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	< 74		ug/Kg	74	36	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 74		ug/Kg	74	29	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 74		ug/Kg	74	21	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 74		ug/Kg	74	25	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 74		ug/Kg	74	25	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 74		ug/Kg	74	25	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*66.2*			*32-153 %*			"	"	"	"	"	

This laboratory report is not valid without an authorized signature on the cover page.

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1315062 - SW846 3050B										
Blank (1315062-BLK1)						Prepared: 26-Jun-13	Analyzed: 28-Jun-13			
Arsenic	< 1.39		mg/kg wet	1.39						
Duplicate (1315062-DUP1)			**Source: SB72106-09**			Prepared: 26-Jun-13	Analyzed: 28-Jun-13			
Arsenic	**22.5**	QM4, QR9	mg/kg dry	1.51		3.83			142	20
Matrix Spike (1315062-MS1)			**Source: SB72106-37**			Prepared: 26-Jun-13	Analyzed: 28-Jun-13			
Arsenic	**110**		mg/kg dry	1.57	131	8.39	78	75-125		
Matrix Spike Dup (1315062-MSD1)			**Source: SB72106-37**			Prepared: 26-Jun-13	Analyzed: 28-Jun-13			
Arsenic	**89.3**	QM8, QR9	mg/kg dry	1.59	133	8.39	61	75-125	21	20
Post Spike (1315062-PS1)			**Source: SB72106-37**			Prepared: 26-Jun-13	Analyzed: 28-Jun-13			
Arsenic	**126**		mg/kg dry	1.59	132	8.39	89	80-120		
Reference (1315062-SRM1)						Prepared: 26-Jun-13	Analyzed: 28-Jun-13			
Arsenic	**83.6**		mg/kg wet	1.50	94.0		89	82.97-117.58		
Reference (1315062-SRM2)						Prepared: 26-Jun-13	Analyzed: 28-Jun-13			
Arsenic	**84.6**		mg/kg wet	1.50	92.6		91	82.97-117.58		

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1315200 - General Preparation										
Duplicate (1315200-DUP1)			**Source: SB72106-20**		Prepared & Analyzed: 27-Jun-13					
% Solids	**90.4**		%			90.6			0.3	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 72462 - SW3545A										
LCS (LCS-72462)					Prepared: 26-Jun-13		Analyzed: 28-Jun-13			
Naphthalene	**127.2**		ug/Kg	66	166.7		76.3	19-102		
2-Methylnaphthalene	**121.8**		ug/Kg	66	166.7		73.1	19-112		
Acenaphthylene	**127.8**		ug/Kg	66	166.7		76.7	23-134		
Acenaphthene	**147.4**		ug/Kg	66	166.7		88.4	33-113		
Fluorene	**123.8**		ug/Kg	66	166.7		74.3	32-122		
Phenanthrene	**121.7**		ug/Kg	66	166.7		73.0	38-108		
Anthracene	**122.2**		ug/Kg	66	166.7		73.3	35-114		
Fluoranthene	**135.6**		ug/Kg	66	166.7		81.3	41-117		
Pyrene	**122.0**		ug/Kg	66	166.7		73.2	39-119		
Benzo(a)anthracene	**137.0**		ug/Kg	66	166.7		82.2	39-111		
Chrysene	**127.3**		ug/Kg	66	166.7		76.4	36-112		
Benzo(b)fluoranthene	**120.9**		ug/Kg	66	166.7		72.6	39-128		
Benzo(k)fluoranthene	**115.9**		ug/Kg	66	166.7		69.5	30-133		
Benzo(a)pyrene	**130.7**		ug/Kg	66	166.7		78.4	43-119		
Indeno(1,2,3-cd)pyrene	**130.7**		ug/Kg	66	166.7		78.4	48-119		
Dibenzo(a,h)anthracene	**119.9**		ug/Kg	66	166.7		71.9	48-121		
Benzo(g,h,i)perylene	**122.0**		ug/Kg	66	166.7		73.2	45-116		
Surrogate: Benzo(e)pyrene-d12	*120.0*		ug/Kg		*166.7*		*72.0*	*32-153*		
Matrix Spike (M1046-04AMS)			**Source: SB72106-04**		Prepared: 26-Jun-13		Analyzed: 28-Jun-13			
Naphthalene	**173.3**		ug/Kg	73	185.4		93.5	19-102		
2-Methylnaphthalene	**168.2**		ug/Kg	73	185.4		90.7	19-112		
Acenaphthylene	**171.2**		ug/Kg	73	185.4		92.4	23-134		
Acenaphthene	**173.1**		ug/Kg	73	185.4		93.4	33-113		
Fluorene	**158.3**		ug/Kg	73	185.4		85.4	32-122		
Phenanthrene	**198.9**		ug/Kg	73	185.4		107	38-108		
Anthracene	**165.2**		ug/Kg	73	185.4		89.1	35-114		
Fluoranthene	**290.1**		ug/Kg	73	185.4		70.9	41-117		
Pyrene	**292.0**		ug/Kg	73	185.4		81.1	39-119		
Benzo(a)anthracene	**237.8**		ug/Kg	73	185.4		78.2	39-111		
Chrysene	**244.3**		ug/Kg	73	185.4		85.0	36-112		
Benzo(b)fluoranthene	**268.8**		ug/Kg	73	185.4		81.1	39-128		
Benzo(k)fluoranthene	**195.1**		ug/Kg	73	185.4		105	30-133		
Benzo(a)pyrene	**272.6**		ug/Kg	73	185.4		98.7	43-119		
Indeno(1,2,3-cd)pyrene	**265.6**		ug/Kg	73	185.4		101	48-119		
Dibenzo(a,h)anthracene	**167.2**		ug/Kg	73	185.4		90.2	48-121		
Benzo(g,h,i)perylene	**256.1**		ug/Kg	73	185.4		95.5	45-116		
Surrogate: Benzo(e)pyrene-d12	*145.8*		ug/Kg		*185.4*		*78.6*	*32-153*		
Matrix Spike Dup (M1046-04AMSD)			**Source: SB72106-04**		Prepared: 26-Jun-13		Analyzed: 28-Jun-13			
Naphthalene	**162.6**		ug/Kg	72	183.0		88.9	19-102	6.38	40.0
2-Methylnaphthalene	**150.0**		ug/Kg	72	183.0		82.0	19-112	11.5	40.0
Acenaphthylene	**159.2**		ug/Kg	72	183.0		87.0	23-134	7.24	40.0
Acenaphthene	**158.1**		ug/Kg	72	183.0		86.4	33-113	9.05	40.0
Fluorene	**153.9**		ug/Kg	72	183.0		84.1	32-122	2.84	40.0
Phenanthrene	**170.8**		ug/Kg	72	183.0		93.3	38-108	15.2	40.0
Anthracene	**170.2**		ug/Kg	72	183.0		93.0	35-114	2.97	40.0
Fluoranthene	**284.8**		ug/Kg	72	183.0		69.0	41-117	1.86	40.0
Pyrene	**259.9**		ug/Kg	72	183.0		64.6	39-119	11.6	40.0
Benzo(a)anthracene	**214.7**		ug/Kg	72	183.0		66.6	39-111	10.2	40.0
Chrysene	**216.6**		ug/Kg	72	183.0		71.0	36-112	12.0	40.0
Benzo(b)fluoranthene	**230.5**		ug/Kg	72	183.0		61.2	39-128	15.3	40.0
Benzo(k)fluoranthene	**174.8**		ug/Kg	72	183.0		95.5	30-133	11.0	40.0

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 72462 - SW3545A										
Matrix Spike Dup (M1046-04AMSD)			**Source: SB72106-04**		Prepared: 26-Jun-13		Analyzed: 28-Jun-13			
Benzo(a)pyrene	**219.2**		ug/Kg	72	183.0		70.8	43-119	21.7	40.0
Indeno(1,2,3-cd)pyrene	**220.2**		ug/Kg	72	183.0		77.3	48-119	18.7	40.0
Dibenzo(a,h)anthracene	**153.4**		ug/Kg	72	183.0		83.9	48-121	8.60	40.0
Benzo(g,h,i)perylene	**201.4**		ug/Kg	72	183.0		66.8	45-116	23.9	40.0
Surrogate: Benzo(e)pyrene-d12	*141.4*		ug/Kg		*183.0*		*77.3*	*32-153*		
Blank (MB-72462)						Prepared: 26-Jun-13		Analyzed: 28-Jun-13		
Naphthalene	< 66	U	ug/Kg	66				-		
2-Methylnaphthalene	< 66	U	ug/Kg	66				-		
Acenaphthylene	< 66	U	ug/Kg	66				-		
Acenaphthene	< 66	U	ug/Kg	66				-		
Fluorene	< 66	U	ug/Kg	66				-		
Phenanthrene	< 66	U	ug/Kg	66				-		
Anthracene	< 66	U	ug/Kg	66				-		
Fluoranthene	< 66	U	ug/Kg	66				-		
Pyrene	< 66	U	ug/Kg	66				-		
Benzo(a)anthracene	< 66	U	ug/Kg	66				-		
Chrysene	< 66	U	ug/Kg	66				-		
Benzo(b)fluoranthene	< 66	U	ug/Kg	66				-		
Benzo(k)fluoranthene	< 66	U	ug/Kg	66				-		
Benzo(a)pyrene	< 66	U	ug/Kg	66				-		
Indeno(1,2,3-cd)pyrene	< 66	U	ug/Kg	66				-		
Dibenzo(a,h)anthracene	< 66	U	ug/Kg	66				-		
Benzo(g,h,i)perylene	< 66	U	ug/Kg	66				-		
Surrogate: Benzo(e)pyrene-d12	*121.9*		ug/Kg		*166.7*		*73.2*	*32-153*		
Batch 72471 - SW3545A										
LCS (LCS-72471)						Prepared: 27-Jun-13		Analyzed: 28-Jun-13		
Naphthalene	**130.6**		ug/Kg	66	166.7		78.4	19-102		
2-Methylnaphthalene	**129.2**		ug/Kg	66	166.7		77.5	19-112		
Acenaphthylene	**136.0**		ug/Kg	66	166.7		81.6	23-134		
Acenaphthene	**165.8**		ug/Kg	66	166.7		99.5	33-113		
Fluorene	**132.1**		ug/Kg	66	166.7		79.3	32-122		
Phenanthrene	**133.2**		ug/Kg	66	166.7		79.9	38-108		
Anthracene	**163.8**		ug/Kg	66	166.7		98.3	35-114		
Fluoranthene	**152.5**		ug/Kg	66	166.7		91.5	41-117		
Pyrene	**135.9**		ug/Kg	66	166.7		81.5	39-119		
Benzo(a)anthracene	**132.3**		ug/Kg	66	166.7		79.4	39-111		
Chrysene	**132.5**		ug/Kg	66	166.7		79.5	36-112		
Benzo(b)fluoranthene	**124.8**		ug/Kg	66	166.7		74.9	39-128		
Benzo(k)fluoranthene	**123.7**		ug/Kg	66	166.7		74.2	30-133		
Benzo(a)pyrene	**132.1**		ug/Kg	66	166.7		79.2	43-119		
Indeno(1,2,3-cd)pyrene	**128.8**		ug/Kg	66	166.7		77.3	48-119		
Dibenzo(a,h)anthracene	**110.6**		ug/Kg	66	166.7		66.4	48-121		
Benzo(g,h,i)perylene	**120.5**		ug/Kg	66	166.7		72.3	45-116		
Surrogate: Benzo(e)pyrene-d12	*124.6*		ug/Kg		*166.7*		*74.7*	*32-153*		
Matrix Spike (M1046-13AMS)			**Source: SB72106-27**		Prepared: 27-Jun-13		Analyzed: 28-Jun-13			
Naphthalene	**155.8**		ug/Kg	77	194.4		80.1	19-102		
2-Methylnaphthalene	**148.2**		ug/Kg	77	194.4		76.2	19-112		
Acenaphthylene	**150.6**		ug/Kg	77	194.4		77.5	23-134		
Acenaphthene	**175.3**		ug/Kg	77	194.4		90.2	33-113		
Fluorene	**147.0**		ug/Kg	77	194.4		75.6	32-122		

Subcontracted Analyses - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 72471 - SW3545A										
Matrix Spike (M1046-13AMS)			**Source: SB72106-27**		Prepared: 27-Jun-13 Analyzed: 28-Jun-13					
Phenanthrene	**177.3**		ug/Kg	77	194.4		91.2	38-108		
Anthracene	**143.5**		ug/Kg	77	194.4		73.8	35-114		
Fluoranthene	**212.9**		ug/Kg	77	194.4		109	41-117		
Pyrene	**184.6**		ug/Kg	77	194.4		95.0	39-119		
Benzo(a)anthracene	**162.7**		ug/Kg	77	194.4		83.7	39-111		
Chrysene	**171.9**		ug/Kg	77	194.4		88.4	36-112		
Benzo(b)fluoranthene	**179.6**		ug/Kg	77	194.4		92.4	39-128		
Benzo(k)fluoranthene	**135.9**		ug/Kg	77	194.4		69.9	30-133		
Benzo(a)pyrene	**161.2**		ug/Kg	77	194.4		82.9	43-119		
Indeno(1,2,3-cd)pyrene	**164.4**		ug/Kg	77	194.4		84.6	48-119		
Dibenzo(a,h)anthracene	**131.2**		ug/Kg	77	194.4		67.5	48-121		
Benzo(g,h,i)perylene	**154.1**		ug/Kg	77	194.4		79.3	45-116		
Surrogate: Benzo(e)pyrene-d12	*133.8*		ug/Kg		*194.4*		*68.8*	*32-153*		
Matrix Spike Dup (M1046-13AMSD)			**Source: SB72106-27**		Prepared: 27-Jun-13 Analyzed: 28-Jun-13					
Naphthalene	**147.9**		ug/Kg	76	193.2		76.6	19-102	5.22	40.0
2-Methylnaphthalene	**143.2**		ug/Kg	76	193.2		74.1	19-112	3.40	40.0
Acenaphthylene	**149.4**		ug/Kg	76	193.2		77.4	23-134	0.810	40.0
Acenaphthene	**171.4**		ug/Kg	76	193.2		88.7	33-113	2.26	40.0
Fluorene	**145.6**		ug/Kg	76	193.2		75.4	32-122	0.993	40.0
Phenanthrene	**148.9**		ug/Kg	76	193.2		77.1	38-108	17.4	40.0
Anthracene	**155.5**		ug/Kg	76	193.2		80.5	35-114	8.03	40.0
Fluoranthene	**182.2**		ug/Kg	76	193.2		94.3	41-117	15.5	40.0
Pyrene	**170.8**		ug/Kg	76	193.2		88.4	39-119	7.78	40.0
Benzo(a)anthracene	**152.2**		ug/Kg	76	193.2		78.8	39-111	6.67	40.0
Chrysene	**164.4**		ug/Kg	76	193.2		85.1	36-112	4.48	40.0
Benzo(b)fluoranthene	**173.8**		ug/Kg	76	193.2		90.0	39-128	3.28	40.0
Benzo(k)fluoranthene	**133.0**		ug/Kg	76	193.2		68.8	30-133	2.16	40.0
Benzo(a)pyrene	**160.3**		ug/Kg	76	193.2		83.0	43-119	0.529	40.0
Indeno(1,2,3-cd)pyrene	**162.3**		ug/Kg	76	193.2		84.0	48-119	1.33	40.0
Dibenzo(a,h)anthracene	**134.5**		ug/Kg	76	193.2		69.6	48-121	2.50	40.0
Benzo(g,h,i)perylene	**150.8**		ug/Kg	76	193.2		78.1	45-116	2.17	40.0
Surrogate: Benzo(e)pyrene-d12	*136.5*		ug/Kg		*193.2*		*70.6*	*32-153*		
Blank (MB-72471)						Prepared: 27-Jun-13 Analyzed: 28-Jun-13				
Naphthalene	< 66	U	ug/Kg	66				-		
2-Methylnaphthalene	< 66	U	ug/Kg	66				-		
Acenaphthylene	< 66	U	ug/Kg	66				-		
Acenaphthene	< 66	U	ug/Kg	66				-		
Fluorene	< 66	U	ug/Kg	66				-		
Phenanthrene	< 66	U	ug/Kg	66				-		
Anthracene	< 66	U	ug/Kg	66				-		
Fluoranthene	< 66	U	ug/Kg	66				-		
Pyrene	< 66	U	ug/Kg	66				-		
Benzo(a)anthracene	< 66	U	ug/Kg	66				-		
Chrysene	< 66	U	ug/Kg	66				-		
Benzo(b)fluoranthene	< 66	U	ug/Kg	66				-		
Benzo(k)fluoranthene	< 66	U	ug/Kg	66				-		
Benzo(a)pyrene	< 66	U	ug/Kg	66				-		
Indeno(1,2,3-cd)pyrene	< 66	U	ug/Kg	66				-		
Dibenzo(a,h)anthracene	< 66	U	ug/Kg	66				-		
Benzo(g,h,i)perylene	< 66	U	ug/Kg	66				-		
Surrogate: Benzo(e)pyrene-d12	*120.1*		ug/Kg		*166.7*		*72.1*	*32-153*		

Notes and Definitions

QM4	Visual evaluation of the sample indicates the RPD is above the control limit due to a non-homogeneous sample matrix.
QM8	The spike recovery exceeded the QC control limits for the MS and/or MSD. The batch was accepted based upon acceptable PS and /or LCS recovery.
QR9	RPD out of acceptance range. The batch is accepted based upon LCS and/or LCSD recovery.
U	Compound not detected below method detection limit at or above the MRL.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Validated by:
June O'Connor
Nicole Leja

SB72106 JB

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 5

Special Handling: 5
- ☒ Standard TAT - ~~7 to 10~~ business days
- ☐ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: AECOM
500 Enterprise Dr
Rocky Hill CT

Telephone #: 860 263 5800
Project Mgr. Malcolm Beeler

Invoice To: Same

P.O. No.: 47304 ACM RQN:

Project No.: 60225155
Site Name: Greenwich High School
Location: Greenwich State: CT
Sampler(s): M. Reed + J. Williams

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= H_3PO_4 11= _____ 12= _____

List preservative code below:

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

QA/QC Reporting Notes:
* additional charges may apply

MA DEP MCP CAM Report: Yes ☐ No ☒
CT DPH RCP Report: Yes ☒ No ☐

QA/QC Reporting Level
☒ Standard ☐ No QC ☐ DQA*
☐ NYASP A* ☐ NYASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER IV*
☐ Other _____

State-specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		PAHs - SIM	Arsenic						
72106-01	AN19-SS117A(0-1)-062513-1	6/25/13	0845	G	SO						1							
02	AN19-SS117A(0-1)-062513-2	6/25/13	0846	G	SO						1							
03	AQ18-SS144A(0-1)-062513-1	6/25/13	0900	G	SO						1							
04	BC22-SS161A(0-1)-062513-1	6/25/13	0907	G	SO						3							
05	BB20-SS139A(0-1)-062513-1	6/25/13	0905	G	SO						1							
06	BB31-SS230A(0-1)-062513-1	6/25/13	0920	G	SO						1							
07	AX31-SS232A(0-1)-062513-1	6/25/13	0925	G	SO						1							
08	AH29-SB231A(0-1)-062513-1	6/25/13	0935	G	SO						1							
09	F35-SB487A(0-1)-062513-1	6/25/13	0945	G	SO							1						
10	F35-SB487A(0-1)-062513-2	6/25/13	0950	G	SO							1						

RL for Benzo(a)pyrene @ 0.159 mg/kg

MS/MSD

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	6/25/13	1440	
[signature]	[signature]	6/25/13	1645	1.8

☒ EDD Format equis
☒ E-mail to Malcolm.beeler@aecom.com
colleen.scott@aecom.com

Condition upon receipt:
☐ Ambient ☒ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 2 of 5

Special Handling:
- ☒ Standard TAT - ~~7 to 10~~ 5 business days
- ☐ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: AECOM
500 Enterprise dr
Rocky Hill CT

Telephone #: 860 263 5900
Project Mgr. Malcolm Beeler

Invoice To: same

P.O. No.: 47309ACM RQN:

Project No.: 60225155
Site Name: Greenwich High School
Location: Greenwich State: CT
Sampler(s): M. Rood + J. Williams

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= H_3PO_4 11= _____ 12= _____

List preservative code below:

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	PAHs - SIM	Arsenic						
M2106-11	F35-SB287B(0-1)_062513-1	6/25/13	0955	G	SO						1						
12	34-SB316A(0-1)_062513-1	6/25/13	1020	G	SO						1						
13	34-SB316B(0-1)_062513-1	6/25/13	1025	G	SO						1						
14	34-SB316C(0-1)_062513-1	6/25/13	1030	G	SO						1						
15	G30-SB248D(0-1)_062513-1	6/25/13	1100	G	SO						1						
16	G30-SB248C(0-1)_062513-1	6/25/13	1105	G	SO						1						
17	G29-SB248B(0-1)_062513-1	6/25/13	1110	G	SO						1						
18	C35-SB500(0-1)_062513-1	6/25/13	1055	G	SO						1						
19	SS-23B41(0-1)_062513-1	6/25/13	1115	G	SO					1							
20	C19-SS5A(0-1)_062513-1	6/25/13	1130	G	SO						1						

Analyses:

MA DEP MCP CAM Report: Yes ☐ No ☒
CT DPH RCP Report: Yes ☒ No ☐

QA/QC Reporting Level
☒ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER IV*
☐ Other _____

State-specific reporting standards:

RL for Benzo(a)pyrene @ 0.159 mg/kg

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	6/25/13	1440	
[signature]	[signature]	6/25/13	16:45	1.8

☒ EDD Format equis
☒ E-mail to malcolm.beeler@aecom.com
colleen.scott@aecom.com

Condition upon receipt:
☐ Ambient ☒ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 3 of 5

Special Handling: 5
- [x] Standard TAT - ~~7 to~~ 10 business days
- [ ] Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: AECOM
500 Enterprise Dr
Rocky Hill CT

Telephone #: 860 263 5800
Project Mgr. Malcolm beeler

Invoice To: Same

P.O. No.: 47309 ACM RQN:

Project No.: 60225155
Site Name: Greenwich High School
Location: Greenwich State: CT
Sampler(s): M. Read & J. Williams

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= H_3PO_4 11= NCL 12= _____

List preservative code below:

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

MA DEP MCP CAM Report: Yes [ ] No [x]
CT DPH RCP Report: Yes [x] No [ ]

QA/QC Reporting Level
[x] Standard [ ] No QC [ ] DQA*
[ ] NY ASP A* [ ] NY ASP B*
[ ] NJ Reduced* [x] NJ Full*
[ ] TIER II* [ ] TIER IV*
[ ] Other _____

State-specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	PAHs - SIM	Arsenic							State-specific reporting standards:
72406-21	C20-SS5B(0-1)-002513-1	6/25/13	1205	G	SO						1							RL for benzo(a)pyrene
22	E18-SS09(0-1)-002513-1	6/25/13	1213	G	SO					1								@ 0.159 mg/kg
	~~L23 245~~		1150								1							JW
23	L23-SB245C(0-1)-002513-1	6/25/13	1150	G	SO						1							
24	L23-SB245A(0-1)-002513-1	6/25/13	1155	G	SO						1							
25	SS235A(0-1)-002513-1	6/25/13	1156	G	SO					1								
26	E16-SS08A(0-1)-002513-1	6/25/13	1220	G	SO					1								
27	C13-SS02A(0-1)-002513-1	6/25/13	1230	G	SO					3								MS/MSD
28	C11-SS01A(0-1)-002513-1	6/25/13	1225	G	SO					1								
29	E3-SS07A(0-1)-002513-1	6/25/13	1240	G	SO					1								

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	6/25/13	1440	
[signature]	[signature]	6/25/13	16:45	1.8

[x] EDD Format equis
[x] E-mail to malcom.beeler@aecom.com
collen.scott@aecom.com

Condition upon receipt:
[ ] Ambient [x] Iced [ ] Refrigerated [ ] DI VOA Frozen [ ] Soil Jar Frozen

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 4 of 5

Special Handling: 5
- ☑ Standard TAT - ~~7 to~~ 10 business days
- ☐ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: AECOM
500 Enterprise Dr
Rocky Hill CT

Telephone #: 860 243 5800
Project Mgr. Malcolm Beeler

Invoice To: Same

P.O. No.: 47304 Acm RQN:

Project No.: 60225153
Site Name: Greenwich High School
Location: Greenwich State: CT
Sampler(s): M. Rood + J. Williams

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= H_3PO_4 11= _____ 12= _____

List preservative code below:

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

QA/QC Reporting Notes:
* additional charges may apply

MA DEP MCP CAM Report: Yes ☐ No ☒
CT DPH RCP Report: Yes ☒ No ☐

QA/QC Reporting Level
☒ Standard ☐ No QC ☐ DQA*
☐ NYASP A* ☐ NYASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER IV*
☐ Other _____

State-specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	PAHs - SIM	Arsenic	
72106 30	D4-SS06A(0-1)-062513-1	6/25/13	1250	G	SO					1		
31	D4-SS06A(0-1)-062513-2	6/25/13	1252	G	SO					1		
32	F4-SS1A(0-1)-062513-1	6/25/13	1244	G	SO					1		
33	I2-SS14A(0-1)-062513-1	6/25/13	1259	G	SO					1		
34	N4-SS20A(0-1)-062513-1	6/25/13	1305	G	SO					1		
35	N8-SS25A(0-1)-062513-1	6/25/13	1301	G	SO						1	
36	M9-SS25B(0-1)-062513-1	6/25/13	1317	G	SO						1	
37	M10-SS21A(0-1)-062513-1	6/25/13	1321	G	SO						3	
38	L14-SS17A(0-1)-062513-1	6/25/13	1328	G	SO					1		
39	T12-SS14A(0-1)-062513-1	6/25/13	1340	G	SO					1		

Reporting Limit for Benzo(a)pyrene should be 0.159 mg/kg

MS/MSD

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	6/25/13	1440	
[signature]	[signature]	6/25/13	16:45	1.8

☒ EDD Format EQuIS
☒ E-mail to malcolm.beeler@aecom.com

Condition upon receipt:
☐ Ambient ☒ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 5 of 5

Special Handling: 5
- [x] Standard TAT - ~~7~~ to 10 business days
- [ ] Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: AEcom
500 Enterprise Drive
Rocky Hill CT

Telephone #: 800 243 5800
Project Mgr. Malcolm Bieler

Invoice To: Same

P.O. No.: 47309 ACM RQN: _____

Project No.: 60225155
Site Name: Greenwich High School
Location: Greenwich State: CT
Sampler(s): M. Read + J. Williams

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= H_3PO_4 11= ice 12= _____

List preservative code below:

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	PAH - SIM	Arsenic						
72106-10	R11-SS147A(0-1)-0025513-1	6/25/13	1400	G	SO					1							

Containers: # of VOA Vials, # of Amber Glass, # of Clear Glass, # of Plastic
Analyses: PAH - SIM, Arsenic

MA DEP MCP CAM Report: Yes ☐ No ☒
CT DPH RCP Report: Yes ☒ No ☐

QA/QC Reporting Level
☒ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☒ NJ Full*
☐ TIER II* ☐ TIER IV*
☐ Other _____

State-specific reporting standards:
RL for benzo(a)pyrene @ 0.159 mg/kg

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	6/25/13	1440	
[signature]	[signature]	6/25/13	16:45	1.8

☒ EDD Format equis
☒ E-mail to malcolm.bieler@aecom.com
eileen.scott@aecom.com

Condition upon receipt:
☐ Ambient ☒ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

Report Date:
03-Jul-13 16:31

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Laboratory Report

AECOM Environment
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Attn: Malcolm Beeler

Project: Greenwich HS - Greenwich, CT
Project #: 60225155

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB72189-01	D25-SB321D(0-1)-062613-1	Soil	26-Jun-13 10:00	26-Jun-13 17:10
SB72189-02	D25-SB321C(0-1)-062613-1	Soil	26-Jun-13 10:05	26-Jun-13 17:10
SB72189-03	C25-SB321A(0-1)-062613-1	Soil	26-Jun-13 10:07	26-Jun-13 17:10
SB72189-04	SS-241A(0-1)-062613-1	Soil	26-Jun-13 10:10	26-Jun-13 17:10
SB72189-05	D24-SB321B(0-1)-062613-1	Soil	26-Jun-13 10:15	26-Jun-13 17:10
SB72189-06	K23-SB245B(0-1)-062613-1	Soil	26-Jun-13 10:20	26-Jun-13 17:10
SB72189-07	SS-240B(0-1)-062613-1	Soil	26-Jun-13 10:40	26-Jun-13 17:10
SB72189-08	SS-240A(0-1)-062613-1	Soil	26-Jun-13 11:00	26-Jun-13 17:10
SB72189-09	SS-241B(0-1)-062613-1	Soil	26-Jun-13 11:15	26-Jun-13 17:10

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435

Authorized by:

Nicole Leja
Laboratory Director

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 12 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

Reasonable Confidence Protocols
Laboratory Analysis
QA/QC Certification Form

Laboratory Name: Spectrum Analytical, Inc.

Client: AECOM Environment - Rocky Hill, CT

Project Location: Greenwich HS - Greenwich, CT

Project Number: 60225155

Sampling Date(s):
6/26/2013

Laboratory Sample ID(s):
SB72189-01 through SB72189-09

RCP Methods Used:
SW846 6010C
SW846 8270D
SW846 8270D SIM

1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents?	✓ Yes	No
1A	Were the method specified preservation and holding time requirements met?	✓ Yes	No
1B	***VPH and EPH methods only***: Was the VPH or EPH method conducted without significant modifications (see Section 11.3 of respective RCP methods)?	Yes	No
2	Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody document(s)?	✓ Yes	No
3	Were samples received at an appropriate temperature?	✓ Yes	No
4	Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved?	✓ Yes	No
5	a) Were reporting limits specified or referenced on the chain-of-custody? b) Were these reporting limits met?	Yes Yes	✓ No No
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?	Yes	✓ No
7	Are project-specific matrix spikes and laboratory duplicates included in this data set?	✓ Yes	No

Note: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A, or #1B is "No", the data package does not meet the requirements for "Reasonable Confidence."

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

Nicole Leja
Laboratory Director
Date: 7/3/2013

CASE NARRATIVE:

The samples were received 0.0 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

Required site-specific Matrix Spike/Matrix Spike Duplicate (MS/MSD) must be requested by the client and sufficient sample must be submitted for the additional analyses. Samples submitted with insufficient volume/weight will not be analyzed for site specific MS/MSD, however a batch MS/MSD may be analyzed from a non-site specific sample.

CTDEP has published a list of analytical methods which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of decisions being made utilizing the Reasonable Confidence Protocol (RCP). "Reasonable Confidence" can be established only for those methods published by the CTDEP in the RCP guidelines. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method. Regulatory limits may not be achieved if specific method and/or technique was not requested on the Chain of Custody.

The CTDEP RCP requests that "all non-detects and all results below the reporting limit are reported as ND (Not Detected at the Specified Reporting Limit)". All non-detects and all results below the reporting limit are reported as "<" (less than) the reporting limit in this report.

If no reporting limits were specified or referenced on the chain-of-custody the laboratory's practical quantitation limits were applied.

For this work order, the reporting limits have not been referenced or specified.

There is no relevant protocol-specific QC and/or performance standards non-conformances to report.

Sample Acceptance Check Form

Client:	AECOM Environment - Rocky Hill, CT
Project:	Greenwich HS - Greenwich, CT / 60225155
Work Order:	SB72189
Sample(s) received on:	6/26/2013
Received by:	Jessica Hoffman

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
1. Were custody seals present?	☐	☑	☐
2. Were custody seals intact?	☐	☐	☑
3. Were samples received at a temperature of ≤ 6°C?	☑	☐	☐
4. Were samples cooled on ice upon transfer to laboratory representative?	☑	☐	☐
5. Were samples refrigerated upon transfer to laboratory representative?	☐	☑	☐
6. Were sample containers received intact?	☑	☐	☐
7. Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
8. Were samples accompanied by a Chain of Custody document?	☑	☐	☐
9. Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☑	☐	☐
10. Did sample container labels agree with Chain of Custody document?	☑	☐	☐
11. Were samples received within method-specific holding times?	☑	☐	☐

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
D25-SB321D(0-1)-062613-1 SB72189-01	60225155	Soil	26-Jun-13 10:00	26-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**28.1**		mg/kg dry	1.85	0.808	1	SW846 6010C	27-Jun-13	02-Jul-13	ARF	1315172	X
General Chemistry Parameters													
	% Solids	**72.0**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315202	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
D25-SB321C(0-1)-062613-1 SB72189-02	60225155	Soil	26-Jun-13 10:05	26-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**16.6**		mg/kg dry	1.68	0.732	1	SW846 6010C	27-Jun-13	02-Jul-13	ARF	1315172	X
General Chemistry Parameters													
	% Solids	**83.6**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315202	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
C25-SB321A(0-1)-062613-1 SB72189-03	60225155	Soil	26-Jun-13 10:07	26-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**19.4**		mg/kg dry	1.72	0.752	1	SW846 6010C	27-Jun-13	02-Jul-13	tbc	1315172	X
General Chemistry Parameters													
	% Solids	**84.6**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315202	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SS-241A(0-1)-062613-1 SB72189-04	60225155	Soil	26-Jun-13 10:10	26-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**8.04**		mg/kg dry	1.61	0.703	1	SW846 6010C	27-Jun-13	02-Jul-13	ARF	1315172	X
General Chemistry Parameters													
	% Solids	**87.1**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315202	
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**13**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		02-Jul-13	PH-01	R75017	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 75		ug/Kg	75	23	1	SW846 8270D SIM	27-Jun-13	28-Jun-13	PH-01	72471	
91-57-6	2-Methylnaphthalene	< 75		ug/Kg	75	23	1	"	"	"	"	"	
208-96-8	Acenaphthylene	**120**		ug/Kg	75	20	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 75		ug/Kg	75	20	1	"	"	"	"	"	
86-73-7	Fluorene	< 75		ug/Kg	75	20	1	"	"	"	"	"	
85-01-8	Phenanthrene	**410**		ug/Kg	75	22	1	"	"	"	"	"	
120-12-7	Anthracene	**160**		ug/Kg	75	22	1	"	"	"	"	"	
206-44-0	Fluoranthene	**1,200**		ug/Kg	75	34	1	"	"	"	"	"	
129-00-0	Pyrene	**930**		ug/Kg	75	25	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	**500**		ug/Kg	75	29	1	"	"	"	"	"	
218-01-9	Chrysene	**630**		ug/Kg	75	50	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**720**		ug/Kg	75	36	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	**300**		ug/Kg	75	29	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	**590**		ug/Kg	75	22	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	**460**		ug/Kg	75	25	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	**84**		ug/Kg	75	25	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	**380**		ug/Kg	75	25	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*75.9*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
D24-SB321B(0-1)-062613-1 SB72189-05	60225155	Soil	26-Jun-13 10:15	26-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**68.9**		mg/kg dry	1.77	0.770	1	SW846 6010C	27-Jun-13	02-Jul-13	ARF	1315172	X
General Chemistry Parameters													
	% Solids	**80.3**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315202	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
K23-SB245B(0-1)-062613-1 SB72189-06	60225155	Soil	26-Jun-13 10:20	26-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**17.0**		mg/kg dry	2.13	0.929	1	SW846 6010C	27-Jun-13	02-Jul-13	ARF	1315172	X
General Chemistry Parameters													
	% Solids	**62.1**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315202	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SS-240B(0-1)-062613-1 SB72189-07	60225155	Soil	26-Jun-13 10:40	26-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**18.1**		mg/kg dry	2.44	1.07	1	SW846 6010C	27-Jun-13	02-Jul-13	ARF	1315172	X
General Chemistry Parameters													
	% Solids	**60.7**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315202	
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**39**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		02-Jul-13	PH-01	R75017	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 110		ug/Kg	110	32	1	SW846 8270D SIM	27-Jun-13	28-Jun-13	PH-01	72471	
91-57-6	2-Methylnaphthalene	< 110		ug/Kg	110	32	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 110		ug/Kg	110	28	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 110		ug/Kg	110	29	1	"	"	"	"	"	
86-73-7	Fluorene	< 110		ug/Kg	110	28	1	"	"	"	"	"	
85-01-8	Phenanthrene	**160**		ug/Kg	110	31	1	"	"	"	"	"	
120-12-7	Anthracene	< 110		ug/Kg	110	30	1	"	"	"	"	"	
206-44-0	Fluoranthene	**460**		ug/Kg	110	48	1	"	"	"	"	"	
129-00-0	Pyrene	**370**		ug/Kg	110	35	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	**200**		ug/Kg	110	42	1	"	"	"	"	"	
218-01-9	Chrysene	**250**		ug/Kg	110	71	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**280**		ug/Kg	110	51	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 110		ug/Kg	110	42	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	**210**		ug/Kg	110	30	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	**170**		ug/Kg	110	35	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 110		ug/Kg	110	35	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	**140**		ug/Kg	110	35	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*68.9*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SS-240A(0-1)-062613-1 SB72189-08	60225155	Soil	26-Jun-13 11:00	26-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**4.71**		mg/kg dry	1.41	0.615	1	SW846 6010C	27-Jun-13	02-Jul-13	tbc	1315172	X
General Chemistry Parameters													
	% Solids	**89.1**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315202	
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**11**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		02-Jul-13	PH-01	R75017	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 73		ug/Kg	73	22	1	SW846 8270D SIM	27-Jun-13	28-Jun-13	PH-01	72471	
91-57-6	2-Methylnaphthalene	< 73		ug/Kg	73	22	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 73		ug/Kg	73	19	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 73		ug/Kg	73	20	1	"	"	"	"	"	
86-73-7	Fluorene	< 73		ug/Kg	73	19	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 73		ug/Kg	73	22	1	"	"	"	"	"	
120-12-7	Anthracene	< 73		ug/Kg	73	21	1	"	"	"	"	"	
206-44-0	Fluoranthene	**110**		ug/Kg	73	33	1	"	"	"	"	"	
129-00-0	Pyrene	**92**		ug/Kg	73	24	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 73		ug/Kg	73	29	1	"	"	"	"	"	
218-01-9	Chrysene	< 73		ug/Kg	73	48	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**85**		ug/Kg	73	35	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 73		ug/Kg	73	29	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 73		ug/Kg	73	21	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	< 73		ug/Kg	73	24	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*71.3*			*32-153 %*			"	"	"	"	"	

This laboratory report is not valid without an authorized signature on the cover page.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SS-241B(0-1)-062613-1 SB72189-09	60225155	Soil	26-Jun-13 11:15	26-Jun-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**3.89**		mg/kg dry	1.63	0.710	1	SW846 6010C	27-Jun-13	02-Jul-13	ARF	1315172	X
General Chemistry Parameters													
	% Solids	**91.2**		%			1	SM2540 G Mod.	27-Jun-13	27-Jun-13	JRF	1315202	
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	< 10		PCT	10	0.050	1	ASTM D2216 -- PMOIST		02-Jul-13	PH-01	R75017	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 71		ug/Kg	71	21	1	SW846 8270D SIM	27-Jun-13	28-Jun-13	PH-01	72471	
91-57-6	2-Methylnaphthalene	< 71		ug/Kg	71	21	1	"	"	"	"	"	
208-96-8	Acenaphthylene	**110**		ug/Kg	71	19	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 71		ug/Kg	71	19	1	"	"	"	"	"	
86-73-7	Fluorene	< 71		ug/Kg	71	19	1	"	"	"	"	"	
85-01-8	Phenanthrene	**240**		ug/Kg	71	21	1	"	"	"	"	"	
120-12-7	Anthracene	< 71		ug/Kg	71	20	1	"	"	"	"	"	
206-44-0	Fluoranthene	**730**		ug/Kg	71	32	1	"	"	"	"	"	
129-00-0	Pyrene	**600**		ug/Kg	71	24	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	**390**		ug/Kg	71	28	1	"	"	"	"	"	
218-01-9	Chrysene	**370**		ug/Kg	71	47	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**480**		ug/Kg	71	34	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	**190**		ug/Kg	71	28	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	**400**		ug/Kg	71	20	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	**320**		ug/Kg	71	24	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 71		ug/Kg	71	24	1	"	"	"	"	"	
191-24-2	Benzo(g,h,i)perylene	**260**		ug/Kg	71	24	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*72.0*			*32-153 %*			"	"	"	"	"	

This laboratory report is not valid without an authorized signature on the cover page.

Total Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1315172 - SW846 3050B										
Blank (1315172-BLK1)						Prepared: 27-Jun-13	Analyzed: 02-Jul-13			
Arsenic	< 1.40		mg/kg wet	1.40						
Duplicate (1315172-DUP2)			**Source: SB72189-04**			Prepared: 27-Jun-13	Analyzed: 02-Jul-13			
Arsenic	**7.50**		mg/kg dry	1.66		8.04			7	20
Matrix Spike (1315172-MS2)			**Source: SB72189-04**			Prepared: 27-Jun-13	Analyzed: 02-Jul-13			
Arsenic	**135**		mg/kg dry	1.63	136	8.04	93	75-125		
Matrix Spike Dup (1315172-MSD2)			**Source: SB72189-04**			Prepared: 27-Jun-13	Analyzed: 02-Jul-13			
Arsenic	**127**		mg/kg dry	1.59	132	8.04	90	75-125	6	20
Post Spike (1315172-PS2)			**Source: SB72189-04**			Prepared: 27-Jun-13	Analyzed: 02-Jul-13			
Arsenic	**137**		mg/kg dry	1.61	134	8.04	96	80-120		
Reference (1315172-SRM1)						Prepared: 27-Jun-13	Analyzed: 02-Jul-13			
Arsenic	**91.0**		mg/kg wet	1.50	93.2		98	82.97-117.58		
Reference (1315172-SRM2)						Prepared: 27-Jun-13	Analyzed: 02-Jul-13			
Arsenic	**92.7**		mg/kg wet	1.50	93.8		99	82.97-117.58		

Subcontracted Analyses - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 72471 - SW3545A										
LCS (LCS-72471)					Prepared: 27-Jun-13		Analyzed: 28-Jun-13			
Naphthalene	**130.6**		ug/Kg	66	166.7		78.4	19-102		
2-Methylnaphthalene	**129.2**		ug/Kg	66	166.7		77.5	19-112		
Acenaphthylene	**136.0**		ug/Kg	66	166.7		81.6	23-134		
Acenaphthene	**165.8**		ug/Kg	66	166.7		99.5	33-113		
Fluorene	**132.1**		ug/Kg	66	166.7		79.3	32-122		
Phenanthrene	**133.2**		ug/Kg	66	166.7		79.9	38-108		
Anthracene	**163.8**		ug/Kg	66	166.7		98.3	35-114		
Fluoranthene	**152.5**		ug/Kg	66	166.7		91.5	41-117		
Pyrene	**135.9**		ug/Kg	66	166.7		81.5	39-119		
Benzo(a)anthracene	**132.3**		ug/Kg	66	166.7		79.4	39-111		
Chrysene	**132.5**		ug/Kg	66	166.7		79.5	36-112		
Benzo(b)fluoranthene	**124.8**		ug/Kg	66	166.7		74.9	39-128		
Benzo(k)fluoranthene	**123.7**		ug/Kg	66	166.7		74.2	30-133		
Benzo(a)pyrene	**132.1**		ug/Kg	66	166.7		79.2	43-119		
Indeno(1,2,3-cd)pyrene	**128.8**		ug/Kg	66	166.7		77.3	48-119		
Dibenzo(a,h)anthracene	**110.6**		ug/Kg	66	166.7		66.4	48-121		
Benzo(g,h,i)perylene	**120.5**		ug/Kg	66	166.7		72.3	45-116		
Surrogate: Benzo(e)pyrene-d12	*124.6*		ug/Kg		*166.7*		*74.7*	*32-153*		
Blank (MB-72471)					Prepared: 27-Jun-13		Analyzed: 28-Jun-13			
Naphthalene	< 66	U	ug/Kg	66				-		
2-Methylnaphthalene	< 66	U	ug/Kg	66				-		
Acenaphthylene	< 66	U	ug/Kg	66				-		
Acenaphthene	< 66	U	ug/Kg	66				-		
Fluorene	< 66	U	ug/Kg	66				-		
Phenanthrene	< 66	U	ug/Kg	66				-		
Anthracene	< 66	U	ug/Kg	66				-		
Fluoranthene	< 66	U	ug/Kg	66				-		
Pyrene	< 66	U	ug/Kg	66				-		
Benzo(a)anthracene	< 66	U	ug/Kg	66				-		
Chrysene	< 66	U	ug/Kg	66				-		
Benzo(b)fluoranthene	< 66	U	ug/Kg	66				-		
Benzo(k)fluoranthene	< 66	U	ug/Kg	66				-		
Benzo(a)pyrene	< 66	U	ug/Kg	66				-		
Indeno(1,2,3-cd)pyrene	< 66	U	ug/Kg	66				-		
Dibenzo(a,h)anthracene	< 66	U	ug/Kg	66				-		
Benzo(g,h,i)perylene	< 66	U	ug/Kg	66				-		
Surrogate: Benzo(e)pyrene-d12	*120.1*		ug/Kg		*166.7*		*72.1*	*32-153*		

Notes and Definitions

U	Compound not detected below method detection limit at or above the MRL.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Validated by:
June O'Connor
Kimberly Wisk

SB72189 JB

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling: 5
☒ Standard TAT - ~~7 to 10~~ business days
☐ Rush TAT - Date Needed: _____
· All TATs subject to laboratory approval.
· Min. 24-hour notification needed for rushes.
· Samples disposed of after 60 days unless otherwise instructed.

Report To: AECOM
500 Enterprise Dr
Rocky Hill CT
Telephone #: 860 263 5800
Project Mgr. Malcolm Butler

Invoice To: Same
P.O. No.: 47304 ACM RQN:

Project No.: 60225155
Site Name: Greenwich High School
Location: Greenwich State: CT
Sampler(s): M. Reed + J Williams

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= H_3PO_4 11= 12=

List preservative code below:

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= X2= X3=

G=Grab C=Composite

Containers: Analyses:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Arsenic	PAHs (SIM)
72189-01	D25-SB321D(0-1)-062613-1	6/26/13	1000	G	SO		1			1	
02	D25-SB321C(0-1)-062613-1	6/26/13	1005	G	SO		1			1	
03	C25-SB-321A(0-1)-062613-1	6/26/13	1007	G	SO		1			1	
04	SS-241A(0-1)-062613-1	6/26/13	1010	G	SO		1			1	1
05	D24-SB321B(0-1)-062613-1	6/26/13	1015	G	SO		1			1	
06	K23-SB245B(0-1)-062613-1	6/26/13	1020	G	SO		1			1	
07	SS-240B(0-1)-062613-1	6/26/13	1040	G	SO		1			1	1
08	SS-240A(0-1)-062613-1	6/26/13	1100	G	SO		1			1	1
09	SS-241B(0-1)-062613-1	6/26/13	1115	G	SO		1			1	1

MA DEP MCP CAM Report: Yes ☐ No ☒
CT DPH RCP Report: Yes ☒ No ☐

QA/QC Reporting Level
☒ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☒ NJ Full*
☐ TIER II* ☐ TIER IV*
☐ Other

State-specific reporting standards:
Reporting limit for PAHs (benzo(a) pyrene) must be ≤ 0.159 mg/kg

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	6-26-13	3:00	
	[signature]	6/26/13	1710	0/0/0

☒ EDD Format equis
☒ E-mail to malcolm.butler@aecom.com
colleen.scott@aecom.com

Condition upon receipt:
☐ Ambient ☒ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

1R 02

Report Date:
02-Aug-13 16:16

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Laboratory Report

AECOM Environment
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Attn: Malcolm Beeler

Project: Greenwich HS - Greenwich, CT
Project #: 60225155

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB73837-01	SED-BBUS-1-072513-1	Sediment	25-Jul-13 09:00	25-Jul-13 21:00
SB73837-02	SW-BBUS-1-072513-1	Surface Water	25-Jul-13 09:00	25-Jul-13 21:00
SB73837-03	SED-BBUS-2-072513-1	Sediment	25-Jul-13 10:00	25-Jul-13 21:00
SB73837-04	SW-BBUS-2-072513-1	Surface Water	25-Jul-13 10:00	25-Jul-13 21:00
SB73837-05	SED-BBUS-2-072513-2	Sediment	25-Jul-13 10:00	25-Jul-13 21:00
SB73837-06	SW-BBUS-2-072513-2	Surface Water	25-Jul-13 10:00	25-Jul-13 21:00
SB73837-07	SED-BBUS-3-072513-1	Sediment	25-Jul-13 10:30	25-Jul-13 21:00
SB73837-08	SW-BBUS-3-072513-1	Surface Water	25-Jul-13 10:30	25-Jul-13 21:00
SB73837-09	SED-BBUS-4-072513-1	Sediment	25-Jul-13 11:00	25-Jul-13 21:00
SB73837-10	SW-BBUS-4-072513-1	Surface Water	25-Jul-13 11:00	25-Jul-13 21:00
SB73837-11	Equipment Blank	Deionized Water	25-Jul-13 11:30	25-Jul-13 21:00

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435

Authorized by:

Nicole Leja
Laboratory Director

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 61 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

Reasonable Confidence Protocols
Laboratory Analysis
QA/QC Certification Form

Laboratory Name: Spectrum Analytical, Inc.

Client: AECOM Environment - Rocky Hill, CT

Project Location: Greenwich HS - Greenwich, CT

Project Number: 60225155

Sampling Date(s):
7/25/2013

Laboratory Sample ID(s):
SB73837-01 through SB73837-11

RCP Methods Used:

EPA 245.1/7470A
SW846 6010C
SW846 7471B
SW846 8081B
SW846 8082A
SW846 8270D
SW846 8270D SIM

1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents?	✓ Yes No
1A	Were the method specified preservation and holding time requirements met?	✓ Yes No
1B	***VPH and EPH methods only***: Was the VPH or EPH method conducted without significant modifications (see Section 11.3 of respective RCP methods)?	Yes No
2	Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody document(s)?	✓ Yes No
3	Were samples received at an appropriate temperature?	✓ Yes No
4	Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved?	Yes ✓ No
5	a) Were reporting limits specified or referenced on the chain-of-custody? b) Were these reporting limits met?	Yes ✓ No Yes No
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?	✓ Yes No
7	Are project-specific matrix spikes and laboratory duplicates included in this data set?	✓ Yes No

Note: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A, or #1B is "No", the data package does not meet the requirements for "Reasonable Confidence."

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

Nicole Leja
Laboratory Director
Date: 8/2/2013

CASE NARRATIVE:

The samples were received 4.5 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

Required site-specific Matrix Spike/Matrix Spike Duplicate (MS/MSD) must be requested by the client and sufficient sample must be submitted for the additional analyses. Samples submitted with insufficient volume/weight will not be analyzed for site specific MS/MSD, however a batch MS/MSD may be analyzed from a non-site specific sample.

CTDEP has published a list of analytical methods which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of decisions being made utilizing the Reasonable Confidence Protocol (RCP). "Reasonable Confidence" can be established only for those methods published by the CTDEP in the RCP guidelines. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method. Regulatory limits may not be achieved if specific method and/or technique was not requested on the Chain of Custody.

The CTDEP RCP requests that "all non-detects and all results below the reporting limit are reported as ND (Not Detected at the Specified Reporting Limit)". All non-detects and all results below the reporting limit are reported as "<" (less than) the reporting limit in this report.

If no reporting limits were specified or referenced on the chain-of-custody the laboratory's practical quantitation limits were applied.

Tetrachloro-m-xylene is recommended as a surrogate by the CTDEP RCP for the following SW846 Methods 8081, 8082 and 8151. Spectrum Analytical, Inc. uses Tetrachloro-m-xylene as the Internal Standard for these methods and Dibromooctaflourobiphenyl as the surrogate.

For this work order, the reporting limits have not been referenced or specified.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 6010C

Spikes:

1318009-MS1 *Source: SB73837-07*

The spike recovery exceeded the QC control limits for the MS and/or MSD. The batch was accepted based upon acceptable PS and /or LCS recovery.

Antimony
Lead

1318009-MSD1 *Source: SB73837-07*

The spike recovery exceeded the QC control limits for the MS and/or MSD. The batch was accepted based upon acceptable PS and /or LCS recovery.

Antimony
Lead

Duplicates:

1318009-DUP1 *Source: SB73837-07*

Analyses are not controlled on RPD values from sample concentrations that are less than 5 times the reporting level. The batch is accepted based upon the difference between the sample and duplicate is less than or equal to the reporting limit.

Arsenic

The RPD exceeded the QC control limits; however precision is demonstrated with acceptable RPD values for MS/MSD.

Lead

SW846 7471B

Duplicates:

1318010-DUP1 *Source: SB73837-07*

Analyses are not controlled on RPD values from sample concentrations that are less than 5 times the reporting level. The batch is accepted based upon the difference between the sample and duplicate is less than or equal to the reporting limit.

Mercury

SW846 8081B

Spikes:

1317981-MS1 *Source: SB73837-07*

The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.

gamma-Chlordane

1317981-MSD1 *Source: SB73837-07*

The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.

gamma-Chlordane

Samples:

SB73837-01 *SED-BBUS-1-072513-1*

Difference between the two GC columns is greater than 40%.

Chlordane [2C]
gamma-Chlordane [2C]

SB73837-04 *SW-BBUS-2-072513-1*

Difference between the two GC columns is greater than 40%.

Dieldrin [2C]

SB73837-07 *SED-BBUS-3-072513-1*

Difference between the two GC columns is greater than 40%.

alpha-Chlordane
gamma-Chlordane [2C]

SW846 8270D SIM

Spikes:

1317842-MS2 *Source: SB73837-08*

The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

Fluoranthene

1317842-MSD2 *Source: SB73837-08*

The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

Fluoranthene

M1295-04AMS *Source: SB73837-07*

SW846 8270D SIM

Spikes:

M1295-04AMS *Source: SB73837-07*

Spike recovery falls outside of the control limit

2-Methylnaphthalene
Acenaphthene
Acenaphthylene
Anthracene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Chrysene
Dibenzo(a,h)anthracene
Fluoranthene
Fluorene
Indeno(1,2,3-cd)pyrene
Naphthalene
Phenanthrene
Pyrene

M1295-04AMSD *Source: SB73837-07*

Relative percent difference is outside of the control limit

Acenaphthylene
Anthracene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Chrysene
Dibenzo(a,h)anthracene
Fluoranthene
Fluorene
Indeno(1,2,3-cd)pyrene
Naphthalene
Phenanthrene
Pyrene

Spike recovery falls outside of the control limit

Anthracene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Chrysene
Fluoranthene
Indeno(1,2,3-cd)pyrene
Phenanthrene
Pyrene

Samples:

S309150-CCV1

SW846 8270D SIM

Samples:

S309150-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

Dibenzo (a,h) anthracene (23.3%)

This affected the following samples:

1317842-BLK2
1317842-BS2
1317842-BSD2
SW-BBUS-1-072513-1
SW-BBUS-2-072513-1

Sample Acceptance Check Form

Client:	AECOM Environment - Rocky Hill, CT
Project:	Greenwich HS - Greenwich, CT / 60225155
Work Order:	SB73837
Sample(s) received on:	7/25/2013
Received by:	Jessica Hoffman

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
1. Were custody seals present?	☐	☑	☐
2. Were custody seals intact?	☐	☐	☑
3. Were samples received at a temperature of ≤ 6°C?	☑	☐	☐
4. Were samples cooled on ice upon transfer to laboratory representative?	☑	☐	☐
5. Were samples refrigerated upon transfer to laboratory representative?	☐	☑	☐
6. Were sample containers received intact?	☑	☐	☐
7. Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
8. Were samples accompanied by a Chain of Custody document?	☑	☐	☐
9. Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☑	☐	☐
10. Did sample container labels agree with Chain of Custody document?	☑	☐	☐
11. Were samples received within method-specific holding times?	☑	☐	☐

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-1-072513-1	60225155	Sediment	25-Jul-13 09:00	25-Jul-13
SB73837-01				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3545A													
319-84-6	alpha-BHC	< 6.04		µg/kg dry	6.04	0.918	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317981	X
319-85-7	beta-BHC	< 6.04		µg/kg dry	6.04	1.02	1	"	"	"	"	"	X
319-86-8	delta-BHC	< 6.04		µg/kg dry	6.04	1.03	1	"	"	"	"	"	X
58-89-9	gamma-BHC (Lindane)	< 3.63		µg/kg dry	3.63	0.979	1	"	"	"	"	"	X
76-44-8	Heptachlor	< 6.04		µg/kg dry	6.04	0.906	1	"	"	"	"	"	X
309-00-2	Aldrin	< 6.04		µg/kg dry	6.04	0.967	1	"	"	"	"	"	X
1024-57-3	Heptachlor epoxide	< 6.04		µg/kg dry	6.04	1.06	1	"	"	"	"	"	X
959-98-8	Endosulfan I	< 6.04		µg/kg dry	6.04	1.06	1	"	"	"	"	"	X
60-57-1	Dieldrin	< 6.04		µg/kg dry	6.04	1.00	1	"	"	"	"	"	X
72-55-9	4,4'-DDE (p,p')	**23.4**		µg/kg dry	6.04	1.03	1	"	"	"	"	"	X
72-20-8	Endrin	< 9.67		µg/kg dry	9.67	1.20	1	"	"	"	"	"	X
33213-65-9	Endosulfan II	< 9.67		µg/kg dry	9.67	1.04	1	"	"	"	"	"	X
72-54-8	4,4'-DDD (p,p')	< 9.67		µg/kg dry	9.67	1.04	1	"	"	"	"	"	X
1031-07-8	Endosulfan sulfate	< 9.67		µg/kg dry	9.67	1.12	1	"	"	"	"	"	X
50-29-3	4,4'-DDT (p,p')	**20.1**		µg/kg dry	9.67	1.02	1	"	"	"	"	"	X
72-43-5	Methoxychlor	< 9.67		µg/kg dry	9.67	0.810	1	"	"	"	"	"	X
53494-70-5	Endrin ketone	< 9.67		µg/kg dry	9.67	1.09	1	"	"	"	"	"	X
7421-93-4	Endrin aldehyde	< 9.67		µg/kg dry	9.67	1.08	1	"	"	"	"	"	X
5103-71-9	alpha-Chlordane	**17.3**		µg/kg dry	6.04	1.09	1	"	"	"	"	"	X
5566-34-7	gamma-Chlordane [2C]	< 6.04	P	µg/kg dry	6.04	1.08	1	"	"	"	"	"	X
8001-35-2	Toxaphene	< 121		µg/kg dry	121	13.6	1	"	"	"	"	"	X
57-74-9	Chlordane [2C]	**78.5**	P	µg/kg dry	24.2	3.60	1	"	"	"	"	"	X
15972-60-8	Alachlor	< 6.04		µg/kg dry	6.04	1.40	1	"	"	"	"	"	
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*101*			*30-150 %*			"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*86*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*82*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*70*			*30-150 %*			"	"	"	"	"	
Polychlorinated Biphenyls													
Prepared by method SW846 3540C													
12674-11-2	Aroclor-1016	< 23.8		µg/kg dry	23.8	17.7	1	SW846 8082A	26-Jul-13	30-Jul-13	IMR	1317792	X
11104-28-2	Aroclor-1221	< 23.8		µg/kg dry	23.8	21.4	1	"	"	"	"	"	X
11141-16-5	Aroclor-1232	< 23.8		µg/kg dry	23.8	15.3	1	"	"	"	"	"	X
53469-21-9	Aroclor-1242	< 23.8		µg/kg dry	23.8	14.3	1	"	"	"	"	"	X
12672-29-6	Aroclor-1248	< 23.8		µg/kg dry	23.8	12.4	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	< 23.8		µg/kg dry	23.8	19.8	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	< 23.8		µg/kg dry	23.8	14.7	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	< 23.8		µg/kg dry	23.8	22.1	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	< 23.8		µg/kg dry	23.8	9.80	1	"	"	"	"	"	X
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*90*			*30-150 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-1-072513-1 SB73837-01	60225155	Sediment	25-Jul-13 09:00	25-Jul-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GC													
Polychlorinated Biphenyls													
Prepared by method SW846 3540C													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*105*			*30-150 %*			SW846 8082A	26-Jul-13	30-Jul-13	IMR	1317792	
2051-24-3	*Decachlorobiphenyl (Sr)*	*70*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*140*			*30-150 %*			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
7440-22-4	Silver	< 1.78		mg/kg dry	1.78	0.513	1	SW846 6010C	30-Jul-13	31-Jul-13	EDT	1318009	X
7440-38-2	Arsenic	**4.48**		mg/kg dry	1.78	0.776	1	"	"	"	"	"	X
7440-39-3	Barium	**66.6**		mg/kg dry	1.19	0.382	1	"	"	"	"	"	X
7440-41-7	Beryllium	< 0.593		mg/kg dry	0.593	0.179	1	"	"	"	"	"	X
7440-43-9	Cadmium	< 0.593		mg/kg dry	0.593	0.174	1	"	"	"	"	"	X
7440-47-3	Chromium	**19.2**		mg/kg dry	1.19	0.256	1	"	"	"	"	"	X
7440-50-8	Copper	**16.2**		mg/kg dry	1.19	0.457	1	"	"	"	"	"	X
7439-97-6	Mercury	< 0.0329		mg/kg dry	0.0329	0.0017	1	SW846 7471B	"	31-Jul-13	JLM	1318010	X
7440-02-0	Nickel	**15.1**		mg/kg dry	1.19	0.344	1	SW846 6010C	"	31-Jul-13	EDT	1318009	X
7439-92-1	Lead	**11.5**		mg/kg dry	1.78	0.656	1	"	"	"	"	"	X
7440-36-0	Antimony	< 5.93		mg/kg dry	5.93	1.09	1	"	"	"	"	"	X
7782-49-2	Selenium	< 1.78		mg/kg dry	1.78	0.510	1	"	"	"	"	"	X
7440-28-0	Thallium	< 3.56		mg/kg dry	3.56	1.01	1	"	"	"	"	"	X
7440-62-2	Vanadium	**24.9**		mg/kg dry	1.78	0.551	1	"	"	"	"	"	X
7440-66-6	Zinc	**33.4**		mg/kg dry	1.19	0.521	1	"	"	"	"	"	X
General Chemistry Parameters													
	% Solids	**81.5**		%			1	SM2540 G Mod.	26-Jul-13	26-Jul-13	DT	1317764	
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**16**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		29-Jul-13	PH-01	R75557	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 76		ug/Kg	76	23	1	SW846 8270D SIM	30-Jul-13	31-Jul-13	PH-01	72963	
91-57-6	2-Methylnaphthalene	< 76		ug/Kg	76	23	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 76		ug/Kg	76	20	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 76		ug/Kg	76	21	1	"	"	"	"	"	
86-73-7	Fluorene	< 76		ug/Kg	76	20	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 76		ug/Kg	76	23	1	"	"	"	"	"	
120-12-7	Anthracene	< 76		ug/Kg	76	22	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 76		ug/Kg	76	35	1	"	"	"	"	"	
129-00-0	Pyrene	< 76		ug/Kg	76	25	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 76		ug/Kg	76	30	1	"	"	"	"	"	
218-01-9	Chrysene	< 76		ug/Kg	76	51	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	< 76		ug/Kg	76	37	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 76		ug/Kg	76	30	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 76		ug/Kg	76	22	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 76		ug/Kg	76	25	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 76		ug/Kg	76	25	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-1-072513-1 SB73837-01	60225155	Sediment	25-Jul-13 09:00	25-Jul-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Subcontracted Analyses													
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
191-24-2	Benzo(g,h,i)perylene	< 76		ug/Kg	76	25	1	SW846 8270D SIM	30-Jul-13	31-Jul-13	PH-01	72963	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*106*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SW-BBUS-1-072513-1	60225155	Surface Water	25-Jul-13 09:00	25-Jul-13
SB73837-02				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GCMS													
SVOCs by SIM													
Prepared by method SW846 3510C													
83-32-9	Acenaphthene	< 0.050		µg/l	0.050	0.007	1	SW846 8270D SIM	29-Jul-13	02-Aug-13	ML/	1317842	X
208-96-8	Acenaphthylene	< 0.050		µg/l	0.050	0.013	1	"	"	"	"	"	X
90-12-0	1-Methylnaphthalene	< 0.050		µg/l	0.050	0.010	1	"	"	"	"	"	
120-12-7	Anthracene	< 0.050		µg/l	0.050	0.013	1	"	"	"	"	"	X
56-55-3	Benzo (a) anthracene	< 0.050		µg/l	0.050	0.036	1	"	"	"	"	"	X
50-32-8	Benzo (a) pyrene	< 0.050		µg/l	0.050	0.036	1	"	"	"	"	"	X
205-99-2	Benzo (b) fluoranthene	< 0.050		µg/l	0.050	0.031	1	"	"	"	"	"	X
191-24-2	Benzo (g,h,i) perylene	< 0.050		µg/l	0.050	0.026	1	"	"	"	"	"	X
207-08-9	Benzo (k) fluoranthene	< 0.050		µg/l	0.050	0.026	1	"	"	"	"	"	X
218-01-9	Chrysene	< 0.050		µg/l	0.050	0.022	1	"	"	"	"	"	X
53-70-3	Dibenzo (a,h) anthracene	< 0.050		µg/l	0.050	0.030	1	"	"	"	"	"	X
206-44-0	Fluoranthene	**0.084**		µg/l	0.050	0.017	1	"	"	"	"	"	X
86-73-7	Fluorene	< 0.050		µg/l	0.050	0.012	1	"	"	"	"	"	X
193-39-5	Indeno (1,2,3-cd) pyrene	< 0.050		µg/l	0.050	0.029	1	"	"	"	"	"	X
91-57-6	2-Methylnaphthalene	< 0.050		µg/l	0.050	0.008	1	"	"	"	"	"	
91-20-3	Naphthalene	< 0.050		µg/l	0.050	0.016	1	"	"	"	"	"	X
85-01-8	Phenanthrene	**0.057**		µg/l	0.050	0.019	1	"	"	"	"	"	X
129-00-0	Pyrene	**0.064**		µg/l	0.050	0.017	1	"	"	"	"	"	X
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*85*			*30-130 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*85*			*30-130 %*			"	"	"	"	"	
205440-82-0	*Benzo (e) pyrene-d12*	*94*			*30-130 %*			"	"	"	"	"	
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3510C													
319-84-6	alpha-BHC	< 0.002		µg/l	0.002	0.001	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317977	X
319-85-7	beta-BHC	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
319-86-8	delta-BHC	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
58-89-9	gamma-BHC (Lindane)	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
76-44-8	Heptachlor	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
309-00-2	Aldrin	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
1024-57-3	Heptachlor epoxide	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
959-98-8	Endosulfan I	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
60-57-1	Dieldrin	**0.031**		µg/l	0.002	0.002	1	"	"	"	"	"	X
72-55-9	4,4'-DDE (p,p')	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
72-20-8	Endrin	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
33213-65-9	Endosulfan II	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
72-54-8	4,4'-DDD (p,p')	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
1031-07-8	Endosulfan sulfate	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
50-29-3	4,4'-DDT (p,p')	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
72-43-5	Methoxychlor	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
53494-70-5	Endrin ketone	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
7421-93-4	Endrin aldehyde	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
5103-71-9	alpha-Chlordane	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SW-BBUS-1-072513-1 SB73837-02	60225155	Surface Water	25-Jul-13 09:00	25-Jul-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3510C													
5566-34-7	gamma-Chlordane	< 0.002		µg/l	0.002	0.001	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317977	X
8001-35-2	Toxaphene	< 0.051		µg/l	0.051	0.047	1	"	"	"	"	"	X
57-74-9	Chlordane	< 0.007		µg/l	0.007	0.006	1	"	"	"	"	"	X
15972-60-8	Alachlor	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*77*			*30-150 %*			"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*70*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*44*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*33*			*30-150 %*			"	"	"	"	"	
Total Metals by EPA 200/6000 Series Methods													
	Preservation	**Field Preserved**		N/A			1	EPA 200/6000 methods			BEL	1317737	
Total Metals by EPA 6000/7000 Series Methods													
7440-22-4	Silver	< 0.0050		mg/l	0.0050	0.0009	1	SW846 6010C	30-Jul-13	31-Jul-13	TBC	1318007	X
7440-38-2	Arsenic	< 0.0040		mg/l	0.0040	0.0018	1	"	"	"	"	"	X
7440-39-3	Barium	**0.0958**		mg/l	0.0050	0.0007	1	"	"	"	"	"	X
7440-41-7	Beryllium	< 0.0020		mg/l	0.0020	0.0002	1	"	"	"	"	"	X
7440-43-9	Cadmium	< 0.0025		mg/l	0.0025	0.0008	1	"	"	"	"	"	X
7440-47-3	Chromium	< 0.0050		mg/l	0.0050	0.0009	1	"	"	"	"	"	X
7440-50-8	Copper	**0.0072**		mg/l	0.0050	0.0011	1	"	"	"	"	"	X
7440-02-0	Nickel	< 0.0050		mg/l	0.0050	0.0007	1	"	"	"	"	"	X
7439-92-1	Lead	< 0.0075		mg/l	0.0075	0.0020	1	"	"	"	"	"	X
7440-36-0	Antimony	< 0.0060		mg/l	0.0060	0.0014	1	"	"	"	"	"	X
7782-49-2	Selenium	< 0.0150		mg/l	0.0150	0.0030	1	"	"	"	"	"	X
7440-28-0	Thallium	< 0.0050		mg/l	0.0050	0.0029	1	"	"	"	"	"	X
7440-62-2	Vanadium	< 0.0050		mg/l	0.0050	0.0009	1	"	"	"	"	"	X
7440-66-6	Zinc	**0.0200**		mg/l	0.0050	0.0020	1	"	"	"	"	"	X
Total Metals by EPA 200 Series Methods													
7439-97-6	Mercury	< 0.00020		mg/l	0.00020	0.00008	1	EPA 245.1/7470A	30-Jul-13	31-Jul-13	JLM	1318008	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-2-072513-1	60225155	Sediment	25-Jul-13 10:00	25-Jul-13
SB73837-03				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3545A													
319-84-6	alpha-BHC	< 6.56		µg/kg dry	6.56	0.997	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317981	X
319-85-7	beta-BHC	< 6.56		µg/kg dry	6.56	1.10	1	"	"	"	"	"	X
319-86-8	delta-BHC	< 6.56		µg/kg dry	6.56	1.12	1	"	"	"	"	"	X
58-89-9	gamma-BHC (Lindane)	< 3.94		µg/kg dry	3.94	1.06	1	"	"	"	"	"	X
76-44-8	Heptachlor	< 6.56		µg/kg dry	6.56	0.984	1	"	"	"	"	"	X
309-00-2	Aldrin	< 6.56		µg/kg dry	6.56	1.05	1	"	"	"	"	"	X
1024-57-3	Heptachlor epoxide	< 6.56		µg/kg dry	6.56	1.15	1	"	"	"	"	"	X
959-98-8	Endosulfan I	< 6.56		µg/kg dry	6.56	1.15	1	"	"	"	"	"	X
60-57-1	Dieldrin	< 6.56		µg/kg dry	6.56	1.09	1	"	"	"	"	"	X
72-55-9	4,4'-DDE (p,p')	< 6.56		µg/kg dry	6.56	1.12	1	"	"	"	"	"	X
72-20-8	Endrin	< 10.5		µg/kg dry	10.5	1.30	1	"	"	"	"	"	X
33213-65-9	Endosulfan II	< 10.5		µg/kg dry	10.5	1.13	1	"	"	"	"	"	X
72-54-8	4,4'-DDD (p,p')	< 10.5		µg/kg dry	10.5	1.13	1	"	"	"	"	"	X
1031-07-8	Endosulfan sulfate	< 10.5		µg/kg dry	10.5	1.22	1	"	"	"	"	"	X
50-29-3	4,4'-DDT (p,p')	< 10.5		µg/kg dry	10.5	1.10	1	"	"	"	"	"	X
72-43-5	Methoxychlor	< 10.5		µg/kg dry	10.5	0.879	1	"	"	"	"	"	X
53494-70-5	Endrin ketone	< 10.5		µg/kg dry	10.5	1.18	1	"	"	"	"	"	X
7421-93-4	Endrin aldehyde	< 10.5		µg/kg dry	10.5	1.17	1	"	"	"	"	"	X
5103-71-9	alpha-Chlordane	< 6.56		µg/kg dry	6.56	1.18	1	"	"	"	"	"	X
5566-34-7	gamma-Chlordane	< 6.56		µg/kg dry	6.56	1.10	1	"	"	"	"	"	X
8001-35-2	Toxaphene	< 131		µg/kg dry	131	14.8	1	"	"	"	"	"	X
57-74-9	Chlordane	< 26.2		µg/kg dry	26.2	3.73	1	"	"	"	"	"	X
15972-60-8	Alachlor	< 6.56		µg/kg dry	6.56	1.52	1	"	"	"	"	"	
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*109*			*30-150 %*			"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*80*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*69*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*58*			*30-150 %*			"	"	"	"	"	
Polychlorinated Biphenyls													
Prepared by method SW846 3540C													
12674-11-2	Aroclor-1016	< 24.9		µg/kg dry	24.9	18.6	1	SW846 8082A	26-Jul-13	30-Jul-13	IMR	1317792	X
11104-28-2	Aroclor-1221	< 24.9		µg/kg dry	24.9	22.5	1	"	"	"	"	"	X
11141-16-5	Aroclor-1232	< 24.9		µg/kg dry	24.9	16.0	1	"	"	"	"	"	X
53469-21-9	Aroclor-1242	< 24.9		µg/kg dry	24.9	15.0	1	"	"	"	"	"	X
12672-29-6	Aroclor-1248	< 24.9		µg/kg dry	24.9	13.0	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	< 24.9		µg/kg dry	24.9	20.8	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	< 24.9		µg/kg dry	24.9	15.5	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	< 24.9		µg/kg dry	24.9	23.2	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	< 24.9		µg/kg dry	24.9	10.3	1	"	"	"	"	"	X
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*90*			*30-150 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-2-072513-1	60225155	Sediment	25-Jul-13 10:00	25-Jul-13
SB73837-03				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC													
Polychlorinated Biphenyls													
Prepared by method SW846 3540C													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*85*			*30-150 %*			SW846 8082A	26-Jul-13	30-Jul-13	IMR	1317792	
2051-24-3	*Decachlorobiphenyl (Sr)*	*80*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*100*			*30-150 %*			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
7440-22-4	Silver	< 1.71		mg/kg dry	1.71	0.492	1	SW846 6010C	30-Jul-13	31-Jul-13	EDT	1318009	X
7440-38-2	Arsenic	< 1.71		mg/kg dry	1.71	0.744	1	"	"	"	"	"	X
7440-39-3	Barium	**94.0**		mg/kg dry	1.14	0.367	1	"	"	"	"	"	X
7440-41-7	Beryllium	< 0.569		mg/kg dry	0.569	0.172	1	"	"	"	"	"	X
7440-43-9	Cadmium	< 0.569		mg/kg dry	0.569	0.167	1	"	"	"	"	"	X
7440-47-3	Chromium	**25.9**		mg/kg dry	1.14	0.246	1	"	"	"	"	"	X
7440-50-8	Copper	**15.8**		mg/kg dry	1.14	0.438	1	"	"	"	"	"	X
7439-97-6	Mercury	< 0.0356		mg/kg dry	0.0356	0.0018	1	SW846 7471B	"	31-Jul-13	JLM	1318010	X
7440-02-0	Nickel	**14.6**		mg/kg dry	1.14	0.330	1	SW846 6010C	"	31-Jul-13	EDT	1318009	X
7439-92-1	Lead	**4.63**		mg/kg dry	1.71	0.629	1	"	"	"	"	"	X
7440-36-0	Antimony	< 5.69		mg/kg dry	5.69	1.05	1	"	"	"	"	"	X
7782-49-2	Selenium	< 1.71		mg/kg dry	1.71	0.489	1	"	"	"	"	"	X
7440-28-0	Thallium	< 3.41		mg/kg dry	3.41	0.964	1	"	"	"	"	"	X
7440-62-2	Vanadium	**30.5**		mg/kg dry	1.71	0.528	1	"	"	"	"	"	X
7440-66-6	Zinc	**41.0**		mg/kg dry	1.14	0.500	1	"	"	"	"	"	X
General Chemistry Parameters													
	% Solids	**75.4**		%			1	SM2540 G Mod.	26-Jul-13	26-Jul-13	DT	1317764	
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**16**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		29-Jul-13	PH-01	R75557	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 77		ug/Kg	77	23	1	SW846 8270D SIM	30-Jul-13	31-Jul-13	PH-01	72963	
91-57-6	2-Methylnaphthalene	< 77		ug/Kg	77	23	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 77		ug/Kg	77	21	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 77		ug/Kg	77	21	1	"	"	"	"	"	
86-73-7	Fluorene	< 77		ug/Kg	77	20	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 77		ug/Kg	77	23	1	"	"	"	"	"	
120-12-7	Anthracene	< 77		ug/Kg	77	22	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 77		ug/Kg	77	35	1	"	"	"	"	"	
129-00-0	Pyrene	< 77		ug/Kg	77	26	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 77		ug/Kg	77	30	1	"	"	"	"	"	
218-01-9	Chrysene	< 77		ug/Kg	77	52	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	< 77		ug/Kg	77	38	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 77		ug/Kg	77	30	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 77		ug/Kg	77	22	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 77		ug/Kg	77	26	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 77		ug/Kg	77	26	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-2-072513-1 SB73837-03	60225155	Sediment	25-Jul-13 10:00	25-Jul-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Subcontracted Analyses													
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
191-24-2	Benzo(g,h,i)perylene	< 77		ug/Kg	77	26	1	SW846 8270D SIM	30-Jul-13	31-Jul-13	PH-01	72963	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*89.2*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SW-BBUS-2-072513-1	60225155	Surface Water	25-Jul-13 10:00	25-Jul-13
SB73837-04				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GCMS													
SVOCs by SIM													
Prepared by method SW846 3510C													
83-32-9	Acenaphthene	< 0.050		µg/l	0.050	0.007	1	SW846 8270D SIM	29-Jul-13	02-Aug-13	ML/	1317842	X
208-96-8	Acenaphthylene	< 0.050		µg/l	0.050	0.013	1	"	"	"	"	"	X
90-12-0	1-Methylnaphthalene	< 0.050		µg/l	0.050	0.010	1	"	"	"	"	"	
120-12-7	Anthracene	< 0.050		µg/l	0.050	0.013	1	"	"	"	"	"	X
56-55-3	Benzo (a) anthracene	< 0.050		µg/l	0.050	0.036	1	"	"	"	"	"	X
50-32-8	Benzo (a) pyrene	< 0.050		µg/l	0.050	0.036	1	"	"	"	"	"	X
205-99-2	Benzo (b) fluoranthene	< 0.050		µg/l	0.050	0.031	1	"	"	"	"	"	X
191-24-2	Benzo (g,h,i) perylene	< 0.050		µg/l	0.050	0.026	1	"	"	"	"	"	X
207-08-9	Benzo (k) fluoranthene	< 0.050		µg/l	0.050	0.026	1	"	"	"	"	"	X
218-01-9	Chrysene	< 0.050		µg/l	0.050	0.022	1	"	"	"	"	"	X
53-70-3	Dibenzo (a,h) anthracene	< 0.050		µg/l	0.050	0.030	1	"	"	"	"	"	X
206-44-0	Fluoranthene	< 0.050		µg/l	0.050	0.017	1	"	"	"	"	"	X
86-73-7	Fluorene	< 0.050		µg/l	0.050	0.012	1	"	"	"	"	"	X
193-39-5	Indeno (1,2,3-cd) pyrene	< 0.050		µg/l	0.050	0.029	1	"	"	"	"	"	X
91-57-6	2-Methylnaphthalene	< 0.050		µg/l	0.050	0.008	1	"	"	"	"	"	
91-20-3	Naphthalene	< 0.050		µg/l	0.050	0.016	1	"	"	"	"	"	X
85-01-8	Phenanthrene	< 0.050		µg/l	0.050	0.019	1	"	"	"	"	"	X
129-00-0	Pyrene	< 0.050		µg/l	0.050	0.017	1	"	"	"	"	"	X
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*93*			*30-130 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*95*			*30-130 %*			"	"	"	"	"	
205440-82-0	*Benzo (e) pyrene-d12*	*90*			*30-130 %*			"	"	"	"	"	
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3510C													
319-84-6	alpha-BHC	< 0.002		µg/l	0.002	0.001	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317977	X
319-85-7	beta-BHC	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
319-86-8	delta-BHC	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
58-89-9	gamma-BHC (Lindane)	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
76-44-8	Heptachlor	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
309-00-2	Aldrin	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
1024-57-3	Heptachlor epoxide	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
959-98-8	Endosulfan I	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
60-57-1	Dieldrin [2C]	**0.018**	P	µg/l	0.002	0.002	1	"	"	"	"	"	X
72-55-9	4,4'-DDE (p,p')	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
72-20-8	Endrin	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
33213-65-9	Endosulfan II	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
72-54-8	4,4'-DDD (p,p')	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
1031-07-8	Endosulfan sulfate	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
50-29-3	4,4'-DDT (p,p')	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
72-43-5	Methoxychlor	< 0.005		µg/l	0.005	0.003	1	"	"	"	"	"	X
53494-70-5	Endrin ketone	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
7421-93-4	Endrin aldehyde	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
5103-71-9	alpha-Chlordane	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SW-BBUS-2-072513-1 SB73837-04	60225155	Surface Water	25-Jul-13 10:00	25-Jul-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3510C													
5566-34-7	gamma-Chlordane	< 0.002		µg/l	0.002	0.002	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317977	X
8001-35-2	Toxaphene	< 0.058		µg/l	0.058	0.054	1	"	"	"	"	"	X
57-74-9	Chlordane	< 0.008		µg/l	0.008	0.007	1	"	"	"	"	"	X
15972-60-8	Alachlor	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*88*			*30-150 %*			"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*81*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*51*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*38*			*30-150 %*			"	"	"	"	"	
Total Metals by EPA 200/6000 Series Methods													
	Preservation	**Field Preserved**		N/A			1	EPA 200/6000 methods			BEL	1317737	
Total Metals by EPA 6000/7000 Series Methods													
7440-22-4	Silver	< 0.0050		mg/l	0.0050	0.0009	1	SW846 6010C	30-Jul-13	31-Jul-13	TBC	1318007	X
7440-38-2	Arsenic	< 0.0040		mg/l	0.0040	0.0018	1	"	"	"	"	"	X
7440-39-3	Barium	**0.0858**		mg/l	0.0050	0.0007	1	"	"	"	"	"	X
7440-41-7	Beryllium	< 0.0020		mg/l	0.0020	0.0002	1	"	"	"	"	"	X
7440-43-9	Cadmium	< 0.0025		mg/l	0.0025	0.0008	1	"	"	"	"	"	X
7440-47-3	Chromium	< 0.0050		mg/l	0.0050	0.0009	1	"	"	"	"	"	X
7440-50-8	Copper	< 0.0050		mg/l	0.0050	0.0011	1	"	"	"	"	"	X
7440-02-0	Nickel	< 0.0050		mg/l	0.0050	0.0007	1	"	"	"	"	"	X
7439-92-1	Lead	< 0.0075		mg/l	0.0075	0.0020	1	"	"	"	"	"	X
7440-36-0	Antimony	< 0.0060		mg/l	0.0060	0.0014	1	"	"	"	"	"	X
7782-49-2	Selenium	< 0.0150		mg/l	0.0150	0.0030	1	"	"	"	"	"	X
7440-28-0	Thallium	< 0.0050		mg/l	0.0050	0.0029	1	"	"	"	"	"	X
7440-62-2	Vanadium	< 0.0050		mg/l	0.0050	0.0009	1	"	"	"	"	"	X
7440-66-6	Zinc	**0.0117**		mg/l	0.0050	0.0020	1	"	"	"	"	"	X
Total Metals by EPA 200 Series Methods													
7439-97-6	Mercury	< 0.00020		mg/l	0.00020	0.00008	1	EPA 245.1/7470A	30-Jul-13	31-Jul-13	JLM	1318008	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-2-072513-2	60225155	Sediment	25-Jul-13 10:00	25-Jul-13
SB73837-05				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3545A													
319-84-6	alpha-BHC	< 6.44		µg/kg dry	6.44	0.978	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317981	X
319-85-7	beta-BHC	< 6.44		µg/kg dry	6.44	1.08	1	"	"	"	"	"	X
319-86-8	delta-BHC	< 6.44		µg/kg dry	6.44	1.09	1	"	"	"	"	"	X
58-89-9	gamma-BHC (Lindane)	< 3.86		µg/kg dry	3.86	1.04	1	"	"	"	"	"	X
76-44-8	Heptachlor	< 6.44		µg/kg dry	6.44	0.965	1	"	"	"	"	"	X
309-00-2	Aldrin	< 6.44		µg/kg dry	6.44	1.03	1	"	"	"	"	"	X
1024-57-3	Heptachlor epoxide	< 6.44		µg/kg dry	6.44	1.13	1	"	"	"	"	"	X
959-98-8	Endosulfan I	< 6.44		µg/kg dry	6.44	1.13	1	"	"	"	"	"	X
60-57-1	Dieldrin	< 6.44		µg/kg dry	6.44	1.07	1	"	"	"	"	"	X
72-55-9	4,4'-DDE (p,p')	< 6.44		µg/kg dry	6.44	1.09	1	"	"	"	"	"	X
72-20-8	Endrin	< 10.3		µg/kg dry	10.3	1.27	1	"	"	"	"	"	X
33213-65-9	Endosulfan II	< 10.3		µg/kg dry	10.3	1.11	1	"	"	"	"	"	X
72-54-8	4,4'-DDD (p,p')	< 10.3		µg/kg dry	10.3	1.11	1	"	"	"	"	"	X
1031-07-8	Endosulfan sulfate	< 10.3		µg/kg dry	10.3	1.20	1	"	"	"	"	"	X
50-29-3	4,4'-DDT (p,p')	< 10.3		µg/kg dry	10.3	1.08	1	"	"	"	"	"	X
72-43-5	Methoxychlor	< 10.3		µg/kg dry	10.3	0.862	1	"	"	"	"	"	X
53494-70-5	Endrin ketone	< 10.3		µg/kg dry	10.3	1.16	1	"	"	"	"	"	X
7421-93-4	Endrin aldehyde	< 10.3		µg/kg dry	10.3	1.15	1	"	"	"	"	"	X
5103-71-9	alpha-Chlordane	< 6.44		µg/kg dry	6.44	1.16	1	"	"	"	"	"	X
5566-34-7	gamma-Chlordane	< 6.44		µg/kg dry	6.44	1.08	1	"	"	"	"	"	X
8001-35-2	Toxaphene	< 129		µg/kg dry	129	14.5	1	"	"	"	"	"	X
57-74-9	Chlordane	< 25.7		µg/kg dry	25.7	3.66	1	"	"	"	"	"	X
15972-60-8	Alachlor	< 6.44		µg/kg dry	6.44	1.49	1	"	"	"	"	"	
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*123*			*30-150 %*			"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*125*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*88*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*83*			*30-150 %*			"	"	"	"	"	
Polychlorinated Biphenyls													
Prepared by method SW846 3540C													
12674-11-2	Aroclor-1016	< 25.8		µg/kg dry	25.8	19.3	1	SW846 8082A	26-Jul-13	30-Jul-13	IMR	1317792	X
11104-28-2	Aroclor-1221	< 25.8		µg/kg dry	25.8	23.3	1	"	"	"	"	"	X
11141-16-5	Aroclor-1232	< 25.8		µg/kg dry	25.8	16.6	1	"	"	"	"	"	X
53469-21-9	Aroclor-1242	< 25.8		µg/kg dry	25.8	15.5	1	"	"	"	"	"	X
12672-29-6	Aroclor-1248	< 25.8		µg/kg dry	25.8	13.4	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	< 25.8		µg/kg dry	25.8	21.5	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	< 25.8		µg/kg dry	25.8	16.0	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	< 25.8		µg/kg dry	25.8	24.1	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	< 25.8		µg/kg dry	25.8	10.7	1	"	"	"	"	"	X
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*95*			*30-150 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-2-072513-2	60225155	Sediment	25-Jul-13 10:00	25-Jul-13
SB73837-05				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC													
Polychlorinated Biphenyls													
Prepared by method SW846 3540C													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*95*			*30-150 %*			SW846 8082A	26-Jul-13	30-Jul-13	IMR	1317792	
2051-24-3	*Decachlorobiphenyl (Sr)*	*80*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*95*			*30-150 %*			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
7440-22-4	Silver	< 1.72		mg/kg dry	1.72	0.496	1	SW846 6010C	30-Jul-13	31-Jul-13	EDT	1318009	X
7440-38-2	Arsenic	**1.89**		mg/kg dry	1.72	0.751	1	"	"	"	"	"	X
7440-39-3	Barium	**93.8**		mg/kg dry	1.15	0.370	1	"	"	"	"	"	X
7440-41-7	Beryllium	< 0.574		mg/kg dry	0.574	0.173	1	"	"	"	"	"	X
7440-43-9	Cadmium	< 0.574		mg/kg dry	0.574	0.169	1	"	"	"	"	"	X
7440-47-3	Chromium	**22.6**		mg/kg dry	1.15	0.248	1	"	"	"	"	"	X
7440-50-8	Copper	**19.2**		mg/kg dry	1.15	0.442	1	"	"	"	"	"	X
7439-97-6	Mercury	< 0.0349		mg/kg dry	0.0349	0.0018	1	SW846 7471B	"	31-Jul-13	JLM	1318010	X
7440-02-0	Nickel	**14.8**		mg/kg dry	1.15	0.333	1	SW846 6010C	"	31-Jul-13	EDT	1318009	X
7439-92-1	Lead	**4.65**		mg/kg dry	1.72	0.635	1	"	"	"	"	"	X
7440-36-0	Antimony	< 5.74		mg/kg dry	5.74	1.06	1	"	"	"	"	"	X
7782-49-2	Selenium	< 1.72		mg/kg dry	1.72	0.494	1	"	"	"	"	"	X
7440-28-0	Thallium	< 3.45		mg/kg dry	3.45	0.973	1	"	"	"	"	"	X
7440-62-2	Vanadium	**26.3**		mg/kg dry	1.72	0.533	1	"	"	"	"	"	X
7440-66-6	Zinc	**35.2**		mg/kg dry	1.15	0.504	1	"	"	"	"	"	X
General Chemistry Parameters													
	% Solids	**77.4**		%			1	SM2540 G Mod.	26-Jul-13	26-Jul-13	DT	1317764	
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**16**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		29-Jul-13	PH-01	R75557	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 78		ug/Kg	78	24	1	SW846 8270D SIM	30-Jul-13	31-Jul-13	PH-01	72963	
91-57-6	2-Methylnaphthalene	< 78		ug/Kg	78	24	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 78		ug/Kg	78	21	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 78		ug/Kg	78	21	1	"	"	"	"	"	
86-73-7	Fluorene	< 78		ug/Kg	78	21	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 78		ug/Kg	78	23	1	"	"	"	"	"	
120-12-7	Anthracene	< 78		ug/Kg	78	23	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 78		ug/Kg	78	36	1	"	"	"	"	"	
129-00-0	Pyrene	< 78		ug/Kg	78	26	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 78		ug/Kg	78	31	1	"	"	"	"	"	
218-01-9	Chrysene	< 78		ug/Kg	78	52	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	< 78		ug/Kg	78	38	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 78		ug/Kg	78	31	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 78		ug/Kg	78	23	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 78		ug/Kg	78	26	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 78		ug/Kg	78	26	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-2-072513-2 SB73837-05	60225155	Sediment	25-Jul-13 10:00	25-Jul-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Subcontracted Analyses													
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
191-24-2	Benzo(g,h,i)perylene	< 78		ug/Kg	78	26	1	SW846 8270D SIM	30-Jul-13	31-Jul-13	PH-01	72963	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*91.0*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SW-BBUS-2-072513-2	60225155	Surface Water	25-Jul-13 10:00	25-Jul-13
SB73837-06				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GCMS													
SVOCs by SIM													
Prepared by method SW846 3510C													
83-32-9	Acenaphthene	< 0.050		µg/l	0.050	0.007	1	SW846 8270D SIM	29-Jul-13	02-Aug-13	ML/	1317842	X
208-96-8	Acenaphthylene	< 0.050		µg/l	0.050	0.013	1	"	"	"	"	"	X
90-12-0	1-Methylnaphthalene	< 0.050		µg/l	0.050	0.010	1	"	"	"	"	"	
120-12-7	Anthracene	< 0.050		µg/l	0.050	0.013	1	"	"	"	"	"	X
56-55-3	Benzo (a) anthracene	< 0.050		µg/l	0.050	0.036	1	"	"	"	"	"	X
50-32-8	Benzo (a) pyrene	< 0.050		µg/l	0.050	0.036	1	"	"	"	"	"	X
205-99-2	Benzo (b) fluoranthene	< 0.050		µg/l	0.050	0.031	1	"	"	"	"	"	X
191-24-2	Benzo (g,h,i) perylene	< 0.050		µg/l	0.050	0.026	1	"	"	"	"	"	X
207-08-9	Benzo (k) fluoranthene	< 0.050		µg/l	0.050	0.026	1	"	"	"	"	"	X
218-01-9	Chrysene	< 0.050		µg/l	0.050	0.022	1	"	"	"	"	"	X
53-70-3	Dibenzo (a,h) anthracene	< 0.050		µg/l	0.050	0.030	1	"	"	"	"	"	X
206-44-0	Fluoranthene	**0.097**		µg/l	0.050	0.017	1	"	"	"	"	"	X
86-73-7	Fluorene	< 0.050		µg/l	0.050	0.012	1	"	"	"	"	"	X
193-39-5	Indeno (1,2,3-cd) pyrene	< 0.050		µg/l	0.050	0.029	1	"	"	"	"	"	X
91-57-6	2-Methylnaphthalene	< 0.050		µg/l	0.050	0.008	1	"	"	"	"	"	
91-20-3	Naphthalene	< 0.050		µg/l	0.050	0.016	1	"	"	"	"	"	X
85-01-8	Phenanthrene	**0.077**		µg/l	0.050	0.019	1	"	"	"	"	"	X
129-00-0	Pyrene	**0.075**		µg/l	0.050	0.017	1	"	"	"	"	"	X
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*68*			*30-130 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*91*			*30-130 %*			"	"	"	"	"	
205440-82-0	*Benzo (e) pyrene-d12*	*86*			*30-130 %*			"	"	"	"	"	
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3510C													
319-84-6	alpha-BHC	< 0.002		µg/l	0.002	0.001	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317977	X
319-85-7	beta-BHC	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
319-86-8	delta-BHC	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
58-89-9	gamma-BHC (Lindane)	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
76-44-8	Heptachlor	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
309-00-2	Aldrin	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
1024-57-3	Heptachlor epoxide	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
959-98-8	Endosulfan I	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
60-57-1	Dieldrin [2C]	**0.003**		µg/l	0.002	0.001	1	"	"	"	"	"	X
72-55-9	4,4'-DDE (p,p')	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
72-20-8	Endrin	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
33213-65-9	Endosulfan II	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
72-54-8	4,4'-DDD (p,p')	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
1031-07-8	Endosulfan sulfate	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
50-29-3	4,4'-DDT (p,p')	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
72-43-5	Methoxychlor	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
53494-70-5	Endrin ketone	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
7421-93-4	Endrin aldehyde	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
5103-71-9	alpha-Chlordane	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SW-BBUS-2-072513-2 SB73837-06	60225155	Surface Water	25-Jul-13 10:00	25-Jul-13

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3510C													
5566-34-7	gamma-Chlordane	< 0.002		µg/l	0.002	0.001	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317977	X
8001-35-2	Toxaphene	< 0.052		µg/l	0.052	0.048	1	"	"	"	"	"	X
57-74-9	Chlordane	< 0.007		µg/l	0.007	0.006	1	"	"	"	"	"	X
15972-60-8	Alachlor	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*85*			*30-150 %*			"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*74*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*43*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*35*			*30-150 %*			"	"	"	"	"	
Total Metals by EPA 200/6000 Series Methods													
	Preservation	**Field Preserved**		N/A			1	EPA 200/6000 methods			BEL	1317737	
Total Metals by EPA 6000/7000 Series Methods													
7440-22-4	Silver	< 0.0050		mg/l	0.0050	0.0009	1	SW846 6010C	30-Jul-13	31-Jul-13	TBC	1318007	X
7440-38-2	Arsenic	< 0.0040		mg/l	0.0040	0.0018	1	"	"	"	"	"	X
7440-39-3	Barium	**0.122**		mg/l	0.0050	0.0007	1	"	"	"	"	"	X
7440-41-7	Beryllium	< 0.0020		mg/l	0.0020	0.0002	1	"	"	"	"	"	X
7440-43-9	Cadmium	< 0.0025		mg/l	0.0025	0.0008	1	"	"	"	"	"	X
7440-47-3	Chromium	< 0.0050		mg/l	0.0050	0.0009	1	"	"	"	"	"	X
7440-50-8	Copper	**0.0086**		mg/l	0.0050	0.0011	1	"	"	"	"	"	X
7440-02-0	Nickel	< 0.0050		mg/l	0.0050	0.0007	1	"	"	"	"	"	X
7439-92-1	Lead	< 0.0075		mg/l	0.0075	0.0020	1	"	"	"	"	"	X
7440-36-0	Antimony	< 0.0060		mg/l	0.0060	0.0014	1	"	"	"	"	"	X
7782-49-2	Selenium	< 0.0150		mg/l	0.0150	0.0030	1	"	"	"	"	"	X
7440-28-0	Thallium	< 0.0050		mg/l	0.0050	0.0029	1	"	"	"	"	"	X
7440-62-2	Vanadium	< 0.0050		mg/l	0.0050	0.0009	1	"	"	"	"	"	X
7440-66-6	Zinc	**0.0265**		mg/l	0.0050	0.0020	1	"	"	"	"	"	X
Total Metals by EPA 200 Series Methods													
7439-97-6	Mercury	< 0.00020		mg/l	0.00020	0.00008	1	EPA 245.1/7470A	30-Jul-13	31-Jul-13	JLM	1318008	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-3-072513-1	60225155	Sediment	25-Jul-13 10:30	25-Jul-13
SB73837-07				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3545A													
319-84-6	alpha-BHC	< 5.50		µg/kg dry	5.50	0.837	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317981	X
319-85-7	beta-BHC	< 5.50		µg/kg dry	5.50	0.925	1	"	"	"	"	"	X
319-86-8	delta-BHC	< 5.50		µg/kg dry	5.50	0.936	1	"	"	"	"	"	X
58-89-9	gamma-BHC (Lindane)	< 3.30		µg/kg dry	3.30	0.892	1	"	"	"	"	"	X
76-44-8	Heptachlor	< 5.50		µg/kg dry	5.50	0.826	1	"	"	"	"	"	X
309-00-2	Aldrin	< 5.50		µg/kg dry	5.50	0.881	1	"	"	"	"	"	X
1024-57-3	Heptachlor epoxide	< 5.50		µg/kg dry	5.50	0.969	1	"	"	"	"	"	X
959-98-8	Endosulfan I	< 5.50		µg/kg dry	5.50	0.969	1	"	"	"	"	"	X
60-57-1	Dieldrin	< 5.50		µg/kg dry	5.50	0.914	1	"	"	"	"	"	X
72-55-9	4,4'-DDE (p,p')	**22.5**		µg/kg dry	5.50	0.936	1	"	"	"	"	"	X
72-20-8	Endrin	< 8.81		µg/kg dry	8.81	1.09	1	"	"	"	"	"	X
33213-65-9	Endosulfan II	< 8.81		µg/kg dry	8.81	0.947	1	"	"	"	"	"	X
72-54-8	4,4'-DDD (p,p')	**16.0**		µg/kg dry	8.81	0.947	1	"	"	"	"	"	X
1031-07-8	Endosulfan sulfate	< 8.81		µg/kg dry	8.81	1.02	1	"	"	"	"	"	X
50-29-3	4,4'-DDT (p,p')	**30.7**		µg/kg dry	8.81	0.925	1	"	"	"	"	"	X
72-43-5	Methoxychlor	< 8.81		µg/kg dry	8.81	0.738	1	"	"	"	"	"	X
53494-70-5	Endrin ketone	< 8.81		µg/kg dry	8.81	0.991	1	"	"	"	"	"	X
7421-93-4	Endrin aldehyde	< 8.81		µg/kg dry	8.81	0.980	1	"	"	"	"	"	X
5103-71-9	alpha-Chlordane	**5.83**	P	µg/kg dry	5.50	0.991	1	"	"	"	"	"	X
5566-34-7	gamma-Chlordane [2C]	< 5.50	P	µg/kg dry	5.50	0.980	1	"	"	"	"	"	X
8001-35-2	Toxaphene	< 110		µg/kg dry	110	12.4	1	"	"	"	"	"	X
57-74-9	Chlordane	**49.5**		µg/kg dry	22.0	3.13	1	"	"	"	"	"	X
15972-60-8	Alachlor	< 5.50		µg/kg dry	5.50	1.28	1	"	"	"	"	"	
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*97*			*30-150 %*			"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*92*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*65*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*60*			*30-150 %*			"	"	"	"	"	
Polychlorinated Biphenyls													
Prepared by method SW846 3540C													
12674-11-2	Aroclor-1016	< 20.3		µg/kg dry	20.3	15.2	1	SW846 8082A	26-Jul-13	30-Jul-13	IMR	1317792	X
11104-28-2	Aroclor-1221	< 20.3		µg/kg dry	20.3	18.3	1	"	"	"	"	"	X
11141-16-5	Aroclor-1232	< 20.3		µg/kg dry	20.3	13.1	1	"	"	"	"	"	X
53469-21-9	Aroclor-1242	< 20.3		µg/kg dry	20.3	12.2	1	"	"	"	"	"	X
12672-29-6	Aroclor-1248	< 20.3		µg/kg dry	20.3	10.6	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	< 20.3		µg/kg dry	20.3	17.0	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	< 20.3		µg/kg dry	20.3	12.6	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	< 20.3		µg/kg dry	20.3	18.9	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	< 20.3		µg/kg dry	20.3	8.39	1	"	"	"	"	"	X
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*90*			*30-150 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-3-072513-1	60225155	Sediment	25-Jul-13 10:30	25-Jul-13
SB73837-07				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC													
Polychlorinated Biphenyls													
Prepared by method SW846 3540C													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*135*			*30-150 %*			SW846 8082A	26-Jul-13	30-Jul-13	IMR	1317792	
2051-24-3	*Decachlorobiphenyl (Sr)*	*90*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*95*			*30-150 %*			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
7440-22-4	Silver	< 1.66		mg/kg dry	1.66	0.478	1	SW846 6010C	30-Jul-13	31-Jul-13	EDT	1318009	X
7440-38-2	Arsenic	**2.09**		mg/kg dry	1.66	0.724	1	"	"	"	"	"	X
7440-39-3	Barium	**40.1**		mg/kg dry	1.11	0.357	1	"	"	"	"	"	X
7440-41-7	Beryllium	< 0.554		mg/kg dry	0.554	0.167	1	"	"	"	"	"	X
7440-43-9	Cadmium	< 0.554		mg/kg dry	0.554	0.163	1	"	"	"	"	"	X
7440-47-3	Chromium	**13.1**		mg/kg dry	1.11	0.239	1	"	"	"	"	"	X
7440-50-8	Copper	**14.5**		mg/kg dry	1.11	0.426	1	"	"	"	"	"	X
7439-97-6	Mercury	< 0.0300		mg/kg dry	0.0300	0.0015	1	SW846 7471B	"	31-Jul-13	JLM	1318010	X
7440-02-0	Nickel	**14.4**		mg/kg dry	1.11	0.321	1	SW846 6010C	"	31-Jul-13	EDT	1318009	X
7439-92-1	Lead	**50.9**		mg/kg dry	1.66	0.612	1	"	"	"	"	"	X
7440-36-0	Antimony	< 5.54		mg/kg dry	5.54	1.02	1	"	"	"	"	"	X
7782-49-2	Selenium	< 1.66		mg/kg dry	1.66	0.476	1	"	"	"	"	"	X
7440-28-0	Thallium	< 3.32		mg/kg dry	3.32	0.938	1	"	"	"	"	"	X
7440-62-2	Vanadium	**21.0**		mg/kg dry	1.66	0.514	1	"	"	"	"	"	X
7440-66-6	Zinc	**33.9**		mg/kg dry	1.11	0.486	1	"	"	"	"	"	X
General Chemistry Parameters													
	% Solids	**89.6**		%			1	SM2540 G Mod.	26-Jul-13	26-Jul-13	DT	1317764	
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**15**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		29-Jul-13	PH-01	R75557	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 76		ug/Kg	76	23	1	SW846 8270D SIM	30-Jul-13	31-Jul-13	PH-01	72963	
91-57-6	2-Methylnaphthalene	< 76		ug/Kg	76	23	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 76		ug/Kg	76	20	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 76		ug/Kg	76	21	1	"	"	"	"	"	
86-73-7	Fluorene	< 76		ug/Kg	76	20	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 76		ug/Kg	76	23	1	"	"	"	"	"	
120-12-7	Anthracene	< 76		ug/Kg	76	22	1	"	"	"	"	"	
206-44-0	Fluoranthene	**1,100**		ug/Kg	76	35	1	"	"	"	"	"	
129-00-0	Pyrene	**1,100**		ug/Kg	76	25	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 76		ug/Kg	76	30	1	"	"	"	"	"	
218-01-9	Chrysene	< 76		ug/Kg	76	51	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	**940**		ug/Kg	76	37	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 76		ug/Kg	76	30	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 76		ug/Kg	76	22	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 76		ug/Kg	76	25	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 76		ug/Kg	76	25	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-3-072513-1 SB73837-07	60225155	Sediment	25-Jul-13 10:30	25-Jul-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Subcontracted Analyses													
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
191-24-2	Benzo(g,h,i)perylene	< 76		ug/Kg	76	25	1	SW846 8270D SIM	30-Jul-13	31-Jul-13	PH-01	72963	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*110*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SW-BBUS-3-072513-1	60225155	Surface Water	25-Jul-13 10:30	25-Jul-13
SB73837-08				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GCMS													
SVOCs by SIM													
Prepared by method SW846 3510C													
83-32-9	Acenaphthene	< 0.050		µg/l	0.050	0.007	1	SW846 8270D SIM	29-Jul-13	01-Aug-13	ML/	1317842	X
208-96-8	Acenaphthylene	< 0.050		µg/l	0.050	0.013	1	"	"	"	"	"	X
90-12-0	1-Methylnaphthalene	< 0.050		µg/l	0.050	0.010	1	"	"	"	"	"	
120-12-7	Anthracene	< 0.050		µg/l	0.050	0.013	1	"	"	"	"	"	X
56-55-3	Benzo (a) anthracene	**0.288**		µg/l	0.050	0.036	1	"	"	"	"	"	X
50-32-8	Benzo (a) pyrene	**0.375**		µg/l	0.050	0.036	1	"	"	"	"	"	X
205-99-2	Benzo (b) fluoranthene	**0.379**		µg/l	0.050	0.031	1	"	"	"	"	"	X
191-24-2	Benzo (g,h,i) perylene	**0.272**		µg/l	0.050	0.026	1	"	"	"	"	"	X
207-08-9	Benzo (k) fluoranthene	**0.318**		µg/l	0.050	0.026	1	"	"	"	"	"	X
218-01-9	Chrysene	**0.373**		µg/l	0.050	0.022	1	"	"	"	"	"	X
53-70-3	Dibenzo (a,h) anthracene	< 0.050		µg/l	0.050	0.030	1	"	"	"	"	"	X
206-44-0	Fluoranthene	**0.728**		µg/l	0.050	0.017	1	"	"	"	"	"	X
86-73-7	Fluorene	< 0.050		µg/l	0.050	0.012	1	"	"	"	"	"	X
193-39-5	Indeno (1,2,3-cd) pyrene	**0.310**		µg/l	0.050	0.029	1	"	"	"	"	"	X
91-57-6	2-Methylnaphthalene	< 0.050		µg/l	0.050	0.008	1	"	"	"	"	"	
91-20-3	Naphthalene	< 0.050		µg/l	0.050	0.016	1	"	"	"	"	"	X
85-01-8	Phenanthrene	**0.341**		µg/l	0.050	0.019	1	"	"	"	"	"	X
129-00-0	Pyrene	**0.605**		µg/l	0.050	0.017	1	"	"	"	"	"	X
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*57*			*30-130 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*76*			*30-130 %*			"	"	"	"	"	
205440-82-0	*Benzo (e) pyrene-d12*	*80*			*30-130 %*			"	"	"	"	"	
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3510C													
319-84-6	alpha-BHC	< 0.002		µg/l	0.002	0.001	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317977	X
319-85-7	beta-BHC	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
319-86-8	delta-BHC	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
58-89-9	gamma-BHC (Lindane)	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
76-44-8	Heptachlor	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
309-00-2	Aldrin	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
1024-57-3	Heptachlor epoxide	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
959-98-8	Endosulfan I	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
60-57-1	Dieldrin [2C]	**0.004**		µg/l	0.002	0.002	1	"	"	"	"	"	X
72-55-9	4,4'-DDE (p,p')	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
72-20-8	Endrin	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
33213-65-9	Endosulfan II	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
72-54-8	4,4'-DDD (p,p')	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
1031-07-8	Endosulfan sulfate	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
50-29-3	4,4'-DDT (p,p')	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
72-43-5	Methoxychlor	< 0.005		µg/l	0.005	0.003	1	"	"	"	"	"	X
53494-70-5	Endrin ketone	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
7421-93-4	Endrin aldehyde	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
5103-71-9	alpha-Chlordane	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SW-BBUS-3-072513-1 SB73837-08	60225155	Surface Water	25-Jul-13 10:30	25-Jul-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3510C													
5566-34-7	gamma-Chlordane	< 0.002		µg/l	0.002	0.002	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317977	X
8001-35-2	Toxaphene	< 0.057		µg/l	0.057	0.053	1	"	"	"	"	"	X
57-74-9	Chlordane	< 0.007		µg/l	0.007	0.006	1	"	"	"	"	"	X
15972-60-8	Alachlor	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*72*			*30-150 %*			"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*78*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*74*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*69*			*30-150 %*			"	"	"	"	"	
Total Metals by EPA 200/6000 Series Methods													
	Preservation	**Field Preserved**		N/A			1	EPA 200/6000 methods			BEL	1317737	
Total Metals by EPA 6000/7000 Series Methods													
7440-22-4	Silver	< 0.0050		mg/l	0.0050	0.0009	1	SW846 6010C	30-Jul-13	31-Jul-13	TBC	1318007	X
7440-38-2	Arsenic	< 0.0040		mg/l	0.0040	0.0018	1	"	"	"	"	"	X
7440-39-3	Barium	**0.105**		mg/l	0.0050	0.0007	1	"	"	"	"	"	X
7440-41-7	Beryllium	< 0.0020		mg/l	0.0020	0.0002	1	"	"	"	"	"	X
7440-43-9	Cadmium	< 0.0025		mg/l	0.0025	0.0008	1	"	"	"	"	"	X
7440-47-3	Chromium	< 0.0050		mg/l	0.0050	0.0009	1	"	"	"	"	"	X
7440-50-8	Copper	**0.0058**		mg/l	0.0050	0.0011	1	"	"	"	"	"	X
7440-02-0	Nickel	< 0.0050		mg/l	0.0050	0.0007	1	"	"	"	"	"	X
7439-92-1	Lead	< 0.0075		mg/l	0.0075	0.0020	1	"	"	"	"	"	X
7440-36-0	Antimony	< 0.0060		mg/l	0.0060	0.0014	1	"	"	"	"	"	X
7782-49-2	Selenium	< 0.0150		mg/l	0.0150	0.0030	1	"	"	"	"	"	X
7440-28-0	Thallium	< 0.0050		mg/l	0.0050	0.0029	1	"	"	"	"	"	X
7440-62-2	Vanadium	< 0.0050		mg/l	0.0050	0.0009	1	"	"	"	"	"	X
7440-66-6	Zinc	**0.0197**		mg/l	0.0050	0.0020	1	"	"	"	"	"	X
Total Metals by EPA 200 Series Methods													
7439-97-6	Mercury	< 0.00020		mg/l	0.00020	0.00008	1	EPA 245.1/7470A	30-Jul-13	31-Jul-13	JLM	1318008	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-4-072513-1	60225155	Sediment	25-Jul-13 11:00	25-Jul-13
SB73837-09				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3545A													
319-84-6	alpha-BHC	< 6.71		µg/kg dry	6.71	1.02	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317981	X
319-85-7	beta-BHC	< 6.71		µg/kg dry	6.71	1.13	1	"	"	"	"	"	X
319-86-8	delta-BHC	< 6.71		µg/kg dry	6.71	1.14	1	"	"	"	"	"	X
58-89-9	gamma-BHC (Lindane)	< 4.03		µg/kg dry	4.03	1.09	1	"	"	"	"	"	X
76-44-8	Heptachlor	< 6.71		µg/kg dry	6.71	1.01	1	"	"	"	"	"	X
309-00-2	Aldrin	< 6.71		µg/kg dry	6.71	1.07	1	"	"	"	"	"	X
1024-57-3	Heptachlor epoxide	< 6.71		µg/kg dry	6.71	1.18	1	"	"	"	"	"	X
959-98-8	Endosulfan I	< 6.71		µg/kg dry	6.71	1.18	1	"	"	"	"	"	X
60-57-1	Dieldrin	< 6.71		µg/kg dry	6.71	1.11	1	"	"	"	"	"	X
72-55-9	4,4'-DDE (p,p')	< 6.71		µg/kg dry	6.71	1.14	1	"	"	"	"	"	X
72-20-8	Endrin	< 10.7		µg/kg dry	10.7	1.33	1	"	"	"	"	"	X
33213-65-9	Endosulfan II	< 10.7		µg/kg dry	10.7	1.15	1	"	"	"	"	"	X
72-54-8	4,4'-DDD (p,p')	< 10.7		µg/kg dry	10.7	1.15	1	"	"	"	"	"	X
1031-07-8	Endosulfan sulfate	< 10.7		µg/kg dry	10.7	1.25	1	"	"	"	"	"	X
50-29-3	4,4'-DDT (p,p')	< 10.7		µg/kg dry	10.7	1.13	1	"	"	"	"	"	X
72-43-5	Methoxychlor	< 10.7		µg/kg dry	10.7	0.900	1	"	"	"	"	"	X
53494-70-5	Endrin ketone	< 10.7		µg/kg dry	10.7	1.21	1	"	"	"	"	"	X
7421-93-4	Endrin aldehyde	< 10.7		µg/kg dry	10.7	1.20	1	"	"	"	"	"	X
5103-71-9	alpha-Chlordane	< 6.71		µg/kg dry	6.71	1.21	1	"	"	"	"	"	X
5566-34-7	gamma-Chlordane	< 6.71		µg/kg dry	6.71	1.13	1	"	"	"	"	"	X
8001-35-2	Toxaphene	< 134		µg/kg dry	134	15.1	1	"	"	"	"	"	X
57-74-9	Chlordane	< 26.9		µg/kg dry	26.9	3.81	1	"	"	"	"	"	X
15972-60-8	Alachlor	< 6.71		µg/kg dry	6.71	1.56	1	"	"	"	"	"	
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*91*			*30-150 %*			"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*67*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*69*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*58*			*30-150 %*			"	"	"	"	"	
Polychlorinated Biphenyls													
Prepared by method SW846 3540C													
12674-11-2	Aroclor-1016	< 26.0		µg/kg dry	26.0	19.4	1	SW846 8082A	26-Jul-13	30-Jul-13	IMR	1317792	X
11104-28-2	Aroclor-1221	< 26.0		µg/kg dry	26.0	23.4	1	"	"	"	"	"	X
11141-16-5	Aroclor-1232	< 26.0		µg/kg dry	26.0	16.7	1	"	"	"	"	"	X
53469-21-9	Aroclor-1242	< 26.0		µg/kg dry	26.0	15.6	1	"	"	"	"	"	X
12672-29-6	Aroclor-1248	< 26.0		µg/kg dry	26.0	13.5	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	< 26.0		µg/kg dry	26.0	21.7	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	< 26.0		µg/kg dry	26.0	16.1	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	< 26.0		µg/kg dry	26.0	24.2	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	< 26.0		µg/kg dry	26.0	10.7	1	"	"	"	"	"	X
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*70*			*30-150 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-4-072513-1 SB73837-09	60225155	Sediment	25-Jul-13 11:00	25-Jul-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GC													
Polychlorinated Biphenyls													
Prepared by method SW846 3540C													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*65*			*30-150 %*			SW846 8082A	26-Jul-13	30-Jul-13	IMR	1317792	
2051-24-3	*Decachlorobiphenyl (Sr)*	*55*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*50*			*30-150 %*			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
7440-22-4	Silver	< 1.94		mg/kg dry	1.94	0.560	1	SW846 6010C	30-Jul-13	31-Jul-13	EDT	1318009	X
7440-38-2	Arsenic	**3.37**		mg/kg dry	1.94	0.847	1	"	"	"	"	"	X
7440-39-3	Barium	**111**		mg/kg dry	1.30	0.417	1	"	"	"	"	"	X
7440-41-7	Beryllium	< 0.648		mg/kg dry	0.648	0.196	1	"	"	"	"	"	X
7440-43-9	Cadmium	< 0.648		mg/kg dry	0.648	0.190	1	"	"	"	"	"	X
7440-47-3	Chromium	**36.8**		mg/kg dry	1.30	0.280	1	"	"	"	"	"	X
7440-50-8	Copper	**16.4**		mg/kg dry	1.30	0.499	1	"	"	"	"	"	X
7439-97-6	Mercury	< 0.0392		mg/kg dry	0.0392	0.0020	1	SW846 7471B	"	31-Jul-13	JLM	1318010	X
7440-02-0	Nickel	**21.2**		mg/kg dry	1.30	0.376	1	SW846 6010C	"	31-Jul-13	EDT	1318009	X
7439-92-1	Lead	**7.39**		mg/kg dry	1.94	0.716	1	"	"	"	"	"	X
7440-36-0	Antimony	< 6.48		mg/kg dry	6.48	1.19	1	"	"	"	"	"	X
7782-49-2	Selenium	< 1.94		mg/kg dry	1.94	0.557	1	"	"	"	"	"	X
7440-28-0	Thallium	< 3.89		mg/kg dry	3.89	1.10	1	"	"	"	"	"	X
7440-62-2	Vanadium	**38.7**		mg/kg dry	1.94	0.601	1	"	"	"	"	"	X
7440-66-6	Zinc	**60.3**		mg/kg dry	1.30	0.569	1	"	"	"	"	"	X
General Chemistry Parameters													
	% Solids	**74.1**		%			1	SM2540 G Mod.	26-Jul-13	26-Jul-13	DT	1317764	
Subcontracted Analyses													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
	Percent Moisture	**26**		PCT	10	0.050	1	ASTM D2216 -- PMOIST		29-Jul-13	PH-01	R75557	
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
91-20-3	Naphthalene	< 87		ug/Kg	87	26	1	SW846 8270D SIM	30-Jul-13	31-Jul-13	PH-01	72963	
91-57-6	2-Methylnaphthalene	< 87		ug/Kg	87	26	1	"	"	"	"	"	
208-96-8	Acenaphthylene	< 87		ug/Kg	87	23	1	"	"	"	"	"	
83-32-9	Acenaphthene	< 87		ug/Kg	87	24	1	"	"	"	"	"	
86-73-7	Fluorene	< 87		ug/Kg	87	23	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 87		ug/Kg	87	26	1	"	"	"	"	"	
120-12-7	Anthracene	< 87		ug/Kg	87	25	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 87		ug/Kg	87	39	1	"	"	"	"	"	
129-00-0	Pyrene	< 87		ug/Kg	87	29	1	"	"	"	"	"	
56-55-3	Benzo(a)anthracene	< 87		ug/Kg	87	34	1	"	"	"	"	"	
218-01-9	Chrysene	< 87		ug/Kg	87	58	1	"	"	"	"	"	
205-99-2	Benzo(b)fluoranthene	< 87		ug/Kg	87	42	1	"	"	"	"	"	
207-08-9	Benzo(k)fluoranthene	< 87		ug/Kg	87	34	1	"	"	"	"	"	
50-32-8	Benzo(a)pyrene	< 87		ug/Kg	87	25	1	"	"	"	"	"	
193-39-5	Indeno(1,2,3-cd)pyrene	< 87		ug/Kg	87	29	1	"	"	"	"	"	
53-70-3	Dibenzo(a,h)anthracene	< 87		ug/Kg	87	29	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SED-BBUS-4-072513-1 SB73837-09	60225155	Sediment	25-Jul-13 11:00	25-Jul-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Subcontracted Analyses													
Subcontracted Analyses													
Prepared by method SW3545A													
Analysis performed by Spectrum Analytical, Inc. - North Kingstown, RI													
191-24-2	Benzo(g,h,i)perylene	< 87		ug/Kg	87	29	1	SW846 8270D SIM	30-Jul-13	31-Jul-13	PH-01	72963	
Surrogate recoveries:													
205440-82-0	*Benzo(e)pyrene-d12*	*99.7*			*32-153 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SW-BBUS-4-072513-1	60225155	Surface Water	25-Jul-13 11:00	25-Jul-13
SB73837-10				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GCMS													
SVOCs by SIM													
Prepared by method SW846 3510C													
83-32-9	Acenaphthene	< 0.050		µg/l	0.050	0.007	1	SW846 8270D SIM	29-Jul-13	02-Aug-13	ML/	1317842	X
208-96-8	Acenaphthylene	< 0.050		µg/l	0.050	0.013	1	"	"	"	"	"	X
90-12-0	1-Methylnaphthalene	< 0.050		µg/l	0.050	0.010	1	"	"	"	"	"	
120-12-7	Anthracene	< 0.050		µg/l	0.050	0.013	1	"	"	"	"	"	X
56-55-3	Benzo (a) anthracene	< 0.050		µg/l	0.050	0.036	1	"	"	"	"	"	X
50-32-8	Benzo (a) pyrene	**0.064**		µg/l	0.050	0.036	1	"	"	"	"	"	X
205-99-2	Benzo (b) fluoranthene	**0.068**		µg/l	0.050	0.031	1	"	"	"	"	"	X
191-24-2	Benzo (g,h,i) perylene	**0.050**		µg/l	0.050	0.026	1	"	"	"	"	"	X
207-08-9	Benzo (k) fluoranthene	**0.056**		µg/l	0.050	0.026	1	"	"	"	"	"	X
218-01-9	Chrysene	**0.054**		µg/l	0.050	0.022	1	"	"	"	"	"	X
53-70-3	Dibenzo (a,h) anthracene	< 0.050		µg/l	0.050	0.030	1	"	"	"	"	"	X
206-44-0	Fluoranthene	**0.131**		µg/l	0.050	0.017	1	"	"	"	"	"	X
86-73-7	Fluorene	< 0.050		µg/l	0.050	0.012	1	"	"	"	"	"	X
193-39-5	Indeno (1,2,3-cd) pyrene	**0.056**		µg/l	0.050	0.029	1	"	"	"	"	"	X
91-57-6	2-Methylnaphthalene	< 0.050		µg/l	0.050	0.008	1	"	"	"	"	"	
91-20-3	Naphthalene	< 0.050		µg/l	0.050	0.016	1	"	"	"	"	"	X
85-01-8	Phenanthrene	**0.096**		µg/l	0.050	0.019	1	"	"	"	"	"	X
129-00-0	Pyrene	**0.103**		µg/l	0.050	0.017	1	"	"	"	"	"	X
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*67*			*30-130 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*81*			*30-130 %*			"	"	"	"	"	
205440-82-0	*Benzo (e) pyrene-d12*	*81*			*30-130 %*			"	"	"	"	"	
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3510C													
319-84-6	alpha-BHC	< 0.002		µg/l	0.002	0.001	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317977	X
319-85-7	beta-BHC	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
319-86-8	delta-BHC	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
58-89-9	gamma-BHC (Lindane)	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
76-44-8	Heptachlor	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
309-00-2	Aldrin	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
1024-57-3	Heptachlor epoxide	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
959-98-8	Endosulfan I	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
60-57-1	Dieldrin [2C]	**0.003**		µg/l	0.002	0.001	1	"	"	"	"	"	X
72-55-9	4,4'-DDE (p,p')	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
72-20-8	Endrin	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
33213-65-9	Endosulfan II	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
72-54-8	4,4'-DDD (p,p')	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
1031-07-8	Endosulfan sulfate	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
50-29-3	4,4'-DDT (p,p')	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
72-43-5	Methoxychlor	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
53494-70-5	Endrin ketone	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
7421-93-4	Endrin aldehyde	< 0.004		µg/l	0.004	0.002	1	"	"	"	"	"	X
5103-71-9	alpha-Chlordane	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SW-BBUS-4-072513-1 SB73837-10	60225155	Surface Water	25-Jul-13 11:00	25-Jul-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3510C													
5566-34-7	gamma-Chlordane	< 0.002		µg/l	0.002	0.001	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317977	X
8001-35-2	Toxaphene	< 0.052		µg/l	0.052	0.048	1	"	"	"	"	"	X
57-74-9	Chlordane	< 0.007		µg/l	0.007	0.006	1	"	"	"	"	"	X
15972-60-8	Alachlor	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*74*			*30-150 %*			"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*80*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*52*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*47*			*30-150 %*			"	"	"	"	"	
Total Metals by EPA 200/6000 Series Methods													
	Preservation	**Field Preserved**		N/A			1	EPA 200/6000 methods			BEL	1317737	
Total Metals by EPA 6000/7000 Series Methods													
7440-22-4	Silver	< 0.0050		mg/l	0.0050	0.0009	1	SW846 6010C	30-Jul-13	31-Jul-13	TBC	1318007	X
7440-38-2	Arsenic	< 0.0040		mg/l	0.0040	0.0018	1	"	"	"	"	"	X
7440-39-3	Barium	**0.0879**		mg/l	0.0050	0.0007	1	"	"	"	"	"	X
7440-41-7	Beryllium	< 0.0020		mg/l	0.0020	0.0002	1	"	"	"	"	"	X
7440-43-9	Cadmium	< 0.0025		mg/l	0.0025	0.0008	1	"	"	"	"	"	X
7440-47-3	Chromium	< 0.0050		mg/l	0.0050	0.0009	1	"	"	"	"	"	X
7440-50-8	Copper	< 0.0050		mg/l	0.0050	0.0011	1	"	"	"	"	"	X
7440-02-0	Nickel	< 0.0050		mg/l	0.0050	0.0007	1	"	"	"	"	"	X
7439-92-1	Lead	< 0.0075		mg/l	0.0075	0.0020	1	"	"	"	"	"	X
7440-36-0	Antimony	< 0.0060		mg/l	0.0060	0.0014	1	"	"	"	"	"	X
7782-49-2	Selenium	< 0.0150		mg/l	0.0150	0.0030	1	"	"	"	"	"	X
7440-28-0	Thallium	< 0.0050		mg/l	0.0050	0.0029	1	"	"	"	"	"	X
7440-62-2	Vanadium	< 0.0050		mg/l	0.0050	0.0009	1	"	"	"	"	"	X
7440-66-6	Zinc	**0.122**		mg/l	0.0050	0.0020	1	"	"	"	"	"	X
Total Metals by EPA 200 Series Methods													
7439-97-6	Mercury	< 0.00020		mg/l	0.00020	0.00008	1	EPA 245.1/7470A	30-Jul-13	31-Jul-13	JLM	1318008	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Equipment Blank	60225155	Deionized Water	25-Jul-13 11:30	25-Jul-13
SB73837-11				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GCMS													
SVOCs by SIM													
Prepared by method SW846 3510C													
83-32-9	Acenaphthene	< 0.050		µg/l	0.050	0.007	1	SW846 8270D SIM	29-Jul-13	02-Aug-13	ML/	1317842	X
208-96-8	Acenaphthylene	< 0.050		µg/l	0.050	0.013	1	"	"	"	"	"	X
90-12-0	1-Methylnaphthalene	< 0.050		µg/l	0.050	0.010	1	"	"	"	"	"	
120-12-7	Anthracene	< 0.050		µg/l	0.050	0.013	1	"	"	"	"	"	X
56-55-3	Benzo (a) anthracene	< 0.050		µg/l	0.050	0.036	1	"	"	"	"	"	X
50-32-8	Benzo (a) pyrene	< 0.050		µg/l	0.050	0.036	1	"	"	"	"	"	X
205-99-2	Benzo (b) fluoranthene	< 0.050		µg/l	0.050	0.031	1	"	"	"	"	"	X
191-24-2	Benzo (g,h,i) perylene	< 0.050		µg/l	0.050	0.026	1	"	"	"	"	"	X
207-08-9	Benzo (k) fluoranthene	< 0.050		µg/l	0.050	0.026	1	"	"	"	"	"	X
218-01-9	Chrysene	< 0.050		µg/l	0.050	0.022	1	"	"	"	"	"	X
53-70-3	Dibenzo (a,h) anthracene	< 0.050		µg/l	0.050	0.030	1	"	"	"	"	"	X
206-44-0	Fluoranthene	< 0.050		µg/l	0.050	0.017	1	"	"	"	"	"	X
86-73-7	Fluorene	< 0.050		µg/l	0.050	0.012	1	"	"	"	"	"	X
193-39-5	Indeno (1,2,3-cd) pyrene	< 0.050		µg/l	0.050	0.029	1	"	"	"	"	"	X
91-57-6	2-Methylnaphthalene	< 0.050		µg/l	0.050	0.008	1	"	"	"	"	"	
91-20-3	Naphthalene	< 0.050		µg/l	0.050	0.016	1	"	"	"	"	"	X
85-01-8	Phenanthrene	< 0.050		µg/l	0.050	0.019	1	"	"	"	"	"	X
129-00-0	Pyrene	< 0.050		µg/l	0.050	0.017	1	"	"	"	"	"	X
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*65*			*30-130 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*82*			*30-130 %*			"	"	"	"	"	
205440-82-0	*Benzo (e) pyrene-d12*	*74*			*30-130 %*			"	"	"	"	"	
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3510C													
319-84-6	alpha-BHC	< 0.002		µg/l	0.002	0.001	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317977	X
319-85-7	beta-BHC	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
319-86-8	delta-BHC	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
58-89-9	gamma-BHC (Lindane)	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
76-44-8	Heptachlor	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
309-00-2	Aldrin	< 0.002		µg/l	0.002	0.001	1	"	"	"	"	"	X
1024-57-3	Heptachlor epoxide	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
959-98-8	Endosulfan I	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
60-57-1	Dieldrin	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
72-55-9	4,4'-DDE (p,p')	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X
72-20-8	Endrin	< 0.005		µg/l	0.005	0.003	1	"	"	"	"	"	X
33213-65-9	Endosulfan II	< 0.005		µg/l	0.005	0.003	1	"	"	"	"	"	X
72-54-8	4,4'-DDD (p,p')	< 0.005		µg/l	0.005	0.003	1	"	"	"	"	"	X
1031-07-8	Endosulfan sulfate	< 0.005		µg/l	0.005	0.003	1	"	"	"	"	"	X
50-29-3	4,4'-DDT (p,p')	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
72-43-5	Methoxychlor	< 0.005		µg/l	0.005	0.003	1	"	"	"	"	"	X
53494-70-5	Endrin ketone	< 0.005		µg/l	0.005	0.002	1	"	"	"	"	"	X
7421-93-4	Endrin aldehyde	< 0.005		µg/l	0.005	0.003	1	"	"	"	"	"	X
5103-71-9	alpha-Chlordane	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Equipment Blank	60225155	Deionized Water	25-Jul-13 11:30	25-Jul-13
SB73837-11				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC													
Organochlorine Pesticides													
Prepared by method SW846 3510C													
5566-34-7	gamma-Chlordane	< 0.002		µg/l	0.002	0.002	1	SW846 8081B	30-Jul-13	31-Jul-13	TG	1317977	X
8001-35-2	Toxaphene	< 0.062		µg/l	0.062	0.057	1	"	"	"	"	"	X
57-74-9	Chlordane	< 0.008		µg/l	0.008	0.007	1	"	"	"	"	"	X
15972-60-8	Alachlor	< 0.002		µg/l	0.002	0.002	1	"	"	"	"	"	
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*89*			*30-150 %*			"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*77*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*37*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*31*			*30-150 %*			"	"	"	"	"	
Polychlorinated Biphenyls													
Prepared by method SW846 3510C													
12674-11-2	Aroclor-1016	< 0.0247		µg/l	0.0247	0.00907	1	SW846 8082A	30-Jul-13	31-Jul-13	BLM	1317978	X
11104-28-2	Aroclor-1221	< 0.0247		µg/l	0.0247	0.0157	1	"	"	"	"	"	X
11141-16-5	Aroclor-1232	< 0.0247		µg/l	0.0247	0.0128	1	"	"	"	"	"	X
53469-21-9	Aroclor-1242	< 0.0247		µg/l	0.0247	0.0148	1	"	"	"	"	"	X
12672-29-6	Aroclor-1248	< 0.0247		µg/l	0.0247	0.0128	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	< 0.0247		µg/l	0.0247	0.0161	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	< 0.0247		µg/l	0.0247	0.0135	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	< 0.0247		µg/l	0.0247	0.0170	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	< 0.0247		µg/l	0.0247	0.0102	1	"	"	"	"	"	X
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*85*			*30-150 %*			"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*89*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*55*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*80*			*30-150 %*			"	"	"	"	"	
Total Metals by EPA 200/6000 Series Methods													
	Preservation	**Field Preserved**		N/A			1	EPA 200/6000 methods			BEL	1317737	
Total Metals by EPA 6000/7000 Series Methods													
7440-22-4	Silver	< 0.0050		mg/l	0.0050	0.0009	1	SW846 6010C	30-Jul-13	31-Jul-13	TBC	1318007	X
7440-38-2	Arsenic	< 0.0040		mg/l	0.0040	0.0018	1	"	"	"	"	"	X
7440-39-3	Barium	< 0.0050		mg/l	0.0050	0.0007	1	"	"	"	"	"	X
7440-41-7	Beryllium	< 0.0020		mg/l	0.0020	0.0002	1	"	"	"	"	"	X
7440-43-9	Cadmium	< 0.0025		mg/l	0.0025	0.0008	1	"	"	"	"	"	X
7440-47-3	Chromium	< 0.0050		mg/l	0.0050	0.0009	1	"	"	"	"	"	X
7440-50-8	Copper	< 0.0050		mg/l	0.0050	0.0011	1	"	"	"	"	"	X
7440-02-0	Nickel	< 0.0050		mg/l	0.0050	0.0007	1	"	"	"	"	"	X
7439-92-1	Lead	< 0.0075		mg/l	0.0075	0.0020	1	"	"	"	"	"	X
7440-36-0	Antimony	< 0.0060		mg/l	0.0060	0.0014	1	"	"	"	"	"	X
7782-49-2	Selenium	< 0.0150		mg/l	0.0150	0.0030	1	"	"	"	"	"	X
7440-28-0	Thallium	< 0.0050		mg/l	0.0050	0.0029	1	"	"	"	"	"	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Equipment Blank SB73837-11	60225155	Deionized Water	25-Jul-13 11:30	25-Jul-13

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-62-2	Vanadium	< 0.0050		mg/l	0.0050	0.0009	1	SW846 6010C	30-Jul-13	31-Jul-13	TBC	1318007	X
7440-66-6	Zinc	**0.0910**		mg/l	0.0050	0.0020	1	"	"	"	"	"	X
Total Metals by EPA 200 Series Methods													
7439-97-6	Mercury	< 0.00020		mg/l	0.00020	0.00008	1	EPA 245.1/7470A	30-Jul-13	31-Jul-13	JLM	1318008	X

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317842 - SW846 3510C										
Blank (1317842-BLK2)					Prepared: 29-Jul-13 Analyzed: 02-Aug-13					
Acenaphthene	< 0.050		µg/l	0.050						
Acenaphthylene	< 0.050		µg/l	0.050						
1-Methylnaphthalene	< 0.050		µg/l	0.050						
Anthracene	< 0.050		µg/l	0.050						
Benzo (a) anthracene	< 0.050		µg/l	0.050						
Benzo (a) pyrene	< 0.050		µg/l	0.050						
Benzo (b) fluoranthene	< 0.050		µg/l	0.050						
Benzo (g,h,i) perylene	< 0.050		µg/l	0.050						
Benzo (k) fluoranthene	< 0.050		µg/l	0.050						
Chrysene	< 0.050		µg/l	0.050						
Dibenzo (a,h) anthracene	< 0.050		µg/l	0.050						
Fluoranthene	< 0.050		µg/l	0.050						
Fluorene	< 0.050		µg/l	0.050						
Indeno (1,2,3-cd) pyrene	< 0.050		µg/l	0.050						
2-Methylnaphthalene	< 0.050		µg/l	0.050						
Naphthalene	< 0.050		µg/l	0.050						
Phenanthrene	< 0.050		µg/l	0.050						
Pyrene	< 0.050		µg/l	0.050						
Surrogate: 2-Fluorobiphenyl	*46.9*		µg/l		*50.0*		*94*	*30-130*		
Surrogate: Terphenyl-dl4	*42.6*		µg/l		*50.0*		*85*	*30-130*		
Surrogate: Benzo (e) pyrene-d12	*0.862*		µg/l		*1.00*		*86*	*30-130*		
LCS (1317842-BS2)					Prepared: 29-Jul-13 Analyzed: 02-Aug-13					
Acenaphthene	**0.830**		µg/l	0.050	1.00		83	40-140		
Acenaphthylene	**0.907**		µg/l	0.050	1.00		91	40-140		
1-Methylnaphthalene	**0.717**		µg/l	0.050	1.00		72	40-140		
Anthracene	**0.880**		µg/l	0.050	1.00		88	40-140		
Benzo (a) anthracene	**0.913**		µg/l	0.050	1.00		91	40-140		
Benzo (a) pyrene	**1.09**		µg/l	0.050	1.00		109	40-140		
Benzo (b) fluoranthene	**1.05**		µg/l	0.050	1.00		105	40-140		
Benzo (g,h,i) perylene	**1.13**		µg/l	0.050	1.00		113	40-140		
Benzo (k) fluoranthene	**1.11**		µg/l	0.050	1.00		111	40-140		
Chrysene	**0.840**		µg/l	0.050	1.00		84	40-140		
Dibenzo (a,h) anthracene	**1.25**		µg/l	0.050	1.00		125	40-140		
Fluoranthene	**0.934**		µg/l	0.050	1.00		93	40-140		
Fluorene	**0.948**		µg/l	0.050	1.00		95	40-140		
Indeno (1,2,3-cd) pyrene	**1.23**		µg/l	0.050	1.00		123	40-140		
2-Methylnaphthalene	**0.814**		µg/l	0.050	1.00		81	40-140		
Naphthalene	**0.744**		µg/l	0.050	1.00		74	40-140		
Phenanthrene	**0.814**		µg/l	0.050	1.00		81	40-140		
Pyrene	**0.964**		µg/l	0.050	1.00		96	40-140		
Surrogate: 2-Fluorobiphenyl	*40.1*		µg/l		*50.0*		*80*	*30-130*		
Surrogate: Terphenyl-dl4	*45.1*		µg/l		*50.0*		*90*	*30-130*		
Surrogate: Benzo (e) pyrene-d12	*0.943*		µg/l		*1.00*		*94*	*30-130*		
LCS Dup (1317842-BSD2)					Prepared: 29-Jul-13 Analyzed: 02-Aug-13					
Acenaphthene	**0.894**		µg/l	0.050	1.00		89	40-140	7	20
Acenaphthylene	**0.955**		µg/l	0.050	1.00		96	40-140	5	20
1-Methylnaphthalene	**0.810**		µg/l	0.050	1.00		81	40-140	12	20
Anthracene	**0.935**		µg/l	0.050	1.00		94	40-140	6	20
Benzo (a) anthracene	**0.974**		µg/l	0.050	1.00		97	40-140	6	20
Benzo (a) pyrene	**1.11**		µg/l	0.050	1.00		111	40-140	3	20
Benzo (b) fluoranthene	**1.14**		µg/l	0.050	1.00		114	40-140	9	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317842 - SW846 3510C										
LCS Dup (1317842-BSD2)					Prepared: 29-Jul-13 Analyzed: 02-Aug-13					
Benzo (g,h,i) perylene	**1.19**		µg/l	0.050	1.00		119	40-140	5	20
Benzo (k) fluoranthene	**1.16**		µg/l	0.050	1.00		116	40-140	4	20
Chrysene	**0.892**		µg/l	0.050	1.00		89	40-140	6	20
Dibenzo (a,h) anthracene	**1.26**		µg/l	0.050	1.00		126	40-140	0.5	20
Fluoranthene	**1.01**		µg/l	0.050	1.00		101	40-140	7	20
Fluorene	**0.990**		µg/l	0.050	1.00		99	40-140	4	20
Indeno (1,2,3-cd) pyrene	**1.29**		µg/l	0.050	1.00		129	40-140	5	20
2-Methylnaphthalene	**0.921**		µg/l	0.050	1.00		92	40-140	12	20
Naphthalene	**0.827**		µg/l	0.050	1.00		83	40-140	11	20
Phenanthrene	**0.887**		µg/l	0.050	1.00		89	40-140	8	20
Pyrene	**1.04**		µg/l	0.050	1.00		104	40-140	7	20
Surrogate: 2-Fluorobiphenyl	*37.1*		µg/l		*50.0*		*74*	*30-130*		
Surrogate: Terphenyl-dl4	*42.7*		µg/l		*50.0*		*85*	*30-130*		
Surrogate: Benzo (e) pyrene-d12	*0.967*		µg/l		*1.00*		*97*	*30-130*		
Matrix Spike (1317842-MS2)			**Source: SB73837-08**		Prepared: 29-Jul-13 Analyzed: 01-Aug-13					
Acenaphthene	**0.804**		µg/l	0.050	1.06	BRL	76	40-140		
Acenaphthylene	**0.843**		µg/l	0.050	1.06	BRL	79	40-140		
1-Methylnaphthalene	**0.657**		µg/l	0.050	1.06	BRL	62	40-140		
Anthracene	**0.782**		µg/l	0.050	1.06	0.0426	70	40-140		
Benzo (a) anthracene	**0.950**		µg/l	0.050	1.06	0.288	62	40-140		
Benzo (a) pyrene	**1.02**		µg/l	0.050	1.06	0.375	60	40-140		
Benzo (b) fluoranthene	**0.981**		µg/l	0.050	1.06	0.379	57	40-140		
Benzo (g,h,i) perylene	**0.848**		µg/l	0.050	1.06	0.272	54	40-140		
Benzo (k) fluoranthene	**1.00**		µg/l	0.050	1.06	0.318	64	40-140		
Chrysene	**0.929**		µg/l	0.050	1.06	0.373	52	40-140		
Dibenzo (a,h) anthracene	**0.817**		µg/l	0.050	1.06	0.0481	72	40-140		
Fluoranthene	**1.07**	QM7	µg/l	0.050	1.06	0.728	33	40-140		
Fluorene	**0.892**		µg/l	0.050	1.06	BRL	84	40-140		
Indeno (1,2,3-cd) pyrene	**0.983**		µg/l	0.050	1.06	0.310	63	40-140		
2-Methylnaphthalene	**0.733**		µg/l	0.050	1.06	BRL	69	40-140		
Naphthalene	**0.721**		µg/l	0.050	1.06	BRL	68	40-140		
Phenanthrene	**0.956**		µg/l	0.050	1.06	0.341	58	40-140		
Pyrene	**1.11**		µg/l	0.050	1.06	0.605	47	40-140		
Surrogate: 2-Fluorobiphenyl	*36.4*		µg/l		*53.2*		*68*	*30-130*		
Surrogate: Terphenyl-dl4	*40.4*		µg/l		*53.2*		*76*	*30-130*		
Surrogate: Benzo (e) pyrene-d12	*0.755*		µg/l		*1.06*		*71*	*30-130*		
Matrix Spike Dup (1317842-MSD2)			**Source: SB73837-08**		Prepared: 29-Jul-13 Analyzed: 01-Aug-13					
Acenaphthene	**0.856**		µg/l	0.050	1.12	BRL	76	40-140	0.8	20
Acenaphthylene	**0.910**		µg/l	0.050	1.12	BRL	81	40-140	2	20
1-Methylnaphthalene	**0.679**		µg/l	0.050	1.12	BRL	60	40-140	2	20
Anthracene	**0.883**		µg/l	0.050	1.12	0.0426	75	40-140	7	20
Benzo (a) anthracene	**1.06**		µg/l	0.050	1.12	0.288	69	40-140	10	20
Benzo (a) pyrene	**1.14**		µg/l	0.050	1.12	0.375	68	40-140	12	20
Benzo (b) fluoranthene	**1.11**		µg/l	0.050	1.12	0.379	65	40-140	14	20
Benzo (g,h,i) perylene	**0.996**		µg/l	0.050	1.12	0.272	64	40-140	17	20
Benzo (k) fluoranthene	**1.15**		µg/l	0.050	1.12	0.318	74	40-140	15	20
Chrysene	**1.03**		µg/l	0.050	1.12	0.373	58	40-140	11	20
Dibenzo (a,h) anthracene	**1.00**		µg/l	0.050	1.12	0.0481	85	40-140	16	20
Fluoranthene	**1.11**	QM7	µg/l	0.050	1.12	0.728	34	40-140	4	20
Fluorene	**0.989**		µg/l	0.050	1.12	BRL	88	40-140	5	20
Indeno (1,2,3-cd) pyrene	**1.17**		µg/l	0.050	1.12	0.310	76	40-140	19	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317842 - SW846 3510C										
Matrix Spike Dup (1317842-MSD2)			**Source: SB73837-08**		Prepared: 29-Jul-13 Analyzed: 01-Aug-13					
2-Methylnaphthalene	**0.764**		µg/l	0.050	1.12	BRL	68	40-140	1	20
Naphthalene	**0.696**		µg/l	0.050	1.12	BRL	62	40-140	9	20
Phenanthrene	**0.992**		µg/l	0.050	1.12	0.341	58	40-140	0.4	20
Pyrene	**1.15**		µg/l	0.050	1.12	0.605	48	40-140	2	20
Surrogate: 2-Fluorobiphenyl	*36.0*		µg/l		*56.2*		*64*	*30-130*		
Surrogate: Terphenyl-dl4	*44.6*		µg/l		*56.2*		*79*	*30-130*		
Surrogate: Benzo (e) pyrene-d12	*0.854*		µg/l		*1.12*		*76*	*30-130*		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317792 - SW846 3540C										
Blank (1317792-BLK1)					Prepared: 26-Jul-13 Analyzed: 30-Jul-13					
Aroclor-1016	< 20.0		µg/kg wet	20.0						
Aroclor-1016 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1221	< 20.0		µg/kg wet	20.0						
Aroclor-1221 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1232	< 20.0		µg/kg wet	20.0						
Aroclor-1232 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1242	< 20.0		µg/kg wet	20.0						
Aroclor-1242 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1248	< 20.0		µg/kg wet	20.0						
Aroclor-1248 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1254	< 20.0		µg/kg wet	20.0						
Aroclor-1254 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1260	< 20.0		µg/kg wet	20.0						
Aroclor-1260 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1262	< 20.0		µg/kg wet	20.0						
Aroclor-1262 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1268	< 20.0		µg/kg wet	20.0						
Aroclor-1268 [2C]	< 20.0		µg/kg wet	20.0						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*21.0*		µg/kg wet		*20.0*		*105*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*23.0*		µg/kg wet		*20.0*		*115*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*15.0*		µg/kg wet		*20.0*		*75*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*20.0*		µg/kg wet		*20.0*		*100*	*30-150*		
LCS (1317792-BS1)					Prepared: 26-Jul-13 Analyzed: 30-Jul-13					
Aroclor-1016	**255**		µg/kg wet	20.0	250		102	40-140		
Aroclor-1016 [2C]	**295**		µg/kg wet	20.0	250		118	40-140		
Aroclor-1260	**208**		µg/kg wet	20.0	250		83	40-140		
Aroclor-1260 [2C]	**246**		µg/kg wet	20.0	250		98	40-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*18.0*		µg/kg wet		*20.0*		*90*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*19.0*		µg/kg wet		*20.0*		*95*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*14.0*		µg/kg wet		*20.0*		*70*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*16.0*		µg/kg wet		*20.0*		*80*	*30-150*		
LCS Dup (1317792-BSD1)					Prepared: 26-Jul-13 Analyzed: 30-Jul-13					
Aroclor-1016	**257**		µg/kg wet	20.0	250		103	40-140	0.8	30
Aroclor-1016 [2C]	**293**		µg/kg wet	20.0	250		117	40-140	0.7	30
Aroclor-1260	**197**		µg/kg wet	20.0	250		79	40-140	5	30
Aroclor-1260 [2C]	**245**		µg/kg wet	20.0	250		98	40-140	0.4	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*18.0*		µg/kg wet		*20.0*		*90*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*19.0*		µg/kg wet		*20.0*		*95*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*15.0*		µg/kg wet		*20.0*		*75*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*16.0*		µg/kg wet		*20.0*		*80*	*30-150*		
Matrix Spike (1317792-MS1)			**Source: SB73837-07**		Prepared: 26-Jul-13 Analyzed: 30-Jul-13					
Aroclor-1016	**289**		µg/kg dry	21.1	264	BRL	110	40-140		
Aroclor-1016 [2C]	**263**		µg/kg dry	21.1	264	BRL	100	40-140		
Aroclor-1260	**181**		µg/kg dry	21.1	264	BRL	68	40-140		
Aroclor-1260 [2C]	**231**		µg/kg dry	21.1	264	BRL	88	40-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*20.1*		µg/kg dry		*21.1*		*95*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*26.4*		µg/kg dry		*21.1*		*125*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*16.9*		µg/kg dry		*21.1*		*80*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*21.1*		µg/kg dry		*21.1*		*100*	*30-150*		
Matrix Spike Dup (1317792-MSD1)			**Source: SB73837-07**		Prepared: 26-Jul-13 Analyzed: 30-Jul-13					

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317792 - SW846 3540C										
Matrix Spike Dup (1317792-MSD1)			**Source: SB73837-07**		Prepared: 26-Jul-13 Analyzed: 30-Jul-13					
Aroclor-1016	**295**		µg/kg dry	22.1	276	BRL	107	40-140	3	30
Aroclor-1016 [2C]	**303**		µg/kg dry	22.1	276	BRL	110	40-140	10	30
Aroclor-1260	**175**		µg/kg dry	22.1	276	BRL	64	40-140	7	30
Aroclor-1260 [2C]	**209**		µg/kg dry	22.1	276	BRL	76	40-140	15	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*22.1*		µg/kg dry		*22.1*		*100*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*25.4*		µg/kg dry		*22.1*		*115*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*16.6*		µg/kg dry		*22.1*		*75*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*18.8*		µg/kg dry		*22.1*		*85*	*30-150*		
Batch 1317977 - SW846 3510C										
Blank (1317977-BLK1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
alpha-BHC	< 0.002		µg/l	0.002						
alpha-BHC [2C]	< 0.002		µg/l	0.002						
beta-BHC	< 0.002		µg/l	0.002						
beta-BHC [2C]	< 0.002		µg/l	0.002						
delta-BHC	< 0.002		µg/l	0.002						
delta-BHC [2C]	< 0.002		µg/l	0.002						
gamma-BHC (Lindane)	< 0.002		µg/l	0.002						
gamma-BHC (Lindane) [2C]	< 0.002		µg/l	0.002						
Heptachlor	< 0.002		µg/l	0.002						
Heptachlor [2C]	< 0.002		µg/l	0.002						
Aldrin	< 0.002		µg/l	0.002						
Aldrin [2C]	< 0.002		µg/l	0.002						
Heptachlor epoxide	< 0.002		µg/l	0.002						
Heptachlor epoxide [2C]	< 0.002		µg/l	0.002						
Endosulfan I	< 0.002		µg/l	0.002						
Endosulfan I [2C]	< 0.002		µg/l	0.002						
Dieldrin	< 0.002		µg/l	0.002						
Dieldrin [2C]	< 0.002		µg/l	0.002						
4,4'-DDE (p,p')	< 0.002		µg/l	0.002						
4,4'-DDE (p,p') [2C]	< 0.002		µg/l	0.002						
Endrin	< 0.004		µg/l	0.004						
Endrin [2C]	< 0.004		µg/l	0.004						
Endosulfan II	< 0.004		µg/l	0.004						
Endosulfan II [2C]	< 0.004		µg/l	0.004						
4,4'-DDD (p,p')	< 0.004		µg/l	0.004						
4,4'-DDD (p,p') [2C]	< 0.004		µg/l	0.004						
Endosulfan sulfate	< 0.004		µg/l	0.004						
Endosulfan sulfate [2C]	< 0.004		µg/l	0.004						
4,4'-DDT (p,p')	< 0.004		µg/l	0.004						
4,4'-DDT (p,p') [2C]	< 0.004		µg/l	0.004						
Methoxychlor	< 0.004		µg/l	0.004						
Methoxychlor [2C]	< 0.004		µg/l	0.004						
Endrin ketone	< 0.004		µg/l	0.004						
Endrin ketone [2C]	< 0.004		µg/l	0.004						
Endrin aldehyde	< 0.004		µg/l	0.004						
Endrin aldehyde [2C]	< 0.004		µg/l	0.004						
alpha-Chlordane	< 0.002		µg/l	0.002						
alpha-Chlordane [2C]	< 0.002		µg/l	0.002						
gamma-Chlordane	< 0.002		µg/l	0.002						
gamma-Chlordane [2C]	< 0.002		µg/l	0.002						
Toxaphene	< 0.050		µg/l	0.050						

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317977 - SW846 3510C										
Blank (1317977-BLK1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Toxaphene [2C]	< 0.050		µg/l	0.050						
Chlordane	< 0.007		µg/l	0.007						
Chlordane [2C]	< 0.007		µg/l	0.007						
Alachlor	< 0.002		µg/l	0.002						
Alachlor [2C]	< 0.002		µg/l	0.002						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.0165*		µg/l		*0.0200*		*82*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.0201*		µg/l		*0.0200*		*101*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.0164*		µg/l		*0.0200*		*82*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.0163*		µg/l		*0.0200*		*81*	*30-150*		
LCS (1317977-BS1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
alpha-BHC	**0.033**		µg/l	0.002	0.0500		66	40-140		
alpha-BHC [2C]	**0.033**		µg/l	0.002	0.0500		66	40-140		
beta-BHC	**0.034**		µg/l	0.002	0.0500		67	40-140		
beta-BHC [2C]	**0.037**		µg/l	0.002	0.0500		74	40-140		
delta-BHC	**0.034**		µg/l	0.002	0.0500		68	40-140		
delta-BHC [2C]	**0.035**		µg/l	0.002	0.0500		69	40-140		
gamma-BHC (Lindane)	**0.033**		µg/l	0.002	0.0500		67	40-140		
gamma-BHC (Lindane) [2C]	**0.033**		µg/l	0.002	0.0500		66	40-140		
Heptachlor	**0.033**		µg/l	0.002	0.0500		66	40-140		
Heptachlor [2C]	**0.034**		µg/l	0.002	0.0500		68	40-140		
Aldrin	**0.034**		µg/l	0.002	0.0500		68	40-140		
Aldrin [2C]	**0.034**		µg/l	0.002	0.0500		69	40-140		
Heptachlor epoxide	**0.036**		µg/l	0.002	0.0500		72	40-140		
Heptachlor epoxide [2C]	**0.035**		µg/l	0.002	0.0500		70	40-140		
Endosulfan I	**0.036**		µg/l	0.002	0.0500		72	40-140		
Endosulfan I [2C]	**0.037**		µg/l	0.002	0.0500		74	40-140		
Dieldrin	**0.035**		µg/l	0.002	0.0500		70	40-140		
Dieldrin [2C]	**0.036**		µg/l	0.002	0.0500		72	40-140		
4,4'-DDE (p,p')	**0.036**		µg/l	0.002	0.0500		71	40-140		
4,4'-DDE (p,p') [2C]	**0.035**		µg/l	0.002	0.0500		70	40-140		
Endrin	**0.037**		µg/l	0.004	0.0500		74	40-140		
Endrin [2C]	**0.037**		µg/l	0.004	0.0500		74	40-140		
Endosulfan II	**0.034**		µg/l	0.004	0.0500		68	40-140		
Endosulfan II [2C]	**0.036**		µg/l	0.004	0.0500		71	40-140		
4,4'-DDD (p,p')	**0.037**		µg/l	0.004	0.0500		73	40-140		
4,4'-DDD (p,p') [2C]	**0.036**		µg/l	0.004	0.0500		73	40-140		
Endosulfan sulfate	**0.037**		µg/l	0.004	0.0500		75	40-140		
Endosulfan sulfate [2C]	**0.039**		µg/l	0.004	0.0500		79	40-140		
4,4'-DDT (p,p')	**0.033**		µg/l	0.004	0.0500		65	40-140		
4,4'-DDT (p,p') [2C]	**0.036**		µg/l	0.004	0.0500		73	40-140		
Methoxychlor	**0.034**		µg/l	0.004	0.0500		67	40-140		
Methoxychlor [2C]	**0.039**		µg/l	0.004	0.0500		77	40-140		
Endrin ketone	**0.036**		µg/l	0.004	0.0500		71	40-140		
Endrin ketone [2C]	**0.038**		µg/l	0.004	0.0500		76	40-140		
Endrin aldehyde	**0.040**		µg/l	0.004	0.0500		80	40-140		
Endrin aldehyde [2C]	**0.043**		µg/l	0.004	0.0500		85	40-140		
alpha-Chlordane	**0.034**		µg/l	0.002	0.0500		69	40-140		
alpha-Chlordane [2C]	**0.034**		µg/l	0.002	0.0500		69	40-140		
gamma-Chlordane	**0.035**		µg/l	0.002	0.0500		69	40-140		
gamma-Chlordane [2C]	**0.034**		µg/l	0.002	0.0500		68	40-140		
Alachlor	**0.034**		µg/l	0.002	0.0500		67	40-140		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317977 - SW846 3510C										
LCS (1317977-BS1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Alachlor [2C]	**0.040**		µg/l	0.002	0.0500		80	40-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.0187*		µg/l		*0.0200*		*94*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.0204*		µg/l		*0.0200*		*102*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.0156*		µg/l		*0.0200*		*78*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.0193*		µg/l		*0.0200*		*97*	*30-150*		
LCS Dup (1317977-BSD1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
alpha-BHC	**0.032**		µg/l	0.002	0.0500		64	40-140	2	20
alpha-BHC [2C]	**0.033**		µg/l	0.002	0.0500		66	40-140	0.02	20
beta-BHC	**0.036**		µg/l	0.002	0.0500		72	40-140	6	20
beta-BHC [2C]	**0.038**		µg/l	0.002	0.0500		76	40-140	3	20
delta-BHC	**0.034**		µg/l	0.002	0.0500		69	40-140	0.6	20
delta-BHC [2C]	**0.035**		µg/l	0.002	0.0500		69	40-140	0.2	20
gamma-BHC (Lindane)	**0.034**		µg/l	0.002	0.0500		68	40-140	1	20
gamma-BHC (Lindane) [2C]	**0.034**		µg/l	0.002	0.0500		67	40-140	2	20
Heptachlor	**0.034**		µg/l	0.002	0.0500		67	40-140	1	20
Heptachlor [2C]	**0.034**		µg/l	0.002	0.0500		67	40-140	1	20
Aldrin	**0.034**		µg/l	0.002	0.0500		68	40-140	0.4	20
Aldrin [2C]	**0.034**		µg/l	0.002	0.0500		68	40-140	0.3	20
Heptachlor epoxide	**0.037**		µg/l	0.002	0.0500		73	40-140	2	20
Heptachlor epoxide [2C]	**0.035**		µg/l	0.002	0.0500		69	40-140	1	20
Endosulfan I	**0.036**		µg/l	0.002	0.0500		73	40-140	0.9	20
Endosulfan I [2C]	**0.036**		µg/l	0.002	0.0500		72	40-140	2	20
Dieldrin	**0.035**		µg/l	0.002	0.0500		71	40-140	0.6	20
Dieldrin [2C]	**0.035**		µg/l	0.002	0.0500		70	40-140	2	20
4,4'-DDE (p,p')	**0.036**		µg/l	0.002	0.0500		72	40-140	1	20
4,4'-DDE (p,p') [2C]	**0.034**		µg/l	0.002	0.0500		68	40-140	3	20
Endrin	**0.037**		µg/l	0.004	0.0500		75	40-140	2	20
Endrin [2C]	**0.036**		µg/l	0.004	0.0500		72	40-140	3	20
Endosulfan II	**0.036**		µg/l	0.004	0.0500		72	40-140	6	20
Endosulfan II [2C]	**0.035**		µg/l	0.004	0.0500		70	40-140	2	20
4,4'-DDD (p,p')	**0.037**		µg/l	0.004	0.0500		74	40-140	0.8	20
4,4'-DDD (p,p') [2C]	**0.036**		µg/l	0.004	0.0500		73	40-140	0.3	20
Endosulfan sulfate	**0.038**		µg/l	0.004	0.0500		76	40-140	2	20
Endosulfan sulfate [2C]	**0.038**		µg/l	0.004	0.0500		76	40-140	3	20
4,4'-DDT (p,p')	**0.035**		µg/l	0.004	0.0500		70	40-140	8	20
4,4'-DDT (p,p') [2C]	**0.034**		µg/l	0.004	0.0500		68	40-140	8	20
Methoxychlor	**0.037**		µg/l	0.004	0.0500		75	40-140	11	20
Methoxychlor [2C]	**0.036**		µg/l	0.004	0.0500		72	40-140	8	20
Endrin ketone	**0.038**		µg/l	0.004	0.0500		76	40-140	7	20
Endrin ketone [2C]	**0.039**		µg/l	0.004	0.0500		77	40-140	2	20
Endrin aldehyde	**0.041**		µg/l	0.004	0.0500		82	40-140	3	20
Endrin aldehyde [2C]	**0.040**		µg/l	0.004	0.0500		81	40-140	5	20
alpha-Chlordane	**0.035**		µg/l	0.002	0.0500		69	40-140	0.8	20
alpha-Chlordane [2C]	**0.034**		µg/l	0.002	0.0500		67	40-140	2	20
gamma-Chlordane	**0.037**		µg/l	0.002	0.0500		74	40-140	6	20
gamma-Chlordane [2C]	**0.033**		µg/l	0.002	0.0500		66	40-140	2	20
Alachlor	**0.033**		µg/l	0.002	0.0500		65	40-140	3	20
Alachlor [2C]	**0.041**		µg/l	0.002	0.0500		81	40-140	2	20
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.0185*		µg/l		*0.0200*		*92*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.0202*		µg/l		*0.0200*		*101*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.0165*		µg/l		*0.0200*		*83*	*30-150*		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317977 - SW846 3510C										
LCS Dup (1317977-BSD1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.0182*		µg/l		*0.0200*		*91*	*30-150*		
Matrix Spike (1317977-MS1)			**Source: SB73837-08**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
alpha-BHC	**0.031**		µg/l	0.002	0.0543	BRL	58	30-150		
alpha-BHC [2C]	**0.035**		µg/l	0.002	0.0543	BRL	64	30-150		
beta-BHC	**0.029**		µg/l	0.002	0.0543	BRL	54	30-150		
beta-BHC [2C]	**0.051**		µg/l	0.002	0.0543	BRL	93	30-150		
delta-BHC	**0.028**		µg/l	0.002	0.0543	BRL	52	30-150		
delta-BHC [2C]	**0.040**		µg/l	0.002	0.0543	BRL	73	30-150		
gamma-BHC (Lindane)	**0.042**		µg/l	0.002	0.0543	BRL	78	30-150		
gamma-BHC (Lindane) [2C]	**0.037**		µg/l	0.002	0.0543	BRL	68	30-150		
Heptachlor	**0.028**		µg/l	0.002	0.0543	BRL	51	30-150		
Heptachlor [2C]	**0.034**		µg/l	0.002	0.0543	BRL	63	30-150		
Aldrin	**0.029**		µg/l	0.002	0.0543	BRL	54	30-150		
Aldrin [2C]	**0.033**		µg/l	0.002	0.0543	BRL	60	30-150		
Heptachlor epoxide	**0.037**		µg/l	0.002	0.0543	BRL	68	30-150		
Heptachlor epoxide [2C]	**0.036**		µg/l	0.002	0.0543	BRL	66	30-150		
Endosulfan I	**0.039**		µg/l	0.002	0.0543	BRL	71	30-150		
Endosulfan I [2C]	**0.059**		µg/l	0.002	0.0543	BRL	109	30-150		
Dieldrin	**0.034**		µg/l	0.002	0.0543	0.004	55	30-150		
Dieldrin [2C]	**0.038**		µg/l	0.002	0.0543	0.004	62	30-150		
4,4'-DDE (p,p')	**0.032**		µg/l	0.002	0.0543	BRL	59	30-150		
4,4'-DDE (p,p') [2C]	**0.034**		µg/l	0.002	0.0543	BRL	63	30-150		
Endrin	**0.036**		µg/l	0.004	0.0543	BRL	66	30-150		
Endrin [2C]	**0.039**		µg/l	0.004	0.0543	BRL	71	30-150		
Endosulfan II	**0.039**		µg/l	0.004	0.0543	BRL	71	30-150		
Endosulfan II [2C]	**0.036**		µg/l	0.004	0.0543	BRL	66	30-150		
4,4'-DDD (p,p')	**0.036**		µg/l	0.004	0.0543	BRL	66	30-150		
4,4'-DDD (p,p') [2C]	**0.041**		µg/l	0.004	0.0543	BRL	75	30-150		
Endosulfan sulfate	**0.032**		µg/l	0.004	0.0543	BRL	59	30-150		
Endosulfan sulfate [2C]	**0.042**		µg/l	0.004	0.0543	BRL	77	30-150		
4,4'-DDT (p,p')	**0.032**		µg/l	0.004	0.0543	BRL	60	30-150		
4,4'-DDT (p,p') [2C]	**0.037**		µg/l	0.004	0.0543	BRL	68	30-150		
Methoxychlor	**0.032**		µg/l	0.004	0.0543	BRL	59	30-150		
Methoxychlor [2C]	**0.040**		µg/l	0.004	0.0543	BRL	74	30-150		
Endrin ketone	**0.035**		µg/l	0.004	0.0543	BRL	64	30-150		
Endrin ketone [2C]	**0.039**		µg/l	0.004	0.0543	BRL	71	30-150		
Endrin aldehyde	**0.041**		µg/l	0.004	0.0543	BRL	76	30-150		
Endrin aldehyde [2C]	**0.041**		µg/l	0.004	0.0543	BRL	76	30-150		
alpha-Chlordane	**0.034**		µg/l	0.002	0.0543	BRL	62	30-150		
alpha-Chlordane [2C]	**0.038**		µg/l	0.002	0.0543	BRL	69	30-150		
gamma-Chlordane	**0.032**		µg/l	0.002	0.0543	BRL	59	30-150		
gamma-Chlordane [2C]	**0.021**		µg/l	0.002	0.0543	BRL	39	30-150		
Alachlor	**0.045**		µg/l	0.002	0.0543	BRL	82	30-150		
Alachlor [2C]	**0.047**		µg/l	0.002	0.0543	BRL	87	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.0177*		µg/l		*0.0217*		*81*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.0226*		µg/l		*0.0217*		*104*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.0137*		µg/l		*0.0217*		*63*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.0168*		µg/l		*0.0217*		*77*	*30-150*		
Matrix Spike Dup (1317977-MSD1)			**Source: SB73837-08**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
alpha-BHC	**0.036**		µg/l	0.002	0.0581	BRL	61	30-150	6	20
alpha-BHC [2C]	**0.037**		µg/l	0.002	0.0581	BRL	63	30-150	1	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317977 - SW846 3510C										
Matrix Spike Dup (1317977-MSD1)			**Source: SB73837-08**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
beta-BHC	**0.033**		µg/l	0.002	0.0581	BRL	57	30-150	5	20
beta-BHC [2C]	**0.054**		µg/l	0.002	0.0581	BRL	93	30-150	0.06	20
delta-BHC	**0.032**		µg/l	0.002	0.0581	BRL	55	30-150	4	20
delta-BHC [2C]	**0.044**		µg/l	0.002	0.0581	BRL	75	30-150	3	20
gamma-BHC (Lindane)	**0.049**		µg/l	0.002	0.0581	BRL	84	30-150	8	20
gamma-BHC (Lindane) [2C]	**0.038**		µg/l	0.002	0.0581	BRL	66	30-150	2	20
Heptachlor	**0.032**		µg/l	0.002	0.0581	BRL	54	30-150	6	20
Heptachlor [2C]	**0.036**		µg/l	0.002	0.0581	BRL	62	30-150	1	20
Aldrin	**0.035**		µg/l	0.002	0.0581	BRL	59	30-150	10	20
Aldrin [2C]	**0.034**		µg/l	0.002	0.0581	BRL	59	30-150	2	20
Heptachlor epoxide	**0.043**		µg/l	0.002	0.0581	BRL	74	30-150	9	20
Heptachlor epoxide [2C]	**0.040**		µg/l	0.002	0.0581	BRL	69	30-150	5	20
Endosulfan I	**0.044**		µg/l	0.002	0.0581	BRL	75	30-150	6	20
Endosulfan I [2C]	**0.058**		µg/l	0.002	0.0581	BRL	99	30-150	9	20
Dieldrin	**0.041**		µg/l	0.002	0.0581	0.004	63	30-150	13	20
Dieldrin [2C]	**0.039**		µg/l	0.002	0.0581	0.004	60	30-150	4	20
4,4'-DDE (p,p')	**0.039**		µg/l	0.002	0.0581	BRL	67	30-150	13	20
4,4'-DDE (p,p') [2C]	**0.037**		µg/l	0.002	0.0581	BRL	64	30-150	2	20
Endrin	**0.040**		µg/l	0.005	0.0581	BRL	69	30-150	5	20
Endrin [2C]	**0.043**		µg/l	0.005	0.0581	BRL	73	30-150	3	20
Endosulfan II	**0.044**		µg/l	0.005	0.0581	BRL	76	30-150	6	20
Endosulfan II [2C]	**0.039**		µg/l	0.005	0.0581	BRL	66	30-150	0.9	20
4,4'-DDD (p,p')	**0.044**		µg/l	0.005	0.0581	BRL	76	30-150	14	20
4,4'-DDD (p,p') [2C]	**0.044**		µg/l	0.005	0.0581	BRL	76	30-150	1	20
Endosulfan sulfate	**0.038**		µg/l	0.005	0.0581	BRL	65	30-150	10	20
Endosulfan sulfate [2C]	**0.044**		µg/l	0.005	0.0581	BRL	75	30-150	3	20
4,4'-DDT (p,p')	**0.036**		µg/l	0.005	0.0581	BRL	61	30-150	3	20
4,4'-DDT (p,p') [2C]	**0.036**		µg/l	0.005	0.0581	BRL	61	30-150	11	20
Methoxychlor	**0.033**		µg/l	0.005	0.0581	BRL	57	30-150	2	20
Methoxychlor [2C]	**0.041**		µg/l	0.005	0.0581	BRL	70	30-150	6	20
Endrin ketone	**0.041**		µg/l	0.005	0.0581	BRL	71	30-150	10	20
Endrin ketone [2C]	**0.040**		µg/l	0.005	0.0581	BRL	69	30-150	4	20
Endrin aldehyde	**0.048**		µg/l	0.005	0.0581	BRL	83	30-150	9	20
Endrin aldehyde [2C]	**0.043**		µg/l	0.005	0.0581	BRL	74	30-150	3	20
alpha-Chlordane	**0.041**		µg/l	0.002	0.0581	BRL	70	30-150	12	20
alpha-Chlordane [2C]	**0.039**		µg/l	0.002	0.0581	BRL	67	30-150	3	20
gamma-Chlordane	**0.038**		µg/l	0.002	0.0581	BRL	66	30-150	10	20
gamma-Chlordane [2C]	**0.022**		µg/l	0.002	0.0581	BRL	37	30-150	5	20
Alachlor	**0.051**		µg/l	0.002	0.0581	BRL	88	30-150	8	20
Alachlor [2C]	**0.050**		µg/l	0.002	0.0581	BRL	86	30-150	0.6	20
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.0192*		µg/l		*0.0233*		*82*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.0230*		µg/l		*0.0233*		*99*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.0161*		µg/l		*0.0233*		*69*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.0156*		µg/l		*0.0233*		*67*	*30-150*		
Batch 1317978 - SW846 3510C										
Blank (1317978-BLK1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Aroclor-1016	< 0.0200		µg/l	0.0200						
Aroclor-1016 [2C]	< 0.0200		µg/l	0.0200						
Aroclor-1221	< 0.0200		µg/l	0.0200						
Aroclor-1221 [2C]	< 0.0200		µg/l	0.0200						
Aroclor-1232	< 0.0200		µg/l	0.0200						

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317978 - SW846 3510C										
Blank (1317978-BLK1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Aroclor-1232 [2C]	< 0.0200		µg/l	0.0200						
Aroclor-1242	< 0.0200		µg/l	0.0200						
Aroclor-1242 [2C]	< 0.0200		µg/l	0.0200						
Aroclor-1248	< 0.0200		µg/l	0.0200						
Aroclor-1248 [2C]	< 0.0200		µg/l	0.0200						
Aroclor-1254	< 0.0200		µg/l	0.0200						
Aroclor-1254 [2C]	< 0.0200		µg/l	0.0200						
Aroclor-1260	< 0.0200		µg/l	0.0200						
Aroclor-1260 [2C]	< 0.0200		µg/l	0.0200						
Aroclor-1262	< 0.0200		µg/l	0.0200						
Aroclor-1262 [2C]	< 0.0200		µg/l	0.0200						
Aroclor-1268	< 0.0200		µg/l	0.0200						
Aroclor-1268 [2C]	< 0.0200		µg/l	0.0200						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.0240*		µg/l		*0.0200*		*120*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.0230*		µg/l		*0.0200*		*115*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.0240*		µg/l		*0.0200*		*120*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.0250*		µg/l		*0.0200*		*125*	*30-150*		
LCS (1317978-BS1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Aroclor-1016	**0.289**		µg/l	0.0200	0.250		116	40-140		
Aroclor-1016 [2C]	**0.264**		µg/l	0.0200	0.250		106	40-140		
Aroclor-1260	**0.269**		µg/l	0.0200	0.250		108	40-140		
Aroclor-1260 [2C]	**0.295**		µg/l	0.0200	0.250		118	40-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.0120*		µg/l		*0.0200*		*60*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.0210*		µg/l		*0.0200*		*105*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.0270*		µg/l		*0.0200*		*135*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.0270*		µg/l		*0.0200*		*135*	*30-150*		
LCS Dup (1317978-BSD1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Aroclor-1016	**0.288**		µg/l	0.0200	0.250		115	40-140	0.3	20
Aroclor-1016 [2C]	**0.263**		µg/l	0.0200	0.250		105	40-140	0.4	20
Aroclor-1260	**0.265**		µg/l	0.0200	0.250		106	40-140	1	20
Aroclor-1260 [2C]	**0.319**		µg/l	0.0200	0.250		128	40-140	8	20
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.0120*		µg/l		*0.0200*		*60*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.0210*		µg/l		*0.0200*		*105*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.0270*		µg/l		*0.0200*		*135*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.0280*		µg/l		*0.0200*		*140*	*30-150*		
Batch 1317981 - SW846 3545A										
Blank (1317981-BLK1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
alpha-BHC	< 3.33		µg/kg wet	3.33						
alpha-BHC [2C]	< 3.33		µg/kg wet	3.33						
beta-BHC	< 3.33		µg/kg wet	3.33						
beta-BHC [2C]	< 3.33		µg/kg wet	3.33						
delta-BHC	< 3.33		µg/kg wet	3.33						
delta-BHC [2C]	< 3.33		µg/kg wet	3.33						
gamma-BHC (Lindane)	< 2.00		µg/kg wet	2.00						
gamma-BHC (Lindane) [2C]	< 2.00		µg/kg wet	2.00						
Heptachlor	< 3.33		µg/kg wet	3.33						
Heptachlor [2C]	< 3.33		µg/kg wet	3.33						
Aldrin	< 3.33		µg/kg wet	3.33						
Aldrin [2C]	< 3.33		µg/kg wet	3.33						
Heptachlor epoxide	< 3.33		µg/kg wet	3.33						

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317981 - SW846 3545A										
Blank (1317981-BLK1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Heptachlor epoxide [2C]	< 3.33		µg/kg wet	3.33						
Endosulfan I	< 3.33		µg/kg wet	3.33						
Endosulfan I [2C]	< 3.33		µg/kg wet	3.33						
Dieldrin	< 3.33		µg/kg wet	3.33						
Dieldrin [2C]	< 3.33		µg/kg wet	3.33						
4,4'-DDE (p,p')	< 3.33		µg/kg wet	3.33						
4,4'-DDE (p,p') [2C]	< 3.33		µg/kg wet	3.33						
Endrin	< 5.33		µg/kg wet	5.33						
Endrin [2C]	< 5.33		µg/kg wet	5.33						
Endosulfan II	< 5.33		µg/kg wet	5.33						
Endosulfan II [2C]	< 5.33		µg/kg wet	5.33						
4,4'-DDD (p,p')	< 5.33		µg/kg wet	5.33						
4,4'-DDD (p,p') [2C]	< 5.33		µg/kg wet	5.33						
Endosulfan sulfate	< 5.33		µg/kg wet	5.33						
Endosulfan sulfate [2C]	< 5.33		µg/kg wet	5.33						
4,4'-DDT (p,p')	< 5.33		µg/kg wet	5.33						
4,4'-DDT (p,p') [2C]	< 5.33		µg/kg wet	5.33						
Methoxychlor	< 5.33		µg/kg wet	5.33						
Methoxychlor [2C]	< 5.33		µg/kg wet	5.33						
Endrin ketone	< 5.33		µg/kg wet	5.33						
Endrin ketone [2C]	< 5.33		µg/kg wet	5.33						
Endrin aldehyde	< 5.33		µg/kg wet	5.33						
Endrin aldehyde [2C]	< 5.33		µg/kg wet	5.33						
alpha-Chlordane	< 3.33		µg/kg wet	3.33						
alpha-Chlordane [2C]	< 3.33		µg/kg wet	3.33						
gamma-Chlordane	< 3.33		µg/kg wet	3.33						
gamma-Chlordane [2C]	< 3.33		µg/kg wet	3.33						
Toxaphene	< 66.7		µg/kg wet	66.7						
Toxaphene [2C]	< 66.7		µg/kg wet	66.7						
Chlordane	< 13.3		µg/kg wet	13.3						
Chlordane [2C]	< 13.3		µg/kg wet	13.3						
Alachlor	< 3.33		µg/kg wet	3.33						
Alachlor [2C]	< 3.33		µg/kg wet	3.33						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*6.63*		µg/kg wet		*6.67*		*99*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*6.35*		µg/kg wet		*6.67*		*95*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*5.43*		µg/kg wet		*6.67*		*81*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*3.49*		µg/kg wet		*6.67*		*52*	*30-150*		
LCS (1317981-BS1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
alpha-BHC	**10.7**		µg/kg wet	3.33	16.7		64	40-140		
alpha-BHC [2C]	**11.0**		µg/kg wet	3.33	16.7		66	40-140		
beta-BHC	**12.3**		µg/kg wet	3.33	16.7		74	40-140		
beta-BHC [2C]	**12.5**		µg/kg wet	3.33	16.7		75	40-140		
delta-BHC	**12.4**		µg/kg wet	3.33	16.7		74	40-140		
delta-BHC [2C]	**11.6**		µg/kg wet	3.33	16.7		70	40-140		
gamma-BHC (Lindane)	**12.3**		µg/kg wet	2.00	16.7		74	40-140		
gamma-BHC (Lindane) [2C]	**10.7**		µg/kg wet	2.00	16.7		64	40-140		
Heptachlor	**12.2**		µg/kg wet	3.33	16.7		73	40-140		
Heptachlor [2C]	**11.2**		µg/kg wet	3.33	16.7		67	40-140		
Aldrin	**12.6**		µg/kg wet	3.33	16.7		75	40-140		
Aldrin [2C]	**11.4**		µg/kg wet	3.33	16.7		68	40-140		
Heptachlor epoxide	**12.9**		µg/kg wet	3.33	16.7		77	40-140		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317981 - SW846 3545A										
LCS (1317981-BS1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Heptachlor epoxide [2C]	**10.8**		µg/kg wet	3.33	16.7		65	40-140		
Endosulfan I	**12.8**		µg/kg wet	3.33	16.7		77	40-140		
Endosulfan I [2C]	**11.6**		µg/kg wet	3.33	16.7		69	40-140		
Dieldrin	**13.5**		µg/kg wet	3.33	16.7		81	40-140		
Dieldrin [2C]	**12.0**		µg/kg wet	3.33	16.7		72	40-140		
4,4'-DDE (p,p')	**13.1**		µg/kg wet	3.33	16.7		79	40-140		
4,4'-DDE (p,p') [2C]	**11.3**		µg/kg wet	3.33	16.7		68	40-140		
Endrin	**13.9**		µg/kg wet	5.33	16.7		83	40-140		
Endrin [2C]	**12.3**		µg/kg wet	5.33	16.7		74	40-140		
Endosulfan II	**13.5**		µg/kg wet	5.33	16.7		81	40-140		
Endosulfan II [2C]	**12.0**		µg/kg wet	5.33	16.7		72	40-140		
4,4'-DDD (p,p')	**13.4**		µg/kg wet	5.33	16.7		81	40-140		
4,4'-DDD (p,p') [2C]	**12.0**		µg/kg wet	5.33	16.7		72	40-140		
Endosulfan sulfate	**14.1**		µg/kg wet	5.33	16.7		85	40-140		
Endosulfan sulfate [2C]	**13.2**		µg/kg wet	5.33	16.7		79	40-140		
4,4'-DDT (p,p')	**13.1**		µg/kg wet	5.33	16.7		79	40-140		
4,4'-DDT (p,p') [2C]	**11.9**		µg/kg wet	5.33	16.7		71	40-140		
Methoxychlor	**13.5**		µg/kg wet	5.33	16.7		81	40-140		
Methoxychlor [2C]	**13.5**		µg/kg wet	5.33	16.7		81	40-140		
Endrin ketone	**14.3**		µg/kg wet	5.33	16.7		86	40-140		
Endrin ketone [2C]	**13.2**		µg/kg wet	5.33	16.7		79	40-140		
Endrin aldehyde	**14.0**		µg/kg wet	5.33	16.7		84	40-140		
Endrin aldehyde [2C]	**11.8**		µg/kg wet	5.33	16.7		71	40-140		
alpha-Chlordane	**12.4**		µg/kg wet	3.33	16.7		75	40-140		
alpha-Chlordane [2C]	**11.1**		µg/kg wet	3.33	16.7		67	40-140		
gamma-Chlordane	**13.3**		µg/kg wet	3.33	16.7		80	40-140		
gamma-Chlordane [2C]	**10.9**		µg/kg wet	3.33	16.7		66	40-140		
Alachlor	**13.3**		µg/kg wet	3.33	16.7		80	40-140		
Alachlor [2C]	**14.5**		µg/kg wet	3.33	16.7		87	40-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*6.91*		µg/kg wet		*6.67*		*104*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*7.13*		µg/kg wet		*6.67*		*107*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*5.63*		µg/kg wet		*6.67*		*84*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*4.16*		µg/kg wet		*6.67*		*62*	*30-150*		
LCS Dup (1317981-BSD1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
alpha-BHC	**10.5**		µg/kg wet	3.33	16.7		63	40-140	2	30
alpha-BHC [2C]	**11.5**		µg/kg wet	3.33	16.7		69	40-140	5	30
beta-BHC	**12.2**		µg/kg wet	3.33	16.7		73	40-140	0.8	30
beta-BHC [2C]	**13.7**		µg/kg wet	3.33	16.7		82	40-140	9	30
delta-BHC	**12.3**		µg/kg wet	3.33	16.7		74	40-140	0.9	30
delta-BHC [2C]	**12.2**		µg/kg wet	3.33	16.7		73	40-140	5	30
gamma-BHC (Lindane)	**12.1**		µg/kg wet	2.00	16.7		72	40-140	2	30
gamma-BHC (Lindane) [2C]	**11.2**		µg/kg wet	2.00	16.7		67	40-140	5	30
Heptachlor	**12.1**		µg/kg wet	3.33	16.7		73	40-140	1	30
Heptachlor [2C]	**11.8**		µg/kg wet	3.33	16.7		71	40-140	5	30
Aldrin	**12.4**		µg/kg wet	3.33	16.7		75	40-140	1	30
Aldrin [2C]	**12.1**		µg/kg wet	3.33	16.7		73	40-140	6	30
Heptachlor epoxide	**12.7**		µg/kg wet	3.33	16.7		76	40-140	1	30
Heptachlor epoxide [2C]	**11.2**		µg/kg wet	3.33	16.7		67	40-140	4	30
Endosulfan I	**12.8**		µg/kg wet	3.33	16.7		77	40-140	0.02	30
Endosulfan I [2C]	**12.1**		µg/kg wet	3.33	16.7		72	40-140	4	30
Dieldrin	**13.3**		µg/kg wet	3.33	16.7		80	40-140	2	30

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317981 - SW846 3545A										
LCS Dup (1317981-BSD1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Dieldrin [2C]	**12.3**		µg/kg wet	3.33	16.7		74	40-140	3	30
4,4'-DDE (p,p')	**12.9**		µg/kg wet	3.33	16.7		78	40-140	1	30
4,4'-DDE (p,p') [2C]	**11.7**		µg/kg wet	3.33	16.7		70	40-140	4	30
Endrin	**13.9**		µg/kg wet	5.33	16.7		83	40-140	0.2	30
Endrin [2C]	**12.8**		µg/kg wet	5.33	16.7		77	40-140	4	30
Endosulfan II	**13.4**		µg/kg wet	5.33	16.7		80	40-140	1	30
Endosulfan II [2C]	**12.5**		µg/kg wet	5.33	16.7		75	40-140	4	30
4,4'-DDD (p,p')	**13.4**		µg/kg wet	5.33	16.7		80	40-140	0.1	30
4,4'-DDD (p,p') [2C]	**12.6**		µg/kg wet	5.33	16.7		75	40-140	4	30
Endosulfan sulfate	**14.1**		µg/kg wet	5.33	16.7		85	40-140	0.007	30
Endosulfan sulfate [2C]	**13.3**		µg/kg wet	5.33	16.7		80	40-140	1	30
4,4'-DDT (p,p')	**13.2**		µg/kg wet	5.33	16.7		79	40-140	0.6	30
4,4'-DDT (p,p') [2C]	**12.4**		µg/kg wet	5.33	16.7		74	40-140	4	30
Methoxychlor	**13.6**		µg/kg wet	5.33	16.7		81	40-140	0.2	30
Methoxychlor [2C]	**13.3**		µg/kg wet	5.33	16.7		80	40-140	0.8	30
Endrin ketone	**14.3**		µg/kg wet	5.33	16.7		86	40-140	0.1	30
Endrin ketone [2C]	**13.8**		µg/kg wet	5.33	16.7		83	40-140	4	30
Endrin aldehyde	**14.0**		µg/kg wet	5.33	16.7		84	40-140	0.1	30
Endrin aldehyde [2C]	**12.3**		µg/kg wet	5.33	16.7		74	40-140	3	30
alpha-Chlordane	**12.4**		µg/kg wet	3.33	16.7		74	40-140	0.5	30
alpha-Chlordane [2C]	**11.6**		µg/kg wet	3.33	16.7		69	40-140	4	30
gamma-Chlordane	**13.3**		µg/kg wet	3.33	16.7		80	40-140	0.4	30
gamma-Chlordane [2C]	**11.4**		µg/kg wet	3.33	16.7		68	40-140	4	30
Alachlor	**12.8**		µg/kg wet	3.33	16.7		77	40-140	4	30
Alachlor [2C]	**15.0**		µg/kg wet	3.33	16.7		90	40-140	3	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*6.78*		µg/kg wet		*6.67*		*102*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*7.46*		µg/kg wet		*6.67*		*112*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*5.47*		µg/kg wet		*6.67*		*82*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*4.43*		µg/kg wet		*6.67*		*67*	*30-150*		
Matrix Spike (1317981-MS1)			**Source: SB73837-07**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
alpha-BHC	**18.2**		µg/kg dry	5.51	27.6	BRL	66	30-150		
alpha-BHC [2C]	**19.5**		µg/kg dry	5.51	27.6	BRL	71	30-150		
beta-BHC	**13.9**		µg/kg dry	5.51	27.6	BRL	51	30-150		
beta-BHC [2C]	**15.2**		µg/kg dry	5.51	27.6	BRL	55	30-150		
delta-BHC	**18.4**		µg/kg dry	5.51	27.6	BRL	67	30-150		
delta-BHC [2C]	**17.4**		µg/kg dry	5.51	27.6	BRL	63	30-150		
gamma-BHC (Lindane)	**19.6**		µg/kg dry	3.31	27.6	BRL	71	30-150		
gamma-BHC (Lindane) [2C]	**18.2**		µg/kg dry	3.31	27.6	BRL	66	30-150		
Heptachlor	**18.0**		µg/kg dry	5.51	27.6	BRL	65	30-150		
Heptachlor [2C]	**16.9**		µg/kg dry	5.51	27.6	BRL	61	30-150		
Aldrin	**18.5**		µg/kg dry	5.51	27.6	BRL	67	30-150		
Aldrin [2C]	**17.9**		µg/kg dry	5.51	27.6	BRL	65	30-150		
Heptachlor epoxide	**19.2**		µg/kg dry	5.51	27.6	BRL	70	30-150		
Heptachlor epoxide [2C]	**18.2**		µg/kg dry	5.51	27.6	BRL	66	30-150		
Endosulfan I	**18.3**		µg/kg dry	5.51	27.6	BRL	66	30-150		
Endosulfan I [2C]	**18.3**		µg/kg dry	5.51	27.6	BRL	66	30-150		
Dieldrin	**24.2**		µg/kg dry	5.51	27.6	3.85	74	30-150		
Dieldrin [2C]	**19.8**		µg/kg dry	5.51	27.6	2.70	62	30-150		
4,4'-DDE (p,p')	**36.8**		µg/kg dry	5.51	27.6	22.5	52	30-150		
4,4'-DDE (p,p') [2C]	**28.6**		µg/kg dry	5.51	27.6	19.1	34	30-150		
Endrin	**24.5**		µg/kg dry	8.82	27.6	BRL	89	30-150		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317981 - SW846 3545A										
Matrix Spike (1317981-MS1)			**Source: SB73837-07**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Endrin [2C]	**22.4**		µg/kg dry	8.82	27.6	BRL	81	30-150		
Endosulfan II	**18.8**		µg/kg dry	8.82	27.6	BRL	68	30-150		
Endosulfan II [2C]	**22.2**		µg/kg dry	8.82	27.6	BRL	81	30-150		
4,4'-DDD (p,p')	**33.5**		µg/kg dry	8.82	27.6	16.0	64	30-150		
4,4'-DDD (p,p') [2C]	**33.7**		µg/kg dry	8.82	27.6	15.3	67	30-150		
Endosulfan sulfate	**20.7**		µg/kg dry	8.82	27.6	BRL	75	30-150		
Endosulfan sulfate [2C]	**18.1**		µg/kg dry	8.82	27.6	BRL	66	30-150		
4,4'-DDT (p,p')	**51.9**		µg/kg dry	8.82	27.6	30.7	77	30-150		
4,4'-DDT (p,p') [2C]	**51.2**		µg/kg dry	8.82	27.6	26.2	91	30-150		
Methoxychlor	**19.8**		µg/kg dry	8.82	27.6	BRL	72	30-150		
Methoxychlor [2C]	**22.0**		µg/kg dry	8.82	27.6	BRL	80	30-150		
Endrin ketone	**20.1**		µg/kg dry	8.82	27.6	BRL	73	30-150		
Endrin ketone [2C]	**21.5**		µg/kg dry	8.82	27.6	BRL	78	30-150		
Endrin aldehyde	**21.4**		µg/kg dry	8.82	27.6	BRL	78	30-150		
Endrin aldehyde [2C]	**20.3**		µg/kg dry	8.82	27.6	BRL	74	30-150		
alpha-Chlordane	**22.9**		µg/kg dry	5.51	27.6	5.83	62	30-150		
alpha-Chlordane [2C]	**21.2**		µg/kg dry	5.51	27.6	8.89	45	30-150		
gamma-Chlordane	**34.1**	QM1	µg/kg dry	5.51	27.6	44.6	-38	30-150		
gamma-Chlordane [2C]	**15.9**		µg/kg dry	5.51	27.6	1.99	50	30-150		
Alachlor	**24.1**		µg/kg dry	5.51	27.6	BRL	87	30-150		
Alachlor [2C]	**38.2**		µg/kg dry	5.51	27.6	BRL	139	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*11.7*		µg/kg dry		*11.0*		*107*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*14.1*		µg/kg dry		*11.0*		*128*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*9.13*		µg/kg dry		*11.0*		*83*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*8.77*		µg/kg dry		*11.0*		*80*	*30-150*		
Matrix Spike Dup (1317981-MSD1)			**Source: SB73837-07**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
alpha-BHC	**18.3**		µg/kg dry	5.56	27.8	BRL	66	30-150	0.2	30
alpha-BHC [2C]	**19.5**		µg/kg dry	5.56	27.8	BRL	70	30-150	1	30
beta-BHC	**14.1**		µg/kg dry	5.56	27.8	BRL	51	30-150	0.2	30
beta-BHC [2C]	**14.1**		µg/kg dry	5.56	27.8	BRL	51	30-150	8	30
delta-BHC	**18.9**		µg/kg dry	5.56	27.8	BRL	68	30-150	2	30
delta-BHC [2C]	**17.6**		µg/kg dry	5.56	27.8	BRL	63	30-150	0.4	30
gamma-BHC (Lindane)	**20.5**		µg/kg dry	3.33	27.8	BRL	74	30-150	4	30
gamma-BHC (Lindane) [2C]	**18.3**		µg/kg dry	3.33	27.8	BRL	66	30-150	0.1	30
Heptachlor	**19.3**		µg/kg dry	5.56	27.8	BRL	69	30-150	6	30
Heptachlor [2C]	**16.9**		µg/kg dry	5.56	27.8	BRL	61	30-150	1	30
Aldrin	**18.4**		µg/kg dry	5.56	27.8	BRL	66	30-150	2	30
Aldrin [2C]	**18.4**		µg/kg dry	5.56	27.8	BRL	66	30-150	2	30
Heptachlor epoxide	**19.3**		µg/kg dry	5.56	27.8	BRL	69	30-150	0.5	30
Heptachlor epoxide [2C]	**18.4**		µg/kg dry	5.56	27.8	BRL	66	30-150	0.2	30
Endosulfan I	**18.3**		µg/kg dry	5.56	27.8	BRL	66	30-150	0.8	30
Endosulfan I [2C]	**18.2**		µg/kg dry	5.56	27.8	BRL	66	30-150	1	30
Dieldrin	**23.6**		µg/kg dry	5.56	27.8	3.85	71	30-150	4	30
Dieldrin [2C]	**20.5**		µg/kg dry	5.56	27.8	2.70	64	30-150	3	30
4,4'-DDE (p,p')	**36.3**		µg/kg dry	5.56	27.8	22.5	50	30-150	4	30
4,4'-DDE (p,p') [2C]	**29.0**		µg/kg dry	5.56	27.8	19.1	36	30-150	3	30
Endrin	**24.0**		µg/kg dry	8.89	27.8	BRL	86	30-150	3	30
Endrin [2C]	**19.4**		µg/kg dry	8.89	27.8	BRL	70	30-150	15	30
Endosulfan II	**18.4**		µg/kg dry	8.89	27.8	BRL	66	30-150	3	30
Endosulfan II [2C]	**19.0**		µg/kg dry	8.89	27.8	BRL	68	30-150	17	30
4,4'-DDD (p,p')	**32.9**		µg/kg dry	8.89	27.8	16.0	61	30-150	4	30

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317981 - SW846 3545A										
Matrix Spike Dup (1317981-MSD1)			**Source: SB73837-07**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
4,4'-DDD (p,p') [2C]	**33.3**		µg/kg dry	8.89	27.8	15.3	65	30-150	3	30
Endosulfan sulfate	**20.4**		µg/kg dry	8.89	27.8	BRL	73	30-150	3	30
Endosulfan sulfate [2C]	**18.2**		µg/kg dry	8.89	27.8	BRL	66	30-150	0.2	30
4,4'-DDT (p,p')	**52.0**		µg/kg dry	8.89	27.8	30.7	77	30-150	0.5	30
4,4'-DDT (p,p') [2C]	**46.3**		µg/kg dry	8.89	27.8	26.2	72	30-150	22	30
Methoxychlor	**20.2**		µg/kg dry	8.89	27.8	BRL	73	30-150	1	30
Methoxychlor [2C]	**18.2**		µg/kg dry	8.89	27.8	BRL	65	30-150	20	30
Endrin ketone	**19.9**		µg/kg dry	8.89	27.8	BRL	72	30-150	2	30
Endrin ketone [2C]	**19.6**		µg/kg dry	8.89	27.8	BRL	70	30-150	10	30
Endrin aldehyde	**19.6**		µg/kg dry	8.89	27.8	BRL	70	30-150	10	30
Endrin aldehyde [2C]	**20.6**		µg/kg dry	8.89	27.8	BRL	74	30-150	0.6	30
alpha-Chlordane	**22.5**		µg/kg dry	5.56	27.8	5.83	60	30-150	4	30
alpha-Chlordane [2C]	**21.3**		µg/kg dry	5.56	27.8	8.89	45	30-150	0.2	30
gamma-Chlordane	**36.2**	QM1	µg/kg dry	5.56	27.8	44.6	-30	30-150	NR	30
gamma-Chlordane [2C]	**16.3**		µg/kg dry	5.56	27.8	1.99	52	30-150	2	30
Chlordane	**131**		µg/kg dry	22.2		49.5		30-150		30
Chlordane [2C]	**86.7**		µg/kg dry	22.2		34.7		30-150		30
Alachlor	**25.0**		µg/kg dry	5.56	27.8	BRL	90	30-150	3	30
Alachlor [2C]	**38.6**		µg/kg dry	5.56	27.8	BRL	139	30-150	0.2	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*11.7*		µg/kg dry		*11.1*		*105*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*11.3*		µg/kg dry		*11.1*		*101*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*9.53*		µg/kg dry		*11.1*		*86*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*8.28*		µg/kg dry		*11.1*		*74*	*30-150*		

Total Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1318007 - SW846 3005A										
Blank (1318007-BLK1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Silver	< 0.0050		mg/l	0.0050						
Lead	< 0.0075		mg/l	0.0075						
Nickel	< 0.0050		mg/l	0.0050						
Copper	< 0.0050		mg/l	0.0050						
Chromium	< 0.0050		mg/l	0.0050						
Beryllium	< 0.0020		mg/l	0.0020						
Arsenic	< 0.0040		mg/l	0.0040						
Cadmium	< 0.0025		mg/l	0.0025						
Zinc	< 0.0050		mg/l	0.0050						
Vanadium	< 0.0050		mg/l	0.0050						
Thallium	< 0.0050		mg/l	0.0050						
Selenium	< 0.0150		mg/l	0.0150						
Barium	< 0.0050		mg/l	0.0050						
Antimony	< 0.0060		mg/l	0.0060						
LCS (1318007-BS1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Thallium	**1.31**		mg/l	0.0050	1.25		104	85-115		
Arsenic	**1.28**		mg/l	0.0040	1.25		102	85-115		
Silver	**1.30**		mg/l	0.0050	1.25		104	85-115		
Beryllium	**1.25**		mg/l	0.0020	1.25		100	85-115		
Cadmium	**1.34**		mg/l	0.0025	1.25		107	85-115		
Lead	**1.30**		mg/l	0.0075	1.25		104	85-115		
Vanadium	**1.23**		mg/l	0.0050	1.25		98	85-115		
Selenium	**1.29**		mg/l	0.0150	1.25		103	85-115		
Barium	**1.24**		mg/l	0.0050	1.25		99	85-115		
Chromium	**1.27**		mg/l	0.0050	1.25		101	85-115		
Antimony	**1.24**		mg/l	0.0060	1.25		99	85-115		
Nickel	**1.21**		mg/l	0.0050	1.25		97	85-115		
Copper	**1.32**		mg/l	0.0050	1.25		106	85-115		
Zinc	**1.28**		mg/l	0.0050	1.25		102	85-115		
LCS Dup (1318007-BSD1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Beryllium	**1.24**		mg/l	0.0020	1.25		99	85-115	0.5	20
Chromium	**1.27**		mg/l	0.0050	1.25		102	85-115	0.5	20
Copper	**1.33**		mg/l	0.0050	1.25		107	85-115	0.9	20
Nickel	**1.22**		mg/l	0.0050	1.25		97	85-115	0.3	20
Barium	**1.24**		mg/l	0.0050	1.25		100	85-115	0.4	20
Zinc	**1.28**		mg/l	0.0050	1.25		102	85-115	0.04	20
Selenium	**1.29**		mg/l	0.0150	1.25		103	85-115	0.08	20
Vanadium	**1.23**		mg/l	0.0050	1.25		99	85-115	0.6	20
Lead	**1.30**		mg/l	0.0075	1.25		104	85-115	0.3	20
Thallium	**1.31**		mg/l	0.0050	1.25		105	85-115	0.2	20
Antimony	**1.25**		mg/l	0.0060	1.25		100	85-115	0.4	20
Silver	**1.30**		mg/l	0.0050	1.25		104	85-115	0.8	20
Cadmium	**1.34**		mg/l	0.0025	1.25		107	85-115	0.2	20
Arsenic	**1.28**		mg/l	0.0040	1.25		102	85-115	0.2	20
Duplicate (1318007-DUP1)			**Source: SB73837-06**			Prepared: 30-Jul-13 Analyzed: 31-Jul-13				
Vanadium	**0.0028**	J	mg/l	0.0050		0.0030			7	20
Zinc	**0.0248**		mg/l	0.0050		0.0265			6	20
Thallium	< 0.0050		mg/l	0.0050		BRL				20
Selenium	< 0.0150		mg/l	0.0150		BRL				20
Antimony	**0.0015**	J	mg/l	0.0060		BRL				20
Lead	**0.0061**	J	mg/l	0.0075		0.0060			0.8	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1318007 - SW846 3005A										
Duplicate (1318007-DUP1)			**Source: SB73837-06**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Nickel	**0.0038**	J	mg/l	0.0050		0.0038			1	20
Copper	**0.0078**		mg/l	0.0050		0.0086			10	20
Chromium	**0.0022**	J	mg/l	0.0050		0.0021			2	20
Beryllium	**0.0002**	J	mg/l	0.0020		BRL				20
Barium	**0.116**		mg/l	0.0050		0.122			5	20
Arsenic	< 0.0040		mg/l	0.0040		0.0018				20
Silver	< 0.0050		mg/l	0.0050		BRL				20
Cadmium	< 0.0025		mg/l	0.0025		BRL				20
Matrix Spike (1318007-MS1)			**Source: SB73837-08**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Vanadium	**1.23**		mg/l	0.0050	1.25	0.0026	98	70-130		
Copper	**1.33**		mg/l	0.0050	1.25	0.0058	106	75-125		
Chromium	**1.25**		mg/l	0.0050	1.25	0.0022	100	75-125		
Cadmium	**1.34**		mg/l	0.0025	1.25	BRL	107	75-125		
Beryllium	**1.20**		mg/l	0.0020	1.25	0.0002	96	75-125		
Barium	**1.31**		mg/l	0.0050	1.25	0.105	97	75-125		
Arsenic	**1.29**		mg/l	0.0040	1.25	0.0022	103	75-125		
Silver	**1.31**		mg/l	0.0050	1.25	BRL	105	75-125		
Antimony	**1.25**		mg/l	0.0060	1.25	0.0022	100	75-125		
Thallium	**1.30**		mg/l	0.0050	1.25	BRL	104	75-125		
Zinc	**1.27**		mg/l	0.0050	1.25	0.0197	100	75-125		
Nickel	**1.18**		mg/l	0.0050	1.25	0.0028	94	75-125		
Lead	**1.27**		mg/l	0.0075	1.25	0.0052	101	75-125		
Selenium	**1.29**		mg/l	0.0150	1.25	BRL	103	75-125		
Matrix Spike Dup (1318007-MSD1)			**Source: SB73837-08**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Copper	**1.39**		mg/l	0.0050	1.25	0.0058	110	75-125	4	20
Selenium	**1.32**		mg/l	0.0150	1.25	BRL	106	75-125	2	20
Beryllium	**1.26**		mg/l	0.0020	1.25	0.0002	101	75-125	4	20
Thallium	**1.33**		mg/l	0.0050	1.25	BRL	106	75-125	2	20
Barium	**1.36**		mg/l	0.0050	1.25	0.105	101	75-125	4	20
Cadmium	**1.37**		mg/l	0.0025	1.25	BRL	110	75-125	2	20
Chromium	**1.30**		mg/l	0.0050	1.25	0.0022	103	75-125	4	20
Antimony	**1.28**		mg/l	0.0060	1.25	0.0022	102	75-125	2	20
Lead	**1.30**		mg/l	0.0075	1.25	0.0052	104	75-125	2	20
Nickel	**1.21**		mg/l	0.0050	1.25	0.0028	97	75-125	3	20
Zinc	**1.29**		mg/l	0.0050	1.25	0.0197	102	75-125	2	20
Vanadium	**1.27**		mg/l	0.0050	1.25	0.0026	101	70-130	3	20
Silver	**1.34**		mg/l	0.0050	1.25	BRL	107	75-125	2	20
Arsenic	**1.33**		mg/l	0.0040	1.25	0.0022	106	75-125	3	20
Post Spike (1318007-PS1)			**Source: SB73837-08**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Cadmium	**1.35**		mg/l	0.0025	1.25	BRL	108	80-120		
Beryllium	**1.22**		mg/l	0.0020	1.25	0.0002	98	80-120		
Chromium	**1.26**		mg/l	0.0050	1.25	0.0022	100	80-120		
Barium	**1.32**		mg/l	0.0050	1.25	0.105	97	80-120		
Lead	**1.28**		mg/l	0.0075	1.25	0.0052	102	80-120		
Copper	**1.34**		mg/l	0.0050	1.25	0.0058	107	80-120		
Silver	**1.32**		mg/l	0.0050	1.25	BRL	105	80-120		
Antimony	**1.26**		mg/l	0.0060	1.25	0.0022	100	80-120		
Selenium	**1.30**		mg/l	0.0150	1.25	BRL	104	80-120		
Thallium	**1.30**		mg/l	0.0050	1.25	BRL	104	80-120		
Vanadium	**1.23**		mg/l	0.0050	1.25	0.0026	98	80-120		
Zinc	**1.29**		mg/l	0.0050	1.25	0.0197	102	80-120		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1318007 - SW846 3005A										
Post Spike (1318007-PS1)			**Source: SB73837-08**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Nickel	**1.18**		mg/l	0.0050	1.25	0.0028	94	80-120		
Arsenic	**1.30**		mg/l	0.0040	1.25	0.0022	104	80-120		
Batch 1318009 - SW846 3050B										
Blank (1318009-BLK1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Silver	< 1.45		mg/kg wet	1.45						
Nickel	< 0.966		mg/kg wet	0.966						
Arsenic	< 1.45		mg/kg wet	1.45						
Beryllium	< 0.483		mg/kg wet	0.483						
Cadmium	< 0.483		mg/kg wet	0.483						
Copper	< 0.966		mg/kg wet	0.966						
Lead	< 1.45		mg/kg wet	1.45						
Antimony	< 4.83		mg/kg wet	4.83						
Selenium	< 1.45		mg/kg wet	1.45						
Thallium	< 2.90		mg/kg wet	2.90						
Vanadium	< 1.45		mg/kg wet	1.45						
Zinc	< 0.966		mg/kg wet	0.966						
Chromium	< 0.966		mg/kg wet	0.966						
Barium	< 0.966		mg/kg wet	0.966						
Duplicate (1318009-DUP1)			**Source: SB73837-07**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Selenium	< 1.47		mg/kg dry	1.47		BRL				20
Zinc	**34.1**		mg/kg dry	0.979		33.9			0.4	20
Vanadium	**17.8**		mg/kg dry	1.47		21.0			16	20
Thallium	< 2.94		mg/kg dry	2.94		BRL				20
Antimony	< 4.89		mg/kg dry	4.89		BRL				20
Lead	**10.6**	QR6	mg/kg dry	1.47		50.9			131	20
Silver	< 1.47		mg/kg dry	1.47		BRL				20
Arsenic	**1.53**	QR8	mg/kg dry	1.47		2.09			31	20
Copper	**12.9**		mg/kg dry	0.979		14.5			12	20
Chromium	**11.2**		mg/kg dry	0.979		13.1			15	20
Cadmium	< 0.489		mg/kg dry	0.489		BRL				20
Beryllium	**0.277**	J	mg/kg dry	0.489		0.246			12	20
Nickel	**14.9**		mg/kg dry	0.979		14.4			4	20
Barium	**39.0**		mg/kg dry	0.979		40.1			3	20
Matrix Spike (1318009-MS1)			**Source: SB73837-07**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Chromium	**133**		mg/kg dry	1.07	133	13.1	90	75-125		
Zinc	**141**		mg/kg dry	1.07	133	33.9	81	75-125		
Antimony	**94.4**	QM8	mg/kg dry	5.33	133	BRL	71	75-125		
Lead	**122**	QM8	mg/kg dry	1.60	133	50.9	53	75-125		
Copper	**140**		mg/kg dry	1.07	133	14.5	94	75-125		
Nickel	**121**		mg/kg dry	1.07	133	14.4	80	75-125		
Vanadium	**141**		mg/kg dry	1.60	133	21.0	90	75-125		
Selenium	**120**		mg/kg dry	1.60	133	BRL	90	75-125		
Silver	**121**		mg/kg dry	1.60	133	BRL	91	75-125		
Arsenic	**123**		mg/kg dry	1.60	133	2.09	91	75-125		
Cadmium	**116**		mg/kg dry	0.533	133	BRL	87	75-125		
Thallium	**131**		mg/kg dry	3.20	133	BRL	98	75-125		
Beryllium	**120**		mg/kg dry	0.533	133	0.246	90	75-125		
Barium	**176**		mg/kg dry	1.07	133	40.1	102	75-125		
Matrix Spike Dup (1318009-MSD1)			**Source: SB73837-07**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Silver	**115**		mg/kg dry	1.58	132	BRL	87	75-125	5	20
Beryllium	**113**		mg/kg dry	0.528	132	0.246	86	75-125	6	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1318009 - SW846 3050B										
Matrix Spike Dup (1318009-MSD1)			**Source: SB73837-07**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Selenium	**112**		mg/kg dry	1.58	132	BRL	85	75-125	6	20
Chromium	**128**		mg/kg dry	1.06	132	13.1	87	75-125	4	20
Nickel	**119**		mg/kg dry	1.06	132	14.4	79	75-125	2	20
Antimony	**87.2**	QM8	mg/kg dry	5.28	132	BRL	66	75-125	8	20
Thallium	**131**		mg/kg dry	3.17	132	BRL	99	75-125	0.05	20
Vanadium	**134**		mg/kg dry	1.58	132	21.0	86	75-125	5	20
Cadmium	**111**		mg/kg dry	0.528	132	BRL	84	75-125	4	20
Copper	**135**		mg/kg dry	1.06	132	14.5	92	75-125	3	20
Arsenic	**116**		mg/kg dry	1.58	132	2.09	86	75-125	6	20
Zinc	**138**		mg/kg dry	1.06	132	33.9	79	75-125	2	20
Lead	**118**	QM8	mg/kg dry	1.58	132	50.9	51	75-125	3	20
Barium	**168**		mg/kg dry	1.06	132	40.1	97	75-125	5	20
Post Spike (1318009-PS1)			**Source: SB73837-07**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Thallium	**140**		mg/kg dry	3.32	138	BRL	101	80-120		
Chromium	**142**		mg/kg dry	1.11	138	13.1	93	80-120		
Cadmium	**129**		mg/kg dry	0.554	138	BRL	93	80-120		
Beryllium	**122**		mg/kg dry	0.554	138	0.246	88	80-120		
Zinc	**154**		mg/kg dry	1.11	138	33.9	87	80-120		
Selenium	**128**		mg/kg dry	1.66	138	BRL	92	80-120		
Antimony	**127**		mg/kg dry	5.54	138	BRL	91	80-120		
Lead	**170**		mg/kg dry	1.66	138	50.9	86	80-120		
Copper	**150**		mg/kg dry	1.11	138	14.5	98	80-120		
Arsenic	**131**		mg/kg dry	1.66	138	2.09	93	80-120		
Nickel	**133**		mg/kg dry	1.11	138	14.4	86	80-120		
Silver	**113**		mg/kg dry	1.66	138	BRL	81	80-120		
Vanadium	**147**		mg/kg dry	1.66	138	21.0	91	80-120		
Barium	**166**		mg/kg dry	1.11	138	40.1	91	80-120		
Reference (1318009-SRM1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Nickel	**57.6**		mg/kg wet	1.00	64.2		90	84.38-115.62		
Zinc	**93.4**		mg/kg wet	1.00	102		91	81.86-117.65		
Vanadium	**50.4**		mg/kg wet	1.50	52.2		97	75.48-124.03		
Thallium	**72.0**		mg/kg wet	3.00	72.2		100	81.25-118.75		
Selenium	**39.5**		mg/kg wet	1.50	43.1		92	79.98-119.91		
Lead	**61.4**		mg/kg wet	1.50	68.2		90	83.82-116.91		
Copper	**40.1**		mg/kg wet	1.00	40.2		100	83.77-116.1		
Chromium	**60.0**		mg/kg wet	1.00	62.7		96	81.6-117.6		
Cadmium	**28.6**		mg/kg wet	0.500	30.3		94	83.11-116.88		
Beryllium	**45.3**		mg/kg wet	0.500	49.3		92	83.93-115.97		
Arsenic	**84.5**		mg/kg wet	1.50	91.3		93	82.97-117.58		
Silver	**27.9**		mg/kg wet	1.50	30.7		91	66.23-133.77		
Antimony	**21.3**		mg/kg wet	5.00	53.2		40	25-218.86		
Barium	**69.4**		mg/kg wet	1.00	71.7		97	83.21-117.48		
Reference (1318009-SRM2)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1318009 - SW846 3050B										
Reference (1318009-SRM2)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Arsenic	**88.3**		mg/kg wet	1.50	91.7		96	82.97-117.58		
Lead	**63.4**		mg/kg wet	1.50	68.5		93	83.82-116.91		
Silver	**28.4**		mg/kg wet	1.50	30.9		92	66.23-133.77		
Beryllium	**47.4**		mg/kg wet	0.500	49.5		96	83.93-115.97		
Cadmium	**29.2**		mg/kg wet	0.500	30.4		96	83.11-116.88		
Chromium	**62.0**		mg/kg wet	1.00	63.0		98	81.6-117.6		
Nickel	**59.4**		mg/kg wet	1.00	64.5		92	84.38-115.62		
Antimony	**23.1**		mg/kg wet	5.00	53.4		43	25-218.86		
Selenium	**41.4**		mg/kg wet	1.50	43.3		96	79.98-119.91		
Thallium	**75.2**		mg/kg wet	3.00	72.5		104	81.25-118.75		
Vanadium	**52.5**		mg/kg wet	1.50	52.4		100	75.48-124.03		
Zinc	**97.8**		mg/kg wet	1.00	103		95	81.86-117.65		
Copper	**40.8**		mg/kg wet	1.00	40.3		101	83.77-116.1		
Barium	**71.0**		mg/kg wet	1.00	72.0		99	83.21-117.48		
Batch 1318010 - EPA200/SW7000 Series										
Blank (1318010-BLK1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Mercury	< 0.0285		mg/kg wet	0.0285						
Duplicate (1318010-DUP1)			**Source: SB73837-07**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Mercury	**0.0016**	J,QR8	mg/kg dry	0.0296		0.0048			101	20
Matrix Spike (1318010-MS1)			**Source: SB73837-07**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Mercury	**0.254**		mg/kg dry	0.0302	0.210	0.0048	119	75-125		
Matrix Spike Dup (1318010-MSD1)			**Source: SB73837-07**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Mercury	**0.266**		mg/kg dry	0.0310	0.215	0.0048	121	75-125	5	20
Post Spike (1318010-PS1)			**Source: SB73837-07**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Mercury	**0.233**		mg/kg dry	0.0300	0.208	0.0048	109	80-120		
Reference (1318010-SRM1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Mercury	**3.05**	D	mg/kg wet	0.600	3.15		97	71.67-128.65		

Total Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1318008 - EPA200/SW7000 Series										
Blank (1318008-BLK1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Mercury	< 0.00020		mg/l	0.00020						
LCS (1318008-BS1)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Mercury	**0.00492**		mg/l	0.00020	0.00500		98	85-115		
Duplicate (1318008-DUP1)			**Source: SB73837-10**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Mercury	< 0.00020		mg/l	0.00020		BRL				20
Matrix Spike (1318008-MS1)			**Source: SB73837-08**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Mercury	**0.00505**		mg/l	0.00020	0.00500	BRL	101	80-120		
Matrix Spike Dup (1318008-MSD1)			**Source: SB73837-08**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Mercury	**0.00483**		mg/l	0.00020	0.00500	BRL	97	80-120	4	20
Post Spike (1318008-PS1)			**Source: SB73837-08**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Mercury	**0.00495**		mg/l	0.00020	0.00500	BRL	99	85-115		

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1317764 - General Preparation										
Duplicate (1317764-DUP1)			**Source: SB73837-07**		Prepared & Analyzed: 26-Jul-13					
% Solids	**76.1**		%			89.6			16	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 72963 - SW3545A										
LCS (LCS-72963)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Naphthalene	**141.0**		ug/Kg	66	166.7		84.6	19-102		
2-Methylnaphthalene	**140.9**		ug/Kg	66	166.7		84.6	19-112		
Acenaphthylene	**145.2**		ug/Kg	66	166.7		87.1	23-134		
Acenaphthene	**125.8**		ug/Kg	66	166.7		75.5	33-113		
Fluorene	**126.8**		ug/Kg	66	166.7		76.1	32-122		
Phenanthrene	**141.2**		ug/Kg	66	166.7		84.7	38-108		
Anthracene	**127.3**		ug/Kg	66	166.7		76.4	35-114		
Fluoranthene	**151.3**		ug/Kg	66	166.7		90.8	41-117		
Pyrene	**140.7**		ug/Kg	66	166.7		84.4	39-119		
Benzo(a)anthracene	**149.1**		ug/Kg	66	166.7		89.5	39-111		
Chrysene	**147.7**		ug/Kg	66	166.7		88.6	36-112		
Benzo(b)fluoranthene	**130.5**		ug/Kg	66	166.7		78.3	39-128		
Benzo(k)fluoranthene	**159.2**		ug/Kg	66	166.7		95.5	30-133		
Benzo(a)pyrene	**143.0**		ug/Kg	66	166.7		85.8	43-119		
Indeno(1,2,3-cd)pyrene	**176.9**		ug/Kg	66	166.7		106	48-119		
Dibenzo(a,h)anthracene	**149.4**		ug/Kg	66	166.7		89.6	48-121		
Benzo(g,h,i)perylene	**158.5**		ug/Kg	66	166.7		95.1	45-116		
Surrogate: Benzo(e)pyrene-d12	*159.2*		ug/Kg		*166.7*		*95.5*	*32-153*		
Matrix Spike (M1295-04AMS)				Source: SB73837-07	Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Naphthalene	**414.3**	S	ug/Kg	76	193.1		215	19-102		
2-Methylnaphthalene	**240.2**	S	ug/Kg	76	193.1		124	19-112		
Acenaphthylene	**868.2**	S	ug/Kg	76	193.1		450	23-134		
Acenaphthene	**235.5**	S	ug/Kg	76	193.1		122	33-113		
Fluorene	**304.1**	S	ug/Kg	76	193.1		157	32-122		
Phenanthrene	**1868**	S	ug/Kg	76	193.1		968	38-108		
Anthracene	**879.9**	S	ug/Kg	76	193.1		456	35-114		
Fluoranthene	**3560**	S	ug/Kg	76	193.1		1270	41-117		
Pyrene	**3464**	S	ug/Kg	76	193.1		1230	39-119		
Benzo(a)anthracene	**2842**	S	ug/Kg	76	193.1		1470	39-111		
Chrysene	**2861**	S	ug/Kg	76	193.1		1480	36-112		
Benzo(b)fluoranthene	**4076**	S	ug/Kg	76	193.1		1620	39-128		
Benzo(k)fluoranthene	**1743**	S	ug/Kg	76	193.1		903	30-133		
Benzo(a)pyrene	**3392**	S	ug/Kg	76	193.1		1760	43-119		
Indeno(1,2,3-cd)pyrene	**2219**	S	ug/Kg	76	193.1		1150	48-119		
Dibenzo(a,h)anthracene	**627.7**	S	ug/Kg	76	193.1		325	48-121		
Benzo(g,h,i)perylene	**2023**	S	ug/Kg	76	193.1		1050	45-116		
Surrogate: Benzo(e)pyrene-d12	*223.2*		ug/Kg		*193.1*		*116*	*32-153*		
Matrix Spike Dup (M1295-04AMSD)				Source: SB73837-07	Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Naphthalene	**176.3**	R	ug/Kg	75	190.6		92.5	19-102	80.6	40.0
2-Methylnaphthalene	**174.2**		ug/Kg	75	190.6		91.4	19-112	31.9	40.0
Acenaphthylene	**231.7**	R	ug/Kg	75	190.6		122	23-134	116	40.0
Acenaphthene	**195.8**		ug/Kg	75	190.6		103	33-113	18.4	40.0
Fluorene	**200.9**	R	ug/Kg	75	190.6		105	32-122	40.9	40.0
Phenanthrene	**464.9**	S, R	ug/Kg	75	190.6		244	38-108	120	40.0
Anthracene	**261.3**	S, R	ug/Kg	75	190.6		137	35-114	108	40.0
Fluoranthene	**555.7**	S, R	ug/Kg	75	190.6		0	41-117	146	40.0
Pyrene	**585.5**	S, R	ug/Kg	75	190.6		0	39-119	142	40.0
Benzo(a)anthracene	**370.0**	S, R	ug/Kg	75	190.6		194	39-111	154	40.0
Chrysene	**351.7**	S, R	ug/Kg	75	190.6		184	36-112	156	40.0
Benzo(b)fluoranthene	**397.4**	S, R	ug/Kg	75	190.6		0	39-128	164	40.0
Benzo(k)fluoranthene	**270.3**	S, R	ug/Kg	75	190.6		142	30-133	146	40.0

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 72963 - SW3545A										
Matrix Spike Dup (M1295-04AMSD)			**Source: SB73837-07**		Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Benzo(a)pyrene	**355.0**	S, R	ug/Kg	75	190.6		186	43-119	162	40.0
Indeno(1,2,3-cd)pyrene	**334.9**	S, R	ug/Kg	75	190.6		176	48-119	148	40.0
Dibenzo(a,h)anthracene	**219.8**	R	ug/Kg	75	190.6		115	48-121	96.3	40.0
Benzo(g,h,i)perylene	**272.7**	S, R	ug/Kg	75	190.6		143	45-116	152	40.0
Surrogate: Benzo(e)pyrene-d12	*214.5*		ug/Kg		*190.6*		*113*	*32-153*		
Blank (MB-72963)					Prepared: 30-Jul-13 Analyzed: 31-Jul-13					
Naphthalene	< 66	U	ug/Kg	66				-		
2-Methylnaphthalene	< 66	U	ug/Kg	66				-		
Acenaphthylene	< 66	U	ug/Kg	66				-		
Acenaphthene	< 66	U	ug/Kg	66				-		
Fluorene	< 66	U	ug/Kg	66				-		
Phenanthrene	< 66	U	ug/Kg	66				-		
Anthracene	< 66	U	ug/Kg	66				-		
Fluoranthene	< 66	U	ug/Kg	66				-		
Pyrene	< 66	U	ug/Kg	66				-		
Benzo(a)anthracene	< 66	U	ug/Kg	66				-		
Chrysene	< 66	U	ug/Kg	66				-		
Benzo(b)fluoranthene	< 66	U	ug/Kg	66				-		
Benzo(k)fluoranthene	< 66	U	ug/Kg	66				-		
Benzo(a)pyrene	< 66	U	ug/Kg	66				-		
Indeno(1,2,3-cd)pyrene	< 66	U	ug/Kg	66				-		
Dibenzo(a,h)anthracene	< 66	U	ug/Kg	66				-		
Benzo(g,h,i)perylene	< 66	U	ug/Kg	66				-		
Surrogate: Benzo(e)pyrene-d12	*172.0*		ug/Kg		*166.7*		*103*	*32-153*		

Semivolatile Organic Compounds by GC - Pesticide Breakdown Report

Analyte(s)	Column	% Breakdown	Limit
Batch S309014			
Performance Mix (S309014-PEM1)			
4,4'-DDT (p,p')	1	4.7	15.0
Endrin	1	9.0	15.0
4,4'-DDT (p,p')	2	4.2	15.0
Endrin	2	9.6	15.0
Performance Mix (S309014-PEM2)			
4,4'-DDT (p,p')	1	2.6	15.0
Endrin	1	4.4	15.0
4,4'-DDT (p,p')	2	2.7	15.0
Endrin	2	5.3	15.0
Batch S309027			
Performance Mix (S309027-PEM1)			
4,4'-DDT (p,p')	1	2.6	15.0
Endrin	1	4.4	15.0
4,4'-DDT (p,p')	2	2.7	15.0
Endrin	2	5.3	15.0
Performance Mix (S309027-PEM2)			
4,4'-DDT (p,p')	1	3.4	15.0
Endrin	1	1.9	15.0
4,4'-DDT (p,p')	2	2.9	15.0
Endrin	2	3.8	15.0

Notes and Definitions

D	Data reported from a dilution
P	Difference between the two GC columns is greater than 40%.
QM1	The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
QM7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM8	The spike recovery exceeded the QC control limits for the MS and/or MSD. The batch was accepted based upon acceptable PS and /or LCS recovery.
QR6	The RPD exceeded the QC control limits; however precision is demonstrated with acceptable RPD values for MS/MSD.
QR8	Analyses are not controlled on RPD values from sample concentrations that are less than 5 times the reporting level. The batch is accepted based upon the difference between the sample and duplicate is less than or equal to the reporting limit.
R	Relative percent difference is outside of the control limit
S	Spike recovery falls outside of the control limit
U	Compound not detected below method detection limit at or above the MRL.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Validated by:
Nicole Leja

GB73837 JB

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 2

Special Handling: S
- [x] Standard TAT ~~7 to 10~~ business days
- [ ] Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: AECOM
500 Enterprise Drive
Rocky Hill CT

Telephone #: 860 258 0300
Project Mgr. Malcolm Beeler

Invoice To: Same

P.O. No.: _____ RQN: _____

Project No.: 60225155
Site Name: Greenwich High School
Location: Greenwich State: CT
Sampler(s): M. Rood & S. Bartlett

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= H_3PO_4 11= _____ 12= _____

List preservative code below: 4

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= Sediment X2= _____ X3= _____

G=Grab C=Composite

QA/QC Reporting Notes:
* additional charges may apply

MA DEP MCP CAM Report: Yes ☐ No ☒
CT DPH RCP Report: Yes ☒ No ☐

QA/QC Reporting Level
☒ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER IV*
☐ Other _____

State-specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	PAHs - Sim	Pesticides	RSR metals	PCBs - Soxhlet					State-specific reporting standards
73837-01	SED-BBUS-1-072513-1	7/25/13	0900	G	X1		4			X	X	X	X					
02	SW-BBUS-1-072513-1	7/25/13	0900	G	SW		2		1	X	X	X						
03	SED-BBUS-2-072513-1	7/25/13	1000	G	X1		4			X	X	X	X					
04	SW-BBUS-2-072513-1	7/25/13	1000	G	SW		2		1	X	X	X						
05	SED-BBUS-2-072513-2	7/25/13	1000	G	X1		4			X	X	X	X					
06	SW-BBUS-2-072513-2	7/25/13	1000	G	SW		2		1	X	X	X						
07	SED-BBUS-3-072513-1	7/25/13	1030	G	X1		12			X	X	X	X					MS/MSD
08	SW-BBUS-3-072513-1	7/25/13	1030	G	SW		6		3	X	X	X						MS/MSD
09	SED-BBUS-4-072513-1	7/25/13	1100	G	X1		4			X	X	X	X					
10	SW-BBUS-4-072513-1	7/25/13	1100	G	SW		2		1	X	X	X						

Relinquished by:	Received by:	Date:	Time:	Temp °C
[signature]	[signature]	7/25/13	1:35 pm	
[signature]	[signature]	7/25/13	2100	

☒ EDD Format equis
☒ E-mail to malcom.beeler@aecom.com
william.scott@aecom.com

Condition upon receipt:
☐ Ambient ☒ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

4.5/0/4.5 IR 04

3B73837 JB

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 2 of 2

Special Handling: 5
☒ Standard TAT - ~~7 to 10~~ business days
☐ Rush TAT - Date Needed: _____
· All TATs subject to laboratory approval.
· Min. 24-hour notification needed for rushes.
· Samples disposed of after 60 days unless otherwise instructed.

Report To: AECOM
500 Enterprise Dr
Rocky Hill CT

Telephone #: 860 263 5800
Project Mgr. Malcolm Beeler

Invoice To: Same

P.O. No.: _____ RQN: _____

Project No.: 60225155
Site Name: Greenwich High School
Location: Greenwich State: CT
Sampler(s): M. Rood + S. Bartlett

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= H_3PO_4 11= _____ 12= _____

List preservative code below: 7/9 | | | | 4 | | | |

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= DI water X2= _____ X3= _____

G=Grab C=Composite

MA DEP MCP CAM Report: Yes ☐ No ☒
CT DPH RCP Report: Yes ☒ No ☐

QA/QC Reporting Level
☒ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER IV*
☐ Other _____

State-specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		VOCs	PAHs	Pesticides	PCBs	RSK Metals				
73837-11	Equipment Blank	7/25/13	1130	G	X1		3		1			X	X	X	X				
↓ 12	Trip Blank					2					X								HOLD

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	7/25/13	1:35p	
	[signature]	7/25/13	2:40	

☒ EDD Format EQuIS
☒ E-mail to malcolm.beeler@aecom.com
collin.scott@aecom.com

Condition upon receipt:
☐ Ambient ☒ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

45/0 /45 IR 02

3873837 JB

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 2 of 2

Special Handling: 5
☒ Standard TAT - ~~7 to 10~~ business days
☐ Rush TAT - Date Needed: _____
· All TATs subject to laboratory approval.
· Min. 24-hour notification needed for rushes.
· Samples disposed of after 60 days unless otherwise instructed.

Report To: AECOM
500 Enterprise Dr
Rocky Hill CT

Telephone #: 860 263 5800
Project Mgr. Malcolm Beeler

Invoice To: Same

P.O. No.: _____ RQN: _____

Project No.: 60225155
Site Name: Greenwich High School
Location: Greenwich State: CT
Sampler(s): M. Rood + S. Bartlett

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= H_3PO_4 11= _____ 12= _____

List preservative code below: 7/9 | | | | 4 | | | |

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= DI water X2= _____ X3= _____

G=Grab C=Composite

MA DEP MCP CAM Report: Yes ☐ No ☒
CT DPH RCP Report: Yes ☒ No ☐

QA/QC Reporting Level
☒ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER IV*
☐ Other _____

State-specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		VOCs	PAHs	Pesticides	PCBs	RSK Metals				
73837-11	Equipment Blank	7/25/13	1130	G	X1		3		1			X	X	X	X				
↓ 12	Trip Blank					2					X								

HOLD / Do not run Trip Blanks per Client request 7/26/13 5:07

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	7/25/13	1:35p	
	[signature]	7/25/13	2:00	

☒ EDD Format EQuIS
☒ E-mail to malcolm.beeler@aecom.com
colleen.smith@aecom.com

Condition upon receipt:
☐ Ambient ☒ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

4.5/0/4.5 IR 02

Appendix C

Soil Boring Logs for Cross-Sections

AECOM Boring and Well Construction Log

BORING #: AE16-SB291
WELL ID#: PZ-AE16-SB291

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576630.7 **Easting:** 761682.0	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 7
Start Date: 2/14/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 11.0
Finish Date: 2/14/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth	WELL DIAGRAM
0	24	0.0	SM		S1, brown, fine SAND, some silt, little clay, dry to moist (2.0)	0-2	1" Sch 40 PVC
2	15	0.0	SM		S1, brown, fine to medium SAND, some silt, little gravel, trace clay, dry to moist (3.5)		
4	11	0.0	SP		S1, brown, fine SAND, little silt, dry to moist (5.0)		
6	10	0.0	SP		S2, brown, fine SAND, little silt, dry to moist (6.0)		
8	24	0.0	SP		S2, brown to gray, fine to medium SAND, some cinders, some silt, burnt odor, moist to wet (9.0)	6-7	1" 0.010 Sch 40 PVC
10	10	2.0	Cinders		S2, black, CINDERS, little silt, burnt odor, wet (10.0)	9-10	
	6	2.0	SP		S3, black, fine to medium SAND, some cinders, some silt, burnt odor, wet (10.5)		
	6	0.0	SM		S3, gray, fine to medium SAND, some silt, some gravel, little clay, moist (11.0)		

Remarks: Boring Terminated (ft): 11.0

Refusal (ft): 11.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

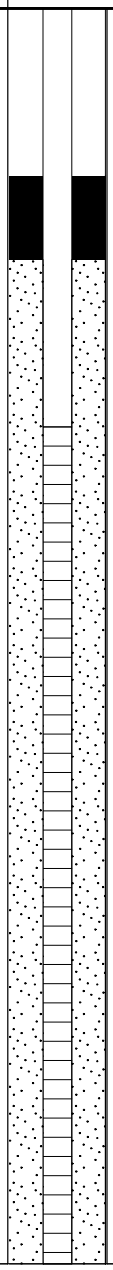
AECOM Boring and Well Construction Log

BORING #: AH16-SB258
WELL ID#: MW-AH16-SB258

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576749.8 **Easting:** 761666.8	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 7
Start Date: 12/27/2011	**Drilling Method:** Geoprobe with HSA	**Total Depth (ft):** 15.0
Finish Date: 12/27/2011		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	6 NA	0.0 NA	SM		S1, brown, fine to medium SAND, some silt, little gravel , trace organics, dry (1.0)	0-1
	20	0.0	SM		S1, brown, fine to medium SAND, some silt, little gravel, moist (4.5)	
2						
4						
	6	0.0	SP		S1, black, fine to medium SAND, some cinders, dry (5.0)	4.5-5
	36	1.0	SM		S2, black to brown, fine to medium SAND and SILT, some cinders, moist to wet (9.0)	
6						6-7.5
8						
	5	0.0	Rock		S2, gray, ROCK FRAGMENTS, some fine to medium sand, some silt, little gravel, moist (10.0)	
10						
	24	0.1	Cinders-MH		S3, dark brown, SILT and CINDERS, little fine sand, wet (12.0)	
12						
	36	0.0	Pt		S3, dark brown, PEAT and ORGANICS, little fine to medium sand, wet (15.0)	12-13
14						

WELL DIAGRAM



2" Sch 40 PVC
Bentonite

#1 Quartz Sand

2" 0.010 Slotted
Sch 40 PVC

Remarks: Boring Terminated (ft): 15.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

AECOM Boring and Well Construction Log

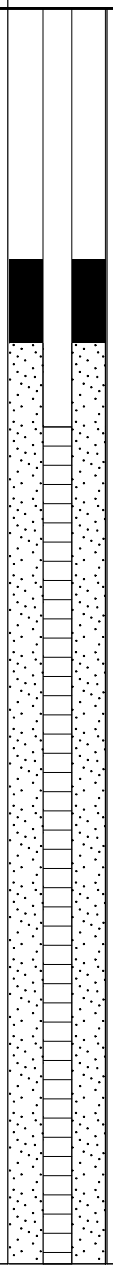
BORING #: AM16-SB270
WELL ID#: MW-AM16-SB270

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576960.3 **Easting:** 761636.1	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 7
Start Date: 2/14/2012	**Drilling Method:** Geoprobe with HSA	**Total Depth (ft):** 15.0
Finish Date: 2/14/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	10	0.0	SM		S1, dark brown, fine to medium SAND, some silt, some gravel, trace organics, dry (topsoil)	0-1
	24	0.0	SM		S1, brown, fine SAND, some silt, dry	
2						
4						
	10	0.0	SM		S1, dark brown to gray, fine SAND, some silt, trace gravel, trace glass at 4', dry	4-5
	6	0.0	SM		S2, SAA	5-6
6	16	0.0	SM		S2, dark gray to brown, fine SAND, some silt, moist	
	16	0.0	SM		S2, gray, fine to medium SAND, some silt, wet	
8						
	10	0.0	Pt		S2, dark gray, PEAT, some fine sand, wet	
10						
12						
14						

1.0
4.0
5.0
5.5
7.0
9.0
15.0

WELL DIAGRAM



Remarks: Boring Terminated (ft): 15.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: AA16-SB418

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576472.0 **Easting:** 761702.4	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 8
Start Date: 7/2/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 15.0
Finish Date: 7/2/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	18	0.0	SM		S1, brown, fine to medium SAND, some silt, little gravel, dry to moist (1.5)	
2	15	0.0	SM		S1, brown, fine SAND, some silt, little gravel, little clay, moist (3.0)	
4	15	0.0	ML		S1, gray, SILT, some fine to medium sand, little gravel, little clay, little fine to medium rock fragments, dry to moist (5.0)	4-5
	5	0.0	SP		S2, gray to black, fine to medium SAND, some silt, some gravel, trace brick, trace cinders, dry to moist (5.5)	
6	16	27	Cinders		S2, black, CINDERS, little rock fragments, little fine to medium sand, little glass, burnt odor, dry to moist (8.0)	7-8
10	15	0.0	SW		S2, brownish gray, SAND, some gravel,little silt, little clay, moist (10.0)	
12	18	0.0	SM		S3, brownish gray, fine to medium SAND, some silt, little clay, little gravel, wet (12.0)	11.5-12.5
	8	0.0	Pt		S3, dark brown, PEAT, little fine to medium sand, moist to wet (13.0)	
14	9	0.0	SP		S3, brownish gray, fine to medium SAND, little silt, little coarse sand, little gravel, wet (14.0)	
	9	0.0	Pt		S3, dark brown, PEAT, little wood, moist to wet (15.0)	

Remarks: Boring Terminated (ft): 15.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: AB16-SB417

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576511.7 **Easting:** 761697.3	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 3.8
Start Date: 6/28/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 15.0
Finish Date: 6/28/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	12	0.0	SM	1.0	S1, dark brown, fine SAND, some silt, little gravel, moist	
2	20	0.0	SP	3.0	S1, olive brown, fine to medium SAND, some silt, some gravel, little clay, moist	1-2
4	8	0.0	Rock	3.8	S1, gray, fine to medium ROCK FRAGMENTS, some silt, some fine to medium sand, some gravel, dry to moist	
	14	0.0	SP	5.0	S1, brownish gray, fine to medium SAND, some silt, some gravel, moist	
6	26	0.0	SM	7.2	S2, brownish gray, fine to medium SAND, some silt, little gravel, little peat, little clay, moist to wet	
8	12	25.9	Cinders	8.5	S2, black, CINDERS, some silt, little gravel, little wood, little glass, burnt odor, wet	7.2-8.5
10	16	0.0	SW	10.0	S2, brownish gray, SAND, some silt, some gravel, little clay, moist	
	n/a	0.0	NA	11.0	No Recovery	
12	10	0.0	SP	12.0	S3, olive brown, fine to medium SAND, some silt, some gravel, little clay, moist to wet	11.5-12.5
14	32	0.0	Pt	15.0	S3, dark brown, PEAT, little fine sand, moist	

Remarks: Boring Terminated (ft): 15.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: AC16-SB492

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576551.4 **Easting:** 761692.2	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 4
Start Date: 7/12/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 15.0
Finish Date: 7/12/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	18	0.0	SM		S1, brown, fine SAND, some silt, little gravel, little medium to coarse sand, dry to moist (1.5)	
2	15	0.0	SM		S1, brown, fine to medium SAND, some silt, little gravel, dry to moist (3.0)	2-3
4	7	0.0	Rock		S1, gray, fine to coarse ROCK FRAGMENTS, little fine to medium sand, little silt, dry to moist (4.0)	
	10	0.0	SP		S1, orange brown, fine to medium SAND, little gravel, moist to wet (5.0)	
6	20	0.0	SP		S2, SAA, wet (6.8)	
	10	0.0	SM		S2, olive brown, fine SAND, some silt, little gravel, little cinders, dry to moist (7.5)	
8	8	0.0	SM		S2, dark brownish gray, fine SAND, some silt, little rock fragments, little gravel, dry to moist (8.2)	
	9	0.9	SM		S2, dark brownish gray, fine SAND, some silt, little cinders, little gravel, burnt odor, moist (9.0)	8.2-9
10	12	0.0	SP		S2, brownish gray, fine SAND, some silt, some rock fragments, little cinders, moist to wet (10.0)	
12	20	0.0	SP		S3, SAA (14.0)	13-14
14	12	0.0	Pt		S3, dark brown, PEAT, little fine sand, little silt, little wood, moist to wet (15.0)	

Remarks: Boring Terminated (ft): 15.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: AD16-SB362

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576591.1 **Easting:** 761687.1	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 4/12/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 11.0
Finish Date: 4/12/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	12	0.0	SM		S1, brown, fine to medium SAND, some silt, some organics, dry to moist (1.0)	
	14	0.4	SM		S1, dark brown, fine to medium SAND, some silt, little organics, little gravel, dry to moist (2.5)	
2	24	0.0	SP		S1, brown, fine to medium SAND, some silt, some gravel, little cinders, dry to moist (4.5)	3.5-4
4	5	0.0	SP		S1, brown, fine SAND, little silt, dry to moist (5.0)	
	8	0.0	SP		S2, SAA (5.7)	
6	13	0.4	SM		S2, gray to brown, fine to medium SAND, some silt, some rock fragments, dry to moist (7.0)	
	5	0.0	Rock		S2, gray, ROCK FRAGMENTS, dry (7.5)	
8	11	0.0	SP		S2, gray, SILT, little fine to medium sand, little cinders, little gravel, dry to moist (8.5)	
	12	1.2	SP		S2, SAA, moist to wet (10.0)	
10	12	0.0	SM		S3, brown to black, fine to medium SAND, some silt, some cinders, little wood, trace metal, trace glass, burnt odor, dark gray rock fragments at bottom, wet (11.0)	10-11

Remarks: Boring Terminated (ft): 11.0

Refusal (ft): 11.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: AF16-SB361

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576670.4 **Easting:** 761676.9	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 4/12/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 68.0
Finish Date: 4/12/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	12	0.0	SM	1.0	S1, brown, fine to medium SAND, some silt, dry	
2	20	0.0	SP	3.0	S1, brown, fine to medium SAND, some gravel, some silt, little glass, dry	
4	12	0.0	SP	4.0	S1, brown, fine to medium SAND, dry	
	10	0.0	SM	5.0	S1, brown to gray, fine to medium SAND and SILT, some gravel, little cinders, mottling, dry	4.5-5
	6	0.0	SP	5.5	S2, brown, fine to medium SAND, dry	
6	6	0.0	SM	6.0	S2, gray, fine to medium SAND and SILT, some gravel, little cinders, dry	
	6	0.0	Rock	6.5	S2, light gray, ROCK FRAGMENTS, dry	
8	18	0.0	ML		S2, gray to black, SILT, some fine to medium sand, little gravel, little cinders, moist	
10	0	0.0		10.0		
12	20	0.0	SW	12.0	S3, black, SAND, some cinders, some gravel, some glass, burnt odor, wet	10.5-11
	7	0.0	Rock	13.0	S3, dark gray, ROCK FRAGMENTS, dry	
14	8	0.0	SM	14.0	S3, gray to brown, fine to medium SAND, some silt, some rock fragments, dry to moist	13-13.5
16	10	0.0	Pt		S3, Dark Brown, PEAT, moist	
		0.0				
18						
20						
22						
24						

Remarks: Boring Terminated (ft): 68.0

Refusal (ft): 68.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

(Continued Next Page)

Boring Log

BORING #: AF16-SB361

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576670.4 **Easting:** 761676.9	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 4/12/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 68.0
Finish Date: 4/12/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
26			Pt		S3, Dark Brown, PEAT, moist *(continued)*	
28						
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						

Remarks: Boring Terminated (ft): 68.0

Refusal (ft): 68.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

(Continued Next Page)

Boring Log

BORING #: AF16-SB361

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576670.4 **Easting:** 761676.9	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 4/12/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 68.0
Finish Date: 4/12/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
50						
			Pt		S3, Dark Brown, PEAT, moist *(continued)*	
52						
54						
56						
58						
60						
62						
64						
66						
68					68.0	

Remarks: Boring Terminated (ft): 68.0

Refusal (ft): 68.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: AG16-SB358

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576710.1 **Easting:** 761671.9	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 4/10/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 59.0
Finish Date: 4/10/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	12	0.0	SP		S1, brown, fine to medium SAND, some wood, some gravel, little silt, dry (1.0)	
2	11	0.0	SP		S1, brown, fine to medium SAND, dry (2.0)	
4	16	0.0	SM		S1, brown, fine to medium SAND, some silt, some rock fragments, dry to moist (5.0)	4-4.5
6	6	0.0	SP		S2, brown, fine to medium SAND, some silt, some gravel, little rock fragments, moist (6.0)	
8	18	58.9	Cinders		S2, brown to black, CINDERS, some fine to medium sand, some silt, little glass, trace wood, trace brick, burnt odor, moist (9.0)	6-7
10	8	0.0	SM		S2, brown to gray, fine to medium SAND and SILT, some gravel, moist to wet (10.0)	
12	40	0.0	Pt		S3, dark brown, PEAT, some silt, little fine to medium sand, moist (15.0)	12-13
16		0.0			No Sample	
18						
20						
22						
24						
26						
28						
30						

Remarks: Boring Terminated (ft): 59.0

Refusal (ft): 59.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

(Continued Next Page)

Boring Log

BORING #: AG16-SB358

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576710.1 **Easting:** 761671.9	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 4/10/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 59.0
Finish Date: 4/10/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
30					No Sample *(continued)*	
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						
52						
54						
56						
58						
					59.0	

Remarks: Boring Terminated (ft): 59.0

Refusal (ft): 59.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: AI16-SB356

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576789.4 **Easting:** 761661.7	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 4/10/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 56.0
Finish Date: 4/10/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	4	0.0	ROCK	0.3	S1, gray to brown, ROCK FRAGMENTS, dry	
	12	0.0	SP	1.3	S1, brown, fine to medium SAND, some silt, some gravel, dry to moist	
2	6	0.0	Rock		S1, light gray, ROCK FRAGMENTS, little fine to medium sand, little silt, dry	
4				4.0		
	11	2.8	Cinders	5.0	S1, black, CINDERS, little wood, trace glass, moist	4-4.5
6	14	3.6	Cinders	6.5	S2, black, CINDERS, some gravel, some silt, little glass, little fine to medium sand, moist	5-6
8	3	0.0	Rock	9.0	S2, light gray, ROCK FRAGMENTS, dry	
10	12	0.0	SM	10.0	S2, gray, SAND and SILT, some gravel, little clay, moist	
12	13	0.0	SM	12.0	S3, gray, fine SAND and SILT, some medium sand, some gravel, moist	
	8	0.0	Pt	12.7	S3, gray to brown, PEAT, some silt, little fine sand, moist	12-12.7
	1	0.0	SW	12.8	S3, brown, SAND, moist	
14	24	0.0	Pt	15.0	S3, dark brown, PEAT, little silt, little fine to medium sand, moist	
16		0.0			No Sample	
18						
20						

Remarks: Boring Terminated (ft): 56.0

Refusal (ft): 56.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

(Continued Next Page)

Boring Log

BORING #: AI16-SB356

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576789.4 **Easting:** 761661.7	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 4/10/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 56.0
Finish Date: 4/10/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
20					No Sample *(continued)*	
22						
24						
26						
28						
30						
32						
34						
36						
38						
40						

Remarks: Boring Terminated (ft): 56.0

Refusal (ft): 56.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

(Continued Next Page)

Boring Log

BORING #: AI16-SB356

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576789.4 **Easting:** 761661.7	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 4/10/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 56.0
Finish Date: 4/10/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
40					No Sample *(continued)*	
42						
44						
46						
48						
50						
52						
54						
56					56.0	

Remarks: Boring Terminated (ft): 56.0

Refusal (ft): 56.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: AK16-SB483

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576878.7 **Easting:** 761650.3	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 7.5
Start Date: 7/12/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 15.0
Finish Date: 7/12/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	16	0.0	SM		S1, brown, fine to medium SAND, some silt, little gravel, dry to moist (1.5)	1-2
2	4	0.0	SP		S1, brown, fine SAND, little silt, moist (2.0)	
	3	0.0	SW		S1, brown, SAND, some silt, some gravel, moist (2.3)	
	5	0.0	Rock		S1, light gray, ROCK FRAGMENTS, dry (3.0)	
4	16	45	Cinders		S1, black, CINDERS, little fine sand, little silt, little glass, trace wood, moist (4.5)	3-4
	4	0.0	ML		S1, brownish gray, SILT, some fine sand, some gravel, dry to moist (5.0)	
	4	0.0	ML		S2, SAA (5.5)	
6	14	0.0	Pt		S2, dark brown, PEAT, some silt, moist (7.0)	6-7
	5	0.0	SP		S2, brownish gray, fine to medium SAND, little silt, moist to wet (7.5)	
8	26	0.0	Pt		S2, gray to brown, PEAT, some silt, little fine to medium sand, moist to wet (10.0)	
10	32	0.0	Pt		S3, dark brown, PEAT, little fine to coarse sand, little silt, little clay, moist to wet (13.0)	
12	20	0.0	OH-Pt		S3, brownish gray, SILT, some peat, little fine to medium sand, little clay, moist to wet (15.0)	
14						

Remarks: Boring Terminated (ft): 15.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: AL16-SB486

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576908.4 **Easting:** 761646.4	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 8
Start Date: 7/12/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 15.0
Finish Date: 7/12/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0						
	20	0.0	SM		S1, brown, fine SAND, some silt, little medium sand, little gravel, dry to moist	
2					2.0	
	9	0.0	Rock		S1, light gray, fine to coarse ROCK FRAGMENTS, dry	
					3.0	
	5	0.0	SM		S1, brown, fine SAND, some silt, moist	
					3.5	
	3	0.0	Asphalt		S1, black, ASPHALT, little fine sand, little silt, dry to moist	
4					4.0	
	10	0.0	SM		S1, olive brown, fine SAND and SILT, little rock fragments, little gravel, little clay, mottling, moist	4-5
					5.0	
	10	0.0	SM		S2, olive brown, fine SAND, some silt, some gravel, little clay, moist	
6					6.0	
	16	0.0	MH		S2, brownish gray, SILT, little clay, moist	
					7.5	7-8
	5	0.0	SP		S2, brownish gray, fine to medium SAND, wet	
8					8.0	
	20	0.0	Pt		S2, gray to brown, PEAT, some silt, little fine sand, moist to wet	8-9
10					10.0	
	5	0.0	SW		S3, brownish gray, SAND, little silt, wet	
					10.5	
	26	0.0	Pt		S3, brown, PEAT, little silt, trace fine sand, moist to wet	
12						
					13.0	
	24	0.0	OH-Pt		S3, brownish gray, SILT, some peat, moist to wet	
14						
					15.0	

Remarks: Boring Terminated (ft): 15.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: AP16-SB269

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 577067.1 **Easting:** 761626.1	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 7
Start Date: 12/28/2011	**Drilling Method:** Geoprobe 7720	**Total Depth (ft):** 10.0
Finish Date: 12/28/2011		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	10	0.0	SM		S1, brown, fine SAND, some silt ,trace organics, dry (topsoil) 1.0	0-1
	24	0.0	SM		S1, brown, fine SAND, some silt, some gravel, little clay, dry to moist 5.0	
2						
4						4-5
	16	0.0	SM		S2, brown to gray, fine SAND and SILT, some clay, moist 7.0	5-6
6						
	12	0.0	SM		S2, gray, fine SAND, some silt, some clay, moist to wet 8.0	
8						
	24	0.0	ML		S2, dark brown to gray, SILT, some organics, some clay, moist 10.0	
10						

Remarks: Boring Terminated (ft): 10.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: T16-SB367

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576194.3 **Easting:** 761737.9	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 4/12/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 19.0
Finish Date: 4/12/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	6	0.0	SM		0.5 S1, brown, fine SAND, some silt, little gravel, dry	
	16	0.0	SM		S1, gray to brown, fine to medium SAND, some silt, little gravel, dry	
2					3.0	2-2.5
	5	0.0	Rock		S1, light brown to white, ROCK FRAGMENTS, dry	
4					5.0	
	20	0.0	SP		S2, brown, fine to medium SAND, some gravel, some rock fragments, little silt, dry to moist	
6					7.0	
	8	0.0	SW		S2, reddish brown, SAND, little silt, little gravel, moist to wet	7-8
8					8.0	
	12	0.0	SP		S2, brown to gray, fine to medium SAND, wet	
10					10.0	
	20	0.0	SP		S3, SAA	
12						11.5-12
	30	0.0				
14					15.0	
					No sample; advance to refusal	
16						
18						
					19.0	

Remarks: Boring Terminated (ft): 19.0

Refusal (ft): 19.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: U16-SB368

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576233.9 **Easting:** 761732.9	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 4/12/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 19.0
Finish Date: 4/12/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	4	0.0	SP		0.5 S1, brown, fine to medium SAND, some silt, some gravel, dry	
	16	0.0	SP		S1, dark brown to gray, fine to medium SAND, some silt, some gravel, some rock fragments, dry	
2					2.5	
	12	0.0	Pt		S1, dark brown to gray, PEAT, some silt, little fine to medium sand, dry to moist	
4					5.0	3.5-4
	4	0.0	SP		5.5 S2, brown, fine SAND, some gravel, little medium to coarse sand, little silt, dry	
6	6	0.0	ML		6.0 S2, dark brown, SILT, some peat, some cinders, moist	5.5-6
	13	0.0	Pt		S2, dark brown, PEAT, little fine to medium sand, little silt, moist	
8	18	0.0	SP		7.5 S2, gray, fine to medium SAND, little coarse sand, wet	
10					10.0	
	42	0.0	SP		S3, gray, fine to medium SAND, some coarse sand, some gravel, little silt, wet	
12						11.5-12
14					15.0	
					No sample; advance to refusal	
16						
18					19.0	

Remarks: Boring Terminated (ft): 19.0

Refusal (ft): 19.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: X16-SB327

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** J.Tomlin/J.Honda
Project: Phase II / Phase III Investigation	**Northing:** 576353.0 **Easting:** 761717.6	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 4/11/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 45.0
Finish Date: 4/11/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	37	0.0	SP		S1, brown, fine to medium SAND, little silt, little organics, dry to moist (1.0)	
2		0.0	SP		S1, reddish brown, fine to medium SAND, little silt, little gravel, dry (2.5)	1.5-2
4		0.0	SP		S1, brownish gray to gray, fine to medium SAND, little fine to medium gravel, trace silt, dry to moist (5.0)	
	26	0.0	SP		S2, SAA (5.5)	
6		0.0	SP-Ash		S2, dark gray to black, fine to medium SAND, some ash, some glass, little silt, little fine to medium gravel, moist (9.0)	
8						7-7.5
10		0.0	SW		S2, brownish gray to gray, SAND, some fine to medium gravel, dry to moist (10.0)	
		0.0	SW		S3, SAA (11.5)	10.5-11
12		0.0	Pt		S3, brown, PEAT, moist (15.0)	
14						
16					No Sample	
18						
20						
22						

Remarks: Boring Terminated (ft): 45.0

Refusal (ft): 45.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

(Continued Next Page)

AECOM

Boring Log

BORING #: X16-SB327

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** J.Tomlin/J.Honda
Project: Phase II / Phase III Investigation	**Northing:** 576353.0 **Easting:** 761717.6	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 4/11/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 45.0
Finish Date: 4/11/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
24					No Sample *(continued)*	
26						
28						
30						
32						
34						
36						
38						
40						
42						
44						
					45.0	

Remarks: Boring Terminated (ft): 45.0

Refusal (ft): 45.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

ENGINEERED SOLUTIONS — LAND STRUCTURES WATER

DIVERSIFIED TECHNOLOGY CONSULTANTS

Subsurface Log

Sheet 1 of 1

Date started: 8/10/11
Date Completed: 8/10/11

BORING No. SB-34

Project: Greenwich High School
Location: Greenwich, CT

Method of investigation: Geoprobe

Project No.: 10-161-101
P. Manager: Chris Koelle

Drilling Co.: Moran
Geologist: J. Vossler

Driller: Matt
D. Helper:

Drill Rig: Geoprobe
Weather: 80's, sunny

Depth (ft.)	Sample No.	Sample Depth (ft.)	Recovery (in.)	Sample Description	Field Screening Readings	Sample Interval (ft.)
0-5		0-0.3		Topsoil		
		0.3-1.4		Brown M SAND and GRAVEL, with brick	0-2 = 1.6ppm	0-1
		1.4-2.4		Gray M SAND, with asphalt, concrete		1-2
		2.4-3.6	55	Black M SAND, with glass, plastic, wood	2-4.6 = 1.6ppm	2-3
		3.6-3.7		ROCK		3-4
		3.7-4.6		Gray-black M-C SAND, trace M gravel, with wood, glass		4-4.6
5-10		5-5.7		SAA		5-6
		5.7-7		Black M SAND, some silt, with wood, damp @ 6'	5-7 = 0.5ppm	6-7
		7-7.6	42	Dark-brown silty CLAY		7-8
		7.6-7.9		Black M SAND	7-8.5 = 0.7ppm	8-8.5
		7.9-8.5		Dark-brown silty CLAY, some peat		
10-15		10-12		Dark-brown PEAT, wet @ 10'		10-11
					10-12 = 0.8ppm	11-12
			24			
				END OF BORING @ 12'		

Sample Types:

S=Split Spoon: T= Shelby Tube: _____

R= Rock Core: O = Other: Macro Core

Groundwater @ 10'

SAA = Same As Above

ENGINEERED SOLUTIONS — LAND STRUCTURES WATER

DIVERSIFIED TECHNOLOGY CONSULTANTS

Subsurface Log

Sheet 1 of 1

Date started: 8/10/11
Date Completed: 8/10/11

BORING No. SB-63

Project: Greenwich High School
Location: Greenwich, CT

Method of investigation: Geoprobe

Project No.: 10-161-101
P. Manager: Chris Koelle

Drilling Co.: Moran
Geologist: J. Vossler

Driller: Matt
D. Helper:

Drill Rig: Geoprobe
Weather: 80's, sunny

Depth (ft.)	Sample No.	Sample Depth (ft.)	Recovery (in.)	Sample Description	Field Screening Readings	Sample Interval (ft.)
0-5		0-0.9		Dark-brown M SAND, with glass, asphalt		0-1
		0.9-1.1		ROCK	0-2 = 0.5ppm	1-2
		1.1-3.3	44	Gray-black M SAND, with glass, wood		2-3
		3.3-3.4		ROCK	2-3.7 = 0.3ppm	3-3.7
		3.4-3.7		Black M SAND, no odor		
5-10		5-6.3		Black M SAND, no odor, damp @ 6.1'		
		6.3-6.6		Concrete	5-7 = 2.4ppm	5-6
		6.6-7.2	48	Black M SAND		6-7
		7.2-7.6		Gray to brown M SAND and SILT	7-9 = 0.1ppm	7-8
		7.6-8.5		Light-brown M SAND and SILT		8-9
		8.5-9		Gray-brown M SAND and SILT		
10-15		10-11.3		Light-brown to gray M SAND and SILT		10-11
					10-12.5 = 0.1ppm	11-12
		11.3-15	60	Dark-brown PEAT		12-13
					12.5-15 = 0.1ppm	13-14
						14-15
				END OF BORING @ 15'		

Sample Types:

S=Split Spoon: T= Shelby Tube: _____

R= Rock Core: O = Other: Macro Core

SAA = Same As Above

ENGINEERED SOLUTIONS / LAND STRUCTURES WATER	**Subsurface Log**	**Sheet** 1 of 1	***Date started:*** 8/10/11 ***Date Completed:*** 8/10/11	**BORING No.**	**SB-103**
DIVERSIFIED TECHNOLOGY CONSULTANTS	***Project:*** Greenwich High School ***Location:*** Greenwich, CT			***Method of investigation:*** Geoprobe	
Project No.: 10-161-101 ***P. Manager:*** Chris Koelle	***Drilling Co.:*** Moran ***Geologist:*** J. Vossler		***Driller:*** Matt ***D. Helper:***	***Drill Rig:*** Geoprobe	***Weather:*** 80's, sunny

Depth (ft.)	Sample No.	Sample Depth (ft.)	Recovery (in.)	Sample Description	Field Screening Readings	Sample Interval (ft.)
0-5		0-0.2	48	Topsoil		
		0.2-1.2		Dark-brown M-F SAND, with asphalt	0-2 = 1.0ppm	0-1
		1.2-1.9		Light-brown M SAND and GRAVEL		1-2
		1.9-3.3		Black M SAND, with glass, brick, tile	2-4 = 11.4ppm	2-3
		3.3-3.6		ROCK		3-4
		3.6-4		Black M SAND, with glass		
5-10		5-5.4	36	Black M SAND, with glass, plastic, porcelain		5-6
		5.4-7.2		Gray-brown F-M SAND and GRAVEL	5-7 = 7.9ppm	6-7
		7.2-7.8		Gray-brown M SAND and SILT	7-8 = 8.1ppm	7-8
		7.8-8		Black M SAND and SILT		
10-15		10-10.8	60	SAA		10-11
		10.8-12		Dark-brown PEAT	10-12.5 = 0.8ppm	11-12
		12-12.2		Dark-brown F SAND		12-13
		12.2-15		Dark-brown PEAT, wet @ 12.5'	12.5-15 = 0.6ppm	13-14
						14-15
				END OF BORING @ 15'		

Sample Types:

S=Split Spoon: T= Shelby Tube: _____

R= Rock Core: O = Other: Macro Core

Groundwater @ 12.5'

SAA = Same As Above

Boring Log

Boring #: Z16-SB311
Sheet 1 of 1

Client: Town of Greenwich	Location: Greenwich High School	Logged By: J.Tomlin/J.Honda
Project: Greenwich High School	Northing: 761707.65 Easting: 576430.88	Drilling Company: ADT
Project #: 60225155	Ground Elevation (msl):	Driller: J. Dorau
Start Date: 4/9/2012	Drill Rig Type: Geoprobe	Water Level (ft) 49.5
Finish Date: 4/9/2012	Method: Direct Push	Total Depth (ft): 49.5

Sample: Rec (inches)	Sample: PID (ppm)	Sample: Blow Counts	Sample: USCS Code	Sample: Graphic	Depth (ft)	Soil and Rock Description (Classification Scheme: USCS)	Lab Sample Collection Depth
55	0.0		Fill		0	S1, Brown, fine to medium SAND, some silt, dry to moist	
	0.0				2		
	0.0		Fill			S1, Light Brown to Brown, fine to medium SAND, little medium gravel, dry	
					4		
48	0.0		Fill				
	0.0				6	S1, Light Gray to Gray, fine to medium SAND, some silt, dry	
	0.3		Fill				
					8	S2 SAA	
	0.0		Fill				
15	0.0				10	S2, Brown to Gray, fine to medium SAND, some silt, moist	
	0.1		Fill				
					12	S2, Gray to Black, fine to medium SAND, little cinders, little glass, moist	
	0.0		Fill				
	0.0				14		
			Fill			S2, Brown to Gray, fine to medium SILT, some clay, little gravel, moist	
					16		
			Fill			S3, Dark Gray to Black, SILT, little gravel, wet	
					18		
			OL			S3, Gray to Black, fine to medium SAND, some silt, moist	
					20		
			Pt			S3, Dark Brown, fine SILT, little organics, moist	
					22		
						S3, Light Gray to Brown, PEAT, moist, REFUSAL AT 49.5 FT	
					24		
					26		
					28		
					30		
					32		
					34		
					36		
					38		
					40		
					42		
					44		
					46		
					48		

Remarks: Boring Terminated (ft): 49.5

Geoprobe macro-core sample intervals (5 ft in length) are indicated by S#.

Total recovery is distributed among the stratographic units within each sample interval (S#).

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

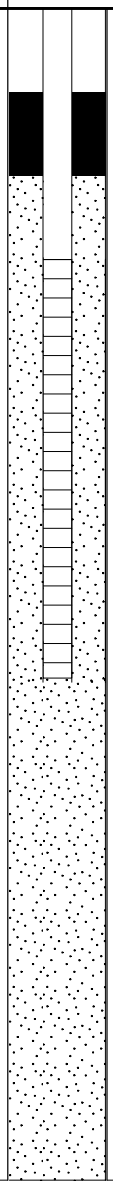
AECOM Boring and Well Construction Log

BORING #: AP11-SB277
WELL ID#: MW-AP11-SB277

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 577042.1 **Easting:** 761403.6	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 7.5
Start Date: 4/11/2012	**Drilling Method:** Geoprobe 7720	**Total Depth (ft):** 14.0
Finish Date: 4/11/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	14 24	0.0	SM		S1, dark brown, fine SAND, some silt, little medium to coarse sand, dry to moist	0-1
2	18	0.0	SP		S1, brown, fine SAND, some silt, some gravel, little medium to coarse sand, dry to moist	2.5-4
4	8	0.0	SM		S1, dark gray, fine SAND and SILT, some organics, dry to moist	4-5
6	10	0.0	SM		S2, gray to brown, fine SAND and SILT, little medium to coarse sand, little clay, little organics, dry to moist	
8	9	0.0	SM		S2, gray to brown, fine to medium SAND, some silt, iron oxide staining, dry to moist	
	16	0.0	SP		S2, gray, fine to medium SAND, little coarse sand, little silt, little gravel, iron oxide staining, moist	
10	7	0.0	Pt		S2, dark brown, PEAT, fine sand, moist	
12						
14						

WELL DIAGRAM



Remarks: Boring Terminated (ft): 14.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

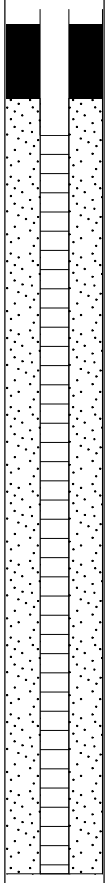
AECOM Boring and Well Construction Log

BORING #: Y9-SB359
WELL ID#: MW-Y9-SB359

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576356.8 **Easting:** 761403.1	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 1.7
Start Date: 4/11/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 34.0
Finish Date: 4/11/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	18	0.0	SM		S1, brown, fine to medium SAND, some silt, little gravel, dry (1.5)	
2	14	0.0	Cinders		S1, black, CINDERS, some glass, little metal, burnt odor, dry to moist (3.0)	2-3
4	12	0.0	SM		S1, gray to brown, fine SAND and SILT, little gravel, little cinders, dry to moist (4.0)	3.5-4
	7	0.0	Rock		S1, light gray, ROCK FRAGMENTS, dry (5.0)	
6	10	0.0	SM		S2, gray, fine to medium SAND, some silt, some rock fragments, mottling, dry to moist (6.5)	
8	44	0.0	Pt		S2, dark brown, PEAT, moist (10.0)	
10		0.0			No Sample	
12						
14						
16						

WELL DIAGRAM



Bentonite
2" Sch 40 PVC

#1 Quartz Sand
2" 0.010 Slotted
Sch 40 PVC

Remarks: Boring Terminated (ft): 34.0
Refusal (ft): 34.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

(Continued Next Page)

AECOM Boring and Well Construction Log

BORING #: Y9-SB359
WELL ID#: MW-Y9-SB359

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576356.8 **Easting:** 761403.1	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 1.7
Start Date: 4/11/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 34.0
Finish Date: 4/11/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth	WELL DIAGRAM
					No Sample *(continued)*		
18							
20							
22							
24							
26							
28							
30							
32							
34					34.0		

Remarks:
Boring Terminated (ft): 34.0
Refusal (ft): 34.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: AA8-SB274

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576431.4 **Easting:** 761385.0	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** Not Observed
Start Date: 12/29/2011	**Drilling Method:** Geoprobe 7720	**Total Depth (ft):** 10.0
Finish Date: 12/29/2011		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	12	0.0	SM		S1, brown, fine to medium SAND, some silt, little gravel , little organics, dry to moist (topsoil) 1.0	0-1
2	16	0.0	SP		S1, brown, fine to medium SAND, some gravel, some silt, moist to wet 2.5	
4	13	0.0	SP		S1, brown, fine SAND, some silt, some gravel, little clay, little cinders, moist 4.0	
	10	0.0	Cinders		S1, black, CINDERS, little wood, trace glass, moist 5.0	4.5-5
	3	0.0	Cinders		S2, SAA 5.5	
6	2	0.0	Fill		S2, light brown, ROCK FRAGMENTS, dry 6.0	
	13	0.0	SP		S2, brown to gray, fine SAND, little silt, little medium to coarse sand, little cinders, moist 7.5	6.5-7.5
8	24	0.0	Pt		S2, dark brown, PEAT, moist	
10					10.0	

Remarks: Boring Terminated (ft): 10.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: AC8-SB459

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Meghan Schaub
Project: Phase II / Phase III Investigation	**Northing:** 576510.7 **Easting:** 761374.8	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 6
Start Date: 7/11/2012	**Drilling Method:** Geoprobe 7720	**Total Depth (ft):** 15.0
Finish Date: 7/11/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	7	0.0	SP		S1, brown, fine to medium SAND, little silt, trace gravel, trace organics, moist (0.6)	
	3	0.0	Rock		S1, light gray, ROCK FRAGMENTS, dry (0.9)	
	10	0.0	SP		S1, light brown to brown, fine SAND, some medium sand, some silt, trace gravel, moist (3.0)	
2						
	11	0.0	SP		S1, light gray, fine SAND, little medium sand, trace gravel, moist (4.0)	
4						
	8	0.2	SM		S1, dark brown, fine to medium SAND AND SILT, little gravel, moist (5.0)	4-5
	12	0.0	MH		S2, dark brown to black, SILT, some fine sand, some peat, little wood, moist (8.0)	
6						
						7-8
8						
	12	0.0	MH		S2, brownish gray, SILT, little fine sand, little wood, trace gravel, moist (9.0)	
	6	0.0	MH		S2, grayish brown, SAND, little silt, trace wood, moist (10.0)	
10						
	24	0.0	Pt		S3, dark brown, PEAT, some wood, little gravel, little sand, moist (13.0)	
12						12-13
	14	0.0	OH-Pt		S3, dark brown, SILTY PEAT, some wood, little gravel, trace clay, moist (15.0)	
14						

Remarks: Boring Terminated (ft): 15.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: AK10-SB276

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576838.3 **Easting:** 761413.5	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 12/29/2011	**Drilling Method:** Geoprobe 7720	**Total Depth (ft):** 43.0
Finish Date: 4/11/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	10	0.0	SP		S1, dark brown, fine SAND, some silt, little gravel, dry to moist (1.0)	0-1
2	10	0.0	Rock		S1, light gray, ROCK FRAGMENTS, little fine sand, little silt, trace brick, dry (2.5)	
4	22	0.0	SP		S1, gray to brown, fine to medium SAND, little silt, iron oxide staining, moist (5.0)	2.5-3.5
6	18	0.0	SP		S2, gray to brown, fine SAND, little silt, little clay, iron oxide staining, moist (7.0)	5-6
8	2	0.0	SW		S2, pink to brown, SAND, some gravel, little silt, dry (7.2)	
	6	0.0	SM		S2, gray, fine SAND, some silt, little clay, iron oxide staining, moist (7.8)	
	6	0.0	SP		S2, brown, medium SAND, little silt, little gravel, moist to wet (8.5)	
	6	0.0	Pt		S2, dark brown, PEAT, little fine sand, little silt, moist (9.5)	
10	3	0.0	SM		S2, gray, fine to medium SAND, some silt, little clay, some gravel, wet (10.0)	
12					No Sample. Samples and lithology collected on 12/29/2011. Probed to refusal on 4/11/2012.	
14						
16						
18						
20						
22						

Remarks: Boring Terminated (ft): 43.0

Refusal (ft): 43.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

(Continued Next Page)

Boring Log

BORING #: AK10-SB276

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576838.3 **Easting:** 761413.5	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 12/29/2011	**Drilling Method:** Geoprobe 7720	**Total Depth (ft):** 43.0
Finish Date: 4/11/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
22					No Sample. Samples and lithology collected on 12/29/2011. Probed to refusal on 4/11/2012. *(continued)*	
24						
26						
28						
30						
32						
34						
36						
38						
40						
42						
					43.0	

Remarks: Boring Terminated (ft): 43.0

Refusal (ft): 43.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: Q8-SB412

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576034.6 **Easting:** 761435.8	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 6/28/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 15.0
Finish Date: 6/28/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	4	0.0	SM	0.3	S1, reddish brown, fine to medium SAND, some silt, moist	
	2	0.0	Rock	0.5	S1, brown, coarse ROCK FRAGMENTS, some fine to medium sand, little gravel, moist	
	5	0.0	SP	1.0	S1, olive brown, fine SAND, some silt, some gravel, little medium to coarse sand, dry to moist	
	18	0.0	SP		S1, brownish gray, fine to medium SAND, some gravel, some silt, trace asphalt, dry to moist	
2						2-3
4				4.0		
	9	0.0	SM	5.0	S1, dark gray, fine to medium SAND, some silt, little gravel, dry to moist	4-5
	20	0.0	Pt	7.0	S2, dark brown, PEAT, little fine to medium sand, little silt, moist	
6						
	16	0.0	SP	8.5	S2, gray, fine to medium SAND, some gravel, some silt, wet	
8						
	6	0.0	SW	9.2	S2, gray to brown, SAND, some gravel, little silt, mottling, wet	
	7	0.0	SM	10.0	S2, olive brown, fine SAND and SILT, little clay, wet	
10						
	16	0.0	SW	11.3	S3, brown, SAND, some gravel, little silt, wet	
	26	0.0	SP	13.5	S3, brown, fine to medium SAND, little coarse sand, little silt, iron oxide staining, wet	11.5-12.5
12						
	3	0.0	SW	13.8	S3, olive brown, SAND, some gravel, some silt, little clay, wet	
14	15	0.0	Rock	15.0	S3, gray to black, WEATHERED BEDROCK, little gravel, little fine sand, wet	

Remarks: Boring Terminated (ft): 15.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

AECOM

Boring Log

BORING #: S9-SB236

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Tony Wong-Li
Project: Phase II / Phase III Investigation	**Northing:** 576119.0 **Easting:** 761465.3	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 7
Start Date: 12/27/2011	**Drilling Method:** Geoprobe 7822	**Total Depth (ft):** 15.0
Finish Date: 12/27/2011		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	12	0.0	SP		S1, brown, fine to medium SAND, trace silt, trace organics, dry (1.0)	
	12	0.0	SP		S1, brown, fine to medium SAND, trace silt, dry (2.5)	1-2
2	18	0.0	SP		S1, black, fine to medium SAND, little fine gravel, trace silt, moist to wet (5.0)	2.5-3.5
4	12	0.0	SP		S2, SAA (7.0)	
6						6-7
	12	0.0	SM		S2, light brown, fine SAND and SILT, trace organics, wet (10.0)	
8						
10	60	0.0	SP-SM		S3, light brown, SAND, little fine gravel, trace silt, wet (15.0)	
12						
14						

Remarks: Boring Terminated (ft): 15.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: V9-SB234

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Tony Wong-Li
Project: Phase II / Phase III Investigation	**Northing:** 576238.1 **Easting:** 761450.1	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 7
Start Date: 12/27/2011	**Drilling Method:** Geoprobe 7822	**Total Depth (ft):** 15.0
Finish Date: 12/27/2011		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	6	0.0	SM		S1, brown, fine to medium SAND and SILT, trace organics, dry (0.5)	
	24	0.0	SP		S1, light brown, fine to medium SAND, trace fine gravel, dry (2.5)	0.5-2.5
2						
	24	0.0	SM		S1, black, fine SAND and SILT, some organics, some wood, moist to wet (4.5)	2.5-4.5
4						
	6	0.0	GW		S1, gray, SAND and GRAVEL, trace silt, moist to wet (5.0)	
	24	0.0	GW		S2, gray, SAND and fine GRAVEL, trace silt, moist to wet (7.0)	
6						6-7
	36	0.0	SM-PT		S2, brown, fine SAND, SILT and ORGANICS, wet (10.0)	
8						
10						
	36	0.0	SM		S3, brown to gray, SAND, some silt, trace fine gravel, iron oxide staining at 14 -15', wet (15.0)	
12						
14						

Remarks: Boring Terminated (ft): 15.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

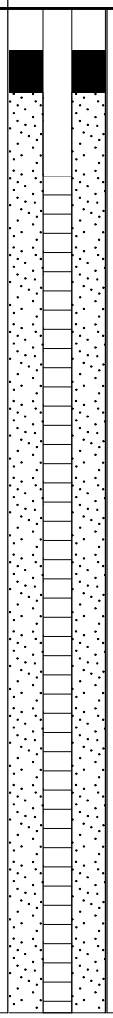
AECOM Boring and Well Construction Log

BORING #: AE8-SB275
WELL ID#: MW-AE8-SB275

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576594.6 **Easting:** 761368.0	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 7
Start Date: 2/13/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 12.0
Finish Date: 2/13/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	10	0.0	SM		S1, brown, fine SAND, some silt, little medium to coarse sand, moist to wet (1.0)	0-1
	6	0.0	Rock		S1, light gray, ROCK FRAGMENTS, dry (2.5)	
2	13	0.0	SM		S1, black, fine SAND, some silt, some gravel, trace glass, moist (5.0)	3-5
4	22	0.0	SM		S2, dark brown, fine to medium SAND, some silt, little gravel, dry to moist (7.0)	5-6
6	32	0.0	SW		S2, gray to brown, SAND, trace silt, iron oxide staining at 9.5', wet (12.0)	7-8
8						
10						
12						

WELL DIAGRAM



Bentonite
2" Sch 40 PVC

#1 Quartz Sand

2" 0.010 Slotted
Sch 40 PVC

Remarks: Boring Terminated (ft): 12.0

Refusal (ft): 12.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

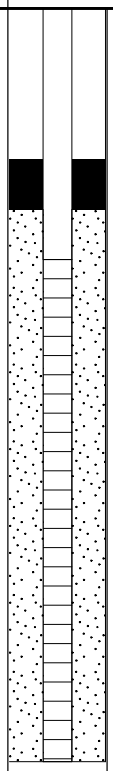
AECOM Boring and Well Construction Log

BORING #: Y15-SB310
WELL ID#: MW-Y15-SB310

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** J.Tomlin/J.Honda
Project: Phase II / Phase III Investigation	**Northing:** 576391.1 **Easting:** 761676.4	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 5.8
Start Date: 4/9/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 50.0
Finish Date: 4/9/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	48	0.0	SP		S1, brown, fine to medium SAND, dry (1.5)	
2		0.0	ML		S1, brown, SILT, little sand, little gravel, dry (4.5)	2.5-3
4		0.0	SP		S1, gray, fine to medium SAND, some coarse gravel, dry (5.0)	
	40	0.0	ML		(5.5)	
6		0.0	ML		S2, dark gray, SILT, some sand, dry to moist; S2, brown to gray, SILT, some fine sand, dry to moist (7.0)	
8		0.0	SP		S2, gray, fine to medium SAND, some coarse gravel, dry (8.5)	
10		1.0	SP		S2, black to reddish brown, fine to medium SAND, some brick, little silt, little cinders, little glass, little wood, moist (10.0)	
12	52	0.8	MH		S3, dark gray to black, SILT, some sand, wet (12.0)	10-11
14		0.2	SP		S3, light gray to gray, medium to coarse SAND, little silt, some fine gravel, dry to moist (13.5)	13-13.5
		0.0	Pt		S3, dark brown, PEAT, moist (15.0)	
16					No Sample	
18						
20						
22						
24						

WELL DIAGRAM



2" Sch 40 PVC

Bentonite

#1 Quartz Sand

2" 0.010 Slotted Sch 40 PVC

Remarks: Boring Terminated (ft): 50.0

Refusal (ft): 50.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

(Continued Next Page)

AECOM Boring and Well Construction Log

BORING #: Y15-SB310
WELL ID#: MW-Y15-SB310

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** J.Tomlin/J.Honda
Project: Phase II / Phase III Investigation	**Northing:** 576391.1 **Easting:** 761676.4	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 5.8
Start Date: 4/9/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 50.0
Finish Date: 4/9/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth	WELL DIAGRAM
26					No Sample *(continued)*		
28							
30							
32							
34							
36							
38							
40							
42							
44							
46							
48							
50					50.0		

Remarks:

Boring Terminated (ft): 50.0

Refusal (ft): 50.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

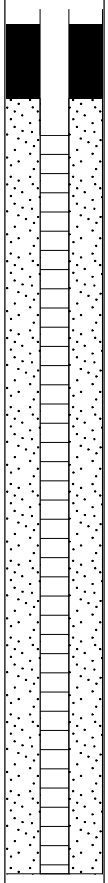
AECOM Boring and Well Construction Log

BORING #: Y9-SB359
WELL ID#: MW-Y9-SB359

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576356.8 **Easting:** 761403.1	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 1.7
Start Date: 4/11/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 34.0
Finish Date: 4/11/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	18	0.0	SM		S1, brown, fine to medium SAND, some silt, little gravel, dry (1.5)	
2	14	0.0	Cinders		S1, black, CINDERS, some glass, little metal, burnt odor, dry to moist (3.0)	2-3
4	12	0.0	SM		S1, gray to brown, fine SAND and SILT, little gravel, little cinders, dry to moist (4.0)	3.5-4
	7	0.0	Rock		S1, light gray, ROCK FRAGMENTS, dry (5.0)	
6	10	0.0	SM		S2, gray, fine to medium SAND, some silt, some rock fragments, mottling, dry to moist (6.5)	
8	44	0.0	Pt		S2, dark brown, PEAT, moist (10.0)	
10		0.0			No Sample	
12						
14						
16						

WELL DIAGRAM



Bentonite
2" Sch 40 PVC

#1 Quartz Sand
2" 0.010 Slotted
Sch 40 PVC

Remarks: Boring Terminated (ft): 34.0
Refusal (ft): 34.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

(Continued Next Page)

AECOM Boring and Well Construction Log

BORING #: Y9-SB359
WELL ID#: MW-Y9-SB359

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576356.8 **Easting:** 761403.1	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 1.7
Start Date: 4/11/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 34.0
Finish Date: 4/11/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth	WELL DIAGRAM
					No Sample *(continued)*		
18							
20							
22							
24							
26							
28							
30							
32							
34					34.0		

Remarks:
Boring Terminated (ft): 34.0
Refusal (ft): 34.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: Y12-SB235

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Tony Wong-Li
Project: Phase II / Phase III Investigation	**Northing:** 576367.3 **Easting:** 761514.2	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 7
Start Date: 12/27/2011	**Drilling Method:** Geoprobe 7822	**Total Depth (ft):** 15.0
Finish Date: 12/27/2011		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	6	0.0	SM		S1, brown, fine to medium SAND and SILT, trace organics, dry (0.5)	
	24	0.0	SP		S1, light brown, fine to medium SAND, trace silt, dry (3.0)	0.5-2.5
2						
	12	0.0	Fill		S1, light brown, SAND, little silt, trace fine gravel, dry to moist (4.5)	
4						
	6	0.0	SP		S1, black, fine to medium SAND, trace fine gravel, trace silt, wet (5.0)	
	6	0.0	SP		S2, SAA (6.0)	5-6
6						
	24	0.0	SP		S3, light brown, fine to medium SAND, trace silt, wet (8.0)	
8						
	24	0.0	SP-Pt		S3, black, fine to medium SAND, trace organics, trace wood, wet (10.0)	8-10
10						
	60	0.0	SM		S3, brown, SAND and SILT, wet (15.0)	
12						
14						14-15

Remarks: Boring Terminated (ft): 15.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: Y13-SB315

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** J.Tomlin/J.Honda
Project: Phase II / Phase III Investigation	**Northing:** 576377.4 **Easting:** 761593.5	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 7.0
Start Date: 4/9/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 7.0
Finish Date: 4/9/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	32	0.0	SM		S1, brown, fine to medium SAND, some silt, dry (1.5)	
		0.0	Rock		S1, light gray, ROCK FRAGMENTS, dry (2.0)	
2		0.0	SP		S1, light brown, fine to medium SAND, little silt, dry to moist (3.5)	
		0.0	SM		S1, gray, fine to medium SAND, some silt, trace brick, dry to moist (5.0)	
4						4.5-5
	14	0.0	SM		S2, brown, fine to medium SAND, some silt, dry to moist (6.0)	
6		0.0	SW		S2, gray, SAND, some medium to coarse gravel, little silt, dry (7.0)	6-7

Remarks: Boring Terminated (ft): 7.0

Refusal (ft): 7.0

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: Y14-SB314

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** J.Tomlin/J.Honda
Project: Phase II / Phase III Investigation	**Northing:** 576382.5 **Easting:** 761633.2	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):**
Start Date: 4/9/2012	**Drilling Method:** Geoprobe	**Total Depth (ft):** 15.0
Finish Date: 4/9/2012		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	28	0.0	SM		S1, brown, fine to medium SAND, some silt, dry to moist (2.0)	
2		0.0	SP		S1, brown, fine to medium SAND, little silt, trace medium to coarse gravel, dry (5.0)	4-4.5
4	34	0.0	SP		S2, SAA (5.5)	
		0.0	SP		S2, brown to bray, fine to medium SAND, trace silt, dry to moist (6.5)	
6		0.0	SP		S2, light gray, fine to medium SAND, some gravel, moist (8.5)	
8		2.0	SP-Brick		S2, black, fine to medium SAND, some brick, some wood, little silt, moist (10.0)	9-10
10	40	0.3	SP-Brick		S3, SAA (10.5)	
		0.0	SM		S3, gray to black, fine to medium SAND, some silt, little clay, wet (13.0)	12.5-13.5
12		0.0	SW		S3, gray, SAND, some coarse gravel, dry (14.5)	
14		0.0	Pt		S3, dark brown, PEAT, moist (15.0)	

Remarks: Boring Terminated (ft): 15.0

Refusal (ft): Redrilled to Refusal (53') on 4/12/2012

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

Boring Log

BORING #: Y19-SB265

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576407.9 **Easting:** 761831.6	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** 14
Start Date: 12/28/2011	**Drilling Method:** Geoprobe 7720	**Total Depth (ft):** 15.0
Finish Date: 12/28/2011		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0	5	0.0	Asphalt		S1, black, ASPHALT, dry (0.5)	
	22	0.0	SM		S1, brown, fine to medium SAND, some silt, some gravel, little clay, dry (5.0)	3-4 4-5
2						
4						
	10	0.0	SM		S2, dark gray to brown, fine to medium SAND, some silt, some gravel, little organics, dry (6.0)	5-6
6	18	0.0	ML		S2, dark gray to brown, SILT, little fine sand, little organics, moist (7.5)	
8	20	0.0	Pt		S2, dark brown, PEAT, moist (9.5)	
10	6	0.0	SM		S2, gray, fine to medium SAND, some silt, some gravel, moist (10.0)	
	16	0.0	ML		S3, dark gray to brown, SILT, some organics, moist (12.0)	
12	6	0.0	Pt		S3, dark brown, PEAT, moist (12.5)	
	14	0.0	ML		S3, gray to brown, SILT, little organics, little clay, moist (14.0)	
14	8	0.0	SW		S3, gray, SAND, some gravel, some silt, wet (15.0)	

Remarks: Boring Terminated (ft): 15.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

AECOM

Boring Log

BORING #: Y7-SB273

Client: Town of Greenwich, CT	**Location:** Greenwich High School	**Logged By:** Ann Bogucki
Project: Phase II / Phase III Investigation	**Northing:** 576346.9 **Easting:** 761355.4	**Drilling Company:** ADT
Project #: 60225155.0500	**Ground Elevation (msl):** NA	**Water Level (ft):** Not Observed
Start Date: 12/29/2011	**Drilling Method:** Geoprobe 7720	**Total Depth (ft):** 10.0
Finish Date: 12/29/2011		

Depth (ft bgs)	Recovery Length (inches)	PID (ppm)	USCS Code	Graphic	Soil and Rock Description	Lab Sample Collection Depth
0						
	15	0.0	SM		S1, brown, fine SAND, some silt, some gravel, little medium to coarse sand, dry to moist	0-1
2					2.0	
	18	0.0	Cinders		S1, black, CINDERS, little gravel, little glass, little brick, slight burnt odor, dry to moist	3-5
4						
					5.0	
	7	0.0	SP		S2, light brown, fine to medium SAND, little silt, little cinders, little gravel, dry to moist	5-6
6					6.0	
	4	0.0	Pt		S2, brown to black, PEAT, little cinders, moist	
					6.5	
	20	0.0	Pt		S2, dark brown, PEAT, trace wood, moist	7-8
8						
10					10.0	

Remarks: Boring Terminated (ft): 10.0

Refusal (ft):

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067
Phone: (860) 263-5800
Fax: (860) 263-5777

ENGINEERED SOLUTIONS — LAND STRUCTURES WATER

DIVERSIFIED TECHNOLOGY CONSULTANTS

Subsurface Log

Sheet 1 of 1

Date started: 8/10/11
Date Completed: 8/10/11

BORING No. SB-63

Project: Greenwich High School
Location: Greenwich, CT

Method of investigation: Geoprobe

Project No.: 10-161-101
P. Manager: Chris Koelle

Drilling Co.: Moran
Geologist: J. Vossler

Driller: Matt
D. Helper:

Drill Rig: Geoprobe
Weather: 80's, sunny

Depth (ft.)	Sample No.	Sample Depth (ft.)	Recovery (in.)	Sample Description	Field Screening Readings	Sample Interval (ft.)
0-5		0-0.9		Dark-brown M SAND, with glass, asphalt		0-1
		0.9-1.1		ROCK	0-2 = 0.5ppm	1-2
		1.1-3.3	44	Gray-black M SAND, with glass, wood		2-3
		3.3-3.4		ROCK	2-3.7 = 0.3ppm	3-3.7
		3.4-3.7		Black M SAND, no odor		
5-10		5-6.3		Black M SAND, no odor, damp @ 6.1'		
		6.3-6.6		Concrete	5-7 = 2.4ppm	5-6
		6.6-7.2	48	Black M SAND		6-7
		7.2-7.6		Gray to brown M SAND and SILT	7-9 = 0.1ppm	7-8
		7.6-8.5		Light-brown M SAND and SILT		8-9
		8.5-9		Gray-brown M SAND and SILT		
10-15		10-11.3		Light-brown to gray M SAND and SILT		10-11
					10-12.5 = 0.1ppm	11-12
		11.3-15	60	Dark-brown PEAT		12-13
					12.5-15 = 0.1ppm	13-14
						14-15
				END OF BORING @ 15'		

Sample Types:

S=Split Spoon: T= Shelby Tube: _____

R= Rock Core: O = Other: Macro Core

SAA = Same As Above

ENGINEERED SOLUTIONS — LAND STRUCTURES WATER DIVERSIFIED TECHNOLOGY CONSULTANTS	**Subsurface Log**	**Sheet** 1 of 1	***Date started:*** 8/10/11 ***Date Completed:*** 8/10/11	**BORING No.**	**SB-66**
	Project: Greenwich High School ***Location:*** Greenwich, CT			***Method of investigation:*** Geoprobe	
Project No.: 10-161-101 ***P. Manager:*** Chris Koelle	***Drilling Co.:*** Moran ***Geologist:*** J. Vossler		***Driller:*** Matt ***D. Helper:***	***Drill Rig:*** Geoprobe	***Weather:*** 80's, sunny

Depth (ft.)	Sample No.	Sample Depth (ft.)	Recovery (in.)	Sample Description	Field Screening Readings	Sample Interval (ft.)
0-5		0-0.3		Topsoil		
		0.3-1.5		Brown F-M SAND, some F gravel, with asphalt		0-1
		1.5-1.8	32	ROCK	0-2.7 = 1.1ppm	1-2
		1.8-2.5		Dark-brown to gray M SAND, with brick		2-2.7
		2.5-2.7		Black M SAND, with wood and brick, no odor		
5-10		5-5.6		SAA		
		5.6-6.6		Gray F-M SAND, some F gravel		5-6
		6.6-7.1		ROCK	5-7.5 = 1.5ppm	6-7
		7.1-7.6	60	Gray F-M SAND, some F gravel		7-8
		7.6-9		Brown to gray M SAND, some silt, damp @ 7.6'	7.5-10 = 1.0ppm	8-9
		9-9.2		ROCK		9-10
		9.2-10		Brown-gray M SAND and GRAVEL		
10-15		10-11		Brown-gray M SAND and GRAVEL, wet @ 10'		10-11
			12		10-11 = 0.0ppm	
				END OF BORING @ 11'		

Sample Types:

S=Split Spoon: T= Shelby Tube: _____

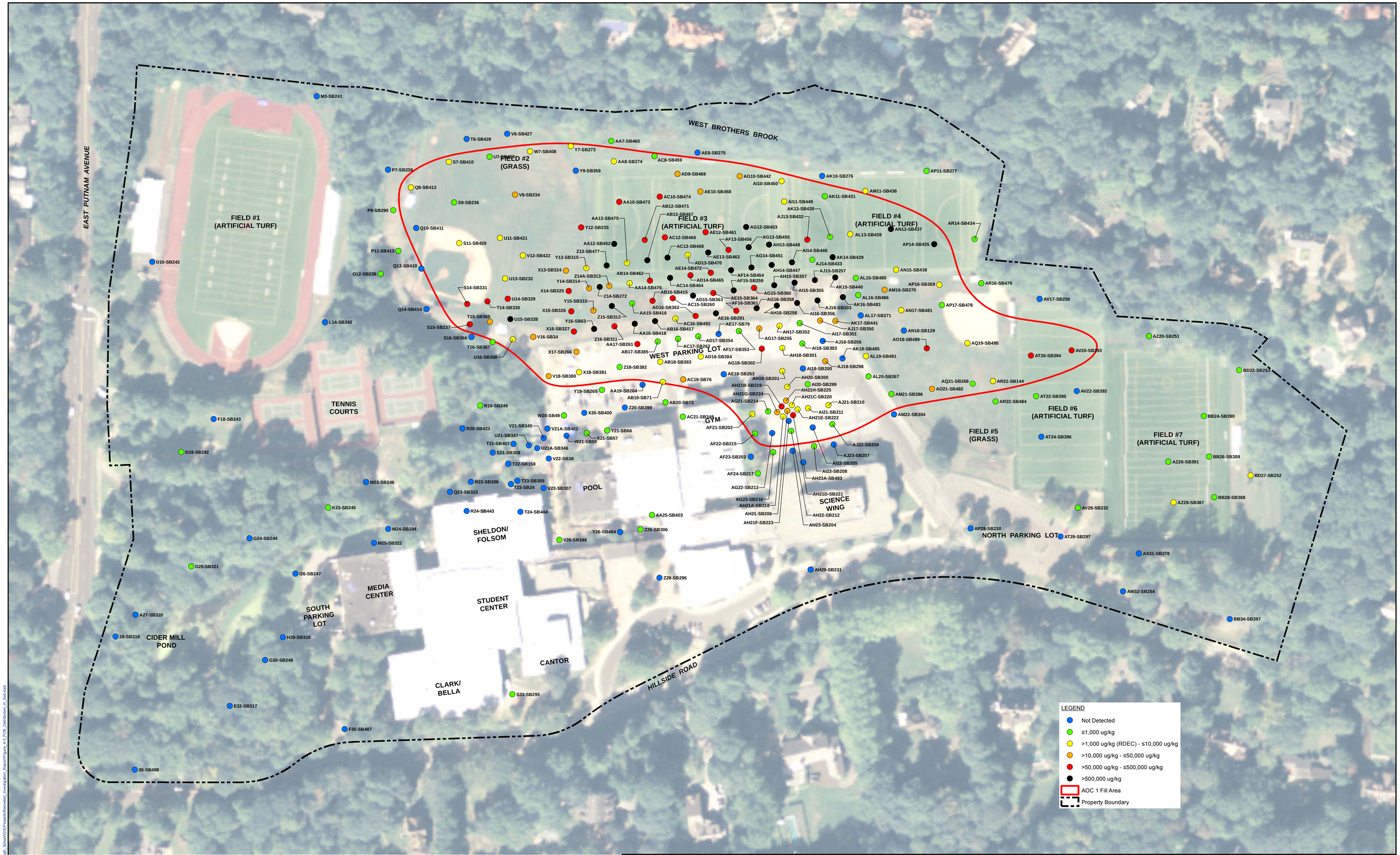
R= Rock Core: O = Other: Macro Core

Groundwater @ 10'

SAA = Same As Above

Appendix D

Selected Figures from the Remedial Investigation Report



SOURCE:
2010 AERIAL ORTHOPHOTO FROM STATE OF CONNECTICUT
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION.

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

N

SCALE:

1" = 80'

0 40 80 160 240 Feet

SCALE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE ROAD
GREENWICH, CT

FIGURE 4-3
PCB DISTRIBUTION IN SOIL
REMEDIAL INVESTIGATION REPORT

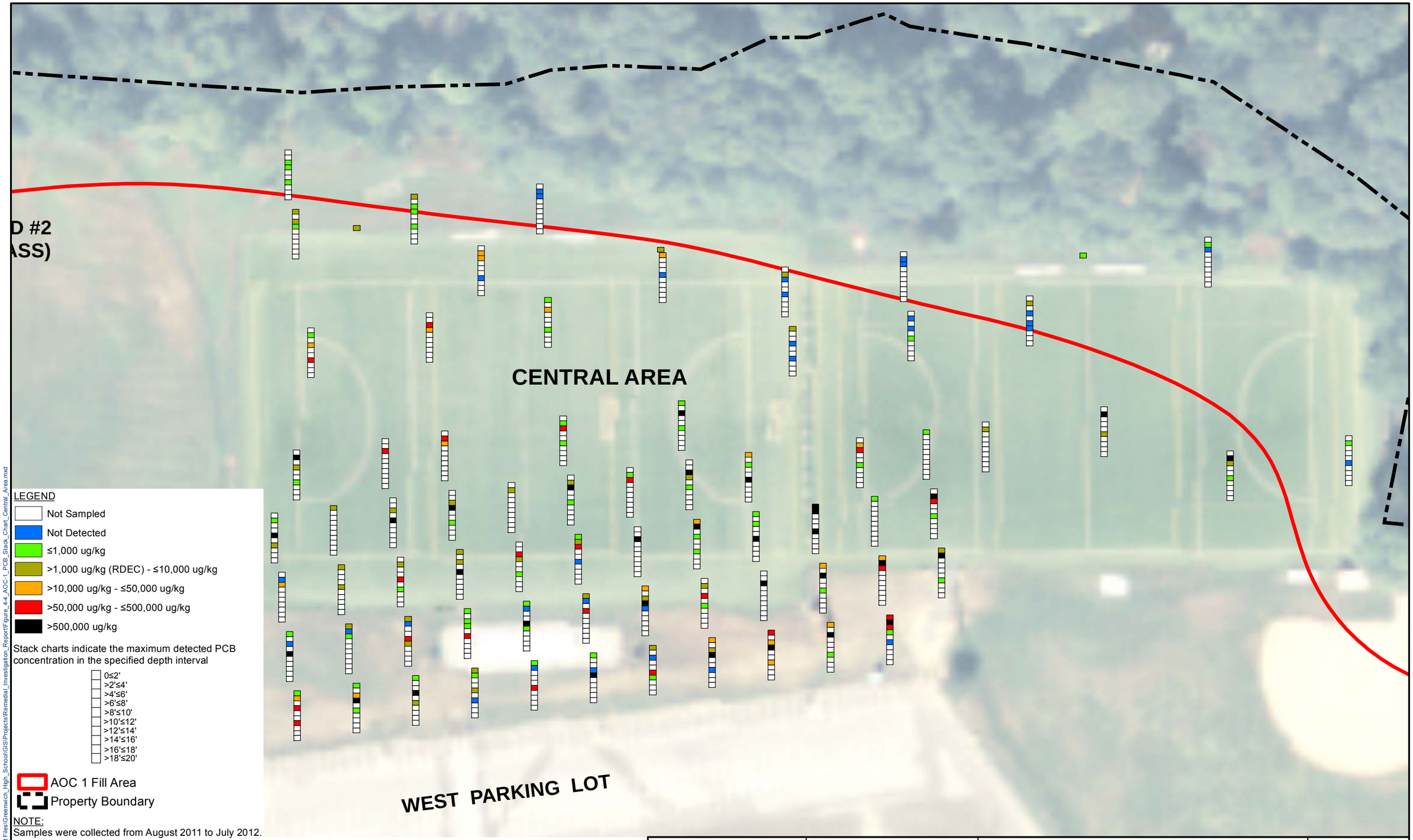
JOB 60225155

FILE NO.

CAD FILE

SHEET

Path: J:\Hub_Services\Project Files\Greenwich_High_School\02\Projects\Remedial_Investigation_Report\Figure_4-3_PCB_Distribution_in_Soil.mxd



NOTE:
Samples were collected from August 2011 to July 2012.

SOURCE:
2010 AERIAL ORTHOPHOTO FROM STATE OF CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION.

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

N

SCALE:
1" = 60'
0 30 60 Feet

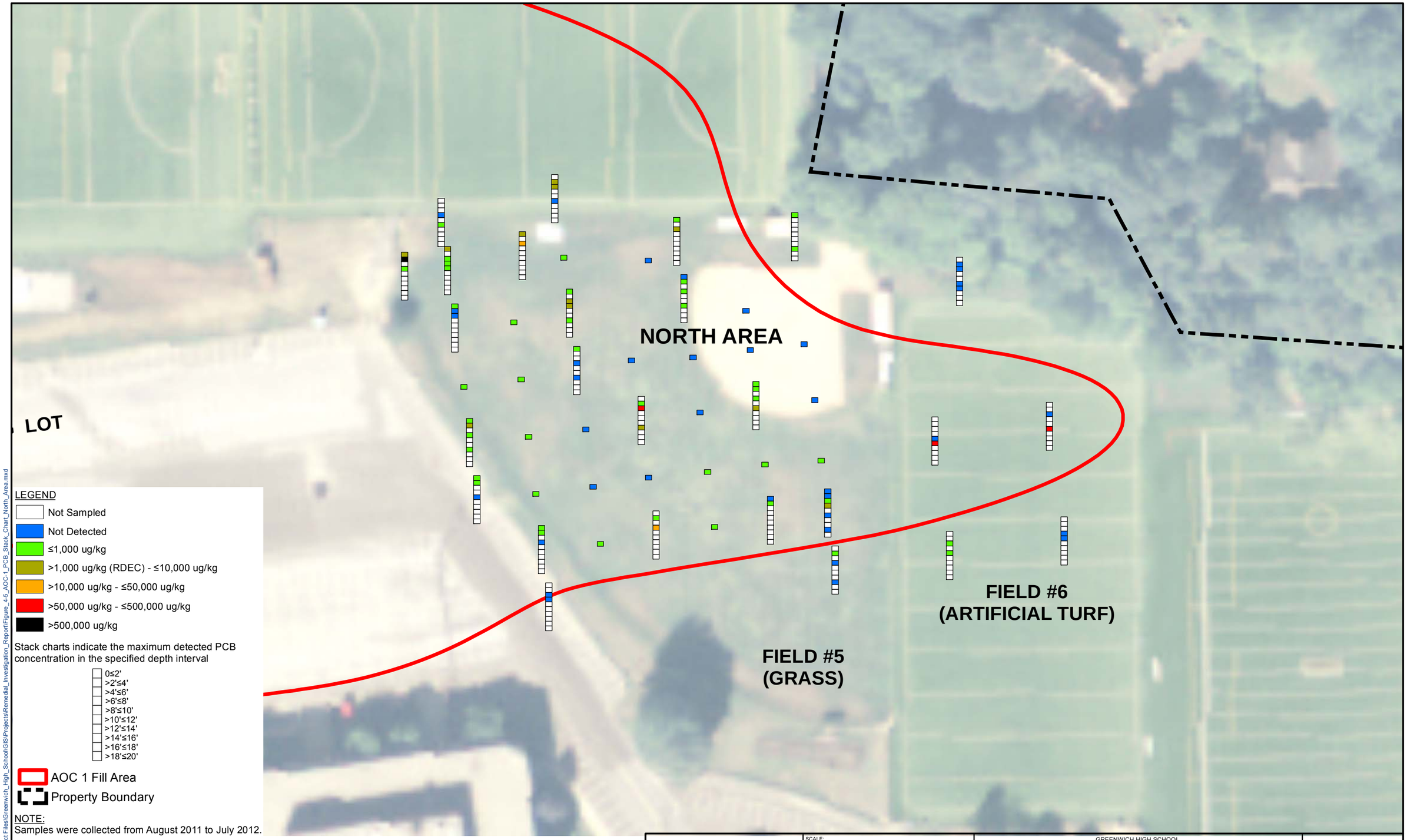
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE ROAD
GREENWICH, CT

FIGURE 4-4
AOC-1 PCB STACK CHART CENTRAL AREA
REMEDIAL INVESTIGATION REPORT

JOB 60225155
FILE NO.
CAD FILE
SHEET

Path: J:\Ind_Service\Project Files\Greenwich_High_School\GIS\Projects\Remedial_Investigation_Report\Figure_4-4_AOC-1_PCB_Stack_Chart_Central_Area.mxd



SOURCE:
2010 AERIAL ORTHOPHOTO FROM STATE OF CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION.

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

N

SCALE:
1" = 60'
0 30 60 Feet

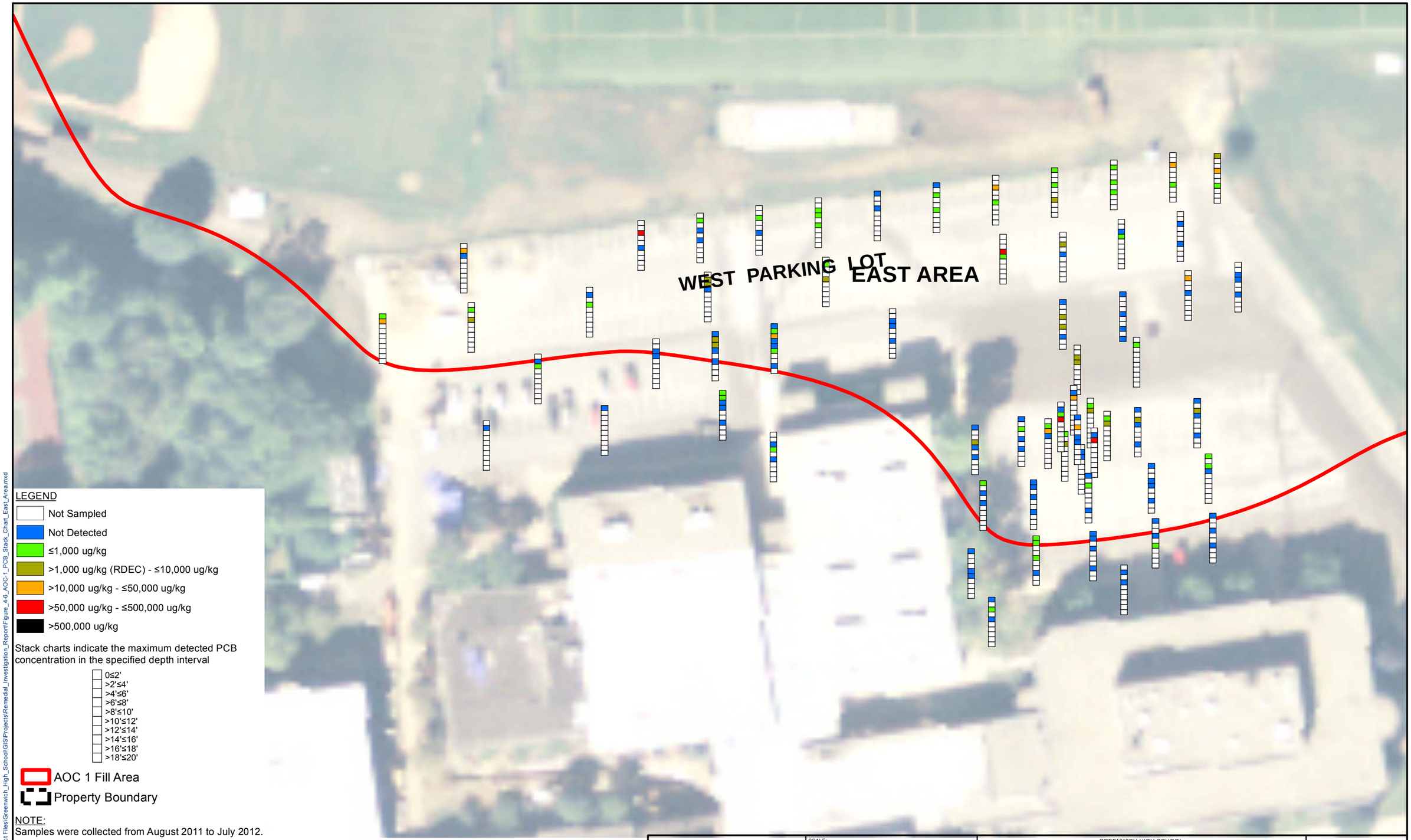
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE ROAD
GREENWICH, CT

FIGURE 4-5
AOC-1 PCB STACK CHART NORTH AREA
REMEDIAL INVESTIGATION REPORT

JOB 60225155
FILE NO.
CAD FILE
SHEET

Path: J:\Ind_Service\Project Files\Greenwich_High_School\GIS\Projects\Remedial_Investigation_Report\Figure_4-5_AOC-1_PCB_Stack_Chart_North_Area.mxd



LEGEND

- Not Sampled
- Not Detected
- ≤1,000 ug/kg
- >1,000 ug/kg (RDEC) - ≤10,000 ug/kg
- >10,000 ug/kg - ≤50,000 ug/kg
- >50,000 ug/kg - ≤500,000 ug/kg
- >500,000 ug/kg

Stack charts indicate the maximum detected PCB concentration in the specified depth interval

- 0≤2'
- >2'≤4'
- >4'≤6'
- >6'≤8'
- >8'≤10'
- >10'≤12'
- >12'≤14'
- >14'≤16'
- >16'≤18'
- >18'≤20'

- AOC 1 Fill Area
- Property Boundary

NOTE:
Samples were collected from August 2011 to July 2012.

SOURCE:
2010 AERIAL ORTHOPHOTO FROM STATE OF CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION.

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

N

SCALE:
1" = 60'
0 30 60 Feet

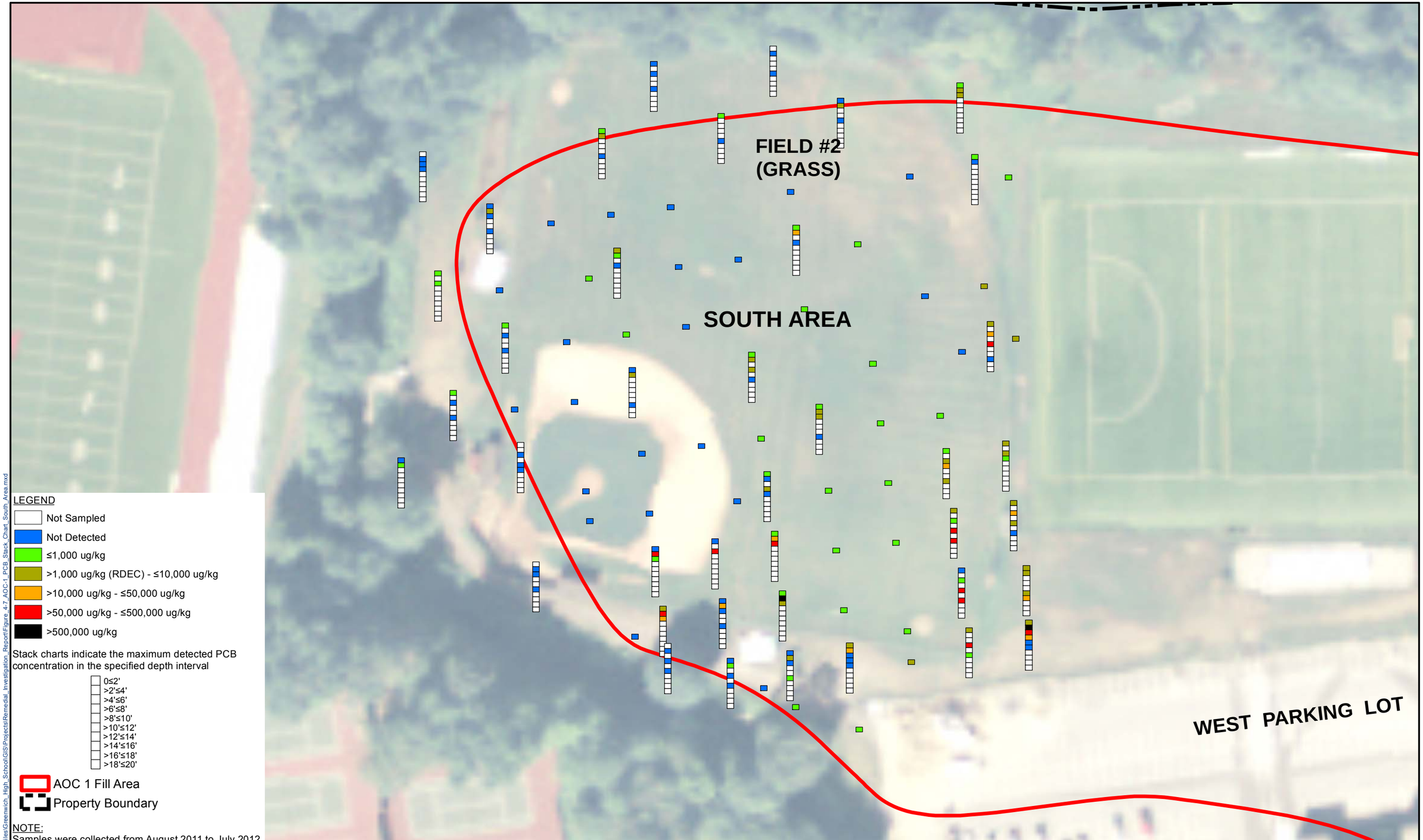
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE ROAD
GREENWICH, CT

FIGURE 4-6
AOC-1 PCB STACK CHART EAST AREA
REMEDIAL INVESTIGATION REPORT

JOB 60225155
FILE NO.
CAD FILE
SHEET

Path: J:\Ind_Service\Project Files\Greenwich_High_School\GIS\Projects\Remedial_Investigation_Report\Figure_4-6_AOC-1_PCB_Stack_Chart_East_Area.mxd



LEGEND

- Not Sampled
- Not Detected
- ≤1,000 ug/kg
- >1,000 ug/kg (RDEC) - ≤10,000 ug/kg
- >10,000 ug/kg - ≤50,000 ug/kg
- >50,000 ug/kg - ≤500,000 ug/kg
- >500,000 ug/kg

Stack charts indicate the maximum detected PCB concentration in the specified depth interval

- 0≤2'
- >2'≤4'
- >4'≤6'
- >6'≤8'
- >8'≤10'
- >10'≤12'
- >12'≤14'
- >14'≤16'
- >16'≤18'
- >18'≤20'

- AOC 1 Fill Area
- Property Boundary

NOTE:
Samples were collected from August 2011 to July 2012.

SOURCE:
2010 AERIAL ORTHOPHOTO FROM STATE OF CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION.

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

N

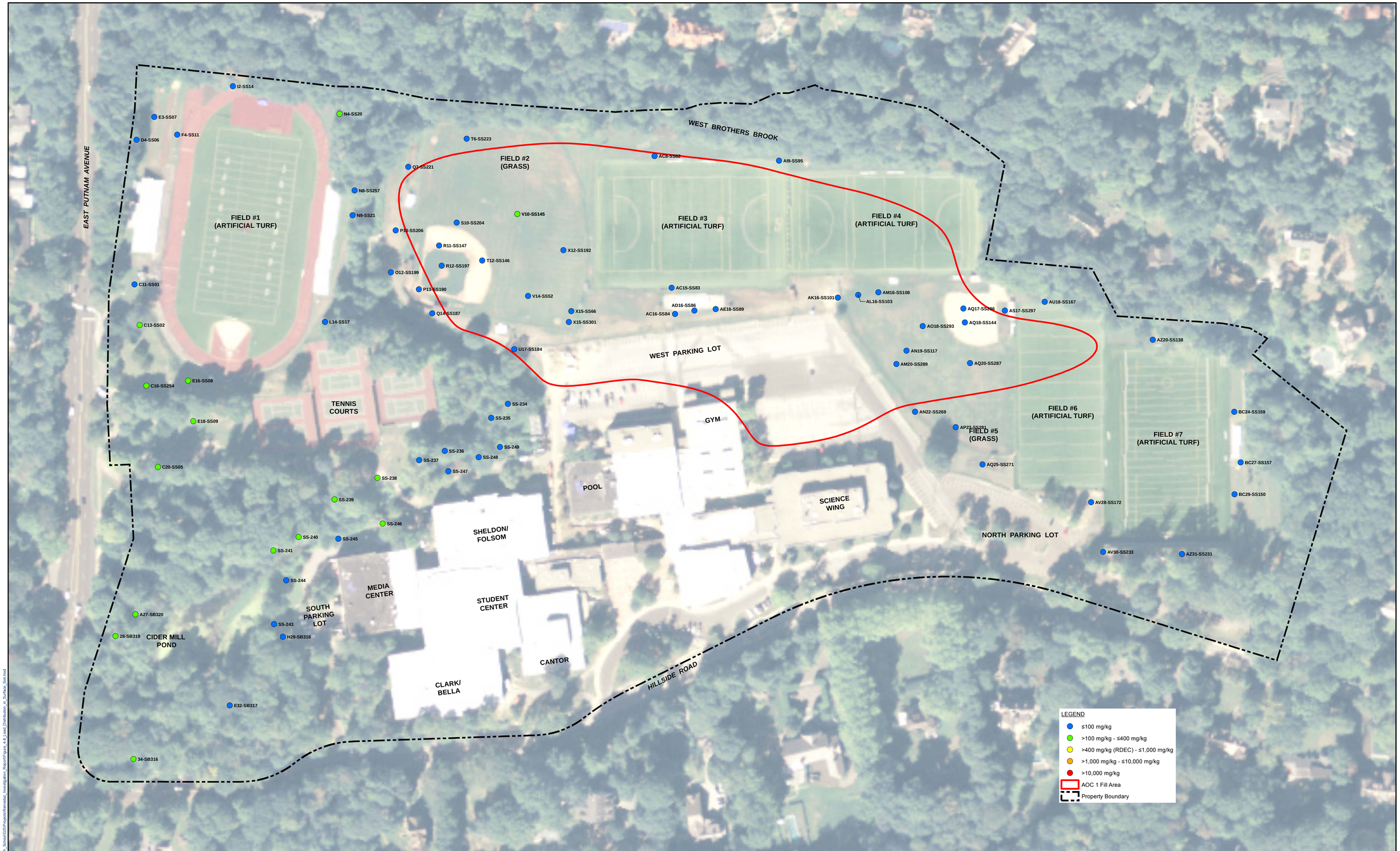
SCALE:
1" = 60'
0 30 60 Feet

GREENWICH HIGH SCHOOL
10 HILLSIDE ROAD
GREENWICH, CT

FIGURE 4-7
AOC-1 PCB STACK CHART SOUTH AREA
REMEDIAL INVESTIGATION REPORT

JOB 60225155
FILE NO.
CAD FILE
SHEET

Path: J:\Indl_Service\Project Files\Greenwich_High_School\GIS\Projects\Remedial_Investigation_Report\Figure_4-7_AOC-1_PCB_Stack_Chart_South_Area.mxd



SOURCE:
2010 AERIAL ORTHOPHOTO FROM STATE OF CONNECTICUT
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION.

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

N

SCALE:

1" = 80'

0 40 80 160 240 Feet

SCALE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE ROAD
GREENWICH, CT

FIGURE 4-8
LEAD DISTRIBUTION IN SURFACE SOIL
(DEPTH INTERVAL 0-1')
REMEDIAL INVESTIGATION REPORT

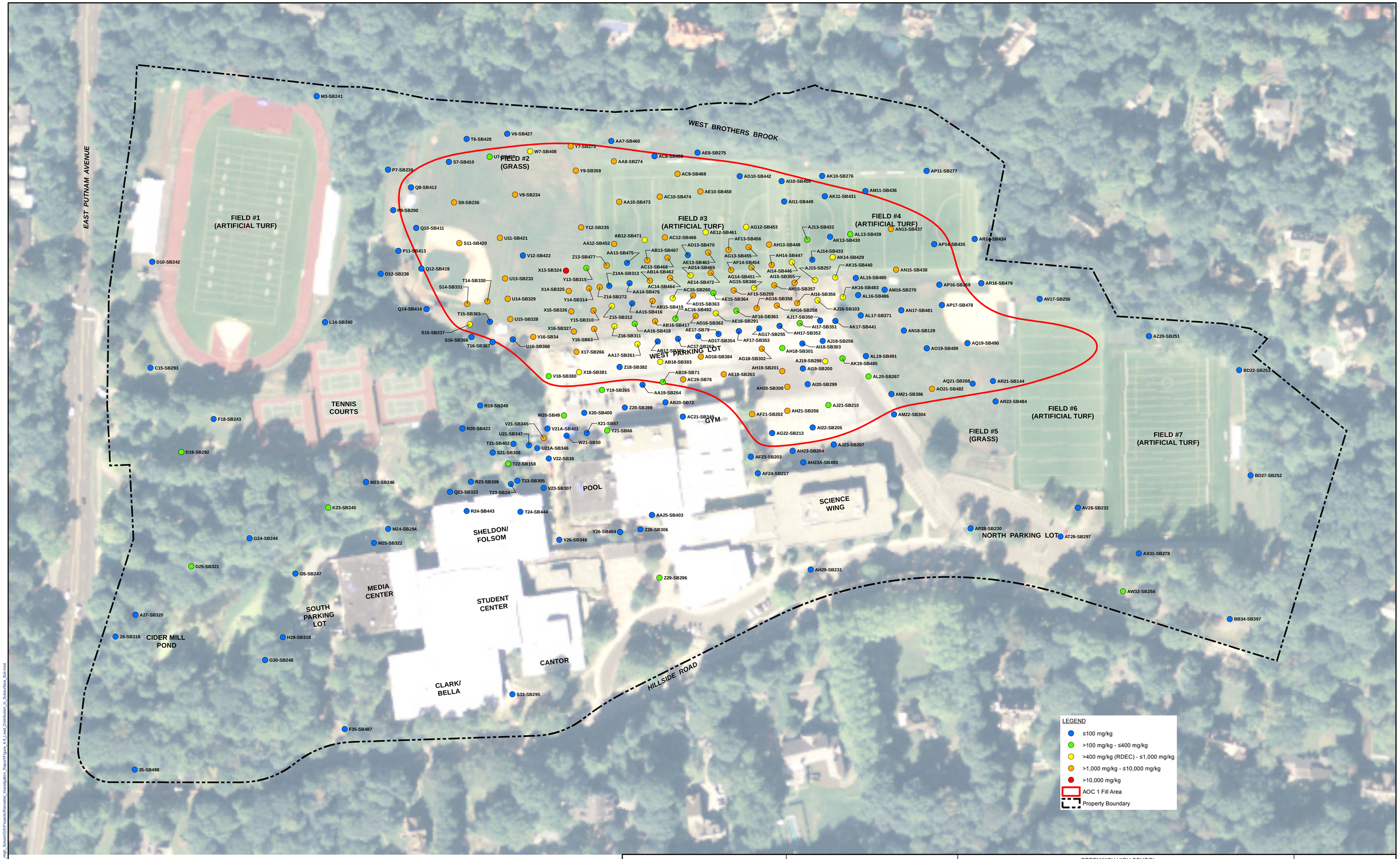
JOB 60225155

FILE NO.

CAD FILE

SHEET

Path: J:\Hist_Services\Project Files\Greenwich_High_School\GIS\Projects\Remedial_Investigation_Report\Figure_4-8_Lead_Distribution_in_Surface_Soil.mxd



SOURCE:
2010 AERIAL ORTHOPHOTO FROM STATE OF CONNECTICUT
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION.

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

N

SCALE:

1" = 80'
0 40 80 160 240 Feet
SCALE

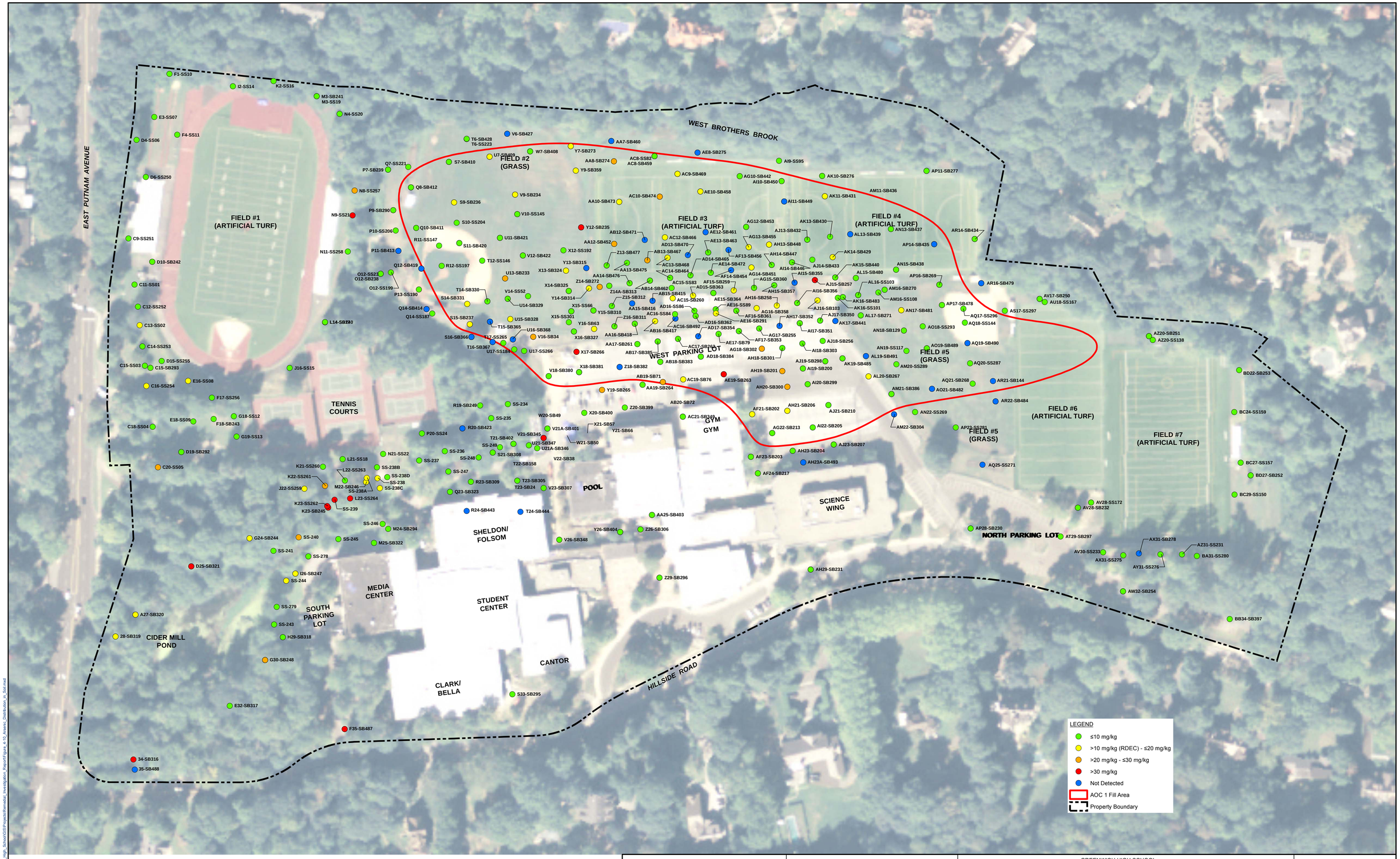
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE ROAD
GREENWICH, CT

FIGURE 4-9
LEAD DISTRIBUTION IN SUBSURFACE SOIL
(DEPTH INTERVAL 1-15')
REMEDIAL INVESTIGATION REPORT

JOB 60225155
FILE NO.
CAD FILE
SHEET

Path: J:\HS_Service\Project Files\Greenwich_High_School\GIS\Projects\Remedial_Investigation_Report\Figure_4-9_Lead_Distribution_in_Subsurface_Soil.mxd



SOURCE:
2010 AERIAL ORTHOPHOTO FROM STATE OF CONNECTICUT
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION.

AECOM Environment
300 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5600
www.aecom.com

AECOM

N

SCALE:

1" = 80'

0 40 80 160 240 Feet

SCALE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE ROAD
GREENWICH, CT

FIGURE 4-10
ARSENIC DISTRIBUTION IN SOIL
REMEDIAL INVESTIGATION REPORT

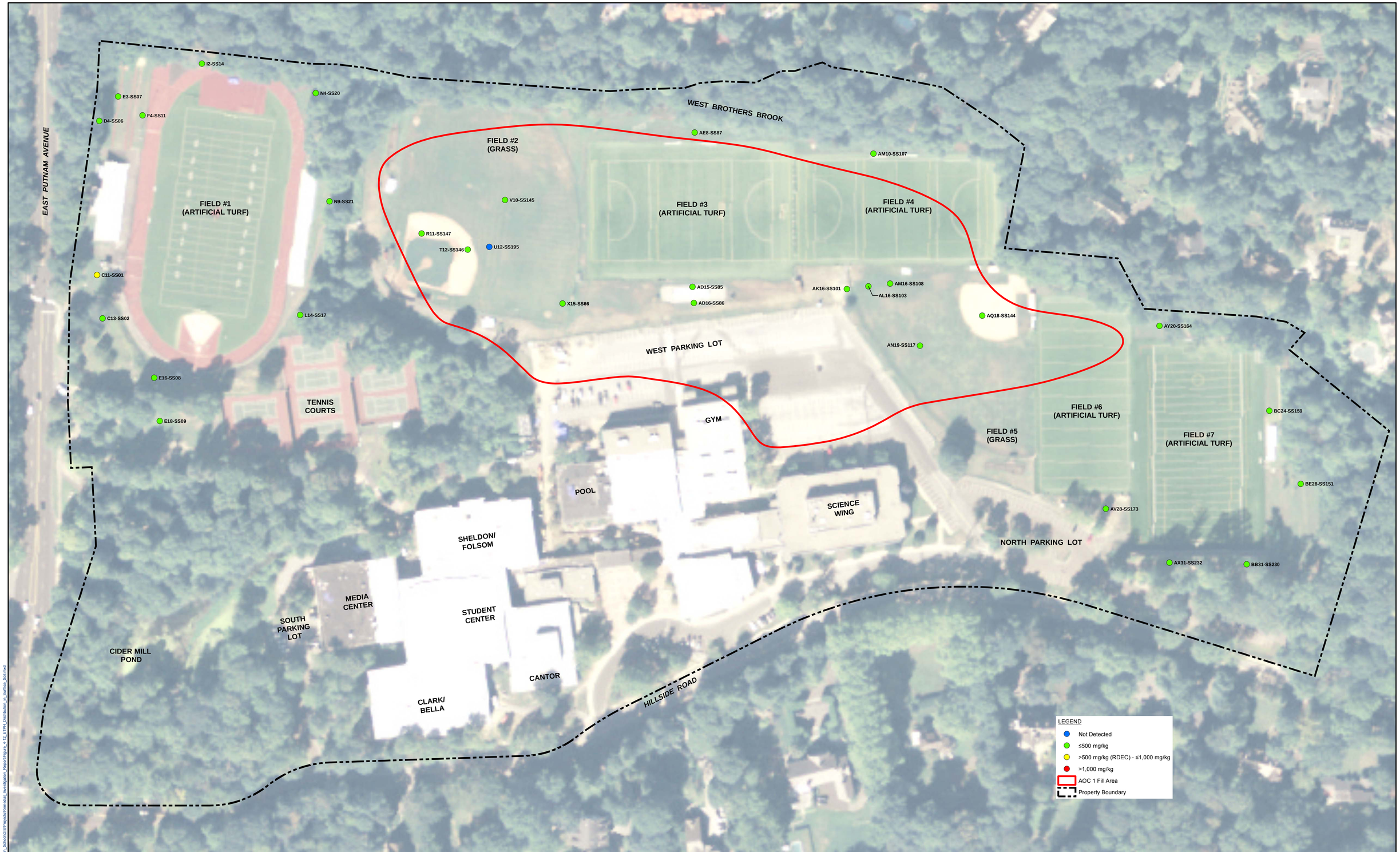
JOB 60225155

FILE NO.

CAD FILE

SHEET

Path: J:\Hist_Service\Project Files\Greenwich_High_School\GIS\Projects\Remedial_Investigation_Report\Figure_4-10_Arsenic_Distribution_in_Soil.mxd



SOURCE:
2010 AERIAL ORTHOPHOTO FROM STATE OF CONNECTICUT
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION.

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

N

SCALE:

1" = 80'

0 40 80 160 240 Feet

SCALE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE ROAD
GREENWICH, CT

FIGURE 4-12
ETPH DISTRIBUTION IN SURFACE SOIL
(DEPTH INTERVAL 0-1')
REMEDIAL INVESTIGATION REPORT

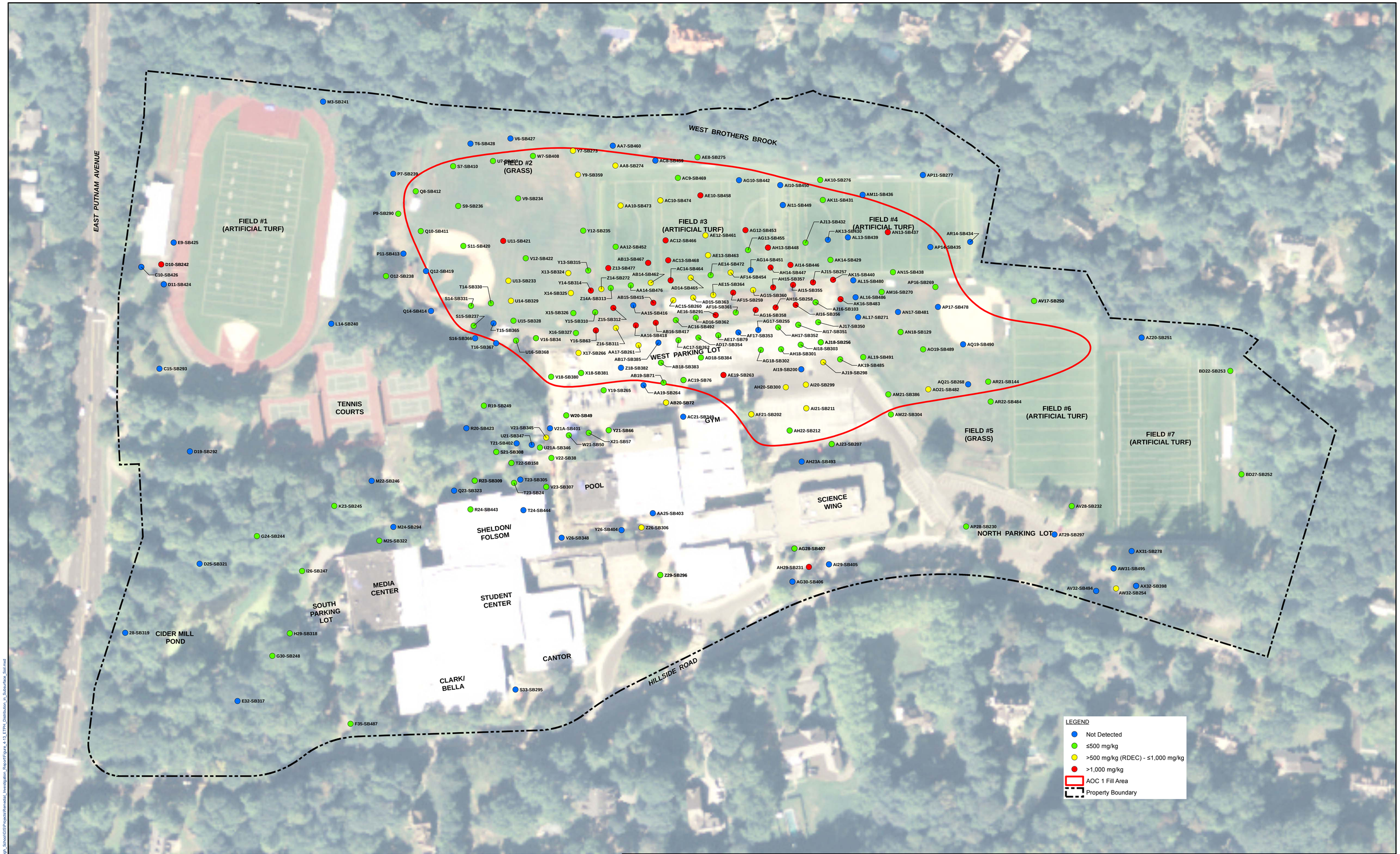
JOB 60225155

FILE NO.

CAD FILE

SHEET

Path: J:\Hist_Services\Project Files\Greenwich_High_School\GIS\Project\Remedial_Investigation_Report\Figure_4-12_ETPH_Distribution_in_Surface_Soil.mxd



SOURCE:
2010 AERIAL ORTHOPHOTO FROM STATE OF CONNECTICUT
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION.

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

N

SCALE:

1" = 80'

0 40 80 160 240 Feet

SCALE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE ROAD
GREENWICH, CT

FIGURE 4-13
ETPH DISTRIBUTION IN SUBSURFACE SOIL
(DEPTH INTERVAL 1-15')
REMEDIAL INVESTIGATION REPORT

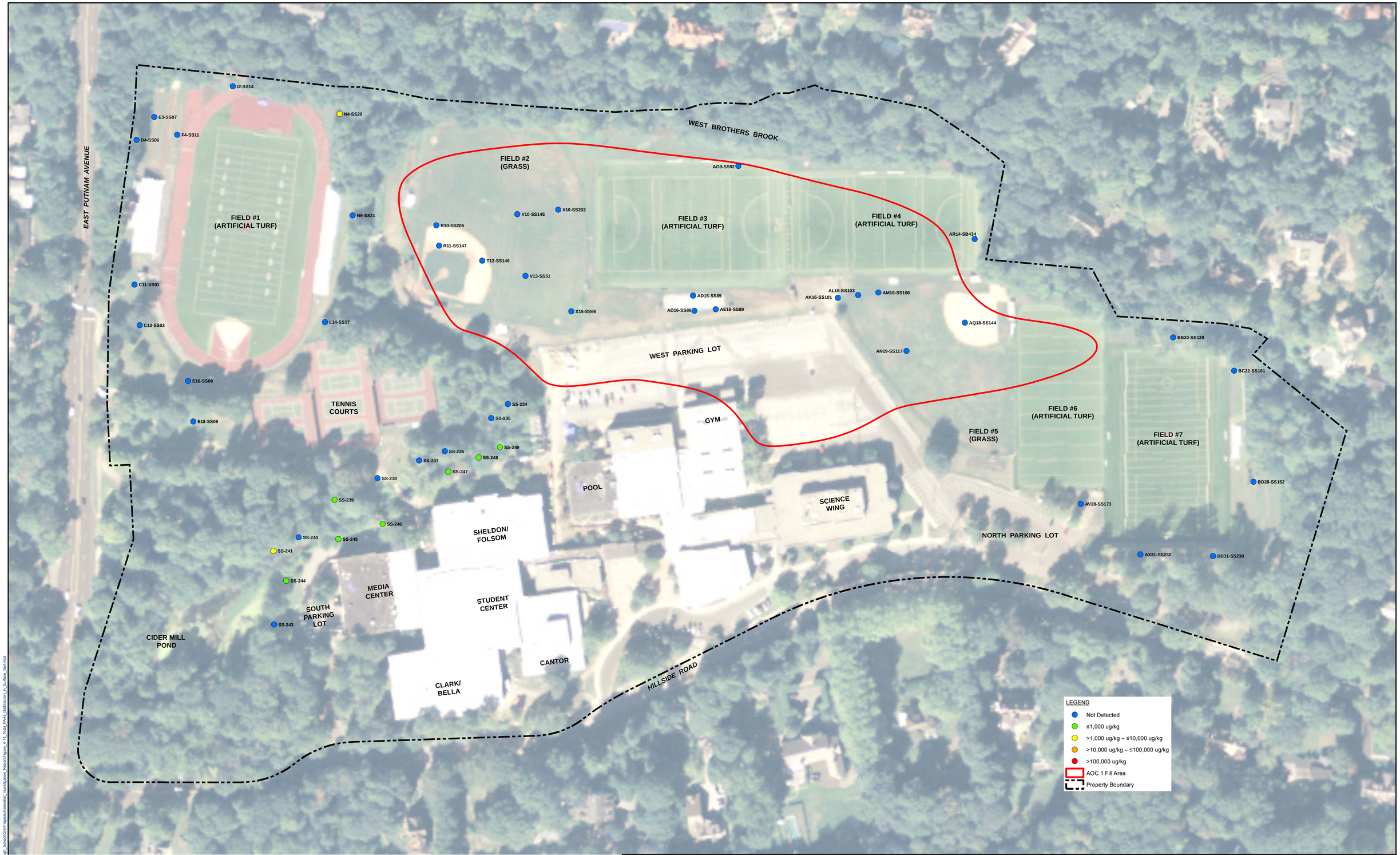
JOB 60225155

FILE NO.

CAD FILE

SHEET

Path: J:\Hist_Services\Project Files\Greenwich_High_School\03\Projects\Remedial_Investigation_Report\Figure_4-13_ETPH_Distribution_in_Subsurface_Soil.mxd



SOURCE:
2010 AERIAL ORTHOPHOTO FROM STATE OF CONNECTICUT
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION.

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

N

SCALE:

1" = 80'

0 40 80 160 240 Feet

SCALE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE ROAD
GREENWICH, CT

FIGURE 4-14
TOTAL PAHs DISTRIBUTION IN SURFACE SOIL
(DEPTH INTERVAL 0-1')
REMEDIAL INVESTIGATION REPORT

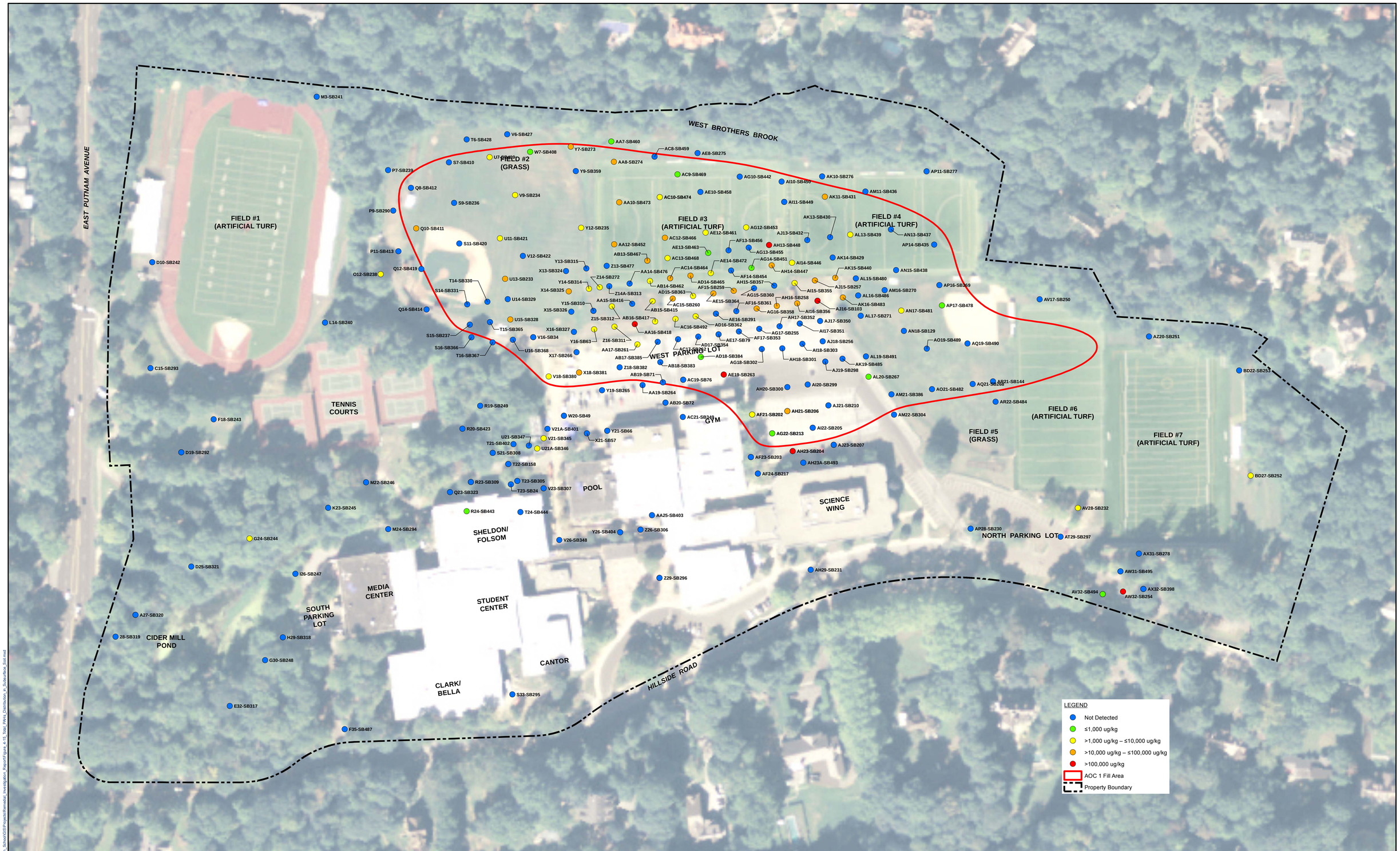
JOB 60225155

FILE NO.

CAD FILE

SHEET

Path: J:\Hall_Service\Project Files\Greenwich_High_School\02\Projects\Remedial_Investigation_Report\Figure_4-14_Total_PAHs_Distribution_in_Surface_Soil.mxd



SOURCE:
2010 AERIAL ORTHOPHOTO FROM STATE OF CONNECTICUT
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION.

AECOM Environment
500 ENTERPRISE DR, STE 1A
ROCKY HILL, CT 06067
(860) 263-5800
www.aecom.com

AECOM

N Z

SCALE:

1" = 80'

0 40 80 160 240 Feet

SCALE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GREENWICH HIGH SCHOOL
10 HILLSIDE ROAD
GREENWICH, CT

FIGURE 4-15
TOTAL PAHs DISTRIBUTION IN SOIL
(DEPTH INTERVAL 1-15')
REMEDIAL INVESTIGATION REPORT

JOB 60225155

FILE NO.

CAD FILE

SHEET

Path: J:\Hvl_Service\Project Files\Greenwich_High_School\GIS\Projects\Remedial_Investigation_Report\Figure_4-15_Total_PAHs_Distribution_in_Soils\Rice_Soil.mxd

Appendix E

Written Certification in Accordance with §761.61(a)(3)(E)

This is a draft of the letter required to be submitted with the Remedial Action Plan. This letter is not signed because the Remedial Action Plan is still draft and not the official submittal to regulatory agencies.

September 6, 2013

Kimberly N. Tisa, Region 1 PCB Coordinator
United States Environmental Protection Agency
5 Post Office Square, OSRR07-2
Boston, MA 02109-3912

Subject: Written Certification Required Under §761.61(a)(3)(E)
Remedial Action Plan
Greenwich High School
Greenwich, Connecticut

Dear Ms. Tisa:

I certify that all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to access or characterize the PCB contamination at the Greenwich High School site are on file at the Town of Greenwich DPW offices located at Town Hall, 101 Field Point Road, Greenwich, CT and are available for EPA inspection.

If you have any questions, comments or concerns you may contact Malcolm Beeler via phone at 860-263-5806 or via email at malcolm.beeler@aecom.com.

Very Truly Yours,

Amy J. Siebert, P.E.
Commissioner of Public Works
Town of Greenwich

cc: L. Moriarty, BOE
B. Branyan, BOE