TOWN OF STRATFORD
RFP #2015-056

ADDENDUM #1
Issued 11/19/15

Destructive Hazardous Building Materials Investigation, Preparation of Abatement and Demolition Specifications and Demolition Oversight for Center School

Appendix A has an incorrect HBMI report. The correct report is included with this addendum.

Michael Bonnar, Purchasing Agent

Center School
1000 East Broadway
Stratford,
Connecticut

Phase II Site Assessment and Hazardous Building Materials Inspection Report

September 2014

USEPA Brownfields Grant BF-96177201

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Report

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1.0 INTRODUCTION

1.1 Project Objective

Weston & Sampson, Inc. (Weston and Sampson) was retained by the Greater Bridgeport Regional Council (GBRC) to prepare a site specific quality assurance project plan (QAPP), conduct a hazardous materials building inspection (HBMI), and a Phase II environmental site investigation (ESI) at 1000 East Broadway in Stratford, Connecticut (the "Site"). The location of the Site is shown on ***Figure 1*** (Site Locus Map). The work was conducted in accordance with the site-specific QAPP approved by EPA on July 22, 2014. The purpose of conducting the HBMI and Phase II SI is to assess the potential opinion of cost to abate and manage the disposal of hazardous materials at the Center Elementary School (CES) and to assess potential releases of oil and hazardous materials to soil and groundwater at the Site. The Site will potentially be reused for a transient oriented redevelopment by demolition of CES and redevelopment of that portion of the Site.

1.2 Applicability

The site investigation activities were performed in general accordance with the approved EPA site-specific QAPP and CTDEEP *Site Characterization Guidance Document* (SCGD) dated September 2007, revised December 2010. Soil and groundwater results were compared to applicable Connecticut Department of Environmental Protection (CTDEEP) Remediation Standard Regulations (RSR) cleanup criteria, as appropriate. These criteria include direct exposure, soil pollutant mobility, volatilization, and surface water protection criteria.

2.0 SITE INFORMATION AND PRELIMINARY CONCEPTUAL MODEL

2.1 Physical Description

The irregular-shaped Site consists of a single 3.6-acre parcel of land located on the north side of East Broadway and west side of Sutton Avenue in the downtown area of Stratford, Connecticut. The Site is accessed via a curb cut off Sutton Avenue into a parking lot shared by the Stratford BOE and CES staff. CES is located to the north across the parking lot in the central portion of the property. Only pedestrian access to the Site via concrete sidewalks is available from East Broadway. The location of the Site is depicted on a Locus Map enclosed as ***Figure 1***.

The approximate geographical coordinates for the property are as follows:

UTM Coordinates:	4561734.5 meters North
	656875.2 meters East
Latitude/Longitude:	41º 11' 37.32" North
	-73° 7' 45.48" West

The CES portion of the Site is currently improved with an approximate 34,280 square feet, single-story slab-on-grade school building with a crawlspace. A Site plan is enclosed as *Figure 2*.

Stormwater drainage is via sheetflow to catch basins located in the grassy or paved areas of the Site and to catch basins located along Sutton Avenue and East Broadway. The Town of Stratford provides both water and sanitary sewer service to the Site. The CES building is heated by a natural gas. A paved asphalt basketball court is located north of the school building at the northwest corner of the Site and abuts a mulched playground area to the east followed by a grassed baseball field that extends to Sutton Avenue.

A chain linked fence is located along the northern and western property boundaries. Additionally, a concrete retaining wall is located along the fence line of the western property boundary. Topography of the Site is predominantly flat. According to the Environmental Data Resources (EDR) Database Report, the average elevation of the Site is 22 feet above mean sea level.

2.2 Site History

The northern portion of the Site along Sutton Road was historically utilized for residential purposes until these buildings were razed sometime prior to 1969 for the construction of the current CES building.

2.3 Physiographic Setting

The subject Site is generally flat and slopes moderately to the west and north. Although the topographic maps do not depict the elevation change, the northern and western portion of the Site visibility appears to be elevated relative to the abutting property located west-northwest of the Site, hence the presence of a retaining wall on that portion of the Site boundary.

2.4 Site Geology and Hydrogeology

According to the "Surficial Materials Map of Connecticut," (1992), the surficial geology underlying the Site is described as sand overlying fines. This unit is characterized as sand of variable thickness that overlay thinly bedded fines of variable thickness. Soil encountered in testing borings during the Phase II SI included fine to coarse SAND and gravel to a depth of 16 ft.

According to the "Bedrock Geological Map of the Connecticut," (Rodgers, 1985), the bedrock underlying the Site is described as "Oronoque Schist." This formation consists of gray to silver, medium to fine-grained schist and granofels.

Groundwater was observed in test borings at an approximate depth of 13 ft. Groundwater flow direction at the Site is to the northwest (refer to ***Figure 2***). The groundwater gradient at the Site is approximately 0.007 ft./ft.

2.5 Previous Investigation Summary

A Phase I environmental site assessment (ESA) was conducted at the Site by Weston & Sampson in May 2014. The Phase I ESA findings are as follows:

The major findings of the Phase I ESA are as follows:

The single irregular-shaped Site parcel consists of approximately 3.6-acres of land situated on the north side of East Broadway and west side of Sutton Avenue;
Municipal water and sanitary sewer service are provided to the Site;
The Site lies within a mapped Residential Zone of Stratford;
The Site is improved with an office building historically utilized as a school dating back to 1885 and currently occupied by the Town of Stratford Board of Education for office space and a single-story school building known as the Center Elementary School constructed in 1969-1970;
The northern portion of the Site along Sutton Road was historically utilized for residential purposes until these buildings were razed sometime prior to 1969 for the construction of the current school building;
The BOE building formerly utilized a underground storage tank (UST) for the storage of heating oil which was replaced sometime between (2001 and 2007) with the current heating oil UST and is listed on the registered UST database of the environmental database report;
Topographic maps do not depict an elevation change at the northwest section of the Site, however visual observations including the presence of a retaining wall suggesting that this area of the Site was likely filled given it is relatively higher in elevation than the abutting property to the west;
The Site does not appear to qualify as an “establishment” as defined by the Connecticut Transfer Act; and
Based on the age of the buildings (1885 and 1969-1970) the presence of asbestos-containing materials (ACMs), lead-based paint (LBP) and polychlorinated biphenyl (PCB)-containing light ballast and building source materials is likely and will be addressed by Eagle Environmental, Inc., a licensed subcontractor. Results of Eagle’s HBMI are included in this report.

Weston & Sampson did not identify any Controlled Recognized Environmental Conditions (CRECs).

The Phase I ESA identified two RECs in connection with the Site as follows:

The former use of a bare steel heating oil UST has been identified as a REC since environmental conditions of the former tank grave are unknown due to a lack of UST closure documentation. Based on the age (~25 years) and construction of the previous UST there is the potential that a release could have occurred.

The potential historic filling of the northern, northeastern, and western areas of the Site has been identified as a REC. This is based upon information on the removal of former residential properties along Sutton Avenue to the northeast of the CES building and the subsequent

construction of the school in 1969 to 1970. The source of the fill and deposition of the former residences is unknown.

RECs will be referenced as Areas of Concern (AOCs) as defined in the CTDEEP SCGD in the remainder of this report.

2.6 State Regulatory Information

The Site is currently not regulated under the Connecticut Property Transfer Law and has not been entered into the State Voluntary Site Cleanup Program. However, the investigation is being funded by an EPA Brownfield Grant program administered by the GBRC. The RSRs are being use as guidance for the project.

2.7 Future Intended Use

The future intended use of the Site is unknown at this time. However, the Town of Stratford and GBRC anticipates the Site will be redeveloped as a new municipal mixed use commercial and parking facility for the adjacent Stratford Metro North Train Station as part of a planned transient community corridor.

2.8 Constituents of Concern

Based on the results of the Phase I ESA conducted by Weston & Sampson and the approved site-specific QAPP, the following table is presented which summarizes the Areas of Concern at the Site that required further investigation and the associated constituents of concern (COCs) within each AOC:

AOC No.	Number of Releases	Date of Release	Phases of Investigation Completed	COCs	Data Gap	Proposed Test Boring/Monitoring Well No.
1-The former use of a bare steel heating oil UST	Unknown	Unknown	Phase I ESA	Volatile Organic Compounds (VOCs), extractable total petroleum hydrocarbons (ETPH) (soil & groundwater)	Need to assess if a release of petroleum has occurred to soil and/or groundwater within and adjacent to this AOC due to historic and current use of this area for the operation of a No. 2 fuel oil UST	SB-1 through SB-3/MW-1
2-The potential historic filling of the northern, northeastern, and western areas of the Site	Unknown	Unknown	Phase I ESA	VOCs, heavy metals and ETPH (soil & groundwater)	Need to assess the quality of the fill used on-site and backfilling of historic residential building foundations along Sutton Street	SB-4 through SB-8/MW-2 and MW-3

COCs associated with the HBMI included asbestos-containing building materials, lead based paint, PCB and DEHP containing light ballasts, PCB containing equipment and building “source” materials, and universal waste materials.

3.0 REGULATORY FRAMEWORK

This assessment is one of the required steps in the ultimate demonstration that the Site is in compliance with the Remediation Standard Regulations (RSRs).

The Connecticut Remediation Standard Regulations (RSRs) are the clean-up standards in the State of Connecticut. They also contain procedures to evaluate whether actions (e.g. remediation or institutional controls) will be required to address identified releases of hazardous substances.

The RSRs require that the nature and extent of release areas be fully characterized prior to making a final compliance determination with the RSRs. At this point in the investigation process AOCs have not been characterized. Because the ultimate goal of the site investigation and remediation is compliance with the RSRs, it is also important to understand, from the outset, the regulations that guide the site investigations. For these reasons, baseline RSR criteria are presented alongside the analytical data as an evaluation tool and the RSR criteria that apply are discussed in the following subsections

3.1 RSR Soil Criteria

The RSR Soil Remediation Standards (RCSA Section 22a-133k-2) require polluted soil at a release area be remediated to meet the Direct Exposure Criteria (DEC) to protect human health from exposure to constituents of concern (COCs). Soil must meet the Pollutant Mobility Criterion (PMC), which are intended to prevent the pollution of groundwater through the leaching of constituents from impacted soil. However, the RSRs also define specific alternatives to strict compliance with the baseline numeric DEC and PMC by including self-implementing options, exceptions, and variances.

Direct Exposure Criteria: In general, these criteria apply to soil located within fifteen feet of the ground surface. Soil impacted by a release must be remediated to a concentration that is consistent with the Residential Direct Exposure (RDEC) criteria, unless the Site is used exclusively for industrial or commercial activities. In such a case, the Industrial/Commercial (I/C) DEC may be used, provided an Environmental Land Use Restriction (ELUR) is recorded to ensure that the Site is used only for industrial/commercial activities. It is possible to use institutional or engineered controls to manage impacted soil on a Site in lieu of active remediation. Variances exist for the presence of widespread, polluted fill and constituents associated with the fill that contains only asphalt fragments, coal fragments, or coal/wood ash.

Pollutant Mobility Criteria: The pollutant mobility criteria (PMC) are dependent upon the groundwater classification of the Site. Based on the Site's location in a GB-designated area, the GB PMC apply to the Site. As with the DEC, it is possible to use engineered controls to manage impacted soil on-site. Variances exist for the presence of widespread, polluted fill and constituents associated with fill that contain only asphalt fragment, coal fragments, or coal/wood ash. It is possible to use institutional or engineered controls to manage impacted soil on site in

lieu of active remediation. The PMC in a GB area apply to soil located above the seasonal high water table.

3.2 RSR Groundwater Criteria

The RSR Groundwater Remediation Standards (RCSA Section 22a-133k-3) require that remediation of a groundwater plume in a GB groundwater classified area shall result in the attainment of the Surface Water Protection Criteria (SWPC) and Volatilization Criteria (VC) or the background concentration for groundwater for each substance in the impacted groundwater plume, if the Site's groundwater has been impacted by an off-site source of contamination to a degree that exceed the SWPC or VC. These criteria are discussed in more detail below. As with soil, the RSRs specify self-implementing options and exceptions associated with determining compliance with groundwater criteria.

Background: No obvious off -site groundwater sources from upgradient releases have been identified. If the Site groundwater was found to be impacted by an off-site source only, remediation would not be required. The CTDEEP's policy on upgradient sources of contamination is that a downgradient property owner is not responsible for remediating groundwater contamination flowing onto his or her property from another site, as long as the contamination is present solely as a result of the off-site sources (CTDEP Policy on Upgradient Contamination, Michael Harder, Director if Permitting, Enforcement, and Remediation Division, August 28, 1997).

Surface Water Protection Criteria (SWPC): The SWPC ensure that surface water quality is not impaired by the discharge of contaminated groundwater into a surface water body at constituent concentrations above the CTDEEP Water Quality Standards. The SWPC apply to a groundwater plume at the point where the plume discharges to a surface water body. Alternatively, the SWPC may be evaluated as an average of concentrations within the plume. Site-specific SWPC may also be calculated.

Volatilization Criteria (VC): The VC protects human health from volatile substances in shallow groundwater that may migrate from groundwater into overlying buildings. Under the current regulations, the VC is considered for areas where groundwater is within 15 feet of the ground surface or a structure intended for human occupancy.

4.0 PHASE II SITE INVESTIGATION AND HBMI SCOPE OF STUDY

4.1 Phase III Site Investigation

Environmental investigations were conducted at and adjacent to the following AOCs listed in *Section 2.8*: The former use of a bare steel heating oil UST and the potential historic filling of the northern, northeastern, and western areas of the Site. This section of the report provides an overview of the methods used to investigate the Site and evaluate the data collected, describes data quality objectives (DQOs), constituents of concern (COCs), laboratory methods used to

analyze environmental samples, and field investigation methods.

4.1.1 Data Quality Objectives

DQOs are used to ensure that data is collected in a manner that permits it to be used to evaluate a site and support decisions based on those evaluations. Procedures used to ensure that DQOs for the project were met include:

Selection of analytical methods with appropriate detection limits
Use of pre-determined sampling handling and custody procedures
Use of pre-determined data management and documentation procedures
Selection of sampling locations and COCs appropriate to the potential release area
Collection of samples from locations most likely to exhibit evidence of a release based on the AOC conceptual model
Apply preservation and hold time procedures to ensure sample integrity
Analysis of blind duplicate samples (laboratory and field) to determine precision.
Conduct a completeness check to confirm that all required sampling and analytical documents and records are present in the data package to ensure sufficient documentation for data defensibility

A review of data usability is summarized on ***Table I***. After a review of the field procedures and laboratory data the DQOs for this project have been met and the data is usable.

4.1.2 Constituents of Concern

A list of COCs to be investigated was developed for each AOC. The COC list comprises those compounds most likely to be released, based on knowledge of site history and operations and results of previous investigations. The COCs include:

Volatile Organic Compounds (VOCs)
Extractable Petroleum Hydrocarbons (ETPH)
Heavy Metals

The analytical methods presented in the following table were selected to identify and evaluate potential releases because they are capable of achieving analytical detection limits less than the baseline numeric RSR cleanup criteria applicable to the Site.

Constituent of Concern (COC)	Analytical Method
VOCs	VOCs by EPA Method 8260 (soil and groundwater)
Petroleum Hydrocarbons	Connecticut ETPH Method (soil and groundwater)
RCRA 8 Metals	EPA Method Series 6000/7000 (soil and groundwater).

Sample analysis was conducted by Con-Test Analytical Laboratory of East Longmeadow, Massachusetts.

4.1.3 Phase II Environmental Site Investigation Procedures

The Phase II SI field activities conducted on August 6, 11, and 19, 2014 was broken down into the following general tasks, which are described in the following subsections:

Test Borings (seven locations)
Groundwater Sampling (three locations)

Sample locations are depicted on ***Figure 2***.

Soil Sampling:

Test borings and monitoring well installations were conducted on August 6 and 11, 2014 by using a AMS PowerProbe 9500-VTR direct push rig (test borings SB-1, SB-3, and monitoring well MW-1) and a Case 580 backhoe mounted drill rig (test borings SB-4 through SB-8 and monitoring wells MW-2 and MW-3). Soil samples were collected from polyethylene sleeves from the direct push drill rig and were collected using a split spoon sampler on the Case 580 drill rig. Soil samples were collected using the appropriate method for sample preservation and kept chilled for subsequent analytical testing. Non-dedicated sampling equipment was decontaminated with a non-phosphate soapy solution, rinsed with methanol, then double rinsed with distilled water between each sampling event to prevent cross contamination.

Each soil sample was inspected by a field scientist for physical evidence of contamination (i.e. staining, odors) and soils were physically described. Samples were also field screened for organic vapors of VOCs using a photoionization detector (PID). Soil sampling intervals were selected to detect and characterize the highest concentrations of released constituents within the AOCs. Visual inspection and field screening did not reveal evidence of contamination. Therefore, samples were selected for laboratory analysis from predetermined intervals (0.0 ft to 2.0 ft.) based on the conceptual model and the regulatory compliance goal for the Site. Soil samples collected adjacent to the heating oil UST were submitted for laboratory analysis from depths of 4.0 ft. to 6.0 ft. (SB-3) and 6.0 ft. to 8.0 ft. (SB-1). The field soil conditions encountered during the test borings are provided in ***Appendix A***. Groundwater monitoring wells were installed in the following completed test borings: SB-1 (monitoring well MW-1), SB-5 (monitoring well MW-2), and SB-7 (monitoring well MW-3). Groundwater monitoring well installation reports are presented in ***Appendix B***.

Due to access constraints and buried utilities, test boring SB-2 was not drilled in the parking area north of the UST, located hydraulically downgradient relative to the UST.

Groundwater Sampling:

Prior to groundwater sampling at monitoring wells MW-1 through MW-3, a level survey was conducted to assess groundwater flow direction at the Site using a relative benchmark elevation of 100 feet. Groundwater was collected on August 19, 2014. Prior to initiating low flow sampling at each well depth to groundwater was recorded. A grab sample of groundwater was collected from the monitoring well after low flow parameters had stabilized in the groundwater. Well Purging/Groundwater Sampling Reports are presented in ***Appendix C***.

4.1.4 Hazardous Building Materials Investigation

On July 31, August 1, 7, and 15, 2014, Eagle Environmental, Inc. (Eagle) conducted a HBMI of the structure known as the Center Elementary School located at 1000 East Broadway, Stratford, Connecticut. The scope of the HBMI included an asbestos-containing materials inspection, a lead-based paint screen, and inspection for Polychlorinated Biphenyls (PCBs) in "source building materials, and an inspection for universal waste. The inspection was performed to support the demolition of the building.

Prior to the inspection, the previous three (3) year Asbestos Hazard Emergency Response Act (AHERA) inspection report date September 29, 2011 was reviewed and custodial staff was interviewed regarding the history of the building. An asbestos-containing roofing materials inspection report dated June 18, 2012 was reviewed. Roof sampling was not included in the Eagle inspection as the roof was presumably replaced after the 2012 inspection. A copy of the Eagle HBMI report is presented in ***Appendix D***.

5.0 PHASE II ESI AND HBMI RESULTS

Site environmental investigation soil analytical results are summarized in ***Table 2*** and presented in ***Appendix E***. The site investigation groundwater monitoring analytical results are summarized on ***Table 3*** and presented in ***Appendix F***.

5.1 Phase II ESI AOC Specific Results

5.1.1 AOC 1 – The former use of a bare steel heating oil UST

Initial Conceptual Model

The BOE building formerly utilized an UST for the storage of heating oil which was replaced sometime between (2001 and 2007) with the current heating oil UST and is listed on the CTDEEP registered UST database. In addition, fill has been placed onto the Site during the construction of the CES. An investigation if a release of oil or hazardous materials within this AOC was addressed.

Soil Analytical Results

VOCs were not detected above the laboratory reporting limit for soil samples SB-01 (6.0 ft. to 8.0 ft.) and SB-3 (4.0 ft. to 6.0 ft.). ETPH was detected in SB-1 (46 mg/kg) and SB-2 (67 mg/.kg) above the above the laboratory reporting limit of 11 mg/kg and 10 mg/kg, respectively. Total metals (arsenic, barium, cadmium, chromium, lead, and mercury) were detected at background concentrations typical for Connecticut soils.

Groundwater Analytical Results

VOCs and ETPH were not detected above the laboratory reporting limit in groundwater collected from MW-1. Barium (73 ∝g/L) was detected in groundwater collected from MW-1.

5.1.2 AOC 2 – Potential Historic Filling of the Northern, Northeastern, and Western Areas of the Site

Initial Conceptual Model

Topographic maps do not depict an elevation change at the northwest section of the Site, however visual observations including the presence of a retaining wall suggests that this area of the Site was likely filled given it is relatively higher in elevation than the abutting property to the west. In addition, fill may have been placed during the demolition of residential properties along the western side of Sutton Avenue prior to the construction of CES. An investigation if a release of oil or hazardous materials within this AOC was addressed.

Soil Analytical Results

With the exception of sample DUP-1, VOCs were not detected above the laboratory reporting limit in soil samples SB-4 through SB-8. Naphthalene (0.003 mg/kg) was detected above the laboratory reporting limit of 0.0025 mg/kg in soil sample DUP-1. DUP-1 was a blind duplicate sample of soil sample SB-8.

ETPH was detected in soil samples collected from SB-4 through SB-8 at concentrations ranging from 38 mg/kg to 220 mg/kg, below the applicable RSR criteria of 500 mg/kg.

Total metals (arsenic, barium, cadmium, chromium, lead, and mercury) were either not detected above the laboratory reporting limit or were detected at background concentrations typical for Connecticut soils.

Groundwater Analytical Results

VOCs and ETPH were not detected above the laboratory reporting limit in groundwater collected from MW-2, MW-3 and groundwater sample DUP-1. DUP-1 was a blind duplicate sample for groundwater collected at MW-2. Barium (73 ∝g/L, 360 ∝g/L, and 72 ∝g/L) was detected in groundwater samples MW-1, MW-2 and DUP-1, respectively.

5.1.3 HBMI

For the location of hazardous building materials inventoried and collected for analysis refer to the floor plan in the HBMI reported presented in ***Appendix D*** and reference to tables in sections that follow.

Asbestos-Containing Materials (ACM)

The summarizes of the asbestos and non-asbestos materials are presented in ***Table 1*** and ***Table 2*** in the HBMI report in ***Appendix D***.

One hundred two (102) bulk samples of ACM were collected and ninety five (95) samples were analyzed by Phase Light Microscopy (PLM) based on a “stop on first positive” request to the laboratory. Additionally, three (3) samples of non-friable organically bound (NOB) materials were analyzed by the NOB TEM Method.

Based on the results of the analyses the following building materials were found to contain asbestos:

Miscellaneous ACM:

Beige caulk at steel columns
Black mastic and associated 9x9 floor tiles
Caulk at courtyard sidewalk seams and at cement floor seams (Façade C Courtyard)
Condensate coating on sinks
Control joint caulk at window frames, windows, corners, cement panels, door frames and louvers
Front door frame caulk

The remaining suspect materials were confirmed to be non-ACM.

Areas that were inaccessible for sampling included:

Below the gymnasium floor
Beneath the rubber roof membrane
Inside the boiler base
Inside fire doors
Inside plumbing chases and wall cavities
Underneath ceramic floor and wall tile

The following materials are presumed to be asbestos-containing:

Adhesive and grout associated with ceramic floor tile
Adhesive and grout associated ceramic wall tile
Adhesive associated with composite sill
Adhesive associated with cork board
Adhesive associated with mirrors
Blackboard adhesive
Boiler base insulation
Boiler refractory cement on ribs
Cement board panels at cooling tower
Felt and mastic below gymnasium floor
Mud pack fitting cement
Roof drain mud pack fitting cement
Tack/marker board adhesive

The NOB TEM analyses confirmed the tan mastic associated with floor tiles identified in Room 006, the brown mastic associated with vinyl cove base identified in Room 006 and the mastic associated with floor tiles identified in Room 011 to be non-asbestos. The floor tile, mastic and several types of caulk were also determined to contain PCB concentrations > 1 ppm.

Any suspect material not specifically identified in the HBMI report as non-ACM should be assumed to contain asbestos unless sample results prove otherwise.

Lead-Based Paint

X-Ray Fluorescence Screening

A complete inventory of testing building materials is presented in Appendix 3 of the HBMI report.

A total of one hundred forty-three (143) XRF readings were collected during the lead-based paint screening of the building. Of these readings, ten (10) were found to contain high levels of

lead.

The general inventory of surfaces containing high levels of lead includes the following: structural steel I-Beams and columns and metal lintels throughout the structure.

Additionally, several building materials were determined to contain low levels of lead in paint. Although these levels of lead were less than 1.0 mg/cm^2, the Contractor must perform an exposure assessment on employees during tasks that disturb the painted materials during demolition activities.

The remaining components and surfaces that were tested contain no lead in their respective coatings.

Lead Waste Characterization Results

There were no TCLP samples of lead-paint collected from CES. Only metal components were identified to contain high levels of lead. During building demolition, the metal components must be removed and recycled at a facility that accepts lead.

PCB in Bulk "Source" Materials

The results of the "source" materials sampling and PCB analysis are presented in Table III in the HBMI report and summarized below in parts-per-million (ppm):

Description	PCBs (ppm)
Beige caulk at interior corridor columns	4.8
Black bedding/glaze in window sashes	ND
Black exterior asphalt seam sealant	8.2
Black exterior seam caulk	4.4
Black floor tile mastic	6.0
Black interior window sill caulk	2.1
Brown ceramic tile mastic	5.5
Brown cove base mastic	6.6
Brown paint on exterior window/door frames	4.3
Cream-colored cove base mastic	2.8
Dark-green backsplash mastic	0.83
Exterior asphalt damproofing	0.71
Green carpet mastic	ND
Grey exterior seam caulk in courtyard	29,000
Interior window door frame caulk	1.3
Primary interior beige/spotted paint	130 to 140
Tan cove base mastic	2.2

Description	PCBs (ppm)
Tan exterior soffit caulk	1.4
Tan floor tile mastic	ND
White control seam caulk	7.8
White door frame caulk at steel door frames	3.5
White exterior door frame caulk at main entrance	21
White exterior sill drop edge caulk	1.9
White exterior vent louver caulk	4.9
White exterior window frame caulk	7.0
White flexible caulk at classroom doors	15.9
White paint on exterior plaster soffits	0.12
White secondary interior paint	3.1
Black caulk at exterior courtyard seams	Presumed >50
Brown paint of structural steel	Presumed >50
Floor wax/tile wax	Presumed >50
Mirror/corkboard/chalkboard adhesive	Presumed >50
Sink undercoat	Presumed >50

Two (2) duplicate samples and two (2) equipment blanks were also collected for quality assurance/quality control purposes. Duplicate samples of the white sill drip edge caulk and the green carpet mastic were similar in PCB concentration results to the parent sample. No PCBs were identified in equipment blanks.

No PCB sampling was conducted on the roof system at CES per the request of the Town of Stratford. The roofing materials installed prior to 1979 should be sampled prior to development of a PCB Remediation Plan. Also note that additional “source” samples may have to be collected to comply with EPA requirements.

Universal Waste Materials and Other Environmental Concerns

The associated inspection data for the universal waste materials and other environmental concerns are summarized in Table IV of the HBMI report.

PCB and Diethylhexylphthalate (DEHP) Containing Items

There were no PCB or DEHP containing lighting ballasts identified within the building. There were three (3) capacitors associated with freezers and refrigerators potentially containing dielectric fluid. Three hundred fifty-one (351) electronic ballasts were identified. No further action is required for the electronic ballasts.

Mercury Containing Items

A total of approximately two thousand seven hundred forty (2,740) liner feet of fluorescent light bulbs and one hundred nine (109) round lamps are present within the building. There were no mercury containing thermostats identified within the building. The fluorescent light tubes must be removed from the building for proper recycling prior to building demolition.

Used Electronics and Batteries

Nine (9) fire alarms, twenty-seven (27) exit signs and two (2) emergency lights presumed to contain lead-acid batteries are present within the building. The batteries must be removed and properly recycled prior to building demolition.

Chlorofluorocarbons

A total of two (2) refrigerators and one (1) freezer, each containing Freon tank(s) were identified in the building. The Freon must be reclaimed from the tank(s) prior to building demolition.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Soil

Evidence of a release of petroleum or hazardous substances to soil that require further investigation has not been encountered during this investigation.

6.2 Groundwater

Evidence of a release of petroleum or hazardous substances to groundwater was not encountered during this Phase II ESI. Based on the level survey groundwater flows in a northwesterly direction across the Site and the hydraulic gradient is 0.007 ft./ft.

6.3 Hazardous Building Materials

ACM was detected in the following building materials within the CES building: Beige caulk at steel columns, black mastic and associated 9x9 floor tiles, caulk at courtyard sidewalk seams and at cement floor seams (Façade C Courtyard), condensate coating on sinks, control joint caulk at window frames, windows, corners, cement panels, door frames and louvers and front door frame caulk. The following materials are presumed to be asbestos-containing: Adhesive and grout associated with ceramic floor tile, adhesive and grout associated ceramic wall tile, adhesive associated with composite sill, adhesive associated with cork board, adhesive associated with mirrors, blackboard adhesive, boiler base insulation, boiler refractory cement on ribs, cement board panels at the cooling tower, felt and mastic below the gymnasium floor, mud pack fitting

cement, roof drain mud pack fitting cement, and tack/marker board adhesive.

The NOB TEM analyses confirmed the tan mastic associated with floor tiles identified in Room 006, the brown mastic associated with vinyl cove base identified in Room 006 and the mastic associated with floor tiles identified in Room 011 to be non-asbestos. The floor tile, mastic and several types of caulk were also determined to contain PCB concentrations > 1 ppm.

All regulated friable and regulated non-friable ACM must be removed prior to demolition/renovation activities. A State of Connecticut Licensed Asbestos Abatement Contractor must be retained to perform the removal work. Visual inspections and air clearances must be performed within each abatement area at the completion of the abatement work. The visual and air clearances must be performed by a State of Connecticut Licensed Asbestos Project Monitor. The abatement areas must meet final visual and air clearance inspection criteria prior to building demolition. Re-occupancy air monitoring is required if the building will be re-entered by any person following abatement and prior to demolition. This includes but is not limited to entry for utility disconnects, salvage, and equipment removal.

The Asbestos Abatement Contractor must submit a notice of asbestos abatement to the State of Connecticut Department of Public Health (DPH) post marked or hand delivered ten (10) days prior to the commencement of any asbestos abatement activities involving the abatement of greater than ten (10) liner feet or twenty-five (25) square feet of ACM. The asbestos abatement notification satisfies the DPH regulatory requirements for demolition notification. For asbestos projects involving less than ten (10) liner feet or twenty-five (25) square feet of ACM or a project where no regulated ACM are identified, the facility owner or any person who will be conducting the demolition must submit a demolition notification to the State of Connecticut DPH post marked or hand delivered ten (10) days prior to the commencement of demolition activities.

The general inventory of surfaces containing high levels of lead includes the following: structural steel I-Beams and columns and metal lintels throughout the structure.

Additionally, several building materials were determined to contain low levels of lead in paint. Although these levels of lead were less than 1.0 mg/cm^2, the Contractor must perform an exposure assessment on employees during tasks that disturb the painted materials during demolition activities.

The remaining components and surfaces that were tested contain no lead in their respective coatings.

The U.S. Department of Labor Occupational Safety and Health Administration (OSHA) regulates lead dust exposure to workers in the construction industry under 20 CFR 1926.62 Lead Exposure in Construction; Interim Final Rule. Currently, OSHA does not define a threshold level of lead in paint that may cause worker exposure. Any detectable level of lead in paint (>0.0 mg/cm^2 +/- 0.3 mg/cm^2 by XRF) requires task specific exposure monitoring. This “initial exposure assessment”

must be conducted by trained workers utilizing appropriate personal protective equipment. Weston & Sampson recommends exposure assessments be conducted for each task where painted surfaces or components are disturbed during renovation/demolition activities.

Examples of tasks subject to initial monitoring when detectable levels of lead are identified include but are not limited to surface preparation for repainting, manual demolition of components with detectable levels of lead paint and the welding, cutting, or grinding of steel with detectable levels of lead in paint.

There were no TCLP samples of lead-paint collected from CES. Only metal components were identified to contain high levels of lead. During building demolition, the metal components must be removed and recycled at a facility that accepts lead.

Multiple building component “source” samples were collected and analyzed as a screening investigation for the presence of PCBs. Suspect “source” materials were identified in building components inside and exterior to CES. In order to develop a PCB Remediation Plan for the CES demolition project additional “source”, substrate (brick, mortar, cement), and soil samples need to be collected and analyzed for PCBs.

The film thickness of the brown paint on the structural steel, the floor tile wax, and the sink undercoating were not sufficient to collect source samples by conventional mechanical means and so they were presumed to contain PCBs greater than 50 ppm. These materials should be treated as PCB Bulk Product Waste or sampled and characterized using an alternate sampling protocol.

The beige paint with multi-colored specks is the primary interior paint coating. The paint has been applied primarily in the corridors, restrooms, and common areas. The paint contains greater than 50 ppm PCB which characterizes the materials as a PCB Bulk Product Waste. Source materials such as cove base mastic and interior caulks and substrate materials (concrete block, mortar, window/door frames that are in contact with the paint may also be considered PCB Bulk Product Waste.

It is unknown if mirror/corkboard/chalkboard adhesives containing PCBs are present in the building since the investigation was non-destructive. These building components are presumed to contain PCBs greater than 50 ppm. These adhesives should be sampled prior to development of a PCB Remediation Plan unless they are installed onto the primary interior paint coating; whereas the adhesives can be assumed to be PCB Bulk Product Waste.

The grey caulk at the seams of the exterior court yard is a PCB Bulk Product Waste. The black caulk that seals the same courtyard seams and the concrete pads are also PCB Bulk Product Waste as they are in contact with and inseparable from the grey courtyard seam caulk.

The PCB Bulk Product Wastes should be removed and disposed of in a hazardous waste landfill under 761.62(a), Performance Based Disposal, or in a non-hazardous waste landfill under

761.62(b) prior to demolition.

The CTDEEP regulates the removal and disposal of source materials, soil, or substrate materials with PCB concentrations in excess of 1 ppm. CTDEEP regulations 22a-463, 22a-464, and 22a-467 require materials containing greater than 1 ppm PCB be regulated for clean-up and disposal activities.

Although the exterior door frame, soffit, louver, and seam caulks; the secondary interior white paint (on concrete block in the classrooms and offices); the interior column, window/door frame, and window sill caulks; ceramic and floor tile mastics and adhesives that are not classified as PCB Bulk Products may qualify as Excluded PCB Products under USEPA 761.3, CTDEEP requires the removal and disposal of these materials as Connecticut Regulated Waste.

Substrates in contact with soils adjacent to Connecticut Regulated Wastes should be sampled to determine if they have been impacted by PCBs. If it is determined that the substrates and or soil contain greater than 1 ppm PCB, CTDEEP requires they be removed or disposed or a request for an exemption be filed and granted for the continued use or an item, product, or material containing PCB under Connecticut General Statute 22a-466.

USEPA requires Site Characterization of PCB Remediation Wastes. TSCA regulations 761 Subpart N provides a method for collecting new data to adequately characterize the Site. Porous substrates and soils adjacent to PCB Bulk Product Waste must be characterized for notification to USEPA under 761.61(a)(3). A minimum of three (3) samples of each representative substrate is required regardless off the quantity.

Examples of substrates in contact with the Primary Interior Paint (a PCB Bulk Product Waste) include concrete block, cove bases, adhesives and mastics, interior door and window frames. These substrates cannot be separated from the paint in a practical way so they can be considered PCB Bulk Product Waste.

Substrates in contact with the Exterior Courtyard Seam Caulk include concrete pads and soil. The concrete can be considered a PCB Bulk Product Waste. Courtyard soils adjacent to the caulk must be characterized.

Universal waste (fluorescent light tubes, lead acid batteries, Freon) must be properly recycled or disposed if these items will be disturbed or removed from the Site during renovation activities.

An opinion on the abatement of hazardous materials for the demolition project will be provided under separate cover.

7.0 LIMTATION OF WORK PRODUCT

This Phase II Environmental Site Investigation and HMBI Report was prepared for the use of

GBRC and the Town of Stratford, exclusively. The findings provided by Weston & Sampson in this report are based solely on the information reported in this document. Future investigations, and/or information that was not available to Weston & Sampson at the time of the investigation, may result in a modification of the findings stated in this report.

Should additional information become available concerning this Site or neighboring properties, which could directly impact the Site in the future, that information should be made available to Weston & Sampson for review so that, if necessary, conclusions presented in this report may be modified, The conclusions of this report are based on Site conditions observed by Weston & Sampson personnel at the time of the investigation, information provided by Town of Stratford personnel, and samples collected and analyzed on the dates shown or stated in this report. The report has been prepared in accordance with generally accepted engineering and geological practices. No other warranty, express or implied, is made.

FIGURES

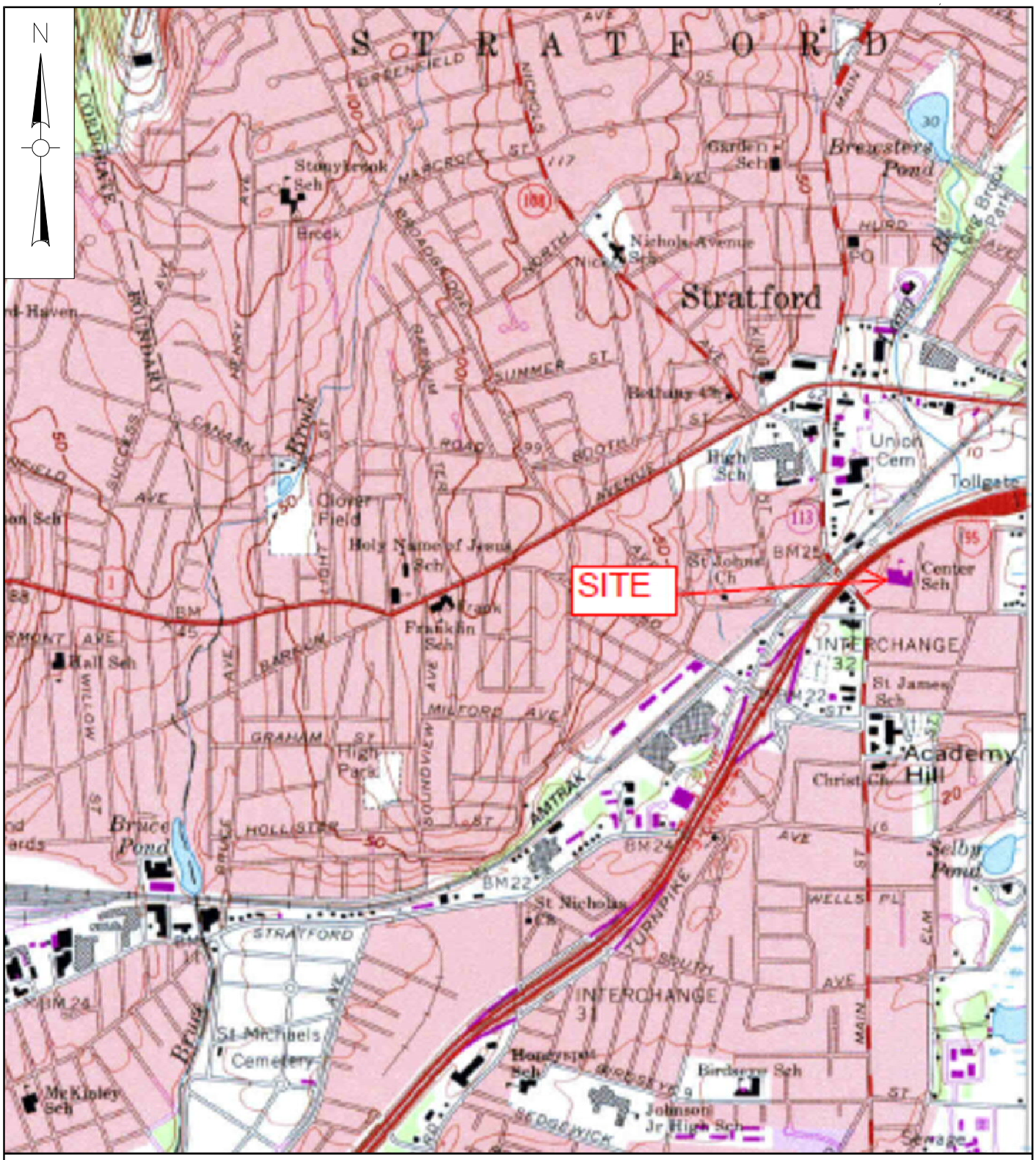


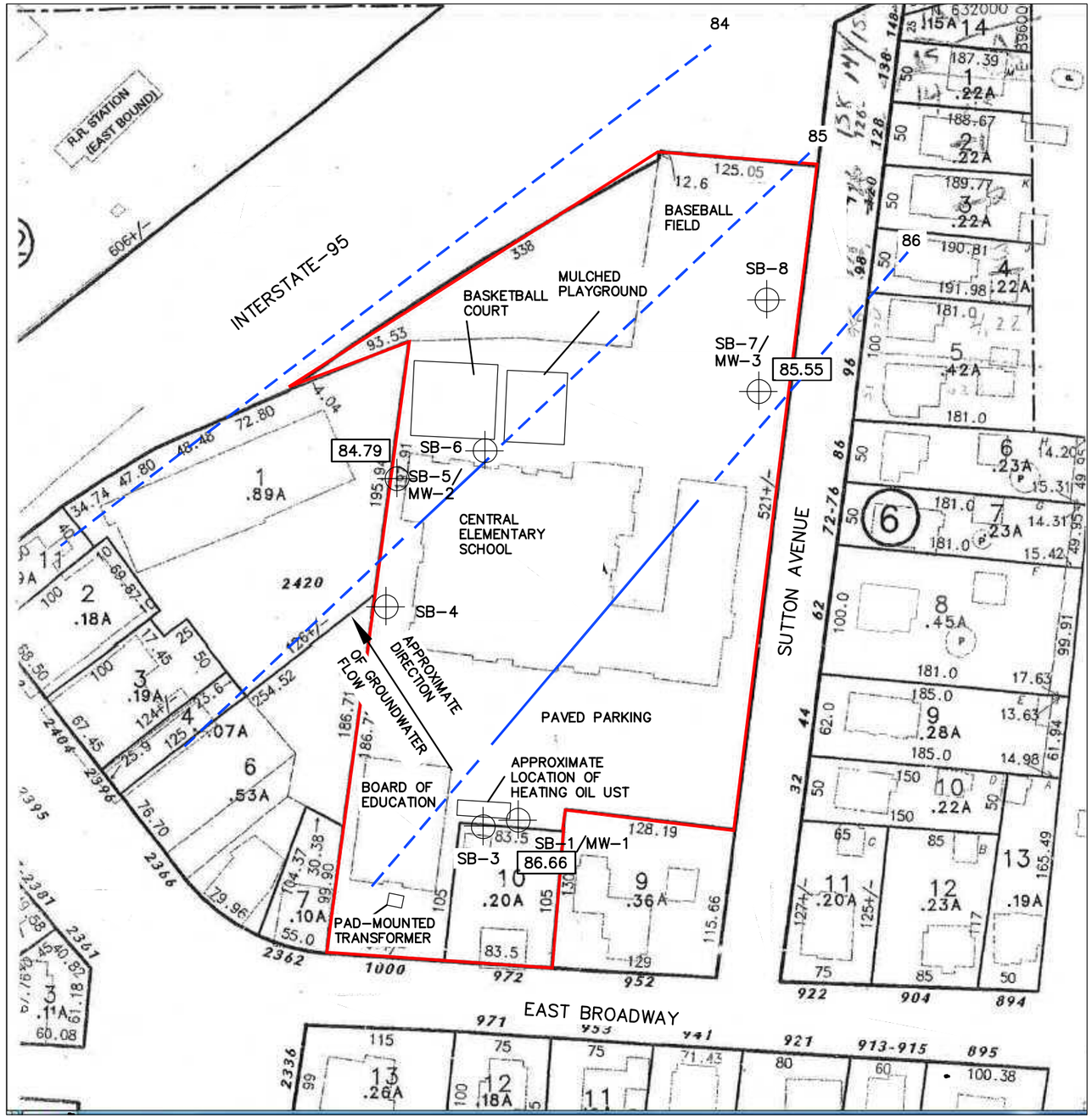
FIGURE 1
STRATFORD BOE & CENTER SCHOOL
PHASE II ENVIRONMENTAL SITE INVESTIGATION
1000 EAST BROADWAY
STRATFORD, CONNECTICUT
SITE LOCUS MAP

APRIL 2014 SCALE: 1" = 24000'

0 24,000' 48,000'

NOTE:

LOCUS MAP DERIVED FROM ENVIRONMENTAL DATA RESOURCES TOPOGRAPHIC MAP REPORT. BRIDGEPORT, CT 1984



N

SCALE: 1" = 100'

0 100' 200'

LEGEND:

SITE BOUNDARY

PROPOSED TEST BORING LOCATION

PROPOSED GROUNDWATER MONITORING WELL LOCATION

86.66 GROUNDWATER ELEVATION MEASURED ON JUNE 26, 2014

86 GROUNDWATER CONTOUR AND ELEVATION; DASHED WHERE INFERRED

NOTE:

SITE PLAN DERIVED FROM TOWN OF STRATFORD, CT TAX ASSESSORS MAP

FIGURE 2

TEST BORING/MONITORING WELL LOCATIONS

STRATFORD BOE & CENTER SCHOOL

PHASE II ENVIRONMENTAL SITE INVESTIGATION

1000 EAST BROADWAY

STRATFORD, CT

SITE PLAN

AUGUST 2014 SCALE: AS SHOWN

Weston&Sampson®