Prepared for:
Town of East Hampton
East Hampton, CT

Remedial Investigation Report

Former Gong Bell Site

103 Main St, East Hampton, CT

AECOM, Inc.
July 2009
Document No.: 60046844

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Reviewed By

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1.0 Introduction

AECOM USA, Inc. (AECOM) was contracted by the Town of East Hampton (the "Town") to conduct a Remedial Investigation (RI) at the former Gong Bell property, located at 103 Main Street, East Hampton, Connecticut (the "site"). The Town was awarded a United States Environmental Protection Agency (USEPA) Brownfields Cleanup grant for the Gong Bell site, which is located in the Village Center area. The Town intends to redevelop this Brownfield site as a parking lot for the nearby Town Library. It is anticipated that the remediation plans will include the capping of contaminated soils at the site that will be integrated with the parking lot redevelopment plans.

The RI was performed in general accordance with the Quality Assurance Project Plan (QAPP) Addendum (AECOM, April 2009), which was approved by the USEPA on April 15, 2009. In addition to the information and data collected by AECOM during this RI, information from previous environmental investigations has been incorporated into this report.

This report is subject to the Statement of Limitations provided as Appendix A.

1.1 Objectives and Scope of Work

The overall objective of this RI was to refine the lateral extents of impacted soil exceeding regulatory criteria. The results of this investigation will be used to develop a Remedial Action Plan (RAP) for the site. Remediation will be completed pursuant to the Connecticut Remediation Standard Regulations (RSRs), Section 22a-133k-1 through 22a 133k-3.

A secondary objective of this RI was to further evaluate groundwater quality, with a specific focus on the up-gradient portion of the site, where previous investigations indicated a potential for offsite metals contamination to migrate onto the site. These investigation results will be incorporated into the RAP.

The specific tasks performed as part of this RI to meet the stated objectives are presented below:

Pre-Field Tasks

- Preparation of a site specific QAPP Addendum and Health and Safety Plan (HASP) to provide guidelines for the RI work;
- Coordination with the USEPA, CTDEP, Town of East Hampton and subcontractors; and
- Sample location stakeout and utility clearance.

Field Work

- Conduct site surveying and mapping;
- Complete Geoprobe® soil borings and monitoring well installation to provide for soil and groundwater sample collection;
- Collect groundwater measurements;
- Collect surficial and soil boring soil samples to provide chemical data; and

- Collect groundwater samples utilizing the low flow sampling methods to also provide chemical data and evaluate potential migration pathways.

Reporting Tasks

- Provide a description of the soil sampling, monitoring well installation, and groundwater sampling activities;
- Provide soil boring, well installation, and groundwater sampling logs;
- Summarize and evaluate soil and groundwater sampling;
- Compare and evaluate analytical results with RSR criteria;
- Provide figures presenting the soil and groundwater data;
- Provide a narrative of the analytical results; and
- Provide conclusions and recommendations.

AECOM notes that subsequent to submittal and USEPA approval of the April 2009 QAPP Adddendum, additional conditions at the site were identified prior to the scheduled commencement of field investigation activities. An imported fill material was observed to be spread across the open area of the site, covering the approximate western, southwestern portion of the property. The ~~imported~~ fill material ~~was~~ reportedly placed on-site during adjacent bridge work that occurred during the months preceding the RI. Additional soil borings and analytical analyses were performed to evaluate the environmental condition of this imported fill material, and a discussion of the results obtained is provided herein. All additional investigation activities were approved by the Town prior to commencement of field activities.

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is assumed to have been surplus soil resulting from the replacement of the main street bridge located adjacent to the site. Placement of the fill occurred during

2.0 RSR Criteria

The following regulations and associated criteria are presented as they have been used to compare and evaluate the soil and groundwater data obtained during this Investigation.

2.1 Connecticut Remediation Standard Regulations

The Regulations of Connecticut State Agencies (RCSA) Sections 22a-133k-1 through 22a-133k-3, inclusive, comprise the RSRs. These regulations are applicable to various sites in Connecticut including those undergoing investigation and remediation through the Property Transfer Program (PTP), under an administrative order from CTDEP, or under one of Connecticut's voluntary remediation programs. The subject site was entered into the Voluntary Remediation Program (Section 22a-133x) on August 12, 2008, when an Environmental Condition Assessment Form (ECAF) was submitted to and received by the CTDEP. Therefore, the Connecticut RSRs are directly applicable to the site. The Connecticut RSR criteria are discussed in the following subsections.

2.1.1 Soil Remediation Criteria

The RSRs contain numerical, default criteria for contaminated soil associated with a release area that are based on both the potential for direct human health impacts from exposure to contaminants (direct exposure criteria) and on the potential for the soils to have an adverse impact on groundwater (pollutant mobility criteria). Two sets of direct exposure criteria are specified: one derived for residential land use, and the other derived for industrial and commercial land use. Similarly, two sets of pollutant mobility criteria are specified: one for areas with a groundwater classification of GA/GAA, and one for a groundwater classification of GB. Class GA/GAA groundwater is groundwater that is an existing or potential source of potable water and is presumed to be suitable for human consumption without the need for treatment. Class GB groundwater is presumed to have been degraded by past urban or industrial activities and may not be suitable for human consumption without treatment. Additional information on these criteria is presented in the following sections.

Direct Exposure Criteria (DEC)

The RSR definition of "residential activity" includes activities related to a residence or dwelling, as well as activities related to schools, hospitals, daycare centers, playgrounds, or outdoor recreation areas. The residential direct exposure criteria (Res DEC) apply in areas with residential activities, but are also the default criteria used to evaluate potential human exposure in all areas. Industrial/commercial direct exposure criteria (I/C DEC) may be applied to areas that do not fit the definition of residential activity, but an Environmental Land Use Restriction (ELUR) must be recorded to prevent residential uses of the property. These criteria are for comparison to soils data analyzed on a mass of contaminant to mass of soil basis (typically milligram per kilogram, or mg/kg).

Pollutant Mobility Criteria (PMC)

The RSRs for organic contaminants include a set of numerical pollutant mobility criteria (PMC) for contaminated soils on a mass/mass basis. Alternatively, organic contaminants can be analyzed using the toxicity characteristic leachate procedure (TCLP) or synthetic precipitation leachate procedure (SPLP), with the results compared to the groundwater

protection criteria (GWPC) based upon the mass of the contaminant per liter of leachate, reported in mg/L.

The PMC for inorganic contaminants (metals) are based on TCLP or SPLP analysis of the soil. For GA areas, the PMC equal the GWPC, for GB areas, the PMC are 10xGWPC. However, under certain circumstances specified in the RSRs, the same 10 times factor may be applied in GA areas.

The RSR criteria for inorganic contaminants are based on TCLP or SPLP analysis of the soil, but the PMCx20 screening method may be used to evaluate the potential for PMC exceedances. The PMCx20 screening method represents the theoretical maximum concentration of a contaminant that may leach from the soil. The CTDEP allows this screening method to evaluate potential PMC exceedances without having to perform leachable testing.

Depending on the groundwater classification, the RSRs include various options such as alternate PMC or the application of dilution factors. If site-specific criteria or dilution factors are proposed, a site-specific demonstration must be made that after dilution with on-site groundwater, the GWPC will not be exceeded. Alternative PMC requires CTDEP approval.

2.1.2 Groundwater Remediation Criteria

The RSRs also contain numerical, default criteria for contaminated groundwater associated with a release area. Criteria are established to protect groundwater and surface water resources, and to protect human health from contaminants that may volatilize from contaminated groundwater. Additional information on these criteria is presented in the following sections.

Groundwater Protection Criteria (GWPC)

The RSRs specify only one set of groundwater protection criteria for both GA and GB areas. However, the remediation goals differ by groundwater classification. For GA areas, the goal is to maintain background concentrations or, at a minimum, the default GWPC. In GB areas, the goal is to maintain the quality of the groundwater to support existing uses.

Surface Water Protection Criteria (SWPC)

The surface water protection criteria (SWPC) is used to evaluate potential impacts to surface waters that receive discharge of contaminated groundwater. If the discharge of such groundwater interferes with the attainment of surface water quality standards, then groundwater remediation may be required. In addition, if the groundwater discharges to a wetland or to an intermittent stream, aquatic life criteria (ALC) and human health criteria (HHC) established in Appendix D of the Water Quality Standards (CTDEP, December 17, 2002) are used to evaluate the need for remediation. According to the RSRs, alternative surface water protection criteria (ASWPC) may be calculated and submitted to CTDEP for approval.

Volatilization Criteria (VC)

The RSRs include volatilization criteria (VC) for contaminated groundwater within 30 feet of the ground surface or a building (proposed March 2003). The intent of these criteria is to prevent human exposure to volatile organic vapors emanating from impacted groundwater. As with the soil criteria, volatilization criteria for both residential (R VC) and industrial/commercial (I/C VC) uses are specified, and alternative criteria may be developed with the approval of the CTDEP. Groundwater on the site is typically found within 10 feet of the ground surface.

2.2 Additional RSR Information

In addition to the criteria discussed above, the RSRs include additional information on statistical evaluation of sample data, such as the use of 95% upper confidence level data to compare to the RSR criteria; rendering soil that exceeds DEC inaccessible, which requires the institution of environmental land use restrictions; reuse of polluted soil; engineered controls of contaminated media; remediation requirements for non-aqueous phase liquids (NAPL); development of criteria for substances that are not specified in the RSRs; development of alternative criteria; technical impracticability; and other issues. In addition, there are soil vapor criteria and indoor air target concentrations that may be used to evaluate volatilization issues if the VC are exceeded.

2.3 Summary of RSR Criteria Applied to the Site

Based on the GA groundwater designation in the area and the potential land uses of the site following redevelopment, the RSR criteria that apply to soil data obtained from this investigation are the GA PMC and Res DEC. Since the Res DEC are the RSR default criteria, and the RSRs permit implementation of ELURs that constrict future use of a site to non-residential uses, comparison to the I/C DEC is also discussed, although would not be directly applicable until an ELUR is recorded. Groundwater data are compared to the GWPC, SWPC, Res VC, and for comparison purposes the I/C VC.

In addition to the default RSR criteria utilized to evaluate contaminant concentrations in soil, the GWPC was used to compare SPLP results of organic compounds. Total metal concentrations were screened for potential GA PMC exceedances using the mass based PMCx20 screening method.

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3.0 Site Description and Environmental Conditions

3.1 Site Setting and History

The site, referenced by the East Hampton Tax Assessor's Office as Map 06A Block 57, Lot 2B, is comprised of approximately 0.45-acres, located at 103 Main Street in East Hampton, Connecticut (Figure 1). The site is zoned commercial, and is located in a mixed residential and commercial area. The site has been owned by the Town of East Hampton since October 2003. At least a portion of the site is located within the 100 year flood plain.

Let's be clear that GONG existed over several parcels; not just this one

The site was occupied by the Gong Bell Manufacturing Company between approximately the late 1800s through the 1960s. The Gong Bell Manufacturing Company manufactured cast-iron and wooden toys. Previous investigations have suggested that painting and merchandise storage may also have occurred at the site, though this has not been confirmed. A sheet metal manufacturing company (BSR Sheet Metal Manufacturing) also occupied the site during the 1970s. The former building had been vacant since approximately 1980, and was used by the East Hampton Fire Department for controlled fire burning exercises during the 1990s. The former building was demolished in approximately 1998, and with the exception of a small, one room brick structure, the site is currently vacant.

3.2 Surrounding Properties

Properties nearby the former Gong Bell property have various uses. The site is bound to the north by an industrial complex, to the east and south by Pocotopaug Creek, across which is the Town Library, and to the west by Main Street, across which is Diamond Fuels (former G&S Station).

According to the T&B Phase I ESA, petroleum releases have been documented at the former G&S Station, though this facility was not considered hydraulically upgradient of the site. Additionally, a former industrial facility (L&W Industries) is located within the vicinity of (and upgradient of) the site. Volatile organic compound (VOC) impacts were identified on this property, according to the T&B Phase I ESA.

3.3 Previous Investigations

The following previous investigations performed at the site were provided to AECOM for review, and were used to develop the scope of work for this RI.

3.3.1 Phase I ESA and Phase I ESA Update, Tighe & Bond 2003 and 2005

A Phase I ESA was completed by T&B in 2003, and was subsequently updated in 2005. Four potential areas of concern (pAOC) were identified by T&B during the 2005 Phase I ESA Update. The pAOCs identified at the site included the following:

- pAOC 1 Historic On-Site Fill;
- pAOC 2 Suspected Former Underground Storage Tank (UST);
- pAOC 3 Former Industrial Building; and

- pAOC 4 Former Wastewater Disposal System.

Contaminants of Concern (COCs) identified include the following:

- Volatile Organic Compounds (VOCs);
- Extractable Total Petroleum Hydrocarbons (ETPH);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Polychlorinated Biphenyls (PCBs); and
- Metals (13 Priority Pollutant Metals (PP-13 Metals), including Silver, Arsenic, Beryllium, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Antimony, Selenium, Thallium, and Zinc.

According to the T&B Phase I ESA, the CTDEP ordered the installation of a public supply water system in 1992 after VOCs were detected in the East Hampton Village Center. The source of the VOCs has not been identified. Source water for the Village Center water system, provided by two bedrock wells, is also treated for VOCs before distribution. Quarterly monitoring of the Village wells has shown VOC levels to be decreasing steadily from 1990 to at least 2002. Correspondence regarding VOC contamination at the site was provided in the QAPP Addendum (AECOM April 2009).

3.3.2 Phase II ESA, Tighe & Bond 2005

A Phase II ESA was conducted by T&B in 2005, subsequent to completion of the Phase I ESA update. A total of 13 soil borings and four monitoring wells were completed at the site at that time. In addition, three sediment samples were collected from Pocotopaug Creek as part of the Phase II investigation. Borings completed are shown on Figure 2.

During the Phase II ESA, no evidence of the suspected former UST (pAOC 2) was found, and no significant petroleum impacts were identified. The former wastewater disposal system (pAOC 4) was suspected to have impacted sediments in Pocotopaug Creek through potential direct discharge of wastewater to the creek. During the Phase II ESA, it was suggested that, based on off-site sediment sampling analysis, a release impacting the sediments of Pocotopaug Creek had occurred. Several metals, PAHs, and ETPH were detected; however, there are no remediation standards for freshwater sediment. Additionally, based on the available data and proximity of surrounding area industrial facilities with respect to the stream, the presence of impacts to stream sediments or may not be directly attributable to releases resulting specifically from the site at this time. The Town of East Hampton is planning to address sediment and surface water quality issues in Pocotopaug Creek along the reach running through the Village Center area once additional funding is obtained from the EPA (T&B, 2006).

Evidence of pAOC 1, historic on-site fill, including ash, coal, brick, glass, and wood were observed in several borings completed on the central and southern portions of the site. The historic fill was identified at depths ranging between one to six feet below ground surface (bgs). Observations made during completion of the Phase II ESA suggested the historic fill exists over most of the site, with the exception of possibly the far eastern portion, and the northern and western boundaries.

Little information pertaining to waste management history or industrial practices including discharges to the ground surface at the site is available. Based on previous site operations, various paints, solvents, oils, and/or metals containing products are likely to have been used. Impacts of several COCs, including metals (antimony, arsenic, copper, and lead), ETPH, and PAHs were identified in historic fill samples collected, primarily within the former building footprint, and ranging in depth from one to six feet below ground surface (bgs). Exceedances of RSR criteria observed included metals (antimony, arsenic, copper and lead) and PAHs. Based on the similarity of concentrations of metals and PAHs observed in soil and groundwater samples from within and outside of the building footprint, RSR exceedances were attributed to contaminants associated with the fill materials rather than specific industrial activities.

Select soil samples were also analyzed for PCBs; one soil sample from within the footprint of the former industrial building, one soil sample from an area outside the footprint of the former building, and three sediment samples. No PCBs were detected above 1 mg/kg in these samples; therefore PCBs were ruled out as a potential COC for this site.

In addition, antimony, lead, and zinc were detected in groundwater samples collected at concentrations that exceeded their respective GWPC and/or SWPC. The site is located upgradient of the Town Library, which has a community water supply well on the property. Several private residences also utilize private supply wells within approximately one half mile of the site (T&B, 2005). On this basis, the Town filed a Significant Environmental Hazard (SEH) report with the CTDEP due to an exceedance of the GWPC in groundwater within 500 feet of a public supply well. The Town Library supply well was sampled in 2005.

3.4 Site Geology and Hydrogeology

Pocotopaug Creek abuts the site on the southern and eastern site boundaries. The Creek is classified by the CTDEP as C/B. Inland surface waters classified as C/B are those that, due to point or non-point sources of pollution, currently do not meet certain Class B Water Quality Criteria or one or more designated uses. The water quality goal is achievement of Class B criteria and attainment of Class B designated uses. Class B waters are those known or presumed to meet Class B Water Quality Criteria that support the following designated uses: recreational use; fish and wildlife habitat; agricultural and industrial supply and other legitimate uses, including navigation.

The CTDEP has designated the groundwater quality in the area of the site as GA/GAA which suggests that groundwater is suitable for drinking without treatment; however, groundwater may not meet the GA/GAA water quality standards since the CTDEP previously ordered the Town of East Hampton to construct a public water supply system to provide potable drinking water to 19 properties in the Village Center due to the detection of VOCs in groundwater.

According to the T&B Phase II ESA, depth of groundwater on the site ranged between four and six feet bgs. Groundwater was encountered between three and eight feet bgs during AECOM's RI. Based on groundwater elevation measurement collected in May 2009, groundwater was determined to flow in a south, southeasterly direction toward Pocotopaug Creek. T&B's groundwater flow direction includes a slightly more southerly flow direction component. This

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variation may be the result of seasonal and/or temporal changes effecting the water table and adjacent surface water body (Pocotopaug Creek). Groundwater elevation data collected on June 17, 2009 is summarized in Table 1, and a groundwater elevation contour map is provided as Figure 3. AECOM notes that since a T-2 topographic survey was performed at the site prior to field sampling activities, the elevation of MW-5 has not been surveyed by a licensed surveyor, but is planned to be surveyed during future site activities.

According to the Surficial Materials Map of Connecticut (Janet Radway Stone, et al, 1992), the surficial soils underlying the site are mapped as glacial till. Glacial till is defined as glacial drift composed of an unconsolidated, poorly sorted mixture of clay, silt, sand, gravel, and boulders. According to the Middlesex County Soil Survey, surficial soils at the site are classified as "Udorthents", which refers to urban soils that have been extensively altered by cutting or filling activities (T&B, 2005 Phase II ESA). This is consistent with observations made during the previous Phase II ESA (T&B 2005) and AECOM's RI performed in 2009. Historic fill containing ash, cinders, coal, brick, glass, brick, and wood fragments were observed to a depth of approximately six feet bgs across most of the site during the previous Phase II ESA. This fill material was also observed at similar depths during AECOM's May 2009 RI. Native materials observed beneath the historic fill consisted primarily of medium to fine sand, silt, and gravel, with coarser sands in the saturated soils.

Since the previous T&B Phase II ESA, the bridge adjacent to the southwestern corner of the site was reconstructed. During bridge construction work, apparently a non-native, imported fill material was placed across most of the open areas on the western, southwestern portion of the site. This imported fill material reportedly originated from stream sediment dredging which occurred around the footings of the bridge during construction. The imported fill material reportedly covers between approximately one-third to one-half of the site, encompassing the area around MW-1 and MW-2 near the northern-central boundary of the site, south of the existing tree line, to just north of soil boring B-16 near the southeastern boundary. The imported fill is present at a thickness of approximately two feet over most of the open areas of the site. This fill layer was investigated during AECOM's May 2009 RI, and materials observed were primarily medium to fine sand and gravel with some silt. Details pertaining to this imported fill material are further discussed in subsequent sections.

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surplus material resulting from the adjacent bridge construction project

4.0 Supplemental Environmental Investigation Activities

4.1 Pre-Field Work

The RI work performed at the site was completed in accordance with M&E's March 15, 2006 Generic QAPP and AECOM's April 10, 2009 QAPP Addendum, which were reviewed and approved by USEPA Region 1. The QAPP's included a sample design, which utilized the Conceptual Site Modeling (CSM) process described in the text entitled "Conceptual Site Modeling: A Process for Effective Site Characterization, Environmental Professionals' Organization of Connecticut, June 8 & 12, 2001, Gray Conference Center, University of Hartford".

Prior to initiating intrusive field activities at the site, a site-specific HASP was developed. The HASP was designed to meet the requirements of 29 CFR 1910.120. The HASP assumed that modified Level D personal protection was sufficient for all field work. The air in the breathing zone was monitored for organic vapors during intrusive activities using appropriate instrumentation. In addition, Call-Before-You-Dig (CBYD), a public utility locating service, was contacted to minimize interruption of buried utlilities. All work was conducted in Modified Level D personal protective equipment.

Three contractors were procured for field and laboratory services: Aquifer Drilling & Testing, Inc. (ADT) of Bloomfield, Connecticut (soil boring and monitoring well installation services); Con-Test Analytical Laboratory (Con-Test), of East Longmeadow, Massachusetts (analytical laboratory services); and Nafis & Young Engineers, Inc. (N&Y) of Northford, Connecticut (licensed surveyor).

4.2 Soil Borings

Initially, six soil borings and one monitoring well were planned for this investigation. Upon the discovery of the imported fill material identified in the cleared area of the site (discussed below), two additional shallow soil borings were completed, and additional shallow soil sampling was performed in one of the existing planned soil borings. In total, eight soil borings and one monitoring well were completed at the site on May 21, 2009. The soil borings were drilled to depths ranging between three and 15 feet bgs. Soil boring locations are shown on Figure 2. Refusal was encountered at seven feet bgs in one boring completed in the northeastern corner of the site (B-14). Groundwater was not encountered at this location. The water table was encountered at approximately three to 3.5 feet bgs on the southeastern portion of the site in borings completed adjacent to the stream (B-15 and B-16), and approximately seven feet bgs along the northern (MW-5 and B-19) and western (B-17) site boundary. Groundwater was encountered slightly deeper (approximately eight feet bgs) in the northwestern corner of the site (B-18).

Historic fill materials at the site, previously described as pAOC 1 Historic Site-Wide Fill, were observed in the upper (approximate) six feet bgs in all soil borings completed at the site with the exception of B-14 (northeastern boundary) and B-15 (eastern perimeter, adjacent to the stream). Historic fill materials observed contained black sand, ash, cinders, brick, and some coal slag, glass, and wood fragments. Native soils beneath this historic fill layer were comprised primarily of

a tan-gray, medium to fine sand, silt, and gravel, with some areas containing coarser sands in the deeper, saturated soils.

Additionally, an imported fill material was observed in the upper (approximate) two feet in the southwestern-central, open area of the site (B-17, B-20, and B-21). This material appears to encompass MW-1 and MW-2 along the northern site boundary, south of the existing tree line, to just north of boring B-16 in the southeastern corner of the site, and includes the area around MW-4. The southwestern portion of the site has also been regraded, and appears to extend to the creek around the bridge footings.

The imported fill material observed in the central portion of the site consisted primarily of a brown, medium to fine sand with some silt and gravel. This material may potentially be present in the northwestern corner of the site (B-18) based on boring logs completed, indicating that soils in this area appeared to have been reworked; however, this could not be verified and a ground elevation survey would need to be completed to confirm the areal extent of the imported fill. Demolition debris (i.e., large pieces of asphalt and concrete rubble) were also observed at the ground surface in the vicinity of this soil boring. Soil boring logs are located in Appendix B.

With the exception of soil boring B-15, the soil borings were completed using a Geoprobe 6610 DR track mounted rig. Due to site access constraints, boring B-15 was completed using a 3-inch bucket hand auger in (approximate) one-foot intervals. Geoprobe sample cores were collected using clean, disposable acetate liners and retrieved in 5-foot intervals. Each core was logged by the field geologist and field screened using a photo-ionization detector (PID). Dedicated disposable sampling trowels were used to collect samples. All soil samples were collected in clean, laboratory provided jars, stored on ice with proper preservatives, and handled in accordance with chain of custody protocols. Samples for chemical analyses were submitted via courier service to ConTest.

Up to two sample aliquots were collected from each soil boring. One aliquot was collected from the shallow, 0-5 foot interval (which was typically collected in the historic fill layer). A deeper sample was also collected at some locations from the native site materials, typically spanning the water table, to evaluate impacts potentially resulting from the historic fill or historic site activities. An additional shallow sample was collected from the imported fill encountered at boring B-17, and shallow sampling was performed on this imported fill material in borings B-20 and B-21. Soil samples collected from the primary soil borings (i.e., original planned locations) were submitted to Con-Test for analysis of one or more of the following parameters:

- Volatile Organic Compounds (VOCs) by EPA Method 5035/8260b;
- Extractable Total Petroleum Hydrocarbons (ETPH) by CTETPH Method;
- Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270c and SPLP SVOCs by EPA Methods 1312/8270c; and
- RCRA 8 Metals plus antimony and copper by EPA Method 6010B/7471 and SPLP Metals by EPA Method 1312/6010B/6020A/7471.

Due to the unconfirmed origin of the imported fill material, samples that were collected from this material were also analyzed for the following:

- Connecticut 15 RSR Metals by EPA Method 6010B/7471 and SPLP Metals by EPA Method 1312/6010B/6020A/7471;

- Pesticides by EPA Method 8081A; and
- PCBs by EPA Method 8082.

SPLP analysis was performed on soil samples based on the results of the total concentration analysis. Excess soil cuttings were placed back into the open boreholes, and all soil borings were backfilled with clean sand to existing grade if necessary, with the exception of MW-5 which was completed as a groundwater monitoring well.

4.3 Monitoring Well Installation and Well Development

One monitoring well (MW-5) was completed on May 21, 2009. The monitoring well was installed to a depth of 15 feet bgs, and constructed of 2-inch diameter PVC with 10 feet of 0.010-inch slotted screen. The screened interval spanned the water table. The well was completed with a 4-inch, steel stick-up standpipe set in a concrete apron. The well was developed upon completion using a whale pump until visibly clear of sediment. Approximately 35-gallons of development water was generated and collected in a 55-gallon steel drum, which was stored in a wooded area on-site. A monitoring well construction log is presented in Appendix C.

4.4 Groundwater Measurement and Sampling

Five groundwater monitoring wells (four existing, one new) were sampled on June 17, 2009. USEPA low-flow groundwater sampling procedures were followed (as described in the QAPP and QAPP addendum), and a peristaltic pump was used to collect the groundwater samples. The sampling intake was set at the approximate mid-point within the screened interval using dedicated, quarter-inch polyethylene tubing. The discharge from the pump was routed through a YSI 600XL water-quality meter that measured dissolved oxygen, pH, temperature, ORP, and specific conductivity. The discharge was also analyzed for turbidity using a Lamotte 2020 Turbidity Meter. These parameters were recorded on the groundwater sampling logs provided in Appendix D. The groundwater was sampled after the parameters stabilized in accordance with USEPA low-flow protocol. The samples were preserved with ice, as well as hydrochloric acid for VOCs and nitric acid for metals, and submitted to Con-Test for the following analyses of one or more of the following:

- VOCs by EPA Method 8260b;
- ETPH by CTETPH Method;
- Poly-cyclic Aromatic Hydrocarbons (PAHs) by EPA Method 8270c; and,
- RCRA 8 Metals plus antimony and copper by EPA Method 6010B/7470A.

4.5 Deviations from QAPP

The following deviations from the April 2009 QAPP Addendum prepared for the RI are summarized as follows:

- Six Geoprobe® soil borings were planned for this investigation. One soil boring (B-15) was completed using a hand-auger since access to this portion of the site using the Geoprobe track rig was not possible due to site topography;
- Two additional shallow (five feet bgs) soil borings were completed to evaluate a layer of non-native, imported fill material that was not present on-site when the QAPP Addendum was prepared and approved. An additional shallow soil sample was also collected from one of the planned sampling locations (B-17) for further characterization of the imported fill material, thus the sampling interval at this location was slightly deeper than planned due to the new ground surface being approximately two feet higher than previously thought;
- Due to the unconfirmed origin of the imported fill material, soil samples collected from the additional locations were analyzed for all 15 Connecticut RSR metals and pesticides. Further, due to the unknown leachability potential of contaminants in this material, all three soil samples were analyzed for SPLP metals if the 20x rule was exceeded; and
- Based on the adjusted dimensions of the site boundaries and existing monitoring well locations, the boring locations on the northern site boundary (MW-5 and B-14) were moved slightly to the south such that they remained within the site boundaries. Due to the inaccuracy of the scale on the previous map, previous boring locations could not be adjusted to the new scaled locations, thus with the exception existing monitoring wells that were shared with previous boring locations, the other soil boring locations shown in Figure 2 are approximate. Further, boring B-17 was moved approximately 15 feet to the west of the property boundary due to the presence of underground utilities (fiber optics line) in this area.

which one ? The A-2 ?

5.0 Sampling Analytical Results

Laboratory analytical reports for the soil and groundwater samples are located in Appendix E. The analytical results were evaluated with respect to the RSR criteria. Soil sample analytical results are summarized in Table 2. Groundwater sample analytical results are summarized in Table 3. Groundwater RSR exceedances, both current and historic, are shown on Figure 3. Soil RSR exceedances, both current and historic, as well as exceedances associated with the historic and imported fill materials, are shown on Figure 4. Soil RSR exceedances associated with the imported fill material are shown on Figure 5.

5.1 Soil Analytical Results

Eight soil borings and one monitoring well were completed as part of this investigation, and twelve soil samples were collected (includes one duplicate from B-17). Additionally, a soil sample was collected from the historic fill layer encountered in the MW-5 soil boring, which was analyzed for total and SPLP RCRA 8 Metals plus antimony and copper. Soil analytical results are discussed below.

VOCs. Twelve soil samples (including one duplicate from B-17) were collected and analyzed for VOCs. Trace concentrations (less than 1 mg/Kg) of acetone and 2-butanone (MEK) were detected in one of the samples collected (B-20 0.5-1.5 ft bgs) at concentrations that did not exceed any RSR criteria. These compounds are common laboratory contaminants. No VOCs were detected in any other sample collected.

ETPH. Twelve soil samples (including one duplicate from B-17) were collected and analyzed for ETPH. ETPH was detected in all samples analyzed with the exception of B-14 and the deeper sample collected from B-19 (4-5 ft bgs), which was collected below the historic fill. The concentration of ETPH reported in two samples (B-15 and B-20, both from the upper 1.5 feet bgs) was detected above the Res DEC and GA PMC of 500 mg/Kg. The concentration in both of these samples was 530 mg/Kg. The sample from B-20 was collected from the imported fill material. No historic or imported fill was observed at B-15. ETPH was not detected above RSR criteria in any other samples collected. Detected concentrations of ETPH in other samples ranged from 12 mg/Kg (B-16 5-6 ft bgs) to 490 mg/Kg (B-17 4-5 ft bgs). A slightly elevated concentration of ETPH (230 mg/Kg) was reported in the imported fill sample collected from B-17, and a low concentration (16 mg/Kg) was reported in the other sample collected from the imported fill (B-20).

SVOCs. Twelve soil samples (including one duplicate from B-17) were collected and analyzed for SVOCs. Three PAH-related SVOCs (benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene) were detected above the Res, I/C DEC, and/or GA PMC in six samples collected (including one duplicate) from four soil borings. Two locations where DEC or PMC exceedances were detected were from samples collected from the imported fill material (B-17 (0.5-1.5 ft bgs) and B-20 (0.5-1.5 ft bgs)). Compliance with PMC exceedances was achieved by SPLP analyses performed at the location with the highest reported concentrations of total SVOCs (B-20), which was collected from the imported fill material (discussed below).

SPLP PAHs. Since no non-PAH related compounds of concern were identified in soil samples collected, SPLP PAH analyses was performed on one sample collected from the imported fill material (B-20). This sample had the highest concentrations of PAH-related SVOC compounds

by mass analyses. Two compounds were detected (fluoranthene and phenanthrene) at concentrations that were well below the GWPC, therefore PMC exceedances in this sample are negated. Based on this, mass analytical results from other samples may not exceed the PMC if SPLP analyses had been performed.

RCRA 8 Metals + Antimony & Copper. Ten soil samples (including one duplicate from B-17) from seven soil borings (including the monitoring well boring) were collected and analyzed for RCRA 8 Metals plus antimony and copper. Analytical results of mass analyses of metals are summarized as follows:

- Antimony was detected above the Res DEC (27 mg/Kg) in four samples (including the duplicate) collected from three soil borings (B-16, the deeper sample from B-17, and B-18). Concentrations detected ranged from 32 mg/Kg (B-18 3.5-4.5 ft bgs) to 240 mg/Kg (B-16 2-3 ft bgs). Antimony was detected in four other samples at concentrations that did not exceed RSR criteria. Antimony was not detected in any of the samples collected from the imported fill material.

- Arsenic was detected above the Res and I/C DEC (both 10 mg/Kg) in four samples collected from four soil borings (B-16, the deeper sample from B-17, B-18 and the shallow sample from B-19). Detected concentrations of arsenic ranged from 5 mg/Kg to 9 mg/Kg in all other samples collected with the exception of the deeper sample collected from B-19 and the sample collected from the historic fill at MW-5. Arsenic was not detected at either of these locations, and no other exceedances of the DEC were detected at other locations (where detected).

- Copper was detected in two samples (B-18 at 7,100 mg/Kg and the shallow sample from B-19 (2-3.5 ft bgs) at 4,100 mg/Kg) at concentrations that exceeded the Res DEC (2,500 mg/Kg). Slightly elevated concentrations (but below criteria) of copper (1,500 mg/Kg and 1,200 mg/Kg) were detected in the samples collected from the historic fill in B-17 (4-5 ft bgs and the duplicate). No other exceedances of RSR criteria were detected in other samples collected. Concentrations ranged from 3.0 mg/Kg (MW-5) to 620 mg/Kg (B-15) in all other samples.

- Lead was detected above the Res DEC (400 mg/Kg) and I/C DEC (1,000 mg/Kg) in four samples collected from four locations (B-16, the historic fill sample from B-17, B-18, and B-19), and above the Res DEC but below the I/C DEC in two additional samples (B-15 and the duplicate from the historic fill in B-17). Exceedances reported ranged from 520 mg/Kg (B-15) to 2,900 mg/Kg (B-16 2-3 ft bgs). Lead was detected at 400 mg/kg in the sample below the historic fill material at B-16 (5-5 ft bgs). No other exceedances were detected at other locations, and concentrations ranged from 3.9 mg/Kg (MW-5) to 240 mg/Kg (B-20). No exceedances of lead were detected in samples collected from the imported fill material.

- No other exceedances of RSR criteria were detected in any other samples collected.

CTRSR 15 Metals. Three soil samples were collected from the three soil borings completed in the imported fill material and analyzed for CTDEP 15 metals. In addition to the results discussed above, no non-RCRA 8 metals were reported above RSR criteria in these soil borings. Low concentrations (well below criteria) of beryllium, nickel, and vanadium were detected in all three samples.

SPLP Metals. Select metals were analyzed for SPLP analyses for all metals that exceeded 20xGA PMC in all three imported fill material samples, and for select metals in all other samples collected from historic fill and native materials at the site, with the exception of three samples (B-16 (5-6 ft bgs), the duplicate from B-17, and B-19 (4-5 ft bgs)). Analytical results of SPLP analyses are summarized as follows:

- Antimony was detected above the GA PMC (0.006 mg/L) in two of the historic fill samples collected from B-17 (0.018 mg/L) and B-18 (0.017 mg/L), as well as a non-fill containing sample collected from B-14 (0.012 mg/L). Antimony was not detected above laboratory detection limits in two of the three samples collected from the imported fill material, and was reported below the GA PMC in the imported fill sample collected from B-17.

- Cadmium was detected above the GA PMC (0.005 mg/L) in the soil sample collected from B-15 (at 0.0061 mg/L), which was not collected in any fill material. Cadmium was not detected above laboratory detection limits in any other soil sample analyzed for this compound.

- Copper was reported above the GA PMC (1.3 mg/L) in two samples (B-18 at 3.4 mg/L and B-19 at 3.3 mg/L) collected from the historic fill material. Concentrations reported at other locations did not exceed the GA PMC, and ranged from 0.063 mg/L (B-17 from the imported fill) to 0.46 mg/L (MW-5) where detected.

- Lead was detected above the GA PMC (0.015 mg/L) in all samples analyzed for SPLP for this compound, with the exception of B-21 (collected from the imported fill) and B-14, where lead was not reported above laboratory detection limits. Concentrations ranged from 0.018 mg/L (B-17 from the imported fill) to 0.4 mg/L (B-18).

- Other leachable metals detected included arsenic (B-17 at 0.0036 mg/L) and zinc (B-21 at 0.92 mg/L). Both of these samples were collected from the imported fill, and these concentrations do not exceed their respective GA PMC. No other compounds were detected above laboratory detection limits.

Pesticides. Three soil samples were collected from the three soil borings completed in the imported fill material and analyzed for pesticides. No pesticide compounds were detected in any of the samples analyzed.

PCBs. Three soil samples were collected from three soil borings completed in the imported fill material and analyzed for PCBs. **RESULTS PENDING.....**

5.2 Groundwater Analytical Results

Groundwater samples were collected from five site monitoring wells. Analytical results are provided on Table 3 and summarized below.

VOCs. Four groundwater samples from three monitoring wells (includes a duplicate from MW-5) were collected and analyzed for VOCs. No VOCs were detected in any of these samples.

ETPH. Three groundwater samples from two monitoring wells (including the duplicate from MW-5) were collected and analyzed for ETPH. No ETPH was reported in these samples.

PAHs. Six groundwater samples from five monitoring wells (including the duplicate from MW-5) were collected and analyzed for PAHs. No PAHs were detected above laboratory detection limits.

RCRA 8 Metals + Antimony & Copper. Six groundwater samples from five monitoring wells (includes the duplicate from MW-5) were collected and analyzed for RCRA 8 metals plus antimony and copper. The concentration of arsenic detected in MW-4 (0.016 mg/L) and copper detected in MW-3 (0.094 mg/L) were detected above their respective SWPC. Although the concentration of arsenic was reported slightly above the Connecticut Department of Health (DOH) revised drinking water action level of 0.01 mg/L that is recommended for comparison in the CTDEP RSR summary table, this concentration is still below the 1996 RSR GWPC, therefore no exceedance of the GWPC at this location is considered, specifically with respect to potential SEH reporting. Low concentrations (well below criteria) of silver were also detected in two monitoring wells (MW-2 and MW-3).

6.0 Data QA/QC

6.1 QA/QC Samples

QA/QC samples were collected as part of the investigation to allow for the evaluation of the precision, accuracy, and usability of data collected during the field effort. Details regarding the QA/QC measures are located in the QAPP and QAPP Addendum.

6.1.1 Field Quality Control Samples

Quality control samples that were collected in the field and submitted to the laboratory along with the environmental samples are discussed in this section. The types of QC samples that were collected included the following: trip blanks, equipment blanks, and field duplicates. Method blanks and matrix spike/matrix spike duplicates (MS/MSDs) were analyzed by the laboratory on approximately one per 20 batches for internal QA/QC purposes. A total of four sample sets were submitted to the laboratory.

Three of the sets consisted of soil samples for mass analysis, including a field duplicate, and SPLP extractions of a selected subgroup of those soil samples from the May 21, 2009 field sampling event. The other set consisted of groundwater samples and an equipment blank from the June 17, 2009 sampling event.

Trip Blanks

Trip blanks were submitted with both the soil and groundwater sample sets. The analysis of these blanks provided a baseline measurement of any VOC contamination that the samples may have been exposed to during transport. Each trip blank was comprised of a sample container filled with high performance liquid chromatography organic-free water, and was preserved, handled like a sample, and sent to the laboratory for analysis.

Equipment Blanks

An equipment blank was collected and submitted with the groundwater samples. The analysis of these blanks serves to verify the cleanliness of the sampling equipment and the effectiveness of any decontamination procedures. An equipment blank is collected by rinsing decontaminated field equipment with deionized water, transferring the water to a sample container, and sending the sample for analysis. The equipment blanks were analyzed for the same parameters as the samples collected with that equipment.

Field Duplicates

One field duplicate each was collected for the set of soil samples and the set of groundwater samples. Each duplicate was two samples collected independently from one sampling location during a single episode (within a reasonable timeframe) of sampling using the sample collection procedures that were used to obtain the original sample. Duplicates provide information about sample variability and the repeatability of sampling procedures.

Matrix Spike/Matrix Spike Duplicates

Matrix spike and matrix spike duplicates (MS/MSDs) are a QC requirement performed by the laboratory. No additional soil or groundwater volumes were provided to the laboratory for any of the sample sets.

Documentation and Review of Quality Control Activities

Field QC samples were packed and delivered along with their corresponding environmental samples, and were noted on the chain of custody.

6.1.2 Laboratory Quality Control Requirements

Laboratory control samples were analyzed as necessary by the laboratory. Details on these can be found in the QAPP and QAPP Addendum, and in the laboratory analytical reports in Appendix G.

6.2 Data Validation and Usability / Analytical Precision and Accuracy

Data validation consisted of evaluating the following items:

- Sample Holding Times
- Field, trip and laboratory blanks
- Field duplicate results
- Laboratory duplicate results
- Matrix spike/matrix spike duplicate results
- Laboratory control spike recoveries (metals only)
- Surrogate spike recoveries (organics only)

No data were rejected, but some detections and detection limits were qualified. The following is a description of how data were qualified (flagged) for each QC parameter when control limits were not met for sample data:

- **Holding Times:** If the holding time was exceeded, all positive results were flagged as estimated (J) and all non-detects will be flagged as estimated (UJ).

- **Calibration:** If the continuing calibration criteria are exceeded, all positive results were flagged as estimated (J) and all nondetects were flagged as estimated (UJ) if the bias was low.

- **Blanks:** When blank contaminants were detected, an action level of 5 times the blank contaminant concentration was set for the analytes, providing the analytes were not common laboratory contaminants. If the sample analyte concentration was greater than the action level, the concentration was reported unqualified. If the sample analyte concentration was less than the action level, the concentration was reported and flagged to be the qualified detection limit (U).

- **Sample Duplicate:** If laboratory or field duplicate analyses resulted in a relative percent difference (RPD) greater than 30% (aqueous) or 50% (soil), all positive results were flagged as estimated (J) and all nondetects were reported unqualified. If one value was nondetect and the other as above the detection limit, all positive results were flagged as estimated (J) and all nondetects were flagged as estimated (UJ).

- **Matrix Spike/Matrix Spike Duplicates:** If the final results of the matrix spike were greater than the acceptable recovery range, all positive results were flagged as estimated (J) and all nondetects were reported unqualified. If the final results of the matrix spike were less than the acceptable range, all positive results were flagged as estimated (J) and all nondetects were flagged as estimated (UJ).

6.3 Data Usability Evaluation

Qualification flags are shown on Tables 3 and 4. No holding times were exceeded in the sample sets, nor were analytes detected in the equipment blanks or trip blanks. Field duplicate results had acceptable RPDs in comparison with primary samples, except for total mercury in the soil duplicate; however, the results were both of the same order of magnitude and were acceptable. Matrix spikes and duplicate results were acceptable for all samples affected.

Continuing calibration failed and LCS recoveries were outside acceptable limits for several VOCs in groundwater, resulting in a low bias for these compounds. Although no VOCs were detected above their respective groundwater criteria, and most detection limits are significantly below the applicable criteria, the detection limit for one VOC compound (trans-1,3-dichloropropene) was equal to its GWPC; however, there is no known source for this VOC on the site.

Results near the detection limits for mass analysis of arsenic and antimony in some soil samples may be biased low because the low-level calibration check was outside of control limits. However, because the detection limits are significantly below the criteria for these analytes, the usability of the data is not affected. Results are estimated for several SVOC compounds in soil samples because the reported result values are over the verified calibration range. For most of the affected compounds, this has little effect, as the results are significantly higher than the applicable criteria.

7.0 Conceptual Site Model

The purpose of a Conceptual Site Model CSM is to document to stakeholders (e.g., owners, CTDEP, EPA, the public, etc.) the process by which environmental issues at a site are identified, characterized, risks to receptors assessed and, if needed, remediated. The CSM is an iterative process that directs the response actions towards site closure. Data gaps are highlighted by the CSM which, when investigated, focus the project on the next step until significant data gaps no longer remain. The CSM puts the findings of the investigation into their site specific context relative to locations where releases were detected, migration pathways, and potential receptors. T&B updated the CSM as part of the 2005 Phase II ESA, and Table 4 provides an update to the 2005 CSM based on the results of AECOM's May 2009 RI.

Four site pAOCs (herein referred to as AOCs) were previously identified by T&B. Based on the results of the 2005 Phase II ESA, one of the AOCs (AOC 2 – Potential Former USTs) was eliminated, and releases to the environment were confirmed at the other three site AOCs: AOC 1 – Historic Fill; AOC 3 – Former Industrial Building; and AOC 4 – Former Wastewater Disposal System. AECOM notes that AOC 4 pertained primarily to potential impacts to the adjacent Pocotopaug Creek surface water quality and sediments. This AOC was not specifically investigated during the May 2009 RI; however, the Town of East Hampton is planning to address sediment and surface water quality issues in Pocotopaug Creek along the reach running through the Village Center area once additional funding is obtained from the EPA (T&B, 2006).

In addition to the four previously identified pAOCs, AECOM identified a fifth pAOC associated with the presence of the imported fill material that had been placed over the south-southwestern portion of the site during the adjacent bridge construction.

Certain COCs, specifically PAHs and metals (antimony, arsenic, copper, and lead) have been identified above their respective DEC in the unsaturated soils comprising the upper (approximate) six feet of the site in the historic fill material. Potential exposure pathways to humans and other organisms include ingestion and dermal contact with site COCs in shallow soils.

Unsaturated soils have also been identified to contain leachable concentrations of select metals (copper and lead) in exceedance of their respective GA PMC. Based on the proximity of the site to the adjacent creek and the shallow overburden groundwater aquifer, potential receptors in the vicinity of the site include site groundwater, downgradient surface water and sediments, and area potable water supply wells.

In addition to the historic fill material, the newly placed imported fill material was also identified to contain ETPH and PAH impacts. The exact area of this material is not currently known, though it is believed to be present across the approximate south-southwestern one-third to one-half of the site. A topographic survey would be necessary to confirm this. This imported fill material was found to contain leachable concentrations of metals above their respective PMC; therefore, compliance with the PMC is necessary with respect to the imported fill material. Potential receptors are similar to those stated above.

8.0 Conclusions

AECOM has completed a pre-remediation investigation at the former Gong Bell site, located at 103 Main Street, East Hampton, Connecticut. Soil and groundwater samples were collected as part of this investigation. Conclusions are discussed below.

The primary objective of this investigation was to address data gaps with respect to the presence of this historic fill, as well as to characterize the mass and leachability potential of this material such that remedial alternatives for the site could be further evaluated.

A layer of historic fill containing ash, cinders, glass, brick, and wood fragments, has been identified across most of the site, with the exception of B-14, located in the northeastern corner of the site, and B-15, located adjacent to the Pocotopaug Creek on the southeastern corner of the site. Both current and historic data indicate that various COCs are present above their respective RSR criteria in this fill layer. Specifically, select PAHs and metals (antimony, arsenic, copper, and lead) have exceeded their respective Res DEC and/or I/C DEC, and leachable concentrations of copper and lead have been identified above the GA PMC in the unsaturated soils. Historic data also indicate an exceedance of mercury at one location.

A new AOC was also identified and investigated during this RI. A layer of imported fill material from an unconfirmed origin was identified covering most of the open area of this southwestern-central portion of the site. ETPH and PAHs were identified in this material above their respective DEC, and ETPH and metals were identified above their respective GA PMC. The vertical extent of this material appears to be present over the upper (approximate) two feet of the historic fill in the open areas of the site; however, the exact horizontal limits have not been delineated.

The results of this investigation, in conjunction with previous investigation results, will be used to develop a RAP to facilitate site redevelopment and remediation activities. The RAP will be based, in part, on the proposed redevelopment plans. Remediation plans may include one or more of the following remediation alternatives: excavation and off-site disposal, rendering soils inaccessible that exceed DEC, environmentally isolating soils that exceed PMC, performing monitored natural attenuation (MNA) for exceedances of the GWPC, SWPC, or VC in groundwater, and obtaining an ELUR to restrict site use according to remediation measures performed. All site remediation activities will be conducted in accordance with the RSRs pursuant to site closure through 22a-133x.

9.0 References

Metcalf & Eddy (M&E). 2004. *Generic Sampling and Analysis Plan for Brownfields Targeted Site Assessments.* Revision 01. RFA 04266. Prepared for the U.S. Environmental Protection Agency. December 2004.

Tighe & Bond. 2005. *Phase I Environmental Site Assessment 103 Main Street.* Prepared for Town of East Hampton, CT.

Tighe & Bond. 2005. *Phase II Environmental Site Assessment 103 Main Street.* Prepared for Town of East Hampton, CT.

Tighe & Bond, 2006. *Phase II Environmental Site Assessment Water Tower Property, East Hampton, CT.* Prepared for The Town of East Hampton, CT.

AECOM USA, Inc. 2009. *Quality Assurance Project Plan for Pre-Remediation Sampling Program Former Gong Bell Site 103 Main Street, East Hampton, Connecticut.* Prepared for US Environmental Protection Agency and the Town of East Hampton, CT. April 2009.

Tables

Table 1
Summary of Groundwater Elevation Data
June 2009
Former Gong Bell Site
East Hampton, Connecticut

Monitoring Well ID	Measurement Date	PVC Elevation (ft)	Top of Casing Elevation (ft)	Depth to Water (ft)	Water Table Elevation (ft)
MW-1	6/17/2009	375.43	375.53	8.22	367.21
MW-2	6/17/2009	376.23	376.29	8.57	367.66
MW-3	6/17/2009	378.06	378.12	8.58	369.48
MW-4	6/17/2009	373.47	373.66	6.56	366.91
MW-5	6/17/2009	UNK	UNK	10.47	—

Notes:
Monitoring wells were surveyed by Nafis & Young in August 2008 (with the exception of MW-5)
MW-1 through MW-4 were previously installed by Tighe & Bond in 2005.
UNK - Unknown Elevation

Table 2
Summary of Soil Sampling Analytical Results
Former Gong Bell Site
East Hampton, Connecticut

Parameter	Connecticut RSR Criteria			SAMPLING LOCATION											
				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sampling Date / Sample Depth / Laboratory Report Number	I/C DEC	RES DEC	GA PMC	5/21/2009 9:00:00 AM 2-3 Feet [illegible]	5/21/2009 10:40:00 AM 1-1.5 Feet [illegible]	5/21/2009 12:15:00 PM 2-3 Feet [illegible]	5/21/2009 12:25:00 PM 6-6 Feet [illegible]	5/21/2009 12:40:00 PM 0.5-1.5 Feet [illegible]	5/21/2009 12:45:00 PM 4-5 Feet [illegible]	5/21/2009 12:45:00 PM 4-5 Feet [illegible]	5/21/2009 11:35:00 AM 3.5-4.5 Feet [illegible]	5/21/2009 10:15:00 AM 2-3.5 Feet [illegible]	5/21/2009 10:20:00 AM 4-5 Feet [illegible]	5/21/2009 1:15:00 PM 0.5-1.5 Feet [illegible]	5/21/2009 1:35:00 PM 0.5-1.5 Feet [illegible]
CTDEP ETPH (mg/kg dry)															
ETPH	2500	500	500	ND (11)	[illegible]	15	17	230	480	480	350	48	ND (11)	[illegible]	16
Metals (mg/Kg)[10]															
Antimony	8200	27	NDC	17	8.2	[illegible]	14	ND (4.3)UJ*	[illegible]	36	37	15	ND (4.2)UJ*	ND (4.4)UJ*	ND (4.4)UJ*
Arsenic	10	10	NDC	5.9	5.3	[illegible]	9	6.3	[illegible]	9.5	56	[illegible]	ND (2.8)UJ*	5	7.3
Barium	140000	4700	NDC	128	47	79	66	85	64	59	59	79	18	63	40
Beryllium	2	2	NDC	NT	NT	NT	NT	0.8	NT	NT	NT	NT	NT	0.68	0.63
Cadmium	1000	34	NDC	0.34	2.4	0.69	ND (0.29)	0.45	0.65	0.67	1.5	0.85	ND (0.26)	0.3	0.36
Chromium	--	--	NDC	36	40	8.2	31	20	9.2	7.7	15	18	3.9	14	6.8
Copper	76000	2500	NDC	55	620	[illegible]	579	420	1500	1700	[illegible]	[illegible]	22	240	13
Lead	1000	400	NDC	9.5	[illegible]	[illegible]	480	150	[illegible]	[illegible]	[illegible]	[illegible]	6.8	120	6.8
Mercury	610	20	NDC	0.054	0.17	15	1.4	0.18	0.57J	0.3J	0.36	1.5	0.015	0.14	ND (0.021)
Nickel	7500	1400	NDC	NI	NI	NI	NI	52	NI	NI	NI	NI	NI	14	5.4
Silver	10000	340	NDC	ND (0.54)	ND (0.57)	51	2.6	ND (0.54)	ND (0.58)	ND (0.65)	0.73	ND (0.67)	ND (0.53)	ND (0.55)	ND (0.55)
Vanadium	14000	470	NDC	NT	NT	NT	NT	37	NT	NT	NT	NT	NT	31	15
Zinc	610000	20000	NDC	NT	NT	NT	NT	450	NT	NT	NT	NT	NT	[illegible]	21
Pesticides 8081A (mg/Kg dry)															
Varies	Varies	Varies	Varies	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT	ND	ND
VOCs 8260B (mg/Kg dry)															
Acetone	1000	500	14	ND (0.081)	ND (0.12)	ND (0.090)	ND (0.096)	ND (0.087)	ND (0.14)	ND (0.18)	ND (0.15)	ND (0.11)	ND (0.11)	ND (0.054)	0.21J
2-Butanone (MEK)	1000	500	8	ND (0.032)	ND (0.048)	ND (0.036)	ND (0.038)	ND (0.035)	ND (0.056)	ND (0.072)	ND (0.060)	ND (0.043)	ND (0.044)	ND (0.021)	0.15J
SVOCs 8270C (mg/Kg dry)															
Acenaphthylene	2500	1000	8.4	ND (0.18)	0.53	ND (0.19)	ND (0.20)	0.27	0.73	0.6	ND (0.22)	ND (0.23)	ND (0.18)	0.85	ND (0.19)
Anthracene	2500	1000	40	ND (0.18)	0.52	ND (0.19)	ND (0.20)	0.24	0.29	0.2	0.25	ND (0.23)	ND (0.18)	0.83	ND (0.19)
Benzo(a)anthracene	7.8	1	1	ND (0.18)	[illegible]	ND (0.19)	ND (0.20)	[illegible]	[illegible]	[illegible]	[illegible]	ND (0.23)	ND (0.18)	[illegible]	0.24
Benzo(a)pyrene	1	1	1	ND (0.18)	[illegible]	ND (0.19)	ND (0.20)	[illegible]	[illegible]	[illegible]	[illegible]	ND (0.23)	ND (0.18)	[illegible]	0.26
Benzo(b)fluoranthene	7.8	1	1	ND (0.18)	[illegible]	ND (0.19)	ND (0.20)	[illegible]	[illegible]	[illegible]	[illegible]	0.26	ND (0.18)	[illegible]	0.4
Benzo(g,h,i)perylene	2500	1000	4.2	ND (0.18)	1.3**	ND (0.19)	ND (0.20)	0.7	1.6	1.5	0.47	ND (0.23)	ND (0.18)	1.7	ND (0.19)
Benzo(k)fluoranthene	78	8.4	1	ND (0.18)	1.9**	ND (0.19)	ND (0.20)	0.85	2.1**	1.7**	0.64	ND (0.23)	ND (0.18)	2.7**	ND (0.19)
Bis(2-ethylhexyl)phthalate	410	44	1	ND (0.37)	2.9**	ND (0.38)	ND (0.40)	ND (0.30)	ND (0.30)	ND (0.38)	ND (0.44)	ND (0.45)	ND (0.36)	ND (0.38)	ND (0.37)
Chrysene	780	84	1	ND (0.18)	4.4J**	ND (0.19)	ND (0.20)	2**	4J**	3.2J**	1.4**	ND (0.23)	ND (0.18)	6.2J**	0.3
Dibenz(a,h)anthracene	1	1	1	ND (0.18)	ND (0.20)	ND (0.19)	ND (0.20)	ND (0.15)	0.43	ND (0.19)	ND (0.22)	ND (0.23)	ND (0.18)	0.52	ND (0.19)
Fluoranthene	2500	1000	5.6	ND (0.18)	6.1J**	ND (0.19)	ND (0.20)	2.8	4JΣ	2.8JΣ	1.9	0.29	ND (0.18)	9.6J**	0.51
Fluorene	2500	1000	5.6	ND (0.18)	0.31	ND (0.19)	ND (0.20)	ND (0.15)	ND (0.20)	ND (0.19)	ND (0.22)	ND (0.23)	ND (0.18)	0.47	ND (0.19)
Phenanthrene	2500	1000	4	ND (0.18)	4.0J**	ND (0.19)	ND (0.20)	1.3	1.2JΣ	0.86JΣ	1.3	0.26	ND (0.18)	6.4J**	0.3
Pyrene	2500	1000	4	ND (0.18)	6J**	ND (0.18)	ND (0.20)	2.8	3.5JΣ	2.8JΣ	1.8	0.24	ND (0.18)	[illegible]	0.43
SPLP Metals 6020A (mg/L)															
Antimony	NDC	NDC	0.06	NI	NI	0.0002 [illegible]	NI	NI	NI	NI	NI	NI	NI	NI	NI
Copper	NDC	NDC	1.3	NT	NT	NT	NT	NT	NT	NT	NT	[illegible]	NI	NI	NI
Lead	NDC	NDC	0.015	NT	NT	[illegible]	NT	NT	NT	NT	NT	[illegible]	NT	NT	NT
SPLP PAHs 8270C (mg/L)			GWPC												
Acenaphthylene	NDC	NDC	0.42	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND (0.00000)UJ	NT
Fluoranthene	NDC	NDC	0.28	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	[illegible]	NI
Phenanthrene	NDC	NDC	0.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	[illegible]	NT

Notes:
1. An asterisk (*) following a detection limit indicates that the minimum laboratory reporting limit exceeds one or more of the regulatory criteria.
2. NI = Not tested
3. -- = No Standard available
4. Detected compounds only are shown on this table (with the exception of SPLP metals, all are shown). For a complete analyte list, see laboratory analytical reports.
5. Bolded values indicate the compound was reported at the concentration indicated.
6. Soil samples with shaded values exceed the RSR Direct Exposure Criteria (DEC) for the parameter.
7. Soil samples with bolded outline exceed the RSR PMC for the parameter.
8. RSR criteria are in same units as analyte.
9. If detected, SPLP PAH results are compared to the GWPCx10.
10. Soil samples collected from B-14, B-15, B-16, B-17 (4-6'), B-18 and B-19 were analyzed for RCRA8 metals plus antimony and copper. Soil samples collected from B-20, B-21 and B-17 (0.5-1.5 ft) were analyzed for the CTRSR 15 metals.

** Based on comparison of mass analyses results to SPLP results from other samples, mass analytical results may not exceed the GA PMC if the sample was reanalyzed for SPLP.

*** Based on SPLP results from this sample, mass analyses results do not exceed the GA PMC.

¥ Sample from newly placed fill

RSRs = Remediation Standard Regulations
Res DEC = Residential Direct Exposure Criteria
I/C DEC = Industrial/Commercial Direct Exposure Criteria
PMC = Pollutant Mobility Criteria

VOCs = Volatile Organic Compounds
SVOCs = Semi-Volatile Organic Compounds
ETPH = Extractable Petroleum Hydrocarbons
PCBs = Poly Chlorinated Biphenyls
ND = Not Detected above laboratory detection limit (shown in parenthesis)

NT = Not Tested
NDC = Not Directly Comparable based on the analytical method

EB= analyte was detected in the associated equipment blank and there is an indeterminate amount of error in the result presented
J = concentration is an estimate
UJ = reporting limit is an estimate
Υ = UJ indicates qualified result, results near detection limits are biased low
Σ = J indicates estimated result, reported results are over verified calibration range

Table 3
Summary of Groundwater Analytical Results
Former Gong Bell Site
East Hampton, Connecticut

Parameter	Connecticut RSR Criteria				SAMPLING LOCATION		
					MW-1	MW-2	MW-3
Sampling Date Sample Depth Laboratory Report Number	GA GWPC	I/C VC	RES VC	SWPC	6/17/2009 4:44:00 PM 0- Feet 09F0406	6/17/2009 3:33:00 PM 0- Feet 09F0406	6/17/2009 12:43:00 PM 0- Feet 09F0406
CTDEP ETPH (mg/L)							
ETPH	0.1	~	~	~	NT	NT	NT
15 RSR METALS (mg/L)							
Arsenic	0.01	~	~	0.004	ND (0.010)	ND (0.010)	ND (0.010)
Copper	1.3	~	~	0.048	**0.013**	ND (0.010)	**0.094**
Silver	0.036	~	~	0.012	ND (0.0050)	**0.0085**	**0.0058**
VOCs 8270B (µg/L)							
Varies	~	Varies	Varies	Varies	NT	ND	NT
SVOCs 8270C (µg/L)							
Varies	~	~	~	Varies	ND	ND	ND

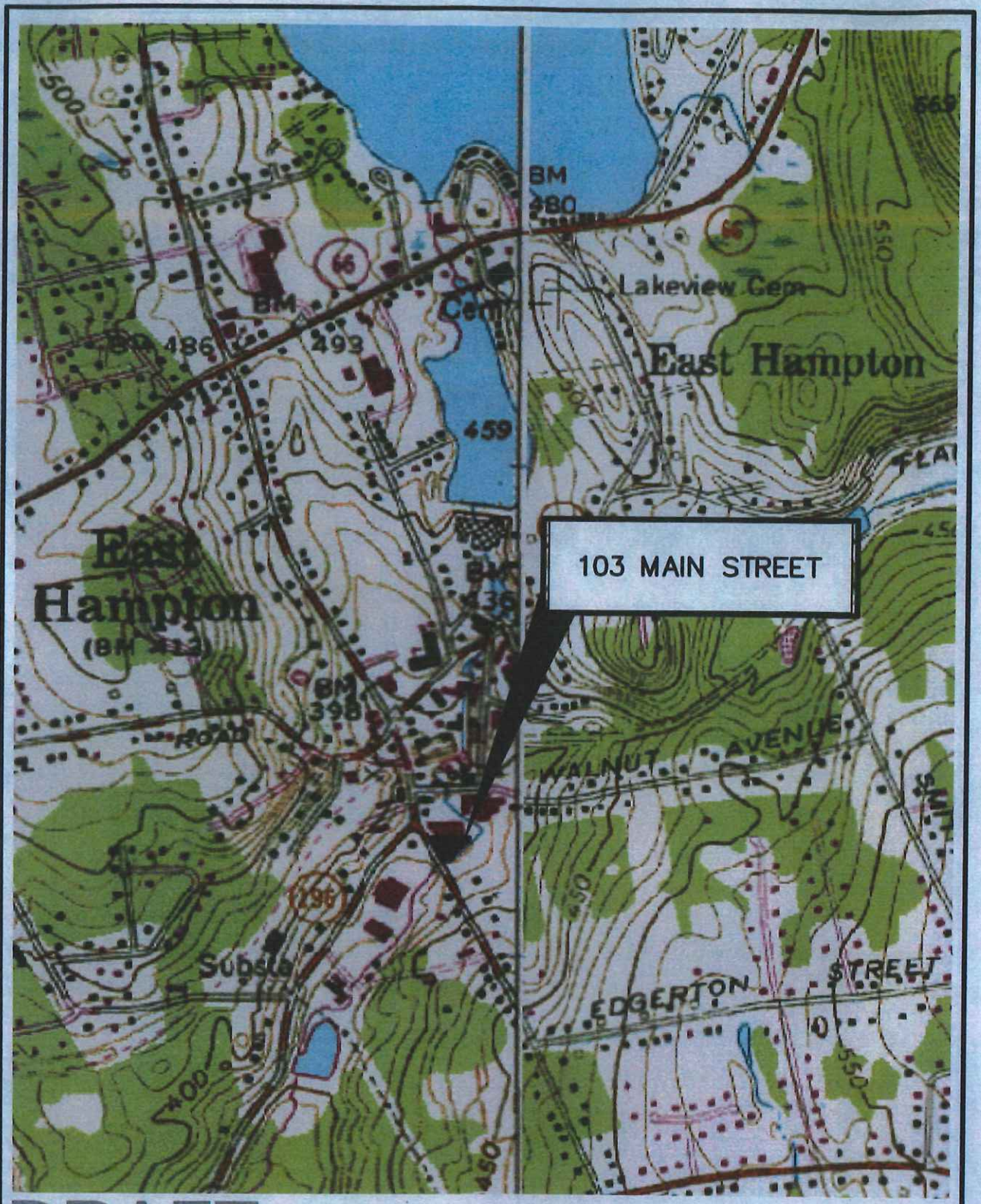
NOTES:
1. An asterisk (*) following a detection limit indicates that the minumum laboratory reporting limit exceeds one or more of the regulatory criteria.
2. NT = Not tested.
3. ~ = No Standard available
4. Detected compounds only are shown on this table. For a complete analyte list, see laboratory analytical reports.
5. Bolded values indicate the compound was reported at the concentration indicated.
6. Groundwater samples with shaded values exceed the RSR Surface Water Protection Criteria (SWPC) for the parameter.
7. Groundwater samples with bolded outline exceed the proposed RSR VC for the parameter.
8. RSR criteria are in the same units as the analyte.

RSRs = Remediation Standard Regulations
Res VC = Residential Volatilization Criteria
I/C VC = Industrial/Commercial Volatilization Criteria
SWPC = Surface Water Protection Criteria
VOCs = Volatile Organic Compounds
SVOCs = Semi-Volatile Organic Compounds
ETPH = Extractable Petroleum Hydrocarbons
ND = Not Detected above laboratory detection limit (shown in parenthesis)

Table 4
Conceptual Site Model
Former Gong Bell Site
East Hampton, Connecticut

AOC	Description	Relase Mechanism	Migration Pathway	COCs and Affected Media		Potential Exposure Pathway	Potential Receptors	Status
				Unsaturated Soils	Groundwater			
1	Historic Fill	Placement of Fill Materials	Leach to groundwater and lateral flow of groundwater	Copper, Lead, Zinc, PAHs	Arsenic, Antimony, Copper, Lead, Mercury, PAHs	Ingestion/ Dermal Contact; Discharge to Surface Water	Human and Ecological; Surface Water; Residential Potable Supply Wells	Impacts due to fill materials. 2005 T&B Investigation identified evidence of coal ash and charred materials on-site. Mecury in GW finding not reproducible. 2009 AECOM further refined the extents of the fill.
2	Potential Former USTs	Leaks	Leach to groundwater and lateral flow of groundwater	None	None	Discharges to Groundwater and/or Surface Water	Surface Water, Residential Potable Supply Wells	2005 T&B investigation did not identify evidence of UST. AST cradle was discovered. No evidence of significant fuel release. No further action was conducted during 2009 AECOM investigation.
3	Former Industrial Building	Leaks, Spills, Dumping	Leach to groundwater and lateral flow of groundwater	Copper, Lead, Zinc, PAHs, ETPH	Arsenic, Antimony, Copper, Lead, Mercury, PAHs	Ingestion/ Dermal Contact; Discharge to Surface Water	Human and Ecological; Surface Water; Residential Potable Supply Wells	Impacts due to fill materials. 2005 T&B Investigation identified evidence of coal ash and charred materials on-site. Mecury in GW finding not reproducible. 2009 AECOM further refined the extents of the fill.
4	Former Wastwater Disposal System	Discharges, leaks	Migration Downstream	Copper, Lead, Zinc, PAHs	Copper, Lead, Zinc PAHs	Ingestion/ Dermal Contact; Discharge to Surface Water	Human and Ecological; Surface Water; Residential Potable Supply Wells	2005 T&B investigation indicated metals and PAH impacts to adjacent stream sediments. Impacts were attributed to overland flow, subsurface leaching potential, and discharges from potential on-site and/or off-site sources. Stream sediments not evaluated in 2009 AECOM investigation.
5	Newly Placed Fill	Placement of Fill Materials	Leach to groundwater and lateral flow of groundwater	PAHs, ETPH	PAHs, ETPH	Ingestion/ Dermal Contact; Discharge to Surface Water	Human and Ecological; Surface Water; Residential Potable Supply Wells	2009 AECOM investigation included three samples of the fill. PAHs and ETPH were identified above RSR criteria.

Figures



DRAFT

AECOM	103 MAIN STREET EAST HAMPTON, CONNECTICUT FIGURE 1 SITE LOCATION MAP	
	DATE: JULY 2009	

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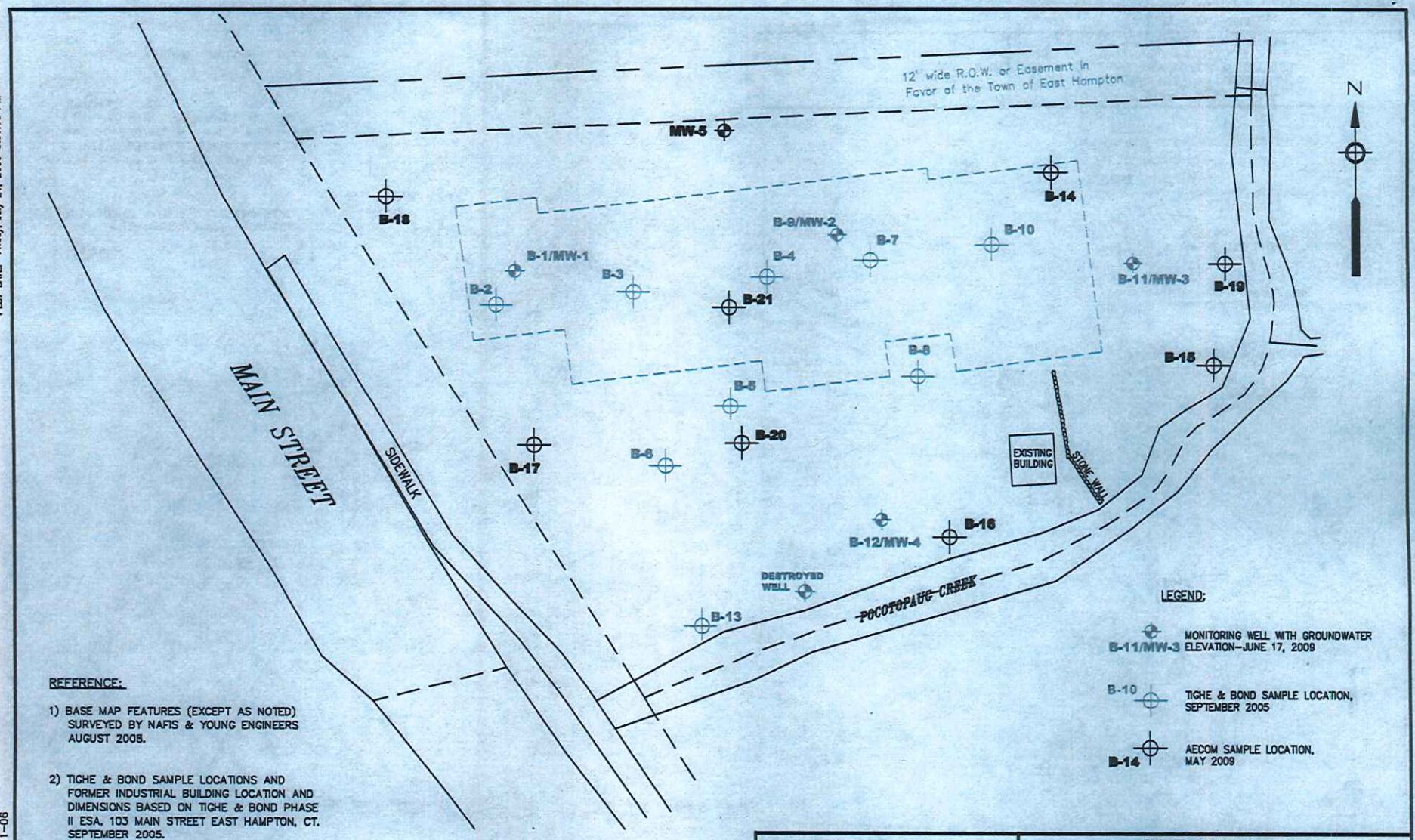
ARCH A - 5-11-06



REFERENCE:

1) BASE MAP FEATURES (EXCEPT AS NOTED) SURVEYED BY NAFIS & YOUNG ENGINEERS AUGUST 2008.

2) TIGHE & BOND SAMPLE LOCATIONS AND FORMER INDUSTRIAL BUILDING LOCATION AND DIMENSIONS BASED ON TIGHE & BOND PHASE II ESA, 103 MAIN STREET EAST HAMPTON, CT. SEPTEMBER 2005.

NOTE:

1) RSR EXCEEDANCES BASED ON 2009 SAMPLING DATA ONLY

DRAFT

AECOM

FORMER GONG BELL SITE
EAST HAMPTON, CONNECTICUT
PRE-REMEDIATION INVESTIGATION
FIGURE 2
SITE PLAN WITH SAMPLING LOCATIONS

SCALE: 1"=20 FT | DATE: JULY 2009

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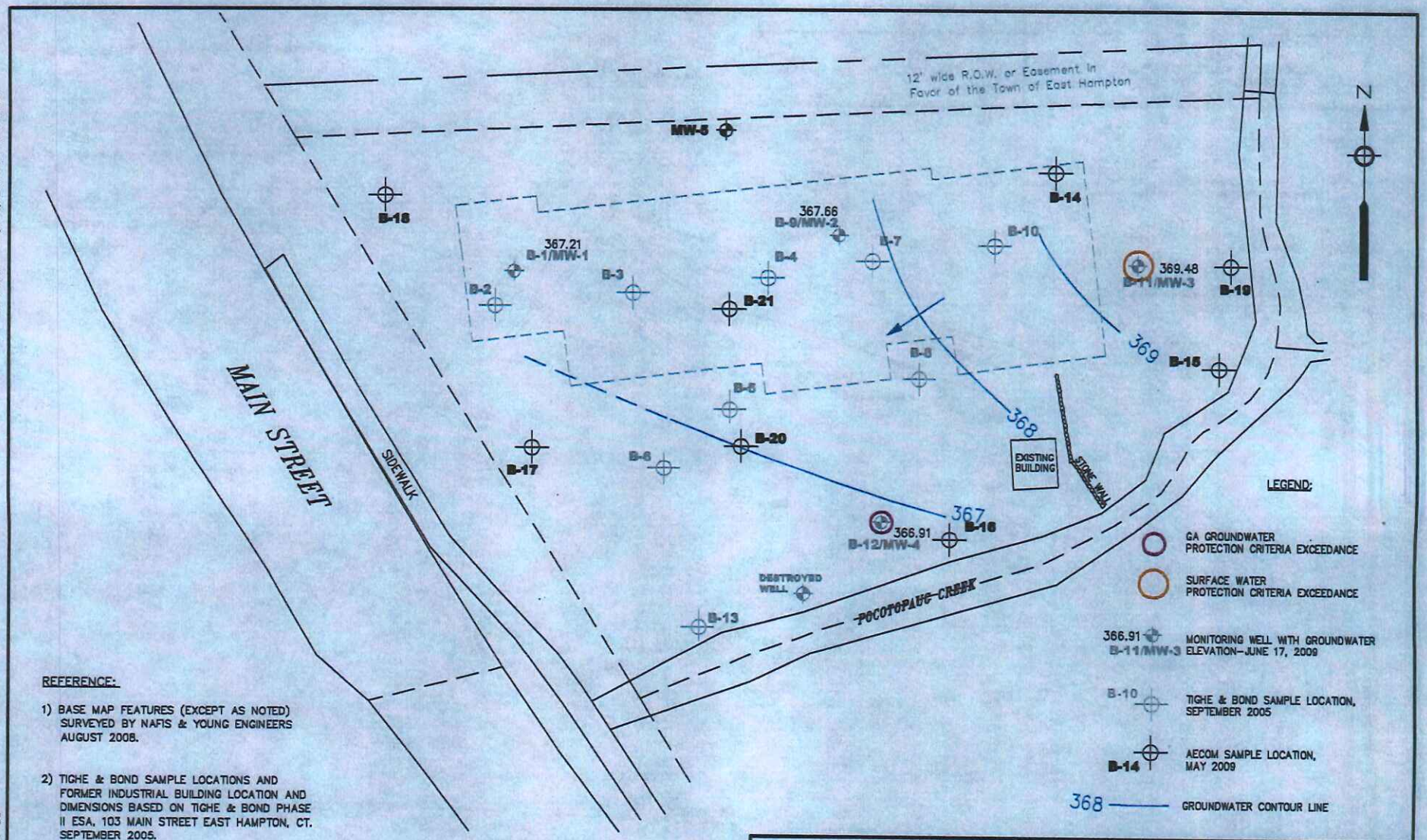
ANSI B - 5-11-06



REFERENCE:

1) BASE MAP FEATURES (EXCEPT AS NOTED) SURVEYED BY NAFIS & YOUNG ENGINEERS AUGUST 2008.

2) TIGHE & BOND SAMPLE LOCATIONS AND FORMER INDUSTRIAL BUILDING LOCATION AND DIMENSIONS BASED ON TIGHE & BOND PHASE II ESA, 103 MAIN STREET EAST HAMPTON, CT. SEPTEMBER 2005.

NOTE:

1) RSR EXCEEDANCES BASED ON 2009 SAMPLING DATA ONLY

DRAFT

AECOM

FORMER GONG BELL SITE
EAST HAMPTON, CONNECTICUT
PRE-REMEDIATION INVESTIGATION
FIGURE 3
GROUNDWATER CONTOUR MAP

SCALE: 1"=20 FT | DATE: JULY 2009

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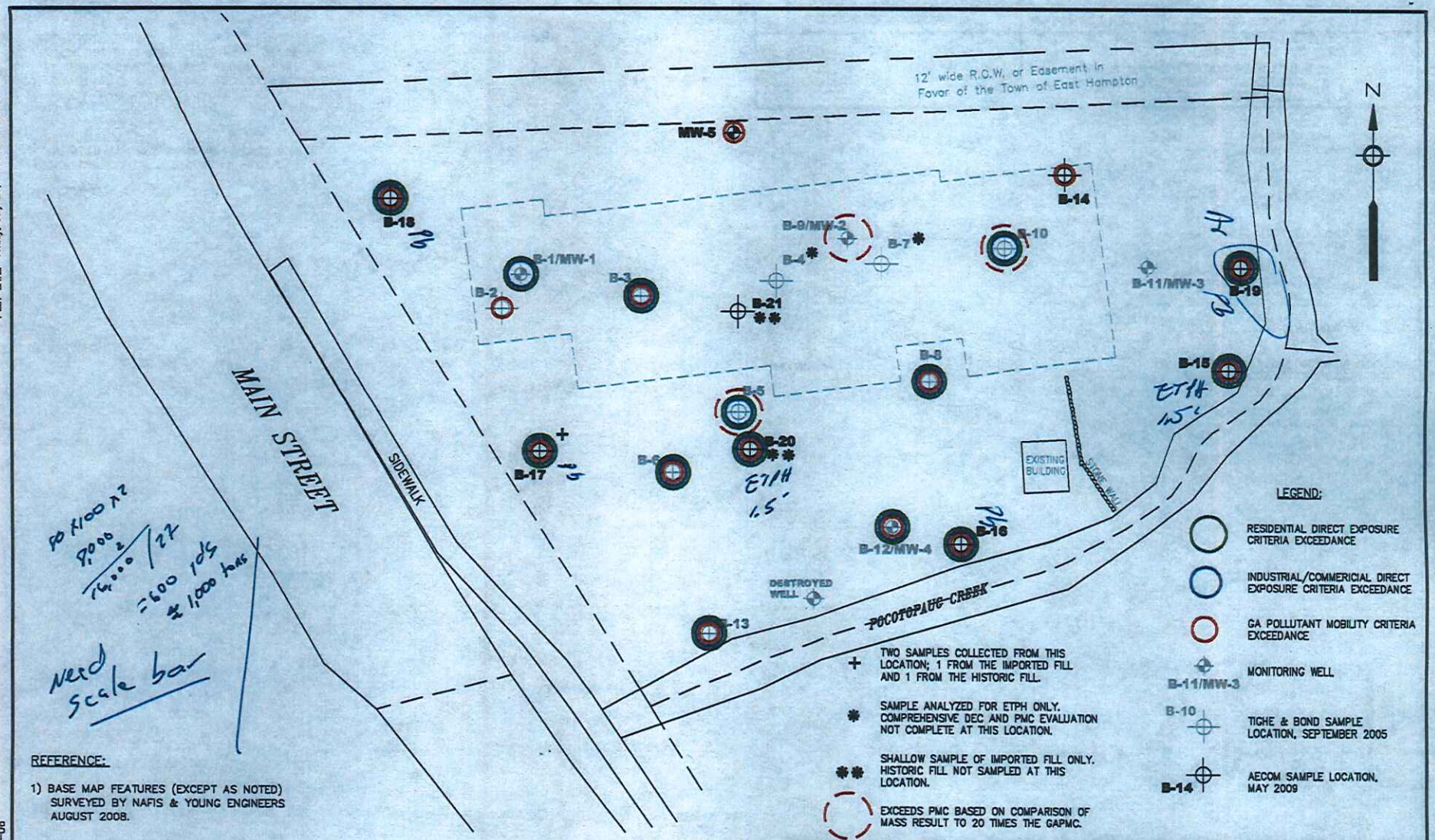

REFERENCE:

1) BASE MAP FEATURES (EXCEPT AS NOTED) SURVEYED BY NAFIS & YOUNG ENGINEERS AUGUST 2008.

2) TIGHE & BOND SAMPLE LOCATIONS AND FORMER INDUSTRIAL BUILDING LOCATION AND DIMENSIONS BASED ON TIGHE & BOND PHASE II ESA, 103 MAIN STREET EAST HAMPTON, CT. SEPTEMBER 2005.

DRAFT

AECOM

FORMER GONG BELL SITE
EAST HAMPTON, CONNECTICUT
PRE-REMEDIATION INVESTIGATION
FIGURE 4
RSR EXCEEDANCES – SITE WIDE

SCALE: 1"=20 FT | DATE: JULY 2009

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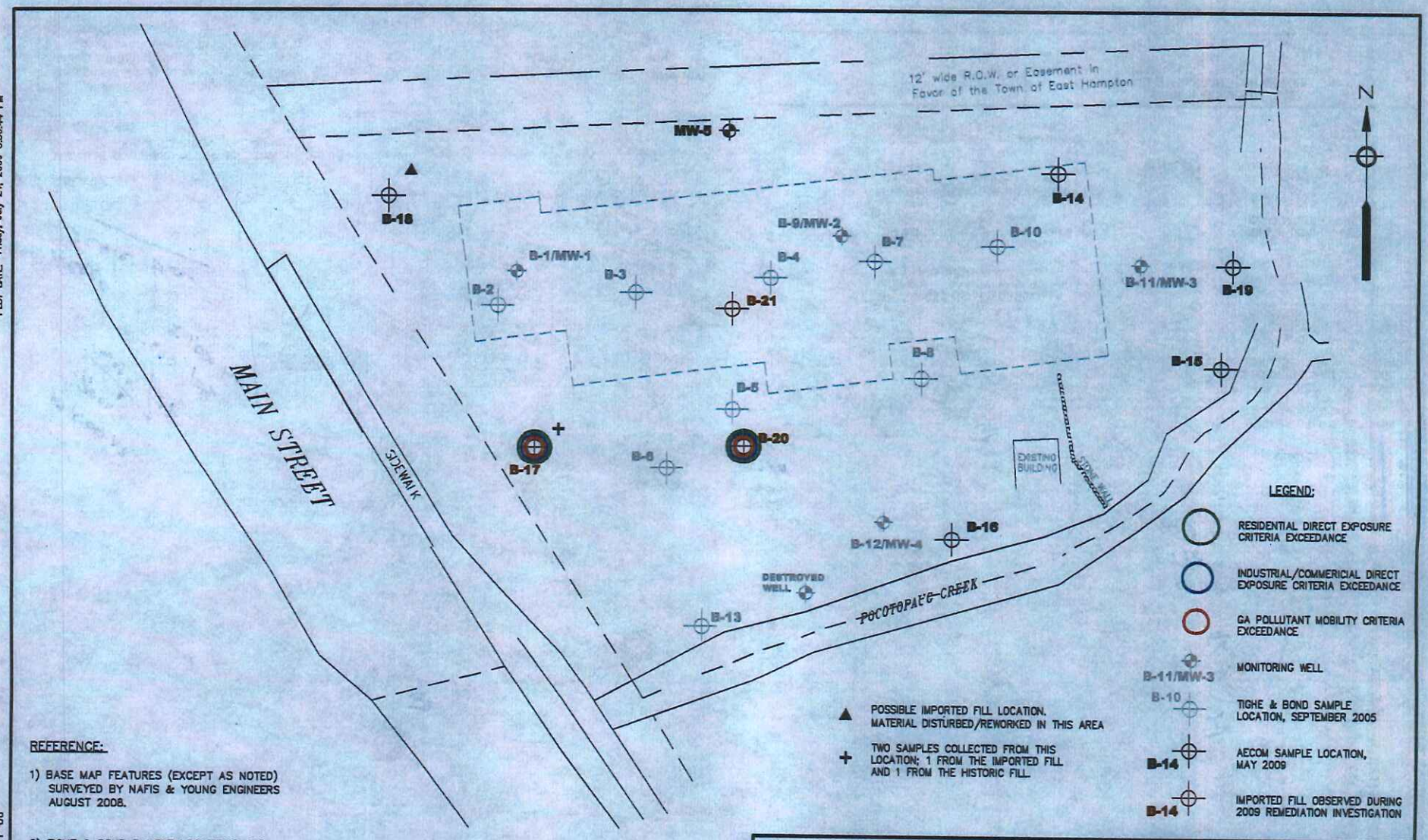

REFERENCE:

1) BASE MAP FEATURES (EXCEPT AS NOTED) SURVEYED BY NAFIS & YOUNG ENGINEERS AUGUST 2008.

2) TIGHE & BOND SAMPLE LOCATIONS AND FORMER INDUSTRIAL BUILDING LOCATION AND DIMENSIONS BASED ON TIGHE & BOND PHASE II ESA, 103 MAIN STREET EAST HAMPTON, CT. SEPTEMBER 2005.

DRAFT

AECOM

FORMER GONG BELL SITE
EAST HAMPTON, CONNECTICUT
PRE-REMEDIATION INVESTIGATION
FIGURE 5
RSR EXCEEDANCES – IMPORTED FILL

SCALE: 1"=20 FT | DATE: JULY 2009

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ANSI B – 5-11-06

Appendix A

Statement of Limitations

STATEMENT OF LIMITATIONS

The data presented and the opinions expressed in this report are qualified as follows:

1. The sole purpose of the investigation and of this report is to assess the physical characteristics of the Site with respect to the presence or absence in the environment of oil or hazardous materials and substances as defined in the applicable state and federal environmental laws and regulations and to gather information regarding current and past environmental conditions at the Site.

2. AECOM derived the data in this report primarily from visual inspections, examinations of records provided by the Client, interviews with individuals with information about the Site, and a limited number of subsurface explorations made on the dates indicated. The passage of time, manifestation of latent conditions or occurrence of future events may require further exploration at the Site, analysis of the data, and reevaluation of the findings, observations, and conclusions expressed in the report.

3. In preparing this report, AECOM has relied upon and presumed accurate certain information (or the absence thereof) about the Site and adjacent properties provided by governmental officials and agencies, the Client, and others identified herein. Except as otherwise stated in the report, AECOM has not attempted to verify the accuracy or completeness of any such information.

4. The data reported and the findings, observations, and conclusions expressed in the report are limited by the Scope of Services, including the extent of subsurface exploration and other tests. The Scope of Services was defined by the requests of the Client, the time and budgetary constraints imposed by the Client, and the availability of access to the Site.

5. Because of the limitations stated above, the findings, observations, and conclusions expressed by AECOM in this report are not, and should not be considered, an opinion concerning the compliance of any past or present owner or operator of the site with any federal, state or local law or regulation. No warranty or guarantee, whether express or implied, is made with respect to the data reported or findings, observations, and conclusions expressed in this report. Further, such data, findings, observations, and conclusions are based solely upon-site conditions in existence at the time of investigation.

6. This report has been prepared on behalf of and for the exclusive use of the Client, and is subject to and issued in connection with the Agreement and the provisions thereof.

Appendix B

Soil Boring Logs

AECOM

Client: TOWN EAST HAMPTON
Project Number:
Site Location: GOSMER
Coordinates: Elevation:
Drilling Method: GP
Sample Type(s): Boring Diameter: 2"

BORING ID: B-16
Sheet: 1 of 1
Monitoring Well Installed: —
Screened Interval: —

Weather: 30° CLEAR
Drilling Contractor: AOT
Logged By: SP
Ground Elevation:
Date/Time Started: 12/05/21
Date/Time Finished:
Depth of Boring: 10'
Water Level: @3.5'

Depth (ft)	Geologic sample ID	Sample Depth (ft)	Blows per 6"	Recovery (inches)	Headspace (ppm)	U.S.C.S	MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size, odor, and Geologic Unit (If Known)	Lab Sample ID	Lab Sample Depth (Ft.)
1				37"	1.0		4" TOPSOIL (DK BRN M-F SAND, TR ROOTS)		
2					0		3" BRN M SAND		
3							4" BLK M SAND/ASH		
4							14" BRN + RED BRN M-F SAND + GRAVEL FLECKS OF BLK M SAND, TR ROCK FRAGM		
5							9" BLK M SAND, TR GRAVEL, WET		
					5		3" BRN M-F SAND + GRAVEL B-16 (2-3')	12'5	
6				40"	54.5		14" DK BRN - BLK M-C SAND, WET		
7							26" GRAY/BLK M SAND, MOIST-DRY		
8							B-16 (5-6') 1225		
9									
10							10' BOB		
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

NOTES:

Date	Time	Depth to groundwater while drilling

Checked by Date:

AECOM

Client: TOWN OF EHAMPTON
Project Number:
Site Location: GOING BELL
Coordinates: Elevation:
Drilling Method: GP
Sample Type(s):
Boring Diameter: 2"

BORING ID: B-17

Sheet: 1 of 1
Monitoring Well Installed: —
Screened Interval: —
Depth of Boring: 10'
Water Level: 7'

Weather: 90° CLEAR
Drilling Contractor: ADT
Logged By: SP
Ground Elevation:
Date/Time Started: 5-21-09
Date/Time Finished:

Depth (ft)	Geologic sample ID	Sample Depth (ft)	Blows per 6"	Recovery (inches)	Headspace (ppm)	U.S.C.S	MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size, odor, and Geologic Unit (If Known)	Lab Sample ID	Lab Sample Depth (Ft.)
1				42"	0		15" BRN M-F SAND + GRAVEL ← FILL FROM BR		DUP
2							3" CR. ROCK	B-17 (0.5-1.5)	12⁴⁰
3							24" BRN + BLK M-F SAND, TRASH/COAL SLAG, TR ROOTS + GRAVEL	B-17 (4-5') DUP	12¹⁵
4									
5							5'		
6				34"	0		6" GRAY/BLK M-F SAND + GRAVEL		
7							2" DK ORANGE M-F SAND + SILT, WET		
8							3" BLK M-F SAND, SILT + TR GRAVEL, WET		
9							22" TAN/GRAY M-F SAND SOME C SAND + GRAVEL, ROCK FRAGM, WET	B-17 (7-8')	13⁰⁰
10							10' BOB		
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

NOTES:

Date	Time	Depth to groundwater while drilling

Checked by Date:

AECOM

Client: TOWN OF EAST HAMPTON
Project Number:
Site Location: GLOVER BELL
Coordinates: Elevation:
Drilling Method: GP
Sample Type(s): Boring Diameter:

BORING ID: B-18
Sheet: 1 of 1
Monitoring Well Installed: —
Screened Interval: —

Weather: 80° CLEAR
Logged By: SP
Date/Time Started: 5-21-09 11:20
Depth of Boring: 10'
Drilling Contractor: AST
Ground Elevation:
Date/Time Finished: 1145
Water Level: 8'

Depth (ft)	Geologic sample ID	Sample Depth (ft)	Blows per 6"	Recovery (inches)	Headspace (ppm)	U.S.C.S	MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size, odor, and Geologic Unit (If Known)	Lab Sample ID	Lab Sample Depth (FL)
1				34"	0		14" BRN M-F SAND + GRAVEL		
2					0.4		10" DK BRN-BLK M-F SAND w/ COAL SLAG, TR. BRICK, ASH, WOOD FRAGM., ROOTS		
3					0		10" BLK M-F SAND		
4							B-18 (3.5-4.5') 11:35		
5							5'		
6				36"	0		5" BLK M-F SAND, TR BRICK + ROOTS		
7					↓		31" GRAY M-F SAND + GRAVEL w/ CRUSHED SECTIONS OF CRUSHED STONE, V MOIST @8'		
8									
9									
10							10' BOB		
11									
12									
13							* 1ST ATTEMPT REFAT 2' MOVED 3' SE		
14									
15									
16									
17									
18									
19									
20									

NOTES:

Date	Time	Depth to groundwater while drilling

Checked by Date:

AECOM

Client: TOWN OF E. HAMPTON
Project Number:
Site Location: GONG BELL
Coordinates: Elevation:
Drilling Method: GP
Sample Type(s): Boring Diameter:

BORING ID: B-19
Sheet: 1 of 1
Monitoring Well Installed: —
Screened Interval:

Weather: 80° CLEAR
Drilling Contractor: ADT
Logged By: BSP
Ground Elevation:
Date/Time Started: 5-21 10:05
Date/Time Finished: 10:30
Depth of Boring: 12'
Water Level: @ 7'

Depth (ft)	Geologic sample ID	Sample Depth (ft)	Blows per 6"	Recovery (inches)	Headspace (ppm)	U.S.C.S	MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size, odor, and Geologic Unit (If Known)	Lab Sample ID	Lab Sample Depth (Ft.)
1				36"	0.5		6" TOPSOIL (DK BRN M-F SAND, TR GRAVEL + ROOTS		
							7" FILL (BLK M-F SAND & GRAVEL, ASH, CHUNK SLAG		
2							4" CRUSHED ROCK		
					6.1		6" TAN/BRN M-F SAND W BLK SAND/ASH		
3							3" BLK SAND/ASH		
4					0		10" TAN M-C SAND + GRAVEL BANDS BLK F SAND		
							B-19 (2-3.5') 10:15		
5							—5'— B-19 (4-5') 10:20		
6				45"	2.5		9" COLLAPSE (FILL/BRN M-F SAND)		
7					9		16" BRN M-F SAND + GRAVEL, WET		
					↓		11" CRUSHED ROCK		
8							9" GRAY/BLK F SAND W/ CR ROCK/MICA		
9									
10							—10'—		
11				42"	0		6" COLLAPSE - FILL/MF BRN SAND		
					↓		11" GRAY/BLK F SAND, TR SILT, WET, SOFT		
12							25" SAA - MORE FIRM, LESS WET		
13							REFUSAL AT 12'		
14							—12' REFUSAL—		
15									
16									
17									
18									
19									
20									

NOTES:

REFUSAL AT 12'

Date	Time	Depth to groundwater while drilling

Checked by Date:

AECOM

Client: TOWN OF E. HAMPTON
Project Number:
Site Location: GOSS BELL
Coordinates: Elevation:
Drilling Method: GP
Sample Type(s): Boring Diameter: 2"

BORING ID: B-20
Sheet: 1 of 1
Monitoring Well Installed:
Screened Interval:
Depth of Boring: 5'
Water Level: —

Weather: 80° CLEAR
Logged By: JP
Date/Time Started: 5-27-09
Drilling Contractor: ADT
Ground Elevation:
Date/Time Finished:

Depth (ft)	Geologic sample ID	Sample Depth (ft)	Blows per 6"	Recovery (inches)	Headspace (ppm)	U.S.C.S	MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size odor, and Geologic Unit (If Known)	Lab Sample ID	Lab Sample Depth (Ft.)
1				47"	0		* FILL CHAR. *		
2							26" DK BRN M-F SAND + GRAVEL, TR ROCK FRAGM		
3							21" DK BRN-GRAY M-F SAND + GRAVEL W/ SILT, TR COAL SLAG + ASH		
4									
5							5' BOB — B-20 (0.5-1.5') 1315		
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

NOTES:

Date	Time	Depth to groundwater while drilling

Checked by Date

AECOM

Client: TOWN OF E. HAMPTON
Project Number:
Site Location: CROOKED HILL
Coordinates: Elevation:
Drilling Method: GP
Sample Type(s): Boring Diameter: 2"
Weather: 90° CLEAR Logged By: GP Date/Time Started: 5-21-09
Drilling Contractor: ADT Ground Elevation: Date/Time Finished:

BORING ID: B-21
Sheet: 1 of 1
Monitoring Well Installed:
Screened Interval:
Depth of Boring: 5'
Water Level: Ø

Depth (ft)	Geologic sample ID	Sample Depth (ft)	Blows per 6"	Recovery (inches)	Headspace (ppm)	U.S.C.S	MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size, odor, and Geologic Unit (If Known)	Lab Sample ID	Lab Sample Depth (Ft.)
1				38"			23" BRN M-F SAND + GRAVEL, FEW ROCK FRAGM.		
2							4" BRICK		
3							10" BLACK M-F SAND, ASH, COAL SLAG, WOOD FRAGM.		
4							~6" WOOD IN BOTTOM SAMPLER		
5							5' BOB ——— B-21 (0.5-1.5') 1325		
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

NOTES:

Date	Time	Depth to groundwater while drilling

Checked by Date:

AECOM

Client: TOWN OF E. HAMPTON
Project Number:
Site Location: GONG Belle
Coordinates: Elevation:
Drilling Method: GP
Sample Type(s): Boring Diameter: 2"
Weather: 80° CLEAR Logged By: GP Date/Time Started:
Drilling Contractor: Ground Elevation: Date/Time Finished:

BORING ID: MW-5
Sheet: 1 of 1
Monitoring Well Installed: 2"
Screened Interval: 5-15'
Depth of Boring: 15'
Water Level: @ 7' 7.4' WLF

Depth (ft)	Geologic sample ID	Sample Depth (ft)	Blows per 6"	Recovery (inches)	Headspace (ppm)	U.S.C.S	MATERIALS: Color, size, range, MAIN COMPONENT, minor component(s), moisture content, structure, angularity, maximum grain size, odor, and Geologic Unit (If Known)	Lab Sample ID	Lab Sample Depth (Ft.)
1				37"	0		3" TOPSOIL (DK BRN M-F SAND, TR ROOTS) 5" RED/BRN M-F SAND + GRAVEL	-	
2							14" FILL (BLK M-F SAND, SOME BRICK/WOOD ASH, METAL SPRING)		
3									
4							4" CRUSHED ROCK MW-5 (2-3') 945 2" FILL 4" BRN M-F SAND + GRAVEL		
5							-5'		
6				32"	0		5" BRN M-F SAND + GRAVEL, FEW COBBLES 3" BLK M-F SAND + SILT, V MOIST		
7							16" BRN M-F SAND, SOME C SAND + GRAVEL TR SILT, WET		
8									
9									
10							-10'		
11				58"	0		BRN-GRAY BRN M-C SAND, SOME F SAND + TR SILT IN UPPER 2½' OF MACROCORE		
12									
13									
14									
15							-15' BOB 2" WELL SET		
16									
17									
18									
19									
20									

NOTES: 2" WELL INSTALLED W/ 3/4 OD CASING

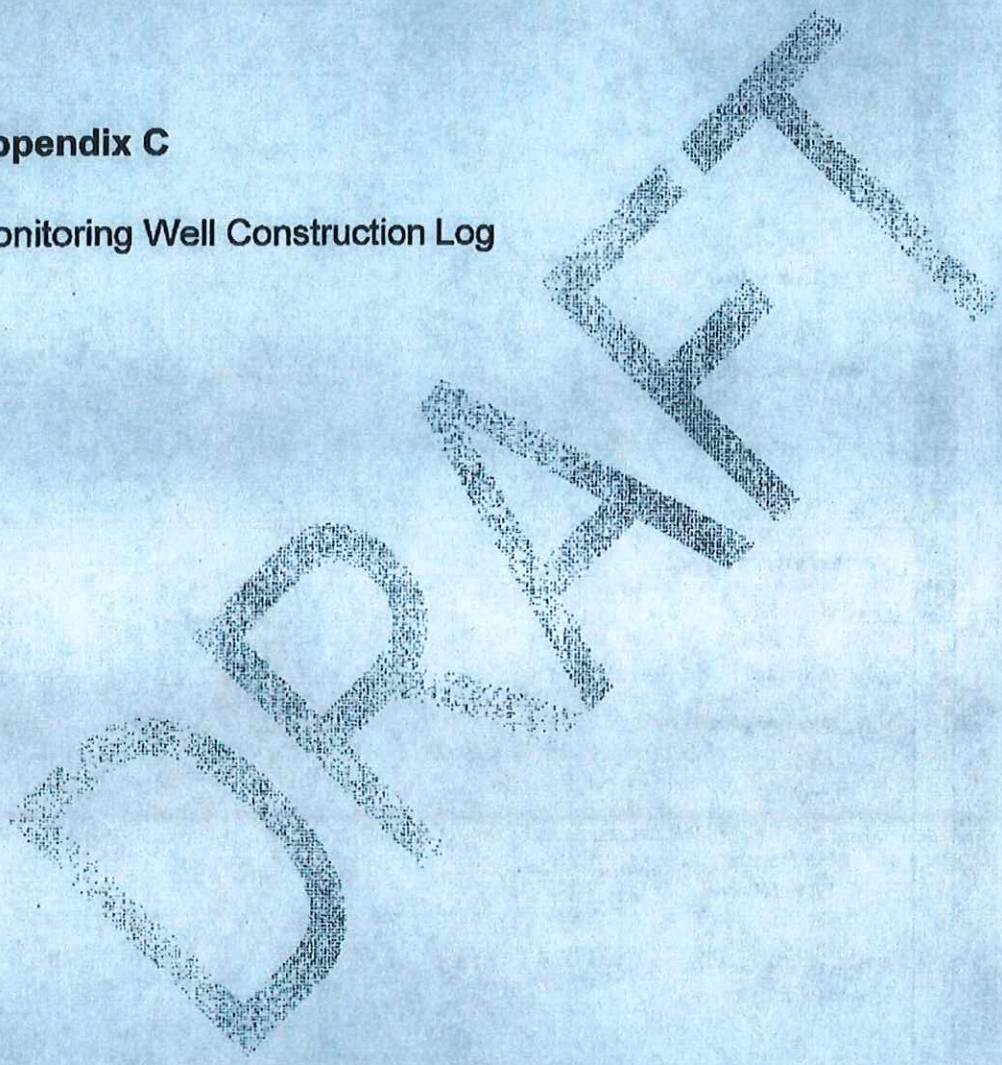
Date	Time	Depth to groundwater while drilling

Checked by Date:

AECOM Environment

Appendix C

Monitoring Well Construction Log



AECOM

Client: TOWN OF E HAMPTON	WELL ID: MW-5
Project Number: 60041844	
Site Location: 103 MAIN ST E. HAMPTON	Date Installed: 5-21-09
Well Location: NORTH-CTRL BOUND. Coords:	Inspector: SP
Method: DRIVEN CASING	Contractor: ADT

MONITORING WELL CONSTRUCTION DETAIL

	Depth from G.S. (feet)	Elevation(feet) Datum ____
Top of Steel Guard Pipe	3'1/2'	
Top of Riser Pipe	3'	
Ground Surface (G.S.)	0.0	
Riser Pipe: Length 5'		
Inside Diameter (ID) 2"		
Type of Material PVC SCH40		
Bottom of Steel Guard Pipe	1'1/2'	
Top of Bentonite	0.5'	
Bentonite Seal Thickness 2'		
Top of Sand	3'	
Top of Screen	5'	
▲ Stabilized Water Level	7.4'	
Screen: Length 10'		
Inside Diameter (ID) 2"		
Slot Size 0.10		
Type of Material SCH.40 PVC		
Type/Size of Sand No.1		
Sand Pack Thickness		
Bottom of Screen	15'	
Bottom of Tail Pipe:	15'	
Bottom of Borehole	15'	

Measuring Point for Surveying & Water Levels

Cement, Bentonite, Bentonite Slurry Grout, or Native Materials

____ % Cement

____ % Bentonite

____ % Native Materials

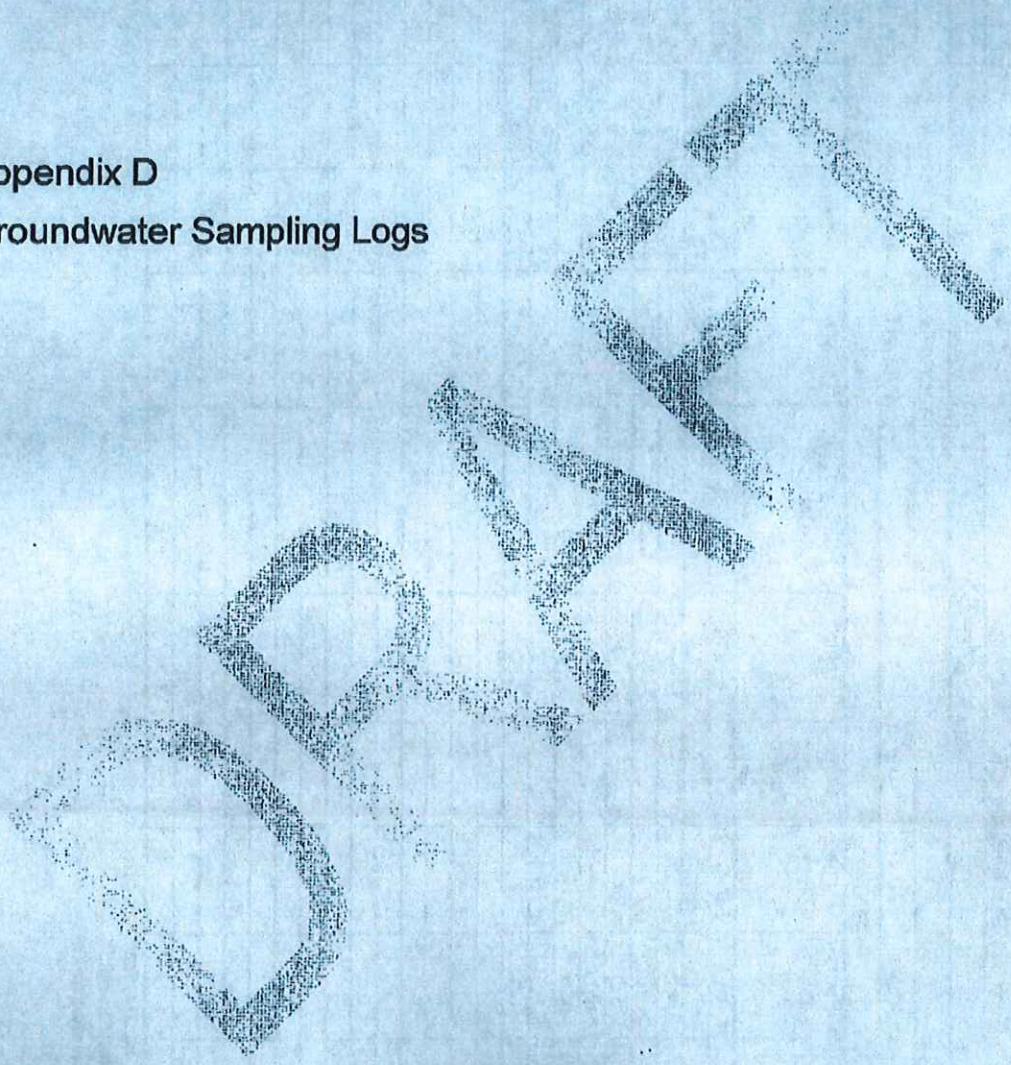
Borehole Diameter: ____

Approved: ____ Signature ____ Date

Describe Measuring Point: ____

AECOM Environment

Appendix D
Groundwater Sampling Logs



Well Purging-Field Water Quality Measurement Form

Location (Site/Facility Name): Gong Bell, East Hampton, CT

Well # MW-1 Date: 6/17/09

Field Personnel: S. Grant

Sampling Organization: AECOM

Identify Measuring Point (MP): PVC

Screen Interval From MP in feet: Top | Bottom

Pump Intake depth (ft below MP):

Purging Device; (pump type): Peristaltic Pump

Weather: 70s Sunny

Clock Time 24 HR	Depth to Water ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged gal	Temp. °C	Spec. Cond.[2] µS/cm	pH s.u.	ORP/ Eh[3] mv	DO mg/L	Turb-idity NTU	Comments
											Static water 8.22
16:11	8.56	450	176		13.32	.169	5.62	168.5	2.53	19.1	Pod 0.0
16:16	8.75	450	168		13.35	.171	5.65	183.1	2.19	12.7	
16:21	8.85	450	168		13.33	.172	5.65	194.0	1.90	14.3	
16:26	8.95	450	175		13.32	.173	5.65	182.2	1.82	13.5	
16:29	9.05	450	180		13.17	.173	5.65	90.2	1.77	12.8	
16:36	9.09	450	182		13.16	.178	5.65	185.7	1.64	11.5	
16:36	9.17	460	170		13.07	.175	5.67	175.0	1.44	8.27	
16:41	9.20	450	176		13.12	.174	5.66	176.1	1.33	9.80	
16:46		460	170		13.08	.176	5.68	177.9	1.20	8.57	
											Sample at 1644

1. Pump dial setting (for example: hertz, cycles/min, etc)
2. µSiemens per cm (same as µmhos/cm at 25°C
3. Oxidation reduction potential (standard for Eh)

Temp +/- 3% ORP +/- 10 mv
Spec. Cond +/- 3% DO +/- 10%
pH +/- 0.1 SU Turb +/- 10% or <1

Well Purging-Field Water Quality Measurement Form

Location (Site/Facility Name):	Gong Bell, East Hampton, CT	Screen Interval	Top / Bottom
Well #	MW-2	Date: 6/17/09	From MP in feet:
Field Personnel:	S. Gross		Pump Intake depth (ft below MP):
Sampling Organization:	AECOM		Purging Device; (pump type): Peristaltic Pump
Identify Measuring Point (MP):	PVC		Weather: 70s sunny

Clock Time 24 HR	Depth to Water ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged gal	Temp. °C	Spec. Cond.[2] µS/cm	pH s.u.	ORP/ Eh[3] mv	DO mg/L	Turb-idity NTU	Comments
											Static water 8.57
1505	5.60	450	170		12.77	.248	6.29	-20.6	2.06	36.5	PID 0.0
1510	5.60	450	165		12.95	.248	6.18	-25.4	1.12	24.6	
1515	5.60	450	176		13.35	.246	6.13	-29.8	.26	19.3	
1520	5.60	450	170		13.50	.246	6.12	-30.8	.19	10.29	
1525	5.60	450	172		13.62	.247	6.14	-34.3	.17	8.20	
1530	5.60	450	168		13.57	.246	6.14	-38.2	.16	6.78	
1533	5.60	450	176		13.54	.246	6.13	-39.8	.14	4.61	
											Sample at 1533

1. Pump dial setting (for example: hertz, cycles/min, etc)
2. µSiemens per cm (same as µmhos/cm at 25°C
3. Oxidation reduction potential (standard for Eh)

Temp +/- 3% ORP +/- 10 mv
Spec. Cond +/- 3% DO +/- 10%
pH +/- 0.1 SU Turb +/- 10% or <1

Well Purging-Field Water Quality Measurement Form

Location (Site/Facility Name): Gong Bell, East Hampton, CT

Well # MW-3 Date: 6-17-09

Field Personnel: S. Grant

Sampling Organization: AECOM

Identify Measuring Point (MP): PVC

Screen Interval From MP in feet: Top / Bottom

Pump Intake depth (ft below MP):

Purging Device; (pump type): Peristaltic Pump

Weather: 80's Sunny

Clock Time 24 HR	Depth to Water ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged gal	Temp. °C	Spec. Cond.[2] µS/cm	pH s.u.	ORP/ Eh[3] mv	DO mg/L	Turb-idity NTU	Comments
											static water 8.58
11:42	9.02	450	144		11.69	.107	6.13	195.1	4.81	84.5	D.O 0.0
11:47	9.26	450	170		11.62	.1094	5.75	225.7	3.92	78.3	
11:52	9.50	450	170		11.51	.092	5.70	247.0	3.96	61.8	
11:57	9.69	450	172		11.57	.090	5.67	260.5	3.90	48.8	Water level
12:02	9.85	450	176		11.50	.089	5.71	270.2	3.86	24.7	Taken - Top
12:07	10.04	450	182		11.52	.089	5.73	263.5	3.51	16.5	of PVC
12:12	10.12	450	170		11.58	.089	5.71	283.7	3.63	16.2	
12:15	10.15	450	174		11.74	.089	5.66	282.7	2.76	15.5	
12:20	10.28	450	170		11.54	.090	5.63	279.7	2.03	12.9	
12:25	10.35	450	180		11.46	.010	5.60	277.4	1.71	12.6	
1230	10.40	450	172		11.42	.091	5.59	276.4	.100	11.4	
12.35	10 47	450	168		11:18	.092	5.59	270.0	1.40	10.74	
12.40	10.50	450	168		11:19	.094	5.61	265.5	1.11	10.52	
12.43	10:53	450	170		11:47	.092	5.63	264.5	1.07	10 79	sample at 1243

1. Pump dial setting (for example: hertz, cycles/min, etc)
2. µSiemens per cm (same as µmhos/cm at 25°C
3. Oxidation reduction potential (standard for Eh)

Temp +/- 3% ORP +/- 10 mv
Spec. Cond +/- 3% DO +/- 10%
pH +/- 0.1 SU Turb +/- 10% or <1

Well Purging-Field Water Quality Measurement Form

Location (Site/Facility Name): Gong Bell, East Hampton, CT		Screen Interval	Top / Bottom
Well # MW-4	Date: 6/17/09	From MP in feet:	
Field Personnel: S-Gross		Pump Intake depth (ft below MP):	
Sampling Organization: AECOM		Purging Device; (pump type):	Peristaltic Pump
Identify Measuring Point (MP): PVC		Weather:	

Clock Time (24 HR)	Depth to Water (ft)	Pump Dial[1]	Purge Rate (ml/min)	Cum. Volume Purged (gal)	Temp. (°C)	Spec. Cond.[2] (µS/cm)	pH (s.u.)	ORP/ Eh[3] (mv)	DO (mg/L)	Turb-idity (NTU)	Comments
											Static WATER 6.56
1341	6.75	450	184		12.40	.305	6.27	53.8	1.01	65.2	PID 0.0
1346	6.82	450	172		12.16	.297	6.12	65.8	.68	47.2	
1351	6.82	450	168		11.81	.288	6.10	61.6	.87	32.4	
1356	6.85	450	176		11.50	.286	6.12	64.9	.71	26.2	
1401	6.85	450	184		11.70	.293	6.11	62.3	.99	19.1	
1406	6.88	450	170		11.72	.293	6.14	52.9	.24	14.2	
1411	6.88	450	172		11.89	.283	6.15	37.6	.20	8.34	
1416	6.88	450	178		11.79	.284	6.15	24.3	.17	5.58	
1421	6.85	450	170		11.87	.286	6.18	13.2	.15	5.50	
1426	6.85	450	176		11.78	.287	6.21	8.7	.15	5.47	
1431	6.85	450	170		11.78	.289	6.20	7.8	.15	4.16	
1434	6.85	450	168		11.74	.289	6.20	7.7	.15	4.20	
1437	6.85	450	176		11.76	.289	6.25	8.0	.16	3.82	
											Sample at 1437

1. Pump dial setting (for example: hertz, cycles/min, etc)
2. µSiemens per cm (same as µmhos/cm at 25°C
3. Oxidation reduction potential (standard for Eh)

Temp +/- 3% ORP +/- 10 mv
Spec. Cond +/- 3% DO +/- 10%
pH +/- 0.1 SU Turb +/- 10% or <1

Well Purging-Field Water Quality Measurement Form

Location (Site/Facility Name): Gong Bell, East Hampton, CT

Well # MW-5 Date: 6/17/09

Field Personnel: S. Gush

Sampling Organization: AECOM

Identify Measuring Point (MP): PVC

Screen Interval From MP in feet: Top | Bottom

Pump Intake depth (ft below MP):

Purging Device; (pump type): Peristaltic Pump

Weather: 60's Sunny

Clock Time 24 HR	Depth to Water ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged gal	Temp. °C	Spec. Cond.[2] µS/cm	pH s.u.	ORP/ Eh[3] mv	DO mg/L	Turb-idity NTU	Comments Static water 10.47
10:01	10.77	300	164		11.80	.273	7.30	-25.5	1.44	8.12	PID 0.0
10:06	10.82	450	168		11.50	.269	6.87	-15.0	.23	7.88	
10:11	10.82	450	172		11.40	.267	6.63	-7.5	.64	7.39	Water Level
10:16	10.82	450	162		11.39	.264	6.48	-4.0	.43	7.01	Taken - Top
10:21	10.82	450	168		11.43	.262	6.37	-1.8	.35	7.15	of PVC
10:26	10.82	450	166		11.45	.260	6.30	.1	.45	7.28	
10:31	10.82	450	164		11.46	.260	6.24	.4	.40	3.39	
10:36	10.82	450	166		11.43	.259	6.21	.2	.45	3.13	
10:39	10.82	450	162		11.45	.209	6.22	.3	.46	2.27	
											Sample at 10:39

1. Pump dial setting (for example: hertz, cycles/min, etc)
2. µSiemens per cm (same as µmhos/cm at 25°C
3. Oxidation reduction potential (standard for Eh)

Temp +/- 3% ORP +/- 10 mv
Spec. Cond +/- 3% DO +/- 10%
pH +/- 0.1 SU Turb +/- 10% or <1

Appendix E

Laboratory Analytical Reports